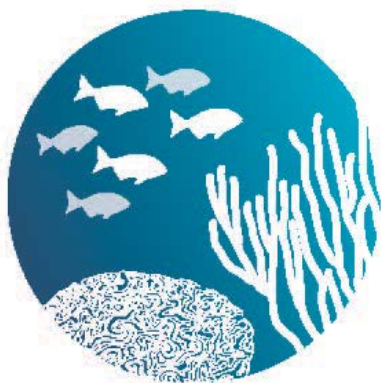


The *Our Florida Reefs* Community Planning Process

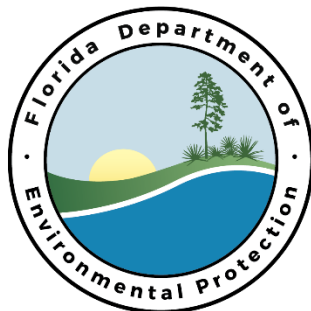


**OUR FLORIDA
REEFS**

YOUR VOICE, OUR FUTURE

Florida Department of Environmental Protection
Florida Coastal Office Southeast Region
Coral Reef Conservation Program

SEFCRI LAS FDOU Project 26B



The *Our Florida Reefs* Community Planning Process Final Report

Prepared By:

Florida Department of Environmental Protection
Florida Coastal Office Southeast Region
Coral Reef Conservation Program

With Contributions From:

Daron Willison, Meghan Balling, Lauren Waters, Joanna Walczak, Francisco Pagan, Jamie Monty,
Ana Zangroniz, Dana Wusinich-Mendez, Kevin Claridge

Reviewed By:

Jane Fawcett, Andrea Graves, Alex Sommers, Angela Smith, April Price, Baret Barry, Brian Walker,
Butch Olsen, Caroline McLaughlin, Dan Clark, Drew Bartlett, James Byrne, Jenny Baez,
Jenny Peterson, Jim Mathie, Jim Moir, Kathy Fitzpatrick, Kurtis Gregg, Mike Dixon, Nick Morrell,
Sara Thanner, Scott Sheckman

May 2018

**Completed in Fulfillment of NOAA Awards NA11NOS4820003, NA13NOS4820015, NA13NOS4190140,
and NA15NOS4820036
for**

**Florida Department of Environmental Protection
Coral Reef Conservation Program
1277 N.E. 79th Street Causeway
Miami, FL 33138**

This report should be cited as follows:

Florida Department of Environmental Protection. *Our Florida Reefs Community Planning Process*.
Miami, FL: 2018. X and 333 pages.

The views, statements, findings, conclusions, and recommendations expressed herein are those of the *Our Florida Reefs* Joint Community Working Group and do not necessarily reflect the views of the State of Florida, FDEP, FWC, NOAA, or any of their sub agencies.



Executive Summary

The coral reefs in southeast Florida are an incredibly unique and important resource. They provide many indispensable benefits to residents and visitors alike. As the only barrier reef system in the continental United States, southeast Florida's coral reefs are unique, precious, and bear an enormous cultural and historical importance to the region. Coral reefs play a vital role in the marine ecosystem by providing habitat for fish and other marine life as well as protection for coastlines. Their beauty draws residents and tourists to enjoy recreational fishing, diving, boating, and other on-water activities. Their bounty provides commercial fishing, diving, and other maritime industry opportunities. Although inconspicuous, the coral reefs fuel an economic engine in southeast Florida.

Despite the incredible importance of southeast Florida's coral reefs, decades of science show that this ecosystem is highly threatened and chronically stressed. Many different global and local threats can limit coral growth or even kill them. For example, increased ocean temperatures have led to stress and coral bleaching. Also, as oceans become more acidic they affect the corals' ability to produce their limestone skeleton. Locally, a number of factors also threaten coral reef health. Increases in human population in southeast Florida, particularly along the coast, have led to increased pollutants that enter the ocean through land-based sources, such as storm-water runoff, partially treated wastewater outfalls, and inlets, degrading the quality of water in the marine environment. Other factors, such as invasive species, incompatible fisheries pressure, and damage to coral habitats from anchors and coastal development, are also impacting the coral reefs' ability to survive.

Although the coral reefs of Florida are one connected system, starting offshore of the St. Lucie Inlet in Martin County and stretching over 350 miles down through the Florida Keys to the Dry Tortugas in Monroe County, they have not historically been managed that way. Currently, there is no comprehensive management plan for the northern one-third of the Florida Reef Tract that extends 105 miles from the northern border of Biscayne National Park in Miami-Dade County to the St. Lucie Inlet in Martin County. Socioeconomic surveys show that a majority of residents in those four counties agree that if management of these resources does not change, conditions will continue to worsen.

The process that created *Our Florida Reefs* began in 1998, when former President Bill Clinton signed an Executive Order establishing the United States Coral Reef Task Force (USCRTF) to lead U.S. government efforts to preserve and protect coral reefs. The State of Florida recognized the importance of the Executive Order and the need to protect and preserve the biodiversity, health, heritage, and socio-economic values of coral reefs and the marine environment. With guidance from the USCRTF, the Florida Department of Environmental Protection and the Florida Fish and Wildlife Conservation Commission formed the Southeast Florida Coral Reef Initiative (SEFCRI): a group of marine resource professionals, scientists, and stakeholders from government agencies and other organizations. The SEFCRI Team first gathered in May of 2003 to develop local action strategies needed to protect the coral reef resources extending from Miami-Dade County through Martin County.

One of the local action strategies developed by the SEFCRI Team was the creation of the *Our Florida Reefs* community planning process (OFR). As designed by SEFCRI, the OFR process would bring together the community of representatives from fishing, diving, waters sports, research, academia, local, state, and federal government, environmental non-government organizations, private business and local

citizens at large stakeholder groups (reef user groups), as well as the broader public to discuss and develop management strategies for the southeast Florida coral reef ecosystem. The goal was to provide recommendations which would lead to a comprehensive management plan reflecting the diverse interests of all communities and ocean users in the region, while ensuring healthy coral reefs into the future.

The mission of the Our Florida Reefs Joint Community Working Group is to collaboratively develop a prioritized list of recommended management actions to preserve and protect southeast Florida's coral reefs and associated reef resources and to reduce continuing trends toward declining coral reef health, emphasizing balance between resource use and protection, and to provide information needed to implement priority management actions.

Members of the SEFCRI Team designed the OFR process to be bottom up, transparent, and inclusive. They drew lessons-learned from other stakeholder engagement processes around the world to design the most effective process. OFR launched a communications effort and held community meetings to build interest in the process and solicit applications to become a part of it. With the enthusiasm gained, OFR was able to build two stakeholder Community Working Groups (CWGs), to participate in the process. The CWGs met for the first time in January 2014 to begin what would be an intensive two-year collaboration.

The CWGs used professional facilitators to allow for balanced and productive collaboration. Together the group developed guiding principles like a mission statement, group ‘norms’, decision rules, a charter, and a work plan to help organize and focus the efforts of the CWGs. Next, the CWGs spent six months sharing information with one another. This educational period was intended to give CWG members access to available information on all relevant topics: ecosystems, corals, water, fish, habitat, people, and management. Much of this information came from the SEFCRI Team and Technical Advisory Committee (TAC, the technical advisory body affiliated with SEFCRI). During this time, OFR members also shared their stakeholder perspectives and local knowledge with one another, building a holistic and communal understanding of the natural resources and the people that depend on them.

After the educational period, the CWG dedicated one year to developing Recommended Management Actions (RMAs) within six focus areas: Education and Outreach; Fishing, Diving, and Other Uses; Land-Based Sources of Pollution; Law Enforcement; Maritime Industry and Coastal Construction Impacts; and Place-Based Management. The CWGs had access to several tools to aid them in the development of their RMAs. Professional facilitators developed processes to increase effectiveness, and staff worked during and between meetings to provide support wherever necessary. Digital tools available to the CWGs included an extensive bibliography where they could compile relevant literature, and a website where they could access all necessary resources. The CWGs also had access to a Marine Planner which was built to address information gaps in southeast Florida and fulfill the needs of the OFR process. The Marine Planner contained decision support tools which allowed the CWGs to query a comprehensive set of all known spatial data to better understand the marine resources in the region.

As the RMAs developed, they were put through rigorous review periods from the advisory bodies to the OFR process, the SEFCRI Team and TAC. During these review periods, each RMA was scrutinized for its ability to accomplish stated goals, as well as its scientific accuracy, and feasibility. Through this review and revision period, the RMAs were refined as they were sent back and forth between the CWG and the

advisory bodies and revised to integrate public comment as it was received. Finally, when the draft RMAs had reached a relatively developed stage, they were rolled out to the public in a series of 12 community meetings throughout the four counties. At these community meetings, participants were given the opportunity to learn about the OFR process, ask questions directly to CWG members, review, and provide feedback on the draft RMAs.

The next step was for the CWG members to integrate comments from the public by reviewing every piece of feedback received for each RMA and making changes accordingly. Once all feedback was reviewed and integrated, the CWG finalized a list of 68 RMAs. The final step in the OFR process was for the CWG to prioritize this list, which they did by voting considering the cost, feasibility, and benefit of each RMA. Finally, in June 2016, the CWG accomplished their mission by developing a prioritized list of RMAs aimed at improving the overall health and resilience of the coral reef ecosystem in southeast Florida.

The OFR process was an enormous effort that was accomplished through the hard work and dedication of close to 6000 volunteer hours by stakeholders from a diverse range of interests. Years of expertise in planning and supporting community-based processes culminated in the successful collaboration of CWG members to achieve the mission of OFR. This report describes the history, planning, and implementation of the *Our Florida Reefs* community planning process.

Acknowledgements

Our Florida Reefs (OFR) was funded by a state and federal partnership through a cooperative agreement between the Coral Reef Conservation Programs of the Florida Department of Environmental Protection (FDEP) and National Oceanic and Atmospheric Administration (NOAA). Additional support was provided by the many partner agencies and organizations that comprise the Southeast Florida Coral Reef Initiative (SEFCRI) Team. Special thanks to: **Friends of Our Florida Reefs, Nova Southeastern University Halmos College of Natural Sciences and Oceanography, The Nature Conservancy, Broward County Parks and Recreation, and The Boston Foundation, among many others.**

The OFR process was a huge collaborative effort that required thousands of dedicated person-hours. The most important acknowledgement to make is to the Community Working Group members, who collectively volunteered over 6000 hours of their time to represent their stakeholder groups. During this time, they shared their perspectives and expertise with the CWG by attending meetings, completing homework, and acting as a conduit of information to and from their respective stakeholder group(s).

It is also important to recognize the members of the SEFCRI Team and Technical Advisory Committee (TAC) who were ultimately responsible for the development of this stakeholder engagement process. The members of the SEFCRI Team and TAC dedicated their time and expertise to help shape and contribute to the OFR process throughout.

The OFR process owes much of its success to the facilitators who lent their exceptional professional proficiency to OFR by ensuring that the process remained cooperative, collaborative, and inclusive for all participants. They provided impartial and unbiased guidance throughout and were instrumental to both the planning and implementation of OFR.

An incredible amount of support was provided by the staff of the FDEP Coral Reef Conservation Program (CRCP). CRCP staff helped to plan, coordinate logistics, support and facilitate meetings, and maintain documents, among other important support tasks throughout the OFR process.

Finally, it is important to acknowledge all the time, effort, and input provided by the public to OFR. Members of the public stayed engaged in the process throughout by attending CWG and community meetings, providing public comment, and engaging directly with their stakeholder representatives.

Table of Contents

1	Introduction.....	1
1.1	History.....	1
1.1.1	United States Coral Reef Task Force.....	1
1.1.2	Management of the Florida Reef Tract.....	2
1.1.3	Establishment of the Southeast Florida Action Strategy Team (SEFAST) ...	3
1.1.4	Establishment of Florida Department of Environmental Protection’s Coral Reef Conservation Program (FDEP CRCP).....	5
1.1.5	Southeast Florida Coral Reef Initiative (SEFCRI)	5
1.2	SEFCRI Local Action Strategy FDOU Project 26B: Our Florida Reefs	8
1.2.1	Collecting and Compiling Relevant Data for Project 26B.....	9
2	Project and Process Development.....	15
2.1	The Process Planning Team – Process Development	15
2.1.1	Stakeholder Process Case Studies.....	16
2.1.2	Process Structure and Timeline	17
2.2	Project Teams.....	19
2.2.1	Communication Project Team	19
2.2.2	Facilitation Project Team.....	28
2.2.3	Decision Support Tool Project Team.....	29
3	Informational Community Meetings.....	36
3.1	Meeting Design	36
3.2	Feedback Collection.....	37
3.3	Results	38
4	Formation of the Community Working Groups.....	38
4.1	Community Working Group Structure.....	38
4.1.1	Community Working Group Members.....	39
4.1.2	Community Working Group Alternates.....	40
4.2	Stakeholder Selection Process.....	41
4.2.1	Stakeholder Selection Committee.....	41
4.2.2	Stakeholder Selection Criteria	42
5	Community Working Groups	42
5.1	Community Working Group Kickoff Event.....	42
5.2	Community Working Group Guiding Principles	43
5.2.1	Mission Statement.....	43

5.2.2	Group Norms	44
5.2.3	Decision Rules	44
5.2.4	Charter.....	46
5.2.5	Work Plan	46
5.2.6	Focus Area Development.....	46
5.2.7	Vision Definition	47
5.2.8	Tools and Resources	50
5.3	Educational Period	53
5.3.1	Ecosystems.....	55
5.3.2	Corals	55
5.3.3	Water.....	55
5.3.4	Fish.....	56
5.3.5	Estuarine, Coastal, and Ocean Habitats	56
5.3.6	People.....	57
5.3.7	Management.....	57
5.3.8	Stakeholder Perspectives	59
5.4	Recommended Management Action Development Period	61
5.4.1	Recommended Management Action Development Guidelines	61
5.4.2	Constructing Recommended Management Action Content	62
5.4.3	Spatial Planning	63
5.4.4	Editing, Augmenting, and Combining RMAs	65
5.5	SEFCRI Team and TAC Review Period.....	65
5.5.1	SEFCRI Team and TAC First Review.....	66
5.5.2	Community Working Group First Feedback Review	66
5.5.3	SEFCRI Team and TAC Second Review	68
5.6	Joint Community Working Group	69
5.6.1	Community Working Group Engagement and Outreach Event	69
5.6.2	Community Working Group Second Feedback Review.....	70
6	Community Review	71
6.1	Outreach Efforts	71
6.1.1	Targeted Outreach.....	74
6.2	Rollout Community Meetings.....	74
6.2.1	Logistics	75
6.2.2	Meeting Structure.....	75

6.2.3	Materials Design	76
6.2.4	Feedback Collection.....	78
7	Review and Integration of Community Feedback	79
7.1	New Alternates Onboarding.....	80
7.2	Additional Advisory Engagement.....	81
7.3	Feedback Review	81
7.3.1	Data Presentation	81
7.3.2	Archiving Consideration.....	82
7.3.3	Data Review and Feedback Integration	83
8	Prioritization	84
8.1	Prioritization Criteria.....	84
8.2	Data Processing	86
8.3	Final RMA Prioritization	87
9	Results.....	88

List of Acronyms

AA	Awareness and Appreciation
AIC	All Islands Committee
AOI	Area of Interest
CEPP	Central Everglades Planning Project
CERP	Comprehensive Everglades Restoration Plan
COTF	Coastal Oceans Task Force (now called Coastal Ocean Forum)
CRCP	Coral Reef Conservation Program
CWG	Community Working Group
DRM	Disturbance Response Monitoring
DST	Decision Support Tool
E&O	Education & Outreach
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAQ	Frequently Asked Question
FCO	Florida Coastal Office
FDEP	Florida Department of Environmental Protection
FDOU	Fishing Diving and Other Uses
FKNMS	Florida Keys National Marine Sanctuary
FRRP	Florida Reef Resilience Program
FWC	Florida Fish and Wildlife Conservation Commission
GIS	Geographic Information Systems
JCWG	Joint Community Working Group
LAS	Local Action Strategy
LBSP	Land Based Sources of Pollution
LE	Law Enforcement
MICCI	Maritime Industry and Coastal Construction Impacts
MOIP	Management Options Identification Process (now called OFR)
MPA	Marine Protected Area
NCWG	North Community Working Group
NEEPP	Northern Everglades & Estuaries Planning Program
NGO	Non-Governmental Organization
NMFS	National Marine Fisheries Service
NMS	National Marine Sanctuary
NOAA	National Oceanic and Atmospheric Administration
OFR	Our Florida Reefs
PPT	Process Planning Team
PSA	Public Service Announcement
RIPR	Reef Injury Prevention and Response
RMA	Recommended Management Action
RR	Reef Resilience
RS	Restoration Strategies
SAC	Sanctuary Advisory Council
SAFMC	South Atlantic Fishery Management Council
SCWG	South Community Working Group

SECREMP Southeast Florida Coral Reef Evaluation and Monitoring Project
SEFAST Southeast Florida Action Strategy Team
SEFCRI Southeast Florida Coral Reef Initiative
SFWMD South Florida Water Management District
SMZ Special Management Zone
TAC Technical Advisory Committee
TNC The Nature Conservancy
USACE U.S. Army Corps of Engineers
USCG U.S. Coast Guard
USCRTF U.S. Coral Reef Task Force

List of Tables

Table 1: Number of person-days, in millions, that both residents and visitors spent on artificial and natural reefs in southeast Florida counties. (Johns, Leeworthy, Bell, & Bonn, 2001) (Johns, Milon, & Sayers, 2004)..... 10

Table 2: Number of person-days, in millions, that both residents and visitors engaged in recreational activities on natural and artificial reef. (Johns, Leeworthy, Bell, & Bonn, 2001) (Johns, Milon, & Sayers, 2004). 10

Table 3: Economic contribution of both resident and visitors via reef-related expenditures in each county June 2000 to May 2001 (Johns, Leeworthy, Bell, & Bonn, 2001) (Johns, Milon, & Sayers, 2004) * Martin County is reported in 2003 dollars, all other counties are reported in 2000 dollars.10

Table 4: Community Working Group stakeholder seat distribution..... 39

List of Figures

Figure 1: The Florida Reef Tract (in pink) stretches over 330 miles from the Dry Tortugas to Martin County, Florida; however, only two-thirds of the reef are under the jurisdiction of regionally coordinated management plans, leaving the approximately 105 miles of reefs north of Biscayne National Park with no management plan. 3

Figure 2: List of original organizations with representation on SEFAST after stakeholders were included in August 2004..... 5

Figure 3: The Southeast Florida Coral Reef Initiative logo and tagline. 6

Figure 4: Full OFR process plan..... 17

Figure 5: Final four-step process graphic. 18

Figure 6: The Our Florida Reefs logo and slogan..... 20

Figure 7: OFR communications and marketing effort summary created by the communications contractor in April, 2014..... 21

Figure 8: Screen capture of the Our Florida Reefs Marine Planner user interface..... 323

Figure 9: The learning curve or educational phase topic progression. 54

Figure 10: OFR 2016 Community Meetings Advertisement..... 73

Figure 11: 2016 Community Meeting RMA Specific Comment Card..... 79

Figure 12: Prioritization criteria ranking matrices..... 87

PART I: Preparation and Planning

1 INTRODUCTION

The *Our Florida Reefs* community planning process (OFR) was designed to be a transparent, inclusive, community-based process intended to increase public involvement in the future management of southeast Florida's coral reefs. Originating as a Local Action Strategy of the Southeast Florida Coral Reef Initiative (SEFCRI), the purpose of OFR was to bring together the community of local stakeholders to provide recommendations on how to balance the use and protection of the reef resources of southeast Florida. These stakeholders, consisting of representatives from the fishing, diving, water sports, research, academia, local, state, and federal government, environmental non-government organizations, private business and local citizens at large, provided their expertise as members of the Community Working Groups (CWGs).

Over the course of two years, beginning in January of 2014, the CWGs worked collaboratively to develop Recommended Management Actions (RMAs) based on the most recently available scientific data as well as their personal knowledge of the resource. Ultimately, the goal of OFR was to allow community members to direct the development of recommendations that could become part of a comprehensive management strategy to ensure healthy coral reefs for the future. This process was hosted by FDEP's Coral Reef Conservation Program and guided by community members representing local reef interest groups. It was a revolutionary process because of its entirely community-based initiation and realization.

The following report documents the origination and implementation of the *Our Florida Reefs* process.

1.1 History

In 1998, [Presidential Executive Order #13089](#) established a United States Coral Reef Task Force (USCRTF) to lead U.S. efforts to preserve and protect coral reef ecosystems. The USCRTF is responsible for overseeing implementation of this Executive Order which includes developing and implementing coordination efforts and building strategies for on-the-ground action to conserve coral reefs.

United States Coral Reef Task Force

The U.S. Coral Reef Task Force is comprised of representatives from twelve federal agencies responsible for various aspects of coral reef conservation. The seven U.S. states, commonwealths, and territories include American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, Hawaii, Puerto Rico, the U.S. Virgin Islands, Florida, and three freely associated states (Micronesia, Marshall Islands, and Palau), which also participate as part of the USCRTF.

The USCRTF, in cooperation with state, territory, commonwealth, and local government partners, is responsible for:

Coral Reef Mapping and Monitoring. The USCRTF, in coordination with local partners, coordinates a comprehensive program to map and monitor U.S. coral reefs. To the extent feasible, remote sensing capabilities shall be developed and applied to this program and local communities should be engaged in the design and conduct of programs.

Research. The USCRTF develops and implements, with the scientific community, research aimed at identifying the major causes and consequences of degradation of coral reef ecosystems. This research includes fundamental scientific research to provide a sound framework for restoration and conservation of coral reef ecosystems worldwide.

Conservation, Mitigation, and Restoration. The USCRTF, in coordination with local partners, develops, recommends, and seeks or secures implementation of measures necessary to reduce and mitigate coral reef ecosystem degradation and to restore damaged coral reefs. These measures include solutions to problems such as land-based sources of water pollution, sedimentation, detrimental alteration of salinity or temperature, over-fishing, over-use, collection of coral reef species, and direct destruction caused by activities such as recreational and commercial vessel traffic and treasure salvage. In developing these measures, the USCRTF reviews existing legislation to determine whether additional legislation is necessary to complement the policy objectives and, if appropriate, shall recommend such legislation. The USCRTF evaluates existing navigational aids, including charts, maps, day markers, and beacons to determine if the designation of the location of specific coral reefs should be enhanced through the use, revision, or improvement of such aids.

International Cooperation. The Secretary of State and the Administrator of the Agency for International Development, in cooperation with other members of the USCRTF, assess the U.S. role in international trade and protection of coral reef species and implement appropriate strategies and actions to promote conservation and sustainable use of coral reef resources worldwide.

In 2000, the USCRTF adopted the [National Action Plan to Conserve Coral Reefs](#). This was the first roadmap for U.S. action to address coral reef resource protection.

During the eighth meeting of the USCRTF, held in Puerto Rico in 2002, the [U.S. Coral Reef National Action Strategy](#) was developed to further implement the *National Action Plan*. At this meeting, the [Puerto Rico Resolution](#) was adopted, which called for the development of Local Action Strategies (LAS) by each of the seven-member U.S. states, territories and commonwealths. These LAS projects were to be three-year, locally-driven roadmaps for collaborative and cooperative action among federal, state, territory and non-governmental partners to identify and implement priority actions needed to reduce key threats to coral reef resources.

From the 13 goals identified in the *National Action Strategy*, the USCRTF prioritized six focus areas for immediate local action: over-fishing, land-based sources of pollution, recreational overuse and misuse, lack of public awareness, climate change and coral bleaching, and disease. Additional focus areas were identified in some jurisdictions, such as maritime industry and coastal construction impacts in Florida.

Management of the Florida Reef Tract

Of the more than 330 linear miles of reef that stretch from the Dry Tortugas to Martin County, only the southern two-thirds of the Florida Reef Tract have been formally recognized as uniquely valuable ecosystems requiring coordinated management. This recognition began in the early 1900s with the federal designation of the National Wildlife Refuge System, then continued in 1963 with the establishment of John Pennekamp Coral Reef State Park, the first undersea park in the United States. The establishment of Biscayne National Park followed in 1980, the Florida Keys National Marine

Sanctuary in 1990, and Dry Tortugas National Park in 1992 (Figure 1). Despite management efforts in the south, coordination and communication between researchers, stakeholders, agencies involved in resource management, and non-governmental organizations did not exist north of the Florida Keys and Biscayne National Park prior to the development of the Southeast Florida Action Strategy Team (SEFAST) in 2003 (see Section 1.1 below).

Despite this notable lack of coordinated management, the northern third of the Florida Reef Tract is no less uniquely valuable as it includes extensive and near-shore reef resources in close proximity to a highly-urbanized shoreline. Therefore, the focus of SEFAST (and subsequently of SEFCRI and OFR) would be the “southeast Florida region” which stretches from the northern boundary of Biscayne National Park in Miami-Dade County to the St. Lucie Inlet in southern Martin County, and encompasses state waters from the Mean High-Water line to the state’s offshore boundary of three nautical miles.

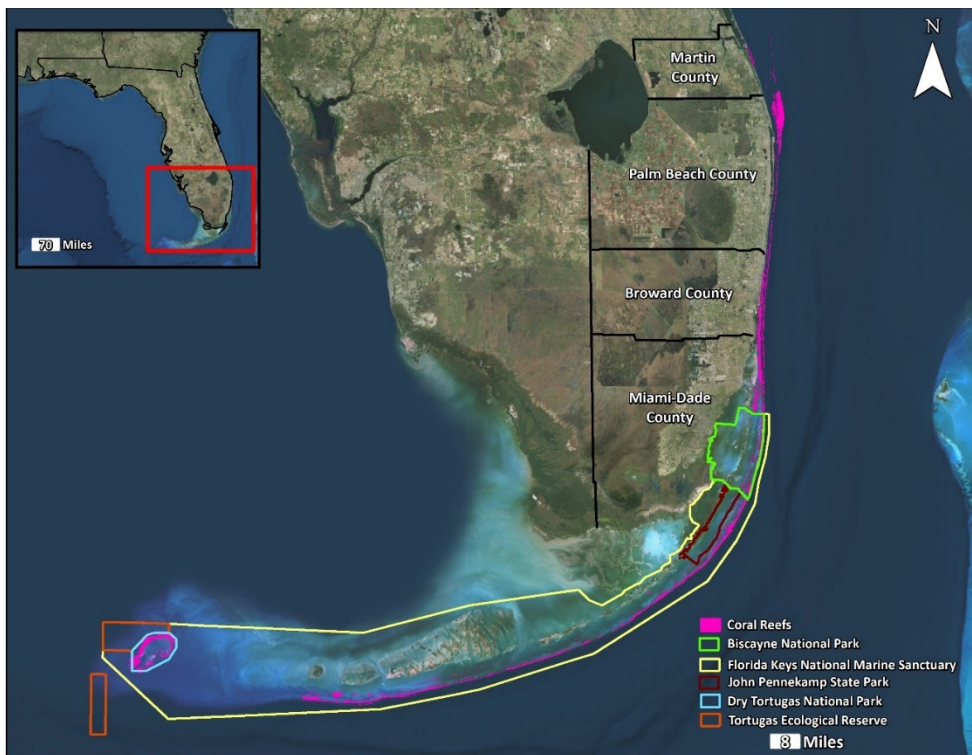


Figure 1: The Florida Reef Tract (in pink) stretches over 330 miles from the Dry Tortugas to Martin County, Florida; however, only two-thirds of the reef have regionally coordinated management plans, leaving approximately 105 miles of reefs north of Biscayne National Park with no management plan.

Establishment of the Southeast Florida Action Strategy Team (SEFAST)

As a member of the USCRTF, the State of Florida committed to uphold Executive Order #13089, which called for the protection of the biodiversity, health, heritage, and social and economic value of its coral reef ecosystems and the marine environment. In May 2003, with guidance from the USCRTF, the Florida Department of Environmental Protection (FDEP) and the Florida Fish and Wildlife Conservation Commission (FWC) coordinated the formation of teams of agency resource-related representatives (local, state, and federal). This group was known as the Southeast Florida Action Strategy Team (SEFAST). Following its formation, non-agency participants including research, professional, and reef

use stakeholders were solicited to provide feedback and guidance to SEFAST.

However, in August of 2004, recognizing the stakeholders had limited input in developing the LAS and that more collaboration between stakeholders and agency representatives needed to occur, the agency and non-agency members were brought together as one team (Figure 2).

- Biscayne National Park
- Broward County Audubon Society
- Broward County Environmental Protection Department
- Broward County Extension Education/University of Florida IFAS
- CCI Consulting Engineers Inc.
- Coastal Planning and Engineering Inc.
- Coastal Systems International
- College of Charleston
- Cry of the Water
- Environmental Defense
- Florida Department of Environmental Protection
- Florida Fish and Wildlife Conservation Commission
- Florida Keys National Marine Sanctuary
- Florida International University
- Florida Outdoor Writers Association
- Florida Sea Grant
- Florida Sportsman Magazine
- Greater Fort Lauderdale Diving Association
- Harbor Branch Oceanographic Institute
- International Game Fish Association
- Lighthouse Point Saltwater Sportsman Association
- Marine Industries Association of Florida
- Martin County
- Miami-Dade County Environmental Resources Management
- McMaster University
- Nova Southeastern University
- National Oceanic & Atmospheric Administration
- Ocean Engineering
- Ocean Watch Foundation
- Palm Beach County Department of Environmental Resources Management
- PADI Project Aware
- Port Everglades
- Port of Miami
- Port of Palm Beach
- Smithsonian Institute Marine Station
- South Florida Diving Headquarters
- South Florida Water Management District
- Tetra Tech
- The Nature Conservancy
- The Ocean Conservancy

- Tropical Audubon Society
- University of Georgia
- University of Miami
- University of North Carolina, Wilmington
- University of South Florida
- U.S. Army Corps of Engineers
- U.S. Coast Guard/Marine Safety Office
- U.S. Department of Agriculture/Natural Resources Conservation Service
- U.S. Environmental Protection Agency
- U.S. Geological Survey
- Vöne Research

Figure 2: List of original organizations with representation on SEFAST after stakeholders were included in August 2004.

The State of Florida charged SEFAST with developing Local Action Strategies targeting coral reef ecosystems from Miami-Dade County through Broward, Palm Beach, and Martin counties.

Establishment of Florida Department of Environmental Protection’s Coral Reef Conservation Program (FDEP CRCP).

In response to the need for coordinated management in the southeast Florida region, the FDEP as the lead governmental agency in the State of Florida for environmental management and stewardship, established in 2004 the Coral Reef Conservation Program (CRCP). The newly formed CRCP was charged with managing the coral reef resources in the southeast Florida region and overseeing SEFAST.

The initial role of the FDEP CRCP was to provide leadership for Florida’s LAS and to manage the cooperative funding agreement between the National Oceanic and Atmospheric Administration’s Coral Reef Conservation Program (NOAA CRCP) and the State. The FDEP CRCP was also charged with coordinating research and monitoring, developing management strategies, and promoting partnerships to protect the coral reefs, hardbottom communities, and associated reef resources of southeast Florida.

Through its role in supporting Florida's membership on the USCRTEF, the CRCP leads the implementation of Florida’s LAS and contributes to the National Action Plan to conserve coral reefs. The CRCP is also responsible for coordinating response to vessel groundings and anchor damage incidents in southeast Florida, as well as developing strategies to prevent coral reef injuries.

Southeast Florida Coral Reef Initiative (SEFCRI)

In 2004, SEFAST was rebranded as the Southeast Florida Coral Reef Initiative (SEFCRI) (Figure 3). The SEFCRI Team chose to target four priority coral reef resource focus areas, three of these were previously identified by the NOAA CRCP, and one was created uniquely for Florida (MICCI). The four focus areas addressed by SEFCRI are:

- Land-Based Sources of Pollution (LBSP)
- Maritime Industry and Coastal Construction Impacts (MICCI)
- Fishing, Diving, and Other Uses (FDOU)
- Awareness and Appreciation (AA)

Each of the four focus areas contain issue statements, goals, objectives, and projects. More information about the SEFCRI Team can be found by visiting <http://southeastfloridareefs.net/>.



Figure 3: The Southeast Florida Coral Reef Initiative logo and tagline.

SEFCRI Structure

The SEFCRI Team developed a [charter](#) to outline the purpose, formal structure, and operation of the Team. While the charter has been revised to clarify operational and procedural inconsistencies, the purpose and overall structure of SEFCRI have remained relatively intact.

1.1.1.1.1 SEFCRI Objective

The SEFCRI Team was established to formulate, coordinate, and provide recommendations to the FDEP CRCP Manager regarding the development and implementation of the SEFCRI LAS based on their individual or organization's perspective, and to share information on the status and progress of the SEFCRI LAS with their respective groups and organizations.

1.1.1.1.2 SEFCRI Mission

The mission of the SEFCRI is to develop and support the implementation of an effective strategy to preserve and protect southeast Florida's coral reefs and associated reef resources, emphasizing balance between resource use and protection, in cooperation with all interested parties.

1.1.1.1.3 SEFCRI Team Leadership

The SEFCRI Team is led by the FDEP CRCP Manager, who serves as the group's Chair. In addition, there are nine Vice-Chairs, one for each of the nine stakeholder groups that are elected by a majority of SEFCRI Team member votes.

The Chair (FDEP CRCP Manager) is a non-voting member of the SEFCRI Team responsible for all aspects of planning, coordinating, and implementing SEFCRI projects, including developing and managing grants, budgets, and contracts in support of SEFCRI; compilation of environmental data to assess coral reef resource management needs and stakeholder needs; promotion and coordination of research, resource management, and technical support to stakeholders and government agencies;

scheduling and setting agendas for all SEFCRI Team meetings with the input of the SEFCRI Vice-Chairs; and generally represents the SEFCRI Team’s interests and concerns to the public.

The Vice-Chairs are responsible for communicating LAS progress and keeping the Chair informed. The Vice-Chairs assist as necessary in performing executive and administrative duties of the SEFCRI Team. The SEFCRI Chair and Vice-Chairs are responsible for leading efforts to identify candidates for SEFCRI Team vacancies. SEFCRI Team membership, procedural questions, and meeting planning are determined by a majority vote of the SEFCRI Chair and Vice-Chairs.

1.1.1.1.4 SEFCRI Team Membership

SEFCRI Team members represent the needs of the stakeholder groups that directly affect or will be affected by the SEFCRI LAS. Equal agency and non-agency representation on the SEFCRI Team was identified as a fundamental way to ensure a balanced, locally-driven perspective to coral reef management and promote better understanding, stakeholder collaboration and management of southeast Florida reef resources. The SEFCRI Team is a body of 64 representatives from 9 stakeholder groups: fishing, diving, academic, private business, non-governmental organization, local agency, state agency, federal agency, and “other”.

The SEFCRI Team meets to identify continuing and emerging stressors to southeast Florida’s coral reefs and associated reef resources and recommends and implements new priority SEFCRI LAS projects to address those stressors. The SEFCRI Team serves as a forum for consultation and deliberation among its members, and as a source of recommendations regarding the SEFCRI LAS. SEFCRI Team members serve as liaisons between their constituents and communities and the FDEP CRCP, keeping FDEP CRCP staff informed of issues and concerns, as well as performing supportive outreach to their respective communities regarding the SEFCRI LAS. SEFCRI Team members are also a resource to the FDEP CRCP and strive to identify, investigate, and secure possible funding mechanisms and other opportunities for SEFCRI LAS implementation.

1.1.1.1.5 FDEP CRCP Staff Role

Originally, only one CRCP staff member, the CRCP Manager, was tasked with managing the SEFCRI Team and subsequent projects. As the SEFCRI Team began to implement the LAS projects, it was recognized that one staff member was not sufficient to manage the SEFCRI Team, provide Team leadership, and oversee approximately 140 LAS projects. To increase effectiveness, FDEP CRCP added additional staff over the years to facilitate and coordinate the implementation of the SEFCRI LAS projects within each of the priority focus areas.

Throughout the years, new and emerging stressors were identified by the SEFCRI Team. To address these, additional coordinator positions were developed within CRCP. There were originally coordinators only for the four priority focus areas of MICCI, LBSP, FDOU, and AA. Reef Injury Prevention and Response (RIPR) and Reef Resilience (RR) coordinators were added later.

FDEP CRCP staff are non-voting members of the SEFCRI Team assigned to lead all FDEP CRCP funded SEFCRI LAS projects, as well as coordinate all alternatively funded LAS. The coordinators also assist the Chair where needed and serve as SEFCRI LAS Project Team Co-Leads.

1.1.1.1.6 SEFCRI Technical Advisory Committee (TAC) Advisory Body

In 2004, the SEFCRI Team identified the need for specific technical expertise that did not exist, or was not sufficient within their current membership, specifically in regard to the LBSP focus area. The SEFCRI Technical Advisory Committee (TAC) was a specific LAS project (LBSP Project 4) identified to provide technical and scientific guidance on LBSP LAS projects. As per the SEFCRI Charter, Team members and outside advisors were solicited for participation on this body. The TAC is composed of members of the SEFCRI Team and persons outside the SEFCRI Team with appropriate levels of scientific and technical expertise. Members of the TAC are selected for and asked to represent their area of expertise, not their agency or organization, as is the case for the SEFCRI Team.

In 2013, the SEFCRI Team reviewed their progress to date, what the future looked like, and determined that the TAC should be expanded to help provide guidance to all the SEFCRI focus areas (LBSP, MICCI, FDOU, and AA). The expansion of the SEFCRI TAC has resulted in a body of scientists with expertise in coral reef ecology, coral biology, coral pathology, coral physiology, water quality, oceanography, chemistry, fish ecology, spatial ecology, ecosystem management, and socioeconomics.

For more information about the role of the TAC throughout the OFR process, see Section [2.1](#).

1.1.1.1.7 SEFCRI Project Teams

The SEFCRI Team establishes Project Teams as necessary to fulfill LAS project scope of work development, guide project implementation, and support the use of final products. Project Teams are composed of members of the SEFCRI Team, official alternates, SEFCRI TAC members, and Project Advisors. Project Teams are responsible for reviewing the original LAS project description, interpreting and defining the intent of the project by providing information or insight regarding any regional efforts that complement or may have already achieved the project goals, and explaining how that may influence project execution.

The SEFCRI Project Teams created to help develop the OFR process are described in Section [2.2](#).

1.2 SEFCRI Local Action Strategy FDOU Project 26B: *Our Florida Reefs*

In 2004, the SEFCRI Team identified approximately 140 LAS projects to address locally relevant threats by applying a collaborative and public decision-making process that was based on local needs, concerns, capacity, and the six priorities of the USCRTP as a guide.

The LAS projects were divided into four focus areas that comprised the “Southeast Florida Coral Reef Initiative: A Local Action Strategy” (FDEP CRCP, 2004). Within the FDOU Focus Area, the SEFCRI Team identified projects that would engage local stakeholders in making management recommendations to the appropriate agencies for improved conservation of southeast Florida coral reefs. This report documents the development, implementation, and outcomes of one of those original projects, Project 26B, which would become *Our Florida Reefs*.

Excerpt from SEFCRI LAS 2004 Fishing, Diving, and Other Uses Action Plan:

[Objective 6] Develop an [sic] effective, balanced, and comprehensive management strategy for improved resource protection.

Project 26: Organize and hold public workshops to obtain input on the condition and usage trends, possible resource goals, and the potential (i.e. rationale, effectiveness, alternative approaches, etc.) of traditional fishery management and special management zones to achieve targets. Independently verify (spot check) accuracy of user provided information from Project 12¹.

Collecting and Compiling Relevant Data for Project 26B

In 2003, the SEFCRI region of interest lacked coordinated coral reef ecosystem management, in part because of a lack of sufficient data about the region. For decades, research was highly disconnected and primarily focused on reef ecosystems in the Florida Keys. SEFCRI recognized that fundamental questions about the location and characteristics of our coral reef ecosystem were unanswered. While the ultimate goal of SEFCRI is “To develop an effective, balanced, and comprehensive management strategy for improved resource protection”, for the first 10 years the SEFCRI Team prioritized projects that would provide the information needed in order to develop that strategy. These projects included mapping the reef habitat; monitoring the status, trends, and health of the reef resources; better understanding recreational use of and user perceptions about the resource; understanding current rules and regulations governing the resource and their shortcomings; and identifying sources of threats to the reefs and possible solutions to reduce or eliminate those threats.

By design, Project 26B was initiated after the information-gathering projects initiated by the SEFCRI Team were complete. This was intentional to allow OFR to integrate and build upon all previous efforts with an understanding of the dynamics of the region. This data collection was an important step in creating a process for management based on best available science. The products of these 10 years of scientific investigation into the region, along with additional relevant resources, were used to inform and construct the *Our Florida Reefs* process. References to these projects will be found in this section and throughout the report. All tangible project deliverables can be found at: <http://www.dep.state.fl.us/coastal/programs/coral/reports/>.

A subset of projects set the stage, and supported the need, for FDOU Project 26B. These projects also helped provide valuable community input into designing a process to develop management recommendations and engage stakeholders. The projects were used to build the foundation for FDOU Project 26B by generating a broader and better understanding of southeast Florida reef user perceptions, concerns, and needs (outside of the SEFCRI Team), which informed SEFCRI on how to develop FDOU Project 26B. Examples of these projects are included below.

Socioeconomic Study of Reefs in Southeast Florida & Socioeconomic Study of Reefs in Martin County (Johns, Leeworthy, Bell, & Bonn, 2001) (Johns, Milon, & Sayers, 2004).

Investment in and maintenance of public resources is a primary function of government. Artificial and

¹ “FDOU Project 12: Identify the types, quantity, and trends of commercial and recreational extractive use by county. Conduct user survey to map and quantify where different recreational and commercial reef activities take place, their intensity and identify conflicts among users”

natural reefs are public resources that provide recreational benefits to reef users and income to local economies (Johns, Leeworthy, Bell, & Bonn, 2001). These two studies employed extensive survey research to measure the economic contribution, the values of artificial and natural reefs, and the willingness of residents to pay to protect them.

Table 1: Number of person-days, in millions, that both residents and visitors spent on artificial and natural reefs in southeast Florida counties. (Johns, Leeworthy, Bell, & Bonn, 2001) (Johns, Milon, & Sayers, 2004).

County	Artificial Reefs	Natural Reefs
Martin	.26	.27
Palm Beach	1.41	2.83
Broward	3.98	5.46
Miami-Dade	2.95	6.22

Table 2: Number of person-days, in millions, that both residents and visitors engaged in recreational activities on natural and artificial reef. (Johns, Leeworthy, Bell, & Bonn, 2001) (Johns, Milon, & Sayers, 2004).

Activity	Martin County	Palm Beach County	Broward County	Miami-Dade County
Snorkeling	.037	0.74	1.09	2.11
Scuba Diving	.038	1.73	3.85	1.14
Fishing	.454	1.76	4.45	5.90

The total economic contribution of the reefs to each county is the contribution of reef-related expenditures to sales, income, and employment. As residents and visitors spend money in the county to participate in reef-related recreation, income and jobs are created. Economic contribution includes the direct, indirect, and induced effects of visitor spending and the direct effects of resident spending.

*Table 3: Economic contribution of both resident and visitors via reef-related expenditures in each county June 2000 to May 2001 (Johns, Leeworthy, Bell, & Bonn, 2001) (Johns, Milon, & Sayers, 2004)
* Martin County is reported in 2003 dollars, all other counties are reported in 2000 dollars.*

Type of Economic Contribution	Martin County	Palm Beach County	Broward County	Miami-Dade County
Sales- All Reefs (in millions of dollars)	\$13	\$505	\$2,069	\$1,297
Artificial Reefs	\$7	\$148	\$961	\$419
Natural Reefs	\$6	\$357	\$1,108	\$878
Income – All Reefs (in millions of dollars)	\$6	\$194	\$1,049	\$614
Artificial Reefs	\$3	\$52	\$502	\$195
Natural Reefs	\$3	\$142	\$547	\$419

Employment – All Reefs (number of full and part time jobs)	182	6,300	36,000	19,000
Artificial Reefs	99	1,800	17,000	6,000
Natural Reefs	84	4,500	19,000	13,000

Reef-related expenditures generated \$505 million in sales in Palm Beach County, \$2.1 billion in sales in Broward County, and \$1.3 billion in sales in Miami-Dade County. These sales resulted in \$194 million in income to Palm Beach County residents, \$1.1 billion in income to Broward County residents, and \$614 million in income to Miami-Dade County residents. Reef-related expenditures provided 6,300 jobs in Palm Beach County, 36,000 jobs in Broward County, and 19,000 jobs in Miami-Dade County.

Visitors and residents to Palm Beach, Broward, and Miami-Dade counties were willing to pay \$42 million, \$84 million, and \$47 million, respectively, to maintain natural reefs in the condition they were in at the time of the report by maintaining water quality, limiting damage to reefs from anchoring, and preventing overuse of the reefs.

As part of these studies, resident respondents were asked their opinions regarding the establishment of “no-take” zones as a management tool for artificial and natural reefs in southeast Florida. It was apparent from the data that a majority of resident reef-users endorse the idea of “no-take” zones in their county and in the other southeast Florida counties. A majority of residents would support “no-take” zones on 20 to 25 percent of the existing natural reefs. About 75 percent of respondents in all counties supported the existing “no take” zones in the Florida Keys. About 60 percent of respondents supported “no take” zones in their own counties and about the same percentage supported “no take” zones on some of the reefs in Palm Beach, Broward, and Miami-Dade counties (Johns, Leeworthy, Bell, & Bonn, 2001).

SEFCRI Local Action Strategy FDOU Project 10: A Compilation and Comparison of Social Perceptions on Reef Conditions and Use in Southeast Florida (November 2007).

(Shivlani & Villanueva, FDOU Project 10: A Compilation and Comparison of Social Perceptions on Reef Conditions and Use in Southeast Florida, 2007)

Excerpt from SEFCRI LAS 2004 Fishing, Diving, and Other Uses Action Plan:

[Objective 1]: Compile existing information on reef condition and use activities for the SEFCRI geographic region.

Project 10: Identify, assemble, and assess existing historical maps and fishery-independent and fishery dependent data on reef biodiversity (fish, coral, invertebrate, etc., composition, abundance, condition and size structure) from study area. Collect information and data on the other impacts of fishing and diving, including the cascading ecological effects, impacts and relationships of keystone species, prey/predator relationships, impacts to trophic food webs, etc. and link this information with Awareness & Appreciation group to develop educational material and workshops. Evaluate existing literature regarding effectiveness of special management zones from around the world for applicability to the SEFCRI geographic region.

This project identified, assembled, and assessed existing historical (use) maps, fishery data related to coral reef biodiversity, data on other fishing and diving impacts, the relative importance of reef versus other offshore fishing, types, quantity, and trends of commercial and recreational extractive and non-consumptive uses by county, stakeholder concerns on the indirect impacts on reefs, and stakeholder perceptions on artificial reefs.

The project, which included six distinct studies, was conducted using a variety of survey methods. It identified and characterized the key user groups that use or rely on the reefs and associated resources: commercial fishers, charter and for-hire fishing operations, recreational fishers (consisting of recreational anglers and recreational, consumptive divers), dive operations, researchers and managers, and the surfing community. A summary of the results of each of the studies is below:

- The stakeholder groups' views on inter-group conflict varied considerably.
- The groups' views on resource and issue trends, and the mean scores suggest a negative overall perception on key resources and conditions.
- Education led all forms of management as the preferred management for most stakeholder groups.
- The groups that were most often identified as having the most impacts on the region's coral reefs were sport or consumptive divers, recreational anglers, and commercial fishers. Also, each stakeholder group believed that its uses were not among the most impacting.
- All groups, except for researchers and managers, agreed that the primary indirect threat facing the region's coral reefs are land-based sources of pollution (LBSP). While researchers and managers ranked coastal development as a greater threat, the group did rank LBSP as a major, indirect impact.

SEFCRI Local Action Strategy FDOU Project 23: Evaluation of the Potential for a Marine Zoning Area for Southeast Florida

Excerpt from SEFCRI LAS 2004 Fishing, Diving, and Other Uses Action Plan: (Berry, et al., 2011)

[Objective 4]: Evaluate the potential of a scientifically-based marine zoning plan.

Project 23: Identify criteria useful for zoning reef resources as special, sensitive and representative areas needing enhanced management through local input in order to develop zoning alternatives by county.

The goal of this project was to identify and evaluate the effectiveness and applicability according to stakeholders' perceptions of Marine Protected Areas (MPAs) or Special Management Zones (SMZs) in the southeast region of Florida (Martin, Palm Beach, Broward, and Miami-Dade counties) that would protect natural and cultural resources in some manner. This goal was achieved by conducting and analyzing a global literature search, a survey of marine resource managers, and a survey of southeast Florida stakeholders. The project's objectives were:

1. Evaluate existing literature regarding the effectiveness of Special Management Zones and Marine Protected Areas from around the world for applicability in this region;
2. Determine what is important to reef users concerning marine zoning (i.e., fears, what they want to know, what they want, what they do not want, what is most important to them).

The literature review portion of this project showed the importance of coral reefs worldwide as one of the most productive and diverse ecosystems. However, reefs are being degraded or threatened in most locations. The global literature search yielded 304 relevant reports containing quantitative data on shallow tropical or subtropical reef habitats. The majority (95%) of the relevant reports documented some level of success in achieving their SMZ/MPA management and conservation goals and identified as a key factor most often cited as influencing this success, the involvement of stakeholders at all stages of the design and implementation process. Worldwide, the greatest benefit of the implementation of SMZs/MPAs has been the recovery or increase in the biomass of fisheries resources (Keller & Donahue, 2006) which leads to the decrease in algae that competes with coral for substrate space.

A stakeholder survey was developed for southeast Florida marine resource users to solicit their opinions on various marine zoning questions. Of the 298 respondents, the majority (93%) were recreational users: fishers, divers, boaters, and snorkelers. Among these recreational users, the largest number of responses (29%) came from recreational fishers. Nearly 30% of the respondents had changed their use location within the last five years because of perceived changes in marine resources and water quality. A majority (58%) believed that if nothing is done and the current management approach is continued, resource conditions will worsen. Nearly 75% believed that a different management approach is needed. Respondents said specific issues such as land-based sources of pollution, water pollution/waste dumping, and water quality/sedimentation need to be addressed and regulated, along with other issues like overfishing, ship groundings, and anchor damage.

SEFCRI Local Action Strategy FDOU Projects 18 and 20 Part B: Development of Management Alternatives for the Southeast Florida Region According to Stakeholder Interviews (September 2011)

(Shivlani & Estevanez, FDOU Project 18 & 20B: Development of Management Alternatives for the Southeast Florida Region According to Stakeholder Working Panels, 2011)

Excerpt from SEFCRI LAS 2004 Fishing, Diving, and Other Uses Action Plan:

[Objective 3]: Determine the carrying capacity of the reef ecosystem to support different fishing, diving, collecting and other activities using defined scientific criteria.

Project 18: Conduct fishery assessments using overfishing and overfished criteria.

Project 20: Identify strategies and tools to balance and optimize sustainable use and conservation of reef resources. Present recommendations to county governments, FWC, FDEP, and the South Atlantic Fisheries Management Council (SAFMC) for an effective, balanced and comprehensive management strategy for fishing, diving and other uses that will achieve resource protection goals.”

FDOU Projects 18 & 20B were achieved through surveys of stakeholder working panels within each of the four southeast Florida counties (Miami-Dade, Broward, Palm Beach, and Martin). Working panel members were asked to discuss and provide feedback on the potential for alternative management options of coral reef resources in southeast Florida. Panel members were also asked to identify outstanding research needs and knowledge gaps to improve stakeholder understanding of coastal and marine resource issues and management alternatives.

County-based working panels consisted of commercial fishing operations, charter fishing operations, dive and snorkel operations, research institutions, research management agencies, and educators. Local

interest group working panels consisted of the coastal construction industry, county-based tourism industry groups (mainly Chambers of Commerce), ports, marinas, and boatyards. Regional interest group working panels comprised representatives from conservation groups and non-governmental organizations, recreation and sport fishing organizations, the commercial dive industry, the recreational and commercial vessel industry, and surfers. Recreational stakeholder groups were fishing and diving clubs whose members represented the following three groups: recreational anglers, recreational divers and spearfishers, and recreating residents and visitors.

The project research team, in consultation with the FDOU Project 18 & 20B Teams, developed a short video that stakeholders would be requested to watch prior to participating in an interview/survey (follow the link to view the video: <https://floridadep.gov/file/11116/download?token=-QnZqGrO>). The video was divided into five sections: introduction to coastal and marine ecosystems in southeast Florida; resource uses; local and regional stressors; present management; and future management options. Another approach to educate stakeholders on the project was the development of a website (www.seflreefstudy.com) from which stakeholders could learn about the projects goals and objectives and view the video. The interview questionnaire and stakeholder survey were developed to address the major project themes and panel members were asked to identify each area of concern on interactive maps. The project research team completed a total of 191 interviews and 79 stakeholder surveys over three months. Over 30% of the total observations pertained to Miami-Dade County, followed by Broward County (26.6%), Palm Beach County (23.4%), and Martin County (19.6%).

The 79 stakeholder group surveys were collected during six survey sessions organized with regional diving and fishing clubs and from an online survey. Of those, 40.5% were completed by dive group members, 36.7% by fishing club members, and 22.8% by members of groups who did not identify their affiliation. Over 96% were residents of southeast Florida, with respondents representing all four counties.

Findings by working panels included the following:

- Respondents reported that overall resource conditions and coral reef conditions in the region were in fair to moderately poor condition;
- There was a concern across working group panels that changes in resource conditions trended towards a moderate decline;
- Use conflicts among various working groups were very high, with between 50-60% of charters, fishers, and dive operators reporting resource and space-based use conflicts; and
- A majority of the stakeholders interviewed favored continuing with the present form of management, but many argued that enforcement needs to be improved.

Findings by stakeholder group surveys included the following:

- Stakeholders believed that while corals were in fair health, changes in coral health averaged between stable and a moderate decline;
- Fisheries were identified as the least healthy resource in the region and the resource that had most declined; and
- In-water pollution, land-based sources of pollution, anchor damage, and overfishing ranked as the most important issues that marine managed areas should address, although extractive use restrictions were more important to divers than recreational fishers.

Based on a series of inter-regional and inter-stakeholder comparisons, the project developed the following recommendations:

- There is a shared concern across stakeholders that overall resource conditions have not improved, and this should promote meaningful dialogue between stakeholders and management agencies to adopt measures to improve resource conditions;
- Place-based management enjoys considerable support among a diverse set of stakeholders, but it is also a “non-starter” for extractive use groups who perceive any form of place-based management leading to reduced access; these groups need to be engaged more frequently and inform the groups that alternate management mechanisms (place-based or others) do not need to result in reduced access;
- Use conflicts are very high among certain stakeholder groups in some areas; stakeholders would benefit if these conflicts were alleviated, and management solutions should be prioritized for such locations; and
- Development of management alternatives should be a public process starting with a so-called empty slate, where stakeholders are invited to participate with others in the identification of management successes, failures, options, and recommendations that build toward more effective protection of the region’s coral reef ecosystem and associated resources.

2 PROJECT AND PROCESS DEVELOPMENT

FDOU Project 26B (which will be referred to as *Our Florida Reefs*, or OFR, from here on) is the single largest effort that the SEFCRI Team has implemented to date in terms of scope, capacity requirements (including personnel, funding, equipment, etc.), and public involvement. As this was a stakeholder-initiated process, there was no required structure to guide the development of OFR. This resulted in the need for a planning team to design the process from the ground up. As with all SEFCRI projects, a Project Team was formed which would become known as the Process Planning Team or PPT. Among other functions, the PPT was formed to: discuss intent and identify achievable goals for the process, offer best practices to accomplish those goals, and consider any relevant efforts that may inform planning.

The PPT was formed in January of 2012 per the guidelines of the SEFCRI Charter as an advisory body to the SEFCRI Team for the planning of OFR. The team was dedicated to planning the details of each of the steps necessary to implement the OFR process. The PPT included SEFCRI Team members, expert advisors, and the FDEP CRCP Manager (SEFCRI Chair) and staff. Regional resource managers with specific knowledge or experience in planning or implementing similar marine conservation stakeholder processes were invited to participate as advisors to the PPT. See Appendix I for a list of PPT members and their affiliation.

2.1 The Process Planning Team – Process Development

The PPT was assembled to lead the design of *Our Florida Reefs*. Team members discussed the basis of this process as being a stakeholder-driven endeavor to develop and determine management actions that could be applied to reduce the threats to southeast Florida coral reefs. The PPT ensured that the process complied with the long-term mission of SEFCRI “to develop and support the implementation of an

effective strategy to preserve and protect southeast Florida’s coral reefs and associated reef resources, emphasizing balance between resource use and protection, in cooperation with all interested parties.”

Throughout the process, the PPT helped with the fine-scale details on how to implement the bigger picture stakeholder-driven process. The PPT first met on January 23, 2012 to discuss their purpose, mission, and to outline their structure moving forward.

The Mission of the PPT:

To design a process whereby stakeholders in the SEFCRI region are going to work together to develop and recommend specific management measures that are going to reduce threats and improve conservation of coral reef resources in the SEFCRI region.

Once established, the first major task of the PPT was to review the information gathered from the projects summarized in Section [1.2](#) and other past SEFCRI projects, as well as investigate lessons-learned from similar stakeholder processes. This was the primary focus of the PPT over the first six months, though their role would evolve throughout the process to include contributing to the development of process agendas, meeting documents, and other process planning activities.

Stakeholder Process Case Studies

In order to develop a process that was informed by the experience of others, the PPT decided that it would be valuable to learn not only from past SEFCRI projects (Section [1.2](#)), but also from other notable stakeholder-driven marine resource management decision-making processes. The team began meeting to share experiences from similar processes in order to provide a well-informed landscape to shape the OFR process. The PPT used their initial meetings as a forum to share information about best practices used in relevant case studies.

The PPT listened to presentations from marine resource managers on stakeholder engagement processes in Florida and elsewhere in the United States. As the PPT itself was made up of people with experience in different marine conservation management processes, some of the presentations came directly from PPT members. Other case studies, however, required inviting key people from other processes to present their lessons learned to the PPT. Members of the PPT gathered lessons-learned from the following sources: Florida Keys National Marine Sanctuary, Dry Tortugas National Park, South Atlantic Fisheries Management Council, Key Biscayne Special Management Zone, Florida Fish and Wildlife Conservation Commission, Broward County Marine Protected Area Processes, and the California Marine Life Protection Initiative.

The PPT decided on the following specific criteria to focus on in case studies:

- Organization: Process structure elements like timing, meeting style, and forum.
- Representation: Stakeholder engagement in decision-making.
- Advisory Bodies: How technical/scientific advice (both social and biophysical) was obtained and used to advise decision-making.
- Spatial Planning: The use of geospatial tools for spatial data display.
- Public Involvement: Engagement with the public before, during, and after the process. Special considerations for releasing information to the public.
- Other: Any other criteria that was cited as playing an important role in the process.

A summary of the material discussed in those case studies can be found in Appendix II.

Process Structure and Timeline

The PPT held monthly meetings to develop the stakeholder process that would become *Our Florida Reefs*. Over the course of several months, and several revisions, the PPT created a process outline and detailed the steps of the OFR process. The final product was a ten-step process outline (Figure 4).



Figure 4: Full OFR process plan and anticipated timeline.

The PPT developed this for internal use to outline the OFR process in detail. This timeline would later be simplified in order to better communicate the big picture steps to the public. Once the OFR timeline was streamlined and simplified by the communication contractor (see Section 2.2), the final product was a four-step process outlined in the following graphic:



A COMMUNITY PLANNING PROCESS FOR SOUTHEAST FLORIDA'S CORAL REEFS

STEP 1 COMMUNITY MEETINGS

Learn more about our reefs.
Share your ideas.

STEP 2 COMMUNITY WORKING GROUPS

Local representatives develop
recommendations for reef
management actions.

STEP 3 SHARE RECOMMENDATIONS

Community meetings to review draft
recommendations. Tell us what you think!

STEP 4 REEF MANAGEMENT STRATEGY

Final recommendations guide development
of a reef management strategy for southeast
Florida's coral reefs.

Figure 5: Final four-step process infographic.

From there, the four steps were detailed further:

Step 1) Community Meetings. Goals: educate the public about SE FL coral reefs, introduce the public to the OFR process, and solicit participation in the OFR process.

Step 2) Community Working Groups. Goals: educate the CWGs about SE FL coral reefs, CWGs create a list of Recommended Management Actions (RMAs) to improve SE FL coral reef health and receive advice from SEFCRI Team and TAC on technical issues, practicality, and ability of recommendation to achieve goal, finally CWGs prioritize the list of RMAs.

Step 3) Share Recommendations. Goal: CWGs present recommendations to the general public to get feedback. After public review, CWGs develop a list of final management recommendations.

Step 4) Reef Management Strategy. Goals: dependent on final product. SEFCRI work with the appropriate agencies to get management recommendations implemented.

SEFCRI Team and TAC Advisory Role

Through the examination of case studies, the PPT learned the importance of scientific and technical advisors in stakeholder engagement processes. The PPT identified two established bodies that could act in an advisory capacity to OFR: 1) the SEFCRI Team (to provide agency and stakeholder expertise) and 2) the SEFCRI Technical Advisory Committee (to provide scientific and technical support).

The general role of SEFCRI Team and TAC members during the OFR process were to:

- Attend meetings: Make the CWG aware of your area of expertise, offer your expert opinion, discuss thoughts/issues when asked, and bring pertinent materials to distribute to the group.

- Offer feedback: Be a resource for CWG members, address questions and concerns in meetings or via email.
- Review Materials (primary task): Review and provide technical feedback on draft proposed Recommended Management Actions.

In their review of the recommendations coming out of the CWGs, the SEFCRI Team provided valuable historical knowledge of the management of the region and the TAC provided technical background and scientific expertise. Both advisory groups helped to facilitate regional perspective capacity between the North and South CWGs.

The duties of the Team and TAC included, but were not limited to: advising the CWGs on how management goals could be implemented, ensuring that the CWGs were aware of information available to inform and support recommendations, identifying data gaps, populating the data fields in information-gathering worksheets, providing technical input on feasibility of recommendations, assisting with communicating complex information to the public, and providing input on the potential benefits and drawbacks of each recommendation.

See Section [5.5](#) for an explanation of actions completed by the SEFCRI Team and TAC during their review of the draft RMAs.

2.2 Project Teams

The PPT was the primary group formed to aid in the planning of the OFR process. However, given the size and complexity of the process, the PPT identified the need to create more project teams to assist with the planning of specific aspects of the process.

The three main areas identified by the PPT requiring further assistance in planning this effort were: professional communication/ outreach planning, professional facilitation/ coordination, and decision support tools. In response to this need, three sub-project teams were created: The Communication Project Team, the Facilitation Project Team, and the Decision Support Tool Project Team. Each of these three project teams consisted of SEFCRI Team members, advisors, and FDEP CRCP staff.

The FDEP also developed an internal “Core Team”, composed of key CRCP and interagency support staff as well as the contracted facilitators, to create agendas and work plans, coordinate advisory bodies, and adaptively generate a big picture timeline. Weekly “OFR Updates” kept peripherally-involved CRCP staff and other personnel up to speed on decisions made at PPT and project team meetings.

Communication Project Team

As the *Our Florida Reefs* process developed, early PPT meetings identified the need for a communications strategy. To accomplish this task, a project team was formed from members of the SEFCRI Team and the PPT, led by the CRCP’s Appreciation and Awareness (AA) Coordinator. For Communications Project Team membership see Appendix [Q](#). Case studies from similar stakeholder engagement processes would serve as models for the communications strategy approach. *Our Florida Reefs* inspired a focused effort by CRCP staff and the SEFCRI Team to purposefully identify and communicate with various stakeholder groups in the southeast Florida region. The message of this communication was different from prior

projects by the CRCP and SEFCRI, which had focused primarily on educating; this was an invitation to participate. The communications team worked with professional consultants to design and develop communications tools to ensure that different audiences were informed of and engaged in the OFR process². The communications team understood that, to engage the community in the earliest stages of the process, such as on Community Working Groups, the process would require a continued OFR marketing and outreach campaign.

This outreach effort included multiple, ongoing outreach and advertising efforts that were conducted simultaneously throughout the duration of the process. The effort was comprehensive and targeted as many reef user groups as possible, as well as the broader public (see Figure 7). All mediums were used including radio, television, internet, print newspaper and magazines, online and electronic advertising, as well as paper fliers, rack cards, and word of mouth. Communications products were translated to Spanish to increase their advertising potential to a wider audience.

Key communications products developed were:

- *Our Florida Reefs* Strategic Communications Plan 2013-2016
- *Our Florida Reefs* Brand (including the style, logo, and slogan- Figure 6)
- *Our Florida Reefs* Outreach Documents (Frequently Asked Questions (FAQs) document, rack cards, informational 1-pagers, media fact sheets)
- Public Service Announcements (radio and TV PSAs, press releases, media protocol guide, media advisory, direct mailer, print newspaper ads, and online ads)
- *Our Florida Reefs* Website www.OurFloridaReefs.org

Public Communications & Outreach



Figure 6: The *Our Florida Reefs* logo and slogan.

The following sections detail the specific methods used as a part of the general communications and outreach strategy. Aside from the conventional methods of outreach described below, a main requirement of all SEFCRI Team and CWG members was to be a conduit of information to and from their respective stakeholder groups throughout the OFR process. This message was consistently repeated in CWG meetings in an effort to gain as much stakeholder involvement as possible.

² To learn more about the OFR Communications Strategy see “*Our Florida Reefs* Community Working Group Communications Plan” By Annie Reisewitz & Jim W. Harper, 2013.



Case Study: Our Florida Reefs

Strategic Ocean Solutions



Figure 7: OFR communications and marketing effort summary created by the communications contractor in April 2014.

2.2.1.1.1 Distribution Materials

A key component of the communications strategy for OFR was the creation of advertising and informational materials that could be shared through all outreach venues. One product was seven distinct informational one-pagers on the following topics: Ecosystem, Coral, Water, Fish, Habitat, People, and

Management. These one-pagers included general information about the status of the topic, specific threats or issues, and suggestions for related positive actions.

Three other one-page information sheets were created for distribution. These included:

- 1) *About the Southeast Florida Coral Reef Initiative (SEFCRI)*, which explained a brief history of SEFCRI and its relation to OFR;
- 2) *OFR Frequently Asked Questions (FAQ)*, which answered basic questions about the OFR process and how to get involved; and
- 3) *OFR Media Fact Sheet*, which provided quick statistics and information about Florida's reef system, SEFCRI, and OFR.

Rack cards were created which advertised the OFR process. These 8" x 4" flyers included information about OFR, how to learn more, and how to get involved. They were distributed at outreach events and to local dive shops, bait and tackle shops, and marinas.

Media kits containing all the distribution material previously mentioned were created. These kits were provided to any person or entity that needed to get an overall understanding of southeast Florida's coral reef resources, SEFCRI, and the OFR process. For copies of these distribution materials see:

<http://www.dep.state.fl.us/coastal/programs/coral/reports/fdou26.htm>.

In addition to informational handouts, OFR purchased promotional materials to help spread the word about the process. These promotional materials were distributed at community meetings, outreach events, and presentations along with information about the process. Materials included stickers, magnets, keychains, stainless steel water bottles, tote bags and drawstring bags. All promotional materials incorporated the OFR logo, slogan, and website. Other promotional materials were created specifically for CWG members for use during the process. These included notepads, trapper keepers, and shirts.

2.2.1.1.2 *Our Florida Reefs Website*

The most important platform for spreading information about, and ensuring transparency for, the process was the *Our Florida Reefs* website <http://OurFloridaReefs.org/>. The OFR website served as a tool to educate the public about Florida's coral reefs, share news related to OFR, and allow the public to comment or ask questions throughout the duration of the process. Through this webpage, the public was also given the opportunity to sign up to receive periodic OFR updates via email.

All outreach efforts directed users towards the website for more information on the process and how to get involved. The OFR website also served functions beyond outreach. For information on the website's role as a resource to CWG members see Section [2.2.1.1.17](#). For information on the Marine Planner and Decision Support Tool, which was housed on the website, see Section [Decision Support Product Development](#)

The *Our Florida Reefs* webpage earned an award in 2014 from the Interactive Media Council Inc. for outstanding achievement in the natural environment/green category.

2.2.1.1.3 Outreach Events, Presentations, & Interviews

Throughout the OFR Process, SEFCRI and CRCP maintained a presence at various community events in the four-county region. This presence consisted of an outreach booth featuring information on the SEFCRI, CRCP, and *Our Florida Reefs* and encouraged public participation in the process. The list of events included but was not limited to: The Fairchild Ramble, Miami Boat Show, Miami River Day, Tortuga Music Festival, Ft. Lauderdale International Boat Show, Palm Beach Boat Show, Broward STEM Expo, Gumbo Limbo Sea Turtle Day, Port Salerno Seafood Festival, Dania Beach Marine Flea Market, Green Planet Festival, Miami-Dade County's Bayanza celebration, and Blue Wild Expo.

Outreach presentations were another key part of the OFR communications strategy. These presentations were delivered by CRCP staff, SEFCRI, and CWG members to various stakeholder groups throughout the process with the purpose of increasing knowledge of and participation in OFR. To help communicate and present scientific information and concepts more effectively to a variety of audiences, CRCP staff were given presentation development training.

SEFCRI members who expressed an interest in contributing to this outreach effort were organized into a SEFCRI Volunteer Speakers Bureau. This group included SEFCRI representatives from each county who would serve as the face of the OFR process when addressing the public. The Speakers Bureau met with the CRCP AA Coordinator to help review and contribute to the content of the outreach presentation. These individuals then learned to deliver the outreach presentation containing information about the SEFCRI and OFR. This helped to keep messaging consistent, expand outreach opportunities, and minimize confusion with local groups.

Some of the stakeholder groups who received outreach presentations throughout the process included:

- Ladies' Let's Go Fishing
- Jupiter Drift Divers
- Force-E Scuba
- Tropical Audubon Society
- Sea Experience SCUBA
- Forest Glen Middle School
- Hollywood Hills Saltwater Fishing Science and Social Club
- Rotary Club of South Florida
- Cocoplum Yacht Club
- South Florida Underwater Photographic Society
- South Florida Association of Environmental Professionals
- Miami-Dade County DERM
- University of Miami SCUBA Club
- Pompano Dive Center
- AD Henderson University
- Boynton Beach Dive Center
- Florida Oceanographic Center
- Ft. Lauderdale Mariners Club

CRCP staff and partners also gave interviews for local radio talk shows, including Florida Sportsman Radio, South Florida Weekly big talk 850 radio, and Paul and Young Ron Saturday Morning Fishing Update. For tracked outreach, meetings, and presentations see Appendix [IV](#).

2.2.1.1.4 Public Service Announcements

A SEFCRI social science report produced by Manoj Shivilani (Shivilani, Florida Department of Environmental Protection (DEP) Coral Reef Needs Assessment Study. SEFCRI LAS Appreciation and Awareness Project 8., 2006) identified that user groups responded most to television and radio media sources. Based on this information, the OFR communications team coordinated the creation of both radio and video public service announcements to advertise the OFR process and SEFCRI.

Fifteen-second, audio public service announcements were created to announce the 2013 Informational Community Meetings, then again to announce the 2016 Rollout Community Meetings. These PSAs played on local public, commercial, and Spanish-language stations throughout the four-county region.

Following the 2013 Community Meetings, a SEFCRI Project Team coordinated the production of ten 30-second video PSAs to highlight the various ways stakeholders use and value southeast Florida's reefs³. The video PSAs began circulation on air in spring of 2014, playing on the major stations in the Miami, Ft. Lauderdale, and Palm Beach markets. The stakeholders featured in these PSAs were: a local schoolteacher and seafood lover, a captain and fisherman, a scuba diver and dive shop owner, a professional kiteboarder and marine biologist, and a recreational fisherman. Video PSAs also included marine artist, fisherman and conservationist, Guy Harvey, and marine explorer and conservationist, Phillippe Cousteau. Two of the PSAs were filmed in both English and Spanish. One "mash-up" PSA was also created which featured all seven English PSAs edited together.

2.2.1.1.5 Social Media

Free web-based social media platforms were used to communicate with stakeholders, namely Facebook, Twitter, and YouTube.

The Facebook page for Florida's Coral Program was used as a platform to supplement promotion of the process and advertising of the 2013 kickoff meetings. Posts appeared 2-3 times a week and invited public attendance and participation, both for the kickoff meetings, as well as soliciting applications for CWG members. The video PSAs also rotated spotlight on the Florida's Coral Program Facebook page several times per year. Weekly posts to the Facebook page advertised the ongoing process and drove viewers to the OFR website. Paid ads were also posted on Facebook that targeted users in the four-county region and directed them to the OFR webpage.

All video PSAs were uploaded to the FDEP Florida Coastal Office YouTube channel and were made available on the OFR website. The Florida Coastal Office Twitter handle (@Aquatic_FL) hosted tweets during this time as well. SEFCRI partners were encouraged to share, like, and retweet information on the OFR CWG application process.

³ Appreciation and Awareness LAS Project 10: Develop and distribute a campaign of public service announcements (radio and video) about the southeast Florida coral reef ecosystem and the SEFCRI.

2.2.1.1.6 Print and Online Advertising

In addition to the PSAs and social media posts, CRCP staff designed and procured advertising space in both print and electronic formats in various publications throughout the region. These ads contained messaging describing the OFR process and inviting public participation.

Beginning in the summer of 2013, print and/or online ads were placed in the following publications:

The Sun-Sentinel	The Coastal Angler
The Miami Herald	The Palm Beach Post
El Nuevo Herald	The Pelican Newspaper
The Waterfront Times	FWC Fishing Regulations Guide
The Coastal Star	Miami Boat Show Guide

Announcements of the 2013 and 2016 Community Meetings were posted to many online forums (listservs and discussion boards) of the following communities: fishing, diving, boating, watersports, marine science, and conservation. The SEFCRI member contact list received direct email communication regarding the OFR process throughout (for more information on the 2016 Rollout Community Meetings outreach effort, see Section 6.1).

Updates on the *Our Florida Reefs* Process were consistently placed in the bi-annual SEFCRI Newsletter. Furthermore, all CWG and Community Meetings were open to the public and listed at minimum six weeks ahead of time in the Florida Administrative Register, as required by state of Florida statute.

Agency Communications and Outreach

The PPT considered it imperative to ensure that appropriate local, state, and federal agency leadership was educated on and remained aware of the OFR process from its inception through the end of the process. Agencies, like every stakeholder group, would remain aware of the process because of their involvement on the Community Working Groups. This extra step for outreach to local, state, and federal agency leadership was important because of their potential role in Recommended Management Action implementation once the OFR process was complete.

In order to provide consistent messaging about OFR to agency leadership, the PPT developed a short statement which was sent in 2013 to all agencies to explain the history, mission, and expected timeline of the process. This statement also aimed to clarify any confusion that might arise regarding the intent of the process. Specifically, it clarified the role of FDEP CRCP staff as facilitators and that the goal of OFR was a stakeholder-driven focus on ecosystem and habitat management.

The statement was created by CRCP staff and members of the PPT, many of whom were representatives of local, state, and federal agencies. The PPT shared ideas about how to elevate the statement within their agencies to ensure that the necessary leadership were aware of the process throughout. The final written statement is in Appendix [V](#).

This proved to be a helpful way to introduce OFR to agency staff and leadership and opened the door to a continued conversation throughout the process. During PPT meetings, the agency representatives

reported out communications they had had with their respective agency leaders. By January of 2013, the PPT decided that they would need to follow-up the statement with continued updates on the process. PPT members had received significant interest from their respective agencies and agreed to continually update their leadership, bringing questions and concerns back to the PPT for discussion (see Appendix V for follow-up statement).

The PPT stressed the importance of familiarizing and getting ‘buy-in’ from relevant agencies and organizations with the design and function of the OFR process 1) before it began and 2) throughout the process. This way, these organizations would already have familiarity with the process and knew the expectation was to be able to facilitate eventual implementation of Recommended Management Actions. As such, the CRCP embarked upon a plan for strategic communication with the following agencies and entities prior to the formation, and for the duration, of the CWGs:

2.2.1.1.7 Florida Department of Environmental Protection (FDEP)

The CRCP is part of the FDEP Florida Coastal Office’s (FCO) Southeast (SE) Region within the Division of Ecosystem Projects. As such, the FCO SE Regional Administrator, along with the CRCP Manager, oversee all actions of the CRCP – including their facilitation of the SEFCRI Team and OFR process. Since there are multiple other programs within FDEP whose authorities overlap with CRCP, a significant ‘in-reach’ strategy was enacted by the SE Regional Administrator and CRCP Manager to inform and solicit feedback from other FDEP programs such as the Southeast Regulatory District; the Beaches, Inlets, and Ports Program; the Division of Ecosystem Assessment and Restoration; Ecosystem Projects; and State Parks. Agency leadership, including the FDEP Secretary and Deputy Secretary were fully briefed as the OFR process was developed and throughout its conclusion.

Since FDEP oversees the *South Florida Water Management District (SFWMD)* the SE Regional Administrator and CRCP Manager also met with SFWMD staff and leadership on an as needed basis throughout the process.

2.2.1.1.8 Florida Fish and Wildlife Conservation Commission (FWC)

The SE Regional Administrator and CRCP Manager held multiple meetings with the FWC South Region Director and associated staff. These meetings created a forum to keep FWC informed on the OFR process, as well as solicit their input and help to reach out and engage their respective stakeholder groups. Additionally, an FWC representative on the PPT set up collaborative phone calls between the FWC Divisions of Marine Fisheries Management, Fish and Wildlife Research Institute, and Habitat and Species Conservation to ensure staff across the agency were informed on the progress of OFR. The intent of these phone calls was to outline the SEFCRI Team’s intentions and expected outcomes of the process. Communication was also intended to gauge support from FWC and solicit recommendations for how the process should be developed to ensure their target stakeholders were included. Discussions included looking at opportunities to align FWC priorities and workplans, considering options to host joint public meetings, creating status updates that were included in Executive Director reports to the Commission, and finding ways to ensure any recommendations that came out of the process could be acted upon in a reasonable timeframe by both agencies.

2.2.1.1.9 Florida Keys National Marine Sanctuary (FKNMS) - Sanctuary Advisory Council

The SE Regional Administrator is the appointed FDEP seat on the advisory body for the FKNMS, the Sanctuary Advisory Council (SAC). Throughout the entirety of the OFR process, updates on OFR were provided at each bimonthly SAC meeting. At the time, the SAC was concurrently undertaking their own stakeholder engagement process to review and update the FKNMS Management Plan and associated regulations. The goals of both processes were similar, so initial updates were focused on encouraging attendance at the 2013 OFR Informational Community Meetings, and for relevant SAC members to apply for CWG seats (as applicable) or share their local perspectives on the overall OFR process. As OFR progressed, updates focused on the community's development of RMAs and review process and encouraged SAC members to learn about and support the process.

2.2.1.1.10 Florida State Legislature

With approval from FDEP, the SE Regional Administrator and CRCP Manager attended the annual Tallahassee Ocean's Day at the State Capitol from 2012-2015 where information about CRCP, SEFCRI, and OFR was distributed to respective House of Representatives and Senate members.

2.2.1.1.11 National Oceanic and Atmospheric Association (NOAA)

Further in-reach involved keeping partners within NOAA informed on the process and its development. Since the primary funding for the FDEP CRCP is provided by the NOAA Coral Reef Conservation Program (NOAA CRCP) via a cooperative agreement, the SEFCRI Team and TAC are, and OFR process was, a result of close coordination between the FDEP CRCP and NOAA CRCP staff. As such, the NOAA CRCP Atlantic and Caribbean Team Lead presented updates at the bi-weekly NOAA CRCP staff meetings throughout the entire course of the OFR process. This individual traveled to program offices in Silver Spring, MD, and delivered a brown bag presentation about the OFR process in November 2013, prior to the formation of the CWGs. In January 2015, the Atlantic and Caribbean Team Lead presented at the annual NOAA Southeast and Caribbean Regional Team (SECART) meeting in Miami. Additionally, in September 2015, the Team Lead co-presented with the FCO SE Regional Administrator to all leadership of NOAA's National Ocean Service and Office for Coastal Management.

2.2.1.1.12 Southeast Florida Intergovernmental Coastal Ocean Task Force (COTF)

Recognizing the need for collaborative, multi-jurisdictional input on conservation measures that were being proposed for southeast Florida's water by SEFCRI and the OFR CWGs, the COTF, was established in early 2012 by a resolution in all four counties. (see Appendix VI for Miami-Dade, Broward, Palm Beach, and Martin County COTF Resolutions) Chaired by a Broward County Commissioner, the COTF process began in December of 2012 with the following objectives: a) learn about the accomplishments of the SEFCRI; b) review the priorities identified by local, state, and federal coral reef managers in southeast Florida in partnership with NOAA's Coral Reef Conservation Program; c) consider additional issues relating to resource management and user needs; d) produce a final report with recommendations for coastal ocean resources, conservation priorities and strategies.

The stakeholder groups that served on the COTF represented coastal county and city elected officials as well as local reef users and agencies. The FCO Southeast Regional Administrator was the appointed FDEP

seat on the COTF. By design, the overall goals of the two bodies were similar. While OFR was focused on the perspectives of reef user stakeholders and management agencies, the COTF was focused on the perspectives of elected county and municipality officials. Similar to OFR, the initial COTF meetings were educational presentations based on the main threats and issues facing southeast Florida's coastal oceans. This included presentations on the work SEFCRI and OFR were doing – and a standing agenda item for the monthly COTF meetings ensured consistent OFR updates. The PPT also received updates on the efforts of the COTF with the intent of keeping both groups informed.

Throughout OFR, COTF members attended CWG meetings to hear directly from the OFR stakeholders. The SE Regional Administrator was invited to give OFR updates to the respective full county commissions. During the OFR draft RMA public review period, COTF members were given the draft RMAs for review and had an opportunity to provide their perspectives on the drafts. To ensure cross-pollination between the groups, the OFR CWGs were given the final COTF recommendations for consideration before the final RMA discussions occurred.

2.2.1.1.13 U.S. Coral Reef Task Force (USCRTF) and U.S. All Islands Coral Reef Committee (AIC)

As the Florida Governor's appointed Point of Contact, the SE Regional Administrator presented bi-annual updates on OFR progress to the USCRTF and AIC. Since the SEFCRI LAS, and therefore, the OFR process were directly related to a USCRTF resolution ([Puerto Rico Resolution 2002](#)), it was important to keep high level federal agency appointees informed of the on-the-ground coral reef management efforts that their respective agencies were engaged in. The information was also discussed with the other U.S. jurisdictional coral reef managers during monthly AIC conference calls.

2.2.1.1.14 U.S. Congress

With approval from FDEP, the SE Regional Administrator attended the annual USCRTF meetings in Washington, D.C. from 2012-2016 where information about CRCP, SEFCRI, and OFR was distributed to respective U.S. House of Representatives and U.S. Senate members from Florida.

Facilitation Project Team

The PPT identified that professional facilitation and coordination services were needed for Steps 1-3 of the OFR process: 1) community meeting(s) to introduce the process and solicit members, 2) Community Working Group meetings, and finally, 3) a second series of community meetings to solicit feedback on draft recommendations with the public. With so many diverse levels of understanding, experience, and interests in the coral reef ecosystem, proficient facilitation was necessary to ensure collaborative effort among all stakeholder perspectives to achieve the mission of OFR.

The Facilitation Project Team (FPT) was created to help define facilitation goals and objectives, draft scopes of work for a facilitation contractor, and define and review deliverables for facilitation throughout the process. A contractor was hired to fulfil these needs. For FPT membership see Appendix [VII](#).

To assist with the facilitation effort, CRCP staff and SEFCRI Team members were given training on facilitation and process planning techniques. This training occurred first in 2010 and again in 2013 prior to Informational Community Meetings. In 2016, prior to Rollout Community Meetings, the CRCP, PPT,

and Core Team staff were given targeted facilitation training for potential interactions among a diverse stakeholder presence. Participants were given hands on lessons in communication, facilitation, conflict resolution, and intervention (NOAA Office of Coastal Management, n.d.).

Experience and information taken from case studies was particularly useful for facilitation and meeting planning. The facilitation contractor used these examples to aid in creating process and participant agendas, as well as kiosk questions and activities throughout initial Community Meetings (see Section 3). Specific tasks required of the contractor at the 2013 Community Meetings included: preparation, facilitation, and in-meeting logistical support. Following these meetings, the contractor submitted a final summary report with all documentation, which included: meeting minutes, attendance statistics, and public comments (Washburn & Stadler, Our Florida Reefs Community Planning Process, 2013).

For the next phase of the process (Step 2), CRCP solicited facilitators with experience in natural resource issues and finding consensus between diverse stakeholder groups. The contractor facilitated an “OFR Kickoff” event in January 2014 and CWG meetings from March through September 2014.

During the “educational phase” (March-August 2014, see Section 5.3), the Facilitation Team and consultant worked closely with CRCP staff and the PPT to ensure the CWG had an appropriate range of baseline knowledge regarding the local ecosystem resources, status, threats, and uses. The Facilitation Team also nominated and solicited speakers for the CWG “educational phase” and assisted in creating and editing presentations and process agendas for CWG meetings.

After the “educational phase,” CRCP reached out to NOAA’s Office for Coastal Management and requested the assistance of two professional facilitators that had been working peripherally with CRCP staff throughout the process. Upon request, these individuals began professional facilitation of CWG meetings in October 2014 and remained with the process until completion. The NOAA professional facilitation team engaged in all process planning and meeting facilitation.

Decision Support Tool Project Team

The OFR process was designed to provide CWG members with the necessary data and tools to make science-based management recommendations. One of these tools, as identified by the PPT, would provide the capability for spatial data display and analysis. The development and use of this tool in OFR would be completed by a professional product designer and led by the Decision Support Tool (DST) Project Team.

The DST Project Team was created to help collate relevant datasets, determine helpful electronic resources, and guide the development of the map-based tool by a professional product developer. Early on, the DST Project Team identified the need to bring on a contractor with specific GIS and spatial data expertise to help guide the development of spatial tools and products. As such, another role of the DST Project Team was to develop scopes of work and review deliverables for the proposed contract.

The role of the DST support contractors would be to 1) work with product developers to secure data, 2) provide accurate metadata for GIS data layers, 3) assist in designing the functionality of the DST, 4) produce visual products for the CWGs as needed, 5) help analyze datasets to be used within DSTs, and 6)

conduct outreach and help lead community survey efforts⁴. For DST Project Team membership see Appendix [VIII](#).

To gain a better understanding of how a DST can be successfully used in a stakeholder engagement process, the PPT, DST Project Team, and support contractors gathered information from case studies (see Section [Stakeholder](#) Process Case Studies), received guidance from the NOAA Office of Coastal Management and FWC, and attended Sanctuary Advisory Council (SAC) meetings in the Florida Keys.

This section details the development and capabilities of the Marine Planner product and its use as a platform for the Coastal Ocean Use Survey and the Decision Support Tool.

Decision Support Product Options Assessment

Prior to the initiation of the OFR process, several software and web-based applications existed which had the potential to provide the data visualization and analysis support that would be required for OFR. To assess the various tools, several members of the PPT reviewed existing applications through in-person, hands-on use, or through demonstrations of the software led by the product developer. They learned that each of these applications displayed, used, and analyzed data in different ways, which may or may have not been appropriate or useful to the OFR process.

An expert assessment of the functionality and usability of these complex applications was necessary to choose the program best suited to meet the needs of the OFR process. This included an assessment of the following criteria: the ability of the application to incorporate various local datasets, run smoothly on various operating systems, be easy to use for people not familiar with mapping or analysis programs, and produce usable and understandable outputs. These parameters were weighed against the anticipated amount of time required for upkeep and maintenance, cost, and any other needs identified by the PPT. To help evaluate all the various products on the market, the PPT suggested hiring a contractor, with specific expertise in mapping programs and analysis software.

The contractor surveyed the needs outlined by the PPT, reviewed several different DSTs and products, and provided a report of their findings to the PPT (Walker & Costaregni, Assessment of Spatial Analysis Tools in Support of the Southeast Florida Coral Reef Initiative (SEFCRI) Management Options Identification Process (MOIP), 2013). They built off a previous assessment published in 2011 (Center for Ocean Solutions, 2011) which provided a summary of information gathered over several years with DST developers and practitioners. It was created to inform users in selecting appropriate DSTs that would fit their process needs. That report identified six critical DST functional elements, each of which included specific functions that are important for addressing objectives. These functions were arranged in a matrix table to allow for comparison between different DSTs. The contractor also reviewed two newer products that had been released since that report and added them to the matrix. The contractor then used that matrix to develop survey questions for the PPT to answer regarding the importance of various functions within the OFR process.

⁴ For more information about the review and decisions made by the DST support contractors see “FDOU Project 26A Part 5 – Data Gathering Technical Support for the Southeast Florida Coral Reef Initiative (SEFCRI) *Our Florida Reefs* (OFR) Decision Support Tool”. Dr. Brian Walker and Amanda Costaregni 2014.

Through this review process, the PPT identified further needs for the program, including: the need to be modular and bring components on as needed, to have proven survey program capabilities, to be developable within a short time, and to be able to adapt during the process based on user's experience and the specific needs of the CWGs. Another fundamental requirement was the continued availability of the OFR database and web portal after the OFR process was to be completed (Walker & Costaregni, Assessment of Spatial Analysis Tools in Support of the Southeast Florida Coral Reef Initiative (SEFCRI) Management Options Identification Process (MOIP), 2013).

Decision Support Product Development

A company was contracted to build the data hosting and online mapping products needed for the OFR process⁵. The PPT identified three data and DST products needed for the OFR process, which the DST Project Team helped to guide and develop:

1. The *Our Florida Reefs* Marine Planner: To allow for visual representation of the most current data and information on the coral reef ecosystem to all stakeholders.
2. The *Our Florida Reefs* Coastal Ocean Use Survey: To allow for additional knowledge and expertise from the broader community (local and national) by collecting opt-in survey data on coastal recreation activities.
3. The *Our Florida Reefs* Decision Support Tool: To provide CWG members with a tool to conduct real-time analysis and planning, and to model management options.

2.2.1.1.15 *Our Florida Reefs* Marine Planner

The OFR Marine Planner was built to be a freely accessible online mapping and data visualization resource. The development began in May 2014 and was debuted on August 14, 2014 at a workshop for the North and South CWG members (see Section [Marine Planner Workshop](#)).

The DST Project Team discussed and provided guidance to the contractor on the graphical user interface, the layout of the tool, and the organization of the site, as well as reviewed and tested the elements of the Marine Planner. They also reviewed and assisted in determining data layers to be included. The DST Project Team requested that the tool be user friendly, visually appealing, with the same branding and identity elements of OFR (Figure 8). The contractor integrated these requests and provided the following elements in the DST:

- Tutorial: Three tutorials were created to help users navigate the Marine Planner: Tour the Basics, Tour the Data Tab, and Tour the Active Tab.
- Basemap: The user had the option to toggle between several different backgrounds, allowing them to customize the display to their needs. Basemaps included: ESRI satellite, ESRI Ocean, ESRI physical, ESRI streets, Open Street Map, and NOAA nautical charts.
- Data Layers: The user could toggle on and off different data layers, change their transparency, and dictate the order in which layers were stacked. Data layers were grouped for easier navigation into:

⁵ For more in-depth information regarding the structure of the final developed products see “FDOU Project 26B Task 5 – *Our Florida Reefs* (OFR) Process Consultation” by Dan Crowther 2015 (http://www.dep.state.fl.us/coastal/programs/coral/reports/FDOU/FDOU_26b_05.pdf).

coral, fish, habitat, management, people, and water. A search tool was also created for users to easily find data and information.

- **Zooming/Full Screen:** The user could zoom in and out using +/- controls.
- **Measure:** The user could measure linear distances between two points or several points.
- **Bookmarks:** The user could create bookmarks of their individual Marine Planner map. This allowed individuals to add layers and zoom to relevant areas, among other functions.
- **Share this Map:** The user could share their map projection with others by either sharing a URL, or by embedding the link on their own website.
- **Print/Export:** The user could generate a PDF of their Marine Planner map and print or save that PDF.
- **Feedback:** A feedback button was provided for the user to send any technical issues or other comments to the Marine Planner developers.

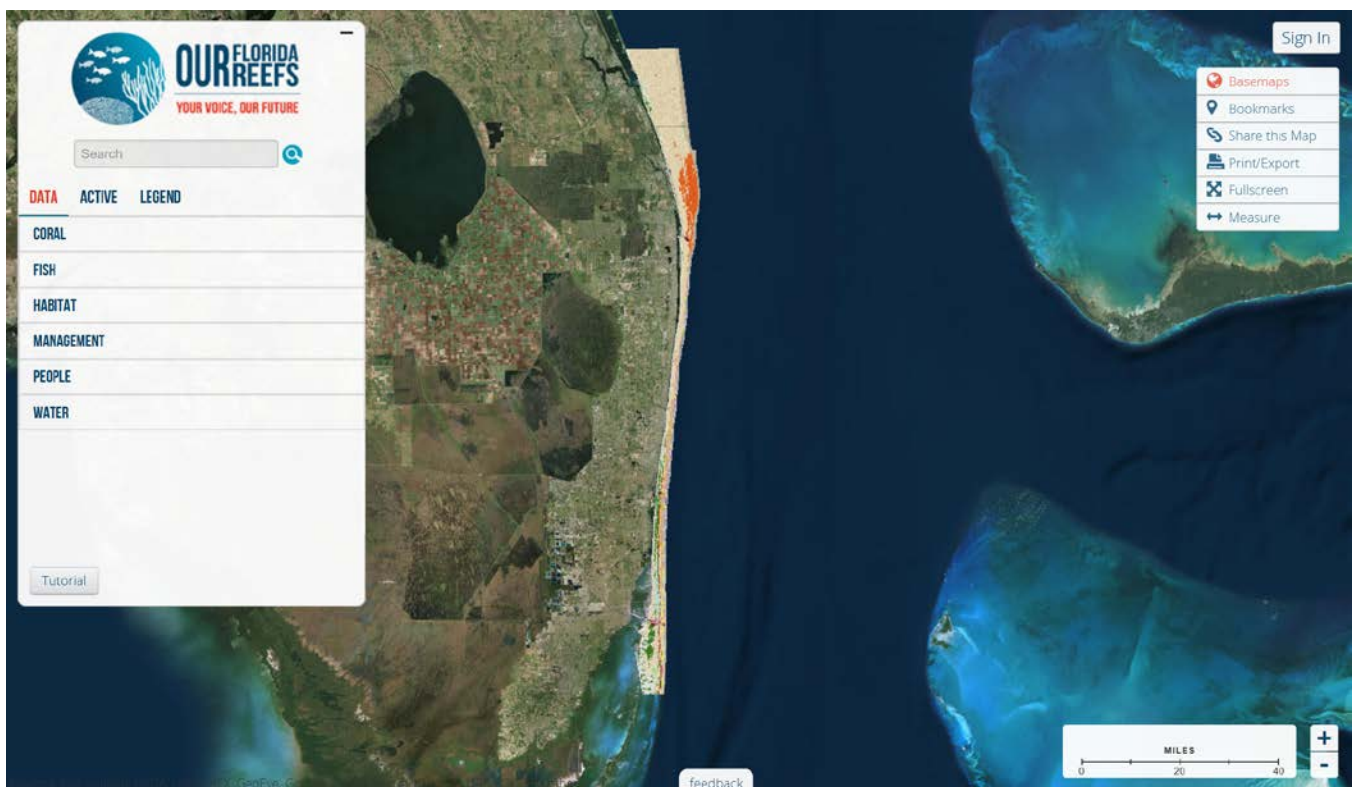


Figure 8: Screen capture of the Our Florida Reefs Marine Planner user interface.

The DST Project Team agreed that the Marine Planner would be accessible to the public without creating a log-in so that they could easily access the same information as the CWGs. However, CWG members did create user accounts which allowed them to save and share their maps with each other. User accounts were also needed to allow access to the DST. The product designer and support contractors had the ability to create user groups, assign administrative permissions, and help with technical issues such as password retrieval. This also allowed the tool developers to understand how the groups used the tool and to troubleshoot problems.

In order to populate the database, DST support contractors generated a list of available GIS data layers from SEFCRI partners, including FWC and NOAA. This list was provided to the DST Project Team to review, identify the data most relevant to the process, and identify gaps. Based on this feedback, the DST support contractors selected and stored project data layers on an existing ArcGIS Online and ArcREST system at FWC. Using an ArcREST system to manage the data layers accelerated the process of setting up the Marine Planner and allowed for staff to easily add layers or make edits to the metadata of specific layers by replacing the file stored there. Additional control of layers was given to OFR support staff during administrative training (Crowther, 2015).

Throughout the process, as additional data layers were needed or requested, the DST support contractors added those to the original list, resulting in approximately 115 data layers in the final program⁶.



Figure 8: Our Florida Reefs reef use survey outreach flyer, front and back.

2.2.1.1.16 Our Florida Reefs Coastal Ocean Use Survey

An online survey was created using the Marine Planner which collected both spatial and non-spatial data from participants regarding their reef resource use. The survey looked at stakeholder engagement in coastal and coral reef related activities within the southeast Florida region, from north of Biscayne National Park in Miami-Dade County, to the St. Lucie Inlet in Martin County. The information gathered was used to update existing use information to increase understanding on which reef-related activities stakeholders participate in, as well as where and how often (Walker & Costaregni, FDOU Project 26A Part 5 Task 2–Our Florida Reefs (OFR) Survey Results, 2015). The survey collected data from October 2014 through March 2015.

The primary objective of the Coastal Ocean Use Survey was to inform the CWG of current resource use, however, added benefits included informing a wider audience about the OFR process, and providing an avenue for the broader community to communicate to the CWG.

During the development of the survey, the DST Project Team provided feedback on information to be

⁶ For additional information on data layers, including the metadata associated with them see “FDOU Project 26A Part 5 Task 5 – Our Florida Reefs (OFR) Marine Planner Metadata” by Dr. Brian Walker and Amanda Costaregni 2015

gathered in the survey, the length, flow, and time the survey would be active online⁷. The DST Project Team also provided guidance on advertising the survey to different user groups across all four counties. Multiple methods of advertising and engagement were employed for this specific outreach effort. An advertisement postcard was created to be handed out at various locations including in outreach booths and local marine-related businesses that were willing to display it (see Figure 8).

Presentations were given throughout the region to dive clubs, underwater photography clubs, fishing clubs, and environmental professionals' clubs, and others. A total of 25 locations were visited to hand out survey postcards. Survey outreach emails were sent to over 45 different groups targeting thousands of south Florida residents. Social media venues included Facebook and Twitter postings on various southeast Florida reef related pages like Florida's Coral Program, Protect Our Reefs, and Divers Direct.

Articles were also posted on various online forums such as Scuba Board and Florida Sportsman. A press release was published to highlight the Coastal Ocean Use Survey and its importance in the effort to balance the use and protection of Florida's reefs. Various media groups covered the story including The Sun Sentinel, The Fishing Wire, and Nova Southeastern University's Shark Bytes. The cumulative outreach effort had a substantial effect on the number of survey respondents⁸.

2.2.1.1.17 Our Florida Reef Decision Support Tool

The OFR DST was developed to provide CWG members with the ability to use the most current scientific data to better understand where management recommendations may be applicable. This tool allowed CWG members to conduct real-time analysis of spatial data within the coastal region and model different management options. Two DST functions were developed: the "Planning Unit Filter" (Filtering) tool, which allowed CWG members to query data, and the "Drawings" tool, which allowed CWG members to retrieve statistical information and parameters about a selected coastal area. Another component of the DST was several pre-generated comparison report (graphs) which allowed users to compare their filtered or drawn designs to one another.

Planning Unit Filtering Tool: The Planning Unit Filtering Tool allowed CWG members to identify data features that were important to a given recommendation, set parameters on that feature (usually a numerical value or an include/exclude command), and view areas in the region that met their specified features and parameters. This allowed a data-based area of interest to be identified with the potential to meet the goals and objectives of their recommendations.

To develop this tool, a grid was overlaid on the OFR region of interest which comprised 24,082 cells that were 200m x 200m each (the same grid that was used in the Coastal Ocean Use Survey). Then, 37 of the existing data layers in the Marine Planner were summarized to that grid. That is, on each data layer, data points (including max, min, and average values) were reported for the whole 200m x 200m cell. If no data point existed within that cell, then the cell reported a value of zero for that feature. Limitations such as

⁷ For more information about DST discussions and feedback, see the "FDOU Project 26A Part 5 – Data Gathering and Technical Support for the Southeast Florida Coral Reef Initiative (SEFCRI) *Our Florida Reefs* (OFR) Decision Support Tool" by Dr. Brian Walker and Amanda Costaregni 2014.

⁸ For more information regarding outreach efforts see "FDOU Project 26A Part 5 Task 1–*Our Florida Reefs* (OFR) Survey Outreach Efforts" By Dr. Brian Walker and Amanda Costaregni 2015.

this one, where a 0 doesn't necessarily mean that the feature is non-existent, but that no data had been collected there, were explained to the CWG⁹.

Given the limitations of not having data in all 24,082 planning units, local knowledge was a crucial component of the CWG's use of the DST. Stakeholder knowledge was very important to the process of identifying potential areas of interest and understanding how user-defined areas met the goals and objectives of CWG recommendations.

The data within the filtering tool were placed into topic bins for easier navigation. The final categories were: Habitat (7 data layers), Coral (10 data layers), Fish (3 data layers), People (10 data layers), and Management (7 data layers). For example, if CWG wanted to understand areas where mooring buoys could be placed to help reduce impacts to reefs; they could choose boater intensity, water depth, and areas with reef as three data features, and set parameters such as high boater use, depths less than 50 feet, and planning units with at least 50% reef habitat. The filter would then identify the areas in the coastal region that met those parameters.

Drawing Tool: The drawing tool allowed CWG members to freely trace an area of interest and examine the data for that specific area. Once the area was drawn, the filtering tool could be used to identify features, retrieve statistical information, and set parameters within that area.

Comparison Reports: The ability to draw specific areas prompted the need to compare between the data features of two or more areas of interest. As such, an additional feature of the DST was the development of immediate comparison reports. This feature allowed users to compare several drawings at once through a computer-generated graph. These graphs showed how different areas compared in defined features. Comparison reports were generated based on specific features that the CWG identified as important across several goals and their associated recommendations.

The final comparison graphs provided data for the following parameters within a specified drawing area: substrate type (percent reef or sand), depth range, species richness (number of fish or coral species), reported activity days (diving, fishing, or total, according to the Coastal Ocean Use Survey), and percent reef v. entire region (percent reef in drawing area out of the entire coastal area).

The DST Project Team discussed concern that CWG members may find the DST technology intimidating. To ensure CWG confidence and comfort with the tool, a workshop was held to explain the benefits of using a DST and to help train CWG members on the various technological resources available to them (for more information on this workshop see Section [Marine Planner Workshop](#)). Staff made extra accommodations for those that could not attend the workshop to ensure that everyone was comfortable using the DST.

2.2.1.1.18 Marine Planning Electronic Resources

⁹ To learn more about the tool and the limitations of the data see ([FDOU Project 26b - Our Florida Reefs Process Consultation](#), FDOU Project 26A Part 5 Task 5 - [Our Florida Reefs](#) (OFR) Marine Planner Metadata).

In addition to the Marine Planner, Coastal Ocean Use Survey, and Decision Support Tools, every attempt was made to have information readily accessible to CWG members both in meetings and out. To facilitate discussions and the ability to work with documents and the DST, five Microsoft tablet computers were purchased. These tablets allowed CWG members to access the internet, open documents, and access the OFR website, Marine Planner and DST as necessary.

An E-Beam[®], which turns any surface into an interactive screen, was purchased to allow meeting facilitators to project the DST onto meeting room walls and allow CWG members to interact with the DST. However, it was found that having the DST support contractors and meeting facilitators navigate the DST was a more efficient means of conducting the meeting. CWG members could still approach the screen and point out areas as necessary.

A final resource was an online bibliography in Endnote[®]. All documents discussed in the meeting, including reports, white papers, permits, etc. were housed in this online repository to which all CWG members had access. This allowed CWG members to be able to research and share additional materials and cite documents on their own time while developing their recommendations.

3 INFORMATIONAL COMMUNITY MEETINGS

In June 2013, a series of Informational Community Meetings were hosted by FDEP CRCP. Goals of the OFR Informational Community Meetings included:

- Participants increase their knowledge of southeast Florida’s coral reef ecosystem.
- Participants learn about the OFR Community Planning Process and SEFCRI.
- Participants learn how to engage and are encouraged to participate in OFR.

In order to capture input from the community and ensure the meetings were run efficiently, FDEP hired a contractor to provide services such as planning and pre-meeting logistical support; facilitation, in-meeting logistical support, and recording and submission of minutes and public comments (Washburn & Stadler, Our Florida Reefs Community Planning Process, 2013).

3.1 Meeting Design

Twelve meetings were held across southeast Florida at six separate locations. At each location, two separate meetings were held from 2-4 P.M. and 6-8 P.M., following the same format and agenda. Meeting dates and locations included:

- Wednesday, June 5, 2013: Palm Beach County: South Florida Water Management District, West Palm Beach, FL
- Thursday, June 6, 2013: Martin County: Indian River State College, Stuart, FL
- Wednesday, June 12, 2013: Palm Beach County: South County Civic Center, Delray Beach, FL
- Wednesday, June 19, 2013: Broward County: Nova Southeastern University Oceanographic Center, Dania Beach, FL
- Tuesday, June 25, 2013: Miami-Dade County: North Dade Regional Library, Miami, FL
- Wednesday, June 26, 2013: Miami-Dade County: South Dade Regional Library, Cutler Bay, FL

The format of the Community Meetings included an introductory one-hour formal presentation by OFR staff. This presentation included information on southeast Florida’s coral reefs, uses, threats, and lack of

coordinated management. It also explained the need for community input on future management and how the OFR process was designed to fulfil that need.

The presentation was followed by a one-hour period for participants to visit a series of six educational kiosks with the following thematic topics: Coral & Habitat, Ecosystem, People & Management, Water & Fish, The OFR Planning Process, and the Decision Support Tool. Informational materials and activities were available at each kiosk with the goal of engaging participants and increasing their knowledge of each topic. Applications to become a CWG member were available for participants at Community Meetings.

3.2 Feedback Collection

Upon arrival, guests registered with their name, contact information, and stakeholder group. This allowed staff to get an understanding of the types of stakeholders present and determine if additional targeted outreach was necessary. Participants were asked to participate directly in the meeting in several ways.

Each of the six educational kiosks had interactive activities to motivate participants to provide feedback. Activities at each kiosk included:

- Coral & Habitat kiosk: participants were asked to guess the percentage of types of benthic cover found on southeast Florida’s reefs (sponges, soft corals, hard corals, algal communities, and other).
- Ecosystem kiosk: participants were presented with eight images of different reef ecosystems in various states and were asked to vote for the ecosystem they thought was healthy and the ecosystem they thought was unhealthy.
- People & Management kiosk: prompted with the statement “My reefs are important to me...” participants were provided the opportunity to write in a response or vote by sticky dot for their preferred reason.
- Water & Fish kiosk: participants were asked “What is the biggest threat to water quality?” and were provided the opportunity to write in a response or vote by sticky dot for their preferred reason.
- OFR Process kiosk: participants are asked “What is the best way to communicate with you?” and then voted for their preferred method using sticky colored dots to identify their stakeholder affiliation.
- Decision Support Tool kiosk: participants were shown static maps of different data layers and asked how they could be combined/overlaid to help determine management actions for particular objectives.

Participants were asked to respond to the following questions on a comment card:

- 1) “Do you have any reef-related concerns or specific problems you would like to share?”
- 2) “Do you have suggestions on how to improve the *OFR* community planning process?”
- 3) “What’s the best way to engage, inform, and work with your community (e.g., private citizen, local business, etc.)?”
- 4) “What is the best way to communicate with you? Please specify the names of publications, broadcast channels, or social media.”
- 5) “Do you have any additional comments or suggestions about the *Our Florida Reefs* process, the community meeting you attended, or any other aspect of the Southeast Florida Coral Reef Initiative (SEFCRI)?”

Prior to leaving, participants completed meeting evaluations to provide feedback on the success of the meeting. This allowed CRCP staff to improve methods between meetings.

Kiosk leaders (CRCP staff and SEFCRI Team members) were asked to complete a post-meeting survey to capture their insights about the success of the meeting according to the established goals. This information allowed the PPT and facilitators to understand the dynamics of each kiosk and hear about notable interactions, successes, drawbacks, and suggestions which could be used to improve future Community Meetings.

3.3 Results

After the Informational Community Meetings, the contractor created a report summarizing public input received via comment cards, evaluations, and kiosk activities, as well as participant information collected at sign-in and surveys submitted by staff and volunteers at each event (Washburn & Stadler, Our Florida Reefs Community Planning Process, 2013). This summary report was reviewed and discussed by the PPT. Feedback gathered directly from Community Meeting participants was used to inform the PPT on how to further develop the OFR process, help guide future SEFCRI and OFR communications, and promote more effective stakeholder outreach and engagement.

4 FORMATION OF THE COMMUNITY WORKING GROUPS

4.1 Community Working Group Structure

Using information from case studies (see Section [Stakeholder Process Case Studies](#)), SEFCRI projects (see Section [Collecting](#) and Compiling Relevant Data for Project 26B), and previous experience, the PPT designed the structure and composition of the stakeholder working groups, called Community Working Groups (CWGs), for the OFR process. Beginning in May of 2012, the PPT discussed how to form diverse and functional CWGs that could successfully develop a set of recommendations to balance use and protection of southeast Florida's corals.

The PPT decided on the following general guidelines for CWG composition:

- I. A maximum of 25 individuals per CWG, representing 1 CWG per county.
- II. Composed of major stakeholder and user groups in the region, broken down into designated stakeholder seats.
- III. Members are leaders/experts who can represent the perspectives of their group and be conduits of information to and from that group.

As the OFR region of interest contains four southeast Florida counties comprising 105 miles of coastline, the PPT discussed potential benefits and drawbacks of multiple CWGs (up to four CWGs, one per county). The benefits of creating multiple CWGs included minimizing travel time for CWG members attending meetings and the ability to focus on regionally pertinent issues. The drawbacks of creating separate CWGs included logistical challenges of sharing information between CWGs and the creation of multiple sets of recommendations, which allow for the possibility of overlap and/or lack of consensus.

Ultimately, it was the stakeholder selection committee (see Section [Stakeholder Selection](#) Committee

) who decided how many CWGs would be created based partly on the size of the applicant pool. After receiving and reviewing applications, the stakeholder selection committee agreed to create two distinct CWGs, one with representatives from the northern two counties (Palm Beach and Martin), and one from the southern two counties (Miami-Dade and Broward).

The PPT then designed a way to maximize the benefits and minimize the drawbacks of multiple CWGs. From March 2014 to June 2015, the two CWGs met separately as two distinct groups for the first two-thirds of the process. During these meetings, each group focused on creating RMAs that would include regionally pertinent information. Then, in September 2015, the two groups joined together into one Joint CWG and merged their lists of RMAs.

Community Working Group Members

Ultimately, the role of Community Working Group members in the OFR process was to create management recommendations that reflected local user-group perspectives. To accomplish this, members were expected to attend meetings, participate in activities, discuss their thoughts and concerns, and present their input and perspectives of their stakeholder groups to the rest of the CWG. Members were also explicitly tasked with communicating with their stakeholder groups throughout the entire process. As conduits of information, CWG members were asked to communicate the progress of OFR to their stakeholder groups and, in return, bring the ideas and concerns of their stakeholder groups to OFR.

FDOU Projects 18 and 20B, which were achieved through surveys of stakeholder panels (see Section [SEFCRI](#) Local Action Strategy), helped inform the composition of the CWGs in OFR. Some of the findings of these inter-regional and inter-stakeholder comparisons included the need for a “meaningful dialogue between stakeholders and management agencies to adopt measures to improve resource conditions”. Recommendations from these FDOU projects ensured that both agency and non-agency representatives were included on the CWGs. However, the ratio of agency to non-agency seats was intentionally skewed to ensure that more direct user-groups (fishing and diving) were included.

The following is a table of the number of seats designated for each stakeholder group within the North and South CWGs. All listed “specific interests” or are stakeholder subgroups which the selection committee considered as they created diverse CWGs.

Table 4: Community Working Group stakeholder seat distribution.

Stakeholder Group	Number of Seats Per CWG	Specific Interests Represented
Diving Interests	3	Dive Shops/ Charters, Dive Professionals, Recreational/ Adventure Divers, Underwater Photographers, Spearfishers
Fishing Interests	3	Commercial Fishers, Recreational Fishers, Recreational Charter Boats, Fishing Industry Professionals
Private Business Interests	3	Consultants (Environmental and Engineering), Marine Industries, Homeowners Associations, Sailing Clubs, Boating Retailers, Agriculture, Ports

Water Sports	2	Surfing, Wind/ Kite Surfing, Paddle Boarding, Parasailing, Snorkeling
Academic Institutions	2	Middle School, High School, and University Educators
Environmental NGOs	3	International, National, and Local NGOs
Citizen at Large	2	
Enforcement	1	FWC, NOAA
County Government	2	Miami-Dade County, Broward County, Palm Beach County, and Martin County
State Government	3	FDEP, FWC, SFWMD
Federal Government	2	NOAA, USACE, USEPA, USCG

Since OFR was not politically motivated, or an advocacy group, the PPT made the decision to not include state legislators or local elected officials on the CWGs. A distinct parallel group coordinated by Broward County, the Southeast Florida Intergovernmental Coastal Ocean Task Force, included local elected officials (see Section [Agency Communications and Outreach](#)).

The entire OFR process was built to be as transparent as possible. In that spirit, CWG members were encouraged to think about any potential or perceived conflicts of interest that could potentially affect their ability to work in a fair and unbiased way to achieve the group mission. Per the OFR charter, a conflict of interest is defined as “using their position on the CWG to secure unfair or inappropriate privilege, gain, or benefit”. CWG members who were also part of the SEFCRI Team were asked to recuse themselves from their SEFCRI duties on an as-needed basis if SEFCRI were conducting any activity that could affect the CWG’s products. Neither the North nor South CWG reported any real or perceived conflicts of interest in the beginning of the process but agreed to bring concerns forward should they arise.

Community Working Group Alternates

Community Working Group members were allowed to select an alternate from their same stakeholder group. The function of this alternate would be to stand in for the primary CWG member at meetings when necessary and bring information back to the primary from the CWG. Including alternates ensured that all stakeholder groups were present at as many meetings as possible. Some stakeholder groups have less flexible schedules than others and having an alternate allowed them to continue to have a voice even when they could not make a meeting. Alternates were required to understand the subject matter, but not necessarily to the extent of the primary. The primary was asked to submit a statement about the general qualifications of their chosen alternate. However, alternates were not required to go through the same review and selection process as the primary CWG members (See Section 4.2 below). Additionally, a single person could not act as an alternate for more than one primary CWG member.

It was important for alternates to stay informed of the process to the extent that they would be able to step in for their primary in a meaningful way when necessary. Due to this potential challenge, the PPT agreed in the beginning of the process that alternates would have the ability to sit in on the process and take notes for the primary, but that they would not be able to act as a full CWG member (i.e., alternates could not vote on group decisions). Later in the process, when the two CWGs merged, this policy was revisited. Based on the significant participation of alternates throughout the process, primary CWG members updated the policy to allow alternates to engage fully and vote in meetings if they were attending in their primary's stead.

4.2 Stakeholder Selection Process

Applications to become a member of a CWG were solicited at the 2013 Informational Community Meetings (see Section 3). Applicants could get an application from one of the Informational Meetings or online, and could submit them via mail, fax, or e-mail (See Appendix [IX](#) for a copy of the CWG application). Targeted outreach was conducted in an attempt to solicit applications from groups that were anticipated to be underrepresented or may have been unable to attend the Informational Community Meetings. Members of the PPT, the selection committee, and others were tasked with reaching out to stakeholder groups and agencies to solicit CWG member applications as needed.

To fill the CWGs, the stakeholder selection committee accepted applications and nominations. Nominees were also required to submit an application. Governmental agency representatives were appointed directly by their agency and did not need to apply. However, they were still required to submit a questionnaire/biography to ensure that they met the outlined criteria (Section [Stakeholder Selection Criteria](#)).

Stakeholder Selection Committee

The application process for the CWGs required a selection committee to review applications and fill stakeholder seats. The PPT decided that the CWG selection committee would be comprised of the SEFCRI Chair and Vice-Chairs. If a Vice-Chair felt they had a conflict of interest financially, personally, or that they wanted to apply for a CWG seat, they recused themselves from making a selection for that seat.

The SEFCRI Vice-Chairs used a tool developed by the PPT to help organize and score applicants according to their qualification for each of the defined criteria below. Each individual score from the Vice-Chairs was averaged to give a total score for each applicant. This score gave the Vice-Chairs a way to start a conversation about each applicant. See Appendix [X](#) for a copy of this guidance document.

Along with this scoring tool, each member of the SEFCRI Vice-Chairs indicated whether the applicant would be accepted, rejected, or if an interview were necessary before the final decision were made. The SEFCRI Vice-Chairs found it unnecessary to interview every applicant. However, interviews were conducted as a tie-breaker if a single seat had multiple qualified applicants.

Finally, all CWG applicants approved by the SEFCRI Vice-Chairs were reviewed by the SEFCRI Chair as per the SEFCRI Charter. This extra step ensured that the selection process was conducted in a thorough manner and met the requirements set forth in the selection criteria guidance document.

Stakeholder Selection Criteria

Once applications were submitted, the SEFCRI Vice-Chairs reviewed and selected the CWG members based on specific criteria. Community Working Group member selection criteria were created by members of the PPT using the criteria adapted from other stakeholder processes. All applicants were evaluated by the SEFCRI Vice-Chairs using the criteria that CWG members should:

- Be a current resident of southeast Florida (Dade, Broward, Palm Beach and Martin County).
- Represent their community and professional constituency, which would allow them to facilitate the exchange of information between the CWG, the SEFCRI Team, and the community.
- Demonstrate knowledge, engagement, and interest in topics such as natural resource harvest, conservation, and resource management.
- Effectively participate in meetings and not disrupt meetings or interfere with OFR business.
- Increase diversity in geographic distribution, industry representation, resource users, economic, and social groups.
- Work collaboratively with others.
- Balance a regional perspective with localized knowledge.

PART II: Process Implementation

5 COMMUNITY WORKING GROUPS

Step 2 of the *Our Florida Reefs* Process (see Figure 5) began in January of 2014 with a Community Working Group kickoff event and continued until the draft Recommended Management Actions were finalized and prioritized in June of 2016. Chapter 5 focuses on a specific step in the process where CWGs met to develop guiding principles for the group, engage in an educational phase, and draft initial RMA content, including everything that happened between January 2014 and June 2015. The following chapters will describe Step 3 of the process and subsequent CWG work to integrate community responses to RMAs. In order collect community feedback to aid this process, there was a public comment period built into every CWG meeting.

In the beginning of Step 2, except for the CWG kickoff event, the two CWGs met separately as North and South bodies and worked concurrently to develop distinct lists of draft RMAs. This design was intentional to allow the separate bodies to focus on both the specific issues of their regions and the entire northern third of the Florida Reef Tract as well. In September 2015, the two CWGs began to meet as one unified group to create a single comprehensive list of RMAs (see Section 5.6).

5.1 Community Working Group Kickoff Event

In January 2014, the members of the newly formed North and South CWGs met for the first time at a Kickoff Event at The Nova Southeastern University Oceanographic Center in Broward County. The purpose of this event was to provide an opportunity for CWG members to meet each other, hear from leadership of involved agencies, including FDEP, FWC, and NOAA, and to enjoy a keynote address from local reef scientist and writer, Dr. Ellen Prager.

At the Kickoff Event, CWG members were encouraged to meet their fellow community working group members. An introductory presentation was delivered by the CRCP Manager, Jamie Monty, and included a short overview of SEFCRI and the objectives of OFR. After this introduction, the CWG heard brief remarks from three individuals on behalf of their respective agencies: Chuck Collins, the Southeast Regional Director for FWC; Dr. John Christensen, Program Manager of NOAA's Coral Reef Conservation Program; and Drew Bartlett, Deputy Secretary of the FDEP.

The keynote speaker, Dr. Ellen Prager, then delivered a talk to the group about communicating marine conservation concepts. The CWG members all received copies of Dr. Prager's book *Sex, Drugs, and Sea Slime: The Oceans' Oddest Creatures and Why They Matter*, courtesy of The Nature Conservancy.

The kickoff event was a successful way to bring the CWG members together and fostered energy and excitement for the work that lay ahead.

5.2 Community Working Group Guiding Principles

The first task of the North and South CWGs was to establish rules that would govern how the CWGs would operate, fostering a smooth and efficient working environment. The following is a summary of those discussions and the guidelines that the groups produced between March and August of 2014. Each section below includes the justification and process for defining each guiding principle, the outcomes of those discussions in the North and South groups, and the final principles agreed upon when the North and South CWGs merged as one "Joint CWG" in September 2015.

Mission Statement

The purpose of defining a mission statement is to create a summary of the goals and values of the OFR Process that would help guide the group. The mission statement includes what the group intends to do, for whom, and to what benefit. To accomplish this, the facilitator presented the SEFCRI mission statement as a starting place and allowed each CWG to propose and choose modifications. This was one of the very first things that each of the community working groups did.

North CWG: "The mission of the *Our Florida Reefs* North Community Working Group is to collaboratively develop a prioritized list of recommended management actions to preserve and protect southeast Florida's coral reefs and associated reef resources and to reduce continuing trends toward declining coral reef health, emphasizing balance between resource use and protection, and to provide information needed to implement priority management actions."

South CWG: "The mission of the *Our Florida Reefs* South Community Working Group is to collaboratively develop a prioritized list of management actions to preserve and protect southeast Florida's coral reefs and associated reef resources, emphasizing balance between resource use and protection, and to provide information needed to implement priority management options."

Joint CWG: "The mission of the *Our Florida Reefs* Joint Community Working Group is to collaboratively develop a prioritized list of recommended management actions to preserve and protect southeast Florida's coral reefs and associated reef resources and to reduce continuing trends toward declining coral reef health,

emphasizing balance between resource use and protection, and to provide information needed to implement priority management actions.”

Group Norms

To foster an environment of collaboration between the CWG members, the facilitator led the group in an activity to agree upon group norms. The group learned four qualities of collaborative effort: full participation, mutual understanding, inclusive solutions, and shared responsibility. With these values in mind, the CWG members were prompted to come up with a set of group norms as a reminder about how to treat each other and participate throughout the process. The following table shows the group norms created by the North and South CWGs:

North CWG:

- Be committed to achieving the mission.
- Every idea is worthy of being heard.
- Be tough on issues and ideas but easy on individual people and always seek common ground.
- Be prepared and participate.
- Be respectful of the speaker.
- Stay on point and be respectful of each other’s time.

South CWG:

- Stay open to new ways of doing things.
- Really listen to understand.
- Critique ideas, not people.
- Respect each other’s technical and educational levels.
- Be polite, courteous, and respectful.

Joint CWG:

- Be committed to achieving the mission.
- Critique ideas, not people, seek common ground where possible, and show all perspectives.
- Be respectful of the speaker.
- Every idea is worthy of being heard. Stay open to new ways of doing things.
- Be prepared and participate.
- Stay on point and be respectful of others’ time.
- Really listen to understand.
- Respect each other’s technical and educational levels.
- Be polite, courteous, and respectful.
- If the primary CWG member is present, the alternate must attend as an audience member.

Decision Rules

One of the inevitable challenges that any group must face as it makes decisions together are differing perspectives. There are distinct benefits to these differing perspectives; if a group is homogeneous, they

will likely find a solution to agree upon, but it may not fully solve the problem because it may be one-sided. Diverse perspectives provide a broader array of solutions that may otherwise have been missed.

Different decision-making tools were discussed by the PPT in designing the OFR Process. Gaining one hundred percent consensus on any issue can be very difficult, however the recommendations that would eventually come out of the group needed to be agreed upon in some manner. Exactly how this would be done was discussed at length by the PPT. One proposal stated that only recommendations that were supported by more than half of CWG members would move forward and, then, would be binned as "higher priority" if they received relatively more support among the group. Ultimately, the PPT agreed that this was a matter that should be decided directly by the CWG members, as it was their process and they would agree upon decision rules.

To lay the groundwork of successful collaboration, the facilitator led the CWG members in a conversation about the dynamics of decision making as a group of people coming from diverse backgrounds and perspectives. The group was also presented with a decision-making model derived from an established participatory decision-making process (Kaner, 2014). The following are the general steps presented as a decision-making model:

- 1) All ideas are presented
- 2) Thoughts begin to diverge, questions asked, options arise and morph
- 3) Questions are resolved, and the number of options shrink
- 4) Thoughts begin to converge
- 5) A mutually agreeable decision is made

The group was prompted to create a consensus-based decision process to make group decisions. This included the creation of two sets of rules:

- 1) Procedural Votes: for informal decisions like procedural and trivial issues
- 2) Formal Recommendation Votes: for content decisions like listing and prioritizing RMAS.

The percentage of votes needed according to CWG decision rules are summarized below:

<u>North CWG:</u>	<u>South CWG:</u>	<u>Joint CWG:</u>
Procedural Votes: 65%	Procedural Votes: 60%	Procedural Votes: 62%
Formal Votes: 83%	Formal Votes: 75%	Formal Votes: 75%

Voting rules for the North, South, and Joint CWGs included the requirement of a quorum (at least 50 percent) of the full CWG to be present for a formal vote to be valid. Both groups originally agreed that alternates would never be able to vote in formal matters, however, upon revisiting the decision rules in September 2015, the group voted that alternates should be allowed to vote if they were attending in the stead of their primary. During this same discussion, the Joint CWG clarified how to manage abstentions and recusals in voting. To abstain means to refrain from voting by your own choice, whereas recusal is refraining from voting due to conflict of interest or instruction from a superior. The group voted to agree that if CWGs were to recuse themselves from a vote, that that would reduce the number counted for quorum. However, abstainers would remain a part of the quorum.

Charter

The formation of a charter was important to allow the two CWGs to outline the conditions under which the groups were organized. This formal document would dictate the guidelines under which the CWGs would function. It was referred to many times throughout the process as a guiding document for decisions and included all the CWG dynamics as agreed upon by the CWGs in this section.

As OFR was a SEFCRI product, the basis for the original OFR charter language was the SEFCRI charter. This was an appropriate starting place, as SEFCRI is a similar stakeholder body whose charter has been successful in defining the governing principles of the group. The two CWGs held discussions on the content of each groups' charter. Both groups agreed to minor modifications in language and voted on adopting separate North and South CWG Charters. It was explained to the CWGs that by accepting these charters, they were confirming that they understood and accepted the mission, and agreed to abide by the guidelines, policies, and procedures of OFR. See Appendix [XI](#) for full OFR Charter.

When the North and South CWGs merged into a single entity, the two charters were also merged into one which included the principles newly agreed upon by the Joint CWG.

Work Plan

A Work Plan is defined as a schedule of work that includes meeting dates and general goals. Given the rough guidance of 12 all-day meetings held monthly, with periodic breaks for SEFCRI review, the CWG created a work plan to guide the OFR process moving forward. The CWG revisited the work plan several times throughout the process to agree on necessary modifications. Any changes would require an agreement through a vote. See Appendix [XI](#) for final approved work plan.

Focus Area Development

The CWG was asked to develop broad focus areas within which they would create RMAs. This would allow for easier organization of thoughts and ideas and would allude to the implementation body that may be responsible for the action. Both groups were presented with three strategic planning documents (the SEFCRI LAS, CRCP Strategic Plan, and Florida Coral Reef Management Priorities) which contained examples of focus areas which had been previously identified by coral reef management bodies like SEFCRI. See Appendix [XII](#) for a synthesis of the management goals in those three documents. These focus areas were a starting point for their focus area development.

The original proposed focus areas were as follows:

- Land-Based Sources of Pollution; Water Quality
- Maritime Industry and Coastal Construction Impacts
- Fishing, Diving, and Other Uses
- Awareness and Appreciation; Education and Outreach
- Coral Reef Habitat Restoration

Once the CWGs began developing the initial list of RMAs, some focus areas were changed. After discussion, voting, and augmenting based on needs presented by new draft RMAs, the final focus area grouping for the CWGs were as follows:

North CWG:

- Education, Outreach, Awareness
- Enforcement
- Fishing, Diving, and Other Uses
- Land-Based Sources of Pollution; Water Quality
- Coastal Management and Construction
- Direct Impacts to Reefs

South CWG:

- Land-Based Sources of Pollution; Water Quality
- Maritime Industry and Coastal Construction Impacts
- Fishing, Diving, Boating, and Other Uses
- Awareness and Appreciation; Education and Outreach
- Coral Reef Habitat Restoration

Joint CWG:

- Land-Based Sources of Pollution
- Maritime Industry and Coastal Construction Impacts
- Fishing, Diving, Boating, and Other Uses / Restoration
- Education and Outreach
- Law Enforcement
- Place-Based Management

Vision Definition

In order to develop a shared vision for the future of the coral reefs in the SEFCRI ecosystem, the CWG members participated in a number of activities which allowed them to share their knowledge and perspectives. One activity allowed CWG members to explain to the group their personal connection to the ocean. This gave CWG members some understanding of where some of their colleagues' world-views come from. Another such activity allowed CWG members to list what they believed to be the causes of both positive and negative change on the reefs.

The vision statement is separate from the mission statement, which the CWGs agreed upon earlier in the process. The mission explains why the group exists, what they are doing, and for whom. The vision statement is a shared goal for the future of coral reefs as a result of the mission. The vision statement is not intended to be a technical explanation of *how* to achieve the desired result, which is the goal of the actual RMAs. Rather, the vision is a picture of the desired future of southeast Florida coral reefs which can come true when the RMAs take effect. It is a statement that was intended to energize and engage people. The PPT felt that it was important to develop this vision statement because of its importance in other case studies they learned about while developing the OFR process, namely the FKNMS case study.

In August 2014, the Community Working Groups performed an exercise to create vision statements describing what they want the northern third of the Florida Reef Tract to look like in the year 2034, 20 years from the start of OFR, as a result of implementation of their recommended management actions.

The purpose of this exercise was to provide an image for them to aim toward as they developed their RMAs so that their management actions are designed directly to achieve their vision.

Community Working Group members were asked to develop separate vision statements for each of their five focus areas, starting with one sentence and adding to it as needed. After everyone had the opportunity to add to each vision statement, small groups attempted to summarize all contributions into one vision statement for each focus area. The resulting visions statements were, as expected, unpolished due to lack of time. Still, the CWGs voted to adopt part (or all) of the resulting vision statements, which they asked staff to clean up in terms of punctuation and grammar. The final agreed upon vision statements for the two CWGs, by focus area, are as follows:

South CWG:

Focus Area	Vision Summary
Coral Reef Habitat Restoration	A restored and maintained vibrant ecosystem
Fishing, Diving, Boating, and Other Uses	<p>We want a Marine Protected Area management plan with adaptive rules generation and application.</p> <ul style="list-style-type: none"> • An optimized healthy coral reef ecosystem with a thriving balance of marine life and human use of our coral reefs • Preservation of the reef and maintenance of a sustainable fisheries to promote tourism and improve Florida’s economy • System of education and licensing that promotes and protects habitat and users • Protected Florida reef ecosystem to allow for future sustainable uses and improved health, with separation of incompatible uses • More educated users of marine resources
Maritime Industry and Coastal Construction Impacts	<p>Collaborative methods to establish meaningful programs of ecological preservation and mitigation need to be a priority when impacts to marine ecology are inevitable.</p> <ul style="list-style-type: none"> • Collaborative approaches to promote no-impact activities and construction methods • Industry and construction projects have least possible impact on coral reef ecosystems • Construction is necessary; establish preserve or sanctuary with emphasis on avoidance and minimization of coastal construction impacts; regional management such as balancing need for construction with protection of resources, considering cumulative impacts throughout the region; improve mitigation for unavoidable impacts including alternative mitigation such as transplants • Establish a maritime LEED certification program and encourage preference to those certified contractors • Require green construction to minimize environmental damage
Awareness and Appreciation/	Public (residents and visitors) all recognize, understand and appreciate that conservation of Florida reef ecosystems are a core value for our enhanced quality of life and the economy.

Education and Outreach	
Land-Based Sources of Pollution/Water Quality	<p>Water quality and availability of freshwater that are appropriate for sustaining resources such as reefs and supporting estuarine habitats.</p> <ul style="list-style-type: none"> • Statewide initiatives to reduce and eliminate land-based sources of pollution • Achieve a vibrant, ecologically sustainable ecosystem and economy using best available science and conservation-based management to identify and minimize land-based sources of pollution • Clear ocean waters of oceanic salinity • An established positive impact of source of freshwater from land • Investment in infrastructure and improved public support for water management and sewage treatment practices that reduce pollutants and conserve water resources.

North CWG:

Focus Area	Vision Summary
Enforcement	<p>Due to wide appreciation of the value of <i>Our Florida Reefs</i>, sufficient funding is appropriated to provide effective, increased, adequate enforcement. Because of enforcement, voluntary compliance, and shared stewardship between agencies and the community, our reefs and sea life are healthy and thriving.</p> <p>Implementation of a coral reef abuse/violation hotline where calls are documented and responded to by a specific reef enforcement entity. Well paid officers, lower attrition rate, environmentally aware judges and courts.</p>
Fishing, Diving, and Other Uses	<p>Users that value and respect a healthy reef have created a sustainable balance between protection and commercial and recreational uses, benefitting an eco-tourism economy.</p> <p>Users that respect and value the healthy and plentiful ecosystem resources, maintaining a sustainable balance between recreation, economic use, and protection.</p> <p>A healthy reef ecosystem with large and abundant fish, where we avoid user conflicts.</p>
Coastal Management and Construction	<p>A natural beach shoreline that replenishes itself, with ports and inlets that preserve estuarine shorelines and reef resources and serve as examples of environmentally sensitive dredging; location of offshore infrastructure guided by resource protection goals.</p> <p>Efficient and effective regulatory system governing coastal construction and maintenance.</p> <p>Clean water, self-sustaining beaches, and functioning coastal ecosystems providing habitat for foraging shorebirds and marine life such as sea turtles and juvenile fish, with adequate public access to beaches.</p>

<p>Education, Outreach, Awareness</p>	<p>Coral reefs and other Florida ecosystems are a standard part of the curriculum in our schools. Information about them is easily accessible to residents and visitors, resulting in a broad awareness of and appreciation for the value and beauty of <i>Our Florida Reefs</i>. People have the knowledge and understanding that their actions directly impact the reefs, and become active stewards of the ecosystems, and it is all part of the general conversation.</p> <p>Mandatory coral reef awareness training for dive certification, boating & fishing licenses. Tourism industry effectively promotes conservation.</p>
<p>Land-Based Sources of Pollution/ Water Quality</p>	<p>Improved water management with re-established historic flows and hydrology that allow increased filtration and adequate groundwater recharge, coupled with green land-management practices that result in cleaner water releases to tide.</p> <p>Reduction of industrial, agricultural, and residential pollution at the source. Improved water management strategies with no discharge of sewage, storm runoff, lawn and golf course irrigation reaching the reefs.</p> <p>Clean water, low in nutrients, sediments, contaminants, and a healthy reef with no algal dominance and free of coral diseases.</p> <p>Current water quality information readily available to the public.</p>
<p>Direct Impacts to Reefs</p>	<p>Vessels using official mooring buoys that are well sited and provide adequate access for the boating community; no evidence of obvious anchor damage; and educated divers using reef-safe diving practices.</p> <p>Respectful and ethical use of fishing and diving gear, management of marine debris, and absent or reduced impacts from the shipping industry.</p> <p>Large complete coral colonies and barrel sponges, abundant gorgonians, and dense seagrass beds; anchoring only in designated areas; no marine debris such as plastics, beer cans, and golf balls on the reef.</p>

Tools and Resources

The Community Working Groups had access to several tools and resources throughout the OFR process which helped to ease communication, tracking, and sharing information.

Staff Support

The role of the FDEP CRCP staff was to provide administrative support for OFR meetings. This included helping the facilitators work with small groups, plan meeting activities, and oversee meeting logistics. The role of the facilitators in this process was to enable CWG members to achieve the mission of OFR. This role included planning meetings, guiding the CWG through activities and discussions, and ensuring that the meetings remained as open, honest, fair, and inclusive as possible. The facilitators and all staff remained neutral throughout and were diligent to not influence the content of the CWG’s decisions. To ensure this, the facilitators were certified professionals guided by a code of ethics.

Community Working Group Yearbook

To highlight the diverse expertise and backgrounds of the CWG members, a yearbook was created which included short member bios and photos. The benefits of this yearbook were two-fold: first, it gave the CWG members a resource with which they could understand and appreciate the knowledge, skills, and experience of their fellow members; secondly, the yearbook was also a resource for people outside of the OFR process who were interested in the makeup of the CWGs or wanted to know who their representative was. See Appendix [XIII](#) for the Final CWG Yearbook.

Online Resources

The *Our Florida Reefs* website (www.OurFloridareefs.org) provided functions which served both the public and the Community Working Groups. The OFR website served as a tool to educate the public about Florida's coral reefs, share news related to OFR, and allow the public to comment or ask questions throughout the duration of the process. Every comment received through the website was given directly to the CWGs to consider at the next meeting. More information about how the OFR website was used as a communication tool to the public can be found in Section [Public](#) Communications .

The website also benefited the CWGs in their development of RMAs. For this function, the website had a 'Resources' section which contained fact sheets, reports, presentations, homework, public comment, and meeting minutes. The website also served as a portal for completing the supporting information for the RMAs (Tier 1 & 2 worksheets, see Section [615.4](#)). In July 2014, the CWG asked for Coastal Ocean Task Force (COTF) recommendations and minutes to also be posted online so that CWG members could remain apprised of their work.

The website was also the platform for the Marine Planner Decision Support Tool (see Section [29](#)). This public platform allowed the largest possible group of people to have access to this tool and see the data that was being used by the CWGs firsthand. It also allowed the CWGs to explore the data layers remotely to gain a better understanding of the resource. Among other uses, the Marine Planner allowed users to survey southeast Florida coral reef use, visualize the most up-to-date information, draw, make comments, save a map that could be shared electronically, provide real-time analysis of selected data, and record a spatial bibliography.

The website also became a vital tool during the community feedback portion of the OFR process, as it was the main venue by which the public could review draft RMAs and submit comments on the RMAs. The function of the website during this period is described in more detail in Section [78](#).

Bibliography

To ensure CWG members had access to the best available science, documents that were discussed during meetings and documents they wanted to share with their fellow members were kept in an online Endnote[®] bibliographic database. This allowed CWG members to share and keep track of scientific and other literature used to inform the group's decision-making. The database contained over 600 document citations and full texts. The Endnote[®] database was continuously updated throughout the process. Information that was accessible included permits, white papers, and peer reviewed journal articles about

southeast Florida and coral reef ecosystems around the world. The complete bibliography can be found in Appendix [XXV](#).

Meeting Minutes

To track the progress of the CWGs and to ensure that the OFR process was as transparent to the public as possible, comprehensive meeting minutes were taken at every CWG meeting. The meeting minutes were reviewed by a member of the CRCP staff and supplemented by audio recordings to provide a verbatim account of the meeting.

Meeting minutes were reviewed by CRCP staff and the CWG members monthly to ensure that everything was captured as accurately as possible. The CWG members were able to suggest corrections to the minutes if they felt they did not accurately reflect what was said. CWG members were asked to review meeting minutes, suggest edits, and approve them at the following meeting. Once accepted by a vote of the CWG, every month's meeting minutes were uploaded to the OFR website and available for the CWGs and the public to view.

The library of minutes proved to be an essential tool to the development of each meeting's objectives. It also helped to ensure that all CWG questions and concerns were addressed and provided historical context for new staff and CWG members. All CWG meeting minutes can be found by navigating each CWG meeting page:

- South CWG meetings: <http://ourfloridareefs.org/south-working-group/>.
- North CWG meetings: <http://ourfloridareefs.org/north-working-group/>.
- Joint CWG meetings: <http://ourfloridareefs.org/joint-cwg/>.

Public Comment

The PPT wanted a mechanism by which the public would be able to communicate in person directly to the CWG during the process. To do so, the group developed a public comment protocol whereby time was allotted at every meeting for members of the public to speak. The protocol attempted to enable public input into the process while allowing the CWG members to use valuable time in person to complete their work. Public commenters were required to fill out a public comment form, which was originally the sole record of the public comment so as to keep the comment as accurate as possible in the meeting minutes. Public comments could also be supplemented with slides and pictures which would then be made publicly available on the OFR website along with the comment itself.

In June 2014, at the fourth South CWG meeting, the group voted to change the public comment protocol following a discussion. The group felt it was cumbersome for public commenters to have to write out their comment and give it orally to have it be on record and wanted public comment to be recorded in the minutes as well. With the change, in addition to scanning the written public comment cards, meeting minutes would start to reflect oral statements or additional submitted written comments. Public commenters would continue to be asked to summarize their comments on the public comment card and would be strongly encouraged to provide a written statement within three days of the meeting to further summarize their public comment.

The oral statements that were recorded and summarized in the minutes would remain included for those that did not submit an additional written summary of their public comment within the timeframe. Like the rest of the minutes, these comments were not transcribed word for word, but rather reflect the desire to

capture the intent of the public comment so that readers of the minutes could get an understanding of the public comments received.

General public comments were also solicited through the OFR website throughout the entire OFR process. Users could fill out and submit a public comment form on the website. This public comment was collected by staff monthly and brought to the CWGs at their next meeting for review. All public comments received during the process were then kept in a database organized by month for the CWGs and the public to review in the “Resources” section online.

Current Events

Starting in June 2014, each CWG meeting included time to allow CWG members to share upcoming events or coral related news. This current events update became an important way for CWG members to learn about and engage in other stakeholder groups’ activities, share new relevant research findings, or anything that a member felt the rest of the CWG would benefit from knowing. This was also the time allotted for COTF representatives (who were also OFR CWG members) to keep the group updated on the progress of that similar, ongoing process.

Meeting Evaluations

Following each CWG meeting, staff passed out meeting evaluations to CWG members. The evaluations asked a few simple questions designed to provide feedback on the efficiency and effectiveness of the meeting. Evaluations were compiled into a report after each CWG meeting and shared during the debrief for the facilitators, PPT, and CRCP staff the following day. They were valuable in deciding which exercises were productive and which could be improved. The evaluations also allowed process planners to keep a pulse on the group and make sure that CWG members had the opportunity to voice any concerns that they had in a non-threatening and anonymous way.

The evaluation contained the following questions:

Please indicate your degree of agreement with the following statements:

	Agree			Disagree	
The Meeting Purpose and agenda were clear	5	4	3	2	1
Sessions were focused and productive	5	4	3	2	1
Meeting facilities were adequate	5	4	3	2	1
Opportunities for participation were adequate and balanced	5	4	3	2	1

- Which session was the most productive? Why?
- Which session was least productive? Why?
- What contributed to the success of this meeting?
- How can meetings be improved in the future?

5.3 Educational Period

A clear understanding of southeast Florida’s coral reef ecosystem was essential to the CWGs development of an effective coral reef management strategy. From March to August of 2014, OFR provided the platform for educational presentations at each CWG meeting. Developed by the OFR Facilitation Team, the educational background presentations were divided into eight topic bins and the marine planner: 1) ecosystems, 2) corals, 3) water, 4) fish, 5) estuarine, coastal, and ocean habitats, 6) people, 7) management, 8) stakeholder perspectives, and 9) the marine planner/ decision support tool. Collectively, this educational phase was called “the learning curve” (Figure 9).

Each topic bin is briefly overviewed in documents found at <http://ourfloridareefs.org/overview/>. References for each topic bin may be found at <http://ourfloridareefs.org/references/>.

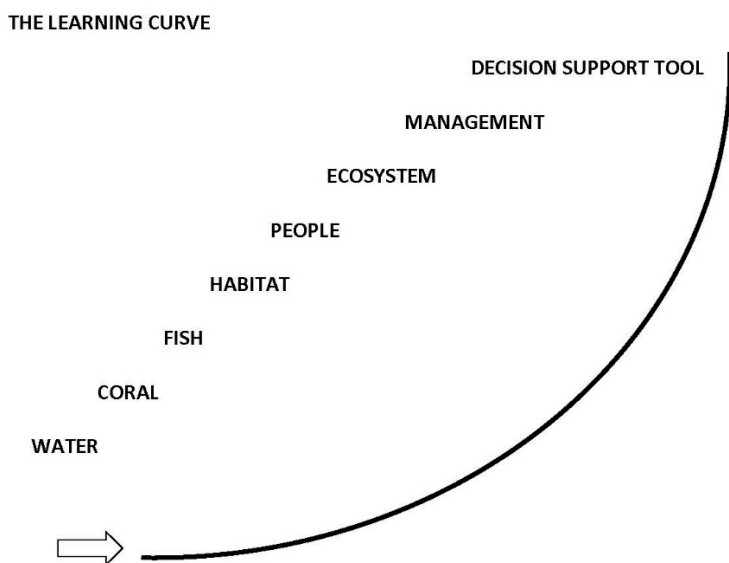


Figure 9: The learning curve or educational phase topic progression.

The first seven meetings were designated per the work plan to be a part of the educational phase, and all CWG members were expected to attend regardless of their level of expertise in the topics being discussed. The educational meetings included over 30 presentations from subject-area experts, many of whom were SEFCRI Team members, on coral reef related data in the region. The Educational Period also included presentations from CWG members themselves on their stakeholder group’s perspective on and interest in coral reefs. The presentations provided insight into the status of southeast Florida’s coral reef ecosystems, illustrated the data currently available for use by the CWGs, identified major impacts to the reef system, and shared examples of management approaches.

In addition to the educational presentations related to the abovementioned topic bins, CWG members attended a workshop about Geographical Information Systems (GIS), available spatial data, and how that may be used to develop spatially-dependent recommendations. The workshop overview is in Section 63.

All presentations delivered during the educational phase were uploaded to the OFR website so that they could be reviewed at a later date if CWG members had questions. The following are abstracts of each presentation given to the CWG divided by topic bin. The abstracts were produced by CRCP staff and are merely intended to demonstrate the topics the CWG learned about. The abstracts do not cover the entirety of the content presented. Follow the links below to view full presentations:

<http://ourfloridareefs.org/community-working-group-member-presentation-index/>
<http://ourfloridareefs.org/north-working-group/north-working-group-presentation-index/>

Ecosystems

"An Introduction to Southeast Florida Coral Reef Ecosystems." Jamie Monty, Florida Department of Environmental Protection (NCWG & SCWG, March 2014): Outlined the following topics, their significance, value, and threats faced within the Southeast Florida Coral Reef Ecosystem: Water, Coral, Fish, Habitat, People, Ecosystem, and Management. This presentation served as an introduction to the education phase of the OFR process and provided an overview of the topics that would be covered.

"Ecosystem." Nicole Fogarty, Nova Southeastern University (NCWG, June 2014) & Jeff Beal, Florida Fish and Wildlife Conservation Commission, Marine Estuarine Subsection (SCWG, June 2014): Placed southeast Florida's coral reefs into the broader context of their role in the ecosystem. This presentation focused on: the interconnectedness of reefs as habitat providers, mangroves and seagrass beds as nurseries and sources of food, the deep sea as a carbon sink for detritus, and the human interaction with the system; and a review of threats to the ecosystem and the effect of one unhealthy segment on the system.

Corals

"Composition and Status of Southeast Florida's Coral Reefs." Dave Gilliam, Nova Southeastern University Oceanographic Center (National Coral Reef Institute) (NCWG & SCWG, May 2014): Described the composition of southeast Florida's coral reefs, including species richness, density, benthic coverage, and mean colony size of stony coral, octocoral, and sponge assemblages. Introduced common and Endangered Species List (ESA) protected species found in southeast Florida's coral reefs. Explained the ongoing Southeast Coral Reef Evaluation and Monitoring Project (SECREMP) which was started in 2002 and analyzes the long terms trends in the health of 22 permanent sites in the region.

"Our Florida Coral Reefs." James Byrne, The Nature Conservancy (NCWG & SCWG, April 2014): Explained the significance of Florida's coral reefs as one of the greatest natural resources in the U.S. and their proximity to one of the most densely populated urban coastal communities. Described the benefits they provide to the residents of Florida, and the threats they face by the cumulative impact of negative human actions. Explained programs like the Florida Reef Resilience Program (FRRP) and Disturbance Response Monitoring which monitor the health of corals and identify the resilience of reefs using metrics like prevalence of bleaching and disease and can guide in the protection and management of the reefs.

Water

"The South Florida Watershed." Kevin Carter, South Florida Water Management District (NCWG & SCWG, April 2014): Covered the history, scale, and complexity of the Central and South Florida Flood Control System. Explained ongoing restoration at the watershed scale through the following programs: Comprehensive Everglades Restoration Plan (CERP), Central Everglades Planning Project (CEPP), Restoration Strategies (RS), and Northern Everglades & Estuaries Protection Program (NEEPP).

"Water Connects the Southeast Florida Coral Reef Ecosystem." Kurtis Gregg, National Oceanic and Atmospheric Administration (NOAA) (NCWG & SCWG, April 2014): Outlined the interconnection between southeast Florida's coral reefs and tidal water exchange, freshwater flows, submarine groundwater discharge, and human activities that effect water quality. Described the effect of land-based

sources of pollution from metropolitan and agricultural lands including municipal wastewater effluent disposal, stormwater inputs, nutrient pollution, septic systems, beach nourishment, and others.

Fish

"Fisheries-Dependent Data Collection." Jim Bohnsack, NMFS, and Kurtis Gregg, NOAA (NCWG, May 2014): Explained fisheries-dependent data methods: catch, landings, bycatch, and biological information about the fish and the fishery, such as fishing effort, fishing gear, and fishing practices. Provided an analysis of the benefits and issues with fisheries-dependent data and a comparison with other types of data collection. Summarized southeast Florida's fisheries-dependent data collection programs and results.

"Fisheries-Independent Research in Southeast Florida." Kirk Kilfoyle, Nova Southeastern University (NCWG & SCWG, July 2014): Covered the basics of reef fish ecology, including morphology, trophic levels, bi-partite life cycle, reef distribution dynamics, and the specific marine environment of southeast Florida. Presented the economic importance of reef fishes for commercial and recreational fishing, as well as diving and tourism. Explained fisheries-independent data methods and the results of one fishery-independent baseline assessment for the region.

"Shifting Baselines in the Southeast Florida Recreational Reef Fishery." Dana Wusinich-Mendez & Catherine Brady, NOAA (NCWG & SCWG, August 2014): Gave an account of the visible differences in the health of the ecosystem in the southeast Florida recreational reef fishery through historical photographs of fish landings from clubs, charters, IGFA archives, and individual fishers, compared to the same types of photos today. The results showed that the size and number of reef fish that can be caught have declined greatly over the years.

Estuarine, Coastal, and Ocean Habitats

"The Seascape of the Northern Florida Reef Tract." Brian Walker, Nova Southeastern University (NCWG & SCWG, May 2014): Showed the different types of reef habitat found in southeast Florida and how they compare to other reefs we may envision. Covered the southeast Florida reef profile (inshore reef, middle reef, offshore reef) and methods of characterization of seascape bathymetry, including aerial imagery and habitat analysis. Discussed the main factors affecting coral reef communities, including geology, temperature, and currents/eddies.

"Habitat Martin County." Mark Perry, Florida Oceanographic Society (SCWG, June 2014) & Dr. Vincent Encomio, Florida Oceanographic Society (NCWG, June 2014): Covered the history of the channelization of water flowing from Kissimmee and Okeechobee lakes southward, as well as the negative effect these changes in Everglades flow have had on the Indian River Lagoon and St. Lucie Inlet River estuaries, seagrass beds, nearshore reefs, *Oculina* reefs, oyster reefs, worm reefs, and fisheries. Characterized the types of plants and animals that occupy those habitats and highlighted local projects aimed at educating the public, monitoring, and habitat restoration.

"Habitat Palm Beach County." Paul Davis, formerly Palm Beach County (SCWG, June 2014) & Carman Vare, Palm Beach County Marine, Estuarine, and Freshwater Restoration (NCWG, June 2014): Discussed the characteristics of Palm Beach County's marine resources historically, hydrologically, and biologically, and the threats to those marine resources due to declining water quality from erosion and freshwater discharge through inlets, siltation from nourishment, and loss of shallows from dredge and fill, among others. This was followed by a presentation of ongoing restoration projects to slow the damage.

"Habitat Broward County." Ken Banks, *Broward County (NCWG & SCWG, June 2014)*: Described the biological characteristics of Broward County's coastal ecosystems including coral reefs, beaches, seagrasses, and mangroves. Discussed ongoing county conservation activities, permitting, and the following programs: lands acquisition, sea turtle conservation, beach management, small boat mooring, and manatee protection.

"Habitat Miami-Dade County." Sara Thanner, *Miami-Dade County (NCWG & SCWG, June 2014)*: Gave an overview of the geographic and biological characteristics of Miami-Dade County, including colonized hardbottom, natural reefs, artificial reefs, and seagrasses. The presentation highlighted most prominent feature of Miami-Dade County which is the highly populated coastline, which changes the physical characteristics of the coastline to include seawalls, dredged areas, manmade islands, high canal discharge, urban runoff. It also increases the incidence of direct impacts to reefs such as vessel groundings, anchor damage and lost fishing gear. The presentation noted current initiatives in place to reduce negative impacts like habitat restoration and enhancement, stormwater management and infrastructure improvements, mooring buoy installation, water quality monitoring, volunteer cleanups, and education and outreach.

People

"The Human Dimensions of Southeast Florida Reefs: Benefits, Uses, and Perceptions." Manoj Shivlani, *Northern Taiga Ventures Inc. (NCWG & SCWG, June 2014)*: The population density of southeast Florida is huge, centered near the coast, and is increasing at a rapid rate. There are many direct and indirect benefits of southeast Florida's coral reefs to both residents and visitors, including fishing, diving, other recreation, ecosystem services, storm protection, and biodiversity generation, among others. Presented the results of multiple studies conducted to determine public and stakeholder perceptions of southeast Florida's coral reefs. Included data collection and statistical analysis methods used to find figures on all the aforementioned information.

Management

In June 2014, at the fourth meeting of the South CWG, the group asked to learn more about the coral reef management. The PPT had planned just one presentation about how coral reefs are managed in southeast Florida and elsewhere. However, the CWG felt that this was insufficient and specifically asked to add a series of presentations in which the actual managing agencies present their roles in coral reef management. They also requested case studies on successful management practices. The added presentations would require an extra meeting day and the group agreed through a vote that they would push the entire process back one day to accommodate the change.

"Strategic Coral Reef Goals and Objectives for the SEFCRI Region." Dana Wusinich-Mendez, *NOAA Coral Reef Conservation Program (NCWG & SCWG, June 2014)*: Explained the issues, goals, objectives, and projects of three current management plans in the region: the SEFCRI Local Action Strategy (LAS), Florida's Coral Reef Management Priorities, and the FDEP Coral Reef Conservation Program Strategic Plan.

"FWC Fisheries Management." Mason Smith, *Florida Fish & Wildlife Conservation Commission (NCWG & SCWG, July 2014)*: Explained FWC's mission, structure, area of jurisdiction, rulemaking process, powers, and duties. Explained the role of the Division of Marine Fisheries Management and their role in

protecting against the potential harm of overfishing in partnership with other councils. This is done through stock, gear, and spatial management, as well as resource monitoring.

"NOAA National Marine Fisheries Service's Southeast Region and Southeast Fisheries Science Center." Kurtis Gregg, NOAA NMFS (NCWG, July 2014) & Jim Bohnsack, NOAA National Marine Fisheries Service (SCWG, July 2014): Explained the jurisdictions of NOAA-NMFS and other partners, as well as management roles and responsibilities of those groups within the southeast region. Outlined the two facets of NOAA-NMFS: science through the Southeast Fisheries Science Center and management through the Southeast Regional Office. Detailed the different divisions within the science and management wings and their responsibilities.

"Existing Spatial Approach to Management in Southeast Florida Coastal Aquatic Areas: An Introduction." Lauren Waters, FDEP Coral Reef Conservation Program (NCWG & SCWG, July 2014): Management is necessary to ensure safety and access, reduce conflict, and protect resources. Management can be universally applied or have discrete geographical boundaries. Presented all currently existing coastal and aquatic managed areas for CWG to have a better understanding of current management framework.

"FWC Law Enforcement." Dave Bingham, Florida Fish & Wildlife Conservation Commission (SCWG, July 2014) & Donald Vacin, FWC Law Enforcement Officer (NCWG, July 2014): Explained the jurisdiction of FWC Law Enforcement including boating safety enforcement, saltwater species and habitat conservation, freshwater fisheries and water conservation, hunting regulation enforcement, law enforcement within state parks and some other areas. Detailed the resources and personnel available to FWC Law Enforcement. Explained FWC's only criminal rule dealing with coral and why officers find it difficult to enforce. Discussed the ease with which officers feel a no take or anchor zone could be enforced.

"FWC Aquatic Habitat Conservation and Restoration Section: Marine Habitat Management." Erin McDevitt, Florida Fish & Wildlife Conservation Commission (NCWG & SCWG, July 2014): Explained the mission, region, staff support, and programs of the Marine/Estuarine Subsection. Detailed some projects currently underway in the following program areas: restoration and protection, non-native species, working groups, education, environmental commenting, and imperiled species.

"Coral Reef Management Toolbox." Melanie McField, Healthy Reefs Initiative (NCWG & SCWG, July 2014): Outlined three different approaches to coral reef management: species-specific, activity focused, and ecosystem based. Supplemented each approach with examples, real life cases, and associated pros and cons. Outlined other considerations that should be used when applying any type of management like spatial considerations, monitoring and reporting, and adaptive management.

"Florida's Coral Reef Conservation Program & Coral Reef Protection Act." Melissa Sathe, FDEP Coral Reef Conservation Program (NCWG & SCWG, July 2014): Provided an explanation of the mechanisms by which Florida's Coral Reef Conservation Program (CRCP) manages the reefs, including: The Coral Reef Protection Act makes it illegal to anchor on or otherwise damage southeast Florida's coral reef resources; The Reef Injury Prevention and Response program within CRCP implements the Act in response to reef injury cases like vessel groundings and cable drags; Described the details of the implementation process including civil penalties and compensatory mitigation, and the limitations of enforcement.

"FDEP Environmental Resource Permitting (ERP)." Jennifer Peterson, FDEP Water Resource Management (SCWG, July 2014) & Irene Arpayoglou, FDEP Environmental Resource Permitting (NCWG, July 2014): The ERP program regulates almost all changes to the landscape that affect surface water flows. This includes clearing, grading, construction, filling, and dredging that may result in impacts to the resource. Presented examples of resource protection through regulation, compliance, and assistance.

"Overview of Florida's State Parks, Aquatic Preserves, and Outstanding Florida Waters." Pamela Sweeney, FDEP Biscayne Bay Aquatic Preserve (NCWG & SCWG, July 2014): The FDEP's Florida Coastal Office is the body in charge of conserving and restoring coastal and aquatic resources. Explained some of the history behind setting up conservation areas and some of the rules and regulations that allow for the protection of the resources within.

"Management Case Study - Florida Keys National Marine Sanctuary." Billy Causey, Manager, Florida Keys National Marine Sanctuary (SCWG, August 2014) & George Sedberry, SE Region Science Coordinator, NOAA Office of National Marine Sanctuaries (NCWG, August 2014): Explained the basics of National Marine Sanctuaries: the act, the mission, the process of becoming an NMS, and existing NMSes. Detailed the characteristics of the Florida Keys that made them an ideal candidate for a marine sanctuary. Explained the specific areas delineated for regulation within the FKNMS. Outlined ongoing programs within the sanctuary, including science/research, education and outreach, heritage conservation, regulations, planning, permitting, and enforcement.

"Management Case Study – Caribbean Coral Reef Management: Cayman Islands & Granada." James Byrne, The Nature Conservancy (NCWG & SCWG, August 2014): Overlooked management plans for two Caribbean countries including information on partners, planning workshops, stakeholder participation, priority conservation resources and threats, objectives and strategies, and preliminary results.

"Management Case Study – Watershed Management in West Maui." (via webinar) Tova Callender (SCWG, August 2014), West Maui Watershed Coordinator & Hudson Slay, U.S. EPA (NCWG, August 2014): Detailed threats to Maui's coral reefs and their connection to the priority watersheds. Explained role of local partners involved in watershed and coral reef health issues, as well as the goals of the West Maui Ridge to Reef Initiative, barriers to implementation, the accomplishments of the program, lessons learned, and recommendations for future efforts.

Stakeholder Perspectives

"Everything's Connected. Stakeholder Group: Private Industry." Stephanie Voris, Private Business Stakeholder Group (SCWG, May 2014): Explained the perspective of environmental consulting firms on Florida's coral reef tract. This group's interaction with coral reefs include surveys, monitoring, research, advising clients, and recreation. The key concerns of this group are water quality, biodiversity, and economic drivers. Shared case studies comparing the value of natural reef system and harmful extractive use. The desires of this group for the reefs are for preservation and sustainability.

"Assessment of Aquifer Pollution and Discharge/Native Beach Sand Sources." Tom Warnke, Watersports Stakeholder Group (NCWG, May 2014): Surfers use nearshore waters, so they have a stake in what happens to nearshore hardbottom communities and how they affect coral reefs. Explained the importance of using native beach sand sources in beach renourishment projects. Also explained the surficial aquifer discharges into the ocean and the potential threat they pose to coral reefs.

"Insecticides and Other Pollutants in Marinas and Private Property." Mike Brescher, *Private Business Stakeholder Group (NCWG, May 2014)*: Explained the effect of non-point sources of pollution from golf courses and lawns and canals, and the direct source of sewage discharging outfalls. Provided solution strategies for land, water, and chemical usage by residents and golf courses alike.

"Underwater Hunting." Jim Mathie, *Diving Stakeholder Group (SCWG, May 2014)*: Explained the value of spearfishing to those who engage in it, noting it as a social activity that brings people together. Spearfishing is an accessible sport from a boat or from shore with SCUBA or by freediving. It also may engage people who want to try technical diving, wreck diving, or underwater photography.

"Effects of Supply Chain Management on the Environment." Alex Sommers, *Private Business Stakeholder Group (SCWG, May 2014)*: Explained the perspective of supply chain business representatives on coral reefs. Supply chain management professionals are generally unaware of environmental impacts of buying decisions and are price driven, so will support port and air cargo expansions. The goal should be to educate this community on the importance of reef resources and seek support from them for mitigation efforts.

"Non-Governmental Organizations: The Passion of Making a Difference in Coral Reef Conservation & Protection." Jane Fawcett & Scott Sheckman, *Environmental NGO Stakeholder Group (SCWG, June 2014)*: NGOs are voluntary, nonprofit, citizen's groups which are organized on a local, national, or international level. Environmental NGOs organize to conserve, protect, and restore natural ecosystems. Outlined the value of collaboration, participation, passion and commitment, among other factors, that lead to success in various marine conservation case studies. Listed the many concerns that NGOs have for local reefs, and goals for future improved conditions.

"Strengthening Ocean Stewardship in Southeast Florida Through Citizen Science" Dan Clark, *Citizen-at-Large Stakeholder Group (SCWG, July 2014)*: Explained some of the pressing threats to southeast Florida's coral reefs including disease, tire reef, poor beach management, dredge and fill projects, and ocean outfalls. Showed photographs and gave examples of these threats directly impacting corals. Explained the value of the reefs to the people of southeast Florida and what they stand to lose. Made recommendations for top priority actions that should be taken locally.

"Marine Industries Association: 'Our Reefs' are vital to boating!" April Price, *Private Business Stakeholder Group (NCWG, June 2014)*: Explained April Price's personal experience and credentials in the marine business and advocacy. The economic impacts of boating are integral to the region. Private business is concerned about water quality, lionfish, marine debris, improper anchoring, and illegal harvest. Explained local efforts by Marine Industries Association and other groups to engage the community and protect coral reef resources.

"The Florida Oceanographic Society: Fostering Environmental Stewardship Along the Treasure Coast." Dr. Vincent Encomio, *Environmental NGO Stakeholder Group (NCWG, July 2014)*: The Florida Oceanographic Society is a non-profit organization founded in 1964 with the mission to inspire environmental stewardship of Florida's coastal ecosystems through education and research. They do this through volunteer driven programs in education, research, restoration, and advocacy for local and state environmental issues. Listed the primary concerns and vision for the future of the NGO stakeholder group.

"Stakeholder Group: State Government." Jennifer Peterson, *State Government Stakeholder Group (SCWG, July 2014)* & Irene Arpayoglou, *State Government Stakeholder Group (NCWG, July 2014)*: The

purpose and mission of the Water Resource Management Program is to permit coastal construction projects that comply with state statutes and rules within the state waters of Florida. Explained the different programs that help support their mission and gave examples for project-related impacts, mitigation, and monitoring efforts.

5.4 Recommended Management Action Development Period

Immediately following the seven meetings that made up the educational period, the CWG applied all the information they had learned about the reef resources, the status of those resources, management strategies, and stakeholder perspectives to begin drafting the RMAs. This was called the RMA development period and lasted from September to November of 2014.

Recommended Management Action Development Guidelines

The process developed for the initial creation of the RMAs was intended to be very open and inclusive, and allowed for all ideas to be considered. However, the actions would still need to meet certain criteria to ensure that recommendations coming out of the CWGs would be implementable and align with the mission of the OFR Process. These criteria were developed as broad guidelines by the PPT and would not dictate the content of the recommendations. Rather, they would help CWGs design recommendations that would be consistent with the mission of OFR, and easily fit into the framework of existing legislative mandates and management plans.

The OFR process was designed to enable local stakeholders to consider more than a decade's worth of science that has been generated on the coral reef ecosystem of southeast Florida and develop targeted *actions* that directly reduce threats to that ecosystem or improve its condition. Therefore, RMAs were intended to focus on management action and would explicitly exclude research-oriented activities. However, if CWG members recognized that research was needed to complete an action, that information would be included in the Tier 1 & 2 documents (See Section [62](#) for information on these documents).

Although identifying research gaps was not the purpose of the CWGs, SEFCRI and its members fully acknowledge and support the need for science to inform coral reef management action. Throughout the OFR process and beyond, the SEFCRI Team and the TAC would continue to identify, and fill key research and information gaps needed to inform and guide targeted coral reef conservation.

At the time of OFR's inception, there were already existing and ongoing management actions and programs designed to reduce threats to the coral reef ecosystem of southeast Florida and improve its condition. The CWGs acknowledged and supported the need to continue the implementation of successful management initiatives in the region. However, the OFR CWGs agreed through a vote to focus on the identification of *new* management actions for coral reef conservation in southeast Florida.

To create the RMA guidelines, agency representatives on the PPT were asked to identify specifically what information the agencies would like to see in a management recommendation. The PPT also thought it would be beneficial if law enforcement representatives could provide perspectives on recommendations and if agencies could explain their timeline for any type of rule change that might be proposed.

Guidelines created by the PPT were simplified by the facilitators for the activity of creating the initial RMAs and presented to the CWG as follows: Any proposed action had to be an “activity that helps enhance or maintain the condition of coral reef ecosystems or reduce threats to coral reef ecosystems to ensure their long term self-renewal”. It was also important that the actions were written in a clear and uniform way so that they could be easily discussed and modified. The agreed upon format consisted of a short phrase including a verb, an object, and a brief benefit of the activity. It was also stated that the RMA titles should be no longer than 35 words. Checking this format became known as the “quality check” of an RMA in its infancy.

To begin, CWG members were asked to fill out management action cards individually with these criteria in mind. They were directed to consider all the information they had learned during the educational phase and apply it to possible management actions. This activity was intended to allow CWG members to share any action that they considered appropriate. Then, each RMA would be scored to ensure that it met the quality check. If the RMA did not meet the quality check, it would go back to the author for modification ahead of the next monthly meeting. Only RMAs that the group agreed had met the quality check would move forward. These were then sorted into an appropriate focus area. The CWG were asked to combine similar RMAs where possible in this early stage.

Once RMAs had passed the initial quality check and added to the list, the CWG members were assigned homework between meetings to consider possible gaps in that list of RMAs and bring these to the following meeting.

This first phase of drafting resulted in 268 total ideas written by the two CWGs. The initial list of 268 proposed draft RMAs, 123 from the South and 145 from the North, can be found in Appendix [XXVI](#). Initial proposals went through multiple rounds of advisory feedback, editing, and augmentation before becoming final RMAs.

Constructing Recommended Management Action Content

The next phase would entail gathering information about the draft RMAs on the initial list. FDEP, the PPT, and SEFCRI wanted to ensure that ample information would be provided by the CWG on each RMA to enable their implementation. To facilitate this, worksheets were developed by the CRCP staff and the PPT and reviewed by the SEFCRI Team to allow CWG members to gather key components of the RMAs. The information-gathering worksheets were broken down into two components:

Tier 1: Critical information needed from the CWGs for implementation.

- o Aspects: focus area, intended outcome, justification, potential pros and cons, location, duration (discrete or ongoing), spatial information (if necessary use Marine Planner).

Tier 2: Supplementary information to capture the true intent of the management actions needed from the CWGs and SEFCRI (CWGs may not be able to supply all of this, SEFCRI will add to this information during their review).

- o Aspects: why (potential environmental, social, or economic benefits/disadvantages, linkage to SEFCRI goals and objectives, supporting data), when (timeframe for implementation), who (lead agency and key stakeholders), how (approximate cost, other feasibility questions).

(See Appendix [XIV](#) for Tier 1 & 2 worksheets)

CWGs were given the opportunity to review and add information that they had deemed necessary to the Tier 1 & 2 templates before they were accepted and used. To complete the Tier 1 & 2 worksheets, CWGs were asked to sign up as individuals or small groups to fill out the information for each RMA. This was done both as homework and in meetings. The worksheets were available for CWG members to download from the OFR website.

Spatial Planning

The CWGs learned about spatial planning tools and techniques as a part of their educational period. A presentation, titled "Decision Support Tool: Helping You Too Make Science-Based Recommendations," was delivered to the CWGs by Dr. Brian Walker of Nova Southeastern University to explain important concepts in spatial planning and how they can be applied to achieve management goals. The CWGs learned that using GIS data could increase their ability to make management recommendations based on scientifically defensible data from ecological, economic, and social systems. They also learned that the publicly available Marine Planner would make their management recommendations transparent and verifiable by the public, thereby allowing them to involve more stakeholders.

This presentation was intended to introduce the concept of spatial planning and the potential uses of decision support tools for the OFR process. However, teaching the CWG members to use the Marine Planner and Decision Support Tool required a separate workshop.

Marine Planner Workshop

In August 2014, an optional workshop was developed and conducted for CWG members because much of the data and information being delivered to CWG members was spatial in nature and relied on GIS products (maps, spatial analysis etc.). The purpose of the workshop was threefold. First, it was designed to introduce CWG members to resources that were, and would be, available to them throughout the process. Secondly, it was to teach CWG members the basics of how spatial data and products are developed. Lastly, it gave CWG members the opportunity to become familiar with the tools and resources with hands-on experience and by asking technical questions.

The workshop was led by the Decision Support Tool Project Team and included several presentations and breakout sessions for smaller group learning. The following sections detail the material that was discussed in each session. For additional information about this workshop see (Walker & Costaregni, Data Gathering and Technical Support for the Southeast, 2014).

5.4.1.1.1 Introduction to GIS

An introduction to GIS was provided by the contractor who oversaw the development of the Marine Planner Tool. This presentation included the history of GIS and its use in location plotting, impact assessment, and seafloor visualization. The CWGs were introduced to the types of data that are compatible with GIS software and the collection and processing methods for good GIS data. CWG members were also informed of the limitations of spatial data, including accuracy, resolution, and scale of GIS data. Some main principles that were explained included the need to summarize data to a planning grid. That is, that many times data can be representative of an area rather than just its exact latitude and longitudinal location.

5.4.1.1.2 *Marine Planner Electronic Resources*

For CWG members to have access to online resources during the meeting, the Process Planning Team and Decision Support Tool Project Team provided all relevant materials and internet access to CWG members via Microsoft Surface Tablets. These tablets allowed CWG members to be able to access the *Our Florida Reefs* website, Marine Planner, and Endnote® bibliography. These tablet computers were able to open all files that were used during the process (word, adobe, excel etc.). CWG members were instructed on how to use and navigate the tablets during the workshop.

5.4.1.1.3 *Decision Support*

During the “What is Decision Support?” session, CWG members learned about the basic concept of decision support and electronic decision support tools. They learned about the different approaches of decision support and how they would be integrated into the OFR process. The CWG members were introduced to the suite of online mapping tools (Marine Planner, Coastal Ocean Use Survey, Decision Support Tool) and were explained the purpose of each component. A fictitious wind energy planning scenario was used to demonstrate how the results generated by the OFR tool were completely based on the input of the CWG members themselves. That is, the results generated would be based on the data layers, values for those layers, and goals and objectives identified by the CWG members themselves. CWG members were also informed of the limitations of the decision support tool, including where it could and could not provide information and how information could be interpreted differently.

5.4.1.1.4 *Navigating the Marine Planner*

One session during the Marine Planner Workshop allowed CWG members to access and navigate the Marine Planner. CWG members were shown how to log in, change base layers, add and remove data layers, and save and export their map. They also learned how to access the metadata about each of those layers so that they could be confident in the data they were working with. They were also shown how they could share their maps with other CWG members and reminded that they could generate visual examples and bring them to the larger group anytime they felt it necessary when discussing spatial issues.

Using the Marine Planner

Several proposed RMAs would require spatial planning in addition to Tier 1 & 2 information-gathering worksheets because they proposed actions in specific areas and would benefit from spatially oriented datasets to inform their implementation. The CWGs were asked to consider which RMAs may require analysis with the Decision Support Tool for a better understanding of the matter or its implementation. To involve the Decision Support Tool, the RMA had to be spatial in nature and require spatial analysis to locate the best area(s) for their implementation. Although some RMAs may have required data that were viewable on a map layer, this did not necessitate spatial analysis. Spatial analysis is necessary only when a recommendation requires that multiple spatial data layers be compared. To aid in the development of place-based management recommendations, the CWG requested that the CRCP create a summary document with information about spatial planning concepts and commonly used terminology. See Appendix [XV](#) for this place-based management summary document.

The CWGs went through each RMA to decide if it would require spatial analysis and then presented their list of spatially-oriented RMAs to the consultants who had built the Marine Planner. In turn, the

consultants reviewed the list of RMAs provided by the CWG to see if they agreed that those identified would truly require the use of the Decision Support Tool. This was done in an advisory capacity. The consultants made suggestions to the CWG using their expert understanding of the capabilities of the tool and allowed for the possibility for added capabilities if necessary. The CWGs were then given the opportunity to review these suggestions and decide on a final list of RMAs that required spatial analysis.

Those RMAs that were recommended by the CWG to move forward with the decision support tool were required to have a supplementary worksheet filled out along with the Tier 1 & 2 information. This was called the spatial planning worksheet. See Appendix [XVI](#) for the spatial planning worksheet.

The CWG was tasked with considering which datasets might be needed for these RMAs and could choose from spatial features like channels, parks, artificial reefs as well as datasets for coral, fish, and human use. The CWG members would then have access to the descriptive statistics of those spatial features including density, species richness, and distance from other spatial features. All this information was made available to the CWG in a user-friendly way through the Marine Planner (see Section [63](#)).

Editing, Augmenting, and Combining RMAs

To hone down the list of RMAs that passed the initial quality check, the CWGs spent considerable time combining, editing, and augmenting RMAs. For reasons of efficiency, this was done in small groups by focus area and then reported out to the larger group for approval. This process allowed the CWG to reduce their initial list of 268 RMAs down to 191 RMAs that would be reviewed by the Team and TAC. The edited list of 191 first draft RMAs that went to the SEFCRI Team and TAC for review in November 2014 can be found in Appendix [Error! Reference source not found.](#) Discussions and decisions to combine and augment RMAs can be found in the meeting minutes for North and South CWGs September through November 2014 (<http://ourfloridareefs.org/north-working-group/> and <http://ourfloridareefs.org/south-working-group/>).

5.5 SEFCRI Team and TAC Review Period

Following the initial drafting of RMAs by the CWGs in the fall of 2014, it was the responsibility of the advisory bodies (the SEFCRI Team and TAC) to review the recommendations and offer additional information to edit or augment them. To ensure that the draft recommendations received the best possible feedback, the RMAs remained grouped by focus area (Education & Outreach, Enforcement, Fishing, Diving, Boating and Other Uses, Land-Based Sources of Pollution, and Maritime Industry and Coastal Construction Impacts). CRCP staff organized SEFCRI Team and TAC members by subject matter expertise to review recommendations that aligned with their respective bodies of knowledge. If SEFCRI Team and TAC members were interested in reviewing more than the RMAs they were assigned based on their topical knowledge, they were encouraged to do so.

In preparation for the upcoming SEFCRI Team and TAC meeting, CRCP staff created online survey forms to capture feedback on the information CWGs had provided to the Tier 1 & 2 worksheets. This would provide an easy mechanism to download and collate responses at the end of the revision period. The online survey forms enabled staff to export the Tier 1 & 2 forms previously filled out by CWGs in fall 2014, combine duplicate responses, and then reimport new forms.

This format gave the SEFCRI Team and TAC one month to fill in blanks and provide feedback in discrete fields so as not to compromise the initial input provided by the CWGs. At the beginning of the review period, CRCP staff held a homework webinar to explain the online revision process to the SEFCRI Team and TAC.

SEFCRI Team and TAC First Review

The SEFCRI Team and TAC met in January 2015 for an initial review of the draft RMAs from the CWGs. The advisory teams offered their feedback on both the crucial information provided on the Tier 1 worksheets, and the supplementary information in the Tier 2 worksheets.

During this time, comments related to specific RMAs that fell under regulatory responsibility were reviewed by the agencies (SFWMD, FDEP, FWC). Similarly, those RMAs involving a legislative component or recommended legislative changes were reviewed by the Coastal Ocean Task Force.

Many of the RMAs had received comments from the advisory bodies following the homework webinar in December 2014. SEFCRI Team and TAC members were encouraged to provide concise, summarized feedback and input with individual comments where appropriate. No agreement on feedback language was required and discrepancies in feedback for each RMA were noted. Members worked in small groups and reported out to the larger group to obtain additional comments and answer any questions. Groups were encouraged to use the Endnote[®] bibliography (<https://floridadep.gov/file/11824/download?token=Nikie3wn>) for reference as well as the Decision Support Tool for spatial recommendations.

The SEFCRI Team and TAC reviewed all RMAs and provided feedback on whether to combine, archive, augment, or clarify each recommendation. General feedback and comments were organized and presented to CWGs at the spring 2015 meetings. All SEFCRI Team and TAC input can be found at www.ourfloridareefs.org/review.

Community Working Group First Feedback Review

Following initial SEFCRI Team and TAC review, the original Tier 1 & 2 information from the CWGs and the feedback from the advisory bodies was transferred into a new document template. This new template allowed for different fields to capture comments from advisory groups in each field of the original Tier 1 & 2 worksheets. The rationale behind this decision was that the CWGs were moving from a broad information-gathering phase that required simultaneous input by many people to an editing phase which included more targeted refinements.

There were four main feedback categories from the initial SEFCRI RMA review:

- **Combine:** for RMAs that 1) had similar language, goals, and/or objectives, 2) information provided by CWGs was not clear enough to distinguish between RMAs, or 3) RMA objectives were conflicting and should be combined into a unified objective.
- **Archive:** for RMAs that 1) did not benefit the reef or would not achieve the intended result, 2) were not scientifically or technically feasible, 3) were research or monitoring activities, or 4) were already being done.

- **Clarify/Needs More Information:** for RMAs with specific comments on what content was insufficient or unclear, indicated additional information needed.
- **General Information:** RMAs had general information, such as "indirect benefit only" or "legislative action required", which would increase the timeline, etc...

Like the SEFCRI Team and TAC review, CWGs were broken up into tables by their respective areas of expertise. At each table, CWGs were provided with a list of all RMAs for review within that focus area.

To minimize duplicative effort, RMAs that were recommended to be combined were dealt with first. "Synthesis documents" were created by FDEP staff and the PPT to capture potential RMA combinations. These documents included a list of the relevant RMAs, a summary of similarities and conflicts between those RMAs, an explanation as to why the Team and TAC suggested those RMAs should be combined, and a summary of general feedback about the RMAs. See Appendix [XVII](#) for an example Synthesis Document, "School Curriculum".

Decisions made during breakout discussions were captured in real time by table facilitators (FDEP staff) and reported out to the larger North or South CWG for approval. Combinations and title edits were accepted or rejected based on Formal Decision Rules voting protocol (see Section [44](#)). South CWG decisions were reviewed by the North CWG and vice versa in the same manner.

Combined RMA content was incorporated into one overarching, or "umbrella", RMA, then the others archived. At every stage of the review process, members from the SEFCRI Team and TAC were present during North and South CWG meetings to answer questions and illuminate the reasoning behind their feedback.

The next step for North and South CWGs was to address the other three categories of feedback gathered from the SEFCRI Team and TAC, beginning with those RMAs recommended for archiving. CWG members were given handouts with each RMA and an explanation of their bin placement. If agreement could be reached among the CWGs to archive quickly, the RMA was archived. Any RMAs recommended for archive that a CWG member wanted to keep in the process could be augmented and re-submitted to the CWG by that person or group of people.

In preparation for the May 2015 CWG meetings, another homework webinar was held to instruct CWG members how to edit and augment RMAs. CWG members could go online and see which RMAs they signed up for, check to see other CWG members and advisors that had agreed to assist in the editing process as an option to work collaboratively, and finally, they could see how to add, combine and clarify information for RMAs (see: <http://ourfloridareefs.org/working-group-resources/cwg-homework-instructions/>). CWG members were also directed to use the "Homework Cheat Sheet", which showed members how to tackle similar/identical information (strikethrough), conflicting information (highlight) and address questions and comments from the reviewers (the SEFCRI Team, TAC, and agency staff) to create a more thorough, consistent, and informative version of each RMA (see: http://ourfloridareefs.org/wp-content/uploads/2015/05/CWG-Homework-Cheat-Sheet_May15.pdf).

Next, CWG members reviewed spatial RMAs in their draft form as of May 2015:

Code	1 st Draft RMAs
S-2	Create and fund one SEFCRI-wide mooring buoy program as a more coordinated and cost-effective way of protecting reefs from anchor damage.
N-146	Establish and implement an MPA zoning framework for the SEFCRI Region that includes but is not limited to no-take reserves, no anchor areas, restoration areas, and seasonal protection for spawning aggregations to enable sustainable use, reduce user conflict, and improve coral reef ecosystem condition.

To accomplish the spatial RMA review, CWG members assigned features and values to each objective in the spatial planning tool. See Appendix [XVIII](#) for a summary of the two spatial RMAs including their objectives, features, and values. Subsequently, CWG members identified Areas of Interest (AOIs) that would benefit from increased protection or management with those objectives in mind (See <http://ourfloridareefs.org/place-based/> for the final areas of interest. See Section 5.4.3. for more detail on use of the DST).

Each breakout group had an expert (staff) to "drive" the tool in order to visualize images for their suggestions. Staff facilitators captured notes electronically and on flipcharts so that one CWG member from each breakout group could report their objectives, features, and values to the larger group and request any additional local knowledge or information for each. During report out, CWG members could combine some of their objectives, features, and values while the tool "driver" took notes and updated draft outputs on the DST to inform potential mooring buoy installation and Area of Interest locations.

Finally, respective agency staff (FWC and SFWMD) had been receiving periodic updates and were given the opportunity to view the list of RMAs prior to and during the January and August 2015 advisory meetings. The list of RMAs was brought to legislative sessions in 2015 and 2016 (Ocean's Day in Tallahassee) to brief state senators and representatives, while the Coastal Ocean Task Force worked with local elected officials in the four-county region of southeast Florida.

SEFCRI Team and TAC Second Review

In preparation for the second review of the RMAs by the SEFCRI Team and TAC, FDEP staff further developed the Tier 1 & 2 documents in order to capture targeted feedback from the advisory bodies. Upon initial review and feedback from the Team and TAC, CWGs combined, archived, and augmented their list of RMAs and successfully decreased the number of RMAs from 191 to 74 (including 2 spatial recommendations) during the spring 2015 CWG meetings. The list of 74 2nd draft RMAs presented to the SEFCRI Team and TAC for the second round of review can be found in Appendix [Error! Reference source not found.](#)

At this stage, it was necessary to get specific feedback on a smaller set of recommendations to start finalizing ideas. Once again, FDEP staff downloaded the updated Tier 1 & 2 documents to be edited by the advisory bodies a second time. These updated documents for each RMA had four sections: 1) Initial information from CWGs; 2) Notes and feedback from the first Team and TAC review; 3) Questions and comments from the Team and TAC for CWGs to address; and 4) Questions CWGs asked of the Team and TAC during their second review of the RMAs with advisory feedback.

Given the above information, the task at hand for the Team and TAC during their second round of feedback for the RMAs was four-fold. It was the responsibility of the advisory bodies to: 1) review RMA content; 2) answer questions from the CWGs; 3) ensure that previous questions had been answered; and 4) fill in data and information gaps using track changes. This would allow the CWGs to address each comment at upcoming Community Working Group meetings and be able to "accept" or "reject" changes suggested by the Team and TAC.

For the non-spatial RMAs, there was a FDEP staff member present at each table to facilitate discussion and take notes in real time. Each small group table, again divided by focus area to ensure that the most targeted feedback could be given to each recommendation, started with RMAs suggested for combining, followed by those to be revised, and finally rewritten (substantive edits or additions). There were 9 breakout groups, which reviewed 8-10 RMAs each. In cases where the advisory teams did not agree on feedback, comments were highlighted so that CWGs could discuss conflicting ideas and options later.

Recommendations for edits were reported out to the full CWG to address further comments or questions. An additional task of the TAC was to recommend RMAs for archiving that would not be scientifically or technically feasible, according to their expertise. Any work that could not be completed at the meetings became homework for the SEFCRI Team and TAC to complete additional edits or feedback within the next month. A Point of Contact was elected for each breakout group, so that teams could follow up after meetings in order to complete their suggestions for all RMAs.

Finally, the SEFCRI Team and TAC reviewed spatial recommendations. Following an overview to recap the spatial RMAs, objectives for each Area of Interest (AOI), and Decision Support Tool (DST) functions (See Section [31](#)), the SEFCRI Team and TAC discussed objectives and placement for each AOI that the CWGs had created for RMAs with a spatial component. The Marine Planner "drivers" were running the DST in real time, thereby allowing the Team and TAC to visualize the images created by the CWGs and the list of objectives that accompanied each AOI. This portion of the review was done as a large group, so that all Team and TAC members could contribute information and feedback for each AOI.

5.6 Joint Community Working Group

In September 2015, following the second review of the draft RMAs by the SEFCRI Team and TAC, the North and South CWGs began to meet as one Joint CWG (JCWG). To facilitate the transition to one unified group, the CWGs were guided in several activities where they reviewed and voted to agree upon combined group dynamics, such as group norms, mission statement, decision rules, and charter. Once the two groups were merged into one JCWG, they began working to merge draft RMAs and review the second round of SEFCRI feedback together (see Section [70](#)).

Community Working Group Engagement and Outreach Event

Shortly before the first meeting of the JCWG in September 2015, OFR held a field-based event in Palm Beach County to which all North and South CWG members and SEFCRI Team and TAC members were invited along with elected officials and leaders from southeast Florida. The theme of the event was "Rivers to Reefs" and it was intended to highlight the connection between improving Everglades and estuarine water quality to protect the coral reef ecosystems of southeast Florida. The objectives of the event were:

1) to allow North and South CWG members to become re-acquainted with each other, 2) to apprise elected officials and leaders from southeast Florida to the progress of OFR, 3) to discuss and contextualize themes and issues addressed in several draft RMAs.

The event took place at Peanut Island Park which lies in Lake Worth Lagoon, Palm Beach County. This location was chosen because of its proximity to coastal areas, potentially serving as examples of where the application of RMAs may be beneficial. Initially, the event was intended to have an on-water component where participants would be able to tour six coastal areas and hear information from two locally knowledgeable experts at each. Due to high winds on the day of the event, the boat trip was cancelled. Participants, however, still heard the presentations on Peanut Island.

Two JCWG members provided an overview of the OFR Process for the elected officials and leaders in attendance including how the CWGs were created, how RMAs were formulated, the next steps in the process, the Marine Planner tool, etc. Then four examples of RMAs were presented. For each example, the first speaker was a Palm Beach County representative/resident who explained the significance of the area and/or the threats the ecosystem faced locally. The second speaker was an OFR representative who explained how one of the draft RMAs could address those threats. The final activity included a walking tour of Peanut Island where participants discussed restoration projects that had taken place in Lake Worth Lagoon to alleviate anaerobic conditions that were causing ecosystem decline. See Appendix [XIX](#) for the RMA connection document.

Community Working Group Second Feedback Review

Fall 2015 JCWG meetings were centered on addressing comments from the second round of SEFCRI Team and TAC review. Like the first advisory review process, comments related to specific RMAs that fell under regulatory responsibility were also received from the agencies, (SFWMD, FDEP, FWC), as well as the Coastal Ocean Task Force (COTF). Overall, the JCWG members sought to use feedback from the advisory bodies to further edit, augment, and prioritize the list of RMAs, producing a finalized list of RMAs that would go to the general public for their input in a series of Community Meetings (see Sect. 6).

Feedback from the advisory bodies came in the form of updates to language and targeted augmentation of RMA content. RMA review for non-spatial recommendations was done in breakout groups by focus area followed by a report out to the JCWG to vet decisions to combine, archive, or change the intent of any recommendations while flagging additional significant edits. All breakout group suggestions were captured in "track changes" by FDEP staff table facilitators and "accepted" or "rejected" by the larger JCWG during report out in accordance with Joint Decision Rules (See Section [44](#)).

For spatial recommendations, with the help of feedback from SEFCRI, the JCWG updated decisions on the number, location, and proximity to existing mooring buoys and sensitive areas that would be most beneficial if additional buoys were installed. The JCWG agreed to add the "existing mooring buoy" layer to the DST so they could visualize current locations for mooring buoy placement while planning future possibilities. The decision was also made to include language about continuing to support and maintain existing mooring buoys in the SEFCRI region while trying to develop a region-wide coordinated effort to install and oversee more.

To review the recommendations involving AOIs, the JCWG divided back into North and South CWGs. By doing this, their knowledge of coral reef resources, uses, and threats would be most focused and beneficial to developing local areas and objectives. The North CWG began reviewing AOIs developed for Martin County and worked south, while the South CWG reviewed AOIs developed for Miami-Dade County and worked north. Groups worked more collaboratively for the middle region where both CWGs had local knowledge of the AOIs. At that point, the JCWG made decisions to combine, expand or shrink, shift location, and augment information for each AOI based on SEFCRI feedback and local knowledge.

Like the first round of edits, CWG members reviewed feedback and worked with AOIs that had been recommended to be combined or archived before addressing the rest. CWGs would review the objectives for each AOI and provide rationale and context considering available data, coral reef resources, human uses, and threats. Decisions made by the NCWG and SCWG were accepted or rejected by the whole JCWG during report out. Management options were considered for each area and objective on the map, and the JCWG weighed in as to their preferred options. See Appendix [XX](#) for a list of the Management Options presented to the JCWG. At that time, the JCWG had the option to choose between 1-3 management options from the list, ask agency managers what should be done, or propose no management action be taken for each AOI in question. The JCWG voted on names for the AOIs according to Joint Decision Rules and finalized spatial recommendations for presentation at the Community Meetings. See <http://ourfloridareefs.org/place-based/> for the spatial RMAs presented at the 2016 Community Meetings.

On a procedural note, the JCWG voted on discussion points that had come up in previous meetings. The JCWG voted not to allow the revival of archived RMAs back into the process. Instead, the JCWG voted to take the advice of the PPT and include a statement in the final report indicating that actions already being addressed were archived, but that archiving did not diminish their importance. Secondly, the JCWG voted to allow FDEP staff to summarize each RMA as well as clean up any grammatical errors to prepare the list of RMAs for Community Meetings. The JCWG had the opportunity to vet any changes before the documents were finalized for community engagement. For a complete list of archived RMAs, See Appendix [XXIX](#).

Finally, the JCWG discussed strategies to increase participation and input from the community – especially the fishers and divers. Ideas were solicited from the JCWG as to how to better reach these stakeholder groups to get more local perspectives and disseminate information about the *Our Florida Reefs* process. Groups compiled a list of key individuals, clubs, shops, charters, organizations, tournaments, advertisements, press, forums, social media avenues, listservs, and meetings to target, before creating an outreach plan to get these stakeholders to participate in January 2016 Community Meetings.

6 COMMUNITY REVIEW

The third step in the *Our Florida Reefs* process was to solicit feedback on the draft RMAs from the public. The PPT and JCWG recognized the need to actively engage and offer an in-person opportunity for the community to learn more about the OFR process and the draft recommendations. A series of Rollout Community Meetings were designed to give participants an opportunity to learn about and discuss the ideas, interact with JCWG members, and most significantly, offer feedback about draft recommendations.

6.1 Outreach Efforts

In the months leading up the 2016 Rollout Community Meetings, FDEP staff, SEFCRI, and JCWG members increased outreach to increase engagement of residents and visitors from all four counties. To accomplish this, the CRCP Awareness and Appreciation Coordinator organized a wide-reaching advertising campaign through several outreach and media venues. This section details the additional outreach effort carried out specifically to increase participation in the 2016 Rollout Community Meetings. For the full OFR communications strategy see Section [19](#).

A print advertisement was designed and included in several magazines, fishing guides, and newspapers, both in print and online (See Figure 10). Specific media outlets were included in the advertising effort due to their high fishing, diving, and coastal resource use readership. Several versions of a flier were also designed and used to advertise the Rollout Community Meetings.

To increase meeting exposure, CRCP staff and local partners distributed printed copies of the meeting flier to local dive shops. JCWG members were also tasked with distributing fliers and notifying their stakeholder groups of the Rollout Community Meetings.

Public Service Announcements were recorded and played on several local radio stations in both English and Spanish. Additionally, existing English and Spanish TV PSA spots were increased in the months leading up to the Rollout Community Meetings.

To increase the advertising effort online, the homepage of www.OurFloridaReefs.org was modified to promote the upcoming Rollout Community Meetings. Additionally, the Facebook page “Florida’s Coral Program” posted notifications advertising 2016 Rollout Community Meetings.

The community is talking about how to save our Florida reefs
 Come join the conversation: Attend a community meeting at either 12 - 2 p.m. or 6 - 8 p.m.

<p>Tuesday, January 26 Indian River State College Chastain Campus 2400 SE Salerno Road Stuart, FL 34997</p>	<p>Wednesday, January 27 Amara Shriner Temple Auditorium 3650 RCA Blvd Palm Beach Gardens, FL 33410</p>	<p>Friday, January 29 Delray Beach City Library 100 W. Atlantic Ave Delray Beach, FL 33444</p>
<p>Tuesday, February 16 Holiday Park Social Center 1150 G. Harold Martin Drive Fort Lauderdale, FL 33304</p>	<p>Wednesday, February 17 Newman Alumni Center UM/Coral Gables Campus 6200 San Amaro Drive Coral Gables, FL 33146</p>	<p>Thursday, February 18 Kovens Conference Center FIU/Biscayne Bay Campus 3000 NE 151st Street North Miami, FL 33181</p>



Our Florida Reefs is a community planning process for the future of southeast Florida reefs. Learn more at www.OurFloridaReefs.org

Figure 10: OFR 2016 Community Meetings Advertisement.

Advertisements for 2016 Rollout Community Meetings were placed in the following:

Media Type:	Entity:
Print	Scuba Diving Magazine
	Florida Sport Fishing Magazine
	Guy Harvey Magazine
	Miami Boat Show Guide
Print & Online	FWC Saltwater Fishing Regulations
	Coastal Star Magazine
	Coastal Angler Magazine
	Waterfront Times
	The Pelican Newspaper
	Palm Beach Post
	Miami Herald
	South Florida Sun-Sentinel
Radio PSA	4 Public Stations FM (WLRN, WDNA, WKCP, WXEL)
	12 Commercial Stations FM (WKIS, WLYF, WBG, WHYI, WFEZ, WSHE, WRMF, WAXY, WLDI, WIRK, WEAT, WZZR)
	5 Spanish-language Stations (WCMQ, WMGE, WXDJ, WRMA, WAMR)
	iHeart Media Stations
	Pirate Radio
TV PSA	Broadcast and Cable TV

Promotional materials with OFR branding and information were produced to hand out to the public at outreach events and to all participants of Rollout Community Meetings. All printed promotional materials included the OFR website and were distributed with verbal instructions about how to learn more about and engage in OFR. These types of distribution materials incentivized email signups and generally increased public awareness of the OFR process. Promotional materials produced with OFR branding included: carabiners, waterproof cell phone pouches, stainless steel water bottles, magnets, stickers, and drawstring backpacks.

Targeted Outreach

Based on stakeholder participation in the 2013 Informational Community Meetings and the first two steps of the OFR process, the CWG recognized a need to target specific stakeholder groups for increased outreach leading up to the 2016 Rollout Community Meetings. The outreach strategy for the first three steps of the OFR process targeted everyone, drawing in as many voices as possible. However, the 2016 meetings needed to heavily incorporate those that could potentially be affected by draft RMAs. Therefore, the next step of targeted outreach aimed at raising awareness in those communities was above and beyond the original communications strategy. Specifically, this additional effort focused on increasing participation from fishing and diving stakeholder groups.

The PPT and CRCP staff developed a multi-faceted strategy to increase engagement by fishing and diving stakeholders. This approach relied on fishing and diving members of the CWGs to identify and implement ways to increase outreach. Fishing and diving groups were contacted via peer-to-peer phone calls and emails to respective group leaders and listservs. Additionally, both CWG members and CRCP staff gave evening presentations to local fishing and diving groups. CWG members were also interviewed on fishing radio shows and posted notifications to online forums. See Appendix [XXI](#) for a list of all the known press released throughout the OFR process in various mediums.

Despite the challenges of communicating to six million stakeholders in three primary languages over a four-county region, the extensive outreach efforts successfully engaged many new groups in the OFR process. Public interest in the OFR process generated over 30 instances of media attention in local newspapers, newsletters and magazines, TV and radio stations, and online in blogs, forums, and social media postings.

6.2 Rollout Community Meetings

Planning for the 2016 Rollout Community Meetings began during the July 2015 PPT meeting. At that time, the facilitators, PPT, and CRCP staff reviewed lessons-learned from case studies of similar processes and from the 2013 Informational Community Meetings. The group used this information to design the format of the 2016 Rollout Community Meetings.

Due to the positive feedback received from the 2013 Informational Community Meetings, the same format was applied for the 2016 Rollout Community Meetings. The difference between the two sets of meetings was that, while the 2013 Informational Community Meetings were focused on introducing the OFR process and soliciting applications for the CWG members, the 2016 Rollout Community Meetings were intended to share the draft RMAs with the public, gather feedback, and gauge support for them.

Logistics

The PPT identified that some of the 2013 Informational Community Meeting locations were not ideal and that the 2016 Community Meetings should be held in more accessible, coastal areas to attract all stakeholder groups. With this in mind, CRCP staff found venues that would be large enough to accommodate at least 150 people (to include participants, facilitators, CWG members, and staff), have free or easily accessible parking, wireless internet capabilities, and be evenly spaced throughout the four counties. By November of 2015, two meetings at each location had been scheduled:

- Tuesday, January 26, 2016: Martin County: Indian River State College, Chastain Campus, Stuart, FL
- Wednesday, January 27, 2016: North Palm Beach County: Amara Shriner's Temple, Palm Beach, FL
- Friday, January 29, 2016: South Palm Beach County: Delray Beach City Library, Delray Beach, FL
- Tuesday, February 16, 2016: Broward County: Holiday Park Social Center, Ft. Lauderdale, FL
- Wednesday, February 17, 2016: South Miami-Dade County: Newman Alumni Center, University of Miami, Coral Gables, FL
- Thursday, February 18, 2016: North Miami-Dade County: Covens Conference Center, Florida International University, North Miami Beach, FL

Meeting Structure

The 2016 Rollout Community Meeting format began with a welcome by a CWG member host, a 30-minute introductory presentation delivered by CRCP staff, and ground rules and process explanation by the facilitators. The opening presentation was created to tell an entire story, starting with background on corals and coral reefs, threats to the reefs, the background of SEFCRI, and, ultimately, OFR. The focus was on the current step in the process: ensuring broader public input into the draft RMAs before they were finalized by the JCWG.

Following the opening presentation, participants were free to visit focus area kiosks in an open-house style. The kiosks were organized into groups reflecting the focus areas of the draft RMAs: Education & Outreach (E&O), Enforcement (LE), Fishing, Diving and Other Uses (FDOU), Land-Based Sources of Pollution (LBSP), Maritime Industry & Coastal Construction Impacts (MICCI), and Areas of Interest (Spatial). There was also an OFR Process kiosk where participants could discuss the details of the process structure with staff and CWG members.

CRCP staff, SEFCRI Team, TAC and CWG members served as facilitators at each of the focus area kiosks. They engaged participants by providing an overview of the draft RMAs, responding to questions, and connecting participants with CWG members for more information. Talking points were created for each focus area kiosk including instructions on how to participate in kiosk activities.

Five of the seven kiosks (E&O, LE, FDOU, LBSP, and MICCI) were designed the same way, with two main activities. The first activity (referred to as the “dot activity”) had participants review the short titles of the draft RMAs and place a dot next to the RMAs they felt they could most support. The intent of this activity was to actively engage participants and measure relative support for draft RMAs within each area of interest. Participants could place a single dot next to any or all of the draft RMAs and understood that they were not permitted to “power vote,” that is, place all of their dots on any individual draft RMA.

The second activity (referred to as the “sticky note” activity) involved participants reviewing the list of draft RMAs at each focus area and using sticky notes to add any ideas or suggestions that they felt had not been addressed within each focus area. The objective of this activity was to allow participants to identify any potential conceptual gaps in the draft list of RMAs.

Presenting Spatial Recommendations

Some of the draft RMAs created by the CWGs were spatial in nature, i.e., certain management actions were proposed in specific locations to address a defined management objective (e.g. protection of large corals). The PPT put a lot of time and thought into how best to visually display these spatial RMAs in a way that would emphasize the goal of the RMA while not implying that the “Areas of Interest” displayed were anything more than concepts for public consideration and input.

Therefore, the Spatial kiosk was designed differently than other kiosks because the draft spatial RMAs required a different delivery and method for receiving public input. To inform participants of the draft spatial RMAs, a second optional presentation was delivered following the opening presentation of each Rollout Community Meeting. This presentation was intended to inform participants of the data and local knowledge used by the CWGs to create the draft spatial RMAs. It detailed the learning curve (See Section [5.3](#)), the data and mapping resources used (see Section [63](#)), and gave examples of how CWGs made their decisions (see Sections [64](#), [66](#), and [70](#)). The presentation also directed participants to the online Marine Planner and Decision Support Tool so that they could access the same data used by the CWGs to make their decisions.

The presentation described two distinct concepts within the draft spatial RMAs: 1) the need for recognition of important marine resources in the entire OFR region generally, and 2) the draft Areas of Interest identified by the JCWG that could potentially serve as effective areas to meet management objectives. Special attention was paid to explaining that the Areas of Interest were in no way final, but merely a data-driven selection from the JCWG for examples of how to achieve the objectives of their spatial RMAs. Additionally, the presentation explained that some of the AOIs displayed were intended to be alternates of one another and that either could achieve the same objective, but both would be unnecessary.

Following this presentation, participants were given the opportunity to view the draft Areas of Interest defined by the JCWG on large printed maps and to ask questions to kiosk facilitators. Participants were then asked to provide feedback in one of two ways, either on specific Areas of Interest, or on the overall concept of the draft spatial RMAs. As with the other draft RMAs, comment could be collected in person on printed comment cards, or online at www.OurFloridaReefs.org.

Materials Design

One challenge in the design of the Rollout Community Meetings was how to successfully present all 68 draft RMAs to the public in a digestible way. The CWGs discussed how to accomplish sharing complex concepts and draft RMAs without oversimplifying the content. They identified the need for multiple formats of each draft RMA. At the Rollout Community Meetings and online, the public had access to all formats of each RMA. This was intended to allow the public to get an understanding of the full suite of draft RMAs, while being able to learn more about any and all draft RMAs that interested them.

Ranging from most concise to most extensive, those formats are as follows:

- **Short Title:** The most concise summary the RMA intent, meant to give the reader an immediate understanding of content. Short Titles ranged from three to sixteen words in one sentence.
- **Long Title:** The full title was developed by the JCWG to be as specific as possible. The Long Title format is a short phrase which included a verb, object, and brief benefit of the action.
- **RMA Brief:** The most concise full version of the RMA, which includes the title, main objective, and some background information. This is the “Reader’s Digest™ Version” and was intentionally limited to a length of one-half page.
- **Full RMA:** This is the complete RMA developed by the JCWG based on information in the Tier 1 & 2 worksheets and technical and community feedback. The Full RMAs are between one and six pages in length.
- **Tier 1 & Tier 2 Information Worksheets:** The original information-gathering documents used by the CWG members to develop their RMAs. These raw source documents aided CWG members in collecting data, information, and iterative feedback about their RMAs. These documents were not updated as the RMA evolved so they may include information that is no longer pertinent to the final form of the RMA. The Tier 1 & Tier 2 Information Worksheets range in length from four to eighteen pages.

Visit <http://ourfloridareefs.org/rmacomment/> for the final list of RMAs in each of the formats listed above.

Additional products that were developed, distributed, and/or used at rollout meetings included:

- **Frequently Asked Questions:** A document developed by JCWG members that provided the facts about coral reef ecosystems in southeast Florida and the OFR process. This document was developed in response to the frequently asked questions and was intended to provide participants with background information and address any incorrect information that members of the public may have heard prior to attending Rollout Community Meetings. See Appendix [XXII](#) for a copy.
- **Supporting Materials for Focus-Area Kiosks:** Informational documents included at focus-area kiosks as examples of the supporting data which the CWGs used to construct draft RMAs.
 - **Fisheries Science 101:** “An explanation of basic concepts of fisheries science to give stakeholders a better understanding of the types of information scientists provide to managers for decision-making to ensure healthy, sustainable fisheries”. (Fisheries Science 101, 2013)
 - **Introduction to Marine Fisheries Management:** An FWC document which explains why there are seasons and size and bag limits for fishing, the methods used in science-based management, and the management process for fisheries in Florida. (Introduction to Marine Fisheries Management)
 - **Southeast Florida Coral Reef Fishery Independent Baseline Assessment Summary, 2012-2014:** A summary document of the Reef Visual Census survey methods and findings in the region, which among other things described “a pattern of declining percent occurrence, density, and average length estimator of fishing mortality (Lbar), for most target species from the Dry Tortugas, Florida Keys, and southeast Florida.” (RVCsummary)
 - **Florida Reef Resilience Program Disturbance Response Monitoring (FRRP DRM) Quick Look Report, Summer 2015:** A summary report of the goals, methods, and results of the

FRRP DRM, a program which monitors and reports out on the status of reef tract disturbances such as coral bleaching, recent mortality, and disease. (Florida Reef Resilience Program Disturbance Response Monitoring Quick Look Report, 2015)

- **Informational One-Pagers:** One-page documents developed at the beginning of the process on the following topics: Ecosystem, Coral, Water, Fish, Habitat, People, Management, and the OFR Process. These included general information about and status of the topic, specific threats or issues, and suggestions for related positive actions (<http://ourfloridareefs.org/overview/>).
- **Focus Area RMA Lists:** One large (3' x 4') poster for each focus area with the draft RMA short titles and reference numbers. Included a column with the question "Which RMAs do you most support within this focus area?" where participants could vote with dots (dot activity).
- **Spatial RMA Maps:** A total of 15 large format (2' x 3') posters showing the draft Areas of Interest with background information of the habitat and human use, management objectives identified, and questions to the public for each area. Maps also included important data layers for reference including current management areas, mooring buoys, artificial reefs, and dive sites.
- **Process Posters:**
 - **Ways to Provide Input:** Indicated the many ways to provide general or RMA specific feedback to the JCWG, including the final date for receipt of public comment.
 - **OFR Mission Statement:** The mission statement for the OFR process agreed upon by the JCWG.
 - **OFR Process Graphic:** Four-step process graphic explaining the progress of OFR and indicates the current step.
 - **Ground Rules:** Two posters displayed around meeting rooms with ground rules for effective and respectful engagement in Rollout Community Meetings.

Feedback Collection

To facilitate the collection of feedback and make public comment data most useful for the JCWG, the PPT and CRCP staff created a comment card to be printed on the back of each half-page "RMA Brief" (See Figure 11). This was done to provide the commenter with information and to help them identify the draft RMA on which they were commenting. The design of this comment card was reviewed by sociologists to verify its effectiveness for quantitative data gathering. The questions on the comment card were then approved by the JCWG.

RMA comment cards were available at the Rollout Community Meetings for participants to fill out and submit directly or by mail to the CRCP office after the meeting. The public was also invited to submit comments online at www.OurFloridaReefs.org where all draft RMAs were posted and available for review and comment. Each draft RMA linked directly to an electronic version of the online comment form that the public could use to provide feedback on each individual draft RMA. This website was live from December 2015 until March 1, 2016. Additional comments were accepted through March 4, 2016.

After the Rollout Community Meetings were complete, the JCWG received open-format feedback (letters, petitions, phone calls, and general comments) that did not follow established public comment design discussed in this section. The receipt and integration of this feedback is included in Section 7.3 below.

RMA #: _____ **Name (optional):** _____ **Email (optional):** _____

What best describes your interest in the reef (circle all that apply): **FISHING** **DIVING** **BOATING** **PROTECTION** **OTHER**

1. This draft Recommended Management Action (RMA) will result in an improvement to the coral reef ecosystem in southeast Florida (Martin, Palm Beach, Broward, and Miami-Dade Counties).

Definitely So Likely Not Sure Likely Not Definitely Not

2. This draft Recommended Management Action (RMA) will result in an improvement to your life or livelihood in southeast Florida (Martin, Palm Beach, Broward, and Miami-Dade counties).

Definitely So Likely Not Sure Likely Not Definitely Not

3. Do you support this draft Recommended Management Action (RMA)?

Definitely So Likely Not Sure Likely Not Definitely Not

4. What do you support, or how could this RMA be changed to an action you could support?

5. Other comments or input:

Figure 11: 2016 Community Meeting RMA Specific Comment Card.

7 REVIEW AND INTEGRATION OF COMMUNITY FEEDBACK

The final task for the JCWG was to review, consider, and integrate the suggestions from the public regarding the RMAs. The Rollout Community Meetings resulted in many unique comments that were submitted by interested individuals who completed comment cards at the meeting or submitted comments through the OFR website. Additionally, FDEP and FWC received a large number of letters, petitions, phone calls, and general comments from stakeholder groups in the SEFCRI region expressing their significant concerns over nine of the 68 proposed RMAs. In response, the JCWG was asked to spend additional time considering those concerns and how to address them.

Through these general comments, community members raised concern about their perceived lack of appropriate representation on the JCWG – that they wanted to ensure discussions on finalizing and prioritizing RMAs were adequately informed by on-water user groups. Since OFR was a multi-year process, some JCWG members had become less active or stopped attending altogether and had not nominated an alternate. In this regard, the OFR Charter stated:

“CWG members will make every effort to attend CWG meetings and events in person. If a CWG member does not attend more than 4 meetings or does not attend more than 2 consecutive meetings and does not arrange for their alternate to attend when the member cannot, the SEFCRI Chair may choose to remove or replace that member.”

Throughout OFR, there had been multiple attempts by CRCP staff, SEFCRI Team, PPT, and other CWG members to re-engage those CWG members with limited participation and attendance. However, by the

end of process there were multiple unfilled primary seats – mainly from the education and fishing-related stakeholder groups.

Per the OFR Charter, in order to fill any primary seat, the potential new member would have to apply and be approved by the SEFCRI Vice-Chairs in the same manner as any other CWG member. As that process was lengthy and the end of OFR was close at hand, the CWG voted not to allow the addition of any new members. However, also per the Charter, alternates were not required to be reviewed or approved by the Vice-Chairs and could simply be appointed by the primary stakeholder member at any time. The JCWG prioritized trying to re-engage the original primary CWG member by asking them to return for the duration of the process. In particular, CRCP staff, FWC, and CWG members made a significant effort to re-connect with the primary stakeholders for the fishing and education parties whose seats had been vacant. However, in some cases this proved not to be possible, so the primary member was encouraged to designate an alternate who could attend in their absence and remain engaged until the process was complete.

There were challenges of re-engaging old members and/or bringing on new alternates at this stage in the process including, 1) new representatives had not had the benefit of the Learning Curve/Educational presentations (see Section 5.3) that the other CWG members had already gone through, and 2) the new representatives had not been a part of the previous two years of CWG group conversations that established group ‘norms’ including communally developed and agreed upon definitions for challenging words and concepts. The latter of which proved to be integral to defining goals and objectives for the recommended management actions.

7.1 New Alternates Onboarding

To minimize any potential ‘learning curve’ issues for the new alternates, CRCP staff organized a two-day intensive onboarding meeting with the purpose of 1) providing a summarized briefing of the data previously presented to the CWGs in their educational phase and 2) getting new alternates up to speed on the OFR process and the work still to be completed. The JCWG believed that this condensed educational phase was crucial to ensure that the new representatives could appropriately engage and make scientifically informed decisions about the final items during the last step of the process.

The PPT and CRCP staff agreed on which presentations were most important to include in the onboarding agenda, making sure to include a wide range of topics as had been covered in the original educational phase. Wherever possible, the exact same presentation was given by the presenter that originally gave it to the CWGs to keep the information as consistent as possible. The presentations selected reviewed the following topics:

- OFR Process Background / Introduction
- OFR Process Next Steps
- Introduction to Corals and the SEFCRI Region
- Ecosystems and Interconnectivity
- Ecosystem Management
- Habitat and Marine Planner
- MPA Zoning Framework
- People / Socioeconomic Information
- Water, Land-Based Sources of Pollution, Watershed

- Fisheries Dependent and Independent Data

To help address the reestablishment of group ‘norms’ and common terminology, it became evident that some additional concepts and materials needed to be revisited to ensure all of the JCWG members had the same knowledge base. For this reason, and at the request from participating fishing stakeholder groups, an additional presentation about Fisheries Management was given by FWC’s Division of Marine Fisheries Management representative on the State’s fisheries management strategies. The entire onboarding meeting was open to the existing JCWG and anyone who wanted to join; however, existing JCWG members were only expected to attend this final presentation.

The onboarding meeting was held in person and streamed through a webinar service so that it was accessible to as many people as possible. The webinars were also recorded and posted to the OFR website so that all CWG members, old and new, and the public could have access to the material. To accompany the presentations, CRCP staff prepared physical binders and loaded USB drives with OFR materials to give to the new alternates. The binders and USB drives contained all original educational phase presentations, scientific literature used and referred to, CWG meeting minutes, public comments received, OFR procedural documents, and documents pertaining to the upcoming CWG meetings. New alternates were also directed to the OFR website to review historical documents and to further educate themselves about the mission and progress of OFR.

7.2 Additional Advisory Engagement

Due to the substantial feedback from the fishing stakeholders, FDEP and FWC leadership representatives from Tallahassee were asked to attend the last JCWG meetings in order to advise the JCWG on the stakeholder comments being received outside of the OFR process (i.e., directly to the agencies).

Acknowledging that the RMAs were solely recommendations and that agencies still needed to go through their established public processes to implement any of them, the JCWG members also asked the FDEP and FWC representatives to clarify what those processes would look like for their respective agencies.

7.3 Feedback Review

A challenge for the final phase of the OFR process was constructing a method by which the JCWG could review all feedback submitted in response to the 68 draft RMAs presented at the Rollout Community Meetings, as well as the unanticipated feedback received outside of the OFR process.

CRCP staff and the PPT discussed the most effective methods of ensuring that every public comment was considered by the JCWG. It should be noted that FDEP continued to receive a large number of comments, comment cards, emails, and social media posts regarding fishing interests related to the OFR RMAs after the OFR process was complete and the JCWG had disbanded. While the late feedback was not integrated into the final RMAs, all of the feedback received during and after the OFR process will be provided to the agencies for consideration should any of the RMAs move forward for implementation. See Appendix [XXIII](#) for a directory of all public comment received throughout the process.

Data Presentation

It was important for the CWGs to receive the RMA comment data in a way that was easily digestible, but still required them to consider each comment individually. CRCP staff and the PPT came up with a way to achieve this by creating distinct data reports for each RMA. These reports included the full title of the RMA, the number of total comments received on that RMA, any letters or petitions in which the RMA was mentioned, and pie charts for the three Likert-scale questions. The comments from the optional write-in sections were sorted by positive (in favor), negative (against), and neutral. The feedback was sorted into “positive” if the same respondent answered affirmatively to question three (“Do you support this RMA”) and sorted into “negative” if they answered negatively to the same question. See <http://ourfloridareefs.org/rma-specific-public-comment/> for all comments received through the comments cards, both online and in-person.

Data from two other sources received at the Rollout Community Meetings were also incorporated. One was the “dot activity”, in which participants were also asked to place dots next to RMAs that they supported. The results of the dot activity were reported to the JCWG in the form of bar charts so that JCWG members could compare general support between RMAs for each focus area. General comments or actions that were submitted in the post-it note exercise were either filed according to where they were most appropriate (often under an existing RMA) or, if they truly were ‘miscellaneous’, they were consolidated onto one sheet per focus area for the JCWG to review. See Appendix [XXIV](#) for the graphed results of the “dot activity”.

Additionally, since a main role of the CWG members was to provide feedback from their stakeholder groups to the rest of the CWG, members reported out on the reactions and perspectives of their stakeholder groups during the spring 2016 meetings as a form of feedback. The dynamics of the CWG meetings allowed for every CWG member to provide this type of feedback to the group.

The letters, petitions, and other feedback received within the OFR comment period were considered open format, as such it was difficult to integrate them into the same reporting structure. Nevertheless, letters and petitions were included on RMA comment reports along with the rest of the comment data. See <http://ourfloridareefs.org/rma-specific-public-comment/> for all letters and petitions received. After discussions with representative stakeholder groups, an agreement was reached that all the information from the letters and petitions would be compiled and presented to the JCWG in a table summarizing the results. The table followed a support/oppose structure, which also included the original comment card feedback for each RMA (<https://floridadep.gov/file/11763/download?token=EApR0ho7>).

Finally, as was included throughout the entire process, at each CWG meeting a public comment period was included on the agenda to ensure the voices of the public attendees would be considered in the CWG discussions. For the last few meetings, the fishing community greatly increased public attendance and public comments, ensuring that their perspectives on the OFR process and RMAs were included. Feedback from stakeholders was also received after the designated comment period in the form of letters, petitions, and public comments (<https://floridadep.gov/file/11765/download?token=BgaiRbgt>, <https://floridadep.gov/file/11766/download?token=-NMR4VXt>, <https://floridadep.gov/file/11768/download?token=7BqGRmRi>).

Archiving Consideration

At this point, the JCWG discussed whether they should have the option to archive any of the 68 draft RMAs in the final phase of the process. Some JCWG members thought archiving should be an option because the various public comments received represented new data. Other members argued that the RMAs had already undergone two years of scrutiny and had remained in the favor of 75% of the CWGs the entire time. After a vote, it was decided that archiving would not be an option for any of the 68 draft RMAs. Instead, it was agreed that during the final RMA prioritization step, an RMA could be deprioritized, if the group voted accordingly.

Data Review and Feedback Integration

The JCWG's first activity to review the public feedback data included an overview by CRCP staff of basic descriptive statistics, such as the number of comments received in total and the number of comments per RMA. This was followed by an explanation of the data presentation style and then a discussion about how the JCWG would review feedback.

The majority of comments received were submitted in response to only 9 of the 68 RMAs. Because of the high volume of discussion surrounding these RMAs as compared to the others, they were deemed "contentious" and the process for reviewing public feedback was different than for the "non-contentious" RMAs that had received far fewer comments. The methods for reviewing, revising, and finalizing both types of RMAs is detailed below.

Non-contentious RMAs

Of the 68 draft RMAs, 59 received minimal feedback and were therefore deemed non-contentious. These RMAs were reviewed first since only minimal JCWG discussion was needed to address public comments and finalize them. To review the public comments, the JCWG broke into small focus area groups and went through the materials provided in the RMA comment reports. First, comments received on post-it notes and the results of the "dot activity" were reviewed. Next, each RMA data report was reviewed comment by comment. Finally, the small group discussed each comment, answered questions, cited informational documents and other RMAs where applicable, and noted proposed changes to the RMA where appropriate (<http://ourfloridareefs.org/april-2016-joint-cwg-meeting/>).

After all data was reviewed, focus area leaders provided a brief summary of the discussion to the full JCWG. During this report out, any proposed change to the RMA as the result of a small group discussion was brought to the whole group. The full JCWG then had the opportunity to suggest alternative modifications to the RMA or they could vote to agree upon the proposed modifications. According to the formal decision rules, any edits to RMA content would require a quorum agreement of 75% to pass.

Contentious RMAs

After the JCWG were finished reviewing the comments from the 59 'non-contentious' RMAs they began working on the 9 "contentious" RMAs. The activity to review these RMAs was different because the JCWG wanted to be as thorough as possible with them. To accomplish this, they broke into small groups by focus area as before. For RMAs with 50 or fewer comments, each small group reviewed and responded to every individual comment and reported out to the larger group.

Of the 9 “contentious” RMAs, 2 RMAs received the largest amount of feedback by far. To maximize efficiency, for those 2 RMAs each small group reviewed a subset of the total comments. Then, as before, the small groups reported out to the full JCWG, summarized their comments, read any relevant information to the group that they found insightful to the conversation, and suggested changes to the RMA.

Each small group was provided with a copy of every letter and petition received regarding the RMAs. It was a part of their task to read each letter and to include that feedback into their decisions regarding potential modifications of RMAs. At the top of each RMA report was a note designating which letters that RMA had been mentioned in. This was to ensure that the open format comments received (letters and petitions) were also considered. As was previously done, any proposed RMA content edits were required to be approved by a 75% vote of the JCWG.

8 PRIORITIZATION

Once the content of each of the 68 RMAs was finalized, the final task for the JCWG per the mission of OFR was to prioritize the list. Beginning in April 2014, the PPT began discussing the best way to facilitate the prioritization of a large and diverse set of management recommendations. They agreed that to ensure objectivity and comparability it was important to base this prioritization on a specific set of criteria which would be decided upon by the JCWG.

8.1 Prioritization Criteria

The draft criteria for prioritization were collaboratively designed by the PPT and reviewed by the TAC. These draft criteria were then merged with an established method from The Nature Conservancy (TNC) for evaluating strategic actions (The Nature Conservancy, 2007). The JCWG would use the information gathered in the Tier 1 & 2 worksheets to individually rank these criteria on a ballot for each RMA.

The biggest concern of both the TAC and the PPT regarding the criteria ballot was the ability for JCWG members to adequately assess the RMAs according to the defined criteria. To mitigate this issue, the PPT developed considerations (linked to the Tier 1 & 2 information) within each criteria category to help JCWG members understand exactly how to rank RMAs according to each criterion. The JCWG members used all the data available to them to make informed decisions in criteria ranking each RMA but acknowledged that some information was not available. The finalized criteria and instructions for prioritization to JCWG members were as follows:

Benefits (low, medium, high, very high)

- Scope and Scale of Outcome - The extent to which the management action, if successfully implemented, is likely to achieve the CWG vision, enhance/maintain the condition of the coral reef ecosystem, or reduce threats to the coral reef ecosystem.
 - Refer to:

Tier 1	Tier 1, #2: Intended Result (Output/Outcome)
	Tier 1, #4: Justification
	Tier 1, #5: Potential Pros
	Tier 1, #7: Location* *may also inform “Ease of Implementation” (Feasibility)

	Tier 1, #8: Extent* *may also inform “Ease of Implementation” (Feasibility)
Tier 2	Tier 2, #3: Intended Benefits (Outcomes)
	Tier 2, #6: Relevant Supporting Data

- Duration of Outcome - The degree to which the management action, if successfully implemented, is likely to secure long-lasting environmental, social or economic benefits.

- Refer to:

Tier 1	#3: Duration of Activity
--------	--------------------------

- Leverage - The degree to which the proposed management action, if successfully implemented, will support the implementation of other management actions (and achieve other objectives).

- Refer to:

Tier 2	#9: Linkage to Other Proposed Management Actions
--------	--

- Risk - The level of risk associated with not implementing the management action.

- Refer to:

Tier 2	#5: Risk
	#7: Information Gaps

Feasibility (low, medium, high, very high)

- Lead Individual or Institution - The availability of a lead individual or institution with sufficient time, skill, experience, institutional capacity, and authority to implement the management action.

- Refer to:

Tier 2	Tier 2, #10: Lead Agency or Organization for Implementation
	Tier 2, #11: Other Agencies or Organizations

- Ability to Motivate Key Stakeholders - The anticipated level of support by key stakeholders (e.g., landowners, public officials, interest groups) whose involvement is necessary to implement the management action.

- Refer to:

Tier 2	#12: Key Stakeholders
--------	-----------------------

- Ease of Implementation - Management actions that are less complex, have been successfully implemented previously, fit within SEFCRI strategic goals and objectives, and for which funding is accessible are more logistically feasible than other actions.

- Refer to:

Tier 2	#1: Strategic Goals & Objectives to be Achieved
	#2: Current Status
	#8: Anticipated Timeframe for Implementation
	#13: Feasibility
	#14: Legislative Considerations
	#15: Permitting Requirements
#18: Potential Funding Sources	

Cost (low, medium, high, very high)

- Direct Costs - The cost of one-time expenditures, annual expenditures (such as salaries, supplies, equipment, contracts, etc.), and number of staff necessary to implement the management action. Consider also the level of investment required to support recurring (versus one-time) costs.

- Refer to:

Tier 2	#16: Estimated Direct Costs
	#17: Enforcement

- Indirect Costs - The level of perceived or potential negative environmental, social, or economic impacts associated with the management action. Consider also the accrual of negative impacts that may result from recurring (versus one-time) indirect costs.

- Refer to:

Tier 1	#6: Potential Cons
Tier 2	#4: Indirect Costs (Outcomes)

Once the criteria for prioritization were defined, they were used by the JCWG to score the RMAs accordingly. JCWG members were reminded to rank RMAs without regard to current agency priorities, as the product of the OFR process (stakeholder recommendations to agencies) was intentionally distinct from individual agency policies.

The process for RMA prioritization included two rounds: the first was an initial qualitative ranking, the second was a review and discussion activity that allowed the JCWG to edit the prioritization results if they desired. Previously in 2015, JCWG members had been given time to complete their initial thoughts on prioritization by filling out individual RMA prioritization ballots. At that time, they were given the option to work with each other or take their prioritization ballots home to complete by themselves.

8.2 Data Processing

Once JCWG members turned in their RMA prioritization ballots, CRCP staff aggregated the data into a spreadsheet by converting each ranking into a score. The aggregate score for each RMA's three criteria was then divided into quartiles to rank the criteria in relative terms. Once the aggregate criteria scores were split into quartiles, the RMAs were binned into four groups by the benefits score. Once binned, the feasibility and cost aggregate scores for each RMA determined the overall priority rank according to the matrix associated with that benefits score (Figure 12).

Benefits = Low

		← Feasibility →			
		Very High	High	Medium	Low
Cost	↑ Very High	Priority #4	Priority #4	Priority #4	Priority #4
	High	Priority #3	Priority #4	Priority #4	Priority #4
	Medium	Priority #3	Priority #3	Priority #4	Priority #4
	↓ Low	Priority #2	Priority #3	Priority #3	Priority #4

Benefits = Medium

		← Feasibility →			
		Very High	High	Medium	Low
Cost	↑ Very High	Priority #3	Priority #4	Priority #4	Priority #4
	High	Priority #3	Priority #3	Priority #4	Priority #4
	Medium	Priority #2	Priority #3	Priority #3	Priority #4
	↓ Low	Priority #1	Priority #2	Priority #3	Priority #3

Benefits = High

		← Feasibility →			
		Very High	High	Medium	Low
Cost	↑ Very High	Priority #3	Priority #3	Priority #4	Priority #4
	High	Priority #2	Priority #3	Priority #3	Priority #4
	Medium	Priority #1	Priority #2	Priority #3	Priority #3
	↓ Low	Priority #1	Priority #1	Priority #2	Priority #3

Benefits = Very High

		← Feasibility →			
		Very High	High	Medium	Low
Cost	↑ Very High	Priority #2	Priority #3	Priority #3	Priority #4
	High	Priority #1	Priority #2	Priority #3	Priority #3
	Medium	Priority #1	Priority #1	Priority #2	Priority #3
	↓ Low	Priority #1	Priority #1	Priority #1	Priority #2

Figure 12: Prioritization criteria ranking matrices.

The prioritization method used matrices to weigh the benefits criteria over both feasibility and cost. This method was sourced from a technique outlined in a document from The Nature Conservancy (The Nature Conservancy, 2007). Using the benefits criteria as the organizing principle for RMA priority was important because the mission of OFR was to come up with management recommendations that would provide the greatest benefits to the ecosystem. The feasibility and cost criteria were included to allow JCWG members to consider the real-world practicalities of the RMAs. Ranking RMAs with a higher weight for the “benefits” criteria allowed two types of management recommendations to rise above the others: those RMAs that would provide the greatest overall benefit to the ecosystem, and those RMAs that were “low-hanging fruit” which could be easily and cost-effectively implemented.

8.3 Final RMA Prioritization

After the initial prioritization, the JCWG reviewed the results and discussed how they wanted to proceed with RMA prioritization during the final step of the process. They agreed that RMAs would remain in four priority ranks of equal size (17 RMAs each), and that all RMAs within a priority rank would be considered equal.

In June 2016, at the last meeting of the JCWG, the group was once again presented with the qualitative prioritization results from their previous individual ballots. The JCWG was offered a procedure to move RMAs into different priority ranks through formal votes, or the option to accept the list “as is”. To allow for group visualization of the RMA prioritization, RMA titles were printed in large format and affixed to the wall in the initial prioritized order. These RMA prints could then be physically moved up or down during qualitative reprioritization if the group voted to do so to allow for results decisions made to be viewed in real time.

In the end, the JCWG agreed through a formal vote to keep the RMA prioritization resulting from the initial quantitative ranking. This was the final vote which resulted in a prioritized list of RMAs, fulfilling the mission of the Our Florida Reef Community Planning Process.

9 RESULTS

The prioritized list of final RMAs (long titles) are color coded according to their focus area and can be found on the OFR website (<http://ourfloridareefs.org/rmacomment/>), and in Appendix **Prioritized List of Final Recommended Management Actions**. Complete Tier 1 & 2 information for all RMAs is available at: <http://ourfloridareefs.org/rmacomment/>. Click on a Focus Area, then click on any RMA to see full titles and supporting information provided by CWGs, the SEFCRI Team, and SEFCRI Technical Advisory Committee.

Focus Area Color Key:

Education and Outreach
Enforcement
Fishing, Diving, Boating and Other Uses/Restoration
Land-Based Sources of Pollution
Maritime Industry and Coastal Construction Impacts
Place-Based Management Strategy

References

- Berry, L., Boukerrou, L., Mehallis, M., Lirman, D., Grecsek, C., & Lambright, D. (2011). *FDOU Project 23: Evaluation of the Potential for a Marine Zoning Area for Southeast Florida*. Miami, FL: FDEP CRCP. Retrieved from http://www.dep.state.fl.us/coastal/programs/coral/reports/FDOU/FDOU_23.pdf
- Center for Ocean Solutions. (2011). *Decision Guide: Selecting Decision Support Tools for Marine Spatial Planning*. Stanford, CA: The Woods Institute for the Environment, Stanford University.
- Crowther, D. (2015). *FDOU Project 26B Task 5 - Our Florida Reefs (OFR) Process Consultation*. Miami, FL: FDEP CRCP. Retrieved from http://www.dep.state.fl.us/coastal/programs/coral/reports/FDOU/FDOU_26b_05.pdf
- FDEP CRCP. (2004). *Southeast Florida Coral Reef Initiative: A Local Action Strategy*. Miami, FL: FDEP CRCP. Retrieved from http://www.dep.state.fl.us/coastal/programs/coral/documents/2005/SEFCRI_LAS_FINAL_20May05.pdf
- Fisheries Science 101*. (2013, October 2). Retrieved from Atlantic States Marine Fisheries Commission: <http://www.asmfc.org/fisheries-science/fisheries-science-101>
- Florida Reef Resilience Program Disturbance Response Monitoring Quick Look Report*. (2015, Summer). Retrieved from Florida Reef Resilience Program: http://frfp.org/wp-content/uploads/2015/12/2015-Summer-DRM-Quick-Look-Report_vs2.pdf
- Introduction to Marine Fisheries Management*. (n.d.). Retrieved from Florida Fish and Wildlife Conservation Commission: <http://myfwc.com/media/608891/Intro-to-Marine-Fish-Management.pdf>
- Johns, G., Leeworthy, V., Bell, F., & Bonn, M. (2001). *Socioeconomic Study of Reefs in Southeast Florida*. Hollywood, FL: Hazen and Sawyer.
- Johns, G., Milon, J., & Sayers, D. (2004). *Socioeconomic Study of Reefs in Martin County, Florida*. Hollywood, FL: Hazen and Sawyer.
- Kaner, S. (2014). *Facilitator's Guide to Participatory Decision-Making*. John Wiley & Sons.
- Keller, B., & Donahue, S. (2006). *2002-03 Sanctuary Science Report: An Ecosystem Report Card After Five Years of Marine Zoning*. Marathon, FL: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Florida Keys National Marine Sanctuary.
- NOAA Office of Coastal Management. (n.d.). *Dealing with Disruptive Behaviors*. Retrieved from https://coast.noaa.gov/ddb/story_html5.html
- Reisewitz, A., & Harper, J. (2013). *Our Florida Reefs Community Working Group Communications Plan*. Miami, FL: FDEP CRCP. Retrieved from http://www.dep.state.fl.us/coastal/programs/coral/reports/OFR/OurFloridaReefs_CommPlan.pdf
- Shivlani, M. (2006). *Florida Department of Environmental Protection (DEP) Coral Reef Needs Assessment Study. SEFCRI LAS Appreciation and Awareness Project 8*. Miami, FL: FDEP CRCP. Retrieved from http://www.dep.state.fl.us/coastal/programs/coral/reports/AA/Project08-SEFCRI_Coral_Reef_Needs_Assessment_Study.pdf
- Shivlani, M., & Estevanez, M. (2011). *FDOU Project 18 & 20B: Development of Management Alternatives for the Southeast Florida Region According to Stakeholder Working Panels*. Miami, FL: FDEP CRCP.
- Shivlani, M., & Villanueva, M. (2007). *FDOU Project 10: A Compilation and Comparison of Social Perceptions on Reef Conditions and Use in Southeast Florida*. Miami, FL: FDEP CRCP. Retrieved from

http://www.dep.state.fl.us/COASTAL/programs/coral/reports/FDOU/FDOU_Project_10_Final_Nov07.pdf

- The Nature Conservancy. (2007). *Conservation Action Planning Handbook: Developing Strategies, Taking Action and Measuring Success at Any Scale*. Arlington, VA. Retrieved from http://cmp-openstandards.org/wp-content/uploads/2016/02/Cap20Handbook_June2007.pdf.
- U.S. Coral Reef Task Force . (2002). Resolution 8-1: Improving Procedures of the U.S. Coral Reef Task Force . *8th Coral Reef Task Force Meeting* . San Juan, Puerto Rico.
- Walker, B., & Costaregni, A. (2013). *Assessment of Spatial Analysis Tools in Support of the Southeast Florida Coral Reef Initiative (SEFCRI) Management Options Identification Process (MOIP)*. Miami, FL: FDEP CRCP.
- Walker, B., & Costaregni, A. (2014). *Data Gathering and Technical Support for the Southeast*. Miami, FL: FDEP CRCP.
- Walker, B., & Costaregni, A. (2014). *FDOU Project 26A Part 5 - Data Gathering Technical Support for the Southeast Florida Coral Reef Initiative (SEFCRI) Our Florida Reefs (OFR) Decision Support Tool*. Miami, FL: FDEP CRCP.
- Walker, B., & Costaregni, A. (2015). *FDOU Project 26A Part 5 Task 1–Our Florida Reefs (OFR) Survey Outreach Efforts*. Miami, FL: FDEP CRCP.
- Walker, B., & Costaregni, A. (2015). *FDOU Project 26A Part 5 Task 2–Our Florida Reefs (OFR) Survey Results*. Miami, FL: FDEP CRCP.
- Walker, B., & Costaregni, A. (2015). *FDOU Project 26A Part 5 Task 5 – Our Florida Reefs (OFR) Marine Planner Metadata*. Miami, FL: FDEP CRCP. Retrieved from http://www.dep.state.fl.us/coastal/programs/coral/reports/FDOU/FDOU_26a55.pdf
- Washburn, B., & Stadler, T. (2013). *Our Florida Reefs Community Planning Process*. Miami, FL: FDEP CRCP.
- Washburn, B., & Stadler, T. (2013). *Our Florida Reefs Community Planning Process*. Miami, FL: FDEP CRCP.

Our Florida Reefs Report Appendix

Appendix Directory

- I. [91](#)
- II. [Stakeholder Process Case Study Summaries](#)
- III. [Communications Project Team Membership](#)
- IV. [Outreach Events, Meetings, and Presentations](#)
- V. [Agency Statements](#)
- VI. [Southeast Florida Intergovernmental Coastal Oceans Task Force Resolutions 2012](#)
- VII. [Facilitation Project Team Membership](#)
- VIII. [Decision Support Tool Team Membership](#)
- IX. [Community Working Group Application](#)
- X. [Community Working Group Member Selection Guidance for SEFCRI Vice-Chairs](#)
- XI. [Our Florida Reefs Community Working Group Charter](#)
- XII. [Strategic Coral Reef Management Goals and Objectives for the SEFCRI Region](#)
- XIII. [Community Working Group Yearbook](#)
- XIV. [Tier 1 & 2 Information-Gathering Worksheets](#)
- XV. [Marine Protected Area Primer](#)
- XVI. [Spatial Planning Worksheet](#)
- XVII. [RMA Synthesis Document Example](#)
- XVIII. [Spatial RMA Summary Documents](#)
- XIX. [Rivers to Reefs Waterways Tour RMA Connection Document](#)
- XX. [Spatial Management Toolbox](#)
- XXI. [Our Florida Reefs Press Tracker](#)
- XXII. [Our Florida Reefs Frequently Asked Questions Document](#)
- XXIII. [OFR Public Comment Directory](#)
- XXIV. [2016 Community Meetings “Dot Activity” Results](#)
- XXV. [EndNote Bibliography](#)
- XXVI. [1st Draft List of Proposed Recommended Management Actions](#)
- XXVII. [Edited List of 1st Draft Proposed RMAs for SEFCRI Review](#)
- XXVIII. [Edited List of 2nd Draft Proposed RMAs for SEFCRI Review](#)
- XXIX. [List of Archived Recommended Management Actions](#)
- XXX. [Prioritized List of Final Recommended Management Actions](#)

I. Original PPT Membership (January 2012)

Names in grey were process advisors and did not directly participate in everyday planning activities.

Last Name	First Name	Title / Specialty	Affiliation
Alvear	Elsa	Chief of Resource Management	Biscayne National Park
Banks	Ken	Marine Resources Program Manager	Broward County Environmental Protection and Growth Management Department Biological Resources Division
Blair	Steve	Chief, Restoration & Enhancement	Miami-Dade County Permitting, Environment, and Regulatory Affairs
Bohnsack	Jim	Research Fishery Biologist	NOAA/NMFS Southeast Fisheries Science Center
Boykin	Christopher	Awareness & Appreciation Coordinator	Florida Department of Environmental Protection Coral Reef Conservation Program
Byrne	James	Marine Science Program Manager	The Nature Conservancy
Causey	Billy	Southeast Regional Director	NOAA National Marine Sanctuary Program
Davis	Paul	Environmental Manager	Palm Beach County Department of Environmental Resources Management
Gregg	Kurtis	Florida Coral Reef Fishery Biologist	NOAA/NMFS Habitat Conservation Division
Karazsia	Jocelyn	Ecologist	NOAA/NMFS Habitat Conservation Division
McDevitt	Erin	South Region Coordinator	FWC Division of Habitat and Species Conservation
Monty	Jamie	Fishing, Diving, and Other Uses Coordinator	Florida Department of Environmental Protection Coral Reef Conservation Program
Recks	Melissa	Biological Scientist II	FWC Division of Marine Fisheries Management
Ross	Betsy	Acting Site Manager	Dry Tortugas National Park
Tzadik	Katharine	Environmental Project Coordinator	Florida Department of Environmental Protection Coral Reef Conservation Program

Walczak	Joanna	Acting Manager	Florida Department of Environmental Protection Coral Reef Conservation Program
Whittle	Amber	Habitat Research Administrator	FWC Fish and Wildlife Research Institute
Wusinich-Mendez	Dana	Coral Reef Conservation Program Liaison	NOAA Coral Reef Conservation Program

II. Stakeholder Process Case Study Summaries

The PPT decided on some specific criteria that they wanted to incorporate into the OFR process based on efforts from previous community planning case studies. Those criteria have been organized for clarity in the following structure for each case study in the sub-sections below:

Organization: Process structure elements like timing, meeting style, and forum.

Representation: Stakeholder engagement in decision-making.

Advisory Bodies: How technical/scientific advice (both social and biophysical) was obtained and used to advise decision-making.

Spatial Planning: The use of geospatial tools for spatial planning.

Public Involvement: Engagement with the public before, during, and after the process. Special considerations for releasing information to the public.

Other: Any other criteria that was cited as playing an important role in the process.

Note: the following is not a full recounting of each process, but rather a summary of the key lessons learned as they were presented to the PPT by key players in each of the processes.

- **Florida Keys National Marine Sanctuary**

Concerned for potential impacts from ship groundings, oil drilling, and coral reef and water quality degradation, congress designated by Act the Florida Keys National Marine Sanctuary. NOAA was directed by congress to develop a management plan for the area in south Florida stretching from Key Largo to Key West. Several stipulations came from Congress to develop the management plan, which included engaging various federal, state, and local agencies to develop the plan and to develop a technical advisory body known as the Sanctuary Advisory Council (SAC). NOAA was also directed to investigate the use of spatial and temporal zoning to ensure the protection of sanctuary resources. After the Act was in place, an inter-agency core group was created to meet monthly and determine how to proceed.

By analyzing the successes and roadblocks associated with creating the Florida Keys National Marine Sanctuary, the following was captured:

Organization

At the very beginning of the stakeholder process, it proved helpful to develop a consensus statement of what the group wanted to accomplish in 25 years. For example, the group could agree on goals like continued fishing, recreation and tourism, and protection for habitat and resources. This became valuable

later in the process when discussions would get off topic and was a useful tool to help bring the group back to the agreed upon criteria.

It was easier to come to consensus in areas that were less populated or split into smaller groups. The suggestion for the SEFCRI region, which has about 6 million residents, is to focus on the county level and get support from county commissions and cities.

Representation

It is important to ensure that a diversity of interests is represented on working groups or committees, and that the chosen stakeholder representatives are recognized as leaders by their peers. All fisheries authorities will need to be a part of the conversation as well, this includes NMFS SERO, NMFS SEFSC, SAFMC, FWC, etc.

If establishing stakeholder committees or working groups, it is beneficial to get them set up as quickly as possible after announcing the process and not to hold meetings and workshops before they are set up. It took 2 years to form the SAC, but the core group continued to have meetings and workshops in the meantime, including one on marine zoning. The lengthy process to create the SAC resulted in some mistrust from the public.

Advisory Bodies

One stipulation from congress to develop the management plan was to develop a technical advisory body known as the Sanctuary Advisory Council (SAC). Actions of the SAC created conflict among user groups because SAC group members were considered to not be representative of their group, or to not have the authority to speak for their agency. It became evident that it would have been beneficial to ensure that any participating agency representatives have the agency support and can make decisions on their behalf.

The FKNMS process used advice from a fisher representative on the SAC to designate 3 replenishment reserves proposed in draft plan. However, these areas were in a location that the individual was unfamiliar with. The stakeholder group then disagreed with those proposed areas which caused conflict. This experience taught managers that it is imperative to verify information and advice being cited in the creation of the management plan.

Spatial Planning

Discuss the scientifically driven objectives for a marine zoning plan before working out finer details such as size and location. Focus on habitat and user conflicts as objectives and not on fisheries. If designating use zones, don't eliminate the activity of any major user group. Initial reserve placement in the FKNMS restricted lobster fishermen in certain areas which created animosity between user groups.

It is important to involve the public in the early stages of identifying areas for management. The FKNMS process did not involve the public at this stage which created controversy and criticism that managers and scientists were not consulting other stakeholders.

Public Involvement

It is beneficial to keep the public informed throughout the process and promptly address perceptions of insufficient public involvement. Timing the release of information is important so as to not create

confusion and misinformation in the public. Start by providing the science that explains what is happening with the resources before putting out maps.

When the marine zoning plan was distributed there were 5 different types of zones, which included Fisheries Replenishment Reserves. This term was contradictory to the message that the process was not trying to enhance fisheries. Following a negative response from the fishing community to the draft designation of these areas, the terminology was changed to Sanctuary Preservation Areas (SPAs) which were designed as areas to reduce user conflict. When the final plan was distributed, this led to credibility of the process, showing the stakeholders were being heard.

Other

Credibility: Do not state anything that cannot be scientifically backed and do not make promises that you may not be able to keep.

Adaptability: Promote use of adaptive management approach and commit to reviewing management decisions after a certain period and adapting management policies as appropriate.

For more information, please see the (revised) [FKNMS Management Plan](#).

- **The Dry Tortugas 2000**

The Dry Tortugas are located at the westernmost extent of the Keys within the FKNMS. The area contains diverse habitats, including seagrass beds, coral reef habitats, (e.g., patch reefs, fore reefs, intermediate, and deep reefs), and hardbottom areas. When the FKNMS final plan went into effect in 1997, part of it was held back because there was concern that the MPA in the plan for the Dry Tortugas was in the wrong place. When the Dry Tortugas process was put back on the table 2-3 years later, they used a revised version of the process described in Section 2.2.1.

By analyzing the successes and roadblocks associated with the Dry Tortugas MPA process, the following was captured:

Organization

Brought in an outside, neutral facilitator to run the meetings in the most unbiased way possible. Developed a consensus statement in the same as FKNMS (see above).

Representation

Make sure a diversity of interests is represented on working groups or committees. Must have all fisheries managers at the table including fisheries scientists, as well as regional offices, council staff, and councils themselves represented. The Dry Tortugas process gained a lot of credibility with commercial fishermen by approving the addition of representatives that the group felt they needed to make decisions.

The process must involve individuals that are willing to compromise and understand the big picture.

Advisory Bodies

Everyone involved in the process needed to be exposed to the same, best available information. To accomplish this, a series of forums were held where people came and spoke about the Tortugas from different specialties e.g. geologists, oceanographers, socio-economic experts, and other members of the

working group. Educational meetings were held in the evening and open to the public, so the working group got all the information they needed to make decisions and understand the full range of information and issues from all stakeholder groups.

At a certain point in the process, some stakeholders called for an expansion of the advisory body. This was granted, and members of the SAC were named and filled specific positions representing different user groups. This opened the process to other representatives from fishing, diving, conservation and science communities. This openness of the process was viewed favorably by the public.

Spatial Planning

During the creation of the Tortugas process, the planners took a lot of lessons for spatial planning from the recent and nearby process in the FKNMS. In Tortugas 2000, it was decided from the beginning that there would be a Marine Reserve, which changed the dynamic of the process. The questions for creating the management strategy therefore were "how big and where", not *if* a MPA was necessary.

Maps were not used until everyone had all the information, criteria, data, and goals. Once all of that was discussed and objectives were agreed upon by the working group, the spatial drafting period began.

This process was aided by the community having seen the benefit of nearby reserves previously implemented. Local fishermen and dive shops were already starting to see the benefits of the 9 square nautical miles of the Western Sambo Ecological Reserve on the fish populations in the Keys. This nearby success helped reduce opposition and strengthened the idea that it is important to put reserves in an area where people will see them and their effects.

Public Involvement

It was beneficial to provide management alternatives to be considered and responded to by the public. These options can take the following forms: 1) status quo, 2) the most protected, 3) the middle of the road, and 4) the least protected. The Tortugas process received over 6000 public comments on the draft management plans. It is imperative to respond to misinformation in press immediately.

For more information, please see the (amended) [Dry Tortugas National Park Management Plan](#).

- **South Atlantic Fisheries Management Council**

The passage of the [Magnuson-Stevens Fishery Conservation and Management Act in 1976](#) created a new form of regional government through eight regional fishery management councils. The South Atlantic Fisheries Management Council (SAFMC) is one of those eight regional councils in the US that manages fisheries and fishery resources in the EEZ. The SAFMC works with the National Marine Fisheries Service to prepare Fishery Management Plans to ensure sustainable fisheries and fishery resources. One of the tools they use to accomplish this is the designation of areas for special protection. In 1982, the SAFMC established the Coral Fishery Management Plan which prohibited the harvest of stony corals, seafans, coral reefs and "live rock", limited the harvest of allowable octocorals for the aquarium trade, and established a Live Rock Aquaculture permit system.

By analyzing the successes and roadblocks associated with projects undertaken by the South Atlantic Fisheries Management Council in Florida, the following was captured:

Organization

The council enacts management measurements through a number of methods including: Habitat and Fishery Plans, and Conservation Ecosystem-Based Amendment (CEBA). They also enact Marine Protected Areas by Presidential Executive Order. NOAA is the federal agency that implements the council's recommendations.

Representation

The SAFMC comprises 17 members: 8 members are nominated by the governors of South Atlantic states and appointed by the Secretary of Commerce, 4 members are heads of natural resource agencies of each state, and 1 member is a National Marine Fisheries Service Regional Administrator. There are also non-voting members who are representatives of state and federal agencies such as USCG, ASMFC, FWS, Department of State.

During the creation of The *Oculina* Banks MPA off the east coast of central Florida, there was a lot of involvement with the fishing community. Initially the proposition to close an area to fishing was not well received. The turning point came when a leader in the rock shrimp fishery fleet (the Thompson family) came forward and said that an MPA was necessary to protect the habitat. The leader worked very closely with the council and was highly involved in the advisory groups.

Advisory Bodies

The SAFMC is advised by a panel of stakeholder representatives, including recreational and commercial fishermen, industry representatives, regulatory and government representatives, and members of conservation groups. The council is also advised by technical committees made up of qualified biologists, economists, sociologists and other experts who provide technical information and advice. There are 13 such committees which focus on specific elements of the ecosystem and management, i.e. species, explicit species, species complex, outreach, habitat, law enforcement, stock assessment etc.

Spatial Planning

The goal of MPAs is to continue to have healthy fish stocks, fisheries, and habitat. In order to designate areas as Habitat Areas of Particular Concern (HAPC) those areas need to meet one of four criteria: ecological value, research value, threat of exploitation, recreational value. SAFMC also has MPAs to focus on recovery of fish stocks. In order to identify areas that meet the above criteria, the SAFMC uses GIS and other scientific information to understand status and trends within various fisheries and the potential impacts of their management decisions.

When selecting areas for MPAs, the SAFMC also takes into account the possible socio-economic impact of area restriction. Some reserves have specifically been chosen with this and other factors in mind like the distance from other popular fishing areas. Fishery Management Plans (FMPs) are required to include maps that display the geographic locations of Essential Fish Habitat (EFH) for each species and life stage.

The *Oculina* Banks has a unique history as the first MPA designated off the coast of Florida.

Public Involvement

The actions of the SAFMC are very public and transparent. Everything the SAFMC does is published within the federal register and they must provide public statements for their actions.

They are also required to hold public scoping meetings in the potentially affected area and involve stakeholders that will potentially be affected by the plan. The meetings themselves are often a presentation of the proposal, including background and goals, followed by an open format for individuals to express their concerns. At that time the individuals also identify if they are associated with any specific group or entity that would indicate they are representing more than just the individual speaking. Public comment periods are held for all proposed actions.

The SAFMC also reaches out to the public with a mailing list where stakeholders can sign up to receive information about public processes. There is also a website for the public with information and updates.

For more information, please see the [SAFMC Fisheries Management Plan](#).

- **Key Biscayne Special Management Zone**

Designation of a Special Management Zone (SMZ) occurs under the federal authority of the SAFMC; however, the Key Biscayne SMZ also lies within state waters and is subject to gear restrictions and other regulations established by the State of Florida. The following analysis of roadblocks and successes are only those specific to the creation of this particular SMZ. For general SAFMC information see Section 2.2.3. above.

A SMZ is a designation by the SAFMC which creates incentives to make artificial reefs and fish attraction devices intended to increase the numbers of fish in an area, and/or create fishing opportunities that would not otherwise exist. The designation of an area as a SMZ also allows for gear restrictions to prevent overexploitation. In 1985 Miami-Dade County submitted a request to designate the Key Biscayne Artificial Reef Site (a 2.35 sq-mi area) a SMZ. The objective of protecting this area, as developed by Miami-Dade County, was to limit “over-exploitation by highly efficient and selective fishing gear”, and to ban the catch of Goliath Grouper. Following the request to designate the area, the SAFMC put into place their process of reviewing the proposal by advisory bodies and holding public scoping meetings and hearings. This process continued for four years.

In this case study, there was already a relatively large knowledge base of special areas and management criteria that could potentially appropriately manage the area. However, some points of contention arose from the fact that the proposed area was within historical fishing grounds. The SAFMC managed to work out areas that would be allowable for those activities to occur, while still maintaining protection for habitat and fisheries. Despite the ability of multiple agencies (USCG and FWC) to patrol the SMZ, a limitation in resources and staff capacity for effective enforcement has been an issue since its creation. In order to attempt to increase the effectiveness of the area, a proposal for outreach and education has been put forth to demarcate the edges of the SMZ.

For more information on this SMZ, visit: <http://www.miamidade.gov/environment/reefs-zone.asp>.

- **Florida Fish and Wildlife Conservation Commission**

The Florida Fish and Wildlife Conservation Commission (FWC) is a body that enacts rules and regulations regarding the state's fish and wildlife resources, deriving its authority directly from Florida's constitution

(Article 4, Section 9). The body consists of seven Commissioners who are appointed by the Governor and confirmed by the Florida Senate for a five-year term.

Organization

The Commission meets publicly 5 times a year to hear issues and make new rules and regulations. This meeting is an open forum where issues can be brought forth by any interested party including stakeholders, FWRI, law enforcement etc. If an action is not an emergency, it will be put on the division workplan which is addressed once a year in the fall for the coming fiscal year. If something requires immediate action, it could be put onto the next meeting's agenda. If something is deemed an emergency, it could be addressed immediately through Executive Order.

The general trajectory for a proposed rule change is the following: staff brings forth a management recommendation, the public gives its feedback, and the Commission discusses it and gives direction on how to proceed. Once a rule has been changed, it is important to get law enforcement and the public up to date with the change, this includes a period of education for the public.

Typically, this process would take between six and twelve months for any recommended action to make it onto the working plan. If there is a large suite of options from OFR for FWC to consider, then it may be prioritized so as to not dominate the agenda at any particular meeting. In some cases, staff could determine that additional research is warranted before a decision is made, which would further delay the time frame.

Representation

The Commission consists of seven members who are appointed by the Governor and confirmed by the Florida Senate for a five-year term.

Advisory Bodies

A variety of staff from different departments of FWC come together and provide recommendations for management. Occasionally it is necessary to vet the issue through the Rule Review Committee within the agency, for cross-divisional review. This is typically the case for issues that affect a wider audience.

Once the staff has developed a recommendation and brings it forth, it is posted on the agenda which is posted online and is publicly available before each public meeting.

Some recommendations that come out of the OFR process may be within FWCs purview and therefore will have to go this public process of reviewing and being presented to the Commission. It will be important to make sure that the appropriate stakeholders are being targeted, informed, and involved in OFR, so as to possibly ease the process once it reaches FWC. Having FWC staff involved in the working groups throughout the rest of the OFR process would also help relay accurate information to the directors and up through the Commission.

Spatial Planning

For any local-level spatial management recommendation, FWC would typically look for the county and the county commission for support. If county commissions are against an action, it will most likely not make it by the Commission.

FWC typically does not regulate non-fishing activities, however they do regulate coral harvest and fishing gear that can impact the habitat. Critical Wildlife Areas, which are “no entry”, are under FWC's authority.

Public Involvement

Public Meetings are held to start gathering input through draft rule hearing, public workshops, etc. Public workshops are typically targeted in areas where the topic is most relevant. The number of workshops depends on the topic and how wide spread the affected user groups may be. Surveys are distributed at public workshops to receive feedback and may also be put online if the Commission has not received sufficient feedback to support or deny management recommendations on the work plan from in-person comments alone. Information received from surveys inform staff as to the public's input into decisions. It must be noted that information received from in-person surveys will likely be from stakeholders that would be most directly affected or impacted by the management decision, whereas online surveys capture a broader range of the public perception. These surveys are only announced on the FWC website, however for the OFR process it would be beneficial to distribute as widely as possible.

Other

Timing

It will be important for the OFR process to discuss the appropriate time and method to inform the Commission about management recommendations. It would be counterproductive to involve the Commission too early before any real work is done, however it is important to brief them on the process before they start getting questions about it from stakeholders. It is recommended to keep staff, regional, and executive directors informed throughout the process.

Interaction with the Legislature

It is possible that some recommendations coming out of OFR would require statutory authority and working with the Florida Legislature.

For more information on the FWC rule-making process, visit: <http://myfwc.com/about/rules-regulations>.

- **Broward County MPA Process Round 1**

In 1996, the Islamorada Hump was closed to Amber Jack fishermen which resulted in more pressure on artificial reefs in Broward for the same fishery. In response, a group called the Pompano Beach Fishing Rodeo (PBFR), that had contributed to Broward County's artificial reef program, made a request to the state fishery regulators at the time, the Marine Fisheries Commission (MFC), to designate the area as a "Recreational Fishing Area" in an attempt to stop commercial harvest. This would restrict the type of gear that is allowed to be used in the area and allow only recreational and licensed charter boats to fish the site.

The International Game Fish Association (IGFA) was in support of this request and even expanded the request to include all artificial reefs in protection from commercial fishing and certain gears. The MPA request was supported by a number of other groups including the Broward County Commission, Department of Natural Resource Protection and Marine Advisory Committee, and the cities of Ft. Lauderdale, Pompano Beach, and Dania.

The day of the final MFC hearing, on the request, the Broward County Commission, decided that they could not be responsible for any additional costs associated with the creation of the protected area. The

MFC commissioners indicated that they would support the request if Broward would take on the enforcement, however without their support in enforcement, the MFC rejected the request.

- **Broward County MPA Process Round 2**

In 1999, a group called the Millennium Dive Committee formed in Lauderdale by the Sea, with a strong interest in coral reefs. This group included a number of city Commissioners and stakeholders mainly from the tourism and diving industries. This group began to promote a no-take zone to boost shore diving and the environment. They began holding meetings to discuss the area to be protected and were advised by law enforcement that it was important to have visual landmarks. Many proposals were brought to the table, but eventually the group settled on a proposal to protect 30% of the Broward shoreline from inlet to inlet, out to the third reef.

Once the group had their proposal, they began to hold public meetings at which fisheries scientists, recreational fishermen, and other advocates spoke. At these meetings, the group took public comments and received 60-70% support for some area of no-take. The City of Pompano Beach also supported the initiative, however international fishing groups were largely unsupportive of closures.

After the public comment period, the proposal was brought to FWC who responded with the following comments: 1) the request must have at least the same conservation benefits of existing statewide regulations, 2) the request must have the formal support of appropriate local political entities, 3) the group must talk to the public and get stakeholder input, and 4) the group must enforce regulations themselves.

It became clear that a diverse group of local stakeholders needed to come up with this proposal, not only special interest groups (in this case the tourism and diving industries). In 2001, a new group formed, however, it lacked leadership and eventually ceased to exist.

- **California Marine Life Protection Act**

California's marine biological diversity is a vital asset, however human activities threaten the health of marine habitat and biological diversity. Historically, California's MPAs were created lacking a coherent plan, scientific guidelines or overall goals. In 1999, the California State Legislature adopted the [Marine Life Protection Act \(MLPA\)](#), which required the state to evaluate and/or re-design all existing state marine protected areas (MPAs) and to potentially create new MPAs that would work as a network. MPA designation types include: State Marine Reserve (SMR), State Marine Park (SMP) and State Marine Conservation Area (SMCA).

On August 27, 2004, the Resources Agency and the Department of Fish and Game partnered with the Resource Legacy Foundation to launch a new public-private initiative to implement the MLPA, commonly referred to as the Marine Life Protection Act-Initiative (MLPA-I). This new initiative was designed to assist the Department of Fish and Game in implementing the MLPA and uses lessons learned and public feedback from the two previous attempts to help guide implementation efforts.

By analyzing the successes and roadblocks associated with the MLPA-Initiative, the following was summarized from the [MLPA Lessons Learned document](#).

Organization

The California MPA redesign was attempted twice unsuccessfully before the MLPA-Initiative began. In the first redesign, a master planning team came up with an MPA network which was then presented it to the stakeholders. As it was revealed to the public it was met with great opposition. It became clear that stakeholders needed to be included in the actual creation of the areas. This concept was applied in the second iteration, where stakeholders were given the tools to create the areas themselves. However, with this second attempt, the funding was insecure, and the process ran out of money after 2 meetings. For the third attempt, the state was divided into 5 more manageable study regions based on natural physical breaks. Once MLPA-I had broken the area into more manageable sections, they were more flexible and adaptable for issues that arose in the different regions and were able to change process design from study region to study region, improving with each iteration.

The MPA planning process applied to each study region had three rounds of proposals and reviews. The first step of the process came from guidance from advisory groups about possible ways to achieve the goals laid out in the MLPA. With this guidance, regional stakeholder groups began to develop proposals for their areas, taking into account their own local knowledge and expertise as well as the information from the advisory groups. These initial proposals were then sent back and forth between stakeholder and advisory groups as well as the public until they were finalized and sent to the oversight body for finalization of recommendations and alternates. These recommendations were then sent to the California Fish and Game Commission to make the final decisions on MPAs for each study region.

The entire MLPA planning process ran for 18 months in each study region. The first six months was considered the preparation period and consisted of the collection of scientific data and stakeholder selection. The next step was the stakeholder meetings which occurred about once every six weeks during an eight-month period.

In the first attempt at MPA redesign in California, the deadline was extended twice before it ultimately failed. These extensions proved to be counterproductive to the process showing managers that it was very important to stay true to deadlines and subsequently declined a lot of requests to extend the following processes. They also found that it was important not to hold too many meetings. A packed meeting schedule can overwhelm individuals and the public and cause people to lose interest in the process.

Every stakeholder meeting throughout the process was webcasted. This provided an official record of the process and also allowed participants to watch the meeting remotely or at a later date. Though this was a costly tool, it proved vital to the process.

Representation

Each of the five study regions had a regional stakeholder group. These groups were made up of people who work, live or play in study region. The regional stakeholder group is the group that did the initial development of MPA proposals that met the requirements of the MLPA. Their input was invaluable because it provided local expertise and knowledge. Some challenges arose because in some cases the local expertise did not fully agree with the science. In some cases, this was resolved by fisher and diver stakeholders taking scientists out on the water with them to find common understanding of the issues.

Throughout iterations of the process from region to region the selection process for stakeholders evolved. In the beginning, stakeholders were chosen purely from nominations, in the next study area process they had facilitators interview those nominated stakeholders. In the third study area process they added emphasis on middle-ground interest. And the final two processes they used all of the previous techniques and also added an external community group to help identify stakeholders with collaboration skills.

They found that some important factors to look for when selecting stakeholder group members included: 1) their representativeness of a broad spectrum of interests 2) their ability to work collaboratively with others, and 3) their ability to commit to the hard work and large amount of volunteer hours that would be necessary throughout the process. It also became clear that stakeholder groups should remain small so that the same interests are not represented repetitively. If the group of stakeholders becomes too large, subgroups may begin to form within which will make it more difficult to reach consensus.

The MLPA-Initiative also found that establishing relationships between stakeholders outside of the meetings was crucial for laying the groundwork for understanding and collaboration. Unofficial social gatherings may not seem to be the top priority, but facilitators found that often more problems were solved outside of the meetings than in them.

Advisory Bodies

The Blue Ribbon Task Force was the policy oversight body, which was made up of a group of public leaders selected for their policy experience, diversity of professional expertise. The role of this group was to provide policy judgements on the overall development of the master plan framework, regional projects, prioritization of goals, and strategy for long term sustainability.

The Science Advisory Team was the group tasked with applying scientific guidance from the master plan to the design of MPAs within each study region. They helped to gather relevant data and information and evaluate the potential impacts of MPA proposals. They also created white papers as issues arose to explain the rationale behind MPA proposals. This proved an important step to ensure that the outcomes would be trusted in the public.

The Statewide Interests Group was added due to a recommendation from the Blue Ribbon Task Force. They saw the creation of this group as a way to increase public and stakeholder participation. They helped to keep the big picture in sight and improve progress in planning. This group grew, and its role became more proactive as the process evolved from region to region.

Staff and contractors also played an important role in the CAMLPA by providing technical advice and developing feasibility criteria. This group included the California Department of Fish and Game (not to be confused with the California Fish and Game Commission which is the decision-making body), California State Parks, and Independent Contractors. This group was very helpful in the formation of proposals because they provided guidelines and feasibility criteria which made all parties more likely to agree on the final recommendation which was to go to the California Fish and Game Commission. Retaining this staff wherever possible from region to region proved helpful to inform the process.

Spatial Planning

CAMLPA developed a decision support tool called MarineMap which is a user-friendly information portal that is accessible to the average user. Since it is accessible to everyone it fosters collaboration and

information sharing easily. MarineMap allowed everyone access to important habitat information and design areas based on ecological data. This reduced conflict and gave managers a way of assessing the level of protection for different habitats.

Throughout the iterations of the process from region to region the use of a decision support tool evolved. From the first region, the decision support tool was not very advanced and was introduced late into the process, restricting its functionality. In later processes, the tool became more advanced, increased functionality, and was introduced earlier, all of which proved to result in better quality proposals.

Public Involvement

The general public and interested parties played a huge role in the CAMLPA-Initiative and were involved in every step of the process. Regional stakeholder groups continuously conducted outreach to their constituent groups throughout the process.

Public outreach is key to this type of process, specifically it is important to have material explaining how management will benefit different groups. This type of communication should avoid using too much scientific or management jargon. An outreach strategy must include different types of communication (i.e. online, newsletters, socials, field trips etc.) to ensure that as large a group as possible is being reached. It is also important to include outreach to local youth. When interacting directly with the media, it proved beneficial to provide them with content that was already prepared so as to avoid miscommunication and increase visibility.

The best methods of communication will vary regionally, for example, on the South Coast social media proved to be a great tool to reach large groups of people. This was not the case, however on the North Coast because the culture is drastically different. In the North Coast, which is more rural, in-person outreach events were better attended than in the South despite much smaller populations.

It proved that transparency was critical, especially regarding scientific basis. It was important that the Scientific Advisory Team came up with a mechanism to inform the public how they came up with their answers. This was accomplished through white papers which came out periodically and improved trust in the process.

Another key lesson was adaptability in regard to location. In Southern California, the CAMLPA-Initiative faced opposition largely organized by sportfishing industry groups. This made it very challenging to work together. In the face of this opposition, it was important to have outside organizations engaged in the conversation on the supportive side because MLPA personnel had to remain neutral during MPA opposition campaigns.

Recognizing that the initiative was unlikely to be successful if it went head to head against the local fishermen in the North Coast, the initiative took the “if you can’t beat ‘em, join ‘em” approach. This study region pursued a network of MPAs that a majority of stakeholders could get behind, and then defended that network throughout the process. This succeeded in converting some of the staunchest opponents into proponents, and the initially skeptical local media into writers of supportive editorials.

Other

Funding

The CAMLPA-Initiative received funding from both public and private sources. This public-private partnership allowed flexibility beyond state constraints. Private funds helped to support critical professional staff, food, comfort, and flexibility. For example, in the South study region, an issue arose that involved the military. In response, the Initiative was able to hire consultants to handle the concern immediately, taking only two days to resolve an issue that otherwise might have taken six months through the Department of Fish and Game.

By the end of CAMLPA-Initiative, more funding had gone to process support (staff, venues, materials etc.) than was spent on data collection and analysis.

A lawsuit did arise challenging the use of private funds for a state mandated initiative. The lawsuit attempted to undermine the importance of the initiative, stating that if the state would not provide funding, then it was not a priority and should not go forward. However, the Governor had specifically stated previously that the state would not provide funding and that the initiative would have to locate private funding. Therefore, the lawsuit was dismissed.

Project Focus

The CAMLPA-Initiative decided early on to focus the project on fisheries and associated habitats. They decided that marine mammals were outside of the jurisdiction of the state of California and therefore did not spend time taking into account the effect of MPAs on marine mammals. Simplicity is also important to allow non-scientists to understand complex issues at hand. Regulations have been shown to be more effective if they are simple. More violations occur in places where there are lots of options.

Legislative and Political Consideration

The [Marine Life Protection Act](#) itself, including its goals and requirements were heavily relied upon throughout the initiative. This was essential in addressing opposing viewpoints, as it allowed all parties to focus on the mandate. Having support from elected officials was key, especially that of the Governor. Politicians from each region wrote letters of support asking their citizens to adopt that proposal. Without a legal mandate, local support will be much more important. Before starting the process, it will be helpful to engage in conversations with local politicians and stakeholder groups to generate preliminary support and momentum before publicly announcing the process.

III. Communications Project Team Membership

Last Name	First Name	Title / Specialty	Affiliation
Jimenez	Julio	FDOU Coordinator	FDEP CRCP
Monty	Jamie	Manager	FDEP CRCP
Boykin	Christopher	AA Coordinator	FDEP CRCP
Gregg	Kurtis	Florida Coral Reef Fishery Biologist	NOAA/NMFS Habitat Conservation Division
Byrne	James	Marine Science Program Manager	The Nature Conservancy
King	Pam		
Lesh	Amy	Director	Keep It Blue, Ocean Protection and Restoration, Inc.
Bernstein	Jen		Snook & Gamefish Foundation
Torres	Roberto	Captain	Pelagic Adventures
Kline	William		

IV. Outreach Events, Meetings, and Presentations

Presentations Given	Date	Stakeholder Group	County
Ladies' Let's go Fishing	7/9/2014	Fisherman	Broward
Force-E Scuba	8/19/2014	Divers	Palm Beach
Tropical Audubon Society	8/27/2014	NGO	Dade
Sea Experience	9/11/2014	Divers	Broward
Forest Glen Middle School	10/9/2014	Academia	Broward
Hollywood Hills (HHSFSSC)	11/5/2014	Fisherman	Broward
Rotary Club (with Daron)	10/12/2015	Citizens at Large	Broward
HHSFSSC	12/2/2015	Fisherman	Broward
UM Scuba Club	12/1/2015	Divers	Miami
Force E Scuba Center (Pompano)	1/13/2016	Divers	Palm Beach
Hollywood Civic Association	2/9/2016	Citizens at Large	Broward
USCG Flotilla 6	3/3/2016	Federal Govt	Palm Beach
Stakeholder Meeting & Events	Date	Stakeholder Group	County
Hollywood Hills (HHSFSSC)	7/2/2014	Fisherman	Broward
LLGF	8/13/2014	Fisherman	Broward
Changing Seas (NSUOC)	8/6/2014	Academia	Broward
Hollywood Hills (HHSFSSC)	9/3/2014	Fisherman	Broward
Hollywood Hills (HHSFSSC)	10/1/2014	Fisherman	Broward
Hollywood Hills (HHSFSSC)	12/3/2014	Fisherman	Broward
Hollywood Hills (HHSFSSC)	1/7/2015	Fisherman	Broward
Hollywood Hills (HHSFSSC)	2/4/2015	Fisherman	Broward
Dive In Lecture Series (NSUOC)	2/19/2015	Academia	Broward
FWC Barracuda Workshop (IGFA)	3/3/2015	Agency	Broward
Hollywood Hills (HHSFSSC)	3/4/2015	Fisherman	Broward
Dive In Lecture Series (NSUOC)	4/8/2015	Academia	Broward
Rapa Nui Sinking (Force E Divers)	6/7/2015	Diving	Palm Beach
FWC Regs Workshop (Coral Gables)	7/8/2015	Agency	Dade
Dive In Lecture Series (NSUOC)	7/29/2015	Academia	Broward
Dive In Lecture Series (NSUOC)	8/12/2015	Academia	Broward
Hollywood Hills (HHSFSSC)	9/2/2015	Fisherman	Broward
FWC Commission Meetings (Broward)	9/3/2015	Agency	Broward
Hollywood Hills (HHSFSSC)	10/7/2015	Fisherman	Broward
The Billfish Foundation Fundraiser	10/9/2015	Fisherman	Miami Dade
FLL Boat Show	11/8/2015	Fisherman	Broward
Hollywood Hills (HHSFSSC)	1/6/2016	Fisherman	Broward
Hollywood Hills (HHSFSSC)	2/3/2016	Fisherman	Broward
West Palm Beach Fishing Club	2/4/2016	Fisherman	Palm Beach
Hollywood Hills (HHSFSSC)	3/2/2016	Fisherman	Broward

Outreach Events	
2014	Month
Port Salerno Seafood Festival	January
Miami Boat Show	February
Green Planet Festival	February
Gumbo Limbo Sea Turtle Day	March
Broward STEM Expo	March
Palm Beach Boat Show	March
Tortuga Music Festival	March
Blue Wild Expo	April
Soiree by the Bay	October
FLL Boat Show	October
2015	
Port Salerno Seafood Festival	January
Miami Boat Show	February
Green Planet Festival	February
Gumbo Limbo Sea Turtle Day	March
Broward STEM Expo	March
Palm Beach Boat Show	March
Tortuga Music Festival	March
Blue Wild Expo	April
FLL Boat Show	October
2016	
Port Salerno Seafood Festival	January
Miami Boat Show	February
Green Planet Festival	February
Gumbo Limbo Sea Turtle Day	March
Broward STEM Expo	March
Palm Beach Boat Show	March
Tortuga Music Festival	April
Blue Wild Expo	April
FLL Boat Show	October

V. Agency Statements

- **Initial Statement:**

Southeast Florida Coral Reef Initiative

Identification of Management Options for Improved Management and Conservation of Coral Reef Resources in Southeast Florida

Version: 10/10/2012

The Southeast Florida Coral Reef Initiative (SEFCRI) is focused on the northern third of the Florida Reef Tract which stretches more than 100 miles from the northern border of Biscayne National Park to the St. Lucie Inlet. This region includes the waters adjacent to four counties: Miami-Dade, Broward, Palm Beach, and Martin. Since 2003, under the coordination of the Florida Department of Environmental Protection's (FDEP) Coral Reef Conservation Program (CRCP), over 70 partners have been participating in SEFCRI to implement 140 projects to understand and reduce threats to coral reef resources in this region. Partners include: local, state, and federal government agencies; non-governmental organizations; academic institutions; and key resource user groups. The outcomes and information from these projects will help SEFCRI to achieve its mission: to develop and support the implementation of an effective strategy to preserve and protect southeast Florida's coral reefs and associated reef resources, emphasizing balance between resource use and protection, in cooperation with all interested parties.

The next major steps in SEFCRI are to:

Communicate the synthesized results of southeast Florida reef research and completed SEFCRI projects to coral reef stakeholders and the public

Develop and implement a transparent and inclusive process where stakeholders identify management options that are intended to conserve southeast Florida coral reef resources

Identify appropriate local, state, or federal resource management agencies with appropriate jurisdiction that can work towards implementation.

A representative from your agency is part of the team developing this process. For [insert agency name], [insert staff name] is on the Process Planning Team. They will keep you updated as the process is defined.

This stakeholder-driven process to identify recommendations is expected to begin in 2013. If you would like more information or are interested in participating in this effort, please contact Jamie Monty at 305-795-1208 or Jamie.Monty@dep.state.fl.us.

- **Follow-up Statement:**

Southeast Florida Coral Reef Initiative

Next Steps for the *Our Florida Reefs* Process for Coral Reef Resources in Southeast Florida

Version: 4/10/2013

The results of several Southeast Florida Coral Reef Initiative (SEFCRI) projects focusing on stakeholder input have identified several perceived problems affecting coral reef ecosystems in southeast Florida:

A majority of stakeholder groups agreed that water quality, and the conditions of coral reefs and fisheries, had deteriorated since the stakeholders first began operating in the southeast Florida region. Findings suggest stakeholder groups were generally dissatisfied with how management is currently working, and that there is a need for a different approach to management. User group conflicts were becoming increasingly problematic due to an increase in the southeast Florida population, and therefore the number of users.

Throughout 2012, SEFCRI developed a transparent and inclusive process by which stakeholders will identify recommendations intended to better manage and conserve southeast Florida coral reef resources. Beginning in 2013, SEFCRI has begun implementing the process, starting by communicating the results of southeast Florida reef research and completed SEFCRI projects to coral reef stakeholders. In June, a series of public meetings will “launch” the *Our Florida Reefs* Process. Stakeholders will be given the opportunity to learn more about the state of southeast Florida’s Reef Tract, learn more about the Process, provide their feedback on a variety of topics, and learn how they can be involved in this stakeholder-driven process.

During summer/fall 2013, stakeholders will be invited to apply to join stakeholder working groups. The composition of these working groups will be a balanced representation of all user groups, as well as federal, state, and local agencies, academia, NGOs, and marine-related businesses. Stakeholder working groups will meet periodically over a twelve-month span beginning in fall/winter 2013. The working group goals and objectives are:

- Identify a prioritized list of management options to improve conservation and management of southeast Florida coral reefs. The prioritization process will include the following criteria: identification of the problems/threats to coral reefs, positive and negative impacts of each proposed solution/option to marine resources and people, challenges and benefits to implementation, and tradeoffs associated with implementing certain management options.
- Provide recommendations to facilitate the successful implementation of the prioritized management options.

Once the stakeholder working groups have prioritized their recommendations, this list will be vetted through SEFCRI Process Planning Team, who will provide feedback on whether or not the recommendations met the criteria, and a science advisory committee, who will provide its feedback and comments pertaining to the scientific merit and feasibility of said recommendations. Incorporating these

comments and edits will be an iterative process between the SEFCRI Team, the science advisory group, and the stakeholder working groups, until all three parties can agree on a finalized list of recommendations.

A second set of public meetings, tentatively scheduled for Spring 2015, will be used to present this finalized list of recommendations to the public, and to receive final public comment and input. Once public comments have been addressed, the SEFCRI Team will begin working with appropriate management agencies to begin the process of implementing/approving/adopting these recommendations.

VI. Southeast Florida Intergovernmental Coastal Oceans Task Force Resolutions 2012

- **Miami-Dade County Resolution**

**OFFICIAL FILE COPY
CLERK OF THE BOARD
OF COUNTY COMMISSIONERS
MIAMI-DADE COUNTY, FLORIDA**



MEMORANDUM

Agenda Item No. 11(A)(4)

TO: Honorable Chairman Joe A. Martinez
and Members, Board of County Commissioners

DATE: September 4, 2012

FROM: R. A. Cuevas, Jr.
County Attorney

SUBJECT: Resolution establishing the
Southeast Florida Intergovernmental
Coastal Ocean Task Force
Resolution No. 713-12

The accompanying resolution was prepared and placed on the agenda at the request of Prime Sponsor Commissioner Sally A. Heyman.



R. A. Cuevas, Jr.
County Attorney

RAC/cp

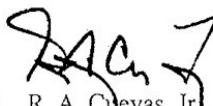


MEMORANDUM

(Revised)

TO: Honorable Chairman Joe A. Martinez
and Members, Board of County Commissioners

DATE: September 4, 2012

FROM: 
R. A. Cuevas, Jr.
County Attorney

SUBJECT: Agenda Item No. 11(A)(4)

Resolution No. R-713-12

Please note any items checked.

- "3-Day Rule" for committees applicable if raised
- 6 weeks required between first reading and public hearing
- 4 weeks notification to municipal officials required prior to public hearing
- Decreases revenues or increases expenditures without balancing budget
- Budget required
- Statement of fiscal impact required
- Ordinance creating a new board requires detailed County Manager's report for public hearing
- No committee review
- Applicable legislation requires more than a majority vote (i.e., 2/3's ____, 3/5's ____, unanimous ____) to approve
- Current information regarding funding source, index code and available balance, and available capacity (if debt is contemplated) required

Approved _____ Mayor
Veto _____
Override _____

Agenda Item No. 11(A)(4)
9-4-12

RESOLUTION NO. R-713-12

RESOLUTION RECOGNIZING THE NEED FOR COLLABORATIVE, MULTI-JURISDICTIONAL INPUT ON CONSERVATION MEASURES PROPOSED FOR SOUTHEAST FLORIDA COASTAL WATERS; ESTABLISHING THE SOUTHEAST FLORIDA INTERGOVERNMENTAL COASTAL OCEANS TASK FORCE COMPOSED OF ELECTED COUNTY AND COASTAL CITY COMMISSIONERS, APPOINTED OFFICIALS FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, AND REPRESENTATIVES FROM SELECTED STAKEHOLDER ORGANIZATIONS; PROVIDING FOR DUTIES OF THE TASK FORCE; PROVIDING FOR STAFF SUPPORT; PROVIDING FOR REPORTING AND MAINTENANCE OF RECORDS; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, southeast Florida has long depended upon coastal ocean waters for recreation, fishing, and commerce; and

WHEREAS, it has been determined that coastal ocean waters are under great user pressure, suffer from water quality degradation from human inputs, and climate change impacts; and

WHEREAS, collaborative, multi-agency conservation planning activities have been underway for the coral reefs of southeast Florida through the coordination of the Southeast Florida Coral Reef Initiative since 2004; and

WHEREAS, the vision of Southeast Florida Coral Reef Initiative is *"To develop an effective strategy to preserve and protect southeast Florida's coral reefs and associated reef resources, emphasizing balance between resource use and protection, in cooperation with all interested parties."*; and

WHEREAS, Southeast Florida Coral Reef Initiative's program plan for 2010 to 2017 and beyond will develop, prioritize, and implement conservation management alternatives through a publicly vetted, working group process; and

WHEREAS, implementation of some of the alternatives will likely require support from elected officials; and

WHEREAS, elected officials should be involved in the prioritization process in its early stages in order to be fully informed of the environmental and economic consequences of all management strategies,

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF MIAMI-DADE COUNTY, FLORIDA, that:

Section 1. The adoption of this and companion resolutions by Broward County, Martin County, and Palm Beach County shall have the effect of creating the Intergovernmental Coastal Oceans Task Force.

Section 2. The purpose of the Intergovernmental Coastal Oceans Task Force is to:

- (a) Learn about the accomplishments of the Southeast Coral Reef Initiative and Marine and Estuarine Goal Setting for South Florida;
- (b) Review the priorities identified by local, state and federal coral reef managers in southeast Florida in partnership with National Oceanic and Atmospheric Administration's Coral Reef Conservation Program;
- (c) Consider additional issues relating to coastal resource management and user needs;

(d) Produce a final report with recommendations for coastal ocean resources and conservation priorities and strategies.

Section 3. The Task Force shall be composed of elected and appointed officials designated by the government entities identified in Section 4 of this resolution.

Section 4. The Task Force shall be composed of representatives of the following entities:

(a) Four (4) county elected officials, one (1) from each county, appointed by respective county commissions of Miami-Dade, Broward, Palm Beach, and Martin counties;

(b) Three (3) City elected officials from each county appointed by the respective county League of Cities, with emphasis on achieving appointments providing geographic representation from a City in the north, central, and south regions of each County. In a County with no League of Cities, the County representative on the task force will contact three (3) representative municipalities and request each municipality designate an appointee to the Task Force;

(c) One (1) member from the Florida Department of Environmental Protection ("FDEP") which shall be the Secretary or designee;

(d) One (1) commissioner from the Florida Fish and Wildlife Conservation Commission ("FWC");

(e) One (1) member from the National Oceanic and Atmospheric Administration;

(f) One (1) recreational fishery representative;

(g) One (1) commercial fishery representative;

(h) One (1) marine industry representative;

(i) One (1) charter dive industry representative;

- (j) One (1) representative of a Port Pilot Association (or equivalent);
- (k) One (1) representative of commercial port interests;
- (l) One (1) representative from an environmental organization;
- (m) One (1) representative from an academic institution;

When making appointments, each entity shall consider and balance its appointments to reflect the diverse racial, ethnic, religious, economic, and geographic representation within the County.

Section 5. The Task Force membership will be finalized by the members who serve as direct appointments. These members will be responsible for reviewing nominations for each of the categories (f) through (m) and finalizing the membership through appointment by a majority vote.

Section 6. The Task Force shall meet on a frequency determined by the Task Force for an 18-month period following its initial organizational meeting. The time period may be modified at the discretion of a majority of the Task Force members. The Task Force shall, at its organizational meeting, elect a Chair and Vice-Chair, adopt rules of procedure, including provisions for quorum, voting, and consideration of motions and other items, and establish such standing committees as necessary to conduct the work of the Task Force.

Section 7. Broward County Natural Resources Planning and Management Division shall provide staff support to the Task Force in collaboration with technical staff from partner agencies.

Section 8. Support staff will prepare meeting notices and minutes, maintain records, coordinate or prepare draft reports, and prepare the final report containing the findings and recommendations of the Task Force.

Section 9. The governmental entities adopting this resolution recognize and agree their participation as members of the Task Force is a voluntary effort. The participating governments further recognize that any final report issued by the Task Force shall not be construed as imposing any mandates upon the participants or other government entities. It is understood and desired, rather, that the collaborative work of the Task Force serve as recommendations to each community regarding conservation of coastal ocean resources in southeast Florida.

The Prime Sponsor of the foregoing resolution is Commissioner Sally A. Heyman. It was offered by Commissioner **José "Pepe" Diaz**, who moved its adoption. The motion was seconded by Commissioner **Audrey M. Edmonson** and upon being put to a vote, the vote was as follows:

	Joe A. Martinez, Chairman	aye	
	Audrey M. Edmonson, Vice Chairwoman	aye	
Bruno A. Barreiro	aye	Lynda Bell	aye
Esteban L. Bovo, Jr.	aye	Jose "Pepe" Diaz	aye
Sally A. Heyman	aye	Barbara J. Jordan	aye
Jean Monestime	absent	Dennis C. Moss	aye
Rebeca Sosa	aye	Sen. Javier D. Souto	aye
Xavier L. Suarez	absent		

• **Broward County Resolution**

Resolution 2012-430

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF BROWARD COUNTY, FLORIDA RECOGNIZING THE NEED FOR COLLABORATIVE, MULTI-JURISDICTIONAL INPUT ON CONSERVATION MEASURES PROPOSED FOR SOUTHEAST FLORIDA COASTAL WATERS; ESTABLISHING THE SOUTHEAST FLORIDA INTERGOVERNMENTAL COASTAL OCEANS TASK FORCE COMPOSED OF ELECTED COUNTY AND COASTAL CITY COMMISSIONERS, APPOINTED OFFICIALS FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, AND REPRESENTATIVES FROM SELECTED STAKEHOLDER ORGANIZATIONS; PROVIDING FOR DUTIES OF THE TASK FORCE; PROVIDING FOR STAFF SUPPORT; PROVIDING FOR REPORTING AND MAINTENANCE OF RECORDS; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, southeast Florida has long depended upon coastal ocean waters for recreation, fishing, and commerce; and

WHEREAS, it has been determined that coastal ocean waters are under great user pressure, suffer from water quality degradation from human inputs, and climate change impacts; and

WHEREAS, collaborative, multi-agency conservation planning activities have been underway for the coral reefs of southeast Florida through the coordination of the Southeast Florida Coral Reef Initiative ("SEFCRI") since 2004; and

WHEREAS, the vision of SEFCRI is *"To develop an effective strategy to preserve and protect southeast Florida's coral reefs and associated reef resources, emphasizing balance between resource use and protection, in cooperation with all interested parties."*; and

1 WHEREAS, SEFCRI's program plan for 2010 to 2017 and beyond will develop,
2 prioritize, and implement conservation management alternatives through a publicly
3 vetted, working group process; and

4 WHEREAS, implementation of some of the alternatives will likely require support
5 from elected officials; and

6 WHEREAS, elected officials should be involved in the prioritization process in its
7 early stages in order to be fully informed of the environmental and economic
8 consequences of all management strategies; NOW, THEREFORE,

9

10 BE IT RESOLVED BY THE Board of County Commissioners of Broward County,
11 Florida:

12 Section 1. The adoption of this and companion resolutions by Martin County,
13 Miami-Dade County, and Palm Beach County shall have the effect of creating the
14 Intergovernmental Coastal Oceans Task Force ("ICOTF").

15 Section 2. The purpose of the ICOTF is to:

16 (a) Learn about the accomplishments of the Southeast Coral Reef
17 Conservation Initiative (SEFCRI) and Marine and Estuarine Goal
18 Setting for South Florida (MARES).

19 (b) Review the priorities identified by local, state and federal coral
20 reef managers in southeast Florida in partnership with National
21 Oceanic and Atmospheric Administration's ("NOAA") Coral Reef
22 Conservation Program.

23 (c) Consider additional issues relating to coastal resource
24 management and user needs.

- 1 (d) Produce a final report with recommendations for coastal ocean
2 resources and conservation priorities and strategies.
- 3 Section 3. The Task Force shall be composed of elected and appointed
4 officials designated by the government entities identified in Section 4 of this resolution.
- 5 Section 4. The Task Force shall be composed of representatives of the
6 following entities:
- 7 (a) Four (4) county elected officials, one (1) from each county,
8 appointed by respective county commissions of Miami-Dade,
9 Broward, Palm Beach, and Martin counties.
- 10 (b) Three (3) City elected officials from each county appointed by the
11 respective county League of Cities, with emphasis on achieving
12 appointments providing geographic representation from a City in
13 the north, central, and south regions of each County. In a County
14 with no League of Cities, the County representative on the task
15 force will contact three (3) representative municipalities and request
16 each municipality designate an appointee to the Task Force
- 17 (c) One (1) member from the Florida Department of Environmental
18 Protection ("FDEP") which shall be the Secretary or designee.
- 19 (d) One (1) commissioner from the Florida Fish and Wildlife
20 Conservation Commission ("FWC").
- 21 (e) One (1) member from the National Oceanic and Atmospheric
22 Administration.
- 23 (f) One (1) recreational fishery representative.
- 24 (g) One (1) commercial fishery representative.

-
- 1 (h) One (1) marine industry representative.
2 (i) One (1) charter dive industry representative.
3 (j) One (1) representative of a Port Pilot Association (or equivalent)
4 (k) One (1) representative of commercial port interests
5 (l) One (1) representative from an environmental organization
6 (m) One (1) representative from an academic institution

7 When making appointments, each entity shall consider and balance its appointments to
8 reflect the diverse racial, ethnic, religious, economic, and geographic representation
9 within the County.

10 Section 5. The Task Force membership will be finalized by the members who
11 serve as direct appointments. These members will be responsible for reviewing
12 nominations for each of the categories (f) through (m) and finalizing the membership
13 through appointment by a majority vote.

14 Section 6. The Task Force shall meet on a frequency determined by the Task
15 Force for an 18-month period following its initial organizational meeting. The time
16 period may be modified at the discretion of a majority of the ICOTF members. The
17 ICOTF shall, at its organizational meeting, elect a Chair and Vice-Chair, adopt rules of
18 procedure, including provisions for quorum, voting, and consideration of motions and
19 other items, and establish such standing committees as necessary to conduct the work
20 of the ICOTF.

21 Section 7. Broward County Natural Resources Planning and Management
22 Division shall provide staff support to the Task Force in collaboration with technical staff
23 from partner agencies.
24

1 Section 8. Support staff will prepare meeting notices and minutes, maintain
2 records, coordinate or prepare draft reports, and prepare the final report containing the
3 findings and recommendations of the Task Force.

4 Section 9. The governmental entities adopting this resolution recognize and
5 agree their participation as members of the ICOTF is a voluntary effort. The participating
6 governments further recognize that any final report issued by the ICOTF shall not be
7 construed as imposing any mandates upon the participants or other government
8 entities. It is understood and desired, rather, that the collaborative work of the ICOTF
9 serve as recommendations to each community regarding conservation of coastal ocean
10 resources in southeast Florida.

11 Section 10. EFFECTIVE DATE.
12 This Resolution shall become effective upon adoption.

13
14 ADOPTED this 26th day June, 2012. #113
15
16
17
18
19
20
21
22
23
24

- **Palm Beach County Resolution**

RESOLUTION NO. 2012- 1554

A RESOLUTION OF THE PALM BEACH COUNTY BOARD OF COUNTY COMMISSIONERS; RECOGNIZING THE NEED FOR COLLABORATIVE, MULTI-JURISDICTIONAL INPUT ON CONSERVATION MEASURES PROPOSED FOR SOUTHEAST FLORIDA COASTAL WATERS; ESTABLISHING THE SOUTHEAST FLORIDA COASTAL OCEAN TASK FORCE COMPOSED OF ELECTED COUNTY AND COASTAL CITY COMMISSIONERS, APPOINTED OFFICIALS FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, AND REPRESENTATIVES FROM SELECTED STAKEHOLDER ORGANIZATIONS; PROVIDING FOR DUTIES OF THE TASK FORCE; PROVIDING FOR STAFF SUPPORT; PROVIDING FOR REPORTING AND MAINTENANCE OF RECORDS; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, southeast Florida has long depended upon coastal ocean waters for recreation, fishing, and commerce; and

WHEREAS, it has been determined that coastal ocean waters are under great user pressure, suffer from water quality degradation from human inputs, and climate change impacts; and

WHEREAS, collaborative, multi-agency conservation planning activities have been underway for the coral reefs of southeast Florida through the coordination of the Southeast Florida Coral Reef Initiative (SEFCRI) since 2004; and

WHEREAS, the vision of SEFCRI is *"To develop an effective strategy to preserve and protect southeast Florida's coral reefs and associated reef resources, emphasizing balance between resource use and protection, in cooperation with all interested parties."*; and

WHEREAS, SEFCRI's program plan for 2010 to 2017 and beyond will develop, prioritize, and implement conservation management alternatives through a publicly vetted, working group process; and

WHEREAS, implementation of some of the alternatives will likely require support from elected officials; and

WHEREAS, elected officials should be involved in the prioritization process in its early stages in order to be fully informed of the environmental and economic consequences of all management strategies.

NOW, THEREFORE, BE IT RESOLVED BY THE PALM BEACH COUNTY BOARD OF COUNTY COMMISSIONERS:

Section 1. The BCC supports the Coastal Ocean Task Force ("COTF").

Section 2. The purpose of the COTF is to:

- (a) Learn about the accomplishments of SEFCRI.
- (b) Review the Florida coral reef management priorities proposed by the National Oceanographic and Atmospheric Administration and Florida Department of Environmental Protection Coral Reef Conservation Program.
- (c) Serve as the liaison between SEFCRI and SEFCRI's representative governments.
- (d) Endorse final reports with recommendations for reef management and conservation priorities and strategies.
- (e) Make recommendations regarding conservation of coastal ocean resources in southeast Florida.

Section 3. The COTF shall be composed of representatives of the following entities:

- (a) Four (4) county elected officials, one (1) from each county, appointed by the respective county commissions of Miami-Dade, Broward, Palm Beach, and Martin counties.
- (b) Three (3) municipal elected officials from each county appointed by the respective county League of Cities, with emphasis on achieving appointments providing geographic representation from a municipality in the north, central, and south regions of each County.
- (c) One (1) member from the Florida Department of Environmental Protection (FDEP) which shall be the Secretary or designee.
- (d) One (1) local commissioner from the Florida Fish and Wildlife Conservation Commission (FWC) appointed by FWC.
- (e) One (1) member from the National Oceanic and Atmospheric Administration (NOAA) appointed by NOAA.
- (f) One (1) recreational fishery representative.
- (g) One (1) commercial fishery representative.
- (h) One (1) marine industry representative.
- (i) One (1) charter dive industry representative.
- (j) One (1) representative of a Port Pilot Association (or equivalent)
- (k) One (1) representative of commercial port interests

- (l) One (1) representative from an environmental organization
- (m) One (1) representative from an academic institution

Representatives for categories 3(f)-3(m) will be appointed by a majority vote of the members of categories 3(a)-3(e) based on a pool of applicants who submit a letter of interest. When making appointments, each entity shall consider and balance its appointments to reflect the diverse racial, ethnic, religious, economic, and geographic representation within the region.

Section 4. The COTF shall meet on a frequency determined by the COTF for an 18-month period following its initial organizational meeting. The time period may be modified at the discretion of a majority of the COTF members. The COTF shall, at its organizational meeting, elect a Chair and Vice-Chair, adopt rules of procedure, including provisions for quorum, voting, and consideration of motions and other items, and establish such standing committees as necessary to conduct the work of the COTF.

Section 5. Broward County Natural Resources Planning and Management Division shall provide staff support to the COTF in collaboration with technical staff from partner agencies.

Section 6. Support staff will prepare meeting notices and minutes, maintain records, coordinate or prepare draft reports, and prepare final reports containing the findings and recommendations of the COTF.

Section 7. The governmental entities adopting this resolution recognize and agree their participation as members of the COTF is a voluntary effort. The participating governments further recognize that any final reports issued by the COTF shall not be construed as imposing any mandates upon the participants or other government entities. It is understood and desired, rather, that the collaborative work of the COTF serve as recommendations regarding conservation of coastal ocean resources in southeast Florida.

Section 8. EFFECTIVE DATE.

This Resolution shall become effective upon adoption.

RESOLUTION NO. 2012- 1554

The foregoing Resolution was offered by Commissioner Abrams, who moved its adoption.

The motion was seconded by Commissioner Taylor and, upon being put to a vote, the vote was as follows:

Commissioner Shelley Vana, Chair	<u>Aye</u>
Commissioner Steven L. Abrams, Vice Chairman	<u>Aye</u>
Commissioner Karen T. Marcus	<u>Aye</u>
Commissioner Paulette Burdick	<u>Absent</u>
Commissioner Burt Aaronson	<u>Aye</u>
Commissioner Jess R. Santamaria	<u>Aye</u>
Commissioner Priscilla A. Taylor	<u>Aye</u>

The Chair thereupon declared the Resolution duly passed and adopted this 16th day of October, 2012.

PALM BEACH COUNTY, FLORIDA BY
ITS BOARD OF COUNTY COMMISSIONERS

Sharon R. Bock, Clerk & Comptroller

BY Nancy Powell
Deputy Clerk, FLORIDA

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY

BY: [Signature]
County Attorney

STATE OF FLORIDA, COUNTY OF PALM BEACH
I, SHARON R. BOCK, Clerk and Comptroller
certify this to be a true and correct copy of the original
filed in my office on OCT 16 2012

dated at West Palm Beach, FL on 10-22-12
By Nancy Powell
Deputy Clerk, FLORIDA

- **Martin County Resolution**

**BEFORE THE BOARD OF COUNTY COMMISSIONERS
MARTIN COUNTY, FLORIDA**

RESOLUTION NUMBER 12-7.10

A RESOLUTION RECOGNIZING THE NEED FOR COLLABORATIVE, MULTI-JURISDICTIONAL INPUT ON CONSERVATION MEASURES PROPOSED FOR SOUTHEAST FLORIDA COASTAL WATERS; ESTABLISHING THE SOUTHEAST FLORIDA INTERGOVERNMENTAL COASTAL OCEANS TASK FORCE COMPOSED OF ELECTED COUNTY AND COASTAL CITY COMMISSIONERS, APPOINTED OFFICIALS FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, AND REPRESENTATIVES FROM SELECTED STAKEHOLDER ORGANIZATIONS; PROVIDING FOR DUTIES OF THE TASK FORCE; PROVIDING FOR STAFF SUPPORT; PROVIDING FOR REPORTING AND MAINTENANCE OF RECORDS; AND PROVIDING AN EFFECTIVE DATE

WHEREAS, southeast Florida has long depended upon coastal ocean waters for recreation, fishing, and commerce; and

WHEREAS, it has been determined that coastal ocean waters are under great user pressure, suffer from water quality degradation from human inputs, and climate change impacts; and

WHEREAS, collaborative, multi-agency conservation planning activities have been underway for the coral reefs of southeast Florida through the coordination of the Southeast Florida Coral Reef Initiative ("SEFCRI") since 2004; and

WHEREAS, the vision of SEFCRI is "To develop an effective strategy to preserve and protect southeast Florida's coral reefs and associated reef resources, emphasizing balance between resource use and protection, in cooperation with all interested parties."; and

WHEREAS, SEFCRI's program plan for 2010 to 2017 and beyond will develop, prioritize, and implement conservation management alternatives through a publicly-vetted, working group process; and

WHEREAS, implementation of some of the alternatives will likely require support from elected officials; and

WHEREAS, elected officials should be involved in the prioritization process in its early stages in order to be fully informed of the environmental and economic consequences of all management strategies.

NOW THEREFORE BE IT RESOLVED THAT the Board of County Commissioners:

Section 1: The adoption of this and companion resolutions by Miami-Dade County, Palm Beach County, Broward County, and Martin County shall have the effect of creating the Intergovernment Coastal Oceans Task Force ("ICOTF").

Section 2: The purpose of the ICOTF is to:

- (a) Learn about the accomplishments of the Southeast Coral Reef Conservation Initiative (SEFCRI) and Marine and Estuarine Goal Setting for South Florida (MARES).
- (b) Review the priorities identified by local, state, and federal coral reef managers in southeast Florida in partnership with National Oceanic and Atmospheric Administration's ("NOAA") Coral Reef Conservation Program.
- (c) Consider additional issues relating to coastal resource management and user needs.
- (d) Produce a final report with recommendations for coastal ocean resources and conservation priorities and strategies.

Section 3: The Task Force shall be composed of elected and appointed officials designated by the government entities identified in Section 4 of this resolution.

Section 4: The Task Force shall be composed of representatives of the following entities:

- (a) Four (4) County elected officials, one (1) from each County, appointed by respective County Commissions of Miami-Dade, Broward, Palm Beach, and Martin Counties.
- (b) Three (3) City elected officials from each County appointed by the respective County League of Cities, with emphasis on achieving appointments providing geographic representation from a City in the north, central, and south regions of each County. In a County with no League of Cities, the County representative on the Task Force will contact three (3) representative municipalities and request each municipality designate an appointee to the Task Force.
- (c) One (1) member from the Florida Department of Environmental Protection ("FDEP") which shall be the Secretary or designee.
- (d) One (1) Commissioner from the Florida Fish and Wildlife Conservation Commission ("FWC").
- (e) One (1) member from the National Oceanic and Atmospheric Administration.
- (f) One (1) recreational fishery representative.
- (g) One (1) commercial fishery representative.
- (h) One (1) marine industry representative.
- (i) One (1) charter dive industry representative.
- (j) One (1) representative of a Port Pilot Association (or equivalent).
- (k) One (1) representative of commercial port interests.
- (l) One (1) representative from an environmental organization.

(m) One (1) representative from an academic institution.

When making appointments, each entity shall consider and balance its appointments to reflect the diverse racial, ethnic, religious, economic, and geographic representation within the County.

Section 5: The Task Force membership will be finalized by the members who serve as direct appointments. These members will be responsible for reviewing nominations for each of the categories (f) through (m) and finalizing the membership through appointment by a majority vote.

Section 6: The Task Force shall meet on a frequency determined by the Task Force for an 18-month period following its initial organizational meeting. The time period may be modified at the discretion of a majority of the ICOTF members. The ICOTF shall, at its organizational meeting, elect a Chair and Vice Chair, adopt rules of procedure, including provisions for quorum, voting, and consideration of motions and other items, and establish such standing committees as necessary to conduct the work of the ICOTF.

Section 7: Broward County National Resources Planning and Management Division shall provide staff support to the Task Force in collaboration with technical staff from partner agencies.

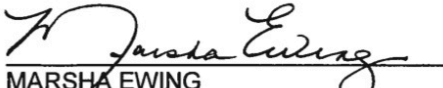
Section 8: Support staff will prepare meeting notices and minutes, maintain records, coordinate or prepare draft reports, and prepare the final report containing the findings and recommendations of the Task Force.

Section 9: The governmental entities adopting this resolution recognize and agree their participation as members of the ICOTF is a voluntary effort. The participating governments further recognize that any final report issued by the ICOTF shall not be construed as imposing any mandates upon the participants or other government entities. It is understood and desired, rather, that the collaborative work of the ICOTF serve as recommendations to each community regarding conservation of coastal ocean resources in southeast Florida.

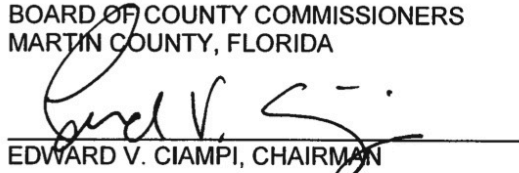
Section 10: Effective Date. This Resolution shall become effective upon adoption.

Duly adopted this Twenty-fourth day of July 2012.


ATTEST:


MARSHA EWING
CLERK OF THE CIRCUIT COURT

BOARD OF COUNTY COMMISSIONERS
MARTIN COUNTY, FLORIDA


EDWARD V. CIAMPI, CHAIRMAN

APPROVED AS TO FORM AND
CORRECTNESS:


STEPHEN FRY, COUNTY ATTORNEY

VII. Facilitation Project Team Membership

Last Name	First Name	Title / Specialty	Affiliation
Hope	Becky	Environmental Manager	Port of Miami
Lippincott	Carol	Certified Public Facilitator	Florida LLC
Wusinich-Mendez	Dana	Coral Reef Conservation Program Liaison	NOAA Coral Reef Conservation Program
Gilliam	Dave	Assistant Professor	Coral reef ecology - restoration, assessment and monitoring
Davy	Kay	Biologist	NOAA/NMFS, Protected Resources Division
Thanner	Sara	Environmental Resources Project Supervisor	Miami-Dade County DERM
Gregg	Kurtis	Florida Coral Reef Fishery Biologist	NOAA/NMFS Habitat Conservation Division

VIII. Decision Support Tool Team Membership

Last Name	First Name	Title / Specialty	Affiliation
Walker	Brian	Professor	Nova Southeastern University (NSU)
Costaregni	Amanda	Research Assistant	Nova Southeastern University (NSU)
Quinn	Pat	Natural Resource Specialist III	Broward County
Thanner	Sara	Environmental Resources Project Supervisor	Miami-Dade County DERM
Miller	Cheryl	President	Coastal Eco-Group Inc.
Clark	Stephanie		Cry of the Water
Smith	Mason	Biologist	Florida Fish & Wildlife Conservation Commission (FWC)
Wusinich-Mendez	Dana	Coral Reef Conservation Program Liaison	NOAA Coral Reef Conservation Program
Shivlani	Manoj	Program Manager	Northern Taiga Ventures, Inc.
Baumstark	Rene	Section Leader, Information Science & Research	Florida Fish & Wildlife Conservation Commission (FWC)
Monty	Jamie	Manager	FDEP CRCP
Waters	Lauren	MICCI Coordinator	FDEP CRCP
Balling	Meghan	FDOU Coordinator	FDEP CRCP
Wahle	Ben	OFR Program Assistant	FDEP CRCP

IX. Community Working Group Application

Work Address: _____

Organization/Affiliation: _____

Title/Specialty: _____

Work Phone: _____ Work Fax: _____

Work Email*: _____ County of Employment: _____

*Work E-mail must be unique, i.e. please do not use a generic mailbox such as customerservice@reef.com, or a mailbox that goes to more than one individual.

1. With which county(ies) are you most familiar? *If multiple counties apply, please rank them with 1 being the county with which you are most familiar.*

Miami Dade Broward Palm Beach Martin

2. Please select from the list below the specific interest group that you could effectively represent on a Working Group. *If multiple groups apply, you may rank up to 3 that best describe your area of expertise, with 1 being the greatest and 3 being the least.*

Government		Private Business	
Federal		Consultant	
State		Tourism Board	
County		Hotel	
Municipal		Marine Industries	
Academic		Recreational Boating Retailer	
University/ College		Agriculture	
Research Institution		Chamber of Commerce	
Environmental NGO		Ports	
International		Other (describe: _____)	
National		Fishing	
Local		Commercial	
SCUBA Diving		Private Recreational	
Dive Shop		Recreational Charter	
Dive Charter		Other (describe: _____)	
Recreational Diver		Water Sports	
Underwater Photographer		Surfing	
Adventure Diver		Wind Surfing	
Spear Fisher		Kite Surfing	
Other (describe _____)		Paddle Boarding	
Citizen at Large		Parasailing	
		Snorkeling	
		Other (describe: _____)	

Please thoroughly address each of the following in an attached statement:

- Describe the interest group members and organizations with whom you will communicate as an **Our Florida Reefs** Working Group member and how you will coordinate with, consult with, and inform the
- Explain why you believe that you would make a good Working Group member for the **Our Florida Reefs** community planning process? Please refer back to the Working Group member responsibilities provided on the first page of this application and specifically address these duties
- Please attach any additional information that you would like to share with the selection team to support your application.

Thank you for your interest in serving as a Working Group member in the **Our Florida Reefs** community planning process. Please affirm that you understand the responsibilities of an **Our Florida Reefs** Working Group member, that you will not be financially compensated in any way for your participation, and that you are willing and able to fulfill these obligations for the full term of the Working Group activities by signing below.

Signature

Date

X. Community Working Group Member Selection Guidance for SEFCRI Vice-Chairs

1. Objective: To form two to four community working groups for the Our Florida Reefs Community Planning Process that will work collaboratively with a facilitator to develop a consensus based set of recommendations to improve coral reef management and conservation in SE Florida.

2. Working Group Structure

Principles for Working Group Structure:

- Each working group will have a maximum of 25 members

Stakeholder Group All listed specific interests do not have to be represented on each group, but goal is to have as many different specific interests represented across all groups	Proposed # of seats per group	Specific interests to be represented across 4 working groups	Comments
Federal Government*	2-3	NOAA, USDA-NRCS, ACOE, USEPA, USCG	
State Government*	3	FDEP, FWC, SFWMD	both FDEP and FWC should be represented on each working group. FWC may want to designate enforcement staff on one or more of the groups.
County Government*	1-2		A representative from the relevant resource management agency for each county fills this seat.
Municipal Government*	1		If there is interest.
Academic Institutions	2	Universities and research institutions working in the area	
Conservation NGOs	2	International, national and local NGOs	
Diving Interests	3	Dive shops, dive charters, recreational divers, photographers, adventure divers, spear fishers	
Fishing Interests	3	Commercial, private recreational boats, recreational charter boats	
Private Business Interests	3-4	Consultants (environmental and engineering), tourism boards,	

		hoteliers, developers, marine industries, recreational boating retailers, agriculture, chamber of commerce, ports	
Water Sports	1	Surfing, wind surfing, kite surfing, paddle boarding, parasailing, snorkeling	This category would not include diving or fishing interests
Citizen at Large	1-2		
South Florida Ecosystem Restoration*	1	An NGO or government rep such as ACOE, SFWMD...	This representative should not just be focused on the Everglades.

* Governmental seats will be filled through agency appointments.

3. Working Group Member Selection Criteria

All applicants should be evaluated using the following criteria. Working group members should:

Be capable of representing their community and professional constituency, which allows them to facilitate the exchange of information between the working group, the SEFCRI Team and the community.

Demonstrate knowledge, engagement, and interest in topics such as natural resource harvest, conservation and resource management.

Possess ability to effectively participate in meetings and not disrupt meetings in a manner that interferes with MOIP business.

Create diversity in geographic distribution, industry representation, resource use, economic/social group.

Be able to work collaboratively with others.

Be able to balance a regional perspective with localized knowledge

Be a current resident of southeast Florida (Miami-Dade, Broward, Palm Beach and Martin County).

4. Working Group Seat Assignments for Vice Chairs

Vice Chair Review Teams*	Team 1	Team 2	Team 3
Vice Chairs	Jocelyn Karaszia Ken Banks Jeff Torode	Erin Mc Devitt Cheryl Miller Frank Schmitt	Dave Gilliam James Byrne Becky Hope
Assigned Seats	Diving (3) Watersports (1) Citizen at Large (1-2)	Fishing (3) NGO (2)	Private Business (3-4) Academic (2)

** SEFCRI Chair, Jamie Monty, will participate on all groups as possible. Please include her in all team member communications.*

5. Review Instructions

Vice Chairs will review each application using the selection criteria and answer the following:
If there are 4 working groups do you recommend that SEFCRI accept or reject this applicant?

If your recommendation is to accept the applicant, which of the four county-based groups would you assign them to?

If there are 2 working groups do you recommend that SEFCRI accept or reject this applicant?

If your recommendation is to accept the applicant, which of the two regional groups would you assign them to (North= Martin and Palm Beach Counties, South = Broward and Miami Dade Counties)?

For all accepted applicants please identify those that you would recommend for a brief interview in order to ensure that they meet all working group selection criteria.

6. Recommended number of Working Groups and Filling Gaps in Applicant Pool

For each of your assigned seats, please let us know how many working groups (2-4) you believe we can populate with viable candidates based on the existing applications.

For each of your assigned seats, please let us know how many working groups (2-4) you believe we should attempt to populate by soliciting additional applications.

For each of your assigned seats please let us know where you believe there are gaps in the applicant pool that can be filled and provide some specific recommendation on entities that we can target to fill gaps.

XI. Our Florida Reefs Community Working Group Charter

Our Florida Reefs Community Planning Process **Joint Community Working Group** **CHARTER**

Approved September 16, 2015 - Version 01

TABLE OF CONTENTS

<u>CHARTER PURPOSE</u>	137
<u>CONTEXT</u>	137
<u>PRODUCTS</u>	138
<u>How Products Will Be Used</u>	Error! Bookmark not defined.
<u>Alignment with Existing Strategic Plans</u>	138
<u>CONSTRAINTS</u>	139
<u>HOW WE WILL WORK TOGETHER</u>	139
<u>Collaborative Values</u>	139
<u>Group Norms</u>	139
<u>Consensus-Based Decision Making</u>	139
<u>Voting</u>	140
<u>MEMBERSHIP</u>	140
<u>Selection of Members and Alternates</u>	140
<u>Attendance</u>	140
<u>Attrition</u>	140
<u>Removal</u>	140
<u>CONFLICTS OF INTEREST</u>	141
<u>COMMITTEES</u>	141
<u>PRIMARY ROLES AND RESPONSIBILITIES</u>	141
<u>Facilitator</u>	141
<u>CWG Members</u>	142
<u>Southeast Florida Coral Reef Initiative</u>	142
<u>Public Observers</u>	142
<u>WORK PLAN</u>	143
<u>COMMUNICATIONS</u>	143
<u>PUBLIC ACCESS</u>	143

CHARTER REVISIONS 143

APPENDICES 143

Appendix 1. Joint Community Working Group - Members and Alternates 143

Appendix 2. Group Norms 144

Appendix 3. Decision Rules 145

Appendix 4. Work Plan 146

CHARTER PURPOSE

This Charter is an agreement by members and alternates who compose the Joint Community Working Group of the *Our Florida Reefs* Community Planning Process, stating that we understand and accept our mission and will abide by the guidelines, policies and procedures in this Charter.

CONTEXT

In 2000 the U.S. Coral Reef Task Force, which was established in 1998 by Presidential Executive Order, adopted the "U.S. National Action Plan to Conserve Coral Reefs" that called for the seven U.S. states, territories and commonwealths with coral reefs to develop "Local Action Strategies" (LAS) to address degradation of coral reefs. These are locally driven plans for collaboration among federal, state, territory and non-governmental stakeholders to identify and implement priority actions needed to reduce key threats to and continuing degradation of coral reefs.

The Florida Reef Tract extends approximately 350 miles from the Dry Tortugas north to offshore of Martin County. Management of the southern two-thirds of the Florida Reef Tract, south of Key Biscayne, is guided by management plans officially adopted for the Florida Keys National Marine Sanctuary, Dry Tortugas National Park and Biscayne National Park.

In order to develop a Local Action Strategy for the northern third of the Florida Reef Tract, north of Biscayne National Park, the Florida Department of Environmental Protection (FDEP) Coral Reef Conservation Program and the Florida Fish and Wildlife Conservation Commission (FWC) formed the Southeast Florida Coral Reef Initiative (SEFCRI) in 2003, which is a multi-stakeholder group with over 70 partners. SEFCRI's mission is to develop and support the implementation of an effective strategy to preserve and protect southeast Florida's coral reefs and associated reef resources, emphasizing balance between resource use and protection, in cooperation with all interested parties. SEFCRI is chaired by the Manager of the FDEP Coral Reef Conservation Program.

SEFCRI in 2004 developed a Local Action Strategy for the northern third of the Florida Reef Tract. This LAS identifies 4 key threat areas, issues, goals, and objectives, and contains 140 projects focused mostly on collecting data to understand and reduce threats to coral reef resources. With most of the data-collection projects implemented, SEFCRI is now transitioning into a management action phase in which information from these projects will be used in another stakeholder-driven process in support of the SEFCRI mission.

The *Our Florida Reefs* Community Planning Process is a high-priority project in the SEFCRI Local Action Strategy. It calls for formation of Community Working Groups (CWG) composed of representatives of groups who have a stake in coral reefs offshore Miami-Dade, Broward, Palm Beach, and Martin counties.

MISSION

The mission of the *Our Florida Reefs* Joint Community Working Group is to collaboratively develop a prioritized list of recommended management actions to preserve and protect southeast Florida's coral reefs and associated reef resources and to reduce continuing trends toward declining coral reef health, emphasizing balance between resource use and protection, and to provide information needed to implement priority management actions.

PRODUCTS

The North Community Working Group (North CWG) developed a prioritized list of recommended management actions focusing on coral reefs offshore of Palm Beach and Martin counties, while the South Community Working Group (South CWG) concurrently developed a prioritized list of recommended management actions focusing on coral reefs offshore of Miami-Dade and Broward counties. Both groups considered and included management actions that are intended to benefit the entire northern third of the Florida Reef Tract in addition to their local region. Both groups provided information for implementation of priority management actions, with input from SEFCRI.

- **How Products Will Be Used**

SEFCRI will coordinate with the CWGs to combine the two lists into one list, which will then be reviewed by the North and South Groups together, meeting as one, Joint CWG. The semi-finalized list produced by the Joint CWG will then be presented to the general public at a series of public meetings targeted for early 2016. The Joint CWG will then have the opportunity to modify the combined list based on public comment and input from SEFCRI.

The prioritized list of recommended management actions will form the basis of a management plan for southeast Florida coral reefs. SEFCRI will take the recommendations to the appropriate management agencies to work with them on recommendation approval and implementation. Additionally, SEFCRI may choose to put recommendations forward for funding approval through their own internal process.

- **Alignment with Existing Strategic Plans**

Three plans exist that refer to management of the northern third of Florida Reef Tract:
National Oceanographic and Atmospheric Administration (NOAA) - Coral Reef Conservation Program (CRCP) - Florida's Coral Reef Management Priorities 2010-2015

Florida Department of Environmental Protection (FDEP) - Coral Reef Conservation Program (CRCP) - 2011-2016 Strategic Plan

Southeast Florida Coral Reef Initiative: A Local Action Strategy.

These plans are important because funding to implement coral reef projects is more likely if the funding request is linked to goals and objectives in one of these plans. The Community Working Groups will become familiar with these plans and will try to align their listed management actions with issues, goals and objectives in these existing plans in order to increase the likelihood that CWG-listed actions will receive funding for implementation.

CONSTRAINTS

The prioritized list of management actions and details for implementation are recommendations from the CWGs to SEFCRI. As this is a community-based process, there is no mandate for SEFCRI and any other entity to implement these recommendations.

Scope of work and timelines are defined and therefore constrained by funding grants and contractual agreements that provide support to the *Our Florida Reefs* Community Planning Process.

Community Working Group meetings will adhere to applicable requirements of Florida's "Government in the Sunshine" Act and FDEP policies regarding public meetings.

HOW WE WILL WORK TOGETHER

• Collaborative Values

Joint CWG members and alternates understand that we can accomplish more together as a group than separately as individuals. We therefore agree to interact with others involved in this process in ways that support the core values of collaborative group decision-making:

- Full Participation
- Mutual Understanding
- Inclusive Solutions
- Shared Responsibility for Implementation

We understand that the benefits of adhering to these collaborative values are stronger members, stronger groups, stronger agreements, and broader support for action.

• Group Norms

We will develop group norms that intentionally support and help us to act on our values as a collaborative group. Our group norms will be simple reminders of how we will treat each other and how we will approach our work together. Our group norms will be appended to this Charter after our approval and can be modified as needed.

• Consensus-Based Decision Making

We understand that the more CWG members understand and support decisions, the more likely it is that our recommendations will be implemented. We therefore agree to participate in a process of consensus-based decision making, which means doing the hard work of trying to reach a high level of agreement on substantive decisions, guided by the facilitator and by the core values of collaborative group decision-making. This will involve polling to determine level of agreement and further discussion if needed to resolve differences, followed by voting.

• Decision Rules

We will agree on two decision rules: one for voting on informal procedural decisions and one for voting on formal recommendations (listing and prioritizing management actions). Our decision rules will be appended to this Charter after our approval. Decision rules can be modified if a quorum (at least 50% of all CWG members) is present and if 75% of that present vote in favor of modification to a decision rule.

- **Voting**

When voting on formal recommendations (listing and prioritizing management actions), a quorum of at least 50% of CWG members must be present at the meeting. Only CWG members and alternates there in place of their primary member can vote on formal recommendations. Alternates cannot vote if his or her primary CWG member is present.

MEMBERSHIP

- **Selection of Members and Alternates**

The North Community Working Group will have up to 25 members representing groups in Palm Beach and Martin counties who have a stake in coral reefs. The South Community Working Group will have up to 25 members representing groups in Broward and Miami-Dade counties who have a stake in coral reefs. SEFCRI will select non-government CWG members based on criteria evaluated through an application process. Applicants will submit a CWG application with letters of recommendation. SEFCRI may ask for further information or to interview the applicant. Government representatives will be appointed to the CWG by their respective agency and will submit an application to ensure that they meet the same criteria for selection of CWG members.

Each CWG member may select an alternate who, when the member is not able to attend a meeting, will do so on behalf of the CWG member and will represent that stakeholder group. CWG members will select their alternate based on the same criteria for selection of CWG members. A list of CWG members and alternates, with contact information, will be appended to this Charter.

Members and alternates will serve until completion of the *Our Florida Reefs* Community Planning Process, defined by submittal of a final combined list of prioritized recommended management actions with information on implementation for priority actions. This process is expected to be completed by October 2016.

- **Attendance**

CWG members will make every effort to attend CWG meetings and events in person. If a CWG member does not attend more than 4 meetings or does not attend more than 2 consecutive meetings and does not arrange for their alternate to attend CWG meetings when the member cannot, then the SEFCRI Chair may choose to remove and replace that member.

- **Attrition**

A CWG member or alternate may resign at any time by sending an email to the SEFCRI Chair. If a CWG member or alternate resigns or is removed, they will be replaced according to the procedure described in this Charter.

- **Removal**

CWG members and alternates serve at the discretion of the SEFCRI Chair who may, after consultation with SEFCRI members and the facilitator, recommend removal if a CWG member or alternate:
is convicted of a felony offense,

- uses their position as a CWG member/alternate for personal gain or to advance a personal agenda,
- physically threatens or harms anyone during a CWG meeting or event,

- intentionally misrepresents the *Our Florida Reefs* Community Planning Process,
- refuses to recuse them self during discussion of matters in which they are determined to have a conflict of interest,
- has a change in professional affiliation or personal circumstances such that they can no longer represent their stakeholder group or,
- consistently violates this Charter.

CONFLICTS OF INTEREST

CWG members and alternates will openly acknowledge any real conflicts of interest and refrain from using their position on the working group to secure unfair or inappropriate privilege, gain, or benefit. We will openly acknowledge any potential or perceived conflicts of interest to prevent misunderstandings that could detract from the success or credibility of the *Our Florida Reefs* Community Planning Process.

CWG members or alternates who have a real or potential conflict of interest in a matter before the CWG will identify such conflict prior to discussion of that matter. The CWG will decide, after discussion and vote, if that member or alternate should recuse them self from discussion and/or voting on that matter. If agreement on recusal cannot be reached by the CWG, then the SEFCRI Chair will decide.

COMMITTEES

The Community Working Groups may create committees as needed to accomplish specific tasks. Committees will abide by this Charter.

PRIMARY ROLES AND RESPONSIBILITIES

• Facilitator

The facilitator of the *Our Florida Reefs* Community Planning Process is an independent neutral professional who works in service to the client (SEFCRI) and the Community Working Groups, to impartially guide them as they work to achieve their mission.

The primary roles and responsibilities of the facilitator, detailed in the facilitator's contractual agreement, are to coordinate with SEFCRI to:

Design and facilitate CWG and other meeting processes that adhere to collaborative group values of full participation, mutual understanding, inclusive solutions, and shared responsibility for implementation;

- Facilitate development and adoption of CWG policies and procedures (Charter);
- Work with each CWG to develop a coordinated Work Plan;
- Identify goals and objectives for meetings to achieve overall goal;
- Facilitate meetings to achieve goals and objectives;
- Coordinate meeting logistics as needed for proper meeting preparation;
- Develop process and public agendas for all meetings;
- Provide appropriate notice for all meetings and send meeting reminders,
- Assist with informal meetings to allow CWG members to work between CWG meetings;
- Coordinate with CWG members for requests for additional work and;
- Review meeting summaries provided by SEFCRI.

- **CWG Members**

The primary roles and responsibilities of Community Working Group members are to:

- Be committed to successfully achieving the mission of this effort;
- Actively and constructively participate in CWG meetings throughout the duration of the *Our Florida Reefs* Community Planning Process;
- Enhance knowledge and understanding of topics to preserving/protecting the Florida Reef Tract;
- Prepare for meetings by reading information provided;
- Follow-up after meetings by completing assignments;
- Prepare alternate to participate constructively in meetings if/when needed;
- Understand and accurately represent the interests of their assigned stakeholder group;
- Facilitate exchange of information obtained through this process with their stakeholder group and obtain authority, when necessary, to vote on behalf of the stakeholder group;
- When necessary, clarify whether they are speaking as representatives of their stakeholder group, as individuals, or for a broader constituency;
- Work collaboratively with other CWG members and SEFCRI;
- Balance regional perspective of the Florida Reef Tract with localized knowledge of southeast Florida, and;
- Accurately and fairly represent the activities of the *OFR* Community Planning Process.

- **Southeast Florida Coral Reef Initiative**

The primary roles and responsibilities of the Southeast Florida Coral Reef Initiative and its various teams and members are to:

- Guide the development and successful completion of the *Our Florida Reefs* Community Planning Process;
- Coordinate with the facilitator to efficiently plan, prepare for, and conduct CWG and related meetings that are accessible to the public;
- Provide information and assistance needed to enable the CWGs to fulfill their mission, and;
- Review and provide input on CWG recommendations regarding management actions, their priority, and implementation details for priority actions.

- **Public Observers**

The primary roles and responsibilities of members of the public are to:

- Understand the mission of the *Our Florida Reefs* Community Planning Process;
- Learn about topics related to preserving and protecting the Florida Reef Tract;
- Actively and constructively participate in the *Our Florida Reefs* Community Planning Process by providing verbal or written comments during designated times at CWG meetings or providing written comments via the *Our Florida Reefs* website (www.OurFloridaReefs.org), and;
- Consult with and provide input to CWG members who represent their interests.

WORK PLAN

Each CWG will develop a Work Plan designed to achieve their mission in a timely manner and to produce a prioritized list of recommended management actions, with implementation details for priority actions, that is broadly supported by CWG members.

The Work Plan will include general goals for each meeting, meeting dates, and timelines for products. The CWG will review this Work Plan at each meeting and amend as needed. The Work Plan will be appended to this Charter after our approval.

COMMUNICATIONS

To assure transparency and equity, and to avoid perception of bias, CWG members and their alternates will submit questions and requests at CWG meetings or via email to Meghan Balling with the FDEP Coral Reef Conservation Program at Meghan.Balling@dep.state.fl.us or 305- 795-1221. FDEP will respond to questions and requests from CWG members and their alternates at CWG meetings or via email to CWG members and their alternates, as appropriate.

PUBLIC ACCESS

CWG meetings are open to the public. All CWG meetings will be publicly noticed, although meeting room size may limit the number of seats available for members of the public. Meeting agendas, summaries, presentations, and information will be posted on the *Our Florida Reefs* website. The public will have various means of submitting comment: 3-minute verbal comment during a designated time at CWG meetings, and written comment at CWG meetings and via the *Our Florida Reefs* website (www.OurFloridaReefs.org).

CHARTER REVISIONS

This Charter will remain in effect until the dissolution of the Community Working Groups. Revisions to this Charter may be made by the Community Working Groups as they determine is necessary.

APPENDICES

Community Working Group Charter

- **Appendix 1. Joint Community Working Group - Members and Alternates**

CWG Member	Alternate
Alex Sommers	
Andrea Graves	Mike Renda
Angela Smith	
April Price	
Butch Olsen	
Dan Clark	Stephanie Clark
Dana Wusinich-Mendez	Jocelyn Karazsia
David Anderson	
Don Vacin	Brian Strader

Dick Dodge	Jose Lopez
Greg Braun	Donna Melzer
Howard Lustgarten	
Cindy Lott	
Jane Fawcett	Bill Carey
Jeff Beal	Erin McDevitt
Jeff Torode	Bill Cole
Jennifer Peterson	Kristina May
Jim Bohnsack	
Jim Mathie	Braden Whitworth
Kathy Fitzpatrick	Jessica Garland
Ken Banks	Courtney Kiel
Kevin Muench	Arthur Mariano
Leanne Welch	Carman Vare
Lee Shepard	
Lou Romano	Stan Mihalecz
Lt. Ruth Sadowitz	
Manny Toledo	
Mason Smith	
Melodee Smith	Roy Wasson
Mike Brescher	
Mitch Comiskey	
Nick Morrell	Mike Beach
Nikole Ordway	
Oliver Green	
Peter Friedman	
Rebecca Johnson	
Ron Messa	
Sara Thanner	Rebecca Ross
Scott Scheckman	Drew Martin
Skip Dana	
Stephanie Voris	
Tom Warnke	Todd Rimmel
Vincent Ecomio	Pamela Hopkins

- **Appendix 2. Group Norms**

- Be committed to achieving the mission.
- Critique ideas, not people, always seek common ground where possible and show all perspectives.

- Be respectful of the speaker.
- Every idea is worthy of being heard. Stay open to new ways of doing things.
- Be prepared and participate.
- Stay on point and be respectful of others' time.
- Really listen to understand.
- Respect each other's technical and educational levels.
- Be polite, courteous, and respectful.
- If the primary CWG member is present, the alternate must attend as an audience member.

- **Appendix 3. Decision Rules**

Procedural Votes – Charter (group norms, work plan, decision rules), criteria for listing and prioritizing management actions, all other votes

Decision Rule = 62% of those present

Formal Recommendation Votes - Listing and prioritizing recommended management actions

Decision Rule = 75% of those present, at least 50% quorum required

*Alternates may only participate in voting if his or her primary is not present.

• **Appendix 4. Work Plan**

OFR Joint Community Working Group Approved WORK PLAN

Red = SEFCRI Blue = CWGs Green = Joint North & South CWG Meetings

		Mar 2014	Apr 2014	May 2014	Jun 2014	Jul 2014	Aug 2014	Sep 2014	Oct 2014	Nov 2014	Dec 2014
							MTG 6 - Introduce product templates, QC, worksheets, score sheet; Develop shared vision; Mgmt case studies	MTG 7- Add to Tier 2 worksheet if needed; List mgmt actions that meet QC (vote); categorize & begin to combine; look for gaps in mgmt actions	MTG 8 - Finish listing & combining mgmt actions that meet QC	MTG 9 – Combine or split mgmt actions based on worksheet input; Agree on subset of mgmt actions for detailed info gathering; Begin to develop spatial descriptors for that subset of mgmt actions	SEFCRI review CWG mgmt actions
							<u>CWG Homework:</u> Study materials; draft mgmt actions that meet QC & write each on a mgmt action form	<u>CWG Homework:</u> Draft additional mgmt actions to fill gaps; Fill out Tier 1 & 2 worksheets (paper) for mgmt actions of their choice	<u>CWG Homework:</u> Fill out Tier 1 & 2 worksheets (online) for mgmt actions of their choice, including providing spatial descriptors for mgmt actions with spatial components		
Jan 2015	Feb 2015	March 2015	April 2015	May 2015	June 2015	Jul 2015	Aug 2015	Sep 16 & 17, 2015	Oct 21 & 22, 2015	Nov 18, 2015	Dec 2015 (Date TBD)
SEFCRI review CWG management actions		MTG 10 - Refine list of mgmt actions based on SEFCRI review.	MTG 11 - Finalize list of mgmt actions	MTG 12 - Develop spatial plan for certain management actions	MTG 13 - Develop spatial plan for certain management actions	SEFCRI review CWG		MTG 14 & 15 - Review SEFCRI comments & refine list of management actions and spatial plans as needed, review combined list (N&S combined meeting)	MTG 16 & 17 – Complete revisions/refining of combined list of management actions and spatial plans as needed (N&S combined meeting)	MTG 18 – Final prioritization of combined list of management actions (N&S combined meeting)	HOLD if needed for: MTG 19 - Prioritize management actions (N&S combined meeting)
		<u>CWG Homework:</u>	<u>CWG Homework:</u>	<u>CWG Homework:</u>	<u>CWG Homework:</u>			<u>CWG Homework:</u>	<u>CWG Homework:</u> Fill out score sheet for prioritization (electronic) before Mtg. 18	<u>CWG Homework:</u>	
Jan 25-29, 2016	Feb 15-19, 2016	Mar 2016 (Date TBD)	Apr 2016 (Date TBD)	May 2016 (Date TBD)	Jun 2016	Jul 2016	Aug 2016	Sep 2016			
SEFCRI/ CRCP plan & hold Community Meetings	SEFCRI/ CRCP plan & hold Community Meetings	MTG 18 - Review public comment & refine list of MAs + spatial plans	MTG 19 - Complete revisions of MAs + spatial plan	Rollout Management Recommendations	Legislative Engagement and Outreach						
	Compile public comment on MAs	<u>CWG Homework:</u>	<u>CWG Homework:</u>	Prepare draft report							

XII. Strategic Coral Reef Management Goals and Objectives for the SEFCRI Region

These goals and objectives were developed by SEFCRI team members, FDEP CRCP staff and other coral reef managers in Florida and are identified in 3 strategic documents: Southeast Florida Coral Reef Initiative A Local Action Strategy (FDEP CRCP, 2004); Florida's Coral Reef Management Priorities 2010-2015 (NOAA, 2010); Coral Reef Conservation Program 2011-2016 Strategic Plan (FDEP CRCP, 2011).

Land-based Sources of Pollution

Reference Number	Management Goals	Management Objectives	Source Document
FL Priorities Goal C1	Reduce pollutant loading to south Florida coastal waters		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C1 Obj 1		<p>Minimize the impacts of reduced water quality associated with controlled freshwater deliveries and coastal construction activities on coastal, estuarine and lagoon habitats (i.e., seagrass, oyster, mangrove, hardbottom and coral reef communities). Irregularly timed, high volume releases of fresh water into the marine and estuarine coastal systems can carry excessive nutrient and pollutant loads and are detrimental to coastal habitats and biota.</p> <ul style="list-style-type: none"> ▪ Modify the timing, process of delivery and water quality of storm and flood control releases to minimize nutrient and contaminant loading as well as the rate and magnitude of water quality changes in receiving waters. ▪ Minimize water quality degradation associated with coastal construction activities. 	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C1 Obj 4		Eliminate the use of septic tanks by providing sanitary sewer infrastructure in order to reduce nutrient and pharmaceutical product loading to groundwater.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C1 Obj 7		Engage the South Florida Water Management District and Army Corps of Engineers at a high level to consider impacts of all flood control activities on coastal resources (i.e., coral reef and associated estuarine resources).	Florida Coral Reef Management Priorities (NOAA)

FL Priorities Goal C2	Restore and preserve coastal estuarine habitats that aid in naturally improving water quality and support the life histories of coral reef biota.		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C2 Obj 1		Focus existing land acquisition programs such as Florida Forever on acquiring properties aimed at preserving and restoring coastal and wetland habitats to benefit coral reefs.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C2 Obj 2		Provide incentives through the regulatory process for restoring and preserving wetlands associated with the coastal watershed.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C2 Obj 3		Facilitate and encourage partnerships to access and coordinate restoration program grants and other related funds.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C2 Obj 4		Protect living shorelines and implement a program to help maintain their ecological value and to contain runoff from uplands in areas where natural wetland buffers have been eliminated through coastal construction activities.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C3	Educate the public and elected officials on the need to maintain coral reef habitats and coastal water quality. This includes opportunities for economic development in tourism and recreation.		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C3 Obj 1		Develop an education program for elected officials to impress the need for the activities defined in this document and the environmental and socioeconomic value of southeast Florida's coral reefs and associated habitats. Emphasis shall be placed on the watershed concept and need for environmentally suitable flood-control measures.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C3 Obj 3		Develop an education and outreach strategy that identifies the target audience, based on abatement measures and mechanisms for	Florida Coral Reef Management Priorities (NOAA)

		delivering to them the information required for wide-scale adoption.	
FL Priorities Goal C3 Obj 4		Establish appropriate coastal construction guidelines and educate the public and elected officials on the need to consider the impacts of coastal construction.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C4	Regulatory policy shall use coastal water quality impacts to reefs as one of the bases for review.		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C4 Obj 3		Build capacity and develop interagency procedures and protocols within coral reef management agencies along the Florida Reef Tract and Ecosystem to effectively participate in planning review and permitting processes for development, coastal construction and water-management projects and initiatives.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C4 Obj 4		Improve consistency and level of enforcement of current rules and regulations.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal C4 Obj 5		Develop and implement new legislation to reduce the quantities and impacts of land-based sources of pollution entering the coastal environment.	Florida Coral Reef Management Priorities (NOAA)
FDEP CRCP Coral Reef Ecosystem Conservation Goal B	Reduce chronic and acute stressors to reef health from land-based sources of pollution and impacts from boating, fishing, diving, and other uses.		FDEP CRCP Strategic Plan
FDEP CRCP Coral Reef Ecosystem Conservation Obj 3		Reduce the impacts of land-based sources of pollution on the Florida Reef Tract.	FDEP CRCP Strategic Plan
SEFCRI LAS LBSP Issue 4 Goal	Reduce the impacts of land-based sources of pollution to the coral reef ecosystem.		SEFCRI Local Action Strategy

SEFCRI LAS LBSP Issue 4 Goal Obj 2		Design activities to reduce pollution from the highest priority sources of pollution.	SEFCRI Local Action Strategy
SEFCRI LAS LBSP Issue 4 Goal Obj 3		Initiate the implementation of engineering/management actions to reduce pollution from the highest priority sources.	SEFCRI Local Action Strategy
SEFCRI LAS LBSP Issue 5 Goal	Increase public awareness and understanding of the effects of land-based sources of pollution on water quality and coral reefs.		SEFCRI Local Action Strategy

Fishing, Diving, and Other Uses

Reference Number	Management Goals	Management Objectives	Source Document
FL Priorities Goal D1	Develop and implement conservation programs to increase the size, abundance and protection, as appropriate, of coral reef species (both fish and invertebrates), including targeted species critical to reef health and ecological function, such as, but not limited to, game species and organisms collected for aquaria.		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D1 Obj 3		Support and enhance current efforts to update existing stock assessments, eventually developing appropriate criteria to guide harvest regulations (i.e., Maximum Sustainable Yield, Optimal Sustainable Yield). This would include zoning strategies and the potential use of no-take marine areas as well as appropriate legislation to affect those zoning strategies and regulations.	Florida Coral Reef Management Priorities (NOAA)

FL Priorities Goal D1 Obj 5		Develop strategy to formalize coordination among fisheries management and regulatory agencies.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D2	Reduce physical marine benthic impacts from recreational and commercial activities and marine debris.		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D2 Obj 1		Reduce benthic habitat impacts by implementing, among other actions, appropriate marine zoning (i.e., the potential use of no-take zones, no-anchor zones, no-motor zones, mooring buoy systems) and by providing education and enforcement in sensitive, unique or highly productive habitat areas.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D2 Obj 2		Reduce misuse of recreational and commercial fishing gear by: <ul style="list-style-type: none"> ▪ Establishing gear-restrictive zones in areas with sensitive benthic resources. ▪ Requiring education programs regarding natural resources to obtain commercial and recreational fishing license. ▪ Enforcing existing standards for illegal gear. ▪ Reviewing and establishing BMPs for commercial activities. ▪ Reviewing rules and guidelines for activities on or around coral reefs. 	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D2 Obj 3		Develop a centrally located volunteer-based marine-debris reporting and removal program.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D3	Improve the efficacy of law enforcement activities.		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D3 Obj 1		Obtain additional resources (e.g., staff, equipment, statutory authority).	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D3 Obj 2		Implement regular interagency law enforcement coordination activities (e.g., cross-deputization, review/updating of law enforcement authorities/capacity, etc.).	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D3 Obj 3		Improve education and outreach programs as they pertain to fishing/diving/boating regulations. <ul style="list-style-type: none"> ▪ Example: Expand Biscayne National Park’s Fisheries Awareness Program to the 	Florida Coral Reef Management Priorities (NOAA)

		rest of the Florida Reef Tract and Ecosystem.	
FL Priorities Goal D3 Obj 4		Through interagency coordination efforts, establish regional consistency standards and communication efforts for fisheries, diving and boating regulations (e.g., central Web site, standard format for brochures, etc.).	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D3 Obj 5		Develop a Florida Reef Tract and Ecosystem law enforcement training program specific to reef-related regulations and resources for all agencies.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D4	Reduce physical marine benthic impacts from recreational and commercial diving and boating.		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D4 Obj 1		Reduce benthic habitat impacts by implementing, among other actions, the potential use of no-take zones, no-anchor zones, no-motor zones, mooring buoy systems, education, etc.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D4 Obj 2		Develop new educational programs to inform the public and change boating and diving practices that impact reefs.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D4 Obj 3		Implement a statewide licensing/permit system for boating and/or using coral-reef resources.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D4 Obj 4		Expand the Florida Keys' "Blue Star" recognition program for dive shops and operators to the rest of the Florida Reef Tract and Ecosystem. (Note: Include education component regarding exotic species and proper reporting methods.)	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D5	Review existing and establish new guidelines to minimize aquaculture impacts on coral reefs.		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D5 Obj 1		Develop appropriate siting criteria that include appropriate buffers between natural areas.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal D5 Obj 3		Implement existing and, as necessary, develop new emergency procedures for escapees and natural disasters (e.g., hurricanes, disease outbreaks, exotic species recapture, etc.).	Florida Coral Reef Management Priorities (NOAA)

FL Priorities Goal D5 Obj 4		Implement requirements for sustainable feed operations and waste removal, and limit potential for genetic impacts.	Florida Coral Reef Management Priorities (NOAA)
FDEP CRCP Coral Reef Ecosystem Conservation Obj 4		Reduce impacts from extractive and non-extractive recreational and commercial uses.	FDEP CRCP Strategic Plan
SEFCRI LAS FDOU Issue 1 Goal	Increase compliance with Florida fishing regulations regarding seasonal closures, size limits, catch limits, gear restrictions and protected marine life.		SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 1 Goal Obj 1		Develop a strategy to optimize law enforcement effectiveness in the SEFCRI geographic region.	SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 1 Goal Obj 3		Establish a non-law enforcement presence on the water for awareness and voluntary compliance of regulations.	SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 1 Goal Obj 4		Coordinate goals, objectives and actions with existing management organizations to maximize resources.	SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 2 Goal	Balance all fishing and recreational activities within sustainable limits of the reef ecosystem to minimize user conflicts, provide equitable uses, protect the coral reef ecosystem and ensure optimal benefits to present and future generations.		SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 2 Goal Obj 6		Develop and effective, balanced, and comprehensive management strategy for improved resource protection	SEFCRI Local Action Strategy

SEFCRI LAS FDOU Issue 3 Goal	Minimize indirect impacts on the reef ecosystem and its living marine resources from recreational and commercial use. Reduce improper waste disposal by recreational users by 50%		SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 3 Goal Obj 1		Reduce improper solid waste disposal.	SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 3 Goal Obj 2		Reduce anchor damage by developing a mooring buoy system for the SEFCRI geographic region.	SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 3 Goal Obj 3		Reduce sewage from commercial and recreational boating activities by establishing free boat sewage pump-out stations.	SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 3 Goal Obj 4		Increase the understanding and practice by recreational divers of non-destructive diving practices.	SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 3 Goal Obj 5		Identify, assess and reduce other indirect boating impacts (e.g. reduce sea turtle strikes during offshore boat races conducted in the nesting season).	SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 3 Goal	Ensure reef ecosystems are not harmed or degraded by artificial reefs through proper planning, development and deployment of artificial reefs and development and implementation of long-term management and monitoring programs.		SEFCRI Local Action Strategy
SEFCRI LAS FDOU Issue 3 Goal Obj 1		Evaluate the effectiveness and impact of artificial reefs and determine if and when the optimum, or maximum, number and coverage of artificial reefs has been reached for the SEFCRI geographic region.	SEFCRI Local Action Strategy

Maritime Industry and Coastal Construction/Coastal Development

Reference Number	Management Goals	Management Objectives	Source Document
FL Priorities Goal A1 Obj 3		Establish a regulatory coordination committee under the Florida Reef Tract and Ecosystem Management Council (proposed) within three to five years. Determine whether there is a need for a new streamlined clearing house-style process for local, state and federal permit review, compliance and enforcement to enhance coordination and consistency, or how existing processes might be retooled to achieve the same results. Promote sustainable coastal development to minimize impacts to the Florida Reef Tract and Ecosystem. Use independent experts to review regulatory projects and decisions.	Florida Coral Reef Management Priorities (NOAA)
FDEP CRCP Coral Reef Ecosystem Conservation Goal C	Minimize and, where possible, eliminate localized human-induced habitat destruction from maritime industry and coastal construction activities.		FDEP CRCP Strategic Plan
FDEP CRCP Coral Reef Ecosystem Conservation Obj 5		Support efforts to reduce coastal development impacts on coral reefs and associated reef resources (e.g. vegetated sand dunes, wetlands, mangroves, etc.) and improve mitigation efficacy.	FDEP CRCP Strategic Plan
SEFCRI LAS MICCI Issue 1 Goal	Protect coral systems from impacts associated with projects and activities in and around the reef tracts of southeast Florida.		SEFCRI Local Action Strategy
SEFCRI LAS MICCI Issue 1 Goal Obj 1		Review, revise, implement and enforce existing regulations which protect coral reefs, inclusive of funding issues and resources. Increase effectiveness of permit conditions to protect coral communities and increase efficiency of regulatory review.	SEFCRI Local Action Strategy
SEFCRI LAS MICCI Issue 1 Goal Obj 2		Avoid and minimize impacts on coral reef ecosystems from dredge and fill activities and infrastructure (pipelines, outfalls, cables) installation on coral reef ecosystems. Reduce the aerial extent of project-related impacts.	SEFCRI Local Action Strategy

SEFCRI LAS MICCI Issue 1 Goal Obj 3		Eliminate ship anchoring, grounding and other impacts to southeast Florida coral reefs and hard bottoms. Identify anchorages containing reef area for modification and increase in utilization of detailed management practices.	SEFCRI Local Action Strategy
SEFCRI LAS MICCI Issue 2 Goal	Change coastal development and construction practices in ways that protect marine and estuarine habitats.		SEFCRI Local Action Strategy
SEFCRI LAS MICCI Issue 2 Goal Obj 1		Facilitate information transfer to improve protection of coral resources. Demonstrate avoidance and minimization of impacts to coral resources at the project planning stage.	SEFCRI Local Action Strategy
SEFCRI LAS MICCI Issue 3 Goal	Develop and implement marine and estuarine habitat restoration.		SEFCRI Local Action Strategy
SEFCRI LAS MICCI Issue 3 Goal Obj 1		Coordinate among agencies for procedures and methods to decrease the time between coral reef injuries and initiation of reef organism salvage.	SEFCRI Local Action Strategy
SEFCRI LAS MICCI Issue 3 Goal Obj 3		Evaluate and promote stable, durable, and environmentally appropriate artificial reef construction. Artificial reef construction that does not adversely affect natural marine habitats.	SEFCRI Local Action Strategy
SEFCRI LAS MICCI Issue 4 Goal	Ensure compliance with regulatory requirements (including special conditions) by increasing compliance review and enforcement actions.		SEFCRI Local Action Strategy
SEFCRI LAS MICCI Issue 4 Goal Obj 1		Modify agency policies and focus related to compliance and enforcement efforts to reduce non-compliance with marine habitat protection regulatory requirements, and increase resources dedicated toward compliance and enforcement related activities.	SEFCRI Local Action Strategy
SEFCRI LAS MICCI Issue 4 Goal Obj 2		Increase the awareness of industry representatives and the public on the benefits (monetary and environmental) of compliance with regulations. Develop and deliver a workshop program about the purpose and benefits of regulatory compliance.	SEFCRI Local Action Strategy

Climate Change

Reference Number	Management Goals	Management Objectives	Source Document
FL Priorities Goal B3 Obj 3		Identify areas of perceived resilience (i.e., high coral cover and abundance) and areas of high vulnerability (which may or may not contain high coral cover/abundance) within the Florida Reef Tract and Ecosystem and provide additional protection to those areas via appropriate marine zoning and reduction of existing stressors (e.g., land-based sources of pollution, beach nourishment, etc.).	Florida Coral Reef Management Priorities (NOAA)
FDEP CRCP Education and Outreach Goal E	Support initiatives that improve understanding, and reduce the potential impacts, of climate change, with emphasis on efforts in Florida.		FDEP CRCP Strategic Plan
FDEP CRCP Coral Reef Ecosystem Conservation Goal E	Reduce cumulative stressors to coral reefs that weaken reef resistance and resilience to climate change.		FDEP CRCP Strategic Plan

Education and Outreach

Reference Number	Management Goals	Management Objectives	Source Document
FL Priorities Goal A2 Obj 1		Implement a broad marketing campaign to brand the Florida Reef Tract and Ecosystem within three to five years.	Florida Coral Reef Management Priorities (NOAA)
FDEP CRCP Education and Outreach Goal A	Encourage improved coral reef conservation through increased public awareness, appreciation and community support.		FDEP CRCP Strategic Plan

FDEP CRCP Education and Outreach Goal B	Support strengthened governance to support effective coral reef management goals by informing elected officials and decision makers about the importance of, and threats to, coral reefs.		FDEP CRCP Strategic Plan
FDEP CRCP Education and Outreach Goal C	Increase understanding of the connection between coral reefs, watersheds, human activities, and human welfare.		FDEP CRCP Strategic Plan
FDEP CRCP Education and Outreach Goal D	Improve environmental stewardship and encourage sustainable development and non-consumptive resource use in southeast Florida.		FDEP CRCP Strategic Plan
FDEP CRCP Education and Outreach Obj 1		Build upon the existing CRCP Education and Outreach Program to expand coral reef awareness and protection with emphasis on, but not limited to: - Expanding upon existing land-based sources of pollution education and outreach efforts. - Incorporating the latest science about climate change and ocean acidification into education and outreach activities. - Increasing awareness of applicable local, state and federal regulations. - Integrating monitoring data results into education and outreach strategies to inform stakeholders about impacts on resources and recommended abatement measures.	FDEP CRCP Strategic Plan
FDEP CRCP Education and Outreach Obj 2		Work with local municipalities to establish higher environmental standards (e.g. greening programs, water reuse, sewage treatment, etc.).	FDEP CRCP Strategic Plan
SEFCRI LAS AA Issue 1 Goal	Increase the effectiveness and decrease duplication of coral reef education and outreach efforts in southeast Florida.		SEFCRI Local Action Strategy

SEFCRI LAS AA Issue 1 Obj 1		Conduct an inventory to compile existing coral reef outreach and education programs, products and points of contact being utilized in southeast Florida.	SEFCRI Local Action Strategy
SEFCRI LAS AA Issue 1 Obj 2		Develop and conduct a needs assessment utilizing a representative sample of Miami-Dade, Broward, Palm Beach and Martin counties' residents, visitors and specific groups that use the coral reef (e.g. fishers, divers, boaters, surfers) to identify effective messages and tools based on: (1) existing citizen knowledge, values, and practices related to coral reef ecology and conservation and, (2) citizens preferred method of receiving information.	SEFCRI Local Action Strategy
SEFCRI LAS AA Issue 2 Goal	Increase awareness and appreciation of the coral reef ecosystem to the residents and visitors of southeast Florida.		SEFCRI Local Action Strategy
SEFCRI LAS AA Issue 2 Obj 1		Develop a marketing campaign about the southeast Florida coral reef ecosystem and the SEFCRI. The developed campaign will reach 50% of the media outlets (radio, TV, newspaper) in the 4-county area.	SEFCRI Local Action Strategy
SEFCRI LAS AA Issue 2 Obj 2		Develop a campaign targeting decision-makers and elected officials about the southeast Florida coral reef ecosystem and the SEFCRI.	SEFCRI Local Action Strategy
SEFCRI LAS AA Issue 2 Obj 3		Develop a campaign targeting tourists about the southeast Florida coral reef ecosystem and the SEFCRI based on the results of the needs assessment in Issue 1.	SEFCRI Local Action Strategy
SEFCRI LAS AA Issue 2 Obj 4		Develop materials on the southeast Florida coral reef ecosystem and the SEFCRI for distribution to the general public using the existing environmental education network (e.g. environmental centers, hotels/motels, outreach efforts, etc.).	SEFCRI Local Action Strategy
SEFCRI LAS AA Issue 2 Obj 5		Develop a campaign targeting the dive industry in the 4-county area about the southeast Florida coral reef ecosystem and the SEFCRI based on the results of the needs assessment in Issue 1.	SEFCRI Local Action Strategy

SEFCRI LAS AA Issue 2 Obj 6		Develop a campaign targeting the recreational boating industry in the 4-county area about the southeast Florida coral reef ecosystem and the SEFCRI based on the results of the needs assessment in Issue 1.	SEFCRI Local Action Strategy
SEFCRI LAS AA Issue 2 Obj 7		Develop a campaign targeting the fishing industry in the 4-county area about the southeast Florida coral reef ecosystem and the SEFCRI based on the results of the needs assessment in Issue 1.	SEFCRI Local Action Strategy
SEFCRI LAS AA Issue 2 Obj 8		Develop a campaign targeting youth in the 4-county area about the southeast Florida coral reef ecosystem and the SEFCRI.	SEFCRI Local Action Strategy

Other Strategic Management Goals and Objectives

Reference Number	Management Goals	Management Objectives	Source Document
FL Priorities Goal A1	Manage the Florida Reef Tract and Ecosystem using an ecosystem-based approach, including zoning/marine spatial planning and other appropriate tools.		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal A1 Obj 1		Create a Florida Reef Management Council within three years to oversee a coordinated ecosystem-based management approach for the entire Florida Reef Tract and Ecosystem (spanning the full range of reef habitats and associated reef resources from the Dry Tortugas to Stuart, including the backcountry Gulfside of the Keys).	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal A1 Obj 2		Develop and implement a comprehensive zoning plan for the entire Florida Reef Tract and Ecosystem and implement through placed-based entities and management plans within three to five years.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal A1 Obj 3		Establish a regulatory coordination committee under the Florida Reef Tract and Ecosystem Management Council within three to five years.	Florida Coral Reef Management Priorities (NOAA)

FL Priorities Goal A1 Obj 4		Enhance law enforcement capacity of the managing agencies within three to five years.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal A2	Build political will and public support to establish the governing policies and administrative structure needed to make reef conservation a priority for Florida.		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal A4	Improve coordinated emergency response to disturbance events and restoration of reef injuries (e.g., vessel groundings, invasive species outbreaks, algal blooms, bleaching, disease outbreaks, hurricane damage, etc.).		Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal A4 Obj 1		Create and sustain an emergency response team to take action anywhere along the reef tract within three years (model after Florida Reef Resilience Program's [FRRP's] Disturbance Response Monitoring [DRM]).	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal A4 Obj 2		Create a cross-agency legal team to coordinate settlement and restoration activities among multiple agencies within one year.	Florida Coral Reef Management Priorities (NOAA)
FL Priorities Goal A4 Obj 3		Create consistent standards and best management practices for primary restoration and compensatory mitigation projects across the entire Florida Reef Tract and Ecosystem to be implemented by responsible parties within one year.	Florida Coral Reef Management Priorities (NOAA)
FDEP CRCP CRCP Capacity Goal B	Contribute to the management of the Florida Reef Tract as a holistic system.		FDEP CRCP Strategic Plan

<p>FDEP CRCP CRCP Capacity Goal C</p>	<p>Identify and implement management options for southeast Florida’s reefs that include appropriate statutory authority to accomplish CRCP’s mission. (Linked to Coral Reef Ecosystem Conservation Goal A.)</p>		
<p>FDEP CRCP Coral Reef Ecosystem Conservation Goal A</p>	<p>Develop and implement an adaptive management plan for the southeast Florida coral reef ecosystem to protect, and where possible, restore natural marine habitats, populations and ecological processes. (Linked to CRCP Capacity Goal C.)</p>		
<p>FDEP CRCP Coral Reef Ecosystem Conservation Goal D</p>	<p>Support the development and implementation of a comprehensive network of management options, potentially including marine protected areas or zones, across the Florida Reef Tract to enable reef recovery within protected areas and support system-wide reef recovery and resilience to local and global stressors.</p>		
<p>FDEP CRCP Coral Reef Ecosystem Conservation Goal F</p>	<p>Recommend and support new or strengthened local, state, and federal regulations and enforcement capacity to protect coral reefs.</p>		

<p>FDEP CRCP Coral Reef Ecosystem Conservation Goal G</p>	<p>Work with local, state and federal regulatory agencies to improve agency coordination and compliance with, and enforcement of, existing laws (e.g. Clean Water Act, fisheries regulations, Endangered Species Act listings and associated rules, Coral Reef Protection Act, etc.).</p>		
<p>FDEP CRCP Coral Reef Ecosystem Conservation Obj 6</p>		<p>Increase capacity to prevent and respond to coral reef injuries associated with vessel impacts and non-regulated activities.</p>	
<p>FDEP CRCP Coral Reef Ecosystem Conservation Obj 7</p>		<p>Support and, where possible, strengthen agency capacity and authorities to conserve coral reefs.</p>	

Our Florida Reefs Community Working Groups Yearbook



Our Florida Reefs Community Working Group Members

Working Group	Representation	Name	Affiliation	Contact	Page
North	Academic Institution	Mitch Comiskey	Forest Glen Middle School	mitchsea@aol.com	6
	Citizen-at-large	Dr. David Anderson	Gumbo Limbo Nature Center	mdavidanderson@yahoo.com	4
	County Government	Kathy Fitzpatrick	Martin County	kfitzpat@martin.fl.us	7
		Jena McNeal	Palm Beach County	JMcNeal@pbc.gov.org	9
	Diving	Peter Friedman	Stuart Dive Shop	peter@stuartscuba.com	7
		Nikole Ordway	Force-E Divers	nikole_padi@yahoo.com	9
		Lou Romano	Jupiter Drift Divers	lou@1967.usna.com	12
	Enforcement	Ron Messa	National Oceanic and Atmospheric Administration	ron.messa@noaa.gov	10
	Environmental NGO	Greg Braun	Martin County Conservation Alliance	dgregbraun@aol.com	5
		Dr. Vincent Encomio	Florida Oceanographic Society	vencomio@floridaocean.org	6
		Andrea Graves	The Nature Conservancy	agraves@tnc.org	7
	Federal Government	Dana Wusinich-Mendez	National Oceanic and Atmospheric Administration	dana.wusinich-mendez@noaa.gov	16
	Fishing	Oliver Green	Coastal Conservation Association	ohg@yahoo.com	7
		Edward 'Butch' Olsen	Port Salerno Commercial Fishing Dock Authority	butchnett@gmail.com	11
		Scott Fawcett	S.P.F. Fishing Charters, Off the Chain Fishing	fishscottyf@bellsouth.net	6

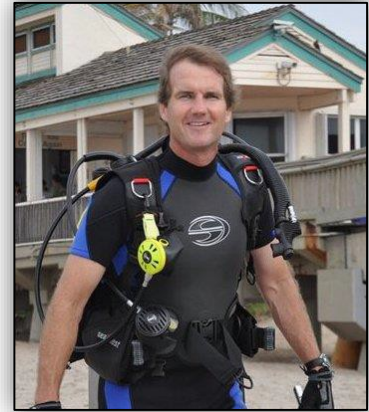
	Private Business	Mike Brescher	St. Lucie Sailing Club & Seagate Harbor Homeowners Association	mikebrescher@yahoo.com	5
		April Price	Marine Industries Association of the Treasure Coast	apriceassoc@aol.com	12
		Lee Shepherd	Intracoastal EcoSystems, LLC	intracoastalecosystems@gmail.com	13
	State Government	Cindy Lott	FL Dept. of Environmental Protection	Cindy.Lott@dep.state.fl.us	8
		Jeff Beal	Florida Fish & Wildlife Conservation Commission	jeff.beal@myfwc.com	4
	Watersports	Tom Warnke	Surfrider Foundation	trwarnke@hotmail.com	16
South	Academic Institution	Dr. Dick Dodge	Nova Southeastern University Oceanographic Center	dodge@nova.edu	6
	Citizen-at-Large	Dan Clark	Cry of the Water	reefteam4@yahoo.com	5
		Melodee Smith	Law Offices of Melodee A. Smith	msmith@eco-care.net	14
	County Government	Dr. Ken Banks	Broward County	kbanks@broward.org	4
		Sara Thanner	Miami-Dade County	thannS@miamidade.gov	15
	Diving	Jim Mathie	Chiefy, Inc	jim@chiefy.net	9
		Nick Morrell	Miami-Dade Reef Guard	njmorrell@hotmail.com	10
		Jeff Torode	South Florida Diving Headquarters	jeff@southfloridadiving.com	15
	Enforcement	Don Vacin	Florida Fish & Wildlife Conservation Commission	donald.vacin@myfwc.com	16
	Environmental NGO	Jane Fawcett	Vöne Research	jfawcett@bellsouth.net	7

		Scott Sheckman	Friends of the National Ocean Policy	scott@isheck.net	13
		Angela Smith	Shark Savers	angelasmith@rcn.com	13
	Federal Government	Dr. Jim Bohnsack	National Oceanic and Atmospheric Administration	jim.bohnsack@noaa.gov	5
		Lt. Ruth Sadowitz	United States Coast Guard	Ruth.A.Sadowitz@uscg.mil	12
	Fishing	Skip Dana	Family Fishing Enterprises	skiplisa@bellsouth.net	6
		Kevin Muench	International Game Fishing Association	loborider@comcast.net	10
		Manuel Toldeo	Toledo Sales, Inc.	mannyt@bellsouth.net	15
	Private Business	Rebecca Johnson	Triumph Fundraising	rebeccajohnson@hotmail.com	8
		Alex Sommers	Institute for Supply Management	alex_sommers@yahoo.com	14
		Stephanie Voris	Calvin Giodano & Associates, Inc.	svoris@cgasolutions.com	16
	State Government	Jennifer Peterson	Florida Department of Environmental Protection	Jennifer.M.Peterson@dep.state.fl.us	11
		Mason Smith	Florida Fish & Wildlife Conservation Commission	mason.smith@myfwc.com	14
	Watersports	Howard Lustgarden	Roof Management Solutions	howard0734@aol.com	9

Our Florida Reefs Community Working Group Member Profiles

Michael David Anderson – Citizen at Large, North

David is originally from Sheffield, Alabama. He grew up recreating on the Tennessee River and vacationing along the Gulf of Mexico. He has always held a keen interest in marine life and became a certified scuba diver in the early 1990s. At the time, marine science remained a hobby and an area of interest as he pursued his Bachelor's degree in history from Auburn University and a Master's degree in geography from the University of Alabama. He then accepted a job to live in Nassau, Bahamas, and taught in the Natural and Environmental Sciences Department at the College of the Bahamas. While in the Bahamas, he took advantage of the great Scuba diving opportunities to receive his Rescue Diver and Divemaster certifications. After a couple of years in the Bahamas, he moved stateside and attended the PhD program at the University of South Carolina, specializing in coastal and marine geography. He now resides in Highland Beach and works for the City of Boca Raton as a Marine Turtle Specialist at Gumbo Limbo Nature Center. He is also an Adjunct Professor at Broward College, a member of several academic and environmental organizations, and an avid fan of Auburn University athletics.



Dr. Ken Banks – County Government, South

Dr. Ken Banks works for Broward County, in the Environmental Protection and Community Resilience Division as the manager of the Marine Resources Program. He is responsible for the management and implementation of interdisciplinary research teams and programs related to coral reef mapping and monitoring (using LIDAR, multibeam and side scan sonars, low altitude aerial photography, and *in situ* diver mapping techniques), coastal water quality, marine resources damage assessment and restoration, coastal engineering projects (erosion studies, wave and current studies, environmental assessments, and mitigation projects), and coastal conservation. Dr. Banks also helps develop policy for coastal resources management.



Jeff Beal – State Government, North

Jeff Beal is a Biological Scientist with the Florida Fish and Wildlife Commission's Marine Estuarine Subsection. He's worked in the field of aquatic habitat conservation and restoration in Florida for 20 years, focusing mostly on fish habitats and water quality improvements. He conducts grant-funded projects involving the restoration of aquatic habitats (mangrove marshes, seagrasses, coral reefs, floodplain wetlands, and river oxbows) and associated monitoring of biological and environmental parameters. He's actively involved in FWC's Florida Marine Fisheries Enhancement Initiative, a program designed to address the needs of our future state coastal fisheries. Each of fourteen sites statewide will encompass a three-pronged Marine Enhancement Center approach toward state-of-the-art fisheries enhancement: hatchery-reared species, coastal habitat restoration, and environmental education. Previous employers include the Florida Department of Environmental Protection, Caribbean Marine Research Center, Florida Institute of Technology, and Harbor Branch Oceanographic Institute. He received a BS in marine biology from Jacksonville University and an MS in marine science from Florida Institute of Technology.



Our Florida Reefs Community Working Group Member Profiles

Dr. Jim Bohnsack – Federal Government, South

Dr. Jim Bohnsack is currently a Supervisory Research Fishery Biologist with NOAA’s National Marine Fisheries Service at the Southeast Fisheries Science Center. He is also an Adjunct Professor at the Rosenstiel School of Marine and Atmospheric Science, University of Miami, and a founding member of the Reef Environmental Education Foundation (REEF). Dr. Bohnsack received his BS from Tulane University and his MS and PhD from the University of Miami. As a marine ecologist, he conducts research to better measure and understand the influence and impacts of human activities on marine ecosystems. His goals are to provide necessary knowledge to help sustain and restore coral reef productivity, improve fishery management, and increase public understanding, appreciation, and awareness of the importance of marine ecosystems.

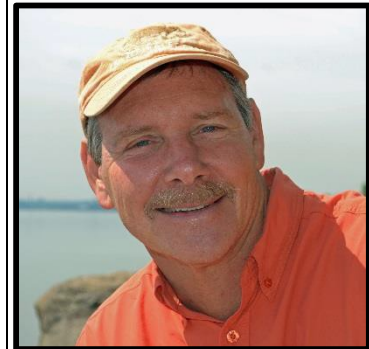


Greg Braun – Environmental NGO, North

Greg Braun is a professional ecologist with over 20 years of experience in environmental projects in Florida, the Bahamas and the Caribbean. Greg specializes in natural resource assessments, coastal and freshwater wetland ecosystems and habitat restoration projects.

A Certified Environmental Professional, Greg provides ecological consulting services to governmental agencies, non-governmental conservation organizations and private property owners. He serves on the Steering Committee of the Southeast Florida Scrub Ecosystem Working Group, Martin County’s Land Acquisition Selection Committee, and the Board of Directors of the Treasure Coast Chapter of the Florida Association of Environmental Professionals.

A graduate of Florida Institute of Technology with a Bachelor of Science degree in Oceanography, Greg’s company, Sustainable Ecosystems International, is based in Jupiter, FL, and focuses on threatened and endangered species, including Florida scrub- jays, manatees, gopher tortoises, Johnson’s seagrass and a variety of beach and dune species.



Mike Brescher – Private Business, North

Dan Clark – Citizen at Large, South

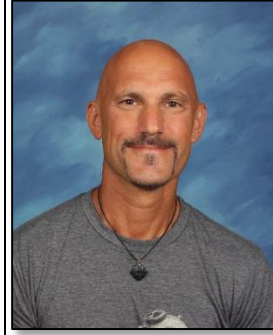
Dan Clark is the President of Cry of the Water, a coral reef conservation group in Broward County. As a diver of over 35 years he has historical knowledge of local reefs that he uses to protect our marine environment. Seeing the decline in the local reefs he formed Cry of the Water to conduct coral reef health surveys. He was the first to document and report the thicket of *A.cervicornis* (staghorn), the high diversity ledge off Ft. Lauderdale, and two new colonies of *A. palmata* (elkhorn) in Broward County. Using his underwater video skills, he produced video tapes and CD’s to raise awareness of our local reefs. Dan has been a member of the Southeast Florida Coral Reef Initiative since 2002, participating on numerous projects over the years.



Our Florida Reefs Community Working Group Member Profiles

[Mitch Comiskey – Academic Institution, North](#)

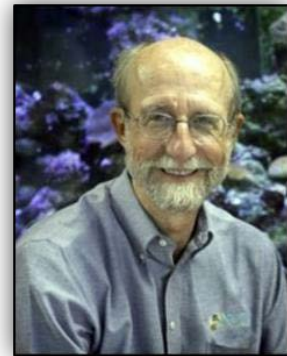
Mitchell Comiskey has spent 27 years as a public school educator. He has a degree in marine science and works to infuse his love for our ocean and coral reefs whenever possible into his curriculum. In addition, he is an avid diver, boater, kayaker and marine photographer. These hobbies have allowed him to witness firsthand how the diversity of life on our unique coral reefs are continually threatened by the pressures of our coastal community and in need of protection in order to survive.



[Skip Dana – Fishing, South](#)

[Dr. Dick Dodge – Academic Institution, South](#)

Dr. Richard E. Dodge is Dean of, and Professor at, the Nova Southeastern University Oceanographic Center. Dr. Dodge is also Executive Director of the Center's National Coral Reef Institute which is devoted to providing management research outcomes on reef monitoring, assessment, and restoration. Dr. Dodge received his BS from the University of Maine, and his MS and PhD from Yale University. He is the author of many publications in the scientific literature and reports for various agencies and companies. He has expertise on the effects of natural and man-induced impacts to coral reefs and is well versed in assessing and analyzing effects from physical damage and pollution on coral reefs. This includes experience with sedimentation effects, bomb range impacts, ship grounding damage, adverse effects of oil to coral reefs and coral reef environments, and studies and projects evaluating impacts of coastal construction, development, and liquid natural gas ports. His experience includes economic analysis and use of Habitat Equivalency Analysis.



[Dr. Vincent Encomio – Environmental NGO, North](#)

Dr. Vincent Encomio is the Senior Scientist at the Florida Oceanographic Society (FOS). Vincent arrived at FOS from Fort Myers, Florida, where he worked as a Research Associate in the Department of Marine and Environmental Sciences at Florida Gulf Coast University (FGCU). At FGCU Vincent conducted research on the effects of freshwater releases, sedimentation, and red tide on oysters and clams. Prior to that, Vincent did his graduate research at the Virginia Institute of Marine Science. He earned his PhD in Marine Science by comparing the effects of disease on oyster biochemistry and physiology among oyster stocks with varying disease tolerance. For the last 5 years, Vincent has been responsible for implementing and expanding FOS' oyster restoration program, a program which has not only worked to restore oysters on the Treasure Coast, but also directly involved local communities in this effort. Vincent is also actively involved in furthering citizen science activities at Florida Oceanographic to engage the community and inspire environmental stewardship.



[Our Florida Reefs Community Working Group Member Profiles](#)

[Jane Fawcett – Environmental NGO, South](#)

Jane Fawcett is the Operations Officer of Vönē Research Inc, a well-respected non-profit organization comprised of highly skilled volunteer divers that work together to provide research, education, conservation, and preservation of Florida’s oceanic and maritime historical and archaeological resources. Presently Jane is working on the “Coral and Fisheries Habitat Restoration” project using Biorock technology in the Town of Lauderdale-by-the-Sea, a collaborative effort between Vönē Research and Global Coral Reef Alliance. She oversees a Special Activity License to harvest corals of opportunity. The Biorock reef restoration project is the first of its kind in the United States and the only one in the world using solar powered buoys. She has been snorkeling and diving in Broward and Monroe Counties for over 40 years. She remains committed to the motto of Vönē Research, “Diving to Make a Difference” and ensuring that the beautiful local reefs are protected for future generations.



[Kathy Fitzpatrick – County Government, North](#)

[Peter Friedman – Diving, North](#)

[Andrea Graves – Environmental NGO, North](#)

Andrea Graves has been with The Nature Conservancy for 19 years and has experience in community education and outreach, writing and editing, partnership-building, preserve management and oyster habitat restoration. In her current position as the Director of Blowing Rocks Preserve, she is responsible for overseeing operations, management and staffing of a 73-acre barrier island sanctuary with a heavy public-use component. This has made her well aware of the area’s coastal resource management issues as well as the need to balance sustainability of the natural system with sustainability of the community and economy. As a boat owner and avid snorkeler, she also has a personal commitment to protecting southeast Florida’s coral reef system. Andrea will serve on the Our Florida Reef Community Working Group as a representative of the environmental non-governmental organizations in Martin and Palm Beach counties.



[Oliver Green – Fishing, North](#)

Our Florida Reefs Community Working Group Member Profiles

Rebecca Johnson – Private Business, South

Rebecca Johnson has her own consulting firm, Triumph Fundraising. She works with local, state and federal elected officials to raise money for their campaigns. Her clients include South Miami Mayor Philip Stoddard who is endorsed by the Sierra Club, former Miami Beach Commissioner Michael Gongora who started the city's Sustainability Committee, and the senior Senator from Florida, Senator Bill Nelson, among others. Organizations in the Arts and in Education are also among her clients, such as Miami City Ballet and Adopt- A-Classroom.

She first came to Miami on a 5-week work assignment in 2000 and has never left. An enthusiastic Miami Beach resident, she has served her city as a member of the Community Development Advisory Committee, which advises the Commission on the distribution of its Community Development Block Grant funds, was a mentor to high school girls in the Women of Tomorrow Program and is currently a volunteer at the Humane Society of Greater Miami.

A native of Southern California, Rebecca grew up waterskiing, camping on the beach and exploring the tidal pools at Cabrillo National Monument. Her environmental commitment was heightened during her undergraduate experience at the University of California Santa Barbara, the site of the first major oil spill that was the impetus for the creation of Earth Day. More than 20 years after the spill, the beaches were still so polluted with oil that no one dared to walk barefoot in the sand.

Participating in Our Florida Reefs gives her the opportunity to combine her love of the ocean and animals in a way that benefits her beloved South Florida community.



Cindy Lott – State Government, North



Our Florida Reefs Community Working Group Member Profiles

Howard Lustgarden – Watersports, South

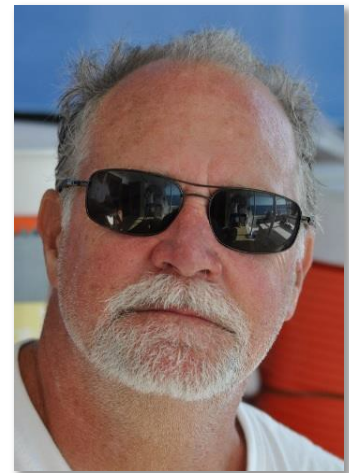
Howard has waterfront homes in both Jensen Beach, Fl. and Ft. Lauderdale and is an avid recreational boater and "sometime" fisherman. He and his wife Lynn-Ann practice all methods of sustainability when it involves our waterways and oceans. He has always had ties to the ocean starting with his earliest years growing up in Oceanside, NY. His lifetime love of the ocean has made him realize how important our coral reefs are to all sea organisms and life on earth.



Jim Mathie – Diving, South

Jim Mathie retired in 2007 after serving 30 years with Deerfield Beach Fire Rescue. He advanced through the ranks as a Firefighter/Paramedic, Rescue Supervisor, Fire Inspector, Training/EMS Lieutenant, Battalion Chief and retired as a Division Chief. His responsibilities as a Division Chief included Emergency Medical Services and Emergency Management. For over 25 years Jim was also an adjunct faculty member at Broward Community College in the Emergency Medical Services Department. He holds an AS from Broward Community College in Fire Science, a BS from Nova Southeastern University in Public Administration and has completed numerous courses toward a MS at Florida International University in Adult Education. He received the Fire Chiefs' Association of Broward County 2010 Lifetime Achievement Award.

Jim's retirement allowed him to fulfill a life-long passion of diving. Author of two books, *Catching the BUG: The Comprehensive Guide to Catching the Spiny Lobster* and *Catching the Spear-it! The ABC's of Spearfishing*, Jim combined his years as an educator, underwater hunter and story teller to create these easy-to-read publications. Jim established CHIEFY, LLC in 2011 and his website can be viewed at www.chiefy.net.



Jena McNeal – County Government, North

Originally from Iowa, Jena received her BS in Biology and Environmental Studies from Iowa State University and Master's in Marine Policy and Affairs from the University of Miami's Rosenstiel School of Marine and Atmospheric Science. Currently she is the Artificial Reef Coordinator for Palm Beach County's Department of Environmental Resources Management. Jena previously worked for the Florida Department of Environmental Protection (FDEP) in the Submerged Lands and Environmental Resources Program. While there she worked in the compliance section for Environmental Resource Permits. Jena has also worked for FDEP's Coral Reef Conservation Program where she was the Reef Injury Prevention and Response Coordinator. Through these positions she has gained experience with the protection and mitigation of mangroves, seagrass, and coral reef ecosystems. Jena is also on the Board of Directors for the Friends of Our Florida Reefs.



Our Florida Reefs Community Working Group Member Profiles

Ron Messa – Enforcement, North

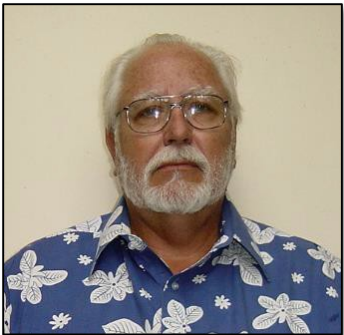


Special Agent Ron Messa has been with the NOAA Office of Law Enforcement for over 7 years and has been an investigator for over 23 years having also worked with the Food and Drug Administration and the U.S. Customs Service as a Special Agent. The NOAA Office for Law Enforcement (OLE) is dedicated primarily to the enforcement of laws that protect and regulate the use of our nation’s living marine resources. NOAA fisheries Special Agents have authority to enforce over 100 legislative acts under 35 statutes related to the conservation and marine resources and have jurisdiction of over 3.4 million square miles of water. Most NOAA OLE enforcement activities are conducted under one of the following laws: Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the Lacey Act. Special Agent Messa has investigated and had successfully prosecuted violations under all of the previously mentioned laws. Special Agent Messa has been recognized for his investigative work with the U.S. Department of Commerce gold medal and as an Outstanding Law Enforcement Officer of the Year by the U.S. Attorney’s Office. From October 2011 – November 2014, Special Agent Messa served as the Acting Assistant Special Agent in charge overseeing investigations, operations and administrative functions for the NOAA OLE Miami Field Office area of responsibility which included the entire Atlantic coast of Florida extending around to Naples, FL including the Florida Keys and the Caribbean.



Nick Morrell – Diving, South

Nick Morrell is one of the co-founders of the Miami Dade Reef Guard Association, started in late 2009 to promote mooring buoys on the coral reef adjacent to Miami Dade County. Nick comes from Poole, Dorset on the south coast of England and started diving at 16 as soon as the local dive club would let him use Scuba equipment. He received his physics degree from the University of Leicester, England and went on to work in the telecommunications industry. He is a PADI certified Master Scuba Diver Trainer and teaches part-time for South Beach Divers in Miami Beach as well as holds a US Captain’s License for 6-pack boat operations.



Our Florida Reefs Community Working Group Member Profiles	
<p>Dr. Kevin Muench – Fishing, South</p>	
<p>Dr. Kevin Muench, has degrees in marine ecology and fisheries and a lifelong interest in coral reefs. He has visited and observed reef ecology and habitat for the last 50 years from the Atlantic and throughout the Pacific oceans observing the healthy reefs from decades ago to the current declining status of reefs worldwide. He has worked as a scientist in state, university, international and private firms all over the world. South Florida reefs from the 1960's to present is his ongoing concern with a focus on keeping our reefs healthy for the future. He has worked with and keeps in contact with both federal and local fisheries agencies, universities, as well as the International Game Fish Association, The Bass Federation, Bonefish & Tarpon Trust. He was a former fishing charter captain, dive shops owner and an advanced scuba instructor. He is an IFGA tournament observer with many years of contacts with event organizers, captains, guides and fishermen. He is vice-president of the Hollywood Hills Saltwater Fishing Science and Social Club, and attends many local fishing and science meetings.</p>	
<p>Edward 'Butch' Olsen – Fishing, North</p>	
<p>Nikole Ordway – Diving, North</p>	
<p>Nikole Ordway works at Force-E Scuba Centers as their social marketing manager and event coordinator as well as a PADI Master Instructor, Emergency First Response Instructor, Diver's Alert Network Instructor, Reef Check Course Director, Shark Saver's Florida Volunteer Coordinator, President of the SouthFlorida HammerHeads, founder of SCUBASirens, and a Diveheart Instructor. Nikole is originally from San Diego, CA and started diving at age 12 with her father. Nikole attended the University of San Diego State University and graduated with a degree in biology, with an emphasis in zoology. She became a dolphin trainer and dive supervisor for the US Navy's Marine Mammal program and was with this program for four years. After years of cold water diving, she decided to change it up and moved to Oahu, Hawaii in 2008 and pursued her boat captain's license and learned to breathe-hold free dive. After Hawaii she re-located to Florida and worked to become a PADI instructor.</p>	
<p>Jennifer Peterson – State Government, South</p>	
<p>Dr. Jennifer M. Peterson, an Environmental Consultant at the Florida Department of Environmental Protection, reviews projects that are permitted by the Beaches, Mining, and Ports Program to evaluate potential impacts to coastal resources (such as hardbottom habitats and corals) and provides suggestions regarding monitoring and mitigation. Jennifer was born and raised in Tallahassee, Florida; she earned her Bachelor of Science degree in Biological Sciences from Florida State University (Go Noles!) in 2007. Jennifer recently completed her dissertation “Ecological interactions influencing <i>Avicennia germinans</i> propagule dispersal and seedling establishment at mangrove- saltmarsh boundaries” at the University of South Florida. Jennifer is a field ecologist and has worked in a wide variety of Florida’s coastal ecosystems. Her research interests include conservation biology, landscape ecology, ecological interactions, and ecosystem function. Jennifer aspires to improve the protection, management, and restoration of Florida’s natural resources by applying ecological principles and research findings.</p>	

Our Florida Reefs Community Working Group Member Profiles

April Price – Private Business, North

April Price is a native Floridian, born and raised in Fort Lauderdale and has resided on the Treasure Coast since 1984. As a teenager she worked with her father in his public relations and advertising firm on projects such as the Miami International and Ft. Lauderdale International Boat Shows, as well as political and promotional ad campaigns.

She married her husband Tim in 1978. They have raised two daughters; both girls have earned diplomas from Florida State University.

Along with her husband Tim, she founded and ran Southern Yacht Service from 1989-2002. April served on the board of the Marine Industries Association of the Treasure Coast from 1989-2004, including terms as vice-president and president. She also serves as the secretary for the Marine Industries Association of Florida. She served as the Governor’s Appointee to the Atlantic States Marine Fisheries Commission from 2005-2007. In 2009, became the Governor’s Appointee to the Florida Boating Advisory Council and continues to serve representing marine environmentalists.

Since establishing her own business in 2009, she’s worked with the Pt. Salerno Seafood Festival, the Martin County Reef Builders Tournament, Blair Propeller, Marsh Island Club Marina, Sebastian Inlet Marina, Fort Pierce Oyster Festival, the Indian RiverKeeper, Martin County’s Lionfish education program, founded Sea-Life Habitat Improvement Project, Inc. (SHIP) and has produced the Treasure Coast Waterway Cleanup since 2008.



Lou Romano – Diving, North

Growing up in Miami during the early 1960s, Lou was fortunate to be involved in SCUBA, snorkeling, fishing, and boating when the waters were crystal clear and the reefs pristine. Following his graduation from the US Naval Academy, a career as a Navy carrier pilot and an environmental systems engineer allowed for travel and diving experiences around the world, but very few places could compare with the reefs he grew up with.

Upon returning to South Florida in 2002, Lou was dismayed and shocked at the conditions and continuing destruction of our reef systems. After retiring, he became a member of the Florida Oceanographic Society’s (FOS) Reef Research Dive Team as well as volunteer on FOS’s oyster restoration program. Lou is a certified Florida Master Naturalist, House of Refuge volunteer speaker, member of the Jupiter Drift Divers and a volunteer for S.H.I.P. He continues to look for significant opportunities to help with research and create greater awareness among our political decision makers in order to find ways to minimize the destruction and maximize the restoration of our reefs.



Lt. Ruth Sadowitz – Federal Government, South

Our Florida Reefs Community Working Group Member Profiles

Scott Sheckman – Environmental NGO, South

As the founder and owner of iSheck Consulting, Scott Sheckman is a non-profit development professional and public relations consultant for small to medium sized organizations, as well as a multi-media artist. He recently transplanted to Hallandale Beach after 20 years of living and working in North and South California. As an active Scuba diver and lover of all things nature and artistic, Scott has served as a development & communication consultant for a variety of conservation and arts organizations including Cabrillo Marine Aquarium, Sea Shepherd, Reef Check, Center for Resource Solutions, Ocean Defenders Alliance, Classical Revolution, Healthy Oceans Coalition, Sierra Club, Blue Water Initiative, City of Hallandale Beach, and more. Prior to focusing on philanthropy and civil service, Scott worked for over a decade in the entertainment industry.



Lee Shepherd – Private Business, North

A Palm Beach County native, Lee is very concerned about the changes he has seen to our reefs, estuaries and lagoons. With this in mind, he created the Intracoastal Eco-systems (IES) and Happy Habitats corporation for the sole purpose of helping to clean our waters and helping to bring back a broad spectrum of wildlife and marine life. He has worked closely with multiple agencies and organizations in Palm Beach County including: Environmental Resources Management, Lake Worth Lagoon Initiative, Artificial Reef and Estuarine Enhancement Committee and the West Palm Beach Fishing Club. Lee received his first patent in October 1013 for an artificial mangrove system, to be used in conjunction with his trademarked artificial reef modules to promote the natural restocking of inshore and offshore organisms through artificial means. His Goliath Grouper Hotels™ have been donated for use in several locations in Palm Beach County, including Peanut Island Snorkel Lagoon and the Boynton North Stepping Reef and are each full of diverse sea life and progressing as established reef systems. Lee is currently working in the private sector with personal Eco-systems at docks and sea walls in the Lake Worth Lagoon with multiple eco-systems deployed. His next project is in the Indian River Lagoon.



Angela Smith – Environmental NGO, South

Angela Smith is a nonprofit outreach and fundraising specialist. She has spearheaded fundraising events for The Nature Conservancy, the Government of Antigua and Island Resources Foundation’s Biodiversity Conservation Program. She currently works with Shark Savers, Bimini Biological Field Station - Sharklab, Sea Turtle Oversight Protection and South Florida Underwater Photography Society. As the Fundraising Event Organizer for Shark Savers, she was awarded the “Community Leader – Ocean Environment Award” from National Week of the Ocean for her work creating a South Florida presence for awareness of dwindling shark populations. Recently Angela founded Shark Team One a global conservation travel organization dedicated to outreach and education via ecotourism. An experienced traveler and Scuba diver, Angela has witnessed the destruction of marine fauna around the world. She knows how crucial it is to conserve the Southeast Florida coral reef tract in order to preserve biodiversity, uphold Florida’s local economy and tourism, and set an example for worldwide conservation of nearshore reefs.



Our Florida Reefs Community Working Group Member Profiles

Mason Smith – State Government, South

As a biologist for the Florida Fish and Wildlife Conservation Commission Division of Marine Fisheries Management, Mason Smith’s work primarily focuses on the analysis and interpretation of fisheries rulemaking, local fisheries issues, and public outreach. He received an MS in biology from the University of North Florida and a BS in biology from the University of Central Florida, Orlando.



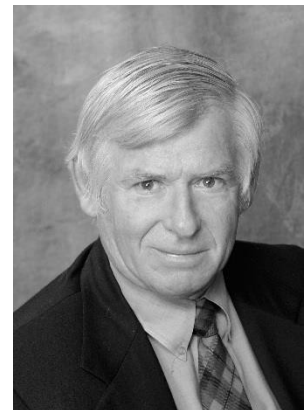
Melodee Smith – Citizen at Large, South

Mel, representing citizens at large, is interested in finding ways to address the concerns/challenges expressed by coral reef stakeholders committed to supporting marine biodiversity and the health of the ecosystem. A graduate of an environmental college on the Great Lakes, trained in law (Lansing, Michigan) and theology, (Harvard), Mel enjoys her work as a scholar-practitioner while she mentors immigrant children and coaches soccer. Her doctoral education at Nova Southeastern University in Conflict Analysis and Resolution has contributed to her human rights work at the UN Human Refugee Agency in Geneva and her experience as a lawyer in south Florida for the past two decades. Mel is currently on a team at the Smithsonian Institution addressing sustainable spiny lobster fisheries in Honduras, and she is completing a Master of Science degree at NSU's Oceanographic Center. Mel participates in American Cancer Society fundraising events and chairs NSU's International Women's Day for the American Association of University Women.



Alex Sommers – Private Business, South

Alex Sommers is a former manufacturer of automotive parts and a former professor of industrial engineering. He is currently a specialist in purchasing and supply chain management, and a vice president of the South Florida affiliate of the Institute for Supply Management. A recent project involved projected cost savings from using Port Miami and Port Everglades after expansion for Panamax container ships. His interest in reef protection comes from years of vacationing in the Bahamas, and from recognizing that there is little awareness of the need for reef protection on the part of purchasing and logistics managers as they make import-export decisions and choose shipping options. A graduate of Cornell and Rutgers, Sommers holds a doctorate from Purdue in industrial engineering and worked on projects for General Motors and Pratt and Whitney Aircraft.



Our Florida Reefs Community Working Group Member Profiles

Sara Thanner – County Government, South

Sara Thanner has a BS in marine biology with a minor in Diving Education from Barry University and a MS in marine biology from Nova Southeastern University. Working for Miami-Dade County’s Environmental Department for 13 years, she has experience in a broad spectrum of projects including but not limited to water quality sampling, sea turtle nest monitoring, seagrass assessments, artificial reef deployments and biological monitoring, and natural monitoring and damage assessments.

Sara is currently an Environmental Resources Project Supervisor for the county coordinating the Mooring Buoy Program, the Artificial Reef Program, and any natural reef monitoring and assessment projects. She has over 1500 logged scientific research dives. Sara has been a part of the SEFCRI team since 2006.



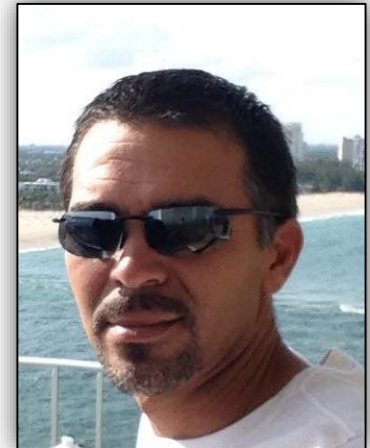
Manuel Toledo – Fishing, South

Manuel Toledo has been a commercial lobster fisherman for 30 years. He has fished in Florida for 25 years and in the Bahamas for 5 years. He currently fishes in Miami from North Miami to Key Largo. Aside from lobster fishing he has fished sponge, fish, stone crab, and long lined.

He is also the business owner of Toledo Sales Inc., a family owned manufacture of commercial traps for over 30 years. They manufacture lobster and stone crab traps and sell essential equipment needed to for stone crab and lobster fishing.

He has also been a member of the “Spiny Lobster Advisory Board” were he helped revamp our lobster fishing regulations. He was a panel member for 1 year.

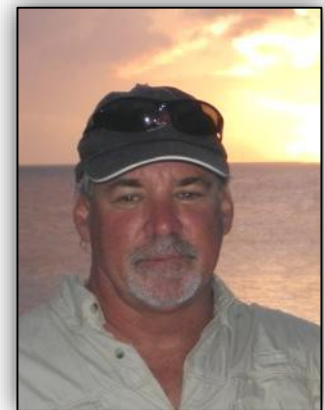
Manuel has a great passion for his profession and for the ocean. He hopes to be a knowledgeable contributor this work group.



Jeff Torode – Diving, South

Captain Jeff Torode is President of South Florida Diving Headquarters, a diving and snorkeling charter boat operation serving South Florida since 1996. He has also been involved in, and a member of, many groups concerned with our reef resources. He has served as President of the Greater Ft. Lauderdale Dive Association and was a Southeast Florida Coral Reef Initiative Navigator for the Fishing, Diving and Other Uses focus area before accepting the position of Vice Chair.

Captain Torode is also currently representing the dive industry on the Coastal Oceans Task Force which supports the efforts of the National Ocean Council. Captain Torode is committed to the protection and conservation of Florida’s marine ecosystems, receiving accommodations from Ocean Watch Foundation and SEFCRI.



Our Florida Reefs Community Working Group Member Profiles

Don Vacin – Enforcement, South

Stephanie Voris – Private Business, South

Stephanie is originally from Pennsylvania but has lived in south Florida for 22 years. She holds a BS in Biology and an MS in Marine Biology from Nova Southeastern University. Following her graduate studies, Stephanie began working in the environmental engineering field and has been involved with many projects throughout the state of Florida, including on the east coast from St. Lucie through Monroe counties, several counties on the west coast, as well as work in the Bahamas. Her focus involves seagrass surveys, coral surveys, freshwater wetland inspections and delineations, environmental resource permitting, and threatened and endangered species studies.

Having been in the development industry for 20 years in South Florida, she is extremely familiar with the intense upland pressure and sources of pollutants that ultimately reach the ocean and are affecting the reef and is looking forward to addressing these and many other issues through the Our Florida Reefs process.



Tom Warnke – Watersports, North

Tom Warnke has been a student of Florida’s coastal and ocean systems for more than 40 years. He was introduced to the ocean in 1956 when his father took him snorkeling in Ocean Ridge, Florida and he fell in love with the warm ocean. Since earning his degree at FAU Tom has invested thousands of hours to help protect Florida’s reefs, beaches, estuaries and wetlands. He believes that one of the most important ways to protect our reefs is to protect our watershed, including the aquifer systems which flow directly to our reefs. Tom serves on the Palm Beach County Artificial Reef and Estuarine Enhancement Committee, works to restore the Lake Worth Lagoon, and consults with government agencies regarding coastal construction projects. He speaks to groups about subjects such as water conservation, wrack line protection, ocean-friendly landscaping, protecting reefs from damage caused by plastics and nitrogen, aquifer protection, public beach access and coastal erosion. Tom lives in Lake Worth. He enjoys photography and many saltwater sports. In 2015 he won the Eastern Surfing Championships in the Grand Legends age group.



Dana Wusinich-Mendez – Federal Government, North

Dana Wusinich-Mendez is the Atlantic and Caribbean Management Team Lead for NOAA’s Coral Reef Conservation Program. Dana has been working with NOAA to support the efforts of coral reef resource managers in Florida, Puerto Rico, the US Virgin Islands, and to build capacity for the effective management of marine protected areas in the Wider Caribbean region since 2002. She is a graduate of Duke University’s Nicholas School of the Environment where she focused on marine protected area and cooperative coastal resource management efforts. Prior to obtaining her master’s in environmental management at Duke, Dana worked for the RARE Center for Tropical Conservation and Amigo de Sian Ka’an with communities on the Mesoamerican Barrier Reef System in southern Quintana Roo, Mexico to build capacity for the development and effective management of coral reef marine protected areas.



Our Florida Reefs Community Working Group Member Alternates

Working Group	Alternate	Primary
North	State Government, North	Cindy Lott
	Donna Melzer – Environmental NGO, North	Greg Braun
	Erin McDevitt – State Government, North	Jeff Beal
	Pamela Hopkins – Environmental NGO, North	Vincent Encomio
	Jessica Garland – County Government, North	Kathy Fitzpatrick
	Mike Renda – Environmental NGO, North	Andrea Graves
	Nick Casper/Brittany Holbrook – Diving, North	Nikole Ordway
	Stan Mihalecz – Diving, North	Lou Romano
	Jenny Baez – County Government, North	Jena McNeal
	Jocelyn Karazsia – Federal Government, North	Dana Wusinich-Mendez
	Todd Rimmel – Watersports, North	Tom Warnke
South	Brian Strader - Enforcement, South	Donald Vacin
	Courtney Kiel – County Government, South	Ken Banks
	Stephanie Clark – Citizen at Large, South	Dan Clark
	Dr. Jose Lopez – Academic Institution, South	Dick Dodge
	Bill Carey – Environmental NGO, South	Jane Fawcett
	Braden Whitworth – Diving, South	Jim Mathie
	Arthur Mariano – Fishing, South	Kevin Muench
	Mike Beach – Diving, South	Nick Morrell
	Kristina May – State Government, South	Jennifer Peterson
	Roy Wasson – Citizen at Large, South	Melodee Smith
	Drew Martin – Environmental NGO, South	Scott Sheckman
	Bill Cole – Diving, South	Jeff Torode
	Jamie Monty – County Government, South	Sara Thanner
	U.S. Coast Guard	Lt. Ruth Sadowitz
Private Business – South	Rebecca Johnson	

XIV. Tier 1 & 2 Information-Gathering Worksheets



South Community Working Group Tier 1: Critical Information Needed from the Community Working Groups

Management Action:

Code:

Management Action Short Title:

1. Focus Area

Identify the focus area this management action fits under.

- Land-Based Sources of Pollution/Water Quality
- Maritime Industry and Coastal Construction Impacts
- Fishing, Diving and Other Uses
- Awareness and Appreciation/Education and Outreach
- Coral Reef Habitat Restoration

2. Intended Result (Output/Outcome)

What is the end product/result of this management action?

3. Duration of Activity

Is this a discrete action or a recurring activity? Explain

4. Justification

What issue or problem will this management action address?

5. Potential Pros

What are the potential advantages associated with this management action?

6. Potential Cons

What are the potential disadvantages associated with this management action?

7. Location: County/Counties

County/Counties: Miami-Dade, Broward, Palm Beach, Martin, Other?

Relevant Habitats: Coral reef, seagrass, watershed, etc.

Specific Location: City, site name, coordinates, etc.?

8. Extent

Area, number, etc.

9. Is this action spatial in nature?

YES/NO

If YES, and you believe this management action could be informed by the OFR Marine Planner Decision Support Tool, proceed to the next section on Marine Planner Information.



South Community Working Group
Tier 2: Supplementary Information Needed from the
Community Working Groups & SEFCRI

Code:

Management Action Short Title:

WHY?

1. Strategic Goals & Objectives To Be Achieved

Refer to the SEFCRI Coral Reef Management Goals and Objectives Reference Guide.

2. Current Status

Is this activity currently underway, or are there planned actions related to this recommendation in southeast Florida? If so, what are they, and what is their status?

3. Intended Benefits (Outcomes)

What potential environmental benefits or positive impacts might this management action have?

What potential social/economic benefits or positive impacts might this management action have?

What is the likely duration of these benefits – short-term or long-lasting? Explain.

4. Indirect Costs (Outcomes)

What potential negative environmental impacts might this action have?

What potential negative social or economic impacts might this action have?

What is the likely duration of these negative impacts – short-term or long-lasting? Explain.

5. Risk

What is the threat of adverse environmental, social, or economic effects arising from not implementing this action?

6. Relevant Supporting Data

What existing science supports this recommendation? (Provide citations)

7. Information Gaps

What uncertainties or information gaps still exist?

WHEN?

8. Anticipated Timeframe for Implementation

How long will this recommendation take to implement?

0 – 2 years 2 – 5 years 5 – 10 years 10+ years

9. Linkage to Other Proposed Management Actions

Is this activity linked to other proposed management recommendations?

If so, which ones, and how are they linked? (e.g., is this activity a necessary step for other management actions to be completed?)

Does this activity conflict with other existing or proposed management actions?

WHO?

10. Lead Agency or Organization for Implementation

What agency or organization currently has/would have authority? Refer to the Agencies and Actions Reference Guide.

11. Other Agencies or Organizations

Are there any other agencies or organizations that may also support implementation? Explain.

12. Key Stakeholders

Identify those stakeholders most greatly impacted by this management action, including those from whom you might expect a high level of support or opposition. Explain.

HOW?

13. Feasibility

Is there appropriate political will to support this? Explain.

What are the potential technical challenges to implementing this action? Has it been done elsewhere?

14. Legislative Considerations

Does the recommendation conflict with or actively support existing local, state, or federal laws or regulations? Explain.

15. Permitting Requirements

Will any permits be required to implement this action? Explain.

16. Estimated Direct Costs

Approximately how much will this action likely cost? (Consider one-time direct costs, annual costs, and staff time, including enforcement.)

\$0 – \$50,000

\$50,000 – \$100,000

\$100,000 – \$250,000

>\$250,000

Will costs associated with this activity be one-time or recurring?

If recurring, approximately how long will staff time and annual costs be necessary to implement the management action?

17. Enforcement

Does this require enforcement effort?

Provide an explanation if available.

18. Potential Funding Sources

Identify potential funding organizations/grant opportunities, etc.

19. Measurable Outcomes/Success Criteria/Milestones

How will the success of this recommendation be measured? How will you know when the intended result is achieved?

*Note: In order to see complete Tier 1 & 2 information for Recommended Management Actions, visit <http://ourfloridareefs.org/rmacomment/>, click on a Focus Area, then click on any RMA to see full titles and supporting information provided by CWGs, the SEFCRI Team, and SEFCRI Technical Advisory Committee.

XV. Marine Protected Area Primer

“Marine protected area” (MPA) is a broadly used term that has different meanings for different people. The purpose of this document, as requested by members of the OFR South Community Working Group, is to define the term “marine protected area”, explain how MPAs are used, and provide a set of common terminology that can be used to describe MPAs in functional terms.

Information in this document comes primarily from the (1) NOAA MPA Center publication “[Definition & Classification System for U.S. Marine Protected Areas](#)” by Wenzel and D’Iorio (2011). A full set of references is available on page 10.

Contents

What is an MPA?
What objectives can an MPA achieve?
What are the characteristics of different kinds of MPAs?
Types of MPAs that exist in Florida
MPA Glossary

Part 1: What is a Marine Protected Area?

Marine Protected Area: “...any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.” – [Executive Order 13158 “Marine Protected Areas”](#) (2)

Marine protected areas, sometimes called marine managed areas, vary considerably in their size, shape, purpose, and rules. They may exist as stand-alone areas, be contained within a larger zoned MPA, or be part of a network of discrete MPAs spanning over a large area (1).

Part 2: Marine Protected Area Objectives

Just as they can differ in size and shape, marine protected areas differ in their reason for establishment. The objectives an MPA was designed to meet can be grouped into three broad categories: Natural Heritage, Cultural Heritage, and Sustainable Production. An MPA may be specifically designed for a singular purpose, or broadly designed to meet multiple objectives in one or more of these categories. (1)

Natural Heritage: Describes an area’s natural biodiversity, populations, communities, habitats, and ecosystems; the ecological and physical processes upon which they depend; and, the ecological services, human uses and values they provide to this and future generations. (1)

Examples*: key biogenic habitats, geological formations, areas of high biodiversity, unique or rare species, migratory corridors. (4)

Cultural Heritage: Describes the legacy of physical evidence and intangible attributes of a group or society (1) that reflect the nation’s maritime history and traditional cultural connections to the sea, as well as the uses and value they provide to present and future generations. (4)

Examples*: cultural or historic sites such as shipwrecks, battlefields, and burial grounds, cultural or historic sites that can be utilized for tourism (4)

Sustainable Production: Describes supporting the continued extraction of renewable living resources (such as fish, shellfish, plants, birds, or mammals) that live within the MPA, or that are exploited elsewhere but depend upon the protected area’s habitat for essential aspects of their ecology or life history. (1)

Examples*: key reproductive areas (spawning, mating, or nursery habitat), foraging grounds (4)

**Lists of examples in each category are not exhaustive*

Part 3: Common Characteristics of Marine Protected Areas

NOAA classifies MPAs based on five objective characteristics that describe: why the site was established, what it is intended to protect, how it achieves that protection, and how it may affect local ecosystems and local human uses. (1)

Conservation Focus (Natural Heritage, Cultural Heritage, Sustainable Production)

Will influence design, location, size, scale, management strategies and potential contribution to surrounding ecosystems

An MPA can have more than one conservation focus

Level of Protection (Uniform Multiple-Use, Zoned Multiple-Use, Zoned Multiple-Use with No-Take Area(s), No-Take, No Impact, No Access)

The term Multiple-Use applies broadly to MPAs with varying levels of restriction on human uses

Zoned Multiple-Use MPAs differ from an MPA network in that within a Zoned Multiple-Use MPA, even the least restrictive areas still contain a higher level of protection than the waters outside the MPA

Permanence of Protection (Permanent, Conditional, Temporary)

Permanent MPAs have language in their legal authority that continues their existence in perpetuity

Conditional MPAs often include a “sunset clause” in their legal authority

Temporary MPAs are created to address short-term needs with no expectation for renewal

Constancy of Protection (Year-Round, Seasonal, Rotating)

Rotating MPAs cycle predictably through a set of fixed geographic locations (rare in the US)

Scale of Protection (Ecosystem, Focal Resource)

Focal Resource MPAs target a single species complex, habitat, or resource

The Scale of Protection strongly influences the area’s design, siting, management approach, and likely effects

Part 4: Types of MPAs that currently exist in Florida

State MPAs (5), Federal MPAs (6, 7, cited individually)

Designation	Level of Protection*/ Conservation Focus	Description	Managing Authority/ Governance Level	Number
Fisheries Area	Uniform Multiple-Use/ Sustainable Production	Protect specific fisheries resources – 3 areas in Biscayne Bay separately prohibit take of spiny lobster, sponges, and tropical ornamental marine life and plants	FWC (State)	3

Manatee Safety Havens and Speed Zones	Uniform Multiple-Use and No Access/ Natural Heritage	Protect FL manatees and their habitat from harm caused by motorboats – zones across 18 counties regulate vessel speed and access	FWC (State)	N/A (hundreds)
Critical Wildlife Area	No Access/ Natural Heritage	Protect critical bird habitat by prohibiting public access on a year-round or seasonal basis	FWC (State)	17 coastal or marine
Outstanding FL Waters	Uniform Multiple-Use/ Natural Heritage	Preserve existing level of water quality at time of designation by prohibiting activities that degrade water quality (some exceptions permitted). Most OFWs overlap existing state and federal MPAs	FDEP (State)	184 estuarine or marine
Surface Water Improvement and Management Areas	Uniform Multiple-Use/ Natural Heritage	Restore surface waters that have been or are in danger of becoming degraded by developing strategies to restore or protect the water body sufficient to (at minimum) support recreation, and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Biscayne Bay SWIM Area includes significant inland areas	FL Water Management Districts/FDEP (State)	15 coastal or marine
Wildlife Management Areas/ Wildlife and Environmental Areas	Uniform Multiple-Use/ Natural Heritage	Sustain the widest possible range of native wildlife in their natural habitat - types of access, development, and take of wildlife that are deemed inconsistent with the goals of the WMA or WEA may be restricted or prohibited	FWC (State)	7 coastal or marine
State Parks	Uniform Multiple-Use, Zoned Multiple-Use, and No-Take/ Natural and Cultural Heritage	Provide resource-based recreation while preserving, interpreting, and restoring natural and cultural resources - generally, destruction, disturbance, or removal of anything within the park area (with the exception of fishing) is prohibited. Spearfishing is prohibited in all parks, and certain parks restrict or prohibit fishing and boating	FDEP Division of Recreation and Parks (State)	80 coastal or marine
Aquatic Preserve	Uniform Multiple-Use and Zoned Multiple-Use/ Natural Heritage	Protect submerged lands of exceptional aesthetic, biological, and scientific values for the enjoyment of future generations by prohibiting dredge and fill activities, oil and gas drilling, minerals extraction, and discharge of wastes or effluents. Docking facilities are subject to additional standards and criteria	FDEP (State)	37 marine or estuarine

National Marine Sanctuary	Zoned Multiple-Use with No-Take Areas/ Natural and Cultural Heritage	Conserve and manage areas of the marine environment of special national significance while facilitating all compatible public and private uses (10) – each sanctuary develops its own set of regulations; however most sanctuaries prohibit: discharging any material, alteration of the seabed, disturbance of cultural resources, and oil, gas, or minerals exploration, development, and production (11)	NOAA/FDEP (Federal/State)	1 (FKNMS)
National Wildlife Refuge	Uniform Multiple-Use, No Access, Zoned Multiple-Use, Zoned Multiple-Use with No-Take Areas/ Natural Heritage and Sustainable Production	Conserve fish, wildlife, and plants and their habitats and facilitate opportunities to participate in compatible wildlife-dependent activities (14)	US Fish and Wildlife Service (Federal)	18 coastal or marine
National Park	Zoned Multiple-Use and Zoned Multiple-Use with No-Take Areas/ Natural and Cultural Heritage	Conserve the scenery, natural and historic objects, and wildlife therein and provide for the enjoyment of those resources in such manner as will leave them unimpaired for the enjoyment of future generations (15)	National Park Service (Federal)	3
Fishery Management Council Closures	Uniform Multiple-Use/ Sustainable Production and Natural Heritage	Aid in the recovery of overfished stocks and ensure the persistence of healthy fish stocks, fisheries, and associated habitats - may include prohibition of harvest on seasonal or permanent time periods (16)	South Atlantic Fishery Management Council/NOAA NMFS (Federal)	8
National Estuarine Research Reserve	Uniform Multiple-Use/ Natural and Cultural Heritage and Sustainable Production	Ensure a stable environment through long-term resource protection to promote and coordinate estuarine research, address coastal management issues, and enhance public awareness and understanding - multiple uses are allowed to the degree compatible with each Reserve's overall purpose (8)	NOAA/FDEP (Federal/State)	3

**The Level of Protection in this table only applies to the marine protected areas of each designation found in Florida. MPAs of the same designation in other parts of the US may have a different level of protection than those described in this table.*

Part 5: MPA Glossary*

**Selected terms from the NOAA MPA Center Glossary, which can be viewed in its entirety at: <http://marineprotectedareas.noaa.gov/resources/glossary/>*

Area: Must have legally defined geographical boundaries, and may be of any size, except that the site must be a subset of the U.S. federal, state, commonwealth, territorial, local, or tribal marine environment in which it is located.

Critical Habitat: Defined under the Endangered Species Act, critical habitat is "the specific areas within the geographic area occupied by a species on which are found those physical and biological features essential to the conservation of the species, and that may require special management considerations or protection; and specific areas outside the geographic area occupied by a species at the time it is listed, upon determination that such areas are essential for conservation of the species."

Cultural Heritage: The cultural resources that reflect the nation's maritime history and traditional cultural connections to the sea, as well as the uses and values they provide to this and future generations.

Cultural Resource: A tangible entity that is valued by or significantly representative of a culture, or that contains significant information about a culture. Cultural resources for purposes of MPA Executive Order 13158 are tangible entities at least 50 years in age that reflect the nation's maritime history and traditional cultural connections to the sea, such as archaeological sites, historic structures, shipwrecks, artifacts, and traditional cultural properties.

Duration of Protection: Also "Lasting Protection." Site must be established with the intent at the time of designation to provide permanent protection.

Ecosystem: A community of organisms (animals, plants, and micro-organisms), including humans, interacting with each other and their physical environment.

Ecological Network: A set of discrete MPAs within a region that are connected through dispersal of reproductive stages (eggs, larvae, spores, etc.) or movement of juveniles and adults. The effective management of certain marine species may require networks of discrete MPAs encompassing regional connections of local populations linked by dispersal and movement, which may be essential for some local populations to persist. The creation of MPA networks must take into consideration other non-MPA areas that provide similar linkages, which does not necessarily imply additional management measures outside MPAs or the creation of a "super MPA" with boundaries encompassing all MPAs in the network.

Ecological Resilience: The capacity of an ecosystem or natural population to resist or recover from major changes in structure and function following natural and human-caused disturbances, without undergoing a shift to a vastly different regime that is undesirable and very difficult to reverse from a human perspective.

Essential Fish Habitat (EFH): Authorized by the Magnuson-Stevens Fishery Conservation and Management Act, EFH are those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish, where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

Estuary: A partially enclosed body of water where saltwater from the sea mixes with freshwater from rivers, streams and creeks. These areas are subject to tidal forces, like the sea, but are sheltered from the full force of ocean winds and waves by the coastline, marshes, and wetlands.

Exclusive Economic Zone (EEZ): The assertion of jurisdiction under the EEZ (3 nautical miles/3.45 statute miles to 200 nautical miles/230.16 statute miles offshore) provides a basis for U.S. economic exploration and exploitation, scientific research, and protection of the environment. While coastal states have primary jurisdiction and control over the first three miles of the EEZ (9 miles on FL Gulf side) and the federal government has primary jurisdiction over and controls the remaining 197 miles, the Coastal Zone Management Act provides coastal states with substantial authority to influence federal actions beyond three nautical miles.

Executive Orders: Numbered consecutively, Executive Orders (EOs) are legally binding orders given by the President, acting as the head of the Executive Branch, to Federal Administrative Agencies. Executive Orders are generally used to direct federal agencies and officials in their execution of congressionally established laws or policies.

Fishery Closure Area: A fishery closed or restricted by a government entity. Such closure prohibits fishing for commercial, recreational, or subsistence purposes.

Fishery Management Councils: Regional councils which were established under the Magnuson-Stevens Fishery Conservation and Management Act. Each of the eight councils is individually responsible for recommending the regulation of fisheries in federal waters within its jurisdiction with the approval of the Secretary of Commerce.

Fishery Management Zone: Areas where fishing for some or all species is prohibited to protect critical habitats, rebuild fish stocks, ensure against overfishing, or enhance fishery yield. The closure to fishing may not be permanent, depending on how fish stocks respond.

Habitat: The place and its associated environmental conditions where an organism naturally lives, grows, and reproduces; such conditions include characteristics of the soil, water, and biologic community (for example, other plants and animals).

Habitat Areas of Particular Concern (HAPC): A habitat area designated by a Fishery Management Council under the Magnuson-Stevens Fishery Conservation and Management Act of 1976 to help focus conservation efforts in localized areas that are vulnerable to degradation or are especially important ecologically.

Lasting: For purposes of national system natural heritage and cultural heritage MPAs, the site's authority must clearly state its intent to provide permanent protection. For national system sustainable production MPAs, the site must be established with the intent at the time of designation to provide, at a minimum, the duration of protection necessary to achieve the mandated long-term sustainable production objectives for which the site was established.

Local Government: A legally-established unit of government at a level below state or territory government, including but not limited to, county, city, town, or village.

Magnuson-Stevens Fishery Conservation and Management Act: The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the primary law governing marine fisheries management in United States federal waters. The Act was first enacted in 1976 and amended in 1996. Most notably, the Magnuson-Stevens Act aided in the development of the domestic fishing industry by phasing out foreign fishing. To manage the fisheries and promote conservation, the Act created eight regional fishery management councils. The 1996 amendments focused rebuilding overfished fisheries, protecting essential fish habitat, and reducing bycatch.

Management/Managing Agency or Authority: The federal, state, commonwealth, territorial, local, or tribal entity or entities with legal authority to designate, promulgate regulations for, and/or manage an MPA. In many cases, authority lies with one agency or program, however, in certain instances, such as the federal/state National Estuarine Research Reserve System and the state/tribe co-management arrangements, authority is formally shared or split among two or more entities.

Marine Environment (U.S.): (a) ocean or coastal waters (note: coastal waters may include intertidal areas, bays, or estuaries); (b) an area of the Great Lakes or their connecting waters; (c) an area of lands under ocean or coastal waters or the Great Lakes or their connecting waters; or (d) a combination of the above.

Marine Managed Area: Any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural or cultural resources therein. Important note: While the terms "marine managed area" (MMA) and "marine protected area" (MPA) each have the same base definition, the specific definitions of the component terms of "area," "marine environment," "reserved," "lasting" and "protection" differentiate the scope of MMA and MPA. In both the MMA and MPA contexts, the terms "area," "marine environment," "reserved," and "protection" each have essentially the same meaning. The term "lasting" in the MMA context, however, is defined as "must provide the same protection, for any duration within a year, at the same location on the same dates each year, for at least two consecutive years. Must be established with an expectation of, or history of, or at least the potential for, permanence." See Lasting for the MPA-related definition of this term.

Marine Protected Area: Any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.

Marine Reserve: A type of MPA where extractive uses are prohibited (also referred to as "no-take" reserve).

Marine Sanctuary: As defined by the U.S. government are areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or aesthetic qualities as national marine sanctuaries. They are designed by the Secretary of Commerce or act of Congress. Most are multiple-use marine protected areas that may include breeding and feeding grounds of whales, sea lions, sharks, and sea turtles; significant coral reefs and kelp forest habitats; and the remains of historic shipwrecks. Some national marine sanctuaries are zoned to include no-take areas. (Note: States may have "sanctuaries" that have a different purpose or are defined differently.)

Marine Waters: As defined by U.S. Executive Order 13158 on MPAs: Waters under tidal influence, extending to the Mean High Water mark on land, and into river mouths to a salinity gradient of 5 parts/thousand, and the fresh waters of the Great Lakes to the Ordinary High Water mark on land.

Multiple-Use MPAs: Often employed over larger areas, multiple-use areas allow for integrated management of complete marine ecosystems, usually through a zoning process.

National Monument: An area designated by the President of the United States, under the authority of the Antiquities Act of 1906, to protect objects of scientific and historical interest that are located on federal lands.

National Parks (U.S.): A large area of land preserved in its natural state as public property.

[Marine] Natural Heritage: The nation's biological communities, habitats, ecosystems, and processes, and the ecological services, uses, and values they provide to this and future generations.

[Marine] Natural Resources: Any biological or physical component of the marine environment that contributes to the structure, function, or services provided by a marine ecosystem.

Network of MPAs: A set of discrete MPAs within a region or ecosystem that are connected through complementary purposes and synergistic protections. A network of MPAs could focus on ecosystem processes, certain individual marine species, or cultural resources. For example, an ecological network of MPAs could be connected through dispersal of reproductive stages or movement of juveniles and adults.

No-Take Zones: Areas in which all extractive activities are prohibited. (See “Marine Reserve” for more information)

Permanence of Protection: For the NOAA Marine Protected Areas Inventory, in order for sites to be considered for inclusion in the database, they must provide year-round (12-month) protection. They must be established with an expectation of, or at least the potential for, permanence. Areas with a sunset clause must provide a minimum of four years of continuous protection and must have a specific mechanism to renew protection at the expiration of the sunset period.

Place-Based Management: A conservation or management regime that includes a legally-defined area with greater conservation regulation or statutory law applying inside its boundaries than outside.

Protection: For purposes of the National System of MPAs, must have existing laws or regulations that are designed and applied to afford the site with increased protection for part or all of the natural and submerged cultural resources therein for the purpose of maintaining or enhancing the long-term conservation of these resources, beyond any general protections that apply outside the site.

Stakeholder: Individuals, groups of individuals, organizations, or political entities interest in and/or affected by the outcome of management decisions. Stakeholders may also be individuals, groups, or other entities that are likely to have an effect on the outcome of management decisions. Members of the public may be considered stakeholders. State: See United States.

Sustainable Production: The renewable living resources and their habitats, including, but not limited to, spawning, mating, and nursery grounds, and areas established to minimize incidental by-catch of species, that are important to the nation's social, economic, and cultural well-being.

Wildlife Refuge: An area designated for the protection or replenishment of wild animals, within which hunting and fishing are either prohibited or strictly controlled.

World Heritage Site: An area deemed to be of outstanding universal value due to its natural and/or cultural heritage properties that is inscribed by the UNESCO World Heritage Committee under the authority of the 1972 Convention Concerning the Protection of the World Natural and Cultural Heritage. (18) States Parties to the Convention agree to identify, protect, and conserve World Heritage Sites in their territories for future generations with international assistance where appropriate. (19)

Zoning: A process in which a marine protected area is divided into discrete zones each permitting and regulating specific human activities through conditions such as gear limitations in fishing and waste discharge prohibitions in tourism. In the United States, some marine sanctuaries, national parks, national wildlife refuges, and state MPAs are examples of areas that may be zoned.

MPA Primer References:

- 1) Wenzel, L. and D'Iorio, M. 2011. "[Definition and Classification System for U.S. Marine Protected Areas](#)", Maryland: Silver Spring. Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration Ocean Service. Web. (October 2014)
- 2) [Executive Order 13158](#). Marine Protected Areas. 65 *Federal Register* 34909-34911. May 26, 2000.
- 3) NOAA MPA Center. [Glossary](#). US Department of Commerce/National Oceanic and Atmospheric Administration Ocean Service, 2013. Web. (October 2014)
- 4) Wahle, C., Wenzel, L., and Robison, R. 2011. "[The National System of MPAs: Priority Conservation Objectives](#)", Maryland: Silver Spring. Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration Ocean Service. Web. (October 2014)
- 5) Trappe, C., K. Bareford. 2007. Florida Coral Reef MPA Summary. pp. 41-68. In Wusinich-Mendez, D. and C. Trappe (ed.), 2007. [Report on the Status of Marine Protected Areas in Coral Reef Ecosystems of the United States Volume 1: Marine Protected Areas Managed by U.S. States, Territories, and Commonwealths: 2007](#). NOAA Technical Memorandum CRCP 2. NOAA Coral Reef Conservation Program. Silver Spring, MD. 129 pp. + Appendices.
- 6) NOAA Coral Reef Information System. (2009). "[Coral Reef Habitat Assessment for U.S. Marine Protected Areas: Dry Tortugas to Biscayne Bay](#)." *NOAA Coral Reef Information System*. National Oceanic and Atmospheric Administration. Web. (October 2014)
- 7) NOAA MPA Center. [US MPA Inventory](#). National Oceanic and Atmospheric Administration Ocean Service, 2014. Microsoft Excel file. (October 2014)
- 8) NOAA Office of Ocean and Coastal Resource Management. [National Estuarine Research Reserve Regulations \(General\)](#). National Oceanic and Atmospheric Administration Ocean Service, 2009. Web. (October 2014)
- 9) NOAA Office of Ocean and Coastal Resource Management. "[National Estuarine Research Reserve System](#)". US Department of Commerce/National Oceanic and Atmospheric Administration Ocean Service. Web. (October 2014)
- 10) "[National Marine Sanctuary Program Regulations](#)." 15 *Code of Federal Regulations* Pt. 922. 1995 ed., 96-190. Web (October 2014)
- 11) Sanctuaries Web Team. [National Marine Sanctuaries Regulations](#). National Oceanic and Atmospheric Administration Ocean Service, 2012. Web. (October 2014)
- 12) Marine Conservation Institute. [Global Marine Protected Areas](#). Marine Conservation Institute and Waitt Foundation, 2014. Web. (October 2014)
- 13) US Fish and Wildlife Service. [National Wildlife Refuges in Florida](#). US Fish and Wildlife Service. Web. (October 2014)
- 14) "[National Wildlife Refuge System Improvement Act of 1997](#)." 16 U.S.C. § 668dd. 1997 ed., 1252-1260. Web. (October 2014)
- 15) "[National Park Service Organic Act](#)." 16 U.S.C. § 1. Web. (October 2014)

- 16) Nassau Web Design. [*South Atlantic Fishery Management Council Marine Protected Areas*](#). South Atlantic Fishery Management Council, 2014. Web. (October 2014)
- 17) FWC Law Enforcement – GIS and Mapping. “[Overview Map of Florida Marine Protected Areas](#).” Florida Fish and Wildlife Conservation Commission. Web. (October 2014)
- 18) UNESCO World Heritage Center. [*Frequently Asked Questions*](#). United National Educational, Scientific, and Cultural Organization, 2014. Web. (October 2014)
- 19) United Nations. Educational, Scientific, and Cultural Organization. 17th Sess. [*Convention Concerning the Protection of the World Cultural and Natural Heritage*](#). 21 November 1972. Web. (October 2014)

XVI. Spatial Planning Worksheet



South Community Working Group Spatial Worksheet

Recommended Management Action: _____

The Decision Support function of the OFR Marine Planner assists in providing spatial options for your recommended management actions. If the management action is spatial in nature, and it is believed that the Decision Support Tool is required to help provide spatial options for that recommendation, please fill out the following information to help us develop the tool to address your needs.

The Decision Support Tool provides spatial options based on features loaded into the OFR Marine Planner that you indicate as being relevant. The critical information you need to provide for your recommendation are:

- 1. Features-** These are the data and GIS layers relevant to your recommendation. Below we have provided a couple of guiding questions to help you think through possible features you may want to consider.
- 2. (Feature) Value-** How much? This will be a unit of measure, e.g. #, %, distance, amount. If you are unsure you can state "high, medium, low" and allow input from advisors on how much *is* high, medium, or low for our region. Also, you can make a statement like "far enough away to allow for _____", "has enough of x to accomplish y"; again allowing reviewers to help provide necessary input.

FEATURE	VALUE
Example: Depth, habitat types to avoid or to target, proximity to other features (inlets, outfalls, artificial reefs), reef-use types to include or exclude, intensity of use, fish/coral density, fish/coral diversity.	Example: #, %, area, distance, High, Medium, Low

Example: Depth, habitat types to avoid or to target, proximity to other features (inlets, outfalls, artificial reefs), reef-use types to include or exclude, intensity of use, fish/coral density, fish/coral diversity.	Example: #, %, area, distance, High, Medium, Low

XVII. RMA Synthesis Document Example: School Curriculum

MA Synthesis Document: School Curriculum

Suggested MAs to be combined:

N-5: Develop and implement a Florida reefs and coastal eco-systems curriculum for K through 12 that includes educating educators on resources available to provide science-based foundation for making future decisions to protect coral reefs and to also educate parents.

N-10: Designate high school students to do at least 8 hours of community service that help ocean conservation to show future generations their role in keeping coral reefs.

S-49: Provide educational curriculum for Florida schools starting in elementary schools covering Florida marine, river and estuary environments to ensure future generations will continue to protect our Florida marine environment.

Summary of Management Actions: CWG Information

Similarities:

Intended Result: Each MA intends to increase educational opportunities for school students. N-5 and S-49 have the exact same intended result (to create K-12 curriculum). N-5 is more developed.

Region of Focus: All four counties in all MA's. S-49 mentions state-wide initiative.

Duration: N-5 and N-10 agree on recurring. N-10 has more developed duration ideas.

Pros and Cons: Slightly different ideas but generally there is no conflict.

Tier 2 Information: No information for S-49, little in N-10 and N-5 is developed well. Appears to be no conflicts.

Conflicts:

Intended Result: N-10 wants to create reef related community service for high school students.

Duration: S-49 indicates discrete duration.

Pros and Cons: Does not agree among MAs.

Summary of Reviewer Feedback:

These MAs are suggested for combining because:

SEFCRI TAC/Team recommends combining MAs

Information as currently provided by CWGs is not clear enough to distinguish between MAs

Summary of general feedback:

There is no conflict in reviewer feedback. There is very little if any reviewer feedback. Some instances of concern in regard to the feasibility of this MA based on the ability to mandate and change curriculum (state-wide changes?). N-10 reviewer shows conflict by stating unfeasible in Tier 2. Some evidence suggested to add N-10 as part of the other two MA's larger curriculum changes.

CWG Decision

Do you want to combine one or more MAs into one or more groups? (Yes/No)

If YES, list group(s) of MAs to be combined:

We are comfortable with N5 + S 49 being combined now, however, N10 could be included if community service became a part of the coastal ecosystem curriculum for grades 9-12. Suggesting implementation at State level.

For each group, please select a current (best developed) MA to represent the group(s).

MA(s) Selected:

Note: If you would like to edit the title(s) for the selected MA(s) to better capture the combined action please include the updated title here as well.

-No name changes-

MA(s) to be archived (information is being combined into a group):

Please list any MAs that you would like to maintain as separate actions (not combined into a group):
N10 community service, if not included in curriculum.

Discussion Notes:

State-wide implementation vs. SEFCRI-region only? Great to incorporate watershed-wise (SWFMD), watershed region. (John Fauth).

XVIII. Spatial RMA Summary Documents (May 2015)

S-2: Create and fund one SEFCRI-wide mooring buoy program as a more coordinated and cost-effective way of protecting reefs from anchor damage.

Note: Objectives listed in red are not available in the Marine Planner or not spatial.

RMAs to be combined with S-2:

N-133: Establish mooring buoys and anchoring areas at appropriate locations to prevent adverse impacts, and are preferred by boaters.

N-140: Restrict anchoring in preserve to encourage the use of the mooring buoys and internally control the number of divers on each reef to prevent anchor and chain scarring to the reefs.

N-142: Install a limited number of mooring buoys to limit the number of divers that would place stress on the reef as mooring buoys do not stop anchoring to create a procedure to regulate and monitor the users.

N-145: Create/rotate limited use areas to allow reef recovery.

SPATIAL SITING OBJECTIVES:

Reduce anchoring damage to reefs.

Designate limited use areas.

NON-SPATIAL SITING OBJECTIVES:

Control use of reef sites (via the number of buoys deployed/restriction on anchoring within a pre-determined distance from those areas).

Adjust the amount of use by addition or reduction in mooring buoys

Promote reef recovery.

Rotation of mooring buoy areas.

Establish a single mooring buoy authority for the 4 SEFCRI counties.

Lower the cost to install and maintain mooring buoys in the region.

Features/Values:

	Feature	Value
1	existing mooring buoys	location numbers
2	depths	0-90 ft
3	user patterns//user	number frequency use//intensity of use, seasonality
4	coral reefs//reef and sand location// resources	location health diversity density//presence/absence of hardbottom /high and medium coral cover
5	proximity to other	Inlets other reefs artificial reefs "other"
6	existing installed anchoring buoys systems without buoys attached	location number
7	preserve limits	boundary
8	diving intensities/ extractive diving activities (lobstering, spearfishing, etc.)/ fishing intensity	high and medium intensity
9	spawning aggregation (goliaths and other species if available)	high density of individuals
10	proximity to shore	/ /0-3 miles
11	coral bleaching	high, medium, and low levels of bleaching
12	lobster	high and medium density of lobster
13	commercially and recreationally important fish species	high and medium observed density

Other Spatial Considerations (from Reviewer feedback):

Mooring buoys should not be placed offshore of Palm Beach County due to the predominantly strong currents. This includes the 3rd reef which is the main diving area.

Mooring buoys don't work in N. PBC b/c most sites are on 3rd reef where there is way too much current. There are some closer to shore at patch reefs where currents aren't quite as strong

In Palm Beach, mooring buoys are only feasible at water depth less than 25 feet.

Current buoys:

- Miami-Dade: 42 buoys; 20nm
- Broward: 122 buoys; 21nm
- Palm Beach: 38; 38nm
- Martin: 12 buoys; 12nm

Buoys may cause an increase in use and impacts – it is probably best to NOT place buoys on certain important reef areas (this will keep these areas less accessible).

If rotating buoys, what would determine the timing/frequency of rotation?

Identify high-use areas and sensitive areas.

Consider existing uses, the intensity of those uses, and seasonal use patterns.

Consider the carrying capacity based on the size/dimensions of a mooring buoy site (# of buoys/area?), appropriate spacing/distances between mooring buoys, no-anchor buffer areas around mooring buoy locations

The concept of rotations: access being on/off seems to be a logistical nightmare from the standpoint of regulation/enforcement, not to mention confusion for the users. Keeping track of who can do what where and when would be difficult not to mention more costly.

A standard designation would seem far less confusing than spatial and temporal rotations. Other than perhaps for targeting a protective spawning aggregation.

There is no real evidence that recovery would occur on a timeframe that would make sense with this type of management strategy.

A planned regional approach with sacrificial areas with buoys might be the best strategy. Rotating buoys might just spread the damage around.

N-146: Establish and implement an MPA zoning framework for the SEFCRI Region that includes but is not limited to no-take reserves, no anchor areas, restoration areas, and seasonal protection for spawning aggregations to enable sustainable use, reduce user conflict, and improve coral reef ecosystem condition.

RMA's to be combined with N-146:

S-16: Create MPAs within SEFCRI area that amount to ~20% of area and are well defined to protect reefs and minimize user conflict.

S-20: Define and prioritize reefs and habitat areas for extra protection to reduce fishing stress, accelerate reef recovery, protect reef fish, benefit public education, and benefit recreational diving and snorkeling.

S-22: Develop marine protected zones in local high-density coral areas to reduce anthropogenic impacts and improve coral protection for local healthy sites.

S-38: Establish replicated marine reserves to determine impacts of water quality versus fishing on resources to increase knowledge of threats, public education, protection of fish populations, and public awareness.

S-82: Create zones to exclude fishing traps and commercial gear in special high-density coral areas to reduce storm and current movement trap/gear damage to the reef ecosystem.

S-84: Create no-take zones for sharks and barracuda in aggregate areas to protect overfished predators in areas where most vulnerable.

S-123: Create, establish, and monitor no take areas to comprise at least 20-30% of SEFCRI Region and incorporate evaluation.

N-100: Create MPAs within FRT based on current science and data to develop site specific goals for a management plan to protect sensitive species and habitat.

N-144: Implement MPA planning process to set aside areas to enhance population of most prolific reproduction of reef fish and coral.

N-147: Develop and establish no-take zones or areas of restricted activity (include reefs and everglades) to protect and reduce pressure on reefs, stop use of tackle and traps that damage reefs, and avoid user conflicts to reduce pressure on juvenile and forage fish.

SPATIAL SITING OBJECTIVES:

Note: Objectives listed in red are not available in the Marine Planner or not spatial.

Protect reef species and habitats

(from S-22, N-146, N-100, N-144, N-147, S-16, S-20, S-84, S-123)

Protect unique areas

Protect vulnerable / sensitive species and habitats

Seasonal protection for spawning aggregations

Protection based on resources (based on the science/data about resources)

Protect high-density coral areas

Protect representative coral habitat

Protect sharks and barracuda

Protect areas where aggregate (mating/pupping/nursery grounds)

Protect apex predators to help balance ecosystem and improve resilience

Protect 20-30% of the reefs in the SEFCRI region from extractive use (no take).

Protect from / minimize harmful activities

(from N-144, N-146, N-147, S-123)

Protect from boating, fishing, and diving impacts

Eliminate habitat damage from fishing gear and all fishing interactions

Protect from maritime industry impacts

Protect from coastal construction impacts

Protect from water quality issues

Decrease overfishing of reef species

Reduce damage from storms moving fishing gear / traps around

Decreased user conflict between extractive and non-extractive uses

(from S-16, N-146, N-144, N-147)

Increased resilience to climate change

(from S-123)

Restore / Improve reef ecosystem condition

(from N-144, S-16 & S-123)

Restore coral populations

Restore depleted fish populations

Increase fish reproduction and supply of recruits to surrounding fishing grounds through larval dispersal

Healthier reefs

Restore ecosystem species composition

Recover lost biodiversity

Restore abundance and size structure [of fish] in protected areas

NON-SPATIAL OBJECTIVES:

Comprehensive management across all four counties

(from N-147, S-16, N-146, N-100, S-20, S-22, S-38 & S-84)

The proposed Marine Protected Area No Take Zones (MPA-NTZs), North (Palm Beach County), Central (Broward/Miami-Dade Counties) & South (Miami-Dade County) can be viewed in shared drawings in the Marine Planner by the CWG South

Benefit education

(from S-123, N-144 & S-16)

Increased public understanding of functions of marine ecosystems and impacts of human activities

Benefit scientific research

(from N-144 & S-84)

Help study impacts of human activities (protected vs. unprotected areas)

Determine impacts of water quality vs. fishing

Sustainable use

(from N-146)

Allow continued use of traditional fishing activities

Limit access to aquaria collectors

Enhance non-extractive economic activities

(from N-146, N-147 & S-16)

Benefit recreation

Increased recreational value of Florida reef tract

Benefit recreational diving and snorkeling

Benefit tourism

Improved social and economic opportunities for current and future generations via enhanced diving, education, research, and tourism

Increased support for coral reef conservation in region

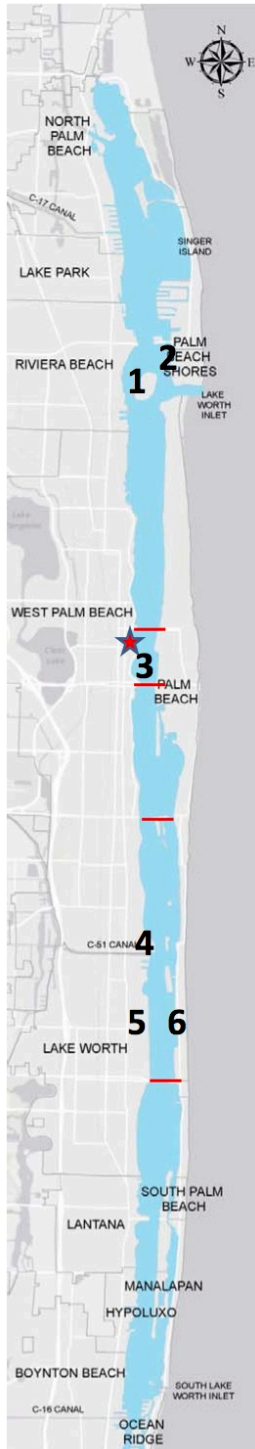
Features/Values:

	Feature	Value
1	Location of species specific spawning aggregations (abundance and area)// Quality of reef habitat // value to non-extractive user groups	Presence, abundance, size range if applicable// Target "good" or "bad" areas
2	Events (Land n Sea show, Columbus Day Regatta)	Type and location
3	Marine Debris Locations	Location and intensity, area affected
4	Access to boat ramps and inlets	Location
5	High density of listed species	Areas with HIGH density and location of listed species
6	Chronic disturbance sites/ Alternative energy location site plans (cited)	Location
7	Sea turtle habitat (nesting and foraging)/ Bird rookeries	Location
8	Presence/absence of Endangered species areas Endangered species density and composition of species	Location (presence or absence), number and density of species

9	Areas of high fishing activity/ Areas of high boating activity/ Commercial/ Recreational/ Spearfishing// use data (commercial and recreational) and fishing type (apparatus)	Location// types of impacts/ more popular sites/ High use areas
10	Mangroves and seagrass beds/ Critical Fish Habitat/ Areas of high biodiversity (fish and corals)// coral densities within reef tract// resilient coral reefs (higher reproduction)	Location
11	Areas of high diving activity// diving intensity	Location
12	Existing managed areas// Existing marine protected areas within reef tract// Use// Intensity of use// Density of resources// Diversity// Richness	Location// type of protection, overlapping areas// type ID// high medium low
13	Shipping & transportation corridors and anchor grounds/ Utility Corridors// types of ships	Location and intensity of traffic pattern Frequency// especially large (>120')
14	Beach Renourishment areas/ Reef injury Sites/ Artificial reef sites/ wrecks	Location
15	Location of reefs// coral habitat// historic impacts type of damage, extent of damage// coral (species, density, diversity, coverage, colony size)// reef use types and intensity of use (and associated impacts)// Reef proximity to stressors (ports, outfalls, high traffic, inlets)// Reef areas that can potentially recover// Reef rugosity// Reef accessibility for academic study	Acreage// % coverage// extent of damage// presence// distance// % or medium/high// depth and/or distance//(% coral cover) health is most important feature for this area (or number of small no take areas)
16	Fish spawning sites (including inland/lagoon/creek), EFH// fisheries data// fish stock data// abundance, density, size class distribution// Fishery dependent data and catch location data to identity fishing pressure in given areas// pelagic fish data	Density of fish in different spawning sites, population assemblage (reproductive size)// diversity and abundance// recreational pressure commercial pressure finfish and shellfish data// breeding/spawning nursery seasonal aggregation// RVC data// Barracuda abundance
17	Relative impacts of other threats (LBSP, maritime industry, coastal construction...)	Low
18	How large does it need to be to be effective? // No take zones (small areas)	% area or area size to encompass critical habitat and healthy areas
19	Water quality and productivity/ Water Depth/ State water boundary	High
20	Nearshore Hardbottom Coral Reefs Seagrasses// Bio-geographic Ranges/Zones (data layer needs to be created)	% representation - based on ecological function/services provided, ideally target a range of 20-40%, dependent on the specific type of habitat % replication - each habitat type should have at least 3-4 occurrences of the specific type of habitat
21	Threats data layers: Commercial fishing, Transportation/Navigation routes Inlets	% or High Use areas to be avoided
	Shark aggregate sites	Presence/ absence

XIX. Rivers to Reefs Waterways Tour RMA Connection Document

OFR Rivers to Reefs Tour 2015



1 Peanut Island

- restoration of 79 acre spoil island
- Created maritime hammock, snorkeling reefs, seagrass and mangrove habitats, and recreational beach



2 Lake Worth Inlet/Blue Heron Bridge

- Important local dive destination
- High tide brings clean ocean water to reefs inside the Lagoon



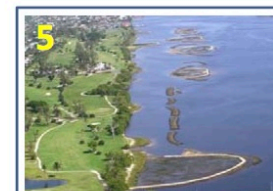
3 South Cove

- 2012 creation of 6 acres of habitat
- Created seagrass, oyster, marsh and mangrove habitats
- Public use facilities include boardwalk, platform and info kiosk



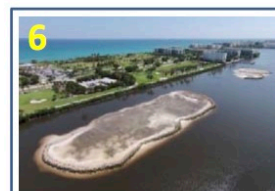
4 C-51 Canal

- 2008 creation of 12 acre sediment trap for LBSP reduction
- Dredged over 100,000 cubic yards of muck from canal
- Designed to act as a sump to trap sediments before they are discharged to LWL



5 Snook Islands

- 2005 restoration of 100 acres of wetland habitat
- Filled deep holes with over 1.2 million cubic yards of clean sand from Peanut Island
- Created oyster, seagrass, salt marsh, and mangrove habitat



6 Grassy Flats

- 2015 restoration of 13 acres oyster, seagrass, salt marsh, and mangrove habitat
- Spread clean sand to cap mucky sediments and create islands
- Successful least tern nests

Our Florida Reefs Recommended Management Actions

1. PEANUT ISLAND

RMA: N-75- Promote/offer free pump out stations to better water quality and allow boats a better option than dumping off shore.

2. LAKE WORTH INLET/ BLUE HERON BRIDGE

RMA: N-146- Establish and implement An MPA zoning framework for the SEFCRI Region that includes no-take reserves, no anchor areas, restoration areas, and seasonal protection for spawning aggregations to enable both sustainable use and protection of our Florida reefs.

3. SOUTH COVE RESTORATION

RMA: N-116- Coordinate regional "living shoreline" objectives to promote the use and protection of natural infrastructure (e.g. coral reefs, native vegetation, mangrove wetlands) to provide natural barriers to storm surge and maintain coastal biodiversity.

4. C-51 CANAL

RMA: N-82- Support existing and create innovative new initiatives that increase storm water storage, and reduce stormwater runoff, enhance treatment, increase reuse, and reduce nutrients and other contaminants, from all surface water to restore healthy estuaries.

5. SNOOK ISLANDS

RMA: N-70- Prioritize the protection of existing and the restoration of historical mangrove, seagrass, oyster and other estuarine habitats, to and redirect historical freshwater flows, increase habitat, improve water quality, and support nursery areas for reef fauna.

6. GRASSY FLATS

RMA: N-70- Prioritize the protection of existing and the restoration of historical mangrove, seagrass, oyster and other estuarine habitats, to and redirect historical freshwater flows, increase habitat, improve water quality, and support nursery areas for reef fauna.

XX. Spatial Management Toolbox

Management Tool Options for Recommended Areas in N-146 (MPA Framework)

Provided below is a list of management tools or approaches that can be applied in specific places to provide increased protection for coral reef ecosystem resources. Please select **at least 1** and **as many as 3** management tools for each of the recommended areas for increased protection associated with RMA N-146 that were identified by the CWGs using the OFR marine planner. Insert your selected management tools under each recommended area in the ballot provided. If you select option number 10, “other”, please describe your recommended approach for this area in the space provided in the ballot.

Management Tool Options:

Marine reserve – also known as a “no-take area”. This management approach would prohibit the removal of natural resources such as fish, corals, etc. from the designated area all year long.

Temporary closure – this approach would close off the area to identified activities temporarily during specified times such as spawning season for particular reef fish species that are known to aggregate in an area or during times of severe stress such as extreme temperature or coral bleaching events, extreme turbidity events, disease outbreaks or algal blooms.

Herbivore protection area – this approach would restrict the removal of herbivorous species such as urchins, parrot fishes, and surgeon fishes in the area to allow for improved algal grazing and ecosystem function.

Targeted reduction of LBSP – pollution in the form of excess nutrients, sediments, toxins and other wastes generated by land-based activity can have serious impacts on coral reefs. Land-based pollution can be addressed through a variety of site specific management practices including the restoration and preservation of coastal ecosystems (mangroves and seagrasses) that filter and trap sediments and nutrients before reaching reefs, maintenance of vegetation along waterways and on beaches to reduce nutrient and sediment run-off, and adoption of best practices for coastal construction and beach renourishment to minimize sedimentation in specific areas adjacent to important reef resources.

User conflict management area – this approach would designate the area for a specific user group and prohibit other uses of the area. For example, to reduce conflict between recreational fishing and diving communities’ areas can be designated as fishing only or diving only areas.

Invasive species management area – this approach would enable concentrated effort to remove invasive species such as invasive algae and lionfish that negatively impact native coral reef ecosystem resources.

Allow appropriate resource management agency to select management tool for this area.

Don’t know.

No increased protection is needed in this area. Do nothing.

Other (please describe).

XXI. Our Florida Reefs Press Tracker

Author	Publication	Location
Ed Killer	TC Palm	http://www.tcpalm.com/sports/columnists/ed-killer/ed-killer-reef-relief-anglers-divers-should-get-involved-2a44afbb-17ab-5e22-e053-0100007fef79-366713071.html
	The Fishing Wire	http://www.thefishingwire.com/story/365928
	Florida Sportsmen	http://www.floridasportsman.com/2016/01/28/florida-reefs-introduces-possible-mpas/
	ProScuba Diver	http://www.proscubadiver.net/scuba_news/our-florida-reefs-2016-community-meetings/
Jess Swanson	Broward & Palm Beach New Times	http://www.browardpalmbeach.com/news/commercial-fishermen-say-industry-threatened-by-proposed-ban-on-spearfishing-with-scuba-7559342
	Miami Dade RER	https://mobile.twitter.com/MiamiDadeRER?ref_src=twsrc%5Etfw
Bouncer Smith	Paul & Young Ron Saturday Morning Fishing Update	2/12/2016: http://www.iheart.com/show/Paul-and-Young-Ron-Morning-Sho/?episode_id=27449088
Branon Edwards	Broward & Palm Beach New Times	http://www.browardpalmbeach.com/news/scuba-divers-and-spearfishermen-balk-at-68-new-regulations-recommended-to-protect-coral-7516631
		http://spearboard.com/showthread.php?t=187071
		https://www.facebook.com/events/431428257055788/
Steve Waters	Sun Sentinel	http://www.sun-sentinel.com/sports/outdoors/fl-outdoors-spearfishing-ban-0215-20160214-story.html
Tom Warnke	Ahead of the Tide Video Series	video: https://vimeo.com/155312971 Website: http://aheadofthetide.org/
Dennis O'Hern	Fishing Rights Alliance	http://thefra.org/registration-of-fishing-gear-ban-scuba-spearfishing-area-closures/
	Florida Sportsmen	http://www.floridasportsman.com/2016/02/22/sign-petition-stop-recommended-fishing-closures-southeast-florida/
	Keep America Fishing	https://secure2.convio.net/asaf/site/Advocacy;jsessionid=70A35F1E5423A4D15EDCE9B1E3543229.app260a?cmd=display&page=UserAction&id=342
Arthur Mariano	CCA, Florida Sportman, Keep America Fishing email blast via HHSFSSC (Meetup.com listserve)	Dear member, I hope this message finds you well. A number of organizations, including the CCA, Keep America Fishing, Florida Sportsman, and a number of spearfishing organizations are propagating a lot of misinformation about Our Florida Reefs recommended management action items. Please get in touch with these groups and let them know your opinion, and that they are wrong. An email that I sent to CCA is below and I have sent similar comments to Keep America Fishing and Florida Sportsman. Also, please take a few minutes and visit http://ourfloridareefs.org/RMAcomment/ to submit comments. This is very important for the future of our reefs and fishing. Have a great day. cheers, arthur

		<p><u>CCA should be ashamed of itself for propagating misinformation about the proposed management plan for the SE FL reef tract. The proposed MPAs will be at most 25-30% of the SE FL Coral Reef Tract; a number that is based on the best available science to see positive results for increasing fish yield in our area and for protecting coral. There is no doubt that the fishing and coral reefs have declined in the S FL area; we can either sit around and do nothing or take action that has been shown to produce positive results in many regions.</u></p> <p><u>MPAs do not imply a total shut down of all fishing in that area. A review of the scientific literature shows that MPAs that are properly run, and for large enough regions, do work; fish populations do increase to sustainable levels.</u></p> <p><u>Your recommendations are extremely short-sighted, ignore the best available science, and you do not allow anyone with opposing views to present another opinion. If U care about fishing and the health of SE FL corals, support OFR's proposals. Please change your recommendations since you are suppose to be a conservation organization. I've lost all respect for your organization and will not longer tell the members of my fishing club to support CCA. I personally bought a table of ten at last year's Broward Banquet, but not this year since I am no longer going to support an organization that is misleading its members.</u></p> <p><u>Sincerely, Professor Arthur Mariano, U of Miami Rosenstiel School of Marine Atmospheric Science, and President of the Hollywood Hills Saltwater Fishing Science and Social Club.</u></p>
Angela Smith	Mission Blue and Shark Savers (shark Team One)	Facebook post for OFR 2/5/2016 to submit comments and check out OFR.
DEMA page 2/1/2016	DEMA (Dive Equipment & Marketing Assn)	http://www.dema.org/news/272242/Public-Policy-Alert---Proposed-Ban-on-Spearfishing-in-Southeast-Florida.htm
Sue Cocking	Guy Harvey Outpost Blog	http://guyharveyoutpostnews.com/
Carl Leiderman	Miami Herald	http://www.miamiherald.com/opinion/op-ed/article63082667.html
Anne Siren	The Pelican (Pompano) Pg 15	http://pelicannewspaper.com/wp-content/uploads/2016/03/Pelican-3.4.16.pdf
Bill Lindsey	SunSentinel	edition.sunsentinel.com/Olive/ODE/FloridaSunSentinel2/PrintComponentView.htm Publication: Sun Sentinel (Broward); Date: Apr 11, 2016; Section: A Section; Page: A11
	Coastal Angler	Print Edition March 2016 page "South Florida 7"

	Saltwater Sportsmen Apr 2016 pg 21	"No More Fishing"
	Fishing Tackle Retailer (online)	http://fishingtackleretailer.com/southeast-florida-retailers-unite
LLGF	Newsletter	May-16
Keep America Fishing	Newsletter	May-06
MIA PBC	Newsletter	May-16
The Billfish Foundation	Newsletter & Memorandum	http://www.billfish.org/advocacy/florida-reefs-anglers-angst/
Steve Waters	Sun Sentinel	http://www.sun-sentinel.com/sports/outdoors/fl-outdoors-florida-reefs-0610-20160608-story.html
Karl Wickstrom	Florida Sportsmen	July 2016 Editorial on OFR

XXII. Our Florida Reefs Frequently Asked Questions Document

Note: This document was prepared near the close of the OFR Process (Community Meetings- Jan. 2016). Information provided here addressed questions submitted online and at outreach events so that DEP staff and CWGs could address concerns as objectively and consistently as possible. This document was created based on the model used during the [Great Barrier Reef Marine Park Act of 1975](#).

Providing the facts about coral reef ecosystems in southeast Florida and the *Our Florida Reefs* Community Planning Process

FACT: Southeast Florida’s Coral Reef Ecosystem, including many fish populations and other critters that call the reef home, are NOT in good condition and we need increased protection and management to conserve it.

Scientific information shows that a significant decline in coral cover and species diversity has occurred over the last several decades in Florida’s waters. Several key reef building species of coral are in danger of extinction as recognized by the State of Florida and the U.S. Endangered Species Act. A recent four-year study of our reef fish populations in this region has shown that populations of commercially and ecologically important species such as Red Grouper, Gray Snapper, and Great Barracuda appear to be very low in comparison to the Florida Keys, and should be targeted for immediate management attention. Our corals and fish are being impacted by pollution, poor development practices, climate change and incompatible fisheries pressure. If we do not take action to significantly reduce these various impacts, we risk losing these unique and extremely valuable resources that fuel southeast Florida’s local economy and protect our coastline from storm damage and sea level rise.

FACT: Increased protection and management will strengthen our local economy and protect jobs that rely on a healthy reef system.

Healthy oceans are essential for tourism, and coral reefs are a vitally important component of Florida’s economy. In the four-county southeast Florida region alone, reefs sustain 61,000 jobs and generate more than \$5.7 billion in sales and income annually *. With the help of the individuals and communities who depend upon healthy reefs for their livelihood, we can develop a comprehensive management strategy that balances the use and protection of these resources and minimizes negative impacts to our local economy. For many years, Floridians have chosen to protect their natural resources with regulations that prevent harm and potential pollution, such as the ban on offshore drilling. In Florida, healthy ecosystems and a healthy economy go together.

* Johns, G.M., Leeworthy, V.R., Bell, F.W., and Bonn, M.A., 2001. *Socioeconomic Study of Reefs in Southeast Florida*. National Oceanic and Atmospheric Administration, National Ocean Service, Special Projects

FACT: We do not need more research & data before we can take educated action to protect coral reefs.

Marine systems are highly complex, and new scientific information is constantly being generated by ongoing research efforts. Recognizing that complete knowledge and understanding will never exist to fully inform management decisions, the *Our Florida Reefs* process has gathered more than a decade’s worth of the best available science and data related to local ocean ecosystems and ensured that it is accessible in a format that can be incorporated into the *Our Florida Reefs* Community Planning Process. Although there will always be additional information that may further inform management, enough data currently exists for the community to make well-informed decisions during this planning process. In fact, the coral reefs in Florida are better studied than almost any coral reef system in the world.

FACT: The *Our Florida Reefs* process is community-based and well-coordinated with resource management agencies that have the authority to implement actions.

The *Our Florida Reefs* Recommended Management Actions were developed by local residents, reef users, business owners, scientists, and representatives from NGOs and local, state, and federal agencies through a two-year collaborative planning process. A major component of the *Our Florida Reefs* planning process is to facilitate collaboration among the various agencies with authority to manage our ocean resources. Representatives from various government agencies are members of and work alongside non-agency members of the Community Working Groups. They help identify the management recommendations that can be readily implemented. Any management actions requiring new rules and regulations will fall under the authority of the appropriate agency such as FWC or FDEP and many of these will require separate planning processes with stakeholder involvement and public input.

FACT: The SCUBA diving and recreational and commercial fishing communities are encouraged to provide their input in response to any of the Recommended Management Actions

SCUBA divers and fishers are two key stakeholder groups whose activities are most immediately affected by the state of our coral reefs and how we choose to manage them. Although significant effort was made to get many key local fishers and fishing industry representatives to the table as part of the *Our Florida Reefs* Community Working Groups, the level of participation by the fishing sector in the process was less than other stakeholder groups. The *Our Florida Reefs* Community Working Groups hope to hear back from all interested divers and fishers in the region with their perspectives on the draft recommendations that have been developed.

FACT: Place based approaches to marine conservation such as Marine Protected Areas have proven effective at focusing conservation efforts on key areas and protecting the access of ALL of the public to coral reef ecosystem resources including fish and fisheries.

Marine Protected Area or MPA is a broadly used term that has different meanings for different people. The *Our Florida Reefs* Community Working Groups used this term in its broadest sense to mean "...any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein." – Executive Order 13158 (<http://marineprotectedareas.noaa.gov/pdf/eo/execordermpa.pdf>). MPAs vary considerably in their size, shape, purpose, and rules. They may exist as stand-alone areas, be contained within a larger zoned MPA, or be part of a broader network of MPAs spanning over a large area that achieves its conservation objectives as a whole. Just as they can differ in size and shape, marine protected areas differ in their reason for establishment. (<http://marineprotectedareas.noaa.gov/aboutmpas/>). After reviewing the scientific data that has been collected about the coral reef ecosystem in SE Florida and how it is begin impacted, the Community Working Groups identified special areas of interest along the reef tract in southeast Florida and drafted specific objectives that would increase the protection and management of the coral reef resources in those areas. The objectives are diverse and include areas that could offer seasonal protection for fish spawning aggregations, areas where the improvement of water quality would be the main focus and areas that could be designated as marine reserves that would emphasize non-extractive use and allow populations of fish and coral to recover. These are just a few examples of many potential objectives that were identified for these areas of interest.

FACT: The 68 Recommended Management Actions that have been developed by the Community Working Groups are proposed approaches to improving coral reef conservation and management and are not draft regulations under consideration by specific government agencies.

The draft Recommended Management Actions being presented for public review and input were developed by the Community Working Members to balance the sustainable use and protection of coral reef resources in southeast Florida and seek to reduce threats to our coral reef ecosystem. They include actions that: educate the public and specific reef users, improve the ability of enforcement officers to do their job of upholding existing

rules and regulations, propose new ideas that take both regulatory and voluntary approaches to reducing unsustainable development and incompatible fishing pressure in southeast Florida and the influence of pollution on our coral reefs.

Please take the time to learn more about what the Community Working Groups have recommended and provide your thoughts at one of our twelve community meetings (details at <http://ourfloridareefs.org/events/>) or online at OurFloridaReefs.org.

XXIII. OFR Public Comment Directory

OFR Public Comment

The following is a directory of all the public comment received during the OFR process. This includes:

General public comments received through the OFR website throughout the process. Here: <http://ourfloridareefs.org/working-group-resources/public-comments/>

Transcripts of public comment given in person at OFR meetings. Please refer to meeting minutes in each month's meeting archive.

North CWG here: <http://ourfloridareefs.org/north-working-group/>

South CWG here: <http://ourfloridareefs.org/south-working-group/>

Joint CWG here: <http://ourfloridareefs.org/joint-cwg/>

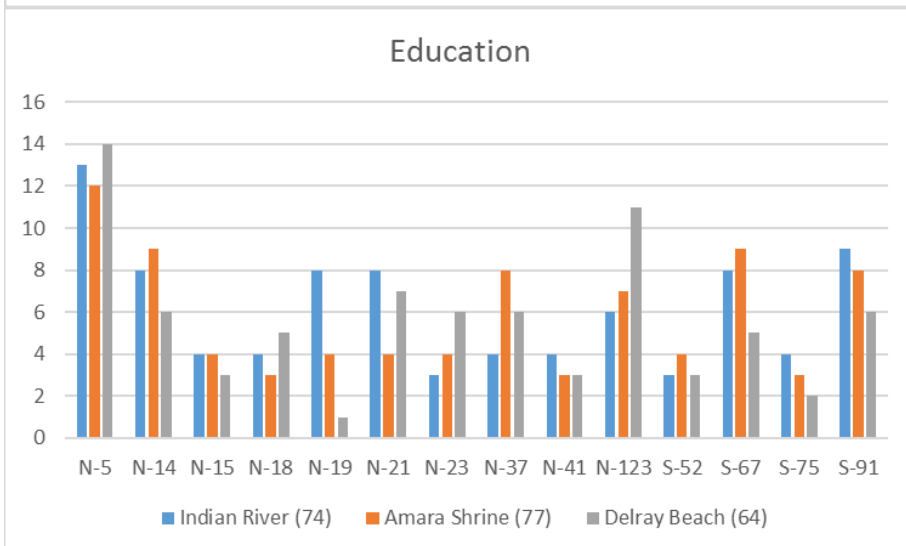
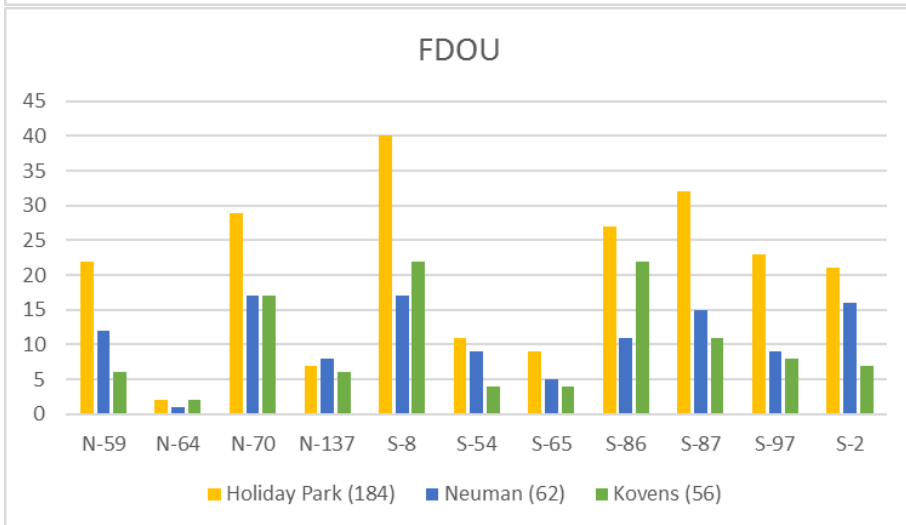
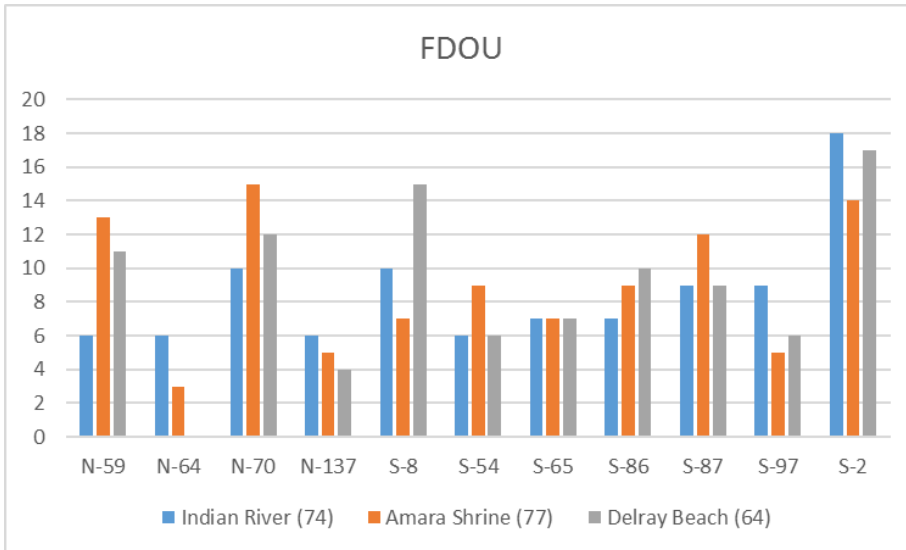
Public comment on specific RMAs received through the OFR website and at Community Meetings during the RMA comment period (December 2015 – March 2016). Sorted by focus area here: <http://ourfloridareefs.org/rma-specific-public-comment/>

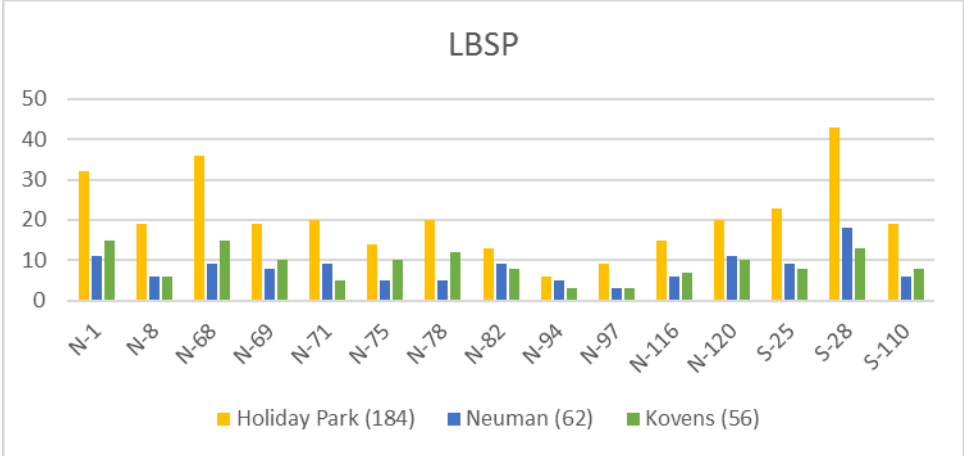
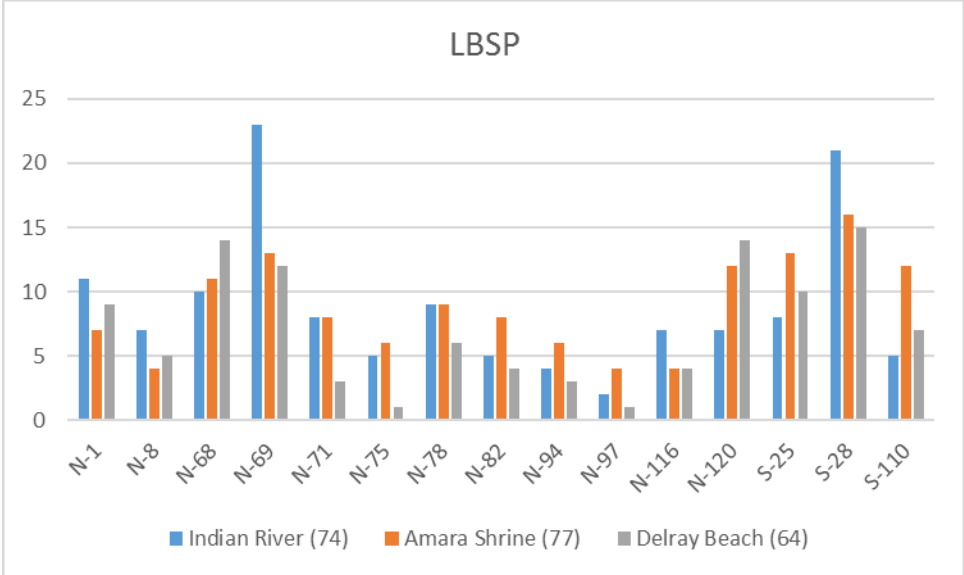
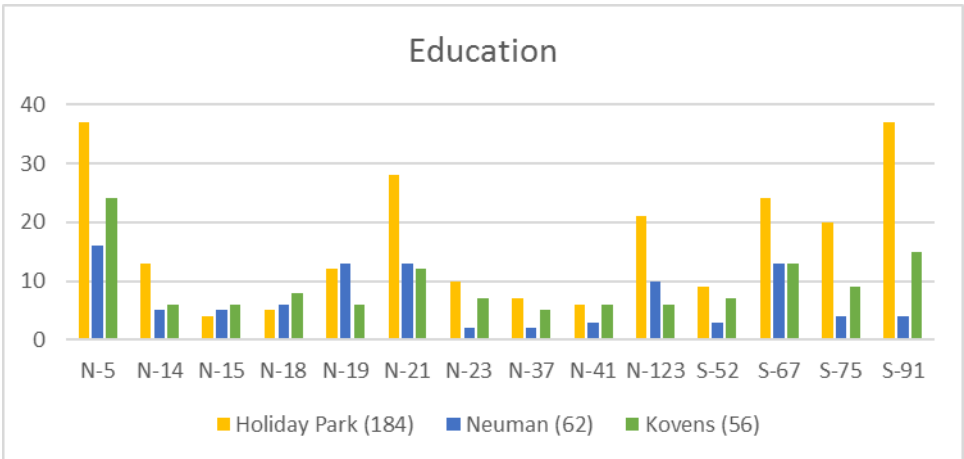
Letters and petitions submitted to OFR. Here: <http://ourfloridareefs.org/rma-specific-public-comment/>

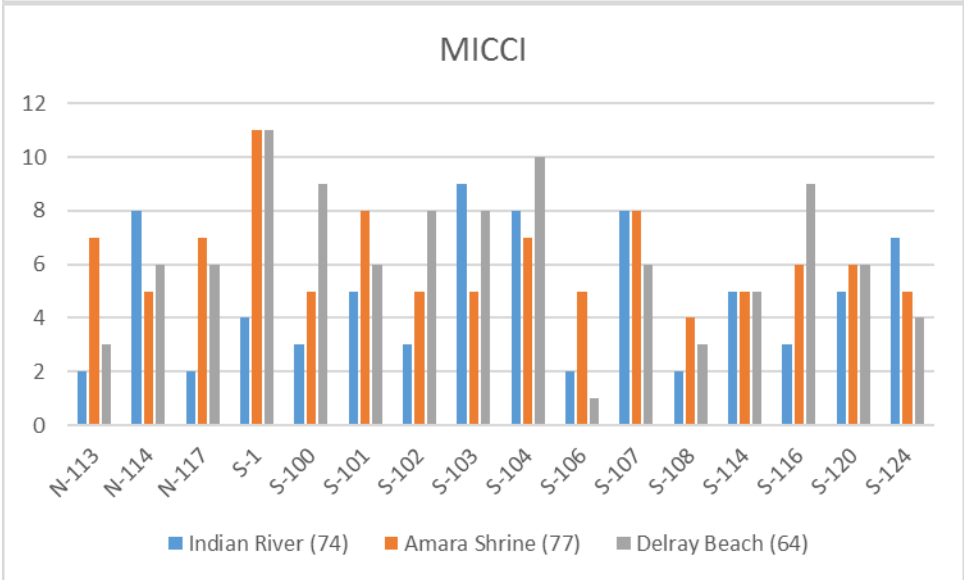
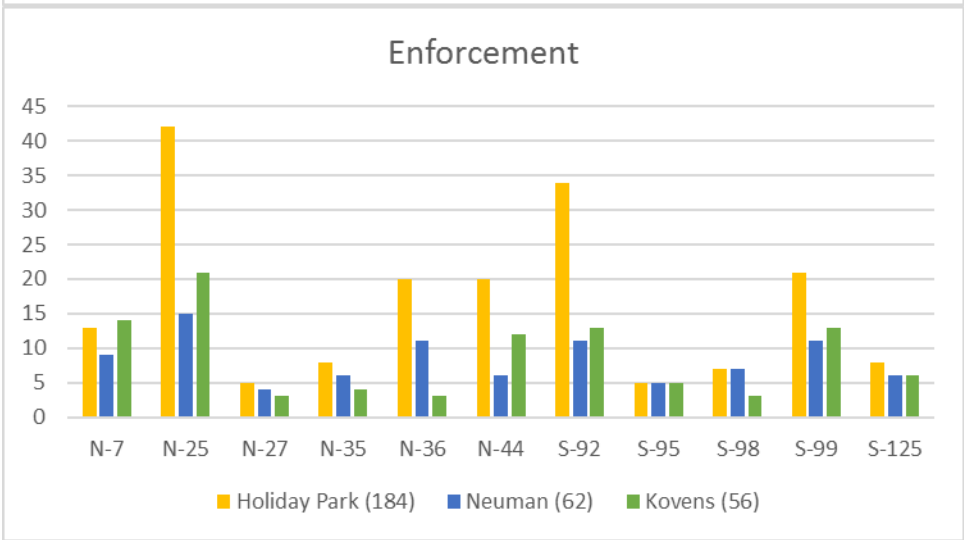
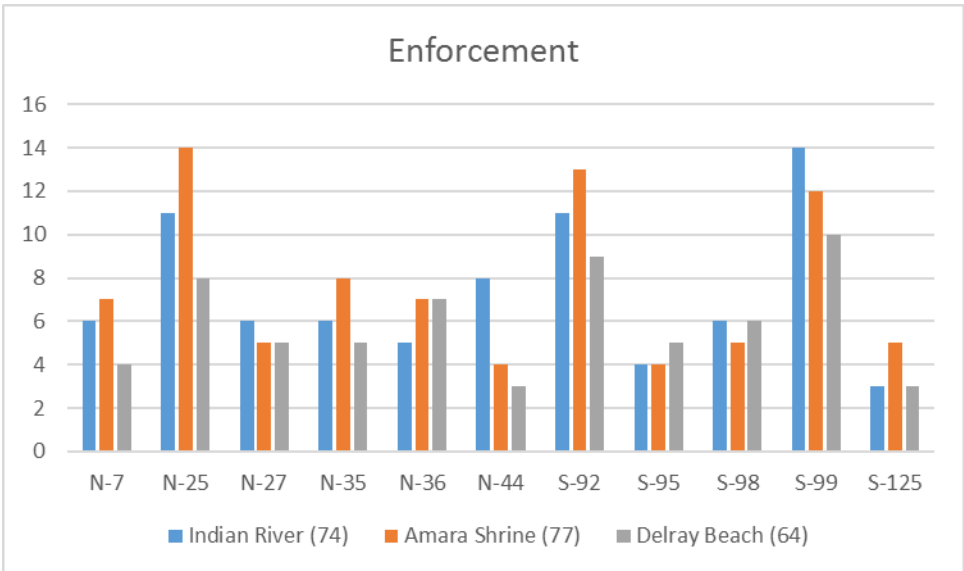
Public comment received by DEP after the OFR process had ended.

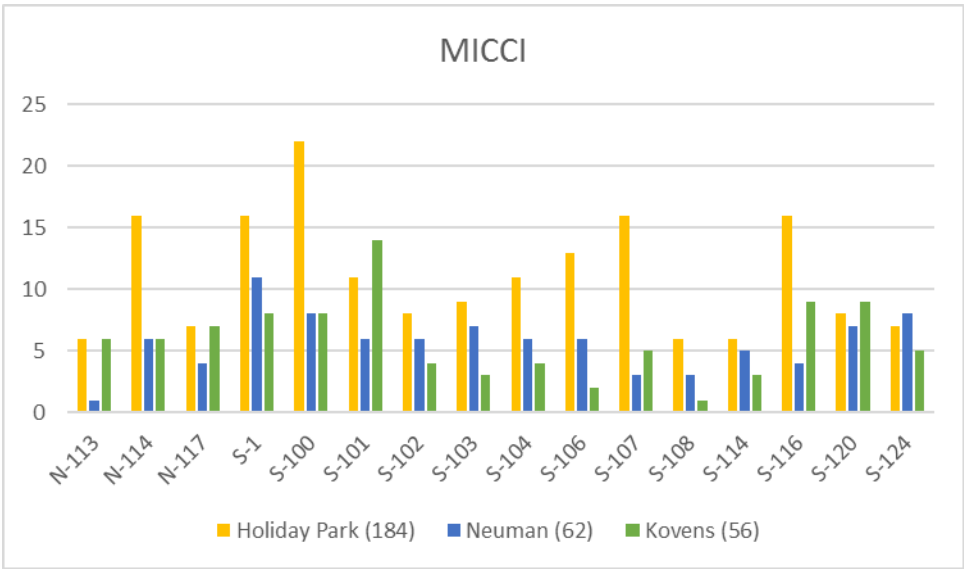
<http://www.dep.state.fl.us/coastal/programs/coral/reports/fdou26.htm>

XXIV. 2016 Community Meetings “Dot Activity” Results









XXV. EndNote Bibliography

- (2006). The functional value of Caribbean coral reef, seagrass and mangrove habitats to ecosystem processes. *Advances in Marine Biology* (Vol. Volume 50, pp. 57-189): Academic Press.
- Abbott, G.M., Landsberg, J.H., Reich, A.R., Steidinger, K.A., Ketchen, S., & Blackmore, C. (2009). *Resource guide for public health response to harmful algal blooms in Florida*.
- Abelson, A. (2006). Artificial reefs vs coral transplantation as restoration tools for mitigating coral reef deterioration: benefits, concerns, and proposed guidelines. *Bulletin of Marine Science*, 78(1), 151-159.
- Abernathy, L. (2011). *One-year avian survey of John U. Lloyd Beach State park to determine population density*. Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Acropora Biological Review Team. (2005). *Atlantic Acropora status review document*. National Marine Fisheries Service, Southeast Regional Office.
- Adams, D.H., McMichael, Jr., R.H. (2001). *Mercury levels in marine and estuarine fishes of Florida*.
- Adams, D.H., McMichael, Jr., R.H. (2003). *Mercury levels in marine and estuarine fishes of Florida 1989-2001*.
- Adams, K. (2003). *Studies on the seasonal occurrence and activity of higher filamentous marine fungi in a south Florida mangrove forest*. Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Addis, D., Chagaris, D., Cooper, W., Mahmoudi, B., Muller, R.G., Munyandorero, J., Murphy, M.D., & O'Hop, J. (2011). *Florida's inshore and nearshore species: 2010 status and trends report*. Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, St. Petersburg, Florida.
- AES Ocean Express, LLC. (2003). *Ocean express pipeline project: Final EIS, part 1 of 3*. Docket No. CP02-090-001. Federal Energy Regulatory Commission, Washington D.C.
- Agassiz, L. (2002). *The first scientific study of the Florida reefs: Examination of the Florida Reefs, Keys and Coast, Appendix 10*. National Oceanic and Atmospheric Administration.
- Agostini, V.N., Margles, S.W., Schill, S.R., Knowles, J.E. & Blyther, R.J. (2010). *Marine zoning in Saint Kitts and Nevis: A path towards sustainable management of marine resources*. 1-242. The Nature Conservancy and US Aid from the American People.
- Albada, E., & Craig, K. (2006). *Jupiter/Carlin shore protection project, Palm Beach County, Florida: 24-month monitoring report*. Taylor Engineering, Inc. Jacksonville, Florida.
- American Forests. (2007). *Urban ecosystem analysis, Palm Beach County, FL*. American Forests, Washington DC.

- Anderson, R. L. (2009). *Characterization of nocturnal fish assemblages on vessel and natural reefs of Broward County, Florida, USA*. Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Anderson, W.T., Paul, V. J., & Sneed, J. M. (2012). *Using cyanobacteria and macroalgae stable isotopes as anthropogenic point and non-point source nutrient indicators - final report*. Southeast Florida Coral Reef Initiative, Land Based Sources of Pollution, Local Action Strategy Project 32. Florida DEP, Miami, Florida.
- Andree, S. (1987). Proceedings from the Florida Artificial Reef Summit: *Florida Artificial Reef Summit*. 93. Florida Sea Grant College, Miami, Florida.
- Andregg, D. (1999). *Barium and carbon and oxygen isotope chronologies from two southeast Florida coral species environmental implications*. Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Andrews, J. L. (1995). *Equilibrium profile response to restored and renourished beaches in south Florida*. Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Andrews, K., Nall, L., Jeffrey, C., & Pittman, S. (2005). *The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2005*, 150-200. The State of Coral Reef Ecosystems of Florida.
- Ankersen, T. T., Hamann, T., & Flagg, B. (2011). *Anchoring away: government regulation and the rights of navigation in Florida*. (3rd ed.). University of Florida, Gainesville, Florida.
- Antonini, G., Zobler, L., Sheftall, W., Stevely, J., & Sidman, C. (1994). *Feasibility of a non-regulatory approach to bay water anchorage management for sustainable recreational use*. University of Florida, Gainesville, Florida.
- Applied Biology, I. (1978). *Worm reef (Phragmatopoma Lapidosa) locations north of St. Lucie Inlet Martin County, Florida*. Document No. AB-144, Applied Biology, Inc.
- Applied Technology & Management Inc. (2005). *Juno Beach shore protection project: Post construction monitoring report years 1, 2, and 3*. Applied Technology & Management, Inc., West Palm Beach, Florida.
- Arena, P. T. (2005). *The structure of fish assemblages on vessel-reefs and adjacent natural reefs in southeast Florida*. Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Arena, P. T., Jordan, L. K. B., & Spieler, R. E. (2007). Fish assemblages on sunken vessels and natural reefs in southeast Florida, USA. *Hydrobiologia*, 580, 157–171. doi:10.1007/s10750-006-0456-x.
- Arena, P. T., Jordan, L. K. B., Gilliam, D. S., Sherman, R. L., Banks, K., & Spieler, R. E. (n.d.). *Shipwrecks as artificial reefs: A comparison of fish assemblage structure on ships and their surrounding natural reef areas offshore southeast Florida - preliminary results*. National Coral Reef Institute.
- Aronson, R. B., & Precht, W. F. (2001). White-band disease and the changing face of Caribbean coral reefs. *Hydrobiologia*, 460(1), 25-38. doi:10.1023/a:1013103928980
- Arrington, A., & Howard, B. (2008). *Loxahatchee River water quality event sampling, task 2: Final report, assessment of 2007-2008 Loxahatchee River water quality*. Loxahatchee River Environmental Control District.

- Arrington, D. A. (2006a). *Datasonde monitoring in the Loxahatchee River, task 2: Final report for the period October 2005 through April 2006*. Loxahatchee River Environmental Control District.
- Arrington, D. A. (2006b). *Loxahatchee River monthly seagrass/algae monitoring, task 2: Final report*. Loxahatchee River Environmental Control District.
- Arrington, D. A. (2006c). *Loxahatchee river water quality event sampling, task 2: Final report*. Loxahatchee River Environmental Control District.
- Arrington, D. A. (2006d). *Loxahatchee River water quality trends and standards, task 2: Final report*. Loxahatchee River Environmental Control District.
- Arrington, D. A. (2007). *Loxahatchee River water quality and biological monitoring, task 13A: Final report, assessment of 2006-2007 Loxahatchee River water quality*. Loxahatchee River Environmental Control District.
- Arrington, D. A. (2008a). *Loxahatchee River water quality and biological monitoring, task 2: Final report, assessment of 2007-2008 Loxahatchee River water quality*. Loxahatchee River Environmental Control District.
- Arrington, D. A. (2008b). *Water quality and biological monitoring, task 13B: Final report. Spatial and temporal dynamics of seagrass in the Loxahatchee River estuary during the period October 2007 - September 2008*. Loxahatchee River Environmental Control District.
- Arrington, D. A., & Howard, B. (2008). *Loxahatchee River datasonde water quality monitoring, task 2: Final report, assessment of 2007-2008 Loxahatchee River water quality*. Loxahatchee River Environmental Control District.
- Arthur V. Strock & Associates Inc. (1983). *Five-year environmental follow-up reef survey for the 1978 Delray Beach maintenance nourishment project*. Arthur V. Strock & Associates Inc., Delray Beach, Florida.
- Arthur V. Strock & Associates, Inc. (1979). *Assessment of the economic value of coral reef to Palm Beach County*. Arthur V. Strock & Associates, Inc. Delray Beach, FL.
- Atkinson, S., Atkinson, M., & Tarrant, A. (2003). Estrogens from sewage in coastal marine environments. *Environmental Health Perspectives*, 111, 1-7.
- Atlantic Coastal Fish Habitat Partnership. (2009). *Species-habitat matrix project summary report*. Arlington, Virginia.
- Atlantic Coastal Fish Habitat Partnership. (2012). *Conservation strategic plan 2012-2016*. Arlington, Virginia.
- Ault J.S., Smith, S. G., Bohnsack, J.A., Patterson, M., Feeley, M.W., McClellan, D.B., Ruttenberg, B.I., Hallac D., Ziegler T., Hunt J., Kimball D., Luo J., Zurcher N., & Causey B. (2013). Assessing coral reef fish changes and marine reserve dynamics in the Dry Tortugas, Florida USA. *Journal of Fisheries Research*, 144, 28-37.
- Ault, J. S., & Franklin, E. C. (2011). *Fisheries resource status and management alternatives for the southeast Florida region*. Southeast Florida Coral Reef Initiative. Fishing, Diving, and Other Uses. Local Action Strategy Project 18 & 20A.

- Ault, J. S., Bohnsack, J. A., Smith, S. G., & Luo, J. (2005). Towards sustainable multispecies fisheries in the Florida, USA, coral reef ecosystem. *Bulletin of Marine Science*, 76(2), 595-622.
- Ault, J. S., Smith, S. G., & Bohnsack, J. A. (2005). Evaluation of average length as an estimator of exploitation status for the Florida coral-reef fish community. *ICES Journal of Marine Science*, 62, 417-423.
- Ault, J. S., Smith, S. G., & Tilmant, J. T. (2008). Are the coral reef finfish fisheries of south Florida sustainable? *11th International Coral Reef Symposium* (Session Number 22), 5.
- Ault, J. S., Smith, S. G., Bohnsack, J. A., Luo, J., Harper, D. E., & McClellan, D. B. (2006). Building sustainable fisheries in Florida's coral reef ecosystem: positive signs in the Dry Tortugas. *Bulletin of Marine Science*, 78(3), 633-654.
- Ault, J. S., Smith, S. G., Browder, J. A., Nuttle, W., Franklin, E. C., Luo, J., . . . Bohnsack, J. A. (2014). Indicators for assessing the ecological dynamics and sustainability of southern Florida's coral reef and coastal fisheries. *Ecological Indicators*, 44(0), 164-172. doi: <http://dx.doi.org/10.1016/j.ecolind.2014.04.013>
- Ault, J. S., Smith, S. G., McClellan, D. B., Zurcher, N., Franklin, E. C., & Bohnsack, J. A. (2008). An aerial survey method for estimation of boater use in Biscayne National Park During 2003-2004. *NOAA Technical Memorandum NMFS-SEFSC-577*, 87.
- Ault, J. S., Smith, S. G., Meester, J., Jiangang, L., & Bohnsack, J. A. (2001). *Site characterization for Biscayne National Park: assessment of fisheries resources and habitats*. NOAA Technical Memorandum NMFS-SEFSC-468.
- Ault, J. S., Smith, S.G., Browder, J.A., Nuttle, W., Franklin, E.C., Luo, J., DiNardo, G.T., Bohnsack, J.A. (2014). Indicators for assessing the ecological dynamics and sustainability of southern Florida's coral reef and coastal fisheries. *Ecological Indicators*.
- Austin, D. F., & McJunkin, D. M. (1981). The legends of Boca Raton. *The Spanish River Papers*, 9(3), 11.
- Avent, R. M., King, M. E., & Gore, R. H. (1977). Topographic and faunal studies of shelf-edge prominences off the central eastern Florida coast. *Internationale revue der gesamten hydrobiologie und hydrographie*, 62(2), 185-208. doi:10.1002/iroh.1977.3510620201
- Avila, C. (2006). *Effects associated with dredging for beach renourishments on reef fish communities offshore of Miami-Dade County, Florida*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Avineon, Inc. (2008). *Final project report for the Palm Beach County 2007 habitat mapping project*.
- Ayers, P., Messer, R., & Curry, R. (2007). *Underwater video mapping for assessing and monitoring coral reef ecosystem health*. Paper presented at the Coastal GeoTools '07, Myrtle Beach, SC.
- Bachman, L. R., Ridler, M.S., & Dent, R. C. (2004). *Distribution and viability of oyster communities in the Loxahatchee River estuary*. WildPine Ecological Laboratory, Loxahatchee River District.
- Baker, A. C. (2003). Flexibility and specificity in coral-algal symbiosis: Diversity, ecology, and biogeography of symbiodinium. *Annual Review of Ecology and Systematics*, 34, 661-690. doi:10.1146/annurev.ecolsys.34.011802.132417

Baker, C. D., Forsyth, B. J., Christenson, C., & Stapp, D. E. (1991). *Experiential Training in Florida and the Florida Keys. A Pretrip Training Manual*.

Baker, P., Fajans, J., & Bergquist, D. (2003, March 16-19). *Invasive green mussels, Perna viridis, on mangroves and oyster reefs in Florida*. Paper presented at the Proceedings of the Third International Conference on Marine Bioinvasions, La Jolla, California.

Ball, M. M., Shinn, E. A., & Stockman, K. W. (1967). The geologic effects of Hurricane Donna in south Florida. *Journal of Geology*, 75, 583-587.

Ballard, R., & Uchupi, E. (1971). Geological observations of the Miami Terrace from the submersible Ben Franklin. *Mar Technol Soc J*, 5(2), 43-48.

Banks, K. (1998). *Port Everglades inlet channel natural resource reconnaissance dives - report*. Broward County Department of Natural Resource Protection. Fort Lauderdale, Florida.

Banks, K. W., Riegl, B. M., Richards, V. P., Walker, B. K., Helmle, K. P., Jordan, L. K. B., . . . Dodge, R. E. (2008). The reef tract of continental southeast Florida (Miami-Dade, Broward and Palm Beach Counties, USA). *Coral Reefs of the USA* (pp. 175-220).

Banks, K., Dodge, R. E., Fisher, L. E., & C., J. W. (1999). *Grounding of the nuclear submarine, USS Memphis, on a southeast Florida coral reef: impact assessment and proposed restoration*. pp. 17. Proceedings, International Conference on Scientific Aspects of Coral Reef Assessment, Monitoring, and Restoration.

Banks, K., Dodge, R. E., Fisher, L., Stout, D., & Jaap, W. (1998). Florida coral reef damage from nuclear submarine grounding and proposed restoration. *Journal of Coastal Research*, 64-71.

Banks, K., Riegl, B., Shinn, E., Piller, W., & Dodge, R. (2007). Geomorphology of the southeast Florida continental reef tract (Miami-Dade, Broward, and Palm Beach Counties, USA). *Coral Reefs*, 26(3), 617-633.

Barile, P. J. (2004). Evidence of anthropogenic nitrogen enrichment of the littoral waters of east central Florida. *Journal of Coastal Research*, 20, 1237-1245.

Barlow, P. M. (2003). *Ground water in freshwater-saltwater environments of the Atlantic coast*. U.S. Geological Survey, Circular 1262.

Barnes, B. B., Hu, C., Kovach, C., & Silverstein, R. N. (2015). Sediment plumes induced by the Port of Miami dredging: Analysis and interpretation using Landsat and MODIS data. *Remote Sensing of Environment*, 170, 328-339. doi: <http://dx.doi.org/10.1016/j.rse.2015.09.023>.

Barnes, T. K. (2006). *An integrated approach for evaluation and assessment of ecosystem management and restoration*. (PhD), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

Baron, R. M. (2002). *The nearshore hard bottom fishes of Broward County, Florida, USA*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

- Baron, R. M., Jordan, L. K. B., & Spieler, R. E. (2004). Characterization of the marine fish assemblage associated with the nearshore hardbottom of Broward County Florida, USA. *Estuarine and Coastal Shelf Science*, 60, 431-443.
- Baron, R., Bardes, P., Kieckbusch, D., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 15*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Baron, R., Bardes, P., Makowski, C., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 16*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Baron, R., Barrett, C. A., & Lybolt, M. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 1*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Baron, R., Barrett, C. A., Delaney, A., Bardes, P., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 20*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Baron, R., Hague, E., & Kruempel, C. J. (2007). *City of Boca Raton - South Boca Raton, FL beach nourishment project - post-construction monitoring: Three-year artificial reef and four-year natural hardbottom biological monitoring results*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Baron, R., Kieckbusch, D., Prekel, S. E., & Craft, J. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 17*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Baron, R., Lybolt, M., Makowski, C., Delaney, A., Bardes, P., Kieckbusch, D., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 18*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Baron, R., Makowski, C., Bardes, P., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 25*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Baron, R., Prekel, S. E., Kieckbusch, D., Labonte, A., & Labonte, R. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 8*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Barrett, C. A., Baron, R., Delaney, A., Green, M., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 3*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Barrett, C. A., Delaney, A., Prekel, S. E., & Lorne, J. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 5*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Barrett, C. A., Labonte, A., Craft, J., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 13*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Barrett, C. A., Lybolt, M., Bardes, P., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 23*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.
- Barrett, C. A., Prekel, S. E., Labonte, A., & Labonte, R. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 12*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

- Bauer, D. J. (2008). *A comparison of scleractinian coral abundance between natural and artificial substrata in a high-latitude environment off Broward County, Florida, USA*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Baums, I. B., Miller, M. W., & Hellberg, M. E. (2006). Geographic variation in clonal structure in a reef-building Caribbean coral, *Acropora palmata*. *Ecological Monographs*, 76(4), 503-519.
- Baums, I., Johnson, M., Devlin-Durante, M., & Miller, M. (2010). Host population genetic structure and zooxanthellae diversity of two reef-building coral species along the Florida Reef Tract and wider Caribbean. *Coral Reefs*, 29(4), 835-842. doi:10.1007/s00338-010-0645-y.
- Beak Consultants, Inc. (1996). *M/V Firat grounding coral monitoring*. Beak Consultants, Inc., Kirkland, Washington.
- Becker, L. C. (2002). *Aspects of the transplantation, storage and maintenance of corals (Montastraea faveolata, Acropora cervicornis and A. palmata) for the purposes of restoration*. (Master of Science), Florida International University, Miami, Florida.
- Becker, L. C., & Mueller, E. (2001). The culture, transplantation and storage of *Montastraea faveolata*, *Acropora cervicornis* and *Acropora palmata*: What we have learned so far. *Bulletin of Marine Science*, 69(2), 881-896.
- Beerkircher, L. R. (2000). *Manuscript I: Elasmobranch bycatch observed on pelagic longlines off the southeastern U.S. coast, 1992-1997. Manuscript II: A demographic analysis of the silky shark, Carcharhinus falciformis, population off the southeastern United States*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Behringer, D. C., R.A. Swett, & Frazer, T. K. (2011). *Determining coral reef impacts associated with boat anchoring and user activity in southeast Florida*. Southeast Florida Coral Reef Initiative. Fishing, Diving, and Other Uses. Local Action Strategy Project 33B.
- Behringer, D., & Swett, R. (2010). *Determining vessel use patterns in the southeast Florida region*. Miami Beach, Florida. Southeast Florida Coral Reef Initiative. Fishing, Diving, and Other Uses. Local Action Strategy Project 33B.
- Bell, F. W. (1997). The economic valuation of saltwater marsh supporting marine recreational fishing in the southeastern United States. *Ecological Economics*, 21(3), 243-254.
- Bell, F. W. (2003). *Socioeconomic study of reefs in southeast Florida*. Florida State University, Tallahassee, Florida.
- Benedet, L., & Finkl, C. W. Using geographic/marine information system (GIS/MIS) frameworks to determine spatial variability of beach sediments and nearshore geomorphology in subtropical southeast Florida. 15.
- Benedet, L., Finkl, C. W., & Klein, A. H. F. (2004). Morphodynamic classification of beaches on the Atlantic coast of Florida: Geographical variability of beach types, beach safety and coastal hazards. *Journal of Coastal Research, Special Issue 39*.

Berkle, M. E. (2004). *Population densities and feeding behavior of the amphinomid polychaete, Hermodice carunculata, in Acropora cervicornis assemblages in southeastern Florida*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

Berrens, R. P., Bohara, A. K., Jenkins-Smith, H., Silva, C., & Weimer, D. L. (2003). The advent of internet surveys for political research: A comparison of telephone and internet samples. *Political Analysis*, 11(1), 1-22. doi:10.1093/pan/11.1.1.

Berry, L., L. Boukerrou, M. Mehallis, D. Lirman, C. Grecsek, & Lambricht, D. (2011). *Evaluation of the potential for a marine zoning area for southeast Florida*. Southeast Florida Coral Reef Initiative. Fishing, Diving and Other Uses. Local Action Strategy Project 23.

Bhat, M. G. (2003). Application of non-market valuation to the Florida Keys marine reserve management. *Journal of Environmental Management*, 67(4), 315-325. doi: [http://dx.doi.org/10.1016/S0301-4797\(02\)00207-4](http://dx.doi.org/10.1016/S0301-4797(02)00207-4).

Bigelow, M. M. (2006). *Levels of polycyclic aromatic hydrocarbons archived in subcutaneous blubber samples in the Florida manatee (Trichechus manatus latirostris)*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

Bills, M. (2007). *Temporal and spatial distribution of the Atlantic bottlenose dolphin, Tursiops truncatus, long the southeast coast of the United States*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

Blackburn, M. V. (2008). *Spatial and temporal variation in south Florida heterotrophic diatom communities: Taxonomic identification and ecological implications*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

Blackhart, K. (ed.). (2010). *Proceedings from the 11th National Stock Assessment Workshop, Joint Session of the National Stock and Habitat Assessment Workshops, and 1st National Habitat Assessment Workshop*.

Blair, S. M. (2005). *Field verification of benthic communities in the nearshore region off Bal Harbor, Miami-Dade County - final draft report*. Miami-Dade County Department of Environmental Resources Management, Miami, Florida.

Blair, S. M. (2006). *Post construction survey: Maintenance dredging in the vicinity of Bakers Haulover Inlet and IWW in the vicinity of vicinity of Bakers Haulover Inlet*. Miami Dade County Department of Environmental Resources Management, Miami, Florida.

Blair, S. M., & Flynn, B. S. (1989). *Biological monitoring of hard bottom reef communities off Dade County Florida: Community description*. Paper presented at the American Academy of Underwater Sciences 9th Annual Scientific Diving Symposium, Woods Hole, Massachusetts.

Blair, S. M., & Thanner, S. E. (2007). *Bal Harbor mitigation - artificial reef monitoring program: Year 6 and 7 progress report and summary with supplemental information from Y4.5 and Y5 benthic video transects*. Miami-Dade County Department of Environmental Resources Management, Miami, Florida.

Blair, S. M., McIntosh, T. L., & Thanner, S. E. (1990). *Bal Harbor mitigation - artificial reef monitoring program: Year 4 and 5 progress report and summary*. Miami- Dade County Department of Environmental Resources Management, Miami, Florida.

Blair, S., Flynn, B., & Maridey, S. (1990). *Characteristics and assessment of dredge related mechanical impact to hard-bottom reef areas of northern Dade County, Florida*. Paper presented at the Diving for Science.

Blair, S., Flynn, B., McIntosh, T., & Hefty, L. (1990). *Environmental impacts of the 1990 Bal Harbor beach renourishment project: Mechanical and sedimentation impact on hard-bottom areas adjacent to the borrow area*. Miami- Dade County Department of Environmental Resources Management, Miami, Florida.

Bloetscher, F., & Gokgoz, S. (2001). Comparison of water quality parameters from South Florida wastewater treatment plants versus potential receiving waters. *Florida Water Resources Journal*, 37-45.

Bloetscher, F., Meday-Futo, L., Cott, W. R. V., & Fergan, R. (2000). City of Hollywood revises industrial pretreatment program. *Water Engineering & Management*, 147, 17-22.

Bloetscher, F., Meeroff, D. E., & Plummer, J. D. (n.d.). *Environmental reviews and case studies: Evaluation of coastal ocean discharges and environmental impacts in southeast Florida*.

BOEM. (2012a). *Inventory of environmental and social resource categories along the U.S. coast*. Industrial Economics, Inc., Cambridge Massachusetts. Outer Continental Shelf Study, BOEM 2012-003.

BOEM. (2012b). *Lease issuance for marine hydrokinetic technology testing on the outer continental shelf offshore Florida - environmental assessment*. Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS EIS/EA, BOEM 2012-017.

Bohnsack, J. (1996). *Two visually based methods for monitoring coral reef fishes*. Crosby, M. P. Gibson, G. R., & Potts, K. W. (eds). A Coral Reef Symposium on Practical, Reliable, Low Cost Monitoring Methods for Assessing the Biota and Habitat Conditions of Coral Reefs (pp. 31-36). Annapolis, Maryland: Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, Silver Spring, Maryland.

Bohnsack, J. A. (1993). Marine reserves: They enhance fisheries, reduce conflicts, and protect resources. *Oceanus*, 36(3).

Bohnsack, J. A. (1998). *Providing scientific advice to implement the precautionary approach under the Magnuson-Stevens fishery conservation and management act*. Paper presented at the Proceedings of the Fifth National NMFS Stock Assessment Workshop, Key Largo, Florida.

Bohnsack, J. A. (2000). A comparison of the short-term impact of no-take marine reserves and minimum size limits. *Bulletin of Marine Science*, 66(3), 635-650.

Bohnsack, J. A. (2011). Impacts of coastal protected areas and no-take reserves on Florida recreational world records for spotted seatrout, red drum, black drum and common snook. *Bulletin of Marine Science*, 87(4), 939-970.

Bohnsack, J. A., & Bannerot, S. P. (1986). *A stationary visual census technique for quantitatively assessing community structure of coral reef fishes*. U.S. Dept. of Commerce, NOAA Technical Report NMFS 41.

Bohnsack, J. A., & Sutherland, D. L. (1985). Artificial reef research: A review with recommendations for future priorities. *Bulletin of Marine Science*, 37, 11-39.

- Bohnsack, J. A., Ecklund, A. M., & Szmant, A. M. (1997). Artificial reef research: Is there more than the attraction-production issue? *Fisheries*, 22(4), 14-23.
- Bohnsack, J. A., Harper, D. E., McClellan, D. B., & Hulsbeck, M. (1994). Effects of reef size on colonization and assemblage structure of fishes at artificial reefs off southeastern Florida, U.S.A. *Bulletin of Marine Science*, 55, 796-823.
- Bohnsack, J. A., Harper, D.E., McClellan, D.B., Kellison, G.T., Ault, J.S., Smith, S.G., & Zurcher, N. (2009). *Coral reef fish response to FKNMS management zones: the first ten years (1997-2007)*. Progress Report to the Florida Keys National Marine Sanctuary. PRBD 08/09-10.
- Bohnsack, K., & Monty, J. (2012). *The southeast Florida marine debris reporting and removal program - final report*. Southeast Florida Coral Reef Initiative, Fishing, Diving, and Other Uses, Local Action Strategy Projects 29, 30 & 32. Florida DEP, Miami, Florida.
- Bonilla, T. D. (2004). *Fecal indicator organisms and pathogenic protozoa in south Florida beach sand: Implications for public health*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Borger, J. L. (2005). Dark spot syndrome: A scleractinian coral disease or a general stress response? *Coral Reefs*, 24, 139-144.
- Bortone, S. (1994). *Determining the optimal design, construction, materials and location of artificial reefs in Florida waters*. Tallahassee, Florida.
- Bortone, S. A., & Van Orman, D. (1985a). *Biological survey and analysis of Florida's artificial reefs* (Project no. IR-83-12). Pensacola, Florida.
- Bortone, S. A., & Van Orman, D. (1985b). *Data base formation and assessment of biotic and abiotic parameters associated with artificial reefs* (Project No. IR-83-12). Pensacola, Florida.
- Bostock, J. L. (2010). *A comparison of copepoda (Order: Calanoida, Cyclopoida, Poecilostomatoida) density in the Florida current of Fort Lauderdale, Florida*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Bottjer, D. J. (1980). Branching morphology of the reef coral *Acropora cervicornis* in different hydraulic regimes. *Journal of Paleontology*, 54(5), 1102-1107.
- Bowden-Kerby, A. (2008). *Restoration of threatened Acropora cervicornis corals: intraspecific variation as a factor in mortality, growth, and self-attachment*. Paper presented at the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida.
- Bowen, P. R., & Marsh, G. A. (1988). *Benthic faunal colonization of an offshore borrow pit in southeastern Florida: Final report*. Florida Atlantic University College of Science, Boca Raton, Florida.
- Brainerd, R. E., Birkeland C., Eakin, C. M., McElhany, P., Miller, M.W., Patterson, M. & Piniak, G. A. (2011). *Status review report of 82 candidate coral species petitioned under the U.S. Endangered Species Act*. NOAA Technical Memorandum NMFS-PIFSC-27.

- Brewer, E. (2011). *A historical and analytical description of the south Florida recreational Tournament fishery for broadbill swordfish, Xiphias gladius*. (MS), Nova Southeastern University OC, Dania Beach, Florida.
- Bridges, A., Howard, B., & Krecic, M. R. (2008). *Jupiter/Carlin shore protection project - Palm Beach County, Florida: 48-month monitoring report*. Taylor Engineering, Inc., Jacksonville, Florida.
- Brinkhuis, V. I. P. (2009). *Assessment of gorgonia transplantation techniques offshore southeast Florida*. (MS), Nova Southeastern University OC, Dania Beach, Florida.
- Brock, J., Wright, C. W., Clayton, T., & Nayegandhi, A. (2004). LIDAR optical rugosity of coral reefs in Biscayne National Park, Florida. *Coral Reefs*, 23(1), 48-59.
- Broward County Dept. of Planning & Environmental Protection. (2001). Broward County, Florida historical water quality atlas: 1972-1997. *Technical Report, TR: 01-03*.
- Broward County Environmental Quality Control Board. (1981). *Annual update: Environmental assessment of the north and south regional wastewater outfalls in the Atlantic Ocean at Broward County, Florida*. Broward County, Florida.
- Broward County Port Everglades. (2007). Broward County Website. Retrieved from <http://www.broward.org/port>
- Broward DNRP. (1995). *Broward County artificial reef plan 1994-1999*. Broward County Department of Natural Resource Protection, Biological Resources Division.
- Browder, J. A., Alleman, R., Markley, S., Ortnier, P., & Pitts, P. A. (2005). Biscayne Bay conceptual ecological model. *Wetlands*, 25(4), 854-869.
- Brown, B. (1988). *Assessing environmental impacts on coral reefs*. Paper presented at the Proceedings of the 6th International Coral Reef Symposium, Townsville (Australia).
- Brown, B. E. (1987). Worldwide death of corals - natural cyclical events or man-made pollution? *Marine Pollution Bulletin*, 18, 9-13.
- Brown, B. E. (1997). Coral bleaching: Causes and consequences. *Coral Reefs*, 16, S129-S138.
- Brown, B. E., & Howard, L. S. (1985). Assessing the effects of "stress" on reef corals. *Advances in Marine Biology [ADV. MAR. BIOL.]*. Vol. 22, pp. 1-55. 1985.
- Brownless, A. S. (2010). *Transplantation and parrotfish predation: A study on small Siderastrea siderea colonies offshore Broward County, Florida*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Bruckner, A. (2002). *Proceedings of the Caribbean Acropora workshop: Potential application of the U.S. Endangered Species Act as a conservation strategy*. Silver Spring, Maryland.
- Bruno, J. F., Petes, L. E., Harvell, C. D., & Hettinger, A. (2003). Nutrient enrichment can increase the severity of coral diseases. *Ecology Letters*, 6, 1056-1061.

Bryan, D. R. (2006). *Reef fish communities on natural substrate and vessel-reefs along the continental shelf of southeastern Florida between 50 and 120m depth*. (Master Thesis), Nova Southeastern University, Fort Lauderdale, Florida.

Bumpus, D. F. (1957). *Surface water temperatures along Atlantic and Gulf coasts of the United States*. U.S. Fish and Wildlife Service Special Report Number 214, Washington, D.C.

Burke, L., Reytar, K., Spalding, M., & Perry, A. (2011). *Reefs at risk revisited Atlantic fact sheet*. World Resources Institute, Washington D.C.

Burkhart, C. (1998). *Variability in copepod hatching success: observations on natural populations and experiments on the role of maternal diet*. (PhD), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

Burman, S.G., Aronson, R.B., & van Woesik, R. (2012). Biotic homogenization of coral assemblages along the Florida reef tract. *Marine Ecology Progress Series*, 467, 89-96. doi:10.3354/meps09950.

Burnett, B., & Chanton, J. (2000). *The role of groundwater in the nutrient budget of Florida Bay*. 1-40.

Butler IV, M. J., & Herrnkind, W. F. (1997). A test of recruitment limitation and the potential for artificial enhancement of spiny lobster populations in Florida. *Canadian Journal of Fisheries and Aquatic Sciences*, 54, 452-463.

Caccia, V., & Boyer, J. (2005). Spatial patterning of water quality in Biscayne Bay, Florida as a function of land use and water management. *Marine Pollution Bulletin*, 50, 1416-1429.

Camp, D. K., Lyons, W.G., & Perkins, T. H. (1998). *Checklists of selected shallow-water marine invertebrates of Florida*. Florida Marine Research Institute Technical Reports, FMRI Tech. Rep. TR-3.

Campbell-Arena, C. (2005). *Electro-onization technology as a treatment for ballast water with a review of methods used to determine treatment effectiveness*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

Cantillo, A. Y., Hale, K., Collins, E., Pikula, L., & Caballero, R. (2000). *Biscayne Bay: Environmental history and annotated bibliography* (NOAA Technical Memorandum NOS NCCOS CCMA 145). Silver Spring, Maryland.

Cantillo, A., Pikula, L., Beattie, J., Collins, E., Hale, K., & Schmidt, T. (2005). *Florida Bay virtual library*. NOAA Miami Regional Library at AOML, Miami Florida.

Carlson, J. K., & Osborne, J. (2012). *Relative abundance of smalltooth sawfish (Pristis pectinata) based on the Everglades National Park creel survey*. NOAA Tech. Memo. NMFS-SEFSC-626.

Carlson, J. K., Osborne, J., & Schmidt, T. W. (2007). *Standardized catch rates of Bonnetheads from the Everglades National Park creel survey, 1978-2004*. SEDAR 13-DW-10. Small Coastal Shark_Data Workshop Document_xx-xx. SCS_DW_xx-xx.

Carr, G. B., Davis, P. A., Fergen, R. E., & Bloetscher, F. (2000). Water quality impacts of long-term effluent disposal strategies in Southeast Florida. *Water Engineering & Management*, 147, 49-53.

Carrie Futch, J., Griffin, D. W., Banks, K., & Lipp, E. K. (2011). Evaluation of sewage source and fate on southeast Florida coastal reefs. *Marine Pollution Bulletin*, 62(11), 2308-2316. doi:10.1016/j.marpolbul.2011.08.046.

Carsey, T. P., Casanova, H.L., Drayer, C., Featherstone, C.M., Fischer, C.J., Goodwin, K.D., Proni, J.R., Saied, A., Sinigalliano, C.D., Stamates, S.J., Swart, P.K. & Zhang, J. (2010). *Face outfalls survey cruise—October 6-19, 2006* (NOAA Technical Report, OAR AOML-38). Miami, Florida.

Carson, D., & Vare, C. (1993). *Evaluation of reef restoration efforts off Boca Raton, Florida*. Palm Beach County Environmental Resource Management.

Carter, K. (1995). *The egg production of calanoid copepods in coastal waters of Florida and its relation to the nutritional environment*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

CBD. (2009). *Petition to list 83 coral species under the Endangered Species Act*. Center for Biological Diversity. Submitted before the Secretary of Commerce.

CEC. (2009). Assessment of the Hillsboro Beach PEM Project: First Annual Report. In *Coastal Engineering Consultants, Inc.*

CERP. (2004). *CERP Monitoring and assessment plan: Part 1, monitoring and supporting research*. Restoration Coordination and Verification (RECOVER). Comprehensive Everglades Restoration Plan, Central and Southern Florida Project.

CERP. (2006). *Monitoring and assessment plan (MAP), Part 2: 2006 assessment strategy for the MAP, final draft*. Restoration Coordination and Verification (RECOVER). Integrative Assessment Sub-Team.

CERP. (2009). *CERP Monitoring and assessment plan*. Restoration Coordination and Verification (RECOVER). Comprehensive Everglades Restoration Plan, Central and Southern Florida Project.

CERP. (2010a). *Comprehensive Everglades restoration plan - 2009 system status report*. Comprehensive Everglades Restoration Plan, Restoration Coordination and Verification.

CERP. (2010b). *Water quality, Lake Worth Lagoon*. Final 2009 System Status Report.

Cerulean, S. (2008). *Wildlife 2060: "What's at stake for Florida?"*. Tallahassee, Florida. Retrieved from <http://myfwc.com/Conservation/FWC2060_index.htm>

Cervino, J. M., Hayes, R. L., Polson, S. W., Polson, S. C., Goreau, T. J., Martinez, R. J., & Smith, G. W. (2004b). Relationship of *Vibrio* species infection and elevated temperatures to Yellow Blotch/Band disease in Caribbean corals. *Applied and Environmental Microbiology*, 70, 6855-6864.

Cervino, J. M., Hayes, R., Goreau, T. J., & Smith, G. W. (2004a). Zooxanthellae regulation in yellow blotch/band and other coral diseases contrasted with temperature related bleaching: *in situ* destruction vs. expulsion. *Symbiosis*, 37, 63-85.

Chanas, B., & Pawlik, J. R. (1997). *Variability in the chemical defense of the Caribbean reef sponge Xestospongia muta*. Paper presented at the 8th International Coral Reef Symposium, Smithsonian Tropical Research Institute, Panama.

Chang, S.-K., & Maunder, M. N. (2012). Aging material matters in the estimation of von Bertalanffy growth parameters for dolphinfish (*Coryphaena hippurus*). *Fisheries Research*, 119–120(0), 147-153. doi: <http://dx.doi.org/10.1016/j.fishres.2012.01.008>.

Chapman, D. D. (2003). *Application of molecular techniques to studies of reproductive natural history and conservation of sharks: Case studies involving the bonnethead, Sphyma tiburo (Sphyrhidae) and great white, Carcharodon carcharias (Lamnidae)*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

Chapman, D. D. F. (2007). *From microsatellite DNA profiling to satellite telemetry: integrating behavioral ecology into shark conservation*. (PhD), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.

Chardon, R. (1982). A best-fit evaluation of DeBrahm's 1770 chart of northern Biscayne Bay, Florida. *Cartography and Geographic Information Science*, 9, 47-67.

Chardon, R. E. (1978). Coastal barrier changes, 1779-1867, Biscayne Bay area, Florida. *Geology*, 6(6), 333-336.

Chiappone, M., & Sluka, R. (1996). *Fishes and fisheries*. Site Characterization for the Florida Keys National Marine Sanctuary and Environs, Vol. 6. 149 pp. The Nature Conservancy, and Univ. Miami - Florida and Caribbean Marine Conservation Science Center.

Chiappone, M., & Sullivan, K. M. (1996). *Functional ecology and ecosystem trophodynamics*. Site Characterization for the Florida Keys National Marine Sanctuary and Environs, Vol. 8. 112 pp. The Nature Conservancy, and Univ. Miami - Florida and Caribbean Marine Conservation Science Center.

Christensen, K. W. (2009). *Hillsboro beach, Florida PEM project: 12 months report*. EcoShore Int'l, Inc., Boca Raton, Florida.

Christie, D. R. (1997). Characteristics of Southeast Florida publicly owned treatment works. *Southeastern Fisheries Association, Inc.*, 16 pp.

Coastal Planning & Engineering Inc. (1988). *Boca Raton inlet and adjacent beaches management program: Status report No. 7*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning & Engineering, Inc. (1992c). *Boca Raton beach restoration project 3-year post-construction - volume 1: Environmental monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning & Engineering, Inc. (1995d). *Bakers Haulover inlet management study summary of findings report and recommended implementation plan*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning & Engineering, Inc. (1997c). *City of Delray Beach third periodic beach renourishment project – 4-year post-construction phase: Hardbottom environmental monitoring with borrow area and fill site infauna assessment report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning & Engineering, Inc. (2000c). *Boca Raton beach renourishment project (Palm Beach County, Florida): One-year post-construction environmental monitoring report: Hardbottom habitat, sedimentation rate, and construction water quality results*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning & Engineering, Inc. (2004c). *City of Boca Raton- Central Boca Beach nourishment project: Pre-, mid and post construction biological monitoring*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning & Engineering, Inc. (2007a). *Ocean ridge shore protection project post-nourishment biological monitoring*. Report for Palm Beach County Department of Environmental Resources Management.

Coastal Planning & Engineering, Inc. (2009). *Segment III Broward County shore protection project: 36-month post-construction nearshore environmental monitoring report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1989a). *Boca Raton inlet and adjacent beaches management program: Status Report No. 8*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1989b). *North Boca Raton beach restoration project pre-construction environmental monitoring - volume I: Environmental monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1990). *North Boca Raton beach restoration project - artificial reef Environmental monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1991a). *Boca Raton beach restoration project construction - 2-year post-construction environmental monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1991b). *Boca Raton inlet and adjacent beaches management program: Status report No. 9*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1991c). *City of Boca Raton - Boca Raton beach restoration monitoring study - 2-year monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1992a). *Boca Raton beach restoration monitoring study - 3-year monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1992b). *Boca Raton inlet and adjacent beaches management program: Status report No. 10*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1993a). *1-year post-construction infauna, grain size and organic content analysis for Duval County beach erosion control project, Reach 2 Atlantic Beach, Florida*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1993b). *Boca Raton inlet and adjacent beaches monitoring program: Status report No. 11*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1993c). *City of Boca Raton - Boca Raton beach restoration monitoring study - 4-year monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1995a). *Boca Raton inlet and adjacent beaches 1993 monitoring program: Status report No. 12*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1995b). *City of Boca Raton - Boca Raton beach restoration monitoring study – 5-year monitoring report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1995c). *City of Delray Beach third periodic beach renourishment project – 2-year post-construction phase borrow area and fill site infauna/sediment monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1996a). *1995 monitoring report of the Boca Raton inlet and adjacent beaches*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1996b). *Boca Raton inlet and adjacent beaches monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1996c). *City of Boca Raton - Boca Raton beach restoration monitoring study – 6-year monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1997a). *City of Boca Raton - Boca Raton beach restoration monitoring study – 7-year monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1997b). *City of Boca Raton - Boca Raton beach restoration monitoring study – 8-year monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1998a). *1997 monitoring report of the Boca Raton inlet and adjacent beaches*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1998b). *City of Boca Raton - Boca Raton beach restoration monitoring study – 9-year monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (1999). *City of Boca Raton - Boca Raton beach renourishment project: Post-construction monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2000a). *1999 monitoring report of the Boca Raton inlet and adjacent beaches*. Coastal Planning and Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2000b). *City of Boca Raton - Boca Raton beach renourishment project: One-year post-construction monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2001a). *2000 monitoring report of the Boca Raton inlet and adjacent beaches*. Coastal Planning and Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2001b). *City of Boca Raton 1998 Boca Raton beach renourishment project - two-year (twenty-four month) post-construction monitoring report*. Coastal Engineering & Planning, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2003a). *Mid-town beach renourishment and expansion project FDEP Permit No. 0164713-001-JC - pre-, mid-, post-, and 6-month post-construction environmental monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2003b). *South Boca Raton beach renourishment project - Palm Beach County, FL: Hardbottom habitat pre-construction and post-construction monitoring results*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2003c). *Emergia (formerly TYCOM, LTD.) fiberoptic cable installation Boca Raton (Palm Beach County), Florida. Two-year post-construction monitoring report*. Coastal Planning & Engineering, Inc., Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2004a). *City of Boca Raton - South Boca Raton beach nourishment project: Post-construction artificial reef monitoring results*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2004b). *Mid-town beach renourishment and expansion project FDEP Permit No. 0164713-001-JC - twelve-month post-construction environmental monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2005a). *Broward County segment III nearshore monitoring - mid-construction: Week 24 - field observation report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2005b). *City of Boca Raton south Boca Raton beach nourishment project - post-construction monitoring: Two-year artificial reef and three-year natural hardbottom biological monitoring results*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2005c). *First annual biological monitoring report of the mitigation artificial reefs, 12 months post-construction of the mitigation reefs*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2005d). *Mid-town beach renourishment & expansion project FDEP Permit No. 0164713-001-JC - eighteen-month post-construction environmental monitoring report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2005e). *Segment III Broward County shore protection project - pre-construction nearshore environmental monitoring report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2006a). *Second annual biological monitoring report of the mitigative artificial reefs, 24 months post-construction of the mitigation reefs*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Coastal Planning and Engineering, Inc. (2006b). *Final biological monitoring plan town of Palm Beach, Florida mid-town beach renourishment and hurricane response project - Permit No. 0164713-001-JC*.

Coastal Planning and Engineering, Inc. (2007b). *Third annual environmental monitoring report of the mitigative artificial reef, 36 months post-construction of the mitigative artificial reef*.

Coastal Planning and Engineering, Inc. (2008). *Segment III Broward County shore protection project 18-month post construction nearshore environmental monitoring summary report*.

Coastal Systems International, Inc. (1999). *1-year post-construction hardbottom monitoring report for the Hillsboro Beach/Deerfield Beach nourishment project*. Coral Gables, Florida.

Coastal Systems International, Inc. (2008a). *Increased mitigation acreage for the Key Biscayne beach renourishment project*.

Coastal Systems International, Inc. (2008b). *Revised seagrass restoration and mitigation plan: Village of Key Biscayne*.

Coastal Systems International, Inc. (2009). *Hillsboro inlet artificial reef mitigation project*. Hillsboro, Florida.

Coleman, F., Dennis, G., Jaap, W. C., Schmahl, G. P., Koenig, C., Reed, S., & Beaver, C. (2003). *Habitat characterization of Pulley Ridge and the Florida middle grounds. Part I: Status and trends in habitat characterization of the Florida middle grounds, coral reef conservation grant program*. Tampa, Florida: Gulf of Mexico Fisheries Management Council.

Collier, C., Dodge, R., Gilliam, D., Gracie, K., Gregg, L., Jaap, W., . . . Poulos, N. (2007). *Rapid response and restoration for coral reef injuries in southeast Florida: Guidelines and recommendations*. Retrieved from <http://www.dep.state.fl.us/COASTAL/programs/coral/reports/>

Collier, C., Ruzicka, R., Banks, K., Barbieri, L., Beal, B., Bingham, D., . . . Warrick, D. (2008). *The state of coral reef ecosystems of southeast Florida. The state of coral reef ecosystems of the United States and Pacific freely associated states: 2008*. Waddell, J. E. & Clarke, A. M. (Eds.). Silver Spring, Maryland: NOAA Technical Memorandum NOS NCCOS 73. NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team.

Conant, T. A., Dutton, P.H., Eguchi, T., Epperly, S.P., Fahy, C.C., Godfrey, M.H., MacPherson, S.L., Possardt, E.E., Schroeder, B.A., Seminoff, J.A., Snover, M.L., Upite, C.M., & Witherington, B. E. (2009). *Loggerhead sea turtle (Caretta caretta) 2009 status review under the U.S. Endangered Species Act*. Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service.

Conservation and Development Action Plan for Northwest Yunnan. (n.d.). 1-55.

Continental Shelf Associates, Inc. (1981). *Environmental monitoring associated with the Port Everglades Harbor deepening project of 1980 - final report*. Tequesta, Florida.

Continental Shelf Associates, Inc. (1983). *Environmental characterization and impact assessment of the proposed South Lake Worth sand source site. Draft report*.

Continental Shelf Associates, Inc. (1985). *Ecological assessment of the nearshore rock outcrops off Jupiter Island. Final report*.

Continental Shelf Associates, Inc. (2000). *Side-scan sonar and video mapping of federal channel, Miami Harbor. Ponte Vedra, Florida*.

Continental Shelf Associates, Inc. (2004). *Monitoring reattached stony corals at the Firat grounding site: Final report, surveys 1-4*. Report prepared for Polaris applied Sciences, Inc. for Mosley Warren, Prichard and Parish.

- Continental Shelf Associates, Inc. (2006). *M/V Spar Orion grounding, Broward County, Florida: Initial site survey and injury assessment*. Prepared for: Independent Maritime Consultants Inc., Jupiter, Florida.
- Continental Shelf Associates, Inc. (2006). *Nearshore artificial reef monitoring report final report*. Continental Shelf Associates, Inc., Jupiter, Florida.
- Cook, B. L. (2009). *Determination of sea turtle nesting behavior using thermograph data analysis in Broward County, Florida*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Cooke, S. J., & Cowx, I. G. (2006). *Contrasting recreational and commercial fishing: Searching for common issues to promote unified conservation of fisheries resources and aquatic environments*. *Biological Conservation*, 128(1), 93-108. doi: <http://dx.doi.org/10.1016/j.biocon.2005.09.019>.
- Cooksey, C., Hyland, J., Fulton, M.H., Wirth, E., & Balthis, L. (2012). *Ecological condition of coastal ocean waters of the U.S. continental shelf off south Florida: 2007*. NOAA Technical Memorandum NOS NCCOS 159. NOAA National Ocean Service, Charleston, SC.
- Cooper, S., Huvane, J., Vaithyanathan, P., & Richardson, C. (1999). Calibration of diatoms along a nutrient gradient in Florida Everglades water conservation area-2A, USA. *Journal of Paleolimnology*, 22, 413-437.
- Corbett, D., Burnett, W., & Chanton, J. (2001). Submarine groundwater discharge: and unseen yet potentially important coastal phenomenon. *SGEB-54 by UF/IFAS*, 1-10.
- Corbett, D., Chanton, J., Burnett, W., Dillon, K., Rutowski, C., & Fourqurean, J. (1999). Patterns of groundwater discharge into Florida Bay. *Limnology and Oceanography*, 44, 1045-1055.
- Corbett, J. J., Winebrake, J., Endresen, O., Eide, M., Dalsøren, S., Isaksen, I. S., & Sjørgård, E. (2010). International maritime shipping: The impact of globalization on activity levels. *Globalization, Transport and the Environment* (pp. 55-79).
- Corcoran, E. F., Brown, M.S., Baddour, F.R., Chasend, S.A., & Freay, A. D. (2005). *1983 Biscayne Bay hydrocarbon study*. NOAA/University of Miami Joint Publication. NOAA Technical Memorandum NOS NCCOS 9. University of Miami RSMAS TR 2005-01. Coastal and Estuarine Data Archaeology and Rescue Program.
- Cordero, V. U. (2011). *The influence of sea surface temperature, chlorophyll concentration and upwelling index on Kogia strandings in Florida*. (MS), NSUOC, Dania Beach, Florida.
- Courtenay, W. R., Jr., Hartig, B. C., & Loisel, G. R. (1980a). *Ecological evaluation of a beach nourishment project at Hallandale (Broward County), Florida. Volume I. Evaluation of fish populations adjacent to borrow areas of beach nourishment project, Hallandale (Broward County), Florida*. Florida Atlantic University Department of Biological Sciences, Boca Raton, Florida.
- Courtenay, W. R., Jr., Hartig, B. C., & Loisel, G. R. (1980b). *Evaluation of fish populations adjacent to borrow areas of beach nourishment project, Hallandale (Broward County), Florida*. Boca Raton, Florida.
- Courtenay, W., Harrema, D., Thompson, M., Azzinaro, W., & Van Montfrans, J. (1974). *Ecological monitoring of beach erosion control projects, Broward County, Florida, and adjacent areas*. Florida Atlantic University, Boca Raton, Florida.

- Cowart, J., Henkel, T., McMurray, S., & Pawlik, J. (2006). Sponge orange band (SOB): A pathogenic-like condition of the giant barrel sponge, *Xestospongia muta*. *Coral Reefs*, 25, 513-513.
- Cowen, R. K., C.B. Paris, A. Srinivasan. (2006). Scaling of connectivity in marine populations. *Science*, 311, 522-527.
- Craft, J. A. (2006). *Reef macrobenthos adjacent to a major navigational inlet: Port Everglades, Florida*. (MS), Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Craft, J., & Prekel, S. (2008). *Field observation report: Boca Raton inlet north jetty reconstruction*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.
- Creed, C. G., & Reilly, W. L. (2007). *Broward County shore protection project - segment III - 1-year post construction (February 2006- April 2007) physical monitoring report*. Olsen Associates, Inc. Jacksonville, Florida.
- Creed, C. G., & Reilly, W. L. (2007a). *Broward County shore protection project- segment III post-construction engineering summary report*. Broward County Environmental Protection Department. Fort Lauderdale, Florida.
- Creed, C. G., & Reilly, W. L. (2007b). *Port Everglades inlet sand management, Broward County, FL phase II: Sand bypassing feasibility study addendum*. Broward County Board of County Commissioners. Jacksonville, Florida.
- Creed, C. G., Howard, S. C., & Bodge, K. R. (2010). *Broward County, FL shore protection project shore-stabilizing structure feasibility study*. Prepared for Broward County Environmental Protection and Growth Management Department, Natural Resources Planning and Management Division, Broward County, Florida.
- Crigger, D. K., Graves, G.A., & Fike, D. L. (2005). Lake Worth Lagoon conceptual ecological model. *Wetlands* 25(4):943-954.
- CROGEE/NRC. (2003). *Adaptive monitoring and assessment for the comprehensive Everglades restoration plan*. Committee on Restoration of the Greater Everglades Ecosystem, Nat'l Research Council. ISBN: 0-309-50703-0.
- Cropper, W. P., Lirman, D., Tosini, S. C., DiResta, D., Luo, J., & Wang, J. (2001). Population dynamics of a commercial sponge in Biscayne Bay, Florida. *Estuarine, Coastal and Shelf Science*, 53(1), 13-23.
- Cros, A. (2010) *Measuring success of marine conservation in the Asia Pacific region: Coral triangle and Micronesia challenge/interviewer: T. N. Conservancy*. Conservation Coaches Network.
- Crowe, S. E. (2001). *Abundance and distribution of commensal amphipods from common marine sponges of southeast Florida*. (MS), NSUOC, Dania Beach, Florida.
- CSA International, Inc. (2008). *Pre-construction monitoring survey of nearshore hard bottom habitats at Bathtub Reef Beach, Martin County, Florida*. Continental Shelf Associates International Inc. Stuart, Florida.
- CSA International, Inc. (2009). *Ecological functions of nearshore hardbottom habitat in east Florida: A literature synthesis*. Florida Department of Environmental Protection, Bureau of Beaches and Coastal Systems. Tallahassee, Florida.

CSA International, Inc. (2011). *Lake Worth Lagoon fixed transect seagrass monitoring cumulative report, 2000-2010*. Prepared for Palm Beach County, Dept. Environmental Resources Management, West Palm Beach, Florida.

CSA, Inc. (1991). *Biological monitoring of reef/hardground restoration modules to be placed offshore of Sunny Isles, Dade County, Florida*. Continental Shelf Associates, Inc., Jupiter, Florida.

CSA, Inc. (2003). *Nearshore artificial reef monitoring report*. Continental Shelf Associates, Inc. Jupiter, Florida.

CSA, Inc. (2004). *Pre-construction monitoring survey of nearshore hard bottom habitats south of Fort Pierce Inlet Fort Pierce, Florida*. Continental Shelf Associates, Inc. Jupiter, Florida.

CSA, Inc. (2005a). *Nearshore artificial reef monitoring Rreport*. Continental Shelf Associates, Inc. Jupiter, Florida.

CSA, Inc. (2005b). *Second post-construction monitoring survey of nearshore hard bottom habitats south of Fort Pierce inlet Fort Pierce, Florida*. Continental Shelf Associates, Inc. Stuart, Florida.

CSA, Inc. (2007). *Baseline survey of nearshore hardbottom habitats in Martin County, Florida*. CSA International, Inc. Jupiter, Florida.

CSA, Inc. (2008a). *Area A baseline monitoring survey: Village of Key Biscayne seagrass restoration and mitigation program*. Continental Shelf Associates International, Inc. Stuart, Florida.

CSA, Inc. (2008b). *First year post-construction monitoring survey of nearshore hardbottom habitats south of Fort Pierce inlet relative to June 2007 beach renourishment*. Continental Shelf Associates International, Inc. Stuart, Florida.

CSA, Inc. (2008c). *Singer Island erosion control project: Nearshore hard bottom characterization*. Continental Shelf Associates International, Inc. Stuart, Florida.

CSA, Inc. (2009). *3-months post-restoration monitoring survey: Village of Key Biscayne seagrass restoration and mitigation program*. Continental Shelf Associates International, Inc. Stuart, Florida.

CSI. (2009). *1st annual biological monitoring report for the Hillsboro Inlet artificial reef mitigation project*. Coastal Systems International, Inc. Coral Gables, Florida.

Cuba, T. R., & Peters, E. C. (2011). *Investigation of Acropora palmata colonies in southeast Florida along Broward County first reef*. Saltwater Research Group. St. Petersburg, Florida.

Culter, J. K. (1989). *Martin County beach replenishment - selected bibliography*. Mote Marine Lab, Sarasota, Florida.

Cummings, S. L. (1990). *Colonization of a nearshore artificial reef at Boca Raton (Palm Beach County), Florida*. (Master of Science), Florida Atlantic University, Boca Raton, Florida.

Cummings, S. L. (1994). Colonization of a nearshore artificial reef at Boca Raton (Palm Beach County), Florida. *Bulletin of Marine Science*, 55(2-3), 1193-1215.

- Cummings, S. L. *The Boca Raton mitigative artificial reef- 5 1/2 years later*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.
- Cuvelier, M. L. (2004). *Enhanced survival of E. coli in subtropical beach sand and implications for water quality management*. (MS), NSUOC, Dania Beach, Florida.
- CWA. (1977). 40 CFR Part 230, Clean Water Act 404(b)(1). *Guidelines for Specification of Disposal Sites for Dredged or Fill Material*. Retrieved from <http://www.epa.gov/owow/wetlands/pdf/40cfrPart230.pdf>.
- D.E. Britt Associates, Inc. (1975). *Annual report of investigations - Broward artificial reef: Tire Reef*. D. E. Britt Associates, Inc. Fort Lauderdale, Florida.
- D.E. Britt Associates, Inc. (n.d.). *Report of investigation of Broward artificial reef (Tire Reef): 65 feet deep - 7200 feet east of Sunrise Blvd. October 1973 to June 1974*. D. E. Britt Associates, Inc. Fort Lauderdale, Florida.
- Dalrymple, G., Goldberg, W. M., Koenig, C., & Zadikoff, G. (1994). Sunny Isles artificial reef monitoring program eighth quarterly report. *G. M. Shelby & Associates, Inc.* Miami, Florida.
- Daniels, C., & Hallock, P. (2006). Coral reef assessment: An index utilizing reef sediments. *EOS, Transactions, American Geophysical Union*, 87(36).
- Davis, G. E. (1977). Anchor damage to a coral reef on the coast of Florida. *Biological Conservation*, 11(1), 29-34. doi:10.1016/0006-3207(77)90024-6.
- Davis, G. E. (1985). Artificial structures to mitigate marina construction impacts on spiny lobster, *Panulirus Argus*. *Bulletin of Marine Science*, 37(1), 151-156.
- Davis, S. M., Ogden, J. C., & Park, W. A. (1994). *Everglades: The ecosystem and its restoration*. Delray Beach, Florida: St. Lucie Press.
- Dawes, C. J., Hanisak, D., & Kenworthy, J. W. (1995). Seagrass biodiversity in the Indian River Lagoon. *Bulletin of Marine Science*, 57, 59-66.
- DC&A. (2005). *Seagrass impact assessment for the Miami Harbor: Phase II dredging*. Dial Cordy and Associates Inc. Jacksonville Beach, Florida.
- Debiasse, M. (2008). *Genetic connectivity and phylogeography of the branching vase sponge (Callyspongia vaginalis) across Florida and the Caribbean*. (MS), NSUOC, Dania Beach, Florida.
- Deis, D. R. (1999). *The use of natural resource damage assessment technology in the assessment of impacts of telecommunication cable installation on hard corals off Hollywood, Florida*. PBS & J, Inc. Jacksonville, Florida.
- Deis, D. R., & Kosmynin, V. (n.d.). *Coral recruitment on artificial reefs off Dania Beach, Broward County, Florida*.
- Delaney, A., Craft, J., Hannes, A. R., Ward, G. A., & Prekel, S. E. (2008). *U.S. Army Corps of Engineers Palm Beach Harbor maintenance dredging program/ Town of Palm Beach mitigative artificial reef, immediate post-mitigation biological monitoring report*. Coastal Planning and Engineering, Inc., Boca Raton, Florida.

Delaney, J. P., & Mille, K. (2006). *Analysis of Florida's permitted artificial reef areas*. Florida Fish and Wildlife Conservation Commission. Tallahassee, Florida.

Dent, R. C. (1995). *Dissolved oxygen concentrations and relationships in waters of the Loxahatchee River near Riverbend Park*. Loxahatchee River District.

Dent, R. C. (1997a). *Rainfall observations in the Loxahatchee River Watershed*. Loxahatchee River District.

Dent, R. C. (1997b). *Salinity changes in the northwest fork of the Loxahatchee River resultant from the re-establishment of meandering flow patterns*. Loxahatchee River District.

Dent, R. C. (2000). *Environmental health of the surface waters in the watershed of the Loxahatchee River*. Loxahatchee River District.

Dent, R. C. (2001). *Trophic state of the Loxahatchee River estuary*. Loxahatchee River District.

Dent, R. C., & Ridler, M. S. (1997). *Freshwater flow requirements and management goals for the northwest fork of the Loxahatchee River*. Loxahatchee River District.

Dent, R. C., Bachman, L.R., & Ridler, M. S. (1998). *Profile of benthic macroinvertebrates in the Loxahatchee River estuary*. Loxahatchee River District.

Department of Environmental Protection. (2008b). *Lauderdale By the Sea biorock artificial reef project construction plan*. West Palm Beach, Florida.

DERM. (1988). *Environmental and economical assessment of the damage to the Sunny Isles Reef*. Sunny Isle, Florida.

DERM. (1999). *Bal Harbor mitigation - artificial reef monitoring program: First annual progress report and summary*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.

DERM. (2001a). *Artificial reef stability program*.

DERM. (2001b). *Sunny Isles beach restoration project: Mechanical damage to the reefs adjacent to the borrow area*. Miami Dade County Department of Environmental Resources Management. Miami, Florida.

DERM. (2001c). *Sunny Isles design modification project: Port-construction assessment of impact associated with dredge slurry pipelines-interim report - the north Miami Beach pipeline corridor*. Miami-Dade Department of Environmental Resources Management (DERM) Restoration & Enhancement Section. Miami, Florida.

DERM. (2001d). *Sunny Isles design modification project: Post-construction assessment of impact associated with dredge slurry pipelines-interim report - the Sunny Isles pipeline corridor*. Miami-Dade Department of Environmental Resources Management (DERM) Restoration & Enhancement Section. Miami, Florida.

DERM. (2001e). *Sunny Isles renourishment - design modification; Dade County erosion control project - physical and biological monitoring program for Dade County, Florida, beach erosion control and hurricane protection*.

- DERM. (2003a). *Bal Harbor mitigation - artificial reef monitoring program: Second annual progress report and summary*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.
- DERM. (2003b). *Bal Harbor mitigation - artificial reef monitoring program: Third annual progress report and summary*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.
- DERM. (2003c). *Physical and biological monitoring program for Dade County beach sustainability project*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.
- Devine, B., Rogers, C., & Loomis, C. (2005). *Mapping marine populations: Using surface water GPS for spatial analysis*. Paper presented at the Proceedings of the Fifty-Six Annual Gulf and Caribbean Fisheries Institute, Fort Pierce, Florida.
- DHI Water and Environment, Inc. (2003). *Modeling of wave, hydrodynamic and sediment transport processes in connection with the bypassing of sand at Port Everglades entrance*. Status Report, 89 pp.
- Dial Cordy and Associates Inc. (2001a). *Environmental baseline study and impact assessment for Port Everglades Harbor - final report*. U.S. Army Corps of Engineers. Jacksonville, Florida.
- Dial Cordy and Associates Inc. (2001b). *Port Everglades master plan final report element 1- facilities assessment*. Fort Lauderdale, Florida.
- Dial Cordy and Associates Inc. (2006). *Port Everglades reef mapping and assessment preliminary draft*. U.S. Army Corps of Engineers. Jacksonville Beach, Florida.
- Dixson, D. L., Abrego, D., and Hay, M.E. (2014). Chemically mediated behavior of recruiting corals and fishes: A tipping point that may limit reef recovery. *Science*, 345(6199), 892-897.
- Dodge, R. E. (1987). *Growth Rate of stony corals of Broward County, Florida: Effects from past beach renourishment projects*. Nova University Oceanographic Center. Dania Beach, Florida.
- Dodge, R. E., & Helmle, K. P. (2003). *Past stony coral growth (extension) rates on reefs of Broward County, Florida: possible relationships with Everglades drainage*. Paper presented at the Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem. Poster Presentation, Palm Harbor, Florida.
- Dodge, R. E., & Kohler, K. (2004). *Visual HEA-habitat equivalency software to facilitate calculation of compensatory restoration following natural resource injuries*. National Coral Reef Institute, Nova Southeastern University Oceanographic Center, Dania Beach, Florida.
- Dodge, R. E., & Vaisnys, J. R. (1975). Hermatypic coral growth banding as environmental recorder. *Nature*, 258(5537), 706-708.
- Dodge, R. E., & Vaisnys, J. R. (1980). *Skeletal growth chronologies of recent and fossil corals*. In D. C. Rhoads & R. A. Lutz (Eds.), *Skeletal growth of aquatic organisms*. (pp. 493-517). New York: Plenum Press.
- Dodge, R. E., Aller, R. C., & Thomson, J. (1974). Coral growth related to resuspension of bottom sediments. *Nature*, 247, 574-577.

- Dodge, R. E., Hess, S., & Messing, C. (1991). *Final report: Biological monitoring of the John U. Lloyd beach renourishment: 1989*. Nova University Oceanographic Center. Dania Beach, Florida.
- Dodge, R. E., Jaap, W., Banks, K., Gilliam, D. S., Walker, B. K., & Shaul, R. (2005). *Science, management, and conservation gaps and opportunities: Significant coral reef injuries resulting from a large-ship anchorage*. Paper presented at the ASLO, Spain.
- Dodge, R. E., Szmant, A. M., Garcia, R., Swart, P. K., Forester, A., & Leder, J. J. (1993). *Skeletal structural basis of density banding in the reef coral *Montastrea annularis**. Paper presented at the Proceedings of the 7th International Coral Reef Symposium, UOG Station, Guam.
- Dodge, R. E., Thornton, S., Gilliam, D., & Shaul, R. (2001). *Biological survey report for the Calypso natural gas pipeline, shore approach route north of Port Everglades entrance channel with landing south of Port Everglades entrance channel*. Calypso Pipeline, LLC. Fort Lauderdale, FL.
- Dodge, R. E., Wyers, S. C., Frith, H. R., Knap, A. H., Smith, S. R., & Sleeter, T. D. (1984). The effects of oil and oil dispersants on the skeletal growth of the hermatypic coral *Diploria strigosa*. *Coral Reefs*, 3, 191-198.
- Dodrill, J. W., & Horn, W. M. (1996). *Florida's artificial reef program*.
- Dompe, P. (1993). *Natural fluctuations in nearshore turbidity and the relative influences of beach renourishment*. (Masters of Engineering), University of Florida, Gainesville. Florida.
- Donders, T., Boer, H., Finsinger, W., Grimm, E., Dekker, S., Reichart, G., & Wagner-Cremer, F. (2011). Impact of the Atlantic warm pool on precipitation and temperature in Florida during North Atlantic cold spells. *Climate Dynamics*, 36(1-2), 109-118. doi:10.1007/s00382-009-0702-9.
- Donoghue, J. F. (1995). Episodic sea-level change during the quaternary: Evidence from the southeastern U.S. *Journal of Coastal Research*, 11(3), 571-572.
- Douvere, F. (2008). The importance of marine spatial planning in advancing ecosystem-based sea use management. *Marine Policy*, 32(5), 762-771. doi: 10.1016/j.marpol.2008.03.021.
- Downs, C. A., Kramarsky-Winter, E., Segal, R., Fauth, J., Knutson, S., Bronstein, O., Ciner, F.R., Jeger, R., Lichtenfeld, Y., Woodley, C.M., Pennington, P., Cadenas, K., Kushmaro, A., Loya, Y. (2015). Toxicopathological effects of the sunscreen UV filter, oxybenzone (Benzophenone-3), on coral planulae and cultured primary cells and its environmental contamination in Hawaii and the U.S. Virgin Islands. *Archives of Environmental Contamination and Toxicology*, 1-24.
- Duane, D. B., & Meisburger, E. P. (1969). *Geomorphology and sediments of the nearshore continental shelf Miami to Palm Beach, Florida*. U. S. Army Corps of Engineers.
- Duffy, W. G., & LaBar, D. J. (1994). Aquatic invertebrates' production in southeastern USA wetlands during winter and spring. *Wetlands*, 14(2), 88-97.
- Dunn, S. K. (2009). *Analyzing spatial patterns in reefscape ecology via remote sensing, benthic habitat mapping and morphometrics*. (MS), NSUOC, Dania Beach, Florida.

- Durako, M. J., Phillips, R.C., & Lewis, R. R. III. (1987). *Proceedings of the symposium on subtropical-tropical seagrasses of the southeastern United States, 12 August 1985*. Florida Marine Resources Publications Num. 42.
- Eklund, A.-M. (1996). *Habitat complexity and recruitment to artificial reefs off southeast Florida* (MIA-93/94-25). National Marine Fisheries Service, Miami, Florida.
- Eller, W. T. (1971). *Port Everglades Florida: Its inception, construction, and early operating history*. Fort Lauderdale, Florida.
- Endries, M., Stys, B., Mohr, G., Kratimenos, G., Langley, S., Root, K., & Kautz, R. (2009). *Wildlife conservation habitat needs in Florida: Updated recommendations for strategic habitat conservation areas*. Florida Marine Research Institute Technical Reports, FMRI Tech. Rep. TR-15.
- Engle, V. D., & Summers, J. K. (1999). Latitudinal gradients in benthic community composition in Western Atlantic estuaries. *Journal of Biogeography*, 26, 1007-1023.
- Enos, P. (1977). *Holocene sediment accumulations of the south Florida shelf margin*. Enos, P. & Perkins, R. D. (Eds.), *Quaternary sedimentation in south Florida*. (Vol. 147, pp. 1-130): Geol Soc Am Mem.
- EPA. (2003). Relative risk assessment of management options for treated wastewater in south Florida. *United States Environmental Protection Agency*, 256 pp.
- Ernest, R. G., & Martin, R. E. (1999). *Martin County beach renourishment, sea turtle monitoring and studies, 1997 annual report and final assessment*. Ecological Associates, Inc., Jensen Beach Florida.
- Espinoza, R., Grasela, K., Hoffman, A., Justiniano, A. & Knowles, J. (2014). *The Cabo Rojo project: Cabo Rojo conservation plan*. The Nature Conservancy. San Juan, Puerto Rico.
- Evered, J. (2011). *Management options to prevent anchoring, grounding, and accidental impacts to coral reef and hardbottom resources in southeast Florida – phase II*. Southeast Florida Coral Reef Initiative (SEFCRI). Maritime Industry and Coastal Construction Impacts (MICCI) Focus Team. LAS Projects 9 & 25.
- Fahy, D. P. (2004). *Diel activity patterns, space utilization, seasonal distribution and population structure of the yellow stingray, *Urobatis jamaicensis* (Cuvier, 1817) in south Florida with comments on reproduction*. (MS), NSUOC, Dania Beach, Florida.
- Fahy, E. G. (2003). *Growth and survivorship of *Meandrina meandrites* and *Montastrea cavernosa* transplants to and artificial reef environment, and the effectiveness of plugging core holes in transplant donor colonies*. (MS), NSUOC, Dania Beach, Florida.
- Faunce, C. H., Lorenz, J.J., Ley, J.A., & Serafy, J.E. (2002). Size structure of gray snapper (*Lutjanus griseus*) within a mangrove ‘no-take’ sanctuary. *Bulletin of Marine Science*, 70(1), 211-216.
- Fauth, J. E., Calestani, C., Dustan, P., Wham, D., Banks, K., Moulding, A., & Downs, C. A. (2011). *Biomarker study to identify and trace coral reef contaminants - final report*. Retrieved from
- Fauth, J. E., Dustin, P., Pante, E., Banks, K., Vargas-Angel, B., & Downs, C. A. (2006). *Southeast Florida coral biomarker local action study. Final report*. Florida Dept. Environmental Protection, Southeast Florida Coral Reef Initiative.

- FCMP. (1998). *Florida state of the coast report*. Florida Coastal Management Program, Tallahassee Florida.
- FCMP. (2000). *FACT - Florida assessment of coastal trends, 2000*. Florida Coastal Management Program, Tallahassee, Florida.
- FDEP Bureau of Beaches and Coastal Systems. (2008). *Strategic beach management plan*. State of Florida.
- FDEP. (2005). *Southeast Florida action strategy team charter*. Southeast Florida Coral Reef Initiative.
- FDEP. (2006). *St. Lucie inlet federal navigation channel maintenance dredging project 2006: nearshore hardbottom biological monitoring program*.
- FDEP. (2008a). *Strategic beach management plan*. Florida Dept. Environmental Protection, Bureau of Beaches and Coastal Systems.
- FDEP. (2008b). *Strategic beach management plan for the Central Atlantic coast region*. Florida Dept. Environmental Protection, Bureau of Beaches and Coastal Systems.
- FDEP. (2008c). *Strategic beach management plan for the Southeast Atlantic coast region*. Florida Department of Environmental Protection.
- FDEP. (2008d). *Strategic beach management plan for the southeast Atlantic coast region*. Bureau of Beaches and Coastal Systems.
- FDEP. (2012). *Biscayne Bay Aquatic Preserves, management plan, June 2012 - May 2022*. Florida Dept. Environmental Protection, Coastal and Aquatic Managed Areas, Biscayne Bay Aquatic Preserves.
- FDNR. (1984). *Loxahatchee River--Lake Worth Creek Aquatic Preserve management plan*. Dr. Elton J. Gissendanner, Executive Director, Florida Dept. Natural Resources. Division of Recreation and Parks, Bureau of Environmental Land Management.
- FDNR. (1991). *Management plan (cabinet draft) for Biscayne Bay Aquatic Preserve - Card Sound*. Virginia Wetherell, Director, Florida Dept. Natural Resources. Div. State Lands, Bureau of Submerged Lands and Preserves.
- FDNR. (1992). *Coupon Bight Aquatic Preserve management plan*. Virginia Wetherell, Director, Florida Dept. Natural Resources. Div. State Lands, Bureau of Submerged Lands and Preserves.
- FDOH. (2012). *Florida healthy beaches program*. Florida Department of Health.
- Federal Register. (2005). *Endangered and threatened species; proposed threatened status for Elkhorn coral and staghorn coral*. 70 (88). National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA) Commerce.
- Fergen, R. E., Vinci, P., & Bloetscher, F. (1999). Water plant membrane reject water in an ocean outfall. *Florida Water Resources Journal*, 24-26.

- Ferro, F. M. (2003). *Spatial variability of the coral reef fish assemblages offshore Broward County, FL*. (MS), NSUOC, Dania Beach, Florida.
- Ferro, F., Jordan, L. K. B., & Spieler, R. E. (2005). *The marine fishes of Broward County, Florida: final report of 1998-2002 survey results* (NOAA Technical Memorandum NMFS-SEFSC-532). Miami, Florida.
- Finkl, C. W., & Charlier, R. H. (2003). Sustainability of subtropical coastal zones in southeastern Florida: Challenges for urbanized coastal environments threatened by development, pollution, water supply, and storm hazards. *Journal of Coastal Research*, 19, 934-943.
- Finkl, C. W., Becerra, J. E., Achatz, V., & Andrews, J. L. (2008). Geomorphological mapping along the upper southeast Florida Atlantic continental platform; I: Mapping units, symbolization and geographic information system presentation of interpreted seafloor topography. *Journal of Coastal Research*, 24, 1388-1417.
- Fisher, L. E. (1980). *Annual update: Environmental assessment of the Broward County North Regional Outfall*. 15 pp. Pompano, Florida.
- Fisher, L., Banks, K., Gilliam, D., Dodge, R. E., Stout, D., Vargas-Angel, B., & Walker, B. K. (2008). *Real-time coral stress observations before, during, and after beach nourishment dredging offshore southeast Florida, USA*. Paper presented at the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida.
- Fisher, M. J. (2008). *Boater compliance with Florida manatee (*Trichechus manatus latirostris*) speed zones in Port Everglades, Broward County, Florida*. (MS), NSUOC, Dania Beach, Florida.
- FKNMS. (2002). *Sanctuary monitoring report 2000*. NOAA Florida Keys National Marine Sanctuary, U.S. EPA, and State of Florida.
- Floeter, S. R., Ferreira, C. E. L., Dominici, A., & Zalmon, I. R. (2004). Latitudinal gradients in Atlantic reef fish communities: Trophic structure and spatial use patterns. *Journal of Fish Biology*, 64(6), 1680-1699.
- Florida Department of Environmental Protection (2006). *Workshop on innovative shore protection technologies*. Bureau of Beaches and Coastal Systems. Paper presented at the Innovative Shore Protection Technologies, Tallahassee, Florida.
- Florida Department of Environmental Protection. (2004). *Southeast Florida coral reef initiative: A local action strategy*. Miami, Florida: Office of Coastal and Aquatic Managed Areas.
- Florida Department of Environmental Protection. (2006). *Integrated water quality assessment for Florida: Report 305(b) and 303(d)*. Retrieved from http://www.dep.state.fl.us/water/tmdl/docs/2006_Integrated_Report.pdf.
- Florida Dept. of Community Affairs. (2003). *Preparing a boating facility siting plan: best management practices for marina siting: a guidebook to assist local governments in qualifying for the DRI exemption for marinas*. Tallahassee, Florida: Florida Dept. of Community Affairs.
- Florida Division of Emergency Management. (2007). *Florida GIS: Baseline specifications for orthophotography and LiDAR V 1.2*.
- Florida Fish and Wildlife Conservation Commission. (2003). *State of Florida artificial reef strategic plan*.

Florida Fish and Wildlife Conservation Commission. (2007). *Fishing capital of the world*. Retrieved from <http://fishingcapital.com/>.

Florida Fish and Wildlife Research Institute. (2007). *Commercial landings data*. Retrieved from http://research.myfwc.com/features/view_article.asp?id=19224.

Florida Oceanographic Society Palm Beach County Reef Research Dive Team. (2002). *Florida Fish and Wildlife Conservation Commission Grant No. 00122 summary report for October 2002 to September 2002 grant period*.

Florida Oceanographic Society Palm Beach County Reef Research Team. (2006). *Florida Fish and Wildlife Conservation Commission Grant No. 04030 annual report for December 2004 to November 2006 grant period*.

Florida Oceanographic Society Palm Beach County Reef Research Team. (2008). *Florida Fish and Wildlife Conservation Commission Grant No. 06122 final report for February 12, 2006 to December 1, 2008 grant period*.

Florida Wildlife Legacy Initiative. (2008). *Habitat indicators/performance measures and monitoring project: coral habitat survey*. Florida Wildlife Conservation Commission.

FMRI. (2003a). *Conserving Florida's seagrass resources: Developing a coordinated statewide management program*. Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute, St. Petersburg, Florida.

FMRI. (2003b). *Florida seagrass manager's toolkit*. Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute, St. Petersburg, Florida.

FOCC. (2006). *Management needs to provide improved management of Florida's coastal and oceans resources, submitted by the public and non-state entities*. Florida Ocean and Coastal Council.

FOCC. (2007). *Current status and opportunities for marine stock enhancement and aquaculture in Florida*. Florida Ocean and Coastal Council.

FOCC. (2008a). *Integrated data management system (IDM), functional requirements*. Florida Oceans and Coastal Council.

FOCC. (2008b). *The comprehensive list of draft metadata elements, integrated data management (IDM) project*. Florida Oceans and Coastal Council.

FOCC. (2009). *The effects of climate change on Florida's ocean and coastal resources. A special report to the Florida Energy and Climate Commission and the people of Florida*. Florida Oceans and Coastal Council.

FOCC. (2010). *Climate change and sea-level rise in Florida: An update of the effects of climate change on Florida's ocean and coastal resources*. Florida Oceans and Coastal Council.

FOCC. (2012). *Annual science research plan, 2012-2013*. Florida Oceans and Coastal Council.

Fong, P., & Lirman, D. (1995). Hurricanes cause population expansion of the branching coral *Acropora palmata* (Scleractinia): Wound healing and growth patterns of asexual recruits. *Marine Ecology*, 16(4), 317-335. doi:10.1111/j.1439-0485.1995.tb00415.x.

- Foster, G. (2011). *Benthic habitat mapping of Miami-Dade County: Supervised classification of dual-frequency single-beam hydroacoustic data*. Florida Dept. of Environmental Protection. Miami Beach, Florida.
- Foster, J. G. (2005). *Effects of elevated temperature and reduced irradiance on the photosynthetic output and mortality of *Montastrea cavernosa**. (MS), NSUOC, Dania Beach, Florida.
- Foster, K. (2011). *Field ecology patterns of high latitude coral communities*. (PhD), NSUOC, Dania Beach, Florida.
- Foster, K. A. (2005). *Effects of reduced light and elevated temperature on the zooxanthellae concentrations and diameters, pigment concentrations, and colony color of *Montastrea cavernosa**. (MS), NSUOC, Dania Beach, Florida.
- Frazel, D. W. (1986). *The influence of lobster trap escape gaps on capture and behavior of the spiny lobster, *Panulirus argus* (Latreille)*. (MS), NSUOC, Dania Beach, Florida.
- Freedman, J. (2007). *Seagrass restoration in Florida: review and analysis of restoration methods*. (MS), NSUOC, Dania Beach, Florida.
- Fujimura, A. (2010). *Effects of water flow on bleaching of *Palythoa caribaeorum**. (MS), NSUOC, Dania Beach, Florida.
- FWCC. (2004). *Southeast Florida coral reef evaluation and monitoring project 2003: Year 1 final report*. Florida Fish and Wildlife Conservation Commission.
- FWCC. (2005). *Southeast Florida coral reef evaluation and monitoring project 2004: Year 2 final report*. Florida Fish and Wildlife Conservation Commission.
- FWCC. (2006). *Southeast Florida coral reef evaluation and monitoring project 2005: Year 3 final report*. Florida Fish and Wildlife Conservation Commission.
- FWCC. (2007). *Southeast Florida coral reef evaluation and monitoring project 2006: Year 4 final report*. Florida Fish and Wildlife Conservation Commission.
- FWCC. (2008). *Southeast Florida coral reef evaluation and monitoring project 2007: Year 5 final report*. Florida Fish and Wildlife Conservation Commission.
- FWCC. (2012a). *HAB publications*. Florida Fish and Wildlife Conservation Commission.
- FWCC. (2012b). *Publications*. Florida Fish and Wildlife Conservation Commission.
- FWRI. (2012). *Florida GAME*. Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute.
- G. M. Selby & Associates Inc. (1995). *Sunny Isles artificial reef monitoring project-sixteenth quarterly report-September 1995*.
- G.M. S & A, I. (1992). *Sunny Isles artificial reef module monitoring program - first annual report 1991/92*. G. M. Selby & Associates, Inc. Miami, Florida.

- G.M. Selby & Associates Inc. (1995). *Sunny Isles artificial reef monitoring project twelfth quarterly report - December, 1994*. G. M. Selby & Associates, Inc. Melbourne, Florida.
- Gardner, T. A., Côté, I. M., Gill, J. A., Grant, A., & Watkinson, A. R. (2005). Hurricanes and Caribbean coral reefs: impacts, recovery patterns, and role in long-term decline. *Ecology*, 86(1), 174-184. doi:10.1890/04-0141.
- Gardner, W. D., Richardson, M. J., & Cacchione, D. A. (1989). Sedimentological effects of strong southward flow in the straits of Florida. *Marine Geology*, 86(2-3), 155-180. doi:10.1016/0025-3227(89)90047-9.
- Garrison, V. H., Shinn, E. A., Foreman, W. T., Griffin, D. W., Holmes, C. W., Kellogg, C. A., . . . Smith, G. W. (2003). African and Asian dust: From desert soils to coral reefs. *Bioscience*, 53, 469-480.
- Gerhart, S. D. (2007). *A review of the biology and management of horseshoe crabs, with emphasis on Florida populations*. Florida Marine Research Institute Technical Reports, FMRI Tech. Rep. TR-12.
- Geselbracht, L., R. Torres, G.S. Cumming, D. Dorfman, M. Beck, & Shaw, D. (2009). *Identification of a spatially efficient portfolio of priority conservation sites in marine and estuarine areas of Florida*. Aquatic Conserv: Mar. Freshw. Ecosyst. 19: 408–420.
- Gill, S. M. (2006). *Comparison of stony coral coverage data obtained by in situ measurements and image analysis*. (MS), NSUOC, Dania Beach, Florida.
- Gillanders, B. M., Able, K. W., Brown, J. A., Eggleston, D. B., & Sheridan, P. F. (2003). Evidence of connectivity between juvenile and adult habitats for mobile marine fauna: an important component of nurseries. *Marine Ecology Progress Series*, 247, 281-295. doi:10.3354/meps247281.
- Gilliam, D. S. (1991). *The diet and feeding habits of the southern stingray, Dasyatis americana in tropical shallow marine habitats*. (MS), NSUOC, Dania Beach, Florida.
- Gilliam, D. S. (1999). *Juvenile reef fish recruitment processes in south Florida: a multifactorial field experiment*. (PhD), NSUOC, Dania Beach, Florida.
- Gilliam, D. S. (2009). *Southeast Florida coral reef evaluation and monitoring project 2008: Year 6 final report*. Nova Southeastern University National Coral Reef Institute. Dania, Florida.
- Gilliam, D. S. (2010). *Southeast Florida coral reef evaluation and monitoring project 2009: Year 7 final report*. Florida DEP report #RM085. Miami Beach, Florida.
- Gilliam, D. S. (2011a). *Southeast Florida coral reef evaluation and monitoring project*. NSUOC, Dania Beach, Florida.
- Gilliam, D. S. (2011b). *Southeast Florida coral reef evaluation and monitoring project 2010: Year 8 final report*. Florida DEP report #RM085.
- Gilliam, D. S. (2012a). *A study to evaluate reef recovery following injury and mitigation structures offshore southeast Florida: Phase II*. NSUOC, Dania Beach, Florida.

- Gilliam, D. S. (2012b). *Southeast Florida coral reef evaluation and monitoring project, 2011: Year 9 final report*. Florida DEP report #RM085.
- Gilliam, D. S., & Kosmynin, V. (2010). *Monitoring of initially restored corals and the coral reef mitigation study and pilot project*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.
- Gilliam, D. S., & Moulding, A. L. (2012). *A study to evaluate reef recovery following injury and mitigation structures offshore southeast Florida: Phase I*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.
- Gilliam, D. S., & Walker, B. K. (2008). *Broward County Port Everglades sand bypass project: Benthic habitat mapping and assessment*. Prepared for Olsen Associates, Inc. and Broward County Board of County Commissioners Department of Planning and Environmental Protection, Biological Resources Division. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.
- Gilliam, D. S., & Walker, B. K. (2011). *Benthic habitat characterization for the south Florida ocean measurement facility (SFOMF) protected stony coral species assessment*. Prepared for Seaward Services, Inc. Fort Lauderdale, Florida.
- Gilliam, D. S., & Walker, B. K. (2012). *Shallow-water benthic habitat characterization and cable/benthic activity impact assessment for the south Florida ocean measurement facility (SFOMF)*. Prepared for Commander Naval Surface Warfare Center, Carderock Division. West Bethesda, MD.
- Gilliam, D. S., Dodge, R. E., Spieler, R. E., Jordan, L. K. B., & Goergen, E. A. (2010). *Marine biological monitoring in Broward County, Florida: Year 9 annual report*. Prepared for the BC Board of County Commissioners, BC Natural Resources Planning and Management Division.
- Gilliam, D. S., Dodge, R. E., Spieler, R. E., Jordan, L. K. B., & Monty, J. (2006). *Marine biological monitoring in Broward County, Florida: Technical report 05*. Prepared for: Broward County Board of County Commissioners Department of Planning and Environmental, Protection Biological Resource Division. Broward County, Florida.
- Gilliam, D. S., Dodge, R. E., Spieler, R. E., Jordan, L. K. B., & Monty, J. (2007). *Marine biological monitoring in Broward County, Florida: Year 6 annual report*. Broward County, Florida Environmental Protection Department, Technical Report EPD 06-01.
- Gilliam, D. S., Dodge, R. E., Spieler, R. E., Jordan, L. K. B., & Monty, J. A. (2003). *Marine biological monitoring in Broward County, Florida: Technical report 03-04*.
- Gilliam, D. S., Dodge, R. E., Spieler, R. E., Jordan, L. K. B., & Monty, J. A. (2003). *Technical report DPEP 04-01 - marine biological in Broward County, Florida: Year 4 annual report*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.
- Gilliam, D. S., Dodge, R. E., Spieler, R. E., Jordan, L. K. B., & Monty, J. A. (2004). *Marine biological monitoring in Broward County, Florida: Year 4 annual report (technical report DEP 04-01)*. Fort Lauderdale, Florida.
- Gilliam, D. S., Dodge, R. E., Spieler, R. E., Jordan, L. K. B., & Monty, J. A. (2006). *Technical report EPD 06-01 - marine biological monitoring in Broward County, Florida - Year 6 annual report*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.

Gilliam, D. S., Dodge, R. E., Spieler, R. E., Jordan, L. K. B., & Vernacchio, J. A. (2002). *Technical report DPEP 03-04 - marine biological monitoring in Broward County, Florida: Year 3 annual report*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.

Gilliam, D. S., Dodge, R. E., Spieler, R. E., Jordan, L. K. B., & Walczak, J. (n.d.). *Marine biological monitoring in Broward County, Florida: Year 7 annual report*. Broward County, Florida Environmental Protection Department, Technical Report EPD 07- 02.

Gilliam, D. S., Dodge, R. E., Spieler, R. E., Jordan, L. K. B., & Walczak, J. C. (2007). *Technical report EPD 07-02 - marine biological monitoring in Broward County, Florida: Year 7 annual report*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.

Gilliam, D. S., Dodge, R. E., Spieler, R. E., Thornton, S. L., & Jordan, L. K. B. (2001a). *Marine biological monitoring in Broward County, Florida - Year 1 annual report*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.

Gilliam, D. S., Dodge, R. E., Spieler, R. E., Thornton, S. L., & Jordan, L. K. B. (2001b). *Technical report DPEP 02-01 - marine biological monitoring in Broward County, Florida: Year 2 annual report*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.

Gilliam, D. S., Dodge, R. E., Spieler, R. E., Walton, C. J., & Kilfoyle, K. (2011). *Marine biological monitoring in Broward County, Florida: Technical report 11*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.

Gilliam, D. S., Walker, B. K., Saelens, S. J., Fahy, D. P., & Kosmynin, V. N. (2009, 7-11 July 2008). *Recovery of injured giant barrel sponges, Xestospongia muta, offshore southeast Florida*. Paper presented at the Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida.

Gilliam, D., Dodge, P. D., Richard E., & Stephens, N. (2007). *Broward County shore protection project stony coral transplantation and monitoring final report: 2-year post-transplantation event*. Nova Southeastern University.

Gilmore Jr., G. R. (2006). *Automated monitoring: Artificial reef project*. Fish and Wildlife Conservation Commission.

Gilmore, M. D., & Hall, B. R. (1976). Life-history, growth habits, and constructional roles of *Acropora cervicornis* in patch reef environment. *Journal of Sedimentary Petrology*, 46(3), 519-522.

Gilmore, R. G. (1995). Environmental and biogeographic factors influencing ichthyofaunal diversity: Indian River Lagoon. *Bulletin of Marine Science*, 57(1), 153-170.

Gilmore, R. G., Jr. (2006). *Final report: FWC artificial reef program*. Fish and Wildlife Conservation Commission.

Gilmour, J. (1999). Experimental investigation into the effects of suspended sediment on fertilisation, larval survival and settlement in a scleractinian coral. *Marine Biology*, 135, 451-462.

Ginsburg, R. N. (1953). Beachrock in south Florida. *Journal of Sedimentary Research*, 23(2), 85-92.

Ginsburg, R. N., Bak, R. P. M., Kiene, W. E., Gischler, E., & Kosmynin, V. (1996). Rapid assessment of reef condition using coral vitality. *Reef Encounter*, 19, 12-13.

Ginsburg, R., & Kramer, P. (2002). *Large scale assessments of reef condition in the Atlantic province, a role model for other reef areas*. EOS, Transactions, American Geophysical Union, 82.

Gittings, S. (2003). *Pre-construction coral survey of the M/V Wellwood grounding site*. Marine Sanctuaries Conservation Series MSD-03-1. NOAA Office of National Marine Sanctuaries, Silver Spring, MD.

Gittings, S. R., Bright, T. J., & Hagman, D. K. (1994). *The M/V Wellwood and other large vessel groundings: Coral reef damage and recovery*. Paper presented at the Proceedings of the colloquium on global aspects of coral reefs: health, hazards, and history, University of Miami.

Gladfelter, E. (1983). Skeletal development in *Acropora cervicornis* II. Diel patterns of calcium carbonate accretion. *Coral Reefs*, 2(2), 91-100.

Gladfelter, E. H. (1982). Skeletal development in *Acropora cervicornis*: I. Patterns of calcium carbonate accretion in the axial corallite. *Coral Reefs*, 1(1), 45-51.

Gladfelter, E. H. (1984). Skeletal development in *Acropora cervicornis* III. A comparison of monthly rates of linear extension and calcium carbonate accretion measured over a year. *Coral Reefs*, 3(1), 51-57.

Gladfelter, E. H., Monahan, R. K., & Gladfelter, W. B. (1978). Growth rates of five reef-building corals in the northeastern Caribbean. *Bulletin of Marine Science*, 28(4), 728-734.

Gladfelter, W. (1982). White-band disease in *Acropora palmata*: Implications for the structure and growth of shallow reefs. *Bulletin of Marine Science of the Gulf and Caribbean (former title)*, 32(2), 639-643.

Gleason, A., Reid, R., & Voss, K. (2007). *Automated classification of underwater multispectral imagery for coral reef monitoring*. Paper presented at the IEEE Oceans Conference, Vancouver, BC.

Glynn, P. W., Rumbold, D. G., & Snedaker, S. C. (1995). Organochlorine pesticide residues in marine sediment and biota from the northern Florida reef tract. *Marine Pollution Bulletin*, 30(6), 397-402.

Glynn, P. W., Szmant, A. M., Corcoran, E. F., & Cofer-Shabica, S. V. (1989). Condition of coral reef cnidarians from the northern Florida reef tract: Pesticides, heavy metals, and histopathological examination. *Marine Pollution Bulletin*, 20, 568-576.

Godfrey, B. (2010). *Management options to prevent anchoring, grounding, and accidental impacts to coral reef and hardbottom resources in southeast Florida – Phase I*. Southeast Florida Coral Reef Initiative (SEFCRI). Maritime Industry and Coastal Construction Impacts (MICCI) Focus Team. Local Action Strategy Project 9 & 25.

Goldberg, W. (n.d.). *Phase I: General design memorandum - segment II of Broward County: appendix 6 environmental assessment*. Coral Reef Associates, Inc.

Goldberg, W. M. (1970). *Some aspects of the ecology of the reefs off Palm Beach County, Florida, with emphasis on the Gorgonacea and their bathymetric distribution*. (Master Thesis), Florida Atlantic University, Florida.

- Goldberg, W. M. (1973). The ecology of the coral-octocoral communities of the southeast Florida coast: Geomorphology, species composition, and zonation. *Bulletin of Marine Science*, 23(3), 465-488.
- Goldberg, W. M. (1980a). *An analysis of meiofauna associated with potential offshore sand borrow sites from northern Broward County, Florida*. Coral Reef Associates. South Miami, Florida.
- Goldberg, W. M. (1980b). *An inventory of macrobenthic flora and fauna on the reefs off northern Broward County, Florida*. Coral Reef Associates. South Miami, Florida.
- Goldberg, W. M. (1981). *A re-survey of coral communities adjacent to a beach restoration area in south Broward County, Florida*. Coral Reef Associates, Inc. South Miami, Florida.
- Goldberg, W. M. (1984). *Long term effects of beach restoration in Broward County, Florida: A three-year overview*. Coral Reef Associates, Inc. Miami, Florida.
- Goldberg, W. M. (1988). *Biological effects of beach restoration in south Florida: The good, the bad and the ugly*. Paper presented at the Beach preservation technology 88: problems and advancement in beach nourishment: proceedings, Gainesville, Florida.
- Goldman, J. M. (2010). *Seasonal aggregations of the Florida manatee (Trichechus manatus latirostris) in the Port Everglades and Intracoastal regions of Fort Lauderdale, Florida*. (MS), NSUOC, Dania Beach, Florida.
- Gorzelay, J. F., & Nelson, W. G. (1987). The effects of beach replenishment on the benthos of a sub-tropical Florida beach. *Marine Environmental Research* (21), 75-94.
- Graves, G. A., Wan, Y., and Fike, D.L. (2004). Water quality characteristics of storm water from major land uses in south Florida. *Journal of the American Water Resources Association*, 40(6), 1405-1419.
- Graves, G., Thompson, M., & Fike, D. (2002). *St. Lucie River estuary: Evidence of impairment*. Florida Department of Environmental Protection, Southeast District Water Quality Section, Port St. Lucie, Florida.
- Green, M. V. (2004). *Prevalence and distribution of Staphylococcus aureus and other potential health risk indicators in south Florida beaches*. (MS), NSUOC, Dania Beach, Florida.
- Greene, K. (2002). *Beach nourishment: A review of the biological and physical impacts*. Atlantic States Marine Fisheries Commission.
- Greenstein, B. J., Curran, H. A., & Pandolfi, J. M. (1998). Shifting ecological baselines and the demise of *Acropora cervicornis* in the western North Atlantic and Caribbean Province: A Pleistocene perspective. *Coral Reefs*, 17(3), 249-261.
- Greer, L., Jackson, J., Curran, H., Guilderson, T., & Teneva, L. (2009). How vulnerable is *Acropora cervicornis* to environmental change? Lessons from the early to middle Holocene. *Geology*, 37, 263-266.
- Griffin, D. W., Donaldson, K. A., Paul, J. H., & Rose, J. B. (2003). Pathogenic human viruses in coastal waters. *Clinical Microbiology Reviews*, 16, 129-143.

Grimm, E. C., Jacobson, G. L., Jr., Watts, W. A., Hansen, B. C. S., & Maasch, K. A. (1993). A 50,000-year record of climate oscillations from Florida and its temporal correlation with the heinrich events. *Science*, 261(5118), 198-200. doi:10.1126/science.261.5118.198.

Grober-Dunsmore, L. E. R. (2005). *Applying terrestrial landscape ecology principles to the design and management of marine protected areas in coral reef ecosystems*. (Doctor of Philosophy). University of Florida, Gainesville, Florida.

Grober-Dunsmore, R., & Keller, B.D. (2008). *Caribbean connectivity: Implications for marine protected area management*. Proceedings of a special symposium, 9-11 November 2006, 59th annual meeting of the Gulf and Caribbean Fisheries Institute, Belize City, Belize. Marine Sanctuaries Conservation Series ONMS-08-07. NOAA Office of National Marine Sanctuaries, Silver Spring, MD.

Guardo, M. (1999). Hydrologic balance for a subtropical treatment wetland constructed for nutrient removal. *Ecological Engineering*, 12, 315-337.

Guidelines for conducting offshore benthic surveys. (2003).

Hague, E. A., & Baron, R. M. (2006). Biological community analysis near a maintained natural inlet. *Shore and Beach*, 74(2), 29-33.

Hague, E., & Bardes, P. (2006). *City of Boca Raton - 2006 Central Boca Raton beach nourishment project: Pre-, mid and post construction biological monitoring*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Hague, E., Bardes, P., Prekel, S. E., & Craft, J. (2005). *Mid-construction: Week 22 - Broward County segment III nearshore monitoring*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Hague, E., Barrett, C. A., Baron, R., & Bardes, P. (2007). *City of Boca Raton - 2006 Central Boca Raton beach nourishment project: 18-month post-construction biological monitoring report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Hague, E., Barrett, C. A., Prekel, S. E., & Kruempel, C. J. (2006). *Globenet (formerly Atlantica U.S.A., L.L.C.) fiberoptic cable installation Boca Raton (Palm Beach County), Florida - Globenet (Formerly Atlantica-I System) cables 1 and 2 stony coral impact and artificial reef colonization five-year post-construction monitoring report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Hague, E., Miller, C., Baron, R., Delaney, A., & Massa, J. (2009). *U.S. Army Corps of Engineers Palm Beach harbor maintenance dredging program/town of Palm Beach mitigative artificial reef, 2-year post-mitigation biological monitoring report*. Tetra Tech EC, Inc. and Coastal Eco-Group, Inc. Boynton Beach, Florida.

Hague, E., Miller, C., Baron, R., Delaney, A., & Massa, J. (2010). *Town of Palm Beach reach 7, Phipps Ocean Park beach restoration project 41-month post-nourishment and FDEP hurricane recovery dune restoration project biological monitoring report*. Tetra Tech EC, Inc. and Coastal Eco-Group, Inc. Boynton Beach, Florida.

Hale, K. (2005). *Biscayne Bay virtual library: A bibliography of the marine environment*. NOAA Miami Regional Library at AOML, Miami FL.

Hall, J. D. (2008). *Ecology, distribution, and systematics of Leucothoid amphipods of the west Florida shelf benthic ecosystem*. (MS), NSUOC, Dania Beach, Florida.

- Hammer, R. M., Byrnes, M. R., Snyder, D. B., Thibaut, T. D., Baker, J. L., Kelley, S. W., . . . Wood, J. D. (2005). *Environmental surveys of potential borrow areas on the central east Florida shelf and the environmental implications of sand removal for coastal and beach restoration*. (OCS Study MMS 2004-037). Herndon, VA.
- Hancock, H. A. (2012). *One step closer to non-invasive: Quantifying coral zooxanthellae pigment concentrations using bio-optics*. (MS), NSUOC, Dania Beach, Florida.
- Hannes, A. R. (2009). *Town of Longboat Key, Florida 2005/2006 beach renourishment project third post-construction hardbottom monitoring and mitigation report*. FDEP Permit No. 0202209-001-JC. Coastal Planning and Engineering, Inc. Boca Raton, Florida.
- Harborne, A. R., Mumby, P. J., Micheli, F., Perry, C. T., Dahlgren, C. P., Holmes, K. E., . . . Lee, A. F.
- Hardbottom Monitoring Conditions for Delray Beach. (2005). Delray Beach, Florida.
- Harkanson, B. (*in prep.*). *A review of fish assemblages on artificial reefs in Palm Beach County*. (Master Thesis), Nova Southeastern University, Fort Lauderdale, Florida.
- Harold, M. (1998). *Environmental considerations and impacts of the north Boca Raton beach renourishment project*. (Masters), Florida Atlantic University, Boca Raton, Florida.
- Harris, L. E., & Dillon, K. L. (2004). *2003 monitoring of Martin County's artificial reefs*. Martin County Engineering Department. Stuart, Florida.
- Harris, L. E., & Dillon, K. L. (2006). *2005 monitoring report: Martin County's artificial reefs Deployed 2000 to 2005*.
- Harris, L. E., & Dillon, K. L. (2007). *St. Lucie County baseline artificial reef monitoring project 2005-2006*.
- Harris, L. E., & Dillon, K. L. (2008). *2008 first annual monitoring: civic center reef deployed in Jan-Feb 2007 – Offshore*. St. Lucie County, FL.
- Harris, L. E., Dillion, K. L., & Herren, L. (2007). *Martin County's nearshore mitigation reefs year-6 monitoring report*. Martin County Engineering Department. Stuart, Florida.
- Harris, L. E., Dillion, K. L., & Herren, L. (2008). *Martin County's nearshore mitigation reefs year-7 monitoring report*.
- Hart, A. D., Snyder, D. B., Spring, K. D., & Hammer, R. M. (2005). *Application of scientific experimental design in monitoring hard bottom habitats associated with areas of beach nourishment*. Continental Shelf Associates, Inc. Jupiter, FL.
- Hartwig, J. M. G. (2002). *Effects of beach renourishment on loggerhead sea turtle (Caretta caretta) nesting and hatching parameters*. (MS), NSUOC, Dania Beach, Florida.
- Haubold, E. M., C. Deutsch, & Fannesbeck, C. (2006). *Final biological status review of the Florida manatee (Trichechus manatus latirostris)*. Florida Fish and Wildlife Research Institute, St. Petersburg, FL.

- Hayden, B. P., & Dolan, R. (1976). Coastal marine fauna and marine climates of the Americas. *Journal of Biogeography*, 3(1), 71-81.
- Haywick, D. W., & Mueller, E. M. (1997). Sediment retention in encrusting *Palythoa* spp.--a biological twist to a geological process. *Coral Reefs*, VI(1), 39-46.
- Healy, S. J. (2010). *Biological and physical analysis of currents and water masses off the coast of southeast Florida*. (MS), NSUOC, Dania Beach, Florida.
- Heemsoth, A. M. (2009). *Diet composition of swordfish, Xiphia gladius, within the Straits of Florida*. (MS), NSUOC, Dania Beach, Florida.
- Heidi, B., Fisher, W., & Meng, L. (2006). U. S. EPA development of assessment tools for coral reef biocriteria. *EOS, Transactions, American Geophysical Union*, 87(36).
- Heilman, M. J. (1997). *The daily feeding rhythm to demand feeders and the effects of timed meal feeding on growth of juvenile Florida pompano Trachinotus carolinus*. (MS), NSUOC, Dania Beach, Florida.
- Helmle, K. (2009). *Coral sclerochronology and the relationship between coral growth records and climate change*. (PhD), NSUOC, Dania Beach, Florida.
- Helmle, K. P., Dodge, R. E., Swart, P. K., Gledhill, D. K., & Eakin, C. M. (2011). Growth rates of Florida corals from 1937 to 1996 and their response to climate change. *Nat Commun*, 2, 215.
- Hemond, E. M., & Vollmer, S. V. (2010). Genetic diversity and connectivity in the threatened staghorn coral (*Acropora cervicornis*) in Florida. *PLoS ONE*, 5(1), e8652.
- Hendee, J. (1998). *An expert system for marine environmental monitoring in the Florida Keys National Marine Sanctuary and Florida Bay*. Paper presented at the Coastal Environment II: Environmental Problems in Coastal Regions, Cancun, Mexico.
- Hendra, E. J., Deis, D. R., & Lin, P. C. P. (2000). *The design, deployment, installation, and monitoring of 30 artificial reef modules off Hollywood, Florida*. Paper presented at the 20th Annual Symposium American Academy of Underwater Sciences, St. Pete Beach, FL.
- Henning, M. L. (2005). *Highly streamlined PCR-based genetic identification of carcharhinid sharks (Family Carcharhinidae) for use in wildlife forensics, trade monitoring, and delineation of species distributions*.
- Herber, S. A. (2001). *Classification of Acropora cervicornis in nearshore waters of Fort Lauderdale, FL*. (MS), NSUOC, Dania Beach, Florida.
- Herren, L. (2004). *St. Lucie Inlet Preserve State Park reef monitoring program: progress report #2*. Jensen Beach, FL.
- Herren, L., Monty, J., & Stokes, M. (2007). *Marine debris location, identification, and removal from St. Lucie Inlet Preserve State Park coral reef, Florida*. Mote Marine Lab Protect Our Reefs Grant No. POR-2005B-1.
- Herrnkind, W. F., Butler, M. J., & Hunt, J. H. (1997). Can artificial habitats that mimic natural structures enhance recruitment of Caribbean spiny lobster? *Fisheries*, 22(4), 24-27.

Heyman, W., Luckhurst, B., Paz, M., & Rhodes, K. (2002). *Reef fish spawning aggregation monitoring protocol for the wider Caribbean*.

Highsmith, R. (1982). Reproduction by fragmentation in corals. *Marine ecology progress series*, 7(2), 207-226.

Hill, R. L., Appeldoorn, R. S., Murphy, B. R., Recksiek, C. W., & Prada, M. (2003). *Scaling our understanding of habitat selection by coral reef fishery species*. Paper presented at the Proc. Gulf Carib. Fish. Inst.

Hocevar, J. D. (1993). *A survey of the stony coral community composition of Pompano Ledge, Broward County, Florida, with a preliminary evaluation of the effectiveness of mooring buoys in reducing coral damage*. (MS), NSUOC, Dania Beach, Florida.

Hoenstine, R., Freedenberg, H., Chen, Z., & Williams, H. (1995). *A geological investigation of the offshore area along Florida's central east coast: Annual report to MMS - Year 1*. Tallahassee, Florida.

Hoke, M. (2007). *Gametogenesis and spawning of the elliptical star coral, *Dichoceonia stokes* (Cnidaria: Scleractinia) in southeast Florida*. (MS), NSUOC, Dania Beach, Florida.

Hopley, D. (1996, September 17 & 18). *Coral Reefs: The Problem Child of Environmental Monitoring and Remote Sensing*. Paper presented at the Coral Remote Sensing Workshop, Miami, FL.

Horn, W. (Ed.). (2001). *Proceedings from Florida Artificial Reef Summit '01: Into the New Millennium*. Ft. Lauderdale, FL.

Horsley Witten Group, I. (2013). *St. Thomas east end reserves watershed management plan*.

Howard, B. (2011). *Loxahatchee River oyster reef restoration monitoring summary*.

Howard, B., & Arrington, A. (2008). *Loxahatchee River water quality and biological monitoring, task 2: Final report, assessment of 2007-2008 Loxahatchee River oyster mapping & recruitment*.

Howard, B., L. Bachman, J. Metz, & Arrington, A. (2011). *Loxahatchee River seagrass monitoring & mapping report - DRAFT Task 4: Final report for the period October 2009 - September 2010*.

Howard, B., L. Bachman, J. Metz, H. Johnson, & Arrington, A. (2010). *Loxahatchee River datasonde water quality monitoring, Task 4: Final report, assessment of 2008-2009 Loxahatchee River water quality*.

Howard, B., L. Bachman, S. Noel, D. Porter, J. Metz, H. Johnson, A. Wilkison, & Arrington, A. (2009). *Loxahatchee River water quality and biological monitoring, Task 4: Final report, assessment of 2008-2009 Loxahatchee River water quality*.

Howard, B., L. Bachman, S. Noel, D. Porter, J. Metz, H. Johnson, A. Wilkison, & Arrington, A. (2010). *Loxahatchee River water quality and biological monitoring, Task 4: Final report, assessment of 2009-2010 Loxahatchee River water quality*.

Hu, C., Hackett, K., Callahan, M., Andréfouët, S., Wheaton, J., Porter, J., & Muller-Karger, F. (2003). The 2002 ocean color anomaly in the Florida Bight: cause of local reef decline. *Geophysical Research Letters*, 30(3), 1-4.

- Huang, H., Fergen, R. E., Tsai, J. J., & Proni, J. R. (1998). Evaluation of mixing zone models: CORMIX, PLUMES and OMZA with field data from two Florida ocean outfalls. *Environmental Hydraulics*, 249-254.
- Huang, H., Proni, J. R., & Tsai, J. J. (1994). Probabilistic approach to initial dilution of ocean outfalls. *Water Environment Research*, 66, 787-793.
- Hudak, C. A. (2003). *Habitat utilization by bottlenose dolphins (Tursiops truncatus) in Biscayne Bay, Florida*. (MS), NSUOC, Dania Beach, Florida.
- Hudson Marine Management Services. (2004a). *M/V Eastwind grounding site Fort Lauderdale Florida*. Prepared for: Thomas Miller Inc. Cherry Hill, NJ.
- Hudson Marine Management Services. (2004b). *M/V federal pescadores grounding site Fort Lauderdale Florida*. Prepared for: Vandeventer Black. Pennsauken, NJ.
- Hudson, J. H., J. Schittone, J. Anderson, E.C. Franklin, & Stratton, A. (2008). *M/V Alec Owen Maitland coral reef restoration monitoring report, monitoring events 2004-2007*. Florida Keys National Marine Sanctuary, Monroe County, Florida.
- Humm, H. J. (1964). Epiphytes of the sea grass, *Thalassia Testudinum*, in Florida. *Bulletin of Marine Science*, 14, 306-341.
- Hunt, J., & W. Nuttle (editors). (2007). *Florida Bay science program: A synthesis of research on Florida Bay*. Florida Marine Research Institute Technical Reports, FMRI Tech. Rep. TR-11.
- Hurley, R. J., Siegler, V. B., & Fink Jr, L. K. (1962). Bathymetry of the straits of Florida and the Bahama Islands. Part I. northern straits of Florida. *Bulletin of Marine Science*, 12(3), 313-321.
- Identification of Benthic Resources in the Nearshore Zone Golden Beach and Sunny Isles Beach, Miami-Dade County, FL*. (2009). Miami, Florida.
- International Association of Dredging Companies. (2011). *Facts about dredging around coral reefs*. International Association of Dredging Companies.
- Iversen, E. S., & Corcoran, E. F. (1976). *Broward County off-shore environmental study*. Rosenstiel School of Marine and Atmospheric Science, University of Miami, 143 pp.
- J.M. Levy, M. C., & Sullivan, K. M. (1996). *Invertebrate infauna and epifauna of the Florida Keys and Florida Bay*. Site Characterization for the Florida Keys National Marine Sanctuary and Environs, Vol. 5. 166 pp. The Nature Conservancy, and Univ. Miami - Florida and Caribbean Marine Conservation Science Center.
- Jaap, W. C. (1984). *Ecology of the south Florida coral reefs: a community profile*. (FWS/OBS-82/08;MMS-84-0038).
- Jaap, W. C., & Hudson, J. H. (2001). Coral reef restoration following anthropogenic disturbances. *Bulletin of Marine Science* (69), 1.

Jaap, W., Hudson, J., Dodge, R., Gilliam, D., & Shaul, R. (2006). *Coral reef restoration with case studies from Florida*. Cote, I.M. & Reynolds, J. (editors). *Coral Reef Conservation* (pp. 478-514). Cambridge, United Kingdom: University of Cambridge Press.

Jeffrey, C. F. G. (2004). *Benthic habitats, fish assemblages, and resource protection in Caribbean marine sanctuaries*. Ph.D. Dissertation, University of Georgia, Athens, Georgia.

Johns, G. M. (2001). *Socioeconomic study of reefs in southeast Florida - Broward County*. Hollywood, Florida.

Johns, G. M., Leeworthy, V. R., Bell, F. W., & Bonn, M. A. (2001). *Socioeconomic study of reefs in southeast Florida, 2000-2001*.

Johns, G. M., Leeworthy, V. R., Bell, F. W., & Bonn, M. A. (2001). *Socioeconomic study of reefs in southeast Florida. Final report*. Retrieved from <http://marineeconomics.noaa.gov/Reefs/02-01.pdf>

Johns, G. M., Leeworthy, V. R., Bell, F. W., Bonn, M. A., & Hazen and Sawyer. (2001). *Socioeconomic study of reefs in southeast Florida*. Ch.1-6, Tech. Appen. 1, ES1-13. Florida State University & National Oceanic and Atmospheric Administration.

Johns, G. M., Milon, J. W., & Sayers, D. (2004). *Socioeconomic study of reefs in Martin County, FL. Final report*. Retrieved from <http://marineeconomics.noaa.gov/Reefs/MartinCounty2004.pdf>.

Johnson, D. R., Funicelli, N.A., and Bohnsack, J.A. (1999). The effectiveness of an existing estuarine no-take fish sanctuary within the Kennedy Space Center, Florida. *North American Journal of Fisheries Management*, 19(2), 436-453.

Johnson, D. R., Harper, D. E., Kellison, T. G., & Bohnsack, J. A. (2007). *Description and discussion of southeast Florida fishery landings, 1990-2000* (NOAA Technical Memorandum NMFS-SEFSC-550). Retrieved from <http://www.sefsc.noaa.gov>.

Johnson, R. O., & Nelson, W. G. (1985). Biological effects of dredging in an offshore borrow area. *Florida Scientist*, 48(3), 166-189.

Johnston, M. W. (2010). *Spatial analysis of the invasion of red lionfish, *Pterois volitans/miles*, in the western Atlantic Ocean and Caribbean Sea*. (MS), NSUOC, Dania Beach, Florida.

Jones, A. C. (2005). *The Miami Laboratory, a history of federal fisheries research in Miami, Florida*. U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Science Center. Miami, Florida.

Jones, J. A. (1977). *Morphology and development of southeastern Florida patch reefs*. Paper presented at the Proceedings of Third International Coral Reef Symposium, Rosenstiel School of Marine and Atmospheric Science, Miami, Florida.

Jordan, L. K. B. (2010). *Multi-experimental study of early-life ecology of grunts (*Haemulidae*) on southeast mainland Florida coral reefs*. (PhD), NSUOC, Dania Beach, Florida.

Jordan, L. K. B., Banks, K. W., Fisher, L. E., Walker, B. K., & Gilliam, D. S. (2010). Elevated sedimentation on coral reefs adjacent to a beach nourishment project. *Marine Pollution Bulletin*, 60, 261-271.

Jordan, L. K. B., Gilliam, D. S., & Spieler, R. E. (2005). Reef fish assemblage structure affected by small-scale spacing and size variations of artificial patch reefs. *Journal of Experimental Marine Biology and Ecology*, 326(2), 170-186.

Jordan, L., K.B. (2002). *The effects of isolation distance and reef size on associated reef fish assemblages*. (MS), NSUOC, Dania Beach, Florida.

Jud, Z. R., & Layman, C. A. (2012). Site fidelity and movement patterns of invasive lionfish, *Pterois* spp., in a Florida estuary. *Journal of Experimental Marine Biology and Ecology* 414–415: 69–74.

Jud, Z. R., Layman, C.A., Lee, J.A., & Arrington, D.A. (2011). Recent invasion of a Florida (USA) estuarine system by lionfish *Pterois volitans* / *P. miles*. *Aquatic Biology*, 13, 21-26.

Jud, Z., & Layman, C. (2011). *Loxahatchee River oyster reef restoration monitoring report: Using baselines derived from long-term monitoring of benthic community structure on natural oyster reefs to assess the outcome of large-scale oyster reef restoration*. Florida International University, Marine Sciences Program, Department of Biological Sciences.

Julius, B. (1999). *Discounting and the treatment of uncertainty in natural resource damage assessment*. Silver Spring, Maryland.

Juston, J., & DeBusk, T. (2005). Phosphorus mass load and outflow concentration relationships in stormwater treatment areas for Everglades restoration. *Ecological Engineering*, 1-18.

Kalinoski, M. (2010). *The visual physiology of the smooth dogfish (Mustelus canis): temporal resolution, irradiance and spectral sensitivities*. (MS), NSUOC, Dania Beach, Florida.

Karazsia, J., & Wilber, P. (2011). *Characterization of essential fish habitats in the Port Everglades Expansion Area*. NOAA National Marine Fisheries Service, Southeast Region, Habitat Conservation Division. West Palm Beach, Florida.

Kemp, D. W., Cook, C. B., LaJeunesse, T. C., & Brooks, W. R. (2006). A comparison of the thermal bleaching responses of the zoanthid *Palythoa caribaeorum* from three geographically different regions in south Florida. *Journal of Experimental Marine Biology and Ecology*, 335(2), 266-276.

Kendall, J. J., Powell, E. N., Connor, S. J., Bright, T. J., & Zastrow, C. E. (1984). The importance of monitoring metabolic recovery in the coral *Acropora cervicornis* after short-term exposure to drilling muds: Calcification rate and protein concentration. *Coral Reefs*, 2(4), 215-225.

Kenworthy, W. J., Norton, S., Harter, S., & Landry, J. B. (2007). *Endangered Species Act 5-year review - Johnson's Seagrass (Halophila johnsonii Eiseman)*. National Oceanic and Atmospheric Administration National Maine Fisheries Service.

Kildow, J. (2006a). *Mapped facts and figures, Florida's ocean and coastal economies*. National Ocean Economics Program.

Kildow, J. (2006b). *Phase I, facts and figures, Florida's ocean and coastal economies*. National Ocean Economics Program.

- Kildow, J. (2006c). *Phase I, Florida's ocean and coastal economies report*. National Ocean Economics Program.
- Kildow, J. (2008a). *Phase II, appendices, Florida's ocean and coastal economies report*. National Ocean Economics Program, and Florida Oceans and Coastal Council, Tallahassee, FL.
- Kildow, J. (2008b). *Phase II, facts and figures, Florida's ocean and coastal economies report*. National Ocean Economics Program, and Florida Oceans and Coastal Council, Tallahassee, FL.
- Kildow, J. (2008c). *Phase II, Florida's ocean and coastal economies report*. National Ocean Economics Program, and Florida Oceans and Coastal Council, Tallahassee, FL.
- Kilfoyle, A. K., Freeman, J., Jordan, L. K. B., Quinn, T. P., & Spieler, R. E. (2013). Fish assemblages on a mitigation boulder reef and neighboring hardbottom. *Ocean & Coastal Management*, 75(0), 53-62. doi: <http://dx.doi.org/10.1016/j.ocecoaman.2013.02.001>.
- Kjerfve, B., Ogden, J., Garzón-Ferreira, J., Jordán-Dahlgren, E., De Meyer, K., Penchaszadeh, P., . . . Zieman, J. (1998). Caricomp: A Caribbean network of marine laboratories, parks, and reserves for coastal monitoring and scientific collaboration. *Caribbean coral reef, seagrass and mangrove site*, 1-16.
- Klebba, K. N. (2005). *Systematics, ecology, and functional morphology of commensal amphipods (Leucothoidae) in the western Caribbean Sea and southeast Florida*. (MS), NSUOC, Dania Beach, Florida.
- Klink, L. H. (2007). *Review of international coral reef mooring programs and the effect of mooring use on coral reefs offshore Broward County, Florida, USA*. (MS), NSUOC, Dania Beach, Florida.
- Klitgord, K. D., Popenoe, P., & Schouten, H. (1984). Florida: A Jurassic transform plate boundary. *Journal of Geophysical Research: Solid Earth*, 89(B9), 7753-7772. doi:10.1029/JB089iB09p07753.
- Knowlton, N. (1992). Thresholds and multiple stable states in coral reef community dynamics. *Amer. Zool.*, 32(6), 674-682. doi:10.1093/icb/32.6.674.
- Kochinsky, L. (1989). *The effects of an iodophor compound on skin lesion disease in sea turtles*. (PhD), NSUOC, Dania Beach, Florida.
- Koenig, C. C., Coleman, F. C., Grimes, C. B., Fitzhugh, G. R., Scanlon, K. M., Gledhill, C. T., & Grace, M. (2000). Protection of fish spawning habitat for the conservation of warm-temperate reef-fish fisheries of shelf-edge reefs of Florida. *Bull. Mar. Sci.*, 66(3), 593-616.
- Kohler, K. E., & Dodge, R. E. (2006). *Visual_HEA: Habitat Equivalency Analysis software to calculate compensatory restoration following natural resource injury*.
- Koopman, B., Heaney, J., Cakir, F., Rembold, M., Indeglia, P., & Kini, G. (2006). *Ocean outfall study: Final report*. Retrieved from Tallahassee, Florida.
- Kramer, P. A., Anselmetti, F., & Curry, R. (2001). *Geophysical characterization of pre-Holocene limestone bedrock underlying the Biscayne National Park Reef Tract, Florida*. Kuniandy, E. L. (Ed.), U.S. Geological Survey Karst Interest Group Proceedings, Water-Resources Investigations Report 01-4011 (pp. 128-133).

Kruempel, C. J., Hague, E., Lybolt, M., & Baron, R. (2006). *Telefonica International Wholesale Service, Inc. (Formerly Emergia) fiberoptic cable installation Boca Raton (Palm Beach County), Florida - Telefonica SAm-1 Cable H and I stony coral impact and artificial reef colonization five-year post-construction monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Kuffner, I., Brock, J., Grober-Dunsmore, R., Bonito, V., Hickey, T., & Wright, C. (2007). Relationships between reef fish communities and remotely sensed rugosity measurements in Biscayne National Park, Florida, USA. *Environmental Biology of Fishes*, 78(1), 71-82.

Kukich, L. N. (2008). *Seasonal distribution of higher filamentous marine fungi along the salinity gradient of the Loxahatchee River: Jupiter, Florida*. (MS), NSUOC, Dania Beach, Florida.

Kuss, K. M. (1998). *The occurrence of PCBs and chlorinated pesticide contaminants in bottlenose dolphins (Tursiops truncatus) in a resident community: comparison with age, gender and birth order*. (MS), NSUOC, Dania Beach, Florida.

Kuszynski, J. (1987). *A policy analysis of the beach dune and wetland components of the coastal zone protection conservation element of the comprehensive plans of Dade, Broward, Palm Beach Martin and St. Lucie counties*. (MS), NSUOC, Dania Beach, Florida.

Kuta, K. G. (1992). *The effect of demersal reef fish on two species of gorgonian coral*. (MS), NSUOC, Dania Beach, Florida.

Kuta, K. G., & Richardson, L. L. (2002). Ecological aspects of black band disease of corals: relationships between disease incidence and environmental factors. *Coral Reefs*, 21, 393-398.

Landry, J. B., W.J. Kenworthy, & Carlo, G. D. (2008). *The Effects of Docks on Seagrasses, With Particular Emphasis on the Threatened Seagrass, Halophila johnsonii*.

Lang, J. C., Lasker, H. R., Gladfelter, E. H., Hallock, P., Jaap, W. C., Losada, F. J., & Muller, R. G. (1992). Spatial and temporal variability during periods of "recovery" after mass bleaching on Western Atlantic coral reefs. *American Zoology*, 32, 696-706.

Lang, J. C., Marks, K. W., Kramer, P. A., Kramer, P. R., & Ginsburg, R. N. (2010). *Atlantic and Gulf Rapid Reef Assessment (AGRRA) protocols version 5.4*. Miami, Florida.

Lapointe, B. (1989). Caribbean coral reefs: are they becoming algal reefs? *Sea Frontiers*, 35, 82-91.

Lapointe, B. (2007). *Comparative ecology of harmful macroalgal blooms in south Florida's coastal waters (CEHAB)*. Harbor Branch Oceanographic Institution. Ft. Pierce, FL.

Lapointe, B. E. (1997). Nutrient thresholds for bottom-up control of macroalgal blooms on coral reefs in Jamaica and southeast Florida. *Limnology and Oceanography*, 42, 1119-1131.

Lapointe, B. E. (1999). Simultaneous top-down and bottom-up forces control macroalgal blooms on coral reefs (reply to the comment by Hughes et al.). *Limnology and Oceanography*, 44, 1586-1592.

Lapointe, B. E. (2005). *Draft final report - distribution and ecology of invasive and harmful macroalgal Blooms on coral reefs off southeast Florida*.

- Lapointe, B. E., Bedford, B. J., & Baumberger, R. (2006). Hurricanes Frances and Jeanne remove blooms of the invasive green alga *Caulerpa brachyphylla* forma *parvifolia* (Harvey) Cribb from coral reefs off northern Palm Beach County, FL. *Estuaries and Coasts*, 29(6A), 966-971.
- Lapointe, B., Barile, P., Littler, M., & Littler, D. (2005a). Macroalgal blooms on southeast Florida coral reefs II. Cross-shelf discrimination of nitrogen sources indicates widespread assimilation of sewage nitrogen. *Harmful Algae*, 4, 1106-1122.
- Lapointe, B., Barile, P., Littler, M., Littler, D., Bedford, B., & Gasque, C. (2005b). Macroalgal blooms on southeast Florida coral reefs I. Nutrient stoichiometry of the invasive green alga *Codium isthmocladum* in the wider Caribbean indicates nutrient enrichment. *Harmful Algae*, 4, 1092-1105.
- Larson, E. A. (2010). *Establishment of an Acropora cervicornis (staghorn coral) nursery: An evaluation of survivorship and growth*. (MS), NSUOC, Dania Beach, Florida.
- Lasker, H. R. (1980). Sediment rejection by reef corals: the roles of behavior and morphology in *Montastrea cavernosa* (Linnaeus). *J. Exp. Mar. Biol. Ecol.*, 47, 77-88.
- Lee, T., & Mayer, D. (1977). Low-frequency current variability and spin-off eddies along the shelf off Southeast Florida. *Journal of Marine Research*, 35, 193-220.
- Lefebvre, L. W., Reynolds, J.E. III, Ragen, T.J., Langtimm, C.A., & Valade, J.A. (2002). *Manatee population ecology and management - workshop proceedings*. U.S. Geological Survey, Gainesville, FL.
- Leichter, J. J., & Miller, S. L. (1999). Predicting high-frequency upwelling: Spatial and temporal patterns of temperature anomalies on a Florida coral reef. *Continental Shelf Research*, 19(7), 911-928.
- Leichter, J. J., Stewart, H. L., & Miller, S. L. (2003). Episodic nutrient transport to Florida coral reefs. *Limnology and Oceanography*, 48, 1394-1407.
- Lekien, F., Coulliette, C., Mariano, A., Ryan, E., Shay, L., Haller, G., & Marsden, J. (2005). Pollution release tied to invariant manifolds: A case study for the coast of Florida. *Physica*, 210, 1-20.
- Lidz, B. H., & Shinn, E. A. (1991). Paleoshorelines, reefs, and a rising sea: South Florida, U.S.A. *Journal of Coastal Research*, 7(1), 203-229.
- Lidz, B. H., Brock, J. C., & Nagle, D. B. (2008). Utility of shallow-water ATRIS images in defining biogeologic processes and self-similarity in skeletal scleractinia, Florida reefs. *Journal of Coastal Research*, 1320-1338. doi:10.2112/08-1049.1.
- Lidz, B. H., Hine, A. C., Shinn, E. A., & Kindinger, J. L. (1991). Multiple outer-reef tracts along the south Florida bank margin; outlier reefs, a new windward-margin model. *Geology*, 19(2), 115-118.
- Lidz, B. H., Shinn, E. A., Hine, A. C., & Locker, S. D. (1997). Contrasts within an outlier-reef system: Evidence for differential quaternary evolution, south Florida windward margin, U.S.A. *Journal of Coastal Research*, 13(3), 711-731.

- Light, P. R., Vose, F. E., & Snyder, D. B. (2003). *Comparison of fish assemblages on artificial and natural reefs off southeast Florida*. Florida Fish and Wildlife Conservation Commission.
- Lighty, R. G. (1977). *Relict shelf-edge Holocene coral reef: southeast coast of Florida*. Paper presented at the Third International Coral Reef Symposium, Miami, Florida.
- Lighty, R. G., MacIntyre, I. G., & Stuckenrath, R. (1978). Submerged early Holocene barrier reef south-east Florida shelf. *Nature*, 275, 59-60.
- Lighty, R. G., Macintyre, I. G., & Stuckenrath, R. (1982). *Acropora palmata* reef framework: A reliable indicator of sea level in the western Atlantic for the past 10,000 years. *Coral Reefs*, 1(2), 125-130.
- Lighty, R.G., Macintyre, I. G., & Stuckenrath, R. (1979). Holocene reef growth on the edge of the Florida Shelf (reply). *Nature*, 278, 281 - 282.
- Lighty, R.G., Macintyre, I. G., & Stuckenrath, R. (1979). Shelf temperatures and reef growth on the south-east Florida coast. (reply). *Nature*, 278, 669-670.
- Lindberg, W. J., & Relini, G. (2000). *Integrating evaluation into reef project planning*. Seaman Jr. (Ed.). *Artificial reef evaluation: with application to natural marine habitats* (pp. 195-235). Boca Raton, Florida: CRC Press.
- Lindberg, W. J., Frazer, T. K., Portier, K. M., Vose, F., Loftin, J., Murie, D. J., . . . Hart, M. K. (2006). Density-dependent habitat selection and performance by a large mobile reef fish. *Ecological Applications*, 16(2), 731-746.
- Lindberg, W., & Seaman, W. (2010). Guidelines and management practices for artificial reef siting, use, construction and anchoring in Southeast Florida. *Florida Department of Environmental Protection*. Miami, Florida.
- Lindeman, K. C., & Roumelis, J. F. (2001). *Comparative effects of beach management policy alternatives upon fishes of southeast Florida*. Paper presented at the 50. Annual Meeting Southeaster Section Geological Society of America, Raleigh, NC (USA).
- Lindeman, K. C., & Snyder, D. B. (1999). Nearshore hardbottom fishes of southeast Florida and effects of habitat burial caused by dredging. *Fishery Bulletin*, 97(3), 508-525.
- Lindeman, K. C., Diaz, G. A., Serafy, J. E., & Ault, J. S. (1998). *A spatial framework for assessing cross-shelf habitat use among newly settled grunts and snappers*. Paper presented at the Proc. Gulf & Caribbean Fisheries Institute.
- Lindeman, K., & Ruppert, T. (2011). *Policy recommendations and training to improve agency permitting, compliance, and enforcement for coral resource conservation in southeast Florida*. Southeast Florida Coral Reef Initiative (SEFCRI). Maritime Industry and Coastal Construction Impacts (MICCI). Local Action Strategy Project 4, 21, 23, 24 – Phase 2.
- Lindeman, K., Kramer, P., & Ault, J. (2001). Comparative approaches to reef monitoring and assessment: An overview. *Bulletin of Marine Science*, 69(2), 335.
- Lindholm, J., Kaufman, L., Miller, S., Wagschal, A., & Newville, M. (2005). *Movement of yellowtail snapper (*Ocyurus chrysurus* Block 1790) and black grouper (*Mycteroperca bonaci* Poey 1860) in the northern Florida*

Keys National Marine Sanctuary as determined by acoustic telemetry. Marine Sanctuaries Conservation Series MSD-05-4. NOAA Office of National Marine Sanctuaries, Silver Spring, MD.

Lindholm, J., Knight, A., Laufman, L., & Miller, S. (2006). *A pilot study of hogfish (*Lachnolaimus maximus* Walbaum 1792) movement at the Conch Reef Research Only Area (northern Florida Keys)*. Marine Sanctuaries Conservation Series NMSP-06-06. NOAA Office of National Marine Sanctuaries, Silver Spring, MD.

Lirman, D. (2003). A simulation model of the population dynamics of the branching coral *Acropora palmata*: Effects of storm intensity and frequency. *Ecological Modelling*, 161(3), 167-180.

Lirman, D., & Cropper, W. (2003). The influence of salinity on seagrass growth, survivorship, and distribution within Biscayne Bay, Florida: Field, experimental, and modeling studies. *Estuaries and Coasts*, 26(1), 131-141.

Lirman, D., & Fong, P. (1996). Sequential storms cause zone-specific damage on a reef in the northern Florida Reef Tract: Evidence from Hurricane Andrew and the 1993 storm of the century. *Florida Scientist*, 59(1), 50-63.

Lirman, D., & Fong, P. (2007). Is proximity to land-based sources of coral stressors an appropriate measure of risk to coral reefs? An example from the Florida Reef Tract. *Marine Pollution Bulletin*, 54(6), 779-791.

Lirman, D., Deangelo, G., Serafy, J., Hazra, A., Smith Hazra, D., & Brown, A. (2008). Geospatial video monitoring of nearshore benthic habitats of western Biscayne Bay (Florida, USA) using the Shallow-Water Positioning System (SWaPS). *Journal of Coastal Research*, 24(1A), 135-145.

Lirman, D., Gracias, N., Gintert, B., Gleason, A., Deangelo, G., Dick, M., . . . Reid, R. (2010). Damage and recovery assessment of vessel grounding injuries on coral reef habitats by use of georeferenced landscape video mosaics. *Limnology and Oceanography: Methods*, 8, 88-97.

Lirman, D., Gracias, N., Gintert, B., Gleason, A., Reid, R., Negahdaripour, S., & Kramer, P. (2007). Development and application of a video-mosaic survey technology to document the status of coral reef communities. *Environmental Monitoring and Assessment*, 125(1), 59-73.

Lirman, D., Orlando, B., Maciá, S., Manzello, D., Kaufman, L., Biber, P., & Jones, T. (2003). Coral communities of Biscayne Bay, Florida and adjacent offshore areas: Diversity, abundance, distribution, and environmental correlates. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 13, 121-135.

Lirman, D., Schopmeyer, S., Manzello, D., Gramer, L., Precht, W., Muller-Karger, F., . . . Thanner, S. (2011). Severe 2010 cold-water event caused unprecedented mortality to corals of the Florida Reef Tract and reversed previous survivorship patterns. *PLoS ONE* 6(8):e23047, doi:10.1371/journal.pone.0023047.

Lirman, D., Thyberg, T., Herlan, J., Hill, C., Young-Lahiff, C., Schopmeyer, S., . . . Drury, C. (2010). Propagation of the threatened staghorn coral *Acropora cervicornis*: methods to minimize the impacts of fragment collection and maximize production. *Coral Reefs*, 29(3), 729-735. doi:10.1007/s00338-010-0621-6.

Lloyd, J.U. (1989). *Environmental assessment*. Broward County, FL.

Logan, K. (2009). *Recommend modifications to agency compliance and enforcement protocols. Education and outreach to increase enforcement review and actions*. Southeast Florida Coral Reef Initiative. Maritime Industry and Coastal Construction Impacts (MICCI) Focus Team. Local Action Strategy Project 4, 21, 23, 24 – Phase 1.

LÓpez-Legentil, S., Song, B., McMurray, S. E., & Pawlik, J. R. (2008). Bleaching and stress in coral reef ecosystems: *hsp70* expression by the giant barrel sponge *Xestospongia muta*. *Molecular Ecology*, 17(7), 1840-1849.

Loxahatchee River District. (2012). *Studies, reports & data*. Loxahatchee River District.

LPRI. (2009). *Loxahatchee River preservation initiative 2009*. Loxahatchee River Preservation Initiative.

Lueg, J., Moulding, A.L., Kosmynin, V.N., Gilliam, D.S. (2012). Gametogenesis and spawning of *Solenastrea bournoni* and *Stephanocoenia intersepta* in southeast Florida, USA. *Journal of Marine Biology*, 2012, 13.

Lukens, R. R., & Selberg, C. (2004). *Guidelines for marine artificial reef materials: Second edition* (Report Number 121). Retrieved from Ocean Springs, Miss. and Washington, D.C.: <http://www.loc.gov/catdir/toc/fy0715/2007395937.html>.

Lybolt, M. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 19*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Lybolt, M., Barrett, C. A., Hague, E., Bardes, P., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 11*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Lybolt, M., Delaney, A., Craft, J., Prekel, S. E., Bardes, P., Labonte, A., . . . Lorne, J. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 7*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Lybolt, M., Delaney, A., Prekel, S. E., & Craft, J. (2005a). *Broward County segment III nearshore monitoring - mid-construction: Week 4*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Lybolt, M., Delaney, A., Prekel, S. E., & Craft, J. (2005b). *Broward County segment III nearshore monitoring - mid-construction: Week 10*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Lybolt, M., Hague, E., Bardes, P., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 21*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Lybolt, M., Makowski, C., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 6*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Lybolt, M., Makowski, C., Craft, J., & Prekel, S. E. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 2*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Lybolt, M., Prekel, S. E., & Craft, J. (2005). *Broward County segment III nearshore monitoring - mid-construction: Week 9 - field observation report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Macauley, J. M., Summers, J. K., Engle, V. D., & Harwell, L. C. (2002). The ecological condition of south Florida estuaries. *Environmental Monitoring and Assessment*, 75, 253-269.

MacDonald, D. D. (1994a). *Volume 1 - Development and evaluation of sediment quality assessment guidelines*. MacDonald Environmental Sciences Ltd., British Columbia.

MacDonald, D. D. (1994b). *Volume 2 - Application of the sediment quality assessment guidelines*. MacDonald Environmental Sciences Ltd., British Columbia.

Machemer, E. G. P. (2010). *A predictive habitat model for rainbow parrotfish *Scarus guacamaia**. (MS), NSUOC, Dania Beach, Florida.

Machemer, E., Walter, J. I., Serafy, J., & Kerstetter, D. (2012). Importance of mangrove shorelines for rainbow parrotfish *Scarus guacamaia*: Habitat suitability modeling in a subtropical bay. *Aquatic Biology*, 15(1), 87-98. doi:10.3354/ab00412.

MacIntyre, I. G., & Milliman, J. D. (1970). Physiographic features on the outer shelf and upper slope, Atlantic continental margin, southeastern United States. *Geological Society of America Bulletin*, 81, 2577-2598.

Madden, C. J., & Goodin, K. L. (2007). *Ecological classification of Florida Bay using the coastal marine Ecological Classification Standard (CMECS)*. NatureServe, Arlington, Virginia.

Madley, K. A., Sargent, B., & Sargent, F. J. (2002). *Development of a system for classification of habitats in estuarine and marine environments (SCHEME) for Florida*. St. Petersburg, FL.

Maher, T. F. (1999). *Florida's artificial reef program: a historical perspective of its unique partnership between federal, state and local governments*. Paper presented at the Proceedings 7th CARAH.

Makowski, C., Prekel, S. E., Lybolt, M. J., & Baron, R. M. (2009). The Benthic Ecological Assessment for Marginal Reefs (BEAMR) method. *Journal of Coastal Research*, 25(2), 515-522.

Makowski, C., Rusenko, K., Thomson, G. G., & Kruempel, C. J. (2006). *Broward County beach demonstration project: Abiotic analysis of recycled*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.

Mallinson, D., Hine, A., Hallock, P., Locker, S., Shinn, E., Naar, D., . . . Weaver, D. (2003). Development of small carbonate banks on the south Florida platform margin: response to sea level and climate change. *Marine Geology*, 199, 45-63.

Margolis, W. E. (1993). *Nesting periodicity of *Caretta caretta* in Broward County, Florida*. (MS), NSUOC, Dania Beach, Florida.

Marine Resources, Inc. (2003). *M/V Alam Senang grounding, Broward County Florida: Assessment and restoration*. Prepared for Scandinavian Underwriters Agency. Stuart, FL.

Marsh, A. G., & Tuberville, D. B. (1981). The environmental impact of beach nourishment: Two studies in southeastern Florida. *Shore and Beach*, 49(3), 40-45.

Marsh, A. G., Bowen, P. R., Deis, D. R., Tubeville, D. B., & Courtenay, W. R., Jr. (1980). *Ecological evaluation of a beach nourishment project at Hallandale (Broward County), Florida: Volume II. Evaluation of benthic communities adjacent to a restored beach, Hallandale (Broward County), Florida*. Florida Atlantic University Department of Biological Services (Vol. II). Boca Raton, Florida.

Marszalek, D. S. (1981). *Impact of dredging on a subtropical reef community, southeast Florida, USA*. Paper presented at the 4. International Coral Reef Symposium, Manila (Philippines).

Marszalek, D. S., & Taylor, D. (1977). *Professional engineering services for surveying and monitoring of marine hardground communities in Dade County, Florida*. University of Miami Rosentiel School of Marine and Atmospheric Science. Miami, Florida.

Marszalek, D. S., G.B., Jr., Noel, M. R., & Worley, D. R. (1977, May 1977). *Reef distribution in south Florida*. Paper presented at the Proceedings, Third International Coral Reef Symposium, Miami, Florida.

Martin Associates. (2010). *The local and regional economic impacts of Port Everglades: Fiscal year 2009*. Lancaster, PA. Retrieved from: <http://www.porteverglades.net/about-us/economic-impact/>.

Mattison, C. (2004). *The influence of physical and anthropogenic factors on the distribution of the loggerhead sea turtle (Caretta caretta) nests in Broward County, Florida (1990-1999)*. (MS), NSUOC, Dania Beach, Florida.

Mauer, S. L. (2006). *Seasonal trends and factors influencing osprey, Pandion haliaetus, sightings in Port Everglades, Florida*. (MS), NSUOC, Dania Beach, Florida.

McArthur, C. J., Stamates, S. J., & Proni, J. R. (2006). *Review of the real-time current monitoring requirement for the Miami ocean dredged material disposal site (1995-2000)*. National Oceanic and Atmospheric Administration Technical Memorandum OAR AOML-95.

McCarthy, D. A. (n.d.). *Baseline report for hardbottom habitats at Bathtub Beach, Stuart, Florida*. Jacksonville University Department of Biology and Marine Science. Jacksonville, Florida.

McClellan, D. B., & D. E. H. (2007). Selected reef fish visual census studies conducted by the Miami Laboratory Reef Resources Team, 1985 - 2002. *NOAA Technical Memorandum NMFS-SEFSC-561.*, 104 p.

McCorquodale, D. S., Jr. (1987). *Colophage as an indicator of fecal pollution in marine waters: assay, validation, and application*. (PhD), NSUOC, Dania Beach, Florida.

McGlynn, K. (2002). *DEP permitting for the diplomat beach renourishment project, City of Hollywood, Broward County, FL*. DEP file No. 0174142-001-JC. Coastal Systems International, Inc. Coral Gables, Florida.

McGrath, E. (2012). *The feasibility of rubble-binding sponge propagation for use in reef restoration*. (MS), NSUOC, Dania Beach, Florida.

Menza, C., Ault, J., Beets, J., Bohnsack, J., Caldow, C., Christensen, J., . . . Woody, K. (2006). *A guide to monitoring reef fish in the National Park Service's South Florida / Caribbean Network*. NOAA Technical Memorandum NOS NCCOS 39.

Messing, C., Walker, B., & Reed, J. (2012). *Deep-water benthic habitat characterization and cable impact assessment for the South Florida Ocean Measurement Facility (SFOMF)*. Prepared for Commander Naval Surface Warfare Center, Carderock Division. Bethesda, MD.

Meylan, A. (1978). *The behavioral ecology of the West Caribbean green turtle (Chelonia mydas) in the internesting habitat*. University of Florida, Miami Harbor Baseline Quantitative Reef Assessment Study Technical Approach – Pilot Study. (2009).

Miami-Dade County DERM. (2003). *Sunny Isles reef restoration onsite mitigation monitoring restudy project 2003: Interim final report*. Miami Dade County Department of Environmental Resources Management. Miami, Florida.

Miami-Dade County DERM. (2007). *Baseline biological monitoring of Miami-Dade Limerock Boulder Reefs: Final report*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.

Miami-Dade County DERM. (2009a). *Annual monitoring report for the Dumfoundling Bay artificial reef site*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.

Miami-Dade County DERM. (2009b). *Annual monitoring report for the Golden Beach artificial reef site*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.

Miami-Dade County DERM. (2009c). *Annual monitoring report for the Julia Tuttle artificial reef site*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.

Miami-Dade County DERM. (2009d). *Annual monitoring report for the Key Biscayne Special Management Zone artificial reef site*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.

Miami-Dade County DERM. (2009e). *Annual monitoring report for the Mercy Hospital artificial reef site*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.

Miami-Dade County DERM. (2009f). *Annual monitoring report for the Oleta River artificial reef site*. Miami-Dade County Department of Environmental Resources Management. Miami, Florida.

Michel, J. F. (1972). Oceanographic studies pertaining to the proposed ocean outfall at Pompano Beach, Florida. *Ross, Saarinen, Bolton and Wilder, Inc.*, 18 pp.

Mille, K., Scott, C., & Mata, C. (n.d.). *Digitizing the Florida Artificial Reef Program reference library using EndNote X2*. Paper presented at the Florida Artificial Reef Program: Artificial Reef Program.

Miller, A. (2003). *A descriptive epidemiological study of stranded dolphins along the Florida coastline*. (MS), NSUOC, Dania Beach, Florida.

Miller, A. (2006). *Stress response in Montastraea cavernosa as a result of sediment loading: Quantitative histological and ultrastructural analysis*. (MS), NSUOC, Dania Beach, Florida.

Miller, C. (2007). *Synthesis of FDEP Hardbottom Monitoring Program Results*.

Miller, J., Waara, R., Atkinson, A., Witcher, B., & Patterson, M. (2006). Protocol development to monitoring implementation: Lessons learned from the National Park Service's South Florida- Caribbean Inventory & Monitoring Network coral reef monitoring program. *EOS, Transactions, American Geophysical Union*, 87(36).

Miller, M. W., Baums, I.B., Williams, D.E., & Szmant, A. M. (2002). *Status of candidate coral, Acropora palmata, and*.

Miller, M. W., Hay, M. E., Miller, S. L., Malone, D., Sotka, E. E., & Szmant, A. M. (1999). Effects of nutrients versus herbivores on reef algae: A new method for manipulating nutrients on coral reefs. *Limnology and Oceanography*, 44, 1847-1861.

Miller, M. W., Weil, E., & Szmant, A. M. (2000). Coral recruitment and juvenile mortality as structuring factors for reef benthic communities in Biscayne National Park, USA. *Coral Reefs*, 19(2), 115-123.

Milon, J. W. (1989). Artificial marine habitat characteristics and participation behavior by sport anglers and divers. *Bulletin of Marine Science*, 44(2), 853-862.

Milon, J. W., & Dodge, R. E. (2001). Applying habitat equivalency analysis for coral reef damage assessment and restoration. *Bulletin of Marine Science*, 69, 975-988.

Mitchell, M. (2006). *Testing the effectiveness of pollution control measures at the south Dade landfill: the reduction of un-ionized ammonia in landfill leachate*. (MS), NSUOC, Dania Beach, Florida.

Moffatt & Nichol International. (2006). *Port Everglades offshore anchorage feasibility study final report*. Calypso U.S. Pipeline, LLC MNI Project No. 5905.

Mokashi, M. P. (2009). *Distribution of phyllosoma larvae (Crustacea: Decapoda: Palinura: Palinuridae, Scyllaridae and Synaxidae) in the Florida current, off Port Everglades, Florida, USA*. (MS), NSUOC, Dania Beach, Florida.

Monaco, M., Anderson, S., Battista, T., Kendall, M., Rohmann, S., Wedding, L., & Clarke, A. (2012). *National summary of NOAA's shallow-water benthic habitat mapping of U.S. coral reef ecosystems*. NOAA Technical Memorandum NOS NCCOS 122. NCCOS Center for Coastal Monitoring and Assessment Biogeography Branch. Silver Spring, MD.

Monty, J. A. (2006). *"Coral of opportunity" survivorship, growth, and use with "coral nurseries" and "integrated stakeholder involvement" in coral reef restoration*. (MS), NSUOC, Dania Beach, Florida.

Morgan, J. A., & Waddell, J. E. (2009). *NOAA Coral Reef Ecosystem Integrated Observing System (CREIOS) workshops report*. NOAA Technical Memorandum CRCP 9. NOAA Coral Reef Conservation Program. Silver Spring, MD.

Morley, D. M. (2009). *Environmental enhance gone awry: Characterization of an artificial reef constructed from waste vehicle tires*. (MS), NSUOC, Dania Beach, Florida.

Morris, S. M. (1993). *Effects of dredging induced sedimentation and turbidity on two species of stony corals of Southeast Florida*. (MS), NSUOC, Dania Beach, Florida.

Morton, N. E., Burd, J. J., McIntyre, M. L., O'Kiefe, K. M., Wheaton, J. L., Naar, D. F., . . . Kohler, M. F. (2002). *Comparison of airborne lidar and multibeam bathymetric data in the Florida Reef Tract along Broward County*. Paper presented at the Eos Transactions AGU, Honolulu, HI.

Moulding, A. (2011). *Evaluation of past coastal construction project monitoring in Southeast Florida and recommendations to improve future monitoring*. Southeast Florida Coral Reef Initiative. Maritime Industry and Coastal Construction Impacts (MICCI) and Fishing, Diving, and Other Uses (FDOU). Local Action Strategy Project 27, 47, 48.

Moyer, R. P. (2003). *Trends in macrobenthic spatial patterns and community structure on the Broward County, Florida (USA) relict reefs*. (MS), NSUOC, Dania Beach, Florida.

Moyer, R. P., Riegl, B., Banks, K., & Dodge, R. E. (2003). Spatial patterns and ecology of benthic communities on a high-latitude South Florida (Broward County, USA) reef system. *Coral Reefs*, 22(4), 447-464.

Moyer, R. P., Riegl, B., Dodge, R. E., Walker, B. K., & Gilliam, D. S. (2002). *Acoustic remote sensing of reef benthos in Broward County, Florida (USA)*. Paper presented at the Seventh International Conference on Remote Sensing for Marine and Coastal Environments, Miami, Florida, USA.

Moyer, R., Riegl, B., Banks, K., & Dodge, R. (2005). Assessing the accuracy of acoustic seabed classification for mapping coral reef environments in South Florida (Broward County, USA). *Revista de biologia tropical*, 53(1), 175-184.

MSA. (2011). Magnuson-Stevens Act Provisions, 50 CFR 600.920. Retrieved from <http://cfr.vlex.co.id/600-920-consultation-with-secretary-19896487>.

Mullins, H. T., & Neumann, A. C. (1979). Geology of the Miami terrace and its paleo-oceanographic implications. *Marine Geology*, 30, 205-232.

Murdoch, T. J. T., & Aronson, R. B. (1999). Scale-dependent spatial variability of coral assemblages along the Florida Reef Tract. *Coral Reefs*, 18(4), 341-351.

Murray, J. D. (1989). *A policy and management assessment of southeast and mid-Atlantic artificial reef programs (89-3)*. UNC Sea Grant College Program, North Carolina State University. Raleigh, North Carolina.

Myatt, E. N., & Myatt, D. O. (1992). *Florida artificial reef development plan*. EcoGenesis, Inc. Fort Lauderdale, FL.

Nairn, R., Johnson, J. A., Hardin, D., & Michel, J. (2004). A biological and physical monitoring program to evaluate long-term impacts from sand dredging operations in the United States outer Continental Shelf. *Journal of Coastal Research*, 20, 126-137.

Naqvi, S. M., & Pullen, E. J. (1982). *Effects of Beach Nourishment and Borrowing on Marine Organisms*. Department of the Army Coastal Engineering Research Center. Fort Belvoir, VA.

National Fish Habitat Board. (2010). *Through a fish's eye: The status of fish habitats in the United States 2010*. Association of Fish and Wildlife Agencies, Washington DC.

National Fish Habitat Board. (2012). *National fish habitat action plan, 2nd edition*. Association of Fish and Wildlife Agencies, Washington DC.

National Marine Fisheries Service. (2005). *Status of fisheries of the United States—Report to Congress*. Retrieved from <http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm>.

National Marine Fisheries Service. (2006). *Endangered and threatened species: final listing determinations for Elkhorn coral and Staghorn coral*. Federal Registrar: 71 pages 26852-26861.

National Marine Fisheries Service. (2007). *Marine Recreational Fisheries Statistics Survey (MRFSS)*. Fisheries Statistics Division. Retrieved from <http://www.st.nmfs.gov/st1/recreational/queries/index.html>.

National Marine Fisheries Service. (2008). Endangered and threatened species; Critical habitat for threatened Elkhorn and Staghorn corals; Final rule. *Federal Register: Rules and Regulations* (Vol. 73, 50 CFR Parts 223 and 226, pp. 72210-72240): Department of Commerce. National Oceanic and Atmospheric Administration.

National Ocean Service. (2000). *Fair market value analysis for a fiber optic cable permit in national marine sanctuaries*. National Marine Sanctuaries Program.

National Oceanic and Atmospheric Administration. (2007). *National artificial reef plan (as amended): Guidelines for siting, construction, development, and assessment of artificial reefs*. United States Department of Commerce. Silver Spring, Maryland.

National Park Service. (2004). *Coral reef habitat injuries*.

Negandhi, K. L. (2009). *Microbial communities with emphasis on coral disease-associated bacteria within Florida reef sponges*. (MS), NSUOC, Dania Beach, Florida.

Nelson, D. M., Herlach, B., McGrath, T., Buja, K., Zitello, A., & Oldewurtel-Ilioff, A. (2010). *Assessment of existing information on Atlantic coastal fish habitats: Development of a web-based spatial bibliography, query tools, and data summaries*. NOAA Technical Memorandum NOS NCCOS 103.

Nelson, W. (1993). Beach restoration in the southeastern U.S.: Environmental effects and biological monitoring. *Ocean & coastal management*, 19(2), 157-182.

Nelson, W. G. (1985). *Guidelines for beach restoration projects part 1: Biological*. Florida Institute of Technology Department of Oceanography and Ocean Engineering. Melbourne, FL.

Nelson, W. G., & Main, M. B. (1985). *Criteria for beach nourishment: Biological guidelines for Sabellariid worm reef*. Florida Institute of Technology Department of Oceanography and Ocean Engineering. Melbourne, FL.

Newell, R. C., Seiderer, L. J., & Hitchcock, D. R. (1998). The impact of dredging works in coastal waters: A review of the sensitivity to disturbance and subsequent recovery of biological resources on the sea bed. *Ocean and Marine Biology: An Annual Review*, 36, 127-178.

Nicoletti, L., Paganelli, D., & Gabellini, M. (2006). Environmental aspects of relict sand dredging for beach nourishment: proposal for a monitoring protocol. *Quaderno ICRAM*, 5, 155.

NMFS & USFWS. (1992). *Recovery plan for Leatherback turtles in the U.S. Caribbean, Atlantic and Gulf of Mexico*. NOAA National Marine Fisheries Service & U.S. Fish and Wildlife Service.

NMFS & USFWS. (1992). *Recovery plan for the Kemp's Ridley sea turtle *Lepidochelys kempii**. Prep. by the Kemp's Ridley Recovery Team, for USFWS and NMFS.

NMFS & USFWS. (1993). *Recovery plan for the Hawksbill turtle *Eretmochelys imbricata* in the U.S. Caribbean, Atlantic and Gulf of Mexico*. Prepared by the Leatherback and Hawksbill Turtle Recovery Team, for USFWS Southeast Region and NMFS.

NMFS & USFWS. (2007a). *Green sea turtle (*Chelonia mydas*) 5-year review: Summary and evaluation*. NOAA/NMFS Office of Protected Resources, and USFWS Southeast Region.

NMFS & USFWS. (2007b). *Hawksbill Sea Turtle (Eretmochelys imbricata) 5-year review: Summary and evaluation*. NOAA/NMFS Office of Protected Resources, and USFWS Southeast Region.

NMFS & USFWS. (2007c). *Kemp's Ridley Sea Turtle (Lepidochelys kempii) 5-year review: Summary and evaluation*. NOAA/NMFS Office of Protected Resources, and USFWS Southeast Region.

NMFS & USFWS. (2007d). *Leatherback Sea Turtle (Dermochelys coriacea) 5-year review: Summary and evaluation*. NOAA/NMFS Office of Protected Resources, and USFWS Southeast Region.

NMFS & USFWS. (2007e). *Loggerhead Sea Turtle (Caretta caretta) 5-year review: Summary and evaluation*. NOAA/NMFS Office of Protected Resources, and USFWS Southeast Region.

NOAA & CRCP. (2010). *Coral Reef Conservation Program, goals and objectives 2010-2015*. NOAA Coral Reef Conservation Program, Silver Spring MD.

NOAA & CRCP. (2012). *Implementation of the National Coral Reef Action Strategy: Report on NOAA Coral Reef Conservation Program activities from 2010 to 2011*. NOAA Coral Reef Conservation Program, Silver Spring, MD.

NOAA & DARRP. (2009a). *Case: Coral cases, Maitland, FL*. NOAA Damage Assessment, Remediation, and Restoration Program, Southeast Region.

NOAA & DARRP. (2009b). *Case: Corals cases, Elpis, FL*. NOAA Damage Assessment, Remediation, and Restoration Program, Southeast Region.

NOAA & NMFS. (2000). *Status review of Smalltooth Sawfish (Pristis pectinata)*. NOAA/NMFS Protected Resources Division, St. Petersburg, FL.

NOAA & NMFS. (2006). *Summary report: Acropora conservation workshops*. NOAA/NMFS Southeast Regional Office, St. Petersburg, FL.

NOAA & NMFS. (2007). *SEDAR 13 stock assessment report: Small coastal shark complex, Atlantic Sharpnose, Blacknose, Bonnethead, and Finetooth Shark*. NOAA/NMFS Highly Migratory Species Management Division, Silver Spring, MD.

NOAA & NMFS. (2009a). *Impacts analysis for critical habitat designation for the endangered U.S. distinct population segment of Smalltooth Sawfish (Pristis pectinata)*. Final Endangered Species Act Section 4(b)(2) Report.

NOAA & NMFS. (2010a). *Environmental assessment: Issuance of two scientific research permits for sea turtle research in Florida*. NOAA/NMFS Office of Protected Resources, Silver Spring, MD.

NOAA & NMFS. (2010b). *Smalltooth Sawfish (Pristis pectinata Latham) 5-year review: Summary and evaluation*. NOAA/NMFS Protected Resources Division, St. Petersburg, FL.

NOAA & NMFS. (2010c). *Status review of the Largetooth Sawfish (Pristis perotteti)*. NOAA/NMFS.

NOAA & NMFS. (2012a). *Endangered Species Act - Section 7 consultation, biological opinion: 12 USACE SAJ general permits renewal*. NOAA/NMFS Southeast Regional Office, St. Petersburg, FL.

NOAA & NMFS. (2012b). *SouthEast data, assessment, and review (SEDAR)*. NOAA/NMFS Southeast Fisheries Science Center, Miami FL.

NOAA & NMFS. (2012c). *Supplemental information report on status review report and draft management report for 82 coral candidate species*. NOAA/NMFS Southeast and Pacific Islands Regional Offices.

NOAA & NOS. (2009). *Coral Reef Habitat assessment for U.S. marine protected areas: State of Florida: Dry Tortugas to Biscayne Bay*. NOAA/NOS Special Projects Office and Coral Reef Conservation Program, Silver Spring, MD.

NOAA, NMFS, & USFWS., & SEMARNAT. (2011). *Bi-national recovery plan for the Kemp's Ridley sea turtle (Lepidochelys kempii), second revision*. NOAA/NMFS, Silver Spring, MD.

NOAA. (2002). *Coral Reef Conservation Program 5: Status of local action strategies to conserve coral reefs for years 2002-2006*. Report to the U.S. Coral Reef Task Force Steering Committee.

NOAA. (2007). *United States coast pilot 4 Atlantic coast: Cape Henry to Key West (39 ed.)*. U.S. Department of Commerce. Washington, D.C.

NOAA. (2012). *Management report for 82 corals status review under the Endangered Species Act: Existing regulatory mechanisms and conservation efforts*. NOAA National Marine Fisheries Service, Pacific Islands Regional Office.

NOAA8 & NMFS. (2009b). *Recovery Plan for Smalltooth Sawfish (Pristis pectinata)*. Prep. by Smalltooth Sawfish Recovery Team. NOAA/NMFS Southeast Region, St. Petersburg, FL.

Noe, G., Childers, D., & Jones, R. (2001). Phosphorus biogeochemistry and the impact of phosphorus enrichment: Why is the Everglades so unique? *Ecosystems*, 4, 603-624.

Nowoslielski, K. L. (2005). *Distribution and significance of fecal indicator bacteria in beach and seawater in a sub-tropical environment*. (MS), NSUOC, Dania Beach, Florida.

NSUOC. (2005a). *Agreement exhibit A-2 activity 7.1: Stony coral transplantation summary*.

NSUOC. (2005b). *Agreement exhibit A-2 activity 7.2: Stony coral transplantation monitoring*

NSUOC. (2006a). *Agreement exhibit A-2 activity 7.2: Stony coral transplantation monitoring*

NSUOC. (2006b). *Agreement exhibit A-2 activity 7.2: Stony coral transplantation monitoring*

NSUOC. (2006c). *Third monitoring report: 1-year post-transplantation monitoring event*.

NSUOC. (2008a). *Broward County Port Everglades proposed sand bypass project: Benthic resource impact summary - final report*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.

- NSUOC. (2008b). *Broward County Port Everglades sand bypass project benthic habitat mapping and assessment*.
- NSUOC. (2008c). *Geotechnical investigation for the Port Everglades sand bypass project year 1 coral transplantation report: Draft*. Nova Southeastern University Oceanographic Center. Dania Beach, Florida.
- O'Brien, N. M. (2008). *An analysis of dwarf and pygmy sperm whale (Kogia sp.) stranding data in the southeast United States*. (MS), NSUOC, Dania Beach, Florida.
- Olsen Associates. (2009). *3-year post construction physical monitoring report: Appendix B*.
- Oppen, M. J. H. V., Willis, B. L., Vugt, H. W. J. A. V., & Miller, D. J. (2000). Examination of species boundaries in the *Acropora cervicornis* group (Scleractinia, Cnidaria) using nuclear DNA sequence analyses. *Molecular Ecology*, 9(9), 1363-1373. doi:10.1046/j.1365-294x.2000.01010.x.
- Orthmann, C. M. H. (1995). *An assessment of the extent and types of environmental crime in Florida, with a focus on Dade, Broward, and Palm Beach Counties, as measured by local prosecutors' records*. (MS), NSUOC, Dania Beach, Florida.
- Palm Beach County (1999). *Palm Beach County comprehensive coastal monitoring program draft*. Palm Beach County Department of Environmental Resources.
- Palm Beach County DERM. (1993). *Environmental assessment of coastal resources in Palm Beach, Lake Worth, South Palm Beach, Lantana and Manalapan Palm Beach County, Florida. Final report*.
- Palm Beach County DERM. (1994). *Environmental assessment for a shore protection project at Ocean Ridge Palm Beach County, Florida. Final report*.
- Palm Beach County DERM. (2000). *Evaluation of mitigation reef constructed to offset impacts of the 1995 Jupiter/Carlin Shore protection project: Interim report*. Palm Beach Department of Environmental Resources Management.
- Palm Beach County DERM. (2008). *Lake Worth Lagoon management plan revision*. Palm Beach County, Dept. Environmental Resources Management, West Palm Beach, FL.
- Palm Beach County DERM. (2009). *Palm Beach County, Florida ocean ridge beach renourishment project final nearshore reef monitoring and mitigation plan*.
- Palm Beach County Reef Research Team. (2004). *Final Report*.
- Palm Beach County Reef Research Team. (2006). *Final Report*.
- Palm Beach County. (2001). *History of Palm Beach County inlets*. Retrieved from <http://www.co.palm-beach.fl.us/erm/coastal/shoreline/beach/pdf/history-inlets.pdf>.
- Palm Beach Harbor Maintenance Dredging Project*. (2007). Palm Beach maintenance dredging.
- Palm Beach Reef Research Team. (2004). *Executive summary: A summary of the monitoring data collected from 11/02 to 12/04 by the Palm Beach County reef research team*.

- Park, B. N. (2008). *Incorporating science in Biscayne National Park marine planning - Oct 2008*.
- Parnell, B. D. (1979). Environmental impact assessment of North Broward (Pompano) outfall. *Environmental Quality Control Board*, 14 pp.
- Paul, V. J., Thacker, R. W., Banks, K., & Golubic S. (2005). Benthic cyanobacterial bloom impacts the reefs of South Florida (Broward County, USA). *Coral Reefs*, 24, 693-697.
- PBS&J (2004). *Lessons Learned: The Installation of the AT&T Telecommunications Cables off the Coast of Southeast Florida*.
- PBS&J. (1999). *Assessment of stony coral impacts along telecommunication cables in Broward County, Florida. A report for Michael S. Tammaro, Carlton, Fields, Ward, Emmanuel, Smith & Culter, P.A.*
- PBS&J. (2001). AT&T Hollywood, Florida Station - Year 2 Monitoring Report for Repaired Corals and Artificial Reef Modules. *PBS&J*. Jacksonville, Florida.
- PBS&J. (2007). *Assessment of alternative construction template for beach nourishment projects*. PBS&J, Tampa FL, and Ecological Associates, Inc., Jensen Beach FL.
- PBS&J. (2008c). *Development of Best Management Practices (BMPs) for construction, dredge and fill, and other activities adjacent to coral reefs: Workshop proceedings, Dania Beach, Florida, July 16, 2007*. Southeast Florida Coral Reef Initiative (SEFCRI). Maritime Industry and Coastal Construction Impacts (MICCI) Focus Team. Local Action Strategy Project # 6.
- Peach, K. E. (2009). *Population dynamics and predictions for the calcareous green algae, Halimeda, on the coral reefs on south Florida*. (MS), NSUOC, Dania Beach, Florida.
- Peddicoart, M. R. (2010). *Variations in composition, abundance and cover of reef tract sponge assemblages in Broward County, Florida, 2003-2006*. (MS), NSUOC, Dania Beach, Florida.
- Pendleton, L. H. (2008). *The economic and market value of coasts and estuaries: What's at stake?* Produced by Restore America's Estuaries, Arlington VA.
- Pennell, J. (2007a). Jupiter Island beach restoration biological and sedimentation survey post-dredge report. *Environmental Services, Inc.* Jupiter, Florida.
- Pennell, J. (2007b). St. Lucie Inlet federal navigation channel maintenance dredging project - nearshore hardbottom biological monitoring pre-dredge report. *Environmental Services, Inc.* Jupiter, Florida.
- Pennell, J. (2008). St. Lucie Inlet federal navigation channel maintenance dredging project - nearshore hardbottom biological monitoring post-dredge report. *Environmental Services, Inc.* Jupiter, Florida.
- Perkins, R. D., & Enos, P. (1981). Hurricane Betsy in the Florida-Bahama area: Geologic effects and comparison with Hurricane Donna. Leatherman, S. P. (Ed.), *Overwash Processes, Benchmark Papers in Geology* (Vol. Series 58, pp. 102-110). Stroudsburg, PA: Hutchinson Ross.

- Petersen, D., & Tollrian, R. (2001). Methods to enhance sexual recruitment for restoration of damaged reefs. *Bulletin of Marine Science*, 69, 989-1000.
- Petrie, C. D. (2000). *Effectiveness of chemical inducers on settling and settlement of scleractinian coral larvae on various substrates*. (MS), NSUOC, Dania Beach, Florida.
- Phillips, N. W., Gettleston, D. A., & Spring, K. D. (1990). Benthic biological studies of the southwest Florida shelf. *Amer. Zool.*, 30(1), 65-75. doi:10.1093/icb/30.1.65.
- Phipps Ocean Park (Reach 7)*. (2006). FDEP Permit No. 0165335-001-JC. Town of Palm Beach, FL.
- Pielke, R. A., Walko, R. L., Steyaert, L. T., Vidale, P. R., Liston, G. E., Lyons, W. A., & Chase, T. N. (1999). The influence of anthropogenic landscape changes on weather in south Florida. *American Meteorological Society*, 127, 1663-1672.
- Pierro, T., & Prekel, S. (2009). Field observation report: Boca Raton Inlet north jetty reconstruction. *Planning & Engineering, Inc.* Boca Raton, Florida.
- Pitts, P. (1993). *Coastal upwelling off the central Florida Atlantic coast: Cold near-shore waters during summer months surprise many divers*. Paper presented at the 13th Annual Scientific Diving Symposium, Pacific Grove, California.
- Pitts, P. A. (1999). Effects of summer upwelling on the abundance and vertical distribution of fish and crustacean larvae off central Florida's Atlantic coast. *Journal of Experimental Marine Biology and Ecology*, 235(1), 135-146. doi: [http://dx.doi.org/10.1016/S0022-0981\(98\)00179-8](http://dx.doi.org/10.1016/S0022-0981(98)00179-8).
- Pitts, P. A., & Smith, N. P. (1997). An investigation of summer upwelling across central Florida's Atlantic coast: The case for wind stress forcing. *Journal of Coastal Research*, 13(1), 105-110. doi:10.2307/4298596.
- Plotkin, P. T. E. (1995). *National Marine Fisheries Service and U. S. Fish and Wildlife Service status reviews for sea turtles listed under the Endangered Species Act of 1973*. NOAA National Marine Fisheries Service, Silver Spring, MD.
- Polaris Applied Sciences, Inc. (2007). *Clipper Lasco emergency restoration activity*. Kirkland, WA 98115.
- Porch, C. E., Eklund, A. M., & Scott, G. P. (2003). *An assessment of rebuilding times for goliath grouper*. SEDAR, 6-RW-3.
- Porch, C. E., Eklund, A. M., & Scott, G. P. (2006). A catch-free stock assessment model with application to goliath grouper (*Epinephelus itajara*) off southern Florida. *Fishery Bulletin*, 104, 89-106.
- Port Everglades Department. (2010). *Fiscal year 2009 commerce report: Buoyed by sustainability*. Broward County. Fort Lauderdale, FL.
- Porter, J. W., & Meier, O. W. (1992). Quantification of loss and change in Floridian reef coral populations. *American Zoologist*, 32(6), 625-640.

- Porter, J., & Meier, O. (1994). Assessing change in Floridian coral reefs. *Bulletin of Marine Science [BULL. MAR. SCI.]*. 54(3).
- Post Buckley Schuh and Jernigan Inc. (2008). *Best Management Practices (BMPs) for construction, dredge and fill and other activities adjacent to coral reefs*. Florida Department of Environmental Protection (FDEP), Coral Reef Conservation Program (CRCP). Miami, FL.
- Post Buckley Schuh & Jernigan., & United States. Army. Corps of Engineers. Jacksonville District. (1983). *Lower southeast Florida hurricane evacuation study: technical data report*. Dept. of the Army, Jacksonville District, Corps of Engineers. Jacksonville, Florida.
- Powers, S. P., & Fodrie, F. J. (2008). *Phipps Ocean Park (Reach 7) mitigation artificial reef monitoring plan: Habitat suitability analysis and fish production predictions*. University of South Alabama, Department of Marine Sciences. Dauphin Island, Alabama.
- Precht, W. F., Aronson, R. B., & Swanson, D. W. (2001). Improving scientific decision-making in the restoration of ship-grounding sites on coral reefs. *Bulletin of Marine Science*, 69, 1001-1012.
- Precht, W., & Miller, S. (2007). Ecological shifts along the Florida Reef Tract: The past as a key to the future. Aronson, R. B. (Ed.), *Geological Approaches to Coral Reef Ecology* (pp. 237-312).
- Prekel, S. E. (2009). *Ocean ridge shore protection project third annual and final post-construction biological monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.
- Prekel, S. E., & Kruempel, C. J. (2006a). *Ocean ridge shore protection post-nourishment biological monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.
- Prekel, S. E., & Kruempel, C. J. (2006b). *Ocean ridge shore protection project post-nourishment biological monitoring report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.
- Prekel, S. E., Craft, J., & Carter, A. P. (2008). *U.S. Army Corps of Engineers Palm Beach Harbor maintenance dredging program Town of Palm Beach mitigative artificial reef, 1-year post-mitigation biological monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.
- Prekel, S. E., Hannes, A. R., & Ward, G. A. (2008). *Segment III Broward County shore protection project - 27-month post-construction nearshore environmental monitoring report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.
- Prekel, S. E., Hannes, A. R., Barrett, C. A., Ward, G. A., Floyd, L., Creed, C. G., . . . Reger, C. (2008). *Segment III Broward County shore protection project -18-month post-construction nearshore environmental monitoring report supplement*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.
- Prekel, S. E., Hannes, A. R., Barrett, C. A., Ward, G. A., Floyd, L., Santos, R., & Reger, C. (2007). *Segment III Broward County shore protection project - 12-month post-construction nearshore environmental monitoring report*. Coastal Planning & Engineering, Inc. Boca Raton, Florida.
- Prekel, S. E., Hannes, A. R., Ward, G. A., Spieler, R. E., & Freeman, J. (2009). *Fifth annual environmental monitoring report of the mitigative artificial reef, 60 months post-mitigation*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Prekel, S. E., Lybolt, M., Delaney, A., & Kruempel, C. J. (2007). *Town of Palm Beach Reach 7, Phipps Ocean Park Beach mitigative artificial reef biological monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Prekel, S., Ward, G., & Snyder, D. (2009). *Town of Palm Beach Reach 7, Phipps Ocean Park Beach mitigative artificial reef, 48-month post-mitigation and FDEP hurricane recovery dune restoration project biological monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Price, R., Top, Z., Happell, J., & Swart, P. (2003). Use of tritium and helium to define groundwater flow conditions in Everglades National Park. *Water Resources Research*, 39, 13-11-13-12.

Proni, J. R., & Dammann, P. (1989). Southeast Florida Outfall Experiments (SEFLOE). *Technical Report*, 58 pp.

Proni, J. R., Huang, H., & Dammann, W. P. (1994). Initial dilution of Southeast Florida ocean outfalls. *Journal of Hydraulic Engineering*, 120, 1409-1425.

Puglise, K. A., Kelty, R., & Coral Reef Conservation Program (U.S.). (2007). *NOAA coral reef ecosystem research plan for fiscal years 2007 to 2011*. [Silver Spring, Md.]: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, [Coral Reef Conservation Program.

Purdy, E. D., Kraft, P.A., Anderson, J., & Twardosky, P. (2002). *Florida waters - A water resources manual from Florida's water management districts*.

Pybas, D. W. (1997). *Atlas of artificial reefs in Florida (SG-1)*. Florida Sea Grant College Program, University of Florida. Gainesville, Florida.

Quester Tangent. (2008). *LiDAR classification final report on LiDAR seabed classification of the inshore waters of Broward County, FL*. Broward County, Biological Resources Division. Fort Lauderdale, FL.

Quinn, P. T. (2009). *The influence of artificial reef associated fish assemblages and varying substrates on coral recruitment*. (PhD), NSUOC, Dania Beach, Florida.

Quinn, T. P. (1996). *Diet and seasonal feeding habits of the yellow stingray, *Urolophus jamaicensis**. (MS), NSUOC, Dania Beach, Florida.

Quinney, T. (1998). *The diel patterns of glucosidase activity and dissolved carbohydrates in south Florida coastal waters*. (MS), NSUOC, Dania Beach, Florida.

Rappucci, G. (2009). *Tidal cycle effects on the occurrence of the Florida manatee (*Trichechus manatus latirostris*) at the Port Everglades Power Plant*. (MS), NSUOC, Dania Beach, Florida.

Raymond, B., & Antonius, A. (1977). *Final report: Biological monitoring project of the John U. Lloyd beach restoration project*. D. E. Britt Associates, Inc. Fort Lauderdale, Florida.

REEF. (2007). REEF database. Retrieved from <http://www.reef.org/data/database.htm>.

Renegar, D.-E. A. (2003). *Effect of nutrient enrichment and elevated CO₂ partial pressure on growth rate of the zooxanthellate coral *Acropora cervicornis**. (MS), NSUOC, Dania Beach, Florida.

Reynolds, J. E. (2011). *Distribution and abundance of Florida manatees (Trichechus manatus latirostris) around selected power plants following winter cold fronts: 2010-2011*. Mote Marine Laboratory Technical Report No. 1535. Mote Marine Laboratory, Sarasota FL.

Richards, V. (2005). *Genetic connectivity throughout Florida and the Caribbean: Comparative phylogeography of diverse reef taxa with contrasting reproductive strategies*. (MS), NSUOC, Dania Beach, Florida.

Richards, V. (2010). *Genetic connectivity and microevolution of coral reef associated taxa*. (PhD), NSUOC, Dania Beach, Florida.

Richardson, L. L., Goldberg, W. M., Kuta, K. G., Aronson, R. B., Smith, G. W., Ritchie, K. B., . . . Miller, S. L. (1998). Florida's mystery coral-killer identified. *Nature*, 392, 557-558.

Riegl, B. M., Moyer, R. P., Morris, L. J., Virnstein, R. W., & Purkis, S. J. (2005). Distribution and seasonal biomass of drift macroalgae in the Indian River Lagoon (Florida, USA) estimated with acoustic seafloor classification (QTCView, Echoplus). *Journal of Experimental Marine Biology and Ecology*, 326(1), 89-104.

Riegl, B., Walker, B., Foster, G., & Foster, K. (2005). *Development of GIS maps for southeast Florida coral reefs* (DEP agreement no. G0098; NOAA award NA03NOS4190209). Miami Beach, FL.

Riegl, B., Walker, B., Foster, G., & Foster, K. (2007). *Final Report: Development of GIS maps for southeast Florida coral reefs*. National Coral Reef Institute, Nova Southeastern Univ. Oceanographic Center, Dania Beach FL, and Florida Fish and Wildlife Research Institute, St. Petersburg FL.

Riegl, B., Walker, B., Moyer, R., Hernandez-Cruz, L., Foster, J.G., & Foster, C. (2004). *Final report: Development of GIS maps for southeast Florida coral reefs*. Produced by National Coral Reef Institute, Nova Southeastern Univ. Oceanographic Center, Dania Beach FL, for the Florida Fish and Wildlife Research Institute.

Roberts, C. M., Bohnsack, J. A., Gell, F., Hawkins, J. P., Goodridge, R. (2001). Effects of marine reserves on adjacent fisheries. *Science*, 294, 1920-1923.

Roberts, K. (1994). *The distributions of fish populations in the natural and mitigated mangroves forests in Southeast Florida*. (MS), NSUOC, Dania Beach, Florida.

Robinson, J. L. (2008). *A comparison of mesobenthic amphipod diversity on 3-dimensional artificial substrates versus natural substrates in a shallow coral reef environment*. (MS), NSUOC, Dania Beach, Florida.

Roessler, M., Beardsley, G. L., & Smith, R. (1973). *Benthic communities of Biscayne Bay, Florida*. University of Miami Sea Grant Program. Miami, FL.

Rogers, C. (1988). *Recommendations for long-term assessment of coral reefs: U. S. National Park Service initiates regional program*. Paper presented at the 6. Int. Coral Reef Symp, Townsville, Qld. (Australia).

Rogers, C. (2005). *Will the major Rreef-building species Acropora palmata (Elkhorn Coral) recover in the US and British Virgin Islands?* Proceedings of the Gulf and Caribbean Fisheries Institute, 56, 439-451.

Rogers, C. S. (1994). *Hurricanes and anchors: preliminary results from the National Park Service regional reef assessment program*. 214-219.

Rogers, C. S., Garrison, G., Grober, R., Hillis, Z., & Franke, M. A. (1994). *Manual for coral reef monitoring in the Caribbean and Western Atlantic*. U.S National Park Service, Southeast Region.

Rohmann, S. O. (2008). *A classification scheme for mapping the shallow-water coral ecosystems of southern Florida, version 3.2, 20 June 2008*. NOAA CRCP.

Rohmann, S. O. (2009). *Mapping southern Florida's shallow-water coral ecosystems: A NOAA project status report: June 22, 2009*. Silver Spring, Maryland.

Rohmann, S., & Monaco, M. (2005). *Mapping southern Florida's shallow-water coral ecosystems: An implementation plan*. NOAA. Silver Springs, MD.

Rohmann, S., & Monaco, M. E. (2006). *Mapping southern Florida's shallow-water coral ecosystems: A November 2006 project status report*. NOAA Coral Reef Conservation Program. Silver Spring, MD.

Rona, P., & Clay, C. (1966). Continuous seismic profiles of the continental terrace off southeast Florida. *Bulletin Geological Society of America*, 77(1), 31-44.

Rosch, E. D. (2007). *A temporal and spatial analysis of a macroinvertebrate infaunal assemblage in John U. Lloyd State Park, Florida, USA*. (MS), NSUOC, Dania Beach, Florida.

Rubec, P. J., Christensen, J. D., Arnold, W. S., Norris, H., Steele, P., & Monaco, M. E. (1998). GIS and modeling: coupling habitats to Florida fisheries. *J. Shellfish Res.*, 17(5), 1451-1457.

Rubec, P. J., Coyne, M. S., McMichael, R. H., & Monaco, M. E. (1998). Spatial methods being developed in Florida to determine essential fish habitat. *Fisheries*, 23(7), 21-25.

Rubin, E. (2009). *Scleractinean coral recruitment to reefs physically damaged by ship groundings*. (MS), NSUOC, Dania Beach, Florida.

Rudnick, D., Childers, D., Boyer, J., & Fontaine, T. (1999). Phosphorus and nitrogen inputs to Florida Bay: The importance of the Everglades watershed. *Estuaries*, 22, 398-416.

Russell, G. M., & Goodwin, C. R. (1987). *Simulation of tidal flow and circulation patterns in the Loxahatchee River Estuary, southeastern Florida*. USGS Water Resources Investigations Report 87-4201.

Ruyter van Steveninck, E. D. (1984). The composition of algal vegetation in and outside damselfish territories on a Florida reef. *Aquatic Botany*, 20, 11-19.

Ruzicka, R., K. Semon, M. C., Brinkhuis, V., Kidney, J., Morrison, J., Macaulay, K., Porter, J.W., Meyers, M., Christman, M., & Colee, J. (2010). *Coral reef evaluation and monitoring project (CREMP), 2009 Annual Report*. Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute, St. Petersburg FL.

SAFMC. (2004). *Action plan – ecosystem-based management: Evolution from the habitat plan to a fishery ecosystem plan*. South Atlantic Fishery Management Council, Charleston, SC.

SAFMC. (2009). *Fishery ecosystem plan of the south Atlantic region, Volumes I - VI*. South Atlantic Fishery Management Council, Charleston, SC.

Santos, R. O. (2010). *Linkage between mangrove fish community and nearshore benthic habitats in Biscayne Bay, Florida, USA: A seascape approach*. (MS), NSUOC, Dania Beach, Florida.

Sargent, F. J., Leary, T.J., Crewz, D.W., & Kruer, C. R. (1995). *Scarring of Florida's seagrasses: Assessment and management options*. Florida Marine Research Institute Technical Reports, FMRI Tech. Rep. TR-1.

Sathe, M. P. (2008). *Factors influencing southeast Florida coral reef community composition*. (MS), NSUOC, Dania Beach, Florida.

Sathe, M. P., Gilliam, D. S., Dodge, R. E., & Fisher, L. E. (2009). *Patterns in southeast Florida coral reef community composition*. Paper presented at the Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, FL.

Sathe, M. P., Thanner, S. E., & Blair, S. M. (2007). *Bal Harbor mitigation - artificial reef monitoring program: Year 8 and 9 progress report and summary*. Miami- Dade County Department of Environmental Resources Management. Miami, Florida.

Saunders, L. H. (n.d.). *Environmental impacts of beach nourishment in Florida*. U. S. Army Corps of Engineers. Jacksonville, FL.

Scarpa, J., & Laramore, S. E. (2010). *Survey of select eastern oyster (*Crassostrea virginica*) populations in Lake Worth Lagoon, Palm Beach County, Florida, 2010 annual report*. Harbor Branch Oceanographic Institute at Florida Atlantic University, Ft. Pierce, FL.

Schaffranek, R. (1999). *Hydrologic studies in support of South Florida ecosystem restoration*. Annual Water Resources Planning and Management Conference, June 6-9, 1999 Tempe, AZ, 1-9.

Schmit, T. (1996). *The investigation of damage by the ghost crab (*Ocypode quadrata*) to the nests of the loggerhead sea turtle (*Caretta caretta*) in Hillsboro Beach, Florida*. (MS), NSUOC, Dania Beach, Florida.

Sea Byte Inc. (2007). *Anzhela explorer: Rubble management and stabilization final report*. Florida Department of Environmental Protection CAMA. Miami, FL.

Sea Byte, Inc. (2008). *Anzhela explorer rubble management and stabilization final report*. Prepared for: Florida Department of Environmental Protection. Bradenton, Florida.

SEAFAN. (2012). *2nd annual southeast florida reef cleanup, July 2012 summary*. Southeast Florida Action Network.

Seaman, W. (2004). *Artificial reef monitoring in Florida coastal counties* (Grant No. NA 16RG-2195, SGEBS-58). Florida Sea Grant, University of Florida. Retrieved from <http://www.flseagrant.org>.

SEFCRI. (2006). *Southeast Florida Coral Reef Initiative, awareness & appreciation project # 6, coral reefs and sustainable marine recreation workshop series*. Final Report Presented to the Florida Department of Environmental Protection, The Coral Reef Alliance (CORAL).

SEFCRI. (2007a). *Methodology for preparing cumulative impact sections of project reviews and assessments in Miami-Dade, Broward, Palm Beach and Martin Counties, Florida. User's instructions, Version 1.0*. A Project of

The Southeast Florida Coral Reef Initiative, Maritime Industry and Coastal Construction Impacts (MICCI).

SEFCRI. (2007b). *SEFCRI awareness and appreciation, southeast Florida marine education locations and programs*. Southeast Florida Coral Reef Initiative AA Project 9 - Inventory Existing Marine Education Programs.

Seifollahai, M. (1981). *Population genetics of the Caribbean spiny lobster, Panulirus argus*. (MS), NSUOC, Dania Beach, Florida.

Session, N. S. (2001). Coral reef restoration following anthropogenic disturbances Special Session Chaired by Walter C. Jaap and J. Harold Hudson. *Bulletin of Marine Science*, 69, 2.

SFWMD & FDEP. (2010). *Loxahatchee River national wild and scenic river management plan - plan update 2010*. Florida Department of Environmental Protection, and South Florida Water Management District.

SFWMD & USACE. (2005). *North Palm Beach County - part 1, project management plan*. U.S. Army Corps of Engineers, Jacksonville District, and South Florida Water Management District. Central and Southern Florida Project, Comprehensive Everglades Restoration Plan.

SFWMD & USACE. (2007). *Broward County water preserve areas, project implementation report (PIR) and environmental impact statement (EIS), revised final - February 2012*. U.S. Army Corps of Engineers, Jacksonville District, and South Florida Water Management District.

SFWMD & USACE. (2011a). *C-111 spreader canal western project, final integrated project implementation report and environmental impact statement*. U.S. Army Corps of Engineers, Jacksonville District, and South Florida Water Management District.

SFWMD & USACE. (2011b). *Central and southern Florida project, comprehensive everglades restoration plan, Biscayne Bay coastal wetlands phase 1. Final integrated project implementation report and environmental impact statement*. U.S. Army Corps of Engineers, Jacksonville District, and South Florida Water Management District.

SFWMD, FDEP, & LRD. (2006). *Restoration plan for the northwest fork of the Loxahatchee River*. South Florida Water Management District, Florida Dept. Environmental Protection.

SFWMD, FDEP, & LRD. (2012). *Addendum to the restoration plan for the northwest fork of the Loxahatchee River*. South Florida Water Management District, Loxahatchee River District, and Florida Dept. Environmental Protection.

SFWMD. (2011a). *Broward County, estimated position of the saltwater interface, surficial aquifer system, April/May 2009*. South Florida Water Management District, Hydrogeology Section.

SFWMD. (2011b). *Martin and St. Lucie Counties, estimated position of the saltwater interface, surficial aquifer system, April/May 2009*. South Florida Water Management District, Hydrogeology Section.

SFWMD. (2011c). *Palm Beach County, estimated position of the saltwater interface, surficial aquifer system, April/May 2009*. South Florida Water Management District, Hydrogeology Section.

SFWMD. (2012a). *2012 South Florida environmental report*. South Florida Water Management District.

- SFWMD. (2012b). *South Florida Water Management District - library and multimedia*. South Florida Water Management District.
- SFWMD. (2012c). *South Florida Water Management District - strategic plan 2012-2017*. South Florida Water Management District, West Palm Beach, FL.
- SFWMD. (2013). *2013 South Florida environmental report - draft*. South Florida Water Management District.
- Sharp, W. C., Bertelsen, R. D., & Leeworthy, V. R. (2005). Long-term trends in the recreational lobster fishery of Florida, United States: landings, effort, and implications for management. *New Zealand Journal of Marine and Freshwater Research*, 39, 733-747.
- Sherman, R. (2000). *Studies on the roles of reef design and site selection in juvenile fish recruitment to small artificial reefs*. (PhD), NSUOC, Dania Beach, Florida.
- Sherman, R. L. (2001). *Removal of waste tires: Reef fishery habitat restoration*.
- Sherman, R. L., & Spieler, R. E. (2006). Tires: unstable materials for artificial reef construction. *WIT Transactions on Ecology and the Environment*, 88, 215-223.
- Shinn, E. (1976). Coral reef recovery in Florida and the Persian Gulf. *Environmental Geology*, 1(4), 241-254.
- Shinn, E. A., Hudson, J. H., Halley, R. B., & Lidz, B. (1977). Topographic control and accumulation rate of some Holocene coral reefs: South Florida and Dry Tortugas. Paper presented at the Third International Coral Reef Symposium, Miami, Florida.
- Shirur, K. P. (2008). *Quantitative habitat characterization and benthic assemblage structure of deep-water Lophelia pertusa and Enallopsammia profunda reefs off eastern Florida*. (MS), NSUOC, Dania Beach, Florida.
- Shivlani, M. (2006). *South Florida Coral Reef Initiative (SEFCRI) coral reef needs assessment study. July 31, 2006*. Southeast Florida Coral Reef Initiative.
- Shivlani, M. (2007). *A literature review of sources and effects of non-extractive stressors to coral reef ecosystems*. Southeast Florida Coral Reef Initiative. Fishing, Diving and Other Uses Focus Team. Local Action Strategy Project 19 Phase I.
- Shivlani, M., & Estevanez, M. (2011). *Development of management alternatives for the southeast Florida region according to stakeholder working panels*. Southeast Florida Coral Reef Initiative. Fishing, Diving, and Other Uses. Local Action Strategy Project 18 & 20B.
- Shivlani, M., & Villanueva, M. (2007). *Compilation and comparison of social perceptions on reef conditions and use in southeast Florida*. Southeast Florida Coral Reef Initiative. Fishing, Diving and Other Uses. Local Action Strategy Project 10. Final Report.
- Shivlani, M., Leeworthy V.R., Murray, T.J., Suman, D.O., & Tonioli, F. (2008). *Knowledge, attitudes and perceptions of management strategies and regulations of the Florida Keys National Marine Sanctuaries by commercial fishers, dive operators, and environmental group members: A baseline characterization and 10-year comparison*. Marine Sanctuaries Conservation Series ONMS-08-06. NOAA Office of National Marine Sanctuaries, Silver Spring, MD.

Shivlani, M., McManus, L., Estevanez, M., Krueer, C., & Murray, T. (2011). *Reference document and guide to the evaluation of permitted coastal construction activities that affect coral reef and coastal resources in southeast Florida*. Southeast Florida Coral Reef Initiative. Maritime Industry and Coastal Construction Impacts. Local Action Strategy Project 7 & 11.

Sigua, G. C., Steward, J. S., & Tweedale, W. A. (2000). Water-quality monitoring and biological integrity assessment in the Indian River Lagoon, Florida: Status, Trends, and Loadings (1988-1994). *Environmental Management*, 25, 199-209.

Sime, P. (2005). St. Lucie Estuary and Indian River Lagoon conceptual ecological model. *Wetlands* 25(4):898-907.

Slack, J. J. (2000). Biological opinion for the coast of Florida, region III. *U. S. Fish and Wildlife Service, South Florida Ecosystem Office*. Vero Beach, Florida.

Smith, E. P. (2002). BACI Design. El-Shaarawi, A. H. & Piegorisch, W. W. (Eds.), *Encyclopedia of Environmetrics* (Vol. 1, pp. 141-148). Chichester: John Wiley & Sons, Ltd.

Smith, N. P. (1983). Temporal and spatial characteristics of summer upwelling along Florida's Atlantic shelf. *Journal of Physical Oceanography*, 13(9), 1709-1715. doi:10.1175/1520-0485(1983)013<1709:tascos>2.0.co;2.

Smith, S. H. (1988). Cruise ships: A serious threat to coral reefs and associated organisms. *Ocean & Shoreline Management*, 11, 231-248.

Soloviev, A. V., Luther, M. E., & Weisberg, R. H. (2003). Energetic baroclinic super-tidal oscillations on the southeast Florida shelf. *Geophys. Res. Lett.*, 30(9), 1463. doi:10.1029/2002gl016603.

Soloviev, A. V., Walker, R. J., Weisberg, R. H., & Luther, M. E. (2003). Coastal observatory investigates energetic current oscillations on southeast Florida shelf. *Eos Trans. AGU*, 84(42). doi:10.1029/2003eo420002.

Soong, K., & Chen, T. A. (2003). Coral transplantation: Regeneration and growth of *Acropora* fragments in a nursery. *Restoration Ecology*, 11, 62-71.

South Atlantic Fishery Management Council. (1998). *Final habitat plan for the south Atlantic region: Essential fish habitat requirements for fishery management plans of south Atlantic fishery management council*. South Atlantic Fishery Management Council. Charleston, SC.

Spadoni, R. H. (1978). *Environmental monitoring of the beach restoration project for the City of Delray Beach, Florida*. Paper presented at the Beach Seminar '78, Captiva Island, FL.

Spadoni, R. H., & Cummings, S. L. (n.d.). *Environmental considerations for beach nourishment projects in Florida*. Coastal Planning & Engineering, Inc. Boca Raton, FL.

Spadoni, R. H., Beumel, N. H., & Campbell, T. J. (1983). *The design and performance of a weir at Boca Raton Inlet, Florida*. Paper presented at the Specialty Conference on the Design, Maintenance and Performance of Coastal Structures, Arlington, VA.

- Spieler, P. D., Richard E. (2006). *Attachment I: Broward County beach renourishment: Fishes 2006 comparison of mitigation Boulder Reef to neighboring hardbottom.*
- Spieler, R. (1994). *Evaluation of a novel material for recycling tires into artificial reefs: Second year annual report.* Nova University, Oceanographic Center. Dania, FL.
- Spieler, R. (1995). *A preliminary study of fish recruitment to "Reefball" artificial reefs in shallow and deep water.* Nova Southeastern University Oceanographic Center. Dania, FL.
- Spieler, R. (2000). *Artificial reef research in Broward County 1993-2000: A summary report.* Nova Southeastern University Oceanographic Center. Dania, FL.
- Spieler, R. E. (1998). *Recruitment of juvenile reef fish to inshore and offshore artificial reefs: Final report* (Technical Report 98-02). Oceanographic Center, Nova Southeastern University. Dania, Florida 33004.
- Spieler, R. E. (2003). *Fish census of selected artificial reefs in Broward County.* Nova Southeastern University. Dania, Florida.
- Spieler, R. E., & Freeman, J. (n.d.). *Broward County beach renourishment: Fishes - comparison of mitigation Boulder Reef to neighboring hardbottom - final report.*
- Spieler, R. E., Gilliam, D. S., Sherman, R., Banks, K. C., Corbett-Elder, & Jordan, L. K. B. (1999). *Artificial reef research in Broward County: The last six years.* W. Horn, Florida Department of Environmental Protection (Ed.), Florida Artificial Reef Summit 1998 (pp. 60-68).
- Spingler, K. C. (1999). *The temporal variability in the protist community structure in Port Everglades, Florida.* (MS), NSUOC, Dania Beach, Florida.
- Spurgeon, J. P. G. (2001). Improving the economic effectiveness of coral reef restoration. *Bulletin of Marine Science*, 69, 1031-1045.
- St. Gelais, A. (2010). *Reproductive ecology of Siderastrea siderea: Histological analysis of Gametogenesis, spawning, and latitudinal fecundity variation.* (MS), NSUOC, Dania Beach, Florida.
- Stallings, C. D. (2009). Fishery-independent data Reveal negative effect of human population density on Caribbean predatory fish communities. *PloS ONE*, 4(5), e5333.
- Stathakopoulos, A. (2009). *Extraction and analysis of coral reef core samples from Broward County, Florida.* (MS), NSUOC, Dania Beach, Florida.
- Steffansson, G. & Rosenberg, A. A. (2005). Combining control measures for more effective management of fisheries under uncertainty; quotas, effort limitation and protected areas. *Philosophical Transactions of the Royal Society Ser. B. Biol Sci.*, 360, 133-146.
- Stephens, N. R. (2007). *Stony coral transplantation associated with marine construction activities.* (MS), NSUOC, Dania Beach, Florida.
- Straccione, N. C. (2002). *Coral recruitment to various artificial substrata, Miami Beach, FL.* (MS), NSUOC, Dania Beach, Florida.

Sulikowski, J. (1996). *A preliminary study of the population density, size distribution, age and growth of the stingray, Urolophus jamaicensis, in Southeastern Florida.* (MS), NSUOC, Dania Beach, Florida.

Sultzman, C., Halter, H. A., Craig, R. K., Meyer, D., Ruggieri, J. A., & Spurgeon, J. (2002). *A professional jury report on the biological impacts of submarine fiber optic cables on shallow reefs off Hollywood, Florida.* Public Employees for Environmental Responsibility. Vero Beach, Florida.

Swart, P. K., & Price, R. (2002). Origin of salinity variations in Florida Bay. *Limnology and Oceanography*, 47, 1234-1241.

Swart, P. K., Evans, S., & Caprio, T. (2008). *The origin of nitrogen isotope values in algae.* A Research Project Conducted by the Stable Isotope Laboratory, Univ. Miami.

Swarzenski, P., Burnett, B., Reich, C., Dulaiova, H., Peterson, T., & Meunier, J. (2004). Novel geophysical and geochemical techniques used to study submarine groundwater discharge in Biscayne Bay, Florida. *USGS Report 2004-3117*, 1-5.

Swarzenski, P., Martin, J., & Cable, J. (2001). Submarine ground-water discharge in upper Indian River Lagoon, Florida. *Water Resources Investigations Report 01-4011*, USGS, 1-10.

Szmant, A. M., & Forrester, A. (1992). *Temporal and spatial patterns of nutrient and chlorophyll distribution: Florida Reef Tract, summer-fall 1992.* Final Report to The Nature Conservancy for the SEAKEYS Program of the Florida Institute of Oceanography, St. Petersburg, Florida.

Taylor Engineering, I. (2009b). *Martin County shore protection project hardbottom evaluation 1997, 2001, 2004, and 2008.* Martin County Beach Restoration Project: Attachment E.

Taylor, K. H. (2009). *Geomorphic changes to Florida Bay with the past century.* (MS), NSUOC, Dania Beach, Florida.

Taylor, M. (2010). *Spiral valve parasites of selected tropical pelagic elasmobranchs and internal parasites of mesopelagic teleosts.* (MS), NSUOC, Dania Beach, Florida.

TCC Artificial Reef Subcommittee. (1997). *Guidelines for marine artificial reef materials (FWS Grant Agreement No. GS-96).* Artificial Reef Subcommittee of the Technical Coordinating Committee Gulf States Marine Fisheries Commission.

Telesnicki, G. J., & Goldberg, W. M. (1995). Effects of turbidity on the photosynthesis and respiration of two south Florida reef coral species. *Bulletin of Marine Science*, 57(2), 527-539.

Tetra Tech EC. (2006). *Southeast Florida coral reef initiative maritime industry and coastal construction impacts workshop: A study to identify and evaluate existing and emerging innovative technologies in coastal construction practices and procedures that minimize or eliminate impacts to coral reefs, hard/live bottoms, and associated coral reef resources in southeast Florida.* Tetra Tech EC, Inc.

TetraTech. (2007). *Maritime industry and coastal construction impacts workshop, Dania Beach, Florida, May 24-25, 2006.* Prepared by TetraTech for the Southeast Florida Coral Reef Initiative.

- Thanner, S. M. (2004). *Comparison of the benthic assemblages on three types of artificial reef modules deployed in August of 1991*. (MS), NSUOC, Dania Beach, Florida.
- Thanner, S., Walczak, J., & Collier, C. (2007). *MV Anzhela explorer grounding post restoration site evaluation*.
- The Nature Conservancy. (2013). *St. Croix East and Marine Park Management Plan Summary Document*. Retrieved from
- The Ocean Conservancy. (2006). *Florida summary report*. Retrieved from <http://www.oceanconservancy.org/>
- Thompson, J. R. (1973). *Ecological effects of offshore dredging and beach nourishment: a review*. U.S. Army Corps of Engineers Coastal Engineering Research Center. Washington, DC:
- Thompson, M., White, T., & Graves, G. (2001). *Degradability of sediments from the St. Lucie Estuary Florida - A pilot study*. Florida Department of Environmental Protection, Water Quality Program. Port St. Lucie, FL.
- Thornton, S. R. (1999). *Depth distribution, growth rates, and photoacclimation of the green and brown color morphotypes of the scleractinian coral Porites astreoides*. (MS), NSUOC, Dania Beach, Florida.
- Tichenor, E. (2003). *Occurrence and distribution of cyanobacteria on the Gulf Stream Reef System, Boynton Beach, FL*.
- Tichenor, E. (2004a). *The occurrence and distribution of cyanobacteria on Gulf Stream Reef, Boynton Beach, Florida. Result of phase II investigations*. Palm Beach County Reef Rescue.
- Tichenor, E. (2004b). *Correlation between waste water treatment plant effluent quality and cyanobacteria proliferation on Gulf Stream Reef System, Boynton Beach, Florida*. Palm Beach County Reef Rescue.
- Tichenor, E. (2005). *The occurrence and distribution of cyanobacteria on Gulf Stream Reef, Boynton Beach, Florida*. Palm Beach County Reef Rescue.
- Toscano, M. A., & Lundberg, J. (1998). Early Holocene sea-level record from submerged fossil reefs on the southeast Florida margin. *Geology*, 26, 255-258.
- Toth, L. T., van Woesik, R., Murdoch, T.J.T., Smith, S.R., Ogden, J.C., Precht, W.F., Aronson, R.B. (2014). Do no-take reserves benefit Florida's corals? 14 years of change and stasis in the Florida Keys National Marine Sanctuary. *Coral Reefs*, 33(3), 565-577.
- Trimble, P. J., Santee, E. R., & Neidrauer., C. J. (2006). *Preliminary estimate of impacts of sea level rise on the regional water resources of southeastern Florida*. South Florida Water Management District Hydrologic Systems Modeling Division. West Palm Beach, FL.
- Trnka, M. C. (2008). *The spatial distribution of the cyanobacteria Lyngbya spp. on the reefs of Broward County, Florida*. (MS), NSUOC, Dania Beach, Florida.
- Trnka, M., Logan, K., & Krauss, P. (2006). *Land-based sources of pollution-local action strategy combined projects 1 & 2*. Miami, Florida, USA.

- Tunncliffe, V. (1981). *Breakage and propagation of the stony coral Acropora cervicornis*. Proceedings of the National Academy of Sciences of the United States of America, 78(4), 2427-2431.
- U.S. Coral Reef Task Force Mapping and Information Synthesis Working Group. (1999). *Coral reef mapping implementation plan (2nd draft)*. NOAA, NASA and USGS. Washington, DC.
- U.S. Coral Reef Task Force. (2000). *The national plan to conserve coral reefs*. U.S. Environmental Protection Agency (ed.). Washington D.C.
- U.S. EPA & USACE. (2004). *Port Everglades harbor ocean dredged material disposal site (ODMDS) site management and monitoring plan*. U.S. Environmental Protection Agency and USACE. Jacksonville, FL.
- United States National Ocean Service. (2004). *NOAA's National Ocean Service, accomplishments 2003*. U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service. Silver Spring, MD.
- URS & CPE. (2007). Florida southeast coast reconnaissance offshore sand search (ROSS) (Project Number 12804700.00000). Florida Department of Environmental Protection, Bureau of Beaches and Coastal Systems. Tallahassee, Florida.
- USACE. (1977a). *General design memorandum phase II project design Port Everglades Harbor*. U. S. Army Corps of Engineers. Jacksonville, Florida.
- USACE. (1977b). *Phase I: General design memorandum on Port Everglades Harbor, Florida*. U. S. Army Engineer District, Corps of Engineers. Jacksonville, Florida.
- USACE. (1991). *Broward County, Florida Port Everglades to the South County Line (Segment III) shore protection project - reevaluation report section 934 study with environmental assessment*. U.S. Army Corps of Engineers. Jacksonville, Florida.
- USACE. (2000). *Central and southern Florida project water control plan for Lake Okeechobee and Everglades agricultural area*. U.S. Army Corps of Engineers. Jacksonville, Florida.
- USACE. (2001). *Chapter 5 project control, coordinate systems, and datums government cut (EM 1110-2-1003)*. U.S. Army Corps of Engineers. Jacksonville, FL.
- USACE. (2002). *Mitigation plan for Broward County beach erosion control project - Broward County, Florida*.
- USACE. (2003). *Maintenance dredging Port Everglades entrance channel Broward County, Florida environmental assessment*. U.S. Army Corps of Engineers, South Atlantic Division.
- USACE. (2007). *Florida shore protection and sea turtle management system*. U.S. Army Corps of Engineers.
- USACE. (2008). *Preliminary draft environmental impact statement: Attachment F*. U.S. Army Corps of Engineers, Jacksonville District. Martin County Beach Restoration Project.
- USACE. (2009). *Final environmental assessment: Section 2038 national shoreline erosion control development program- Submerged artificial reef training (SMART) structure, Miami-Dade County*. U.S. Army Corps of Engineers, Jacksonville District.

USACE. (2011a). *Everglades restoration transition plan, final environmental impact statement*. U.S. Army Corps of Engineers, Jacksonville District.

USACE. (2011b). *Technical memorandum - Port of Miami*. U.S. Army Corps of Engineers, Jacksonville District.

USDOJ. (2005). *Science plan in support of ecosystem restoration, preservation, and protection in south Florida*. U.S. Department of the Interior.

USFWS Ecological Services Division. (n.d.). *Nearshore and mid-shelf reefs*. Multi-Species Recovery Plan for South Florida, 3-623/623-642.

USFWS. (2001). *Florida manatee recovery plan, (Trichechus manatus latirostris), third revision*. U.S. Fish and Wildlife Service, Southeast Region, Atlanta, GA.

USFWS. (2004). *Investigations of mitigation for coral reef impacts in the U.S. Atlantic: south Florida and the Caribbean: Final report*. Atlanta, GA.

USFWS. (2007). *The coastal program strategic plan, Southeast Region, regional step-down plan, part 2 of 3. Stewardship of fish and wildlife through voluntary conservation. October 1, 2006 through September 30, 2010*. U.S. Fish and Wildlife Service.

USGS. (2012). *SOFIA - South Florida Information Access*. U.S. Geological Survey, Miami FL.

USGS. (2013). *Online bibliography for the Florida water science center*. U.S. Geological Survey, Florida Water Science Center.

USGS/NAWQA. (2013). *Publications and abstracts about the Floridan, Biscayne, and Surficial aquifer systems*. U.S. Geological Survey, National Water-Quality Assessment (NAWQA) Program.

Vare, C. N. (1991). *A survey, analysis, and evaluation of the nearshore reefs situated off Palm Beach County, Florida*. (Master's Thesis), Florida Atlantic University, Boca Raton, FL.

Vargas-Ángel, B., & Thomas, J. (2002). Sexual reproduction of *Acropora cervicornis* in nearshore waters off Fort Lauderdale, Florida, USA. *Coral Reefs*, 21(1), 25-26.

Vargas-Ángel, B., Colley, S., Hoke, S., & Thomas, J. (2006). The reproductive seasonality and gametogenic cycle of *Acropora cervicornis* off Broward County, Florida, USA. *Coral Reefs*, 25(1), 110-122.

Vargas-Ángel, B., Thomas, J. D., & Hoke, S. M. (2003). High-latitude *Acropora cervicornis* thickets off Fort Lauderdale, Florida, USA. *Coral Reefs*, 22(4), 465-473.

Vaughan, T. W. (1916). *The results of investigations of the ecology of the Floridian and Bahaman shoal-water corals*. Proceedings of the National Academy of Sciences of the United States of America, 2(2), 95-100.

Vinick, C., Riccobono, A., Messing, C., Walker, B., Reed, J., & Rogers, S. (2012). *Siting study for a hydrokinetic energy project located offshore southeastern Florida: Protocols for survey methodology for offshore marine hydrokinetic energy projects*.

- Virmani, J. I. (2008). *A strategic implementation plan for Florida COOS: 2008-2010*. FLCOOS Consortium.
- Vollmer, S. V., & Palumbi, S. R. (2007). Restricted gene flow in the Caribbean Staghorn coral *Acropora cervicornis*: Implications for the recovery of endangered reefs. *Journal of Heredity*, 98(1), 40-50. doi:10.1093/jhered/esl057.
- Voss, G. L., & Voss, N. A. (1955). An ecological survey of Soldier Key, Biscayne Bay, Florida. *Bulletin of Marine Science*, 5, 203-229.
- Vukovich, F. M., Crissman, B. W., Bushnell, M., & King, W. J. (1979). Gulf stream boundary eddies off the east coast of Florida. *Journal Name: J. Phys. Oceanogr.; (United States); Journal Volume: 9:6, Medium: X; Size: Pages: 1214-1222*.
- Waite, R., Burke, L., Gray, E., Beukering, P., Brander, L., McKenzie, E., Pendleton, L., Schuhmann, P. and Tompkins, E. (2014). *Coastal capitol: Ecosystem valuation for decision making in the Caribbean*. World Resources Institute. Washington, D.C.
- Walczak, J. C. (2008). *The colonial zoanthid Palythoa caribaeorum: Population dynamics on southeast Florida reefs*. (MS), NSUOC, Dania Beach, Florida.
- Walker, B. (2003). *JUL Park Coral Reef Handout*. Dania, Florida.
- Walker, B. K. (2002). *Biological assessment of three artificial reef materials: tire-concrete aggregate, gravel aggregate, and limestone boulder*. (MS), NSUOC, Dania Beach, Florida.
- Walker, B. K. (2008). *A seascape approach to predicting reef fish distribution*. (PhD), NSUOC, Dania, FL.
- Walker, B. K. (2009). *A model framework for predicting reef fish distributions across the seascape using GIS topographic metrics and benthic habitat associations*. Paper presented at the Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida.
- Walker, B. K. (2009). *Benthic habitat mapping of Miami-Dade County: Visual interpretation of LADS bathymetry and aerial photography*. Florida DEP report # RM069. Miami Beach, FL.
- Walker, B. K. (2010). *A study to minimize or eliminate hard bottom and reef impacts from anchoring activities in designated anchorages at the Ports of Miami and Palm Beach*. FL DEP report #RM083. Miami Beach, FL.
- Walker, B. K. (2010). *Characterizing and determining the extent of coral reefs and associated resources in southeast Florida through the acquisition of high-resolution bathymetry and benthic habitat mapping*. Annual Progress Report 2 (July 1, 2009 - June 30, 2010), FWC Agreement No. 08014.
- Walker, B. K. (2012a). *Draft final report: Characterizing and determining the extent of coral reefs and associated resources in southeast Florida through the acquisition of high-resolution bathymetry and benthic habitat mapping*. Florida Fish and Wildlife Conservation Commission, Agreement No. 08014.
- Walker, B. K. (2012b). Spatial analyses of benthic habitats to define coral reef ecosystem regions and potential biogeographic boundaries along a latitudinal gradient. *PLoS ONE*, 7(1), e30466. doi:10.1371/journal.pone.0030466.

Walker, B. K., & Dodge, R. E. (2002). *3D visualization of coral reef habitat*. Paper presented at the Seventh International Conference on Remote Sensing for Marine and Coastal Environments, Miami, Florida, USA.

Walker, B. K., & Sherman, R. L. (2001). Gross brain morphology in the yellow stingray, *Urobatis jamaicensis*. *Florida Scientist*, 64(4), 246-249.

Walker, B. K., Dodge, R. E., & Gilliam, D. S. (2006, June 4-9, 2006). *Coral reef burial in southeast Florida*. Paper presented at the Global Challenges Facing Oceanography and Limnology, American Society of Limnology and Oceanography, Victoria, British Columbia, Canada.

Walker, B. K., Dodge, R. E., & Gilliam, D. S. (2008, December 8-11, 2008). *LIDAR-derived benthic habitat maps enable the quantification of potential dredging impacts to coral reef ecosystems*. Paper presented at the ACES: A Conference on Ecosystem Services 2008: Using Science for Decision Making in Dynamic Systems, Naples, FL.

Walker, B. K., Gilliam, D. S., Dodge, R. E., & Walczak, J. (2012). *Dredging and shipping impacts on southeast Florida coral reefs*. Paper presented at the Proceedings of the 12th International Coral Reef Symposium, 19A Human impacts on coral reefs: general session, Cairns, Australia, 9-13 July 2012.

Walker, B. K., Henderson, B., & Spieler, R. E. (2002). Fish assemblages associated with artificial reefs of concrete aggregates or quarry stone offshore Miami Beach, Florida, USA. *Aquatic Living Resources*, 15(02), 95-105.

Walker, B. K., Jordan, L. K. B., & Spieler, R. E. (2009). Relationship of reef fish assemblages and topographic complexity on southeastern Florida coral reef habitats. *Journal of Coastal Research*, 53(sp1), 39-48.

Walker, B. K., Larson, E., Moulding, A., & Gilliam, D. (2012). Small-scale mapping of indeterminate arborescent acroporid coral (*Acropora cervicornis*) patches. *Coral Reefs*, 31(3), 885-894. doi:10.1007/s00338-012-0910-3.

Walker, B. K., Riegl, B., & Dodge, R. E. (2008). Mapping coral reef habitats in southeast Florida using a combined technique approach. *Journal of Coastal Research*, 1138-1150.

Walker, B., Riegl, B., Banks, K., & Dodge, R. (2004). *Quaternary sea-level rise and reef backstepping in Southeast Florida*. Paper presented at the 10th International Coral Reef Symposium (ICRS), Okinawa, Japan, 28 June - 2 July 2004.

Walker, N. D., Roberts, H. H., Rouse, L. J., Jr., & Huh, O. K. (1982). Thermal history of reef-associated environments during a record cold-air outbreak event. *Coral Reefs*, 1(2), 83-87. doi:10.1007/bf00301689.

Walker, R. J. (2003). *The seasonality of mass strandings: Implications for cetacean stranding sites*. (MS), NSUOC, Dania Beach, Florida.

Walsh, K. (2010). *Diurnal movements and site fidelity of the Florida manatee, Trichechus manatus latirostris, in Fort Lauderdale, FL*. (MS), NSUOC, Dania Beach, Florida.

Wang, J. D., Luo, J., & Ault, J. S. (2003). Flows, salinity, and some implications for larval transport in South Biscayne Bay, Florida. *Bulletin of Marine Science*, 72, 695-723.

Wanless, H. R. (1969). *Sediments of Biscayne Bay - distribution and depositional history*. (Technical report 69-2). University of Miami, Institute of Marine and Atmospheric Sciences. Miami, FL.

Wanless, H. R. (1989). The inundation of our coastlines: past, present, and future with a focus on south Florida. *Sea Frontiers*, 35(5), 264-271.

Wanless, H. R., & Maier, K. I. (2007). An evaluation of beach renourishment sands adjacent to reefal settings, southeast Florida. *Southeastern Geology*, 45(1), 25-42.

Ward, G. A. (2003). *Long term effects of oil and dispersed oil on mixed seagrass and coral beds: The 18th year of studies following experimental dosing*. (MS), NSUOC, Dania Beach, Florida.

Ward, G. A., Craft, J., & Snyder, D. (2008). *Mid-town beach renourishment and expansion project: Year three post-construction environmental monitoring report*. Coastal Planning and Engineering, Inc. Boca Raton, Florida.

Ward-Paige, C. A., Risk, M., & Sherwood, O. (2005). Clionid sponge surveys on the Florida Reef Tract suggest land-based nutrient inputs. *Marine Pollution Bulletin*, *In Press*.

Watters, J. A. (2007). *The effects of ecological light pollution and silhouette height on the nesting densities of *Caretta caretta* in Broward County, Florida*. (MS), NSUOC, Dania Beach, Florida.

Weaver, K., & Payne, G. (2004). Status of water quality in the Everglades protection area. *Everglades Consolidated Report 2004*, 1-19.

Welch, L. (2002). *Summary of sedimentation effects on coral reefs adjacent to beach renourishment borrow areas in Miami-Dade County*.

White, M. J. (2006). *Patterns of scleractinian health in Broward County, FL*. (MS), NSUOC, Dania Beach, FL.

Whitfield, P. E., Gardner, T., Vives, S. P., Gilligan, M. R., Walter R. Courtenay, J., Ray, G. C., & Hare, J. A. (2002). Biological invasion of the Indo-Pacific lionfish *Pterois volitans* along the Atlantic coast of North America. *Marine Ecology Progress Series*, 235, 289-297. doi:10.3354/meps235289

Whitfield, P. E., Jonathan, A. H., David, A. W., Harter, S. L., Munoz, R. C., & Addison, C. M. (2007). Abundance estimates of the Indo-Pacific lionfish *Pterois volitans/miles* complex in the Western North Atlantic. *Biological Invasions*, 9(1), 1387-3547.

Wiese, D. S. (2009). *Investigation of coastal hydrogeology utilizing geophysical and geochemical tools along the Broward County coast, Florida*. U.S. Geological Survey, Open-File Report 2008-1364.

Wilber, P., & Stern, M. (1992). *A Re-Examination of Infaunal Studies that Accompany Beach Nourishment Projects*. U.S. Army Engineer Waterways Experiment Station. Vicksburg, MS.

Williams, D. E., & Miller, M. W. (2005). Coral disease outbreak: Pattern, prevalence and transmission in *Acropora cervicornis*. *Marine Ecology Progress Series*, 301, 119-128.

Williams, D. E., Miller, M. W., & Kramer, K. L. (2006). *Demographic monitoring protocols for threatened Caribbean *Acropora* spp. corals*. NOAA Technical Memorandum NMFS-SEFSC-543.

Williams, D., & Miller, M. (2006). Morphology offers no clues to asexual vs. sexual origin of small *Acropora cervicornis* (Scleractinia: Acroporidae) colonies. *Revista de Biología Tropical*, 54(3), 145-151.

- Wilson, M. (2009). *An analysis of policies and conservation techniques to reduce the accidental deaths of sea turtle hatchlings due to light pollution in Broward County, FL*. (MS), NSUOC, Dania Beach, Florida.
- Wirt, K. E., Hallock, P., Palandro, D., & Daly, K. L. (2013). Potential habitat of *Acropora* spp. on Florida reefs. *Applied Geography*, 39(0), 118-127. doi: <http://dx.doi.org/10.1016/j.apgeog.2012.12.009>.
- Wisniewski, G. L. (2010). *Occurrence, density, and distribution of the larvae of three commercially important crab species in the Florida Current off the southeast coast of Florida, U.S.* (MS), NSUOC, Dania Beach, Florida.
- Witherington, B. E., & Martin, R. E. (2003). *Understanding, assessing, and resolving light-pollution problems on sea turtle nesting beaches. Third Edition, Revised 2003*. Florida Marine Research Institute Technical Reports, FMRI Tech. Rep. TR-2.
- Wolfe, S. H. (2007). *An inventory of hydrodynamic, water quality, and ecosystem models of Florida coastal and ocean waters*. Florida Dept. Environmental Protection, Office of Coastal and Aquatic Managed Areas, Tallahassee, FL.
- Wolfe, S. M. (2003). *Age, growth and the annual cycles of lipogenesis and reproduction of *Acanthurus bahianus* in southeastern Florida*. (MS), NSUOC, Dania Beach, Florida.
- Woodward, J., Howard, B., & Craig, K. R. (2006). Jupiter/Carlin shore protection project, Palm Beach County, Florida: 36-month monitoring report. *Taylor Engineering, Inc.* West Palm Beach, Florida.
- Wusinich-Mendez, D., & Karazsia, J. (2009). *CREIOS Away team discussion summaries for Florida*. Meeting Notes. National Oceanographic and Atmospheric Administration.
- Yarbro, L. A., & Carlson Jr., P. R. (2011). *Seagrass integrated mapping and monitoring for the state of Florida, mapping and monitoring report no. 1*. Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, St. Petersburg, FL.
- Yeager, L. A., & Layman, C.A. (2011). Energy flow to two abundant consumers in a subtropical oyster reef food web. *Aquatic Ecology*, 45, 267-277.
- Yoshioka, B., Adams, T., Rieck, B., & Bohn, C. (2004). *Final report: Investigations of mitigation for coral reef impacts in the U.S. Atlantic: South Florida and the Caribbean*. Atlanta, GA. Retrieved from <http://www.fws.gov/southeast/es/pdf/FinalCRTFAtlanticReport.pdf>.
- Young, C. N., Schopmeyer, S. A., & Lirman, D. (2012). A review of reef restoration and coral propagation using the threatened genus *Acropora* in the Caribbean and western Atlantic. *Bulletin of Marine Science*, 88(4), 1075-1098. doi:10.5343/bms.2011.1143.
- Young, K. (2008). *Identification and estimation of sensitive life history parameters for cetaceans in response to acoustic disturbances with implications for conservation*. (MS), NSUOC, Dania Beach, Florida.
- Zieman, J. C. (1982). *The ecology of the seagrasses of South Florida: A community profile*. U.S. Fish and Wildlife Service, Office of Biological Services, Washington DC.

Florida Department of Environmental Protection Permits referenced in the EndNote Bibliography:

FDEP Permit No. 0080982-001-JC
FDEP Permit No. 0080982-003-EM
FDEP Permit No. 0080982-004-BE
FDEP Permit No. 0080982-005-JN
FDEP Permit No. 0126215-002-006-JC
FDEP Permit No. 0126527-001-JC
FDEP Permit No. 0126527-002-JC
FDEP Permit No. 0126527-004-JC
FDEP Permit No. 0126527-005-JC
FDEP Permit No. 0156710-001-JC
FDEP Permit No. 0160846-001-JC
FDEP Permit No. 0160846-010-EM
FDEP Permit No. 0161679439
FDEP Permit No. 0163435-001-JC
FDEP Permit No. 0163447-002-JC
FDEP Permit No. 0164713-001-JC
FDEP Permit No. 0165335-001-JC
FDEP Permit No. 0169205-001-JC
FDEP Permit No. 0174142-001-JC
FDEP Permit No. 0177081-001-JC
FDEP Permit No. 0178582-001-JC
FDEP Permit No. 0182699-001-JC
FDEP Permit No. 0182699-002-JC
FDEP Permit No. 0182699-003-JC
FDEP Permit No. 0182699-006-JN
FDEP Permit No. 01-82699-002-JC
FDEP Permit No. 0192068-001-JC
FDEP Permit No. 0192068-002-EV
FDEP Permit No. 0192068-005-JC
FDEP Permit No. 0202209-001-JC
FDEP Permit No. 0218853-001-JC
FDEP Permit No. 0226688-001-JC
FDEP Permit No. 0226688-0014-JC
FDEP Permit No. 0233882-004-JM
FDEP Permit No. 0244200-001-JC
FDEP Permit No. 0244200-001-JN
FDEP Permit No. 0244200-003-JN
FDEP Permit No. 0261499-001-JC
FDEP Permit No. 0261499-002-EV
FDEP Permit No. 0261499-003-JN
FDEP Permit No. 0268914-001-EM
FDEP Permit No. 0269814-002-EM
FDEP Permit No. 027415-001-JC
FDEP Permit No. 0276415-001-JC
FDEP Permit No. 06-0126481-005
FDEP Permit No. 06-0144298-001
FDEP Permit No. ES 06-0144298-001
FDEP Permit No. ES 06-0144298-002
FDEP Permit No. 43-294982-9
FDEP Permit No. 50-01388662-004
FDEP Permit No. 50-0164707
FDEP Permit No. 50-0164707-006
FDEP Permit No. 50-231153-002

U. S. Army Corps of Engineers Permits referenced in the EndNote Bibliography:

- | | |
|---|-------------------------------------|
| USACE Permit No. 199000902 (IP-SLN)
PLC) | USACE Permit No. SAJ-2000-3801 (IP- |
| USACE Permit No. 199000902 (IP-TA)
GGL) | USACE Permit No. SAJ-2008-1107(IP- |
| USACE Permit No. 1994-1196 | USACE RFP No. DACW17-00-R-0025 |
| USACE Permit No. 199401196 (IP-DEB) | USACE RFP No. DACW17-02-R-0031 |
| USACE Permit No. 199401196 (IP-KLV) | CPE Commission No. 5353.13 |
| USACE Permit No. 199702355 (IP-KE) | USACE Permit No. DBS 86-144PB |
| USACE Permit No. SAJ-1986-479 (IP-LAO) | |
| USACE Permit No. SAJ-1993-1995 | |
| USACE Permit No. SAJ-1994-1196 (IP-KLV) | |
| USACE Permit No. SAJ-1999-5545 (IP-SLN) | |
| USACE Permit No. SAJ-2000-380 (IP-PLC) | |

XXVI. 1st Draft List of Proposed Recommended Management Actions

**Note: RMAs were archived throughout this process due to one or more of the following criteria: 1) the RMA was already being done; 2) the RMA was not scientifically or technically feasible; 3) the RMA needed further research or was not an actionable recommendation; and 4) the RMA content was incorporated into an “umbrella” RMA due to similarities in goals and objectives. Archived RMAs should be revisited to provide adaptive management recommendations in the future.*

South Community Working Group

Focus Area: Direct Impacts to Coral Reef Ecosystem	
Code	1st DRAFT RMAs
S-1	Remove tires and debris from failed artificial reef projects and reef tract to reduce damage to existing corals and habitat and create better recruitment substrate.
S-2	Create and fund one SEFCRI-wide mooring buoy program as a more coordinated and cost-effective way of protecting reefs from anchor damage.
S-3	Implement a management plan to better monitor and research coral reef disease, working with the Coral Disease Consortium, to reduce coral mortality.
S-5	Reduce exotic and invasive species through regulation and improving methodology, which improves recruitment and maintenance of fish populations and maintains ecosystems.
S-6	Develop guidelines and policies for what qualifies for an artificial reef (i.e. materials) and policy for where artificial reefs should be installed to protect the existing southeast Florida coral reefs.
S-7	Construct more scientific-based artificial reefs to rebuild coral reef habitat.

S-8	Develop strategies for coral population enhancement through restocking and larval recruitment to establish recovery zones and recruitment for corals.
S-9	Protect near shore juvenile fish habitat from renourishment projects to enhance fishery and stop reduction of habitat.
S-10	Restore inshore habitat by offering homeowners incentive to regrow mangrove etc. and adding artificial structure under docks to increase fishery habitat and increase water quality.
S-11	Develop methods and control of boring sponges in coral communities to improve coral stability and health and to reduce the spread of macroalgae in dead coral areas.
S-12	Promote alternative mitigation activities (for example, transplanting nursery-grown corals) to offset functional degradation or temporary loss of resources.
S-13	Develop plans to restore damaged reefs to create healthy ecosystems where none exist now.
S-14	Expand research into human impacts to coral reef ecosystems to provide information for better management of coral reef ecosystems.
S-15	Restore ESA listed coral species by researching and sustaining coral nurseries plus transplanting to natural reefs. Creation of corals will restore reefs, increase coral populations and engender natural reproductive success.
S-17	Improve understanding of coral ecosystems trends and populations through monitoring and research to establish accurate baseline management tools.
S-23	Enhance existing estuaries (and add more estuaries) and restore potential estuarine areas to support coral reef ecosystem function.
S-24	Create monitoring system (and reporting system) for existing and new artificial reefs to allow evaluation of success and help develop new artificial reef plans.

Focus Area: Land-Based Sources of Pollution	
Code	1st Draft RMAs
S-25	Close all outfall pipes and build infrastructure for advanced water treatment and reuse to improve ocean water quality, reduce destruction algal blooms, and increase water reuse.
S-26	Revisit and amend sewage outfall legislation, work to get clean up in place before 2025 and without the 5% loophole to prevent sewage/nitrogen from reaching and killing southeast Florida coral reefs.
S-27	Update and replace wastewater infrastructure to improve water quality.
S-28	Support restoration of historical/natural "Everglades" water flow to minimize pulses of freshwater and protect marine ecosystems from poor water quality (nutrients).
S-29	Replace all septic systems with common sewer hookups to prevent defective septic systems from adding contaminated sewage that becomes runoff into our ocean.
S-30	Establish sewage treatment regulations (like Monroe County) to decrease adverse effects on water quality.
S-31	Improve sewage and solid waste disposal services at marinas, including recyclables, to prevent possible dumping into water that leads to the ocean and reefs.
S-33	Improve constructing additional water storage reservoirs, storm water treatment areas, flow equalization basins, appropriate technologies to reduce nutrient levels before water is released to southeast Florida estuaries, and modulate salinity changes in estuaries to improve water quality and supply.
S-34	Ban fertilizing during rainy season as well as limit the types of fertilizer that can be sold to the public to reduce elevated levels of nutrients - primarily nitrogen and phosphorus - into canals, rivers, lakes and estuaries.
S-36	Develop a committee and institute funding to oversee frequent testing for nitrogen runoff to limit deadly nitrogen exposure for coral reefs.
S-37	Eliminate and ban the use of non-organic fertilizers, weed killers, and insecticides to reduce or eliminate toxic chemicals from entering bays, estuaries, and oceans through storm runoff.
S-39	Implement easier regulations for organized beach cleanups (county-wide) to increase number of planned beach cleanups to clean up the beaches and keep it clean.
S-40	Develop/Improve water quality monitoring to include offshore reef areas to track wastewater on reef and improve water quality.
S-41	Develop TMDLs and mass balance for water going to tide to make informed management decisions.
S-42	Reduce yard clippings and other yard waste from entering water to improve water quality and reduce nutrients in estuarine habitats.
S-43	Provide additional recycle bins and trash cans on beaches and waterside parks to reduce pollution.
S-44	Florida ban on plastic bags to reduce plastic in the oceans and on the reef.
S-45	Florida deposit for plastic and glass bottles to reduce plastic in the ocean and on reefs.
S-46	Use existing BMPs to retrofit stormwater runoff to have less damage from runoff impact on reefs.
S-47	Create a city-wide compost program where people can give or take as need to reduce the use of fertilizer.
S-48	Remove phosphate damaging chemical treatments and fertilizers in south Florida through legislation per the Florida Keys to reduce LBSP washing out to the coral ecosystem.
Focus Area: Education, Outreach, Awareness, & Appreciation	
Code	1st Draft RMAs
S-49	Provide educational curriculum for Florida schools starting in elementary schools covering Florida marine, river and estuary environments to ensure future generations will continue to protect our Florida marine environment.
S-51	Increase qualification of coral reef education for open water SCUBA certification to reduce diver impact.
S-52	Create an effective reef protection mascot/logo campaign to increase awareness for protection.

S-53	Create an education/outreach program for coastal and non-coastal communities to take conservation actions to protect reef health to raise environmental awareness and educate all south Floridians to empower their improved habits.
S-54	Apply for UNESCO world heritage site status for entire Florida reef tract to increase awareness and protection of Florida coral reefs.
S-55	Improve coral reef conservation talks and information on dive boats before diving to reduce the impact of touching, standing, and kicking corals by the 3+ million dive days in south Florida.
S-56	Develop coral ecosystem education for political entities and elected officials who can implement policy and fund regulation enforcement to legally and economically protect the coral ecosystem.
S-57	Institute a statewide educational program about the marine protected area, mandatory brochures given out with training, and a test must be passed when people apply for a boating and fishing license to educate the public.
S-58	Improve accountability and education of the south Florida population by creating a nonprofit citizen science watchdog group to aid in enforcement to help reduce human impacts to coral reefs.
S-59	Create a non-governmental southeast Florida task force for climate change, ocean acidification, and their effects on coral reef ecosystem that works with federal/global organizations and will be in place to implement solutions to benefit from local involvement.
S-60	Include and promote information about SEFCRI reefs to hotels in southeast Florida to educate tourists about the importance of the reef tract beyond the sun and fun.
S-61	Fund a document on saving and protecting coral reef ecosystems from recreational boating uses that is given to all new vessel registration/renewals to educate boaters on how to protect the use of coral reef habitat systems.
S-62	Increase signage at marinas, ramps, and beach access points on fishery regulations and anchoring techniques / CRPA to increase awareness of BMPs.
S-63	Implement blue-star-like program for charter dive and fishing operators to allow "tourists" to make informed selections on environmentally responsible operators.
S-64	Include all state and federal MPAs on Florida DEP website (www.dep.state.fl.us/coastalsites/) to improve public outreach and education, promote state and federal communication and cooperation, promote holistic ecosystem perspective, and clarify currently misleading map.
F	
Code	1st Draft RMAs
S-66	Create citizen monitoring groups to assist with enforcement and emergency response.
S-67	Provide incentives to divers and fishermen to eradicate invasive species of marine organisms proliferating the SEFCRI coral reef system to provide a natural ecological balance of marine and plant life for the coral reef system.
S-68	Maximize coral reef resilience to effects of climate change by reducing local pressures of overfishing and habitat degradation to reduce coral stress so coral can better cope with natural disturbances.
S-72	Monitor reef fauna and flora in no-take areas with comparable control areas with robust statistical designs to demonstrate effectiveness of no-take areas in restoring fish, corals, and other reef fauna and flora.
S-73	Mandate insurance program for all reef users to fund conservation, protection, enforcement, programs, and projects.
S-74	Implement ongoing Lionfish management strategies to reduce invasive species.
S-75	Initiate collection of a user fee from divers via licensed dive boats and/or annual license to fund state-sponsored or state approved reef conservation, protection, programs, or projects.
S-76	Increase license fees to have more available funds for resource management (fees currently some of the lowest in USA).
S-77	Mandate quiz prior to licensing for fishing, lobstering etc. to reduce violations through awareness.
S-78	Raise cost of fishing and boating violations to deter actions that adversely affect coral reefs.

S-80	Require mandatory completion/passing of safe boating practices specific to marine ecosystems impact or renewal of vessel registration (prior to purchase of rental of boat) to reduce anchor damage and groundings.
S-83	Increase fish-size limits (e.g. hogfish) to increase female opportunity to produce/lay eggs.
S-85	Allocate reef fish quotas for conservation and non-extractive tourism, recreation, diving, snorkeling, education, and science to improve resource conservation, reduce overfishing and fishing damage to reefs, improve the diversity and quality of recreation, enhance reef fish populations, accelerate coral reef recovery, and improve conservation ethics and resource balance.
S-86	Ban live mounts of all shark species to reduce shark mortality due to charter fishing practices that ensure mount sales and dockside marketing.
S-87	Create parrotfish regulations to protect coral reef ecosystem. (CRHE?)
S-88	Decrease recreational limit and season length for lobster to rebuild lobster stock and reduce incidental reef damage.
S-90	Establish rotational use for popular local dive sites to allow for coral reef and biomass recovery.
S-91	Develop a telephone app to allow the public to photograph violations and document time, boat numbers, GIS coordinates, and violation to state FWC and federal enforcement personnel to improve regulatory compliance and enforcement and improve public involvement, outreach and education concerning coastal protection in Florida.
S-97	Reduce lobster bag limit in SEFCRI region during mini season to reduce take during mini season and increase distribution.
S-98	Simplify FWC rules and regulations to reduce complexity (fish sizes fork length versus overall - snapper one size, grouper one size pelagic) to make rules simpler.
Code 1st Draft RMAs	
S-100	Redefine the Port of Miami anchorage zone to remove four areas with reported coral from the existing anchor zone, reduce anchor damage currently being caused by ships anchoring zone which includes some coral reef.
S-101	Create/enhance "LEED"-like certification program for coastal construction companies and projects, as well as individuals working in the industry, to encourage smart development and best practices for coastal construction.
S-102	Adopt effective quality control procedures for development projects to insure standards are met, damage minimized, and mitigation goals are met.
S-104	Set new and appropriate water turbidity standards for marine construction to limit damage from coastal constructions to reefs and associated habitats.
S-105	Mandate the relocation of various benthic organisms (e.g. corals, octocorals, and sponges) from areas to be dredged (or lost due to other activities) in order to minimize impacts.
S-106	Establish educational turbidity monitoring certification program to improve the quality of turbidity data that are used to evaluate project-related threats to resources.
S-107	Encourage region-wide biological monitoring (e.g. via BMAs) to document condition of resources that may be impacted by nourishment projects and inform regulatory decisions to ensure ecological functions are maintained.
S-108	Revise/create UMAM (Uniform Mitigation Assessment Method) for coral reef environments to improve application of this rule to coastal ecosystems, to provide more consistent/accurate calculations, and to ensure ecological functions are maintained.
S-109	Develop and implement new and stricter building permits and codes to protect coral reefs.
S-110	Eliminate coastal storm water runoff to eliminate land-based sources of beach erosion reducing the need for renourishment projects and improve near shore water quality.

S-111	Change shipping lanes in and out of Ft. Lauderdale and Miami to steer well clear of coral reefs (offshore shipping lanes not port entrance) to create less change of damage to and introduction of coral disease pathogens.
S-112	Provide assistance for the state to engage in land acquisition projects to limit shoreline industry and maintain coastal wetlands to protect mangroves and coral reefs.
S-113	Propose and execute legislation to protect southeast Florida coral reef tract from offshore drilling and drilling exploration to prevent chance of oil and chemicals in the marine protected area.
S-114	Apply lessons learned from past projects to future projects to minimize impacts to resources and improve success of mitigation activities.
S-115	Reduce/eliminate beach renourishment projects to prevent excessive siltation and turbidity.
S-116	Improve beach management (e.g. raking) to make beaches more sustainable and lessen the need for beach projects.
S-117	Create oversight committee for coastal construction projects/permits to provide checks and balances/accountability to prevent impacts to reefs or address them if they do occur.
S-118	Require coastal construction projects to contribute to public interest and environmental benefits as a source and mechanism for support of ecosystem improvement and offsets impacts from the construction project.
S-119	Define what is considered "current" data in the scoping and permitting of coastal construction because projects will not be permitted based on outdated information.
S-120	Improve management of beach renourishment projects to reduce impacts to coral reefs (including nearshore reefs), make beaches more sustainable, and minimize need for future renourishment projects.
S-121	Review shipping and yachting industry sewage dumping rules to make sure discharge areas are far from SE FL coral reefs to reduce nitrogen threats to reefs.
S-122	Eliminate offshore sediment dredging for beach nourishment to reduce muddy runoff turbidity and sediment stress on corals, eliminate damage from dredging "accidents," and degradation of sea turtle nesting beaches.
S-124	Facilitate the creation of regional beach management agreements (BMAs), which take an ecosystem approach to projects such as beach nourishment and storm-water pipe removal to maintain beaches and protect resources.
F	
Code	1st Draft RMAs
S-16	Create MPAs within SEFCRI area that amount to ~20% of area and are well defined to protect reefs and minimize user conflict.
S-18	Design and designate county marine parks to enhance and diversify public activities and enjoyment, separate conflicting and incompatible activities, improve public safety, accelerate coral reef recovery, and enhance coral reef resource conservation.
S-19	Prioritize county offshore marine areas for increased protection to reduce reef habitat stress and extraction pressure; enhance tourism and non-extractive recreation; promote public education, appreciation, and understanding; accelerate coral reef recovery; and define priority areas for diving and snorkeling.
S-20	Define and prioritize reefs and habitat areas for extra protection to reduce fishing stress, accelerate reef recovery, protect reef fish, benefit public education, and benefit recreational diving and snorkeling.
S-21	Designate the southeast Florida coral reef tract as a marine protected area to reduce threats to the reefs and protect them for future generations.
S-22	Develop marine protected zones in local high-density coral areas to reduce anthropogenic impacts and improve coral protection for local healthy sites.
S-38	Establish replicated marine reserves to determine impacts of water quality versus fishing on resources to increase knowledge of threats, public education, protection of fish populations, and public awareness.
S-65	Nominate SEFCRI region for consideration as a National Marine Sanctuary to engender protection and benefits, a legal forum, discussion, understanding and collaboration, and balance uses towards sustainable resources.

S-69	Designate a no-take area between Port Everglades jetty and Dania Pier to take advantage of John U. Lloyd Park and Navy range, to provide for conservation, and to benefit fishing at PE jetty and Dania Pier.
S-70	Establish county marine ecological reserves connecting inshore to offshore reefs with 15 km wide bands (centered in North Dade, Commercial Ave in Broward, and south of West Palm Beach) to better protect reef habitats and reef fishes, enhance non-extractive activities (diving, tourism, research, education, recreation), reduce fishing stress on reef fishes, and allow assessment of influences of water quality versus fishing impacts.
S-71	Modify number, size, location, and shape of previously established no-take areas for restoration effectiveness after scientific monitoring for 5-10 years to efficiently and adaptively manage no-take designated resources for performance and impact.
S-82	Create zones to exclude fishing traps and commercial gear in special high-density coral areas to reduce storm and current movement trap/gear damage to the reef ecosystem.
S-84	Create no-take zones for sharks and barracuda in aggregate areas to protect overfished predators in areas where most vulnerable.
S-92	Establish a no anchor zone on reefs during beach festivals, as air sea show, music events, etc. to protect reefs from anchor damage by the multitude of boats viewing or listening to the events.
S-123	Create, establish, and monitor no take areas to comprise at least 20-30% of SEFCRI Region and incorporate evaluation.
S-4	Create "research-only" ocean areas to allow for scientific research to be conducted.
F	
Code	1st Draft RMAs
S-50	Implement communication and cooperation between local, state, and federal agencies affecting coral ecosystems to improve economies of agencies' efforts, regulation, and enforcement.
F	
Code	1st Draft RMAs
S-35	Improve enforcement of storm water rules and regulations to improve water quality and minimize land-based sources of erosion.
S-79	Enact better enforcement for all types of recreational and commercial fishing in areas zoned for fishing to protect coral reef ecosystem balance.
S-81	Increase law enforcement capability at the county and city levels to increase reef protection at local levels.
S-89	Enforce bait fishing regulations within beach zones to protect fish biomass nearshore
S-93	Enforce violations on piers, jetties, and docks (land-based fishing) to protect fish biomass especially important tropical fish.
S-94	Enhance existing reserve officer program in FWC "need program manager and protocols" to increase officer present, public outreach, and efficiency.
S-95	Improve law enforcement management to match assets and personnel to public need and threats to more effective enforcement.
S-96	Coordinate marine law enforcement interagency cross training in conservation and cooperation to increase enforcement and coverage.
S-99	Increase number of FWC enforcement officers; funding for enforcement; and retention of experienced officers to improve enforcement for better protection of reefs and better retention of experienced personnel.
S-103	Create and enforce BMPs that eliminate destructive impacts to coral reefs from coastal construction projects (beach renourishment, port expansion, etc.) to eliminate burials, habitat removal, and excessive siltation and turbidity on coral reefs.

North Community Working Group

Focus Area: Education, Outreach, Awareness, & Appreciation	
Code	1st Draft RMAs
N-1	Educate the public on the effects of land-based sources of pollution to reduce the amount of pollutants entering storm drains and waterways
N-2	Develop a volunteer team (e.g. CSO or Dive Club) to educate, monitor/research, and remove debris and exotics.
N-3	Create annual coral reef festival to raise awareness and funds for coral reefs and to engage residents and visitors.
N-4	Develop public service announcement and signage (such as a traveling display) to include climate change and its affects, marine debris, etc. to educate public and highlight the value and vulnerability of southeast Florida reefs
N-5	Develop and implement a Florida reefs and coastal eco-systems curriculum for K through 12 that includes educating educators on resources available to provide science-based foundation for making future decisions to protect coral reefs and to also educate parents
N-6	Continue education and outreach about Lionfish, including teaching folks to capture and prepare Lionfish and educating the public on the dangers of invasive species, to increase pressure to Lionfish, relieve pressure on c current reef fish, and decrease popularity of invasive species to pet owners.
N-7	Require online exam to people purchasing fishing license to test the knowledge of the people about the Coral Reef Protection Act, FWC Rules, and basic boating laws.
N-8	Develop a public education campaign, like "Be Floridian," to encourage eco-friendly yard and garden maintenance to help reduce the amount of nutrients and other pollutants reaching the reefs through residential run-off. (Better in LBSPWQ?)
N-9	Develop "in your face" education for dive shops to engage divers who only come in for fills and promote better behavior by divers on private boats.
N-10	Designate high school students to do at least 8 hours of community service that help ocean conservation to show future generations their role in keeping coral reefs.
N-11	Engage elected officials and other decision-makers in reef awareness by having annual events focused on reef ecosystems to develop collaborative relationships with community leaders.
N-12	Produce educational information for health reef practices about the benefits of mooring buoys and how to anchor properly, safe and prudent dive practices, and how to identify reef safe products to increase public awareness and overall better stewardship of our reefs.
N-13	Develop outreach and education for SFWMD area that educates the region (Orlando-Kissimmee) on reef impacts from remote areas (aka "follow the drop") to increase the connection to reefs to better behaviors regarding water quality.
N-14	Develop and distribute educational materials highlighting the economic and recreational values of southeast Florida reefs to enhance awareness by residents, elected officials, and visitors.
N-15	Establish a community supported organization (CSO) (i.e. Friends of SE FL Coral Reefs) to enable better community engagement in coral reef efforts and target funding for conservation activities more effectively and efficiently.
N-16	Incorporate and promote coral reef (specifically SEFCRI Region) awareness and education and coral-specific boater and marina BMPs to augment Clean Marina Programs.
N-17	Create continuing education programs for targeted industries with coastal projects to include landscaping to reduce negative coastal impacts.
N-18	Develop culture-based fishery and coral reef education program (stakeholders <--> managers) to anticipate adverse impacts to non-traditional (Floridian) fishery populations.

N-19	Update NOAA Nautical Charts to include reef habitat layers to create a better educated boater.
N-20	Develop educational materials targeted to chamber of commerce members to raise awareness and influence behavior change to reduce impacts to reefs from local businesses.
N-21	Develop and distribute welcome packets for new FL residents that provide information on impacts to reef systems and how they can be addressed to raise awareness and influence behavior change to reduce impacts to reefs.
N-22	Market a FWC hotline and SEAFAN reporting to better increase citizen observance.
N-23	Create marine industry program (i.e. Bluestar) to show local shops and boats are approved and participate in local marine conservation and awareness.
N-24	Implement diver education program (local ecology) to reduce direct physical impacts to reefs. (Better in EOA?)
Focus Area: Enforcement	
Code	1st Draft RMAs
N-25	Strengthen penalties and fines for non-compliance of reef-related regulations to enhance voluntary stewardship, to discourage illegal activities, and to express that violations will not be tolerated.
N-26	Enforce existing reef and water quality regulations to improve water quality and reef health.
N-27	Establish co-management agreements with capable and responsible local communities and NGOs to address staff capacity gaps at FWC and FDEP.
N-28	Establish a single law enforcement entity that has the responsibility for enforcement of local, state, and federal reef-related regulations to reduce duplication of effort or overlap and to increase efficiency.
N-29	Increase retention and recruitment of enforcement officers in order to improve relationships with stakeholders as well as officers understanding of use and abuse in the areas they patrol.
N-30	Educate enforcement personnel and the public on reef-related regulations to provide better protection to the reefs.
N-31	Increase legal support for FWC so officers can respond more effectively and have a greater impact to deter offenders since they are backed by the legal system.
N-32	Perform efficiency/retention study of the FWC law enforcement to ensure the best use of current and future funding to improve compliance of existing regulations.
N-33	Install webcams to catch offenders and keep people informed on weather and water conditions.
N-34	Apply funds from vessel registration and fishing licenses to increase money for law enforcement and conservation actions.
N-35	Develop (by FWC) and implement a training program for local law enforcement to cross train marine units to increase law enforcement on the water, provide additional enforcement for peak periods, and increase presence in order to decrease marine-related violations and build relationships between agencies.
N-36	Raise the cost of lobster stamp (both commercial and recreational) to use money to put towards enforcement of laws.
N-37	Improve existing FWC hotline to more efficiently report emergencies or violations, send pictures, and be able to report a problem to assist agencies to enforce the regulations that protect our coral reefs.
N-38	Evaluate and enforce lighting regulations to make sure they are effectively protecting sea turtles.
N-40	Enforce illegal catches on piers, jetties, docks, and beaches to increase fish stocks using these habitats.

N-41	Collect a "reef impact fee" to fund enforcement, education, and mitigation programs.
N-42	Require environmental compliance personnel to be present at all time during coastal construction activities to increase permit condition compliance.
N-43	Increase funding specifically designated to recruit and retain for on-the-water enforcement officers/compliance personnel to encourage voluntary compliance and effectively enforce regulations and improve recruitment and retention of officers.
N-44	Educate judges and prosecuting attorneys on the importance of imposing penalties for environmental violations that are severe enough to prevent future violations.
N-45	Require certification for fishing license and/or course for charter fishing boats to increase awareness to local laws and to promote ethical angling practices.
N-46	Require reef-related community service for resource violations to improve health of reef ecosystem and help educate the violator.
Focu	
Code	1st Draft RMAs
N-47	Implement a lost gear removal program that allows user groups to report lost gear, so it can be retrieved in a timely manner to prevent unnecessary loss of habitat.
N-48	Alternate years of mini season (e.g. odd years allow mini season, even years no allowance) to change population of lobsters so as to make this fishery more sustainable.
N-49	Eliminate lobster mini season to reduce damage to reef by overzealous divers.
N-50	Develop for commercial traps for Lionfish to increase pressure to current Lionfish populations, relieve existing pressure to juvenile fish and shellfish populations, rebuild native reef populations, and provide a new source of sustainability to commercial fishermen.
N-51	Promote collaboration between fishing and diving industries to help each party learn to respect the resources and their impact they can have on coral reefs.
N-53	Prohibit the use of commercial nets that indiscriminately remove fish and damage reef resources in designated areas to prevent adverse impacts.
N-54	Install weather reporting equipment to assist law enforcement and mariners before venturing out to assist in knowing the conditions, traffic, and use of the reefs at any given time.
N-55	Limit the number of lobsters allowed on mini season and number of lobster permits to reduce the take during this two-day period.
N-58	Support efforts to control invasive Lionfish on reefs and estuaries to decrease predation on native species.
N-59	Ban the practice of spearfishing on SCUBA to enable sustainable use of our Florida Reefs.
N-60	Identify and implement fisheries management measures in the SEFCRI Region to increase the population and size of individuals of snapper, grouper and other important reef fish. This should be based on data from the 3-year reef visual census conducted by FDEP, NOVA SE University, and Partners and fisheries dependent data.
N-61	Regulate take of parrot fish on the reef and nearshore habitats to increase the population of herbivores on the reef.
N-62	Require commercial operators (diving, fishing, sightseeing, tours, etc.) to provide educational info to patrons to promote ethical stewardship of all marine ecosystems (including reefs and everglades).
N-63	Maintain legislature that bans net fishing in shallow water to eliminate the fishing equipment that end up on the reefs.
N-64	Require registration of commercial fishing gear (all nets and traps) to prevent and track lost gear (ghost nets).
N-65	Standardize catch size limits for commercial/recreational important species with similar life histories and appearance to make it easier to enforce regulations and catch within limits.

N-66	Coordinate release of federal and state regulatory changes of sport commercial fish (annually) to reduce in confusion of regulations (laws).
Focu	
Code	1st Draft RMAs
N-67	Evaluate water quality criteria leading to the creation of a numerical value for reef ecosystem protection to improve water quality and reef protection.
N-68	Reduce and regulate fertilizers and pesticides to reduce nutrient and pollutant loading to improve water quality and provide protection to the reefs.
N-69	Support and provide money incentives and initiatives to restore and preserve wetlands north of Lake O to stop discharges to coastal estuaries to protect estuaries and reefs.
N-70	Restore and create estuarine habitats and redirect historical freshwater flows to increase habitat, improve water quality, and support nursery areas for reef fauna.
N-71	Develop and implement a monitoring program to detect, identify, and eliminate sources of pollution flowing through inlets to improve water quality and protection to reef.
N-72	Stop land-based sources of pollution to protect near shore reefs from pollution.
N-73	Provide storm water treatment institute program to treat storm water including catch basins/French drains and living shoreline projects to improve water quality that gets to the reef.
N-74	Reduce nutrient content of freshwater runoff to improve water quality and reduce algae on the reef.
N-75	Promote/offer free pump out stations to better water quality and allow boats a better option than dumping off shore.
N-76	Require increased setbacks whenever waterfront properties are redeveloped to reduce the potential for adverse impacts.
N-77	Enact a Florida Aquifer Protection Act that utilizes a GIS database and establish guidelines to regulate pollutants introduced into the aquifer to reduce the impact of land-based sources of pollution.
N-78	Reduce ground water pollution in targeted watersheds associated with priority reef areas to improve water quality and reef health. (For Tier 2 data sheet --> will require research to identify relative contribution of groundwater pollution).
N-79	Upgrade regional wastewater treatment outputs to prevent introduction of pollutants to improve water quality.
N-80	Ensure the timely closure of all sewer outfalls in the SEFCRI region to end the direct release of wastewater onto the coral reefs.
N-81	Create storm water catchment areas with enhanced capacities to clean water in order to reduce the amounts of and improve the quality of fresh water released to sea.
N-82	Support initiatives that increase storm water storage, treatment and contaminant removal and reuse from all surface water to restore healthy estuaries.
N-83	Support and provide money for conversions from septic systems to regional waste systems for properties that adversely affect estuaries to restore healthy estuaries.
N-84	Reduce storm water runoff in targeted watersheds or inlet contributing areas associated with priority reef areas to improve water quality and reef health.
N-85	Require governmental entities to ID point-source inputs into estuaries and retro-fit them as needed to reduce pollutant loadings to restore health estuaries.
N-86	Regulate point-specific water quality discharge (Regulating the quality of water discharges from facilities, such as power plants, and their proximity to coral reefs helps know stress factors on the reef. Poor water quality = unhealthy reef).

N-87	Promote existing "rain garden" programs to relevant landowners to reduce rainwater runoff and the chemical load of water released to sea.
N-88	Increase FDEP field staff capacity to monitor all beach and coastal projects and beach closures related to water quality to ensure permit compliance and minimize impacts to reef ecosystem.
N-89	Establish partnerships with local government to uphold restrictions on seasonal use of fertilizer ordinances to reduce nutrient load on reefs.
N-90	Direct funds from the water and land legacy amendment toward acquiring properties that will help preserve and restore coastal/wetland habitats to benefit coral reefs.
N-91	Improve water quality testing by county health departments by including samples of inlet water during outgoing tides to monitor more accurately the impacts of land-based sources of pollution on reefs.
N-92	Modify flood control program (i.e. fresh water) releases of SFWMD to increase emphasis on environmental impacts and reduce harmful impacts to coral reef ecosystem.
N-93	Develop and enforce new regulations that manage the use of toxic marine products (e.g. anti-fouling products) to reduce pollutant impacts on reef ecosystems.
N-94	Develop and implement a "Green Club TM" certification program for golf courses (similar to Blue Star for dive industry and clean marina programs) to provide an incentive mechanism for golf courses to reduce their impact on marine environment.
N-95	Acquire and designate additional land for water storage and filtration to remove pollutants and recharge the aquifers.
N-96	Provide financial incentives for land owners who convert to "ocean-friendly" landscaping, especially the conversion of golf courses and lawns to a native paspalum turf to reduce pollutants to reefs and conserve water.
N-97	Target LBSP reduction activities at identified hotspots and water shed of nonpoint source pollution along SEFCRI reef tract to improve water quality and reef health.
Code	1st Draft RMAs
N-98	Develop, fund, and implement a SEFCRI-wide beach management plan for sustainable management of beaches and to protect and minimize impacts to reefs from turbidity caused by erosion.
N-99	Designate a mitigation bank and fee program for development projects in SEFCRI region to offset impacts of development to reef ecosystem and fund its management & restoration.
N-101	Require coastal construction projects to provide a net positive environmental gain to increase sustainability.
N-102	Install permanent erosion stabilizers (undercurrent stabilizers) to eliminate silting caused by constant beach renourishment.
N-103	Monitor coral reef flora and fauna on a semi-annual basis to monitor coral reef vegetation and doing a species count gives an account of the health of the coral reef.
N-104	Include reef impacts and restoration goals in CERP to gain visibility, broaden public support, and increase legislative leverage for increase health of FRT.
N-105	Require and provide money for long-range planning for sand bypassing at inlets to reduce overall costs and avoid adverse ecological impacts associated with intermittent large-scale dredge projects.
N-106	Minimize the use of beach renourishment and other coastal construction projects to prevent negative impacts and destruction of near shore environments.
N-107	Strengthen coastal construction permitting requirements to promote minimally destructive methods to minimize direct impacts.

N-108	Establish regional oversight committee to ensure marine/coastal construction utilize state of the art BMP to reduce direct and indirect impacts to reefs.
N-109	Require coastal construction contractors to post surety bonds to ensure financial viability for mitigation and restoration.
N-110	Enable movement of natural sand transport, interrupted by construction of inlets, via dedicated, moveable, seagoing dredge vessels similar to Hillsboro Inlet District, to help eliminate wasteful and harmful dredge and fill projects.
N-111	Reassess permit and penalty fees to determine if they are adequate to compensate ecosystem services to better fund restoration and studies.
N-112	Perform economic study of reefs to better quantify value of coral reefs to improve ability to explain why reefs matter - compliance - support - funding
N-113	Eliminate Lake Worth inlet dredging project to reduce siltation on coral reefs and keep coastal communities and habitat in balance.
N-114	Reinstate funding for regulatory agencies (reinstate FDEP Dive Teams throughout the state) to monitor reefs, assess potential impacts, assist other agencies (fish/coral surveys) with protection and monitoring.
N-115	Restore and enhance coral reef and nearshore hardbottom habitats to maintain and improve ecosystem services, such as fisheries, tourism, and shoreline protection.
N-116	Coordinate regional "living shoreline" objectives to promote the use and protection of natural infrastructure (e.g. coral reefs, native vegetations, mangrove wetlands) to provide natural barriers to storm surge and maintain coastal biodiversity.
N-117	Revise coastal permitting process to establish a no net loss of coral from development projects practice to minimize impacts of development on reef systems.
N-118	Revise coastal permitting process to restrict or limit development and coastal construction projects activity during periods when corals are more susceptible to impacts (ie. Bleaching, spawning, other disturbance events) to reduce cumulative impacts to reefs.
N-119	Improve capacity of army corps of engineers to monitor and enforce coastal and beach projects to improve compliance with permit conditions and minimize impacts to reef systems.
N-120	Pass legislation to ban one-time-use plastic bags to protect marine environment (i.e. turtles).
N-121	Pass legislation restricting the use of "single-use plastics" to limit harm to numerous species of coral reef animals and plants.
N-122	Revise Florida's coastal construction control line (CCCL) based on the 2060 predictions for sea-level rise to educate coastal landowners about how coastal construction impacts nearshore reefs.
N-123	Develop a sustainable finance plan to support coral reef conservation efforts in the SEFCRI Region and implement specific fundraising mechanisms from that plan. Could include benefit races, concerts...this would increase local capacity to conserve SEFCRI coral reef resources.
N-124	Increase protection of wrack line to reduce erosion of beach to provide nutrients for critters.
N-125	Reduce negative impacts from beach raking/cleanup practices to provide ecological benefits to beach ecosystem.
N-127	Improve permit conditions and BMPs for coastal construction using recommendations from past monitoring (turbidity, sedimentation, and hardbottom) results to reduce negative impacts to reefs from future construction projects.
N-128	Increase the total area of mangrove, sea grass, oyster beds, corals and other habitats to restore the natural ecosystem's ability to improve water quality.
N-129	Increase ICW restoration/habitat creation projects (oyster/mangrove/artificial) to improve water quality from inland to reefs.
N-130	Eliminate/discourage government subsidies/funds to rebuild substantial storm damaged structures near coast in same area/footprint to project the shoreline.

N-131	Increase and protect public access for sustainable use of coastal resources to increase appreciation of reef resources (and their value) by the general public.
N-132	Improve compliance/enforcement of mitigation projects by monitoring results to hold agencies/project sponsors accountable.
Focus Area: Direct Impacts to Coral Reef Ecosystem	
Code	1st Draft RMAs
N-133	Establish mooring buoys and anchoring areas at appropriate locations to prevent adverse impacts and are preferred by boaters.
N-134	Install marker buoys (to include lighted and marked beacons) to clearly designate the boundaries of different use areas to enhance the abilities of enforcement personnel to do their job and for boaters to identify protected areas.
N-135	Develop and implement emergency preparedness plans for rapid response/restoration prior to significant impacts to minimize long-term damage.
N-136	Establish invasive species control strategy and increase/target removal to reduce stress to reef ecosystem.
N-138	Conduct reef, waterway, and beach clean-ups to remove debris and promote reef-sensitive use to minimize adverse impacts.
N-139	Include bathtub reef or other near shore hard bottom N. of St. Lucie Inlet as part of management of southeast Florida reef tract to provide a buffer for coral migration or range expansion in the face of climate change.
N-140	Restrict anchoring in preserve to encourage the use of the mooring buoys and internally control the number of divers on each reef to prevent anchor and chain scaring to the reefs.
N-141	Develop and distribute easily understandable apps and technology resource maps that show boundaries of different use areas, resource areas, mooring buoy locations, and zone boundaries to enhance voluntary stewardship.
N-142	Install a limited number of mooring buoys to limit the number of divers that would place stress on the reef as mooring buoys do not stop anchoring to create a procedure to regulate and monitor the users.
Foc	
Code	1st Draft RMAs
N-144	Implement MPA planning process to set aside areas to enhance population of most prolific reproduction of reef fish and coral.
N-145	Create/rotate limited use areas to allow reef recovery.
N-146	Establish and implement a zoning framework for the SEFCRI Region that includes no-take reserves, no anchor areas, restoration areas, and seasonal protection for spawning aggregations to enable both sustainable use and protection of our Florida reefs.
N-147	Develop and establish no-take zones or areas of restricted activity (include reefs and everglades) to protect and reduce pressure on reefs, stop use of tackle and traps that damage reefs, and avoid user conflicts to reduce pressure on juvenile and forage fish.
N-148	Nominate southeast Florida reef tract for National Marine Sanctuary (www.nominate.noaa.gov) to provide broader federal protection for the southeast Florida reef tract.
N-149	Procure funding sources to sustain the development, staffing, and maintenance of a managed marine protected area to benefit the people who use the reefs.
N-39	Develop restricted airspace (altitude 500 feet) to give control of the space above the reefs to prevent air craft of flying too low over the water leaving that air space for enforcement and rescue.

N-100	Create MPAs within FRT based on current science and data to develop site specific goals for a management plan to protect sensitive species and habitat.
N-137	Designate the entire SEFCRI region as a particularly sensitive sea areas (PSSA) to reduce direct impacts from large vessel grounding and cable drag events on the reef.
N-143	Designate no anchor zones and increase number of mooring buoys on SEFCRI coral reef tract to minimize boating impacts to our coral reefs.

XXVII. Edited List of 1st Draft Proposed RMAs for SEFCRI Review

South Community Working Group

Code	1 st Draft RMAs
S-1	Remove tires and debris from failed artificial reef projects and reef tract to reduce damage to existing corals and habitat and create better recruitment substrate
S-2	Create and fund one SEFCRI-wide mooring buoy program as a more coordinated and cost-effective way of protecting reefs from anchor damage
S-3	Implement a management plan to better monitor and research coral reef disease, working with the Coral Disease Consortium, to reduce coral mortality
S-5	Reduce exotic and invasive species through regulation and improving methodology, which improves recruitment and maintenance of fish populations and maintains ecosystems
S-7	Construct more scientific-based artificial reefs to rebuild coral reef habitat
S-8	Develop strategies for coral population enhancement through restocking and larval recruitment to establish recovery zones and recruitment for corals
S-9	Protect near shore juvenile fish habitat from renourishment projects to enhance fishery and stop reduction of habitat
S-11	Develop methods and control of boring sponges in coral communities to improve coral stability and health and to reduce the spread of macroalgae in dead coral areas
S-12	Promote alternative mitigation activities (for example, transplanting nursery-grown corals) to offset functional degradation or temporary loss of resources
S-13	Develop plans to restore damaged reefs to create healthy ecosystems where none exist now
S-15	Restore ESA listed coral species by researching and sustaining coral nurseries plus transplanting to natural reefs. Creation of corals will restore reefs, increase coral populations and engender natural reproductive success.
S-16	Create MPAs within SEFCRI area that amount to ~20% of area and are well defined to protect reefs and minimize user conflict.
S-17	Improve understanding of coral ecosystems trends and populations through monitoring and research to establish accurate baseline management tools.
S-18	Design and designate county marine parks to enhance and diversify public activities and enjoyment, separate conflicting and incompatible activities, improve public safety, accelerate coral reef recovery, and enhance coral reef resource conservation.
S-20	Define and prioritize reefs and habitat areas for extra protection to reduce fishing stress, accelerate reef recovery, protect reef fish, benefit public education, and benefit recreational diving and snorkeling
S-22	Develop marine protected zones in local high-density coral areas to reduce anthropogenic impacts and improve coral protection for local healthy sites.

S-23	Enhance existing estuaries (and add more estuaries) and restore potential estuarine areas to support coral reef ecosystem function.
S-24	Create monitoring system (and reporting system) for existing and new artificial reefs to allow evaluation of success and help develop new artificial reef plans.
S-25	Close all outfall pipes and build infrastructure for advanced water treatment and reuse to improve ocean water quality, reduce destruction algal blooms, and increase water reuse.
S-26	Revisit and amend sewage outfall legislation, work to get clean up in place before 2025 and without the 5% loophole to prevent sewage/nitrogen from reaching and killing southeast Florida coral reefs.
S-28	Support restoration of historical/natural "Everglades" water flow to minimize pulses of freshwater and protect marine ecosystems from poor water quality (nutrients).
S-34	Ban fertilizing during rainy season as well as limit the types of fertilizer that can be sold to the public to reduce elevated levels of nutrients - primarily nitrogen and phosphorus - into canals, rivers, lakes and estuaries.
S-37	Eliminate and ban the use of non-organic fertilizers, weed killers, and insecticides to reduce or eliminate toxic chemicals from entering bays, estuaries, and oceans through storm runoff.
S-38	Establish replicated marine reserves to determine impacts of water quality versus fishing on resources to increase knowledge of threats, public education, protection of fish populations, and public awareness.
S-44	Florida ban on plastic bags to reduce plastic in the oceans and on the reef.
S-49	Provide educational curriculum for Florida schools starting in elementary schools covering Florida marine, river and estuary environments to ensure future generations will continue to protect our Florida marine environment.
S-51	Increase qualification of coral reef education for open water SCUBA certification to reduce diver impact.
S-52	Create an effective reef protection mascot/logo campaign to increase awareness for protection.
S-54	Apply for UNESCO world heritage site status for entire Florida reef tract to increase awareness and protection of Florida coral reefs.
S-55	Improve coral reef conservation talks and information on dive boats before diving to reduce the impact of touching, standing, and kicking corals by the 3+ million dive days in south Florida.
S-59	Create a non-governmental southeast Florida task force for climate change, ocean acidification, and their effects on coral reef ecosystem that works with federal/global organizations and will be in place to implement solutions to benefit from local involvement.
S-60	Include and promote information about SEFCRI reefs to hotels in southeast Florida to educate tourists about the importance of the reef tract beyond the sun and fun.
S-63	Implement blue-star-like program for charter dive and fishing operators to allow "tourists" to make informed selections on environmentally responsible operators.
S-64	Include all state and federal MPAs on Florida DEP website (www.dep.state.fl.us/coastalsites/) to improve public outreach and education, promote state and federal communication and cooperation, promote holistic ecosystem perspective, and clarify currently misleading map.
S-65	Nominate SEFCRI region for consideration as a National Marine Sanctuary to engender protection and benefits, a legal forum, discussion, understanding and collaboration, and balance uses towards sustainable resources.
S-66	Create citizen monitoring groups to assist with enforcement and emergency response.
S-67	Provide incentives to divers and fishermen to eradicate invasive species of marine organisms proliferating the SEFCRI coral reef system to provide a natural ecological balance of marine and plant life for the coral reef system.

S-68	Maximize coral reef resilience to effects of climate change by reducing local pressures of overfishing and habitat degradation to reduce coral stress so coral can better cope with natural disturbances.
S-73	Mandate insurance program for all reef users to fund conservation, protection, enforcement, programs, and projects.
S-74	Implement ongoing Lionfish management strategies to reduce invasive species.
S-75	Initiate collection of a user fee from divers via licensed dive boats and/or annual license to fund state-sponsored or state approved reef conservation, protection, programs, or projects.
S-76	Increase license fees to have more available funds for resource management (fees currently some of the lowest in USA).
S-78	Raise cost of fishing and boating violations to deter actions that adversely affect coral reefs.
S-79	Enact better enforcement for all types of recreational and commercial fishing in areas zoned for fishing to protect coral reef ecosystem balance.
S-80	Require mandatory completion/passing of safe boating practices specific to marine ecosystems impact or renewal of vessel registration (prior to purchase of rental of boat) to reduce anchor damage and groundings.
S-82	Create zones to exclude fishing traps and commercial gear in special high-density coral areas to reduce storm and current movement trap/gear damage to the reef ecosystem.
S-83	Increase fish-size limits (e.g. hogfish) to increase female opportunity to produce/lay eggs.
S-84	Create no-take zones for sharks and barracuda in aggregate areas to protect overfished predators in areas where most vulnerable.
S-85	Allocate reef fish quotas for conservation and non-extractive tourism, recreation, diving, snorkeling, education, and science to improve resource conservation, reduce overfishing and fishing damage to reefs, improve the diversity and quality of recreation, enhance reef fish populations, accelerate coral reef recovery, and improve conservation ethics and resource balance.
S-86	Ban live mounts of all shark species to reduce shark mortality due to charter fishing practices that ensure mount sales and dockside marketing.
S-87	Create parrotfish regulations to protect coral reef ecosystem. (CRHE?)
S-89	Enforce bait fishing regulations within beach zones to protect fish biomass nearshore
S-91	Develop a telephone app to allow the public to photograph violations and document time, boat numbers, GIS coordinates, and violation to state FWC and federal enforcement personnel to improve regulatory compliance and enforcement and improve public involvement, outreach and education concerning coastal protection in Florida.
S-92	Establish a no anchor zone on reefs during beach festivals, as air sea show, music events, etc. to protect reefs from anchor damage by the multitude of boats viewing or listening to the events.
S-93	Enforce violations on piers, jetties, and docks (land-based fishing) to protect fish biomass especially important tropical fish.
S-94	Enhance existing reserve officer program in FWC "need program manager and protocols" to increase officer present, public outreach, and efficiency.
S-95	Improve law enforcement management to match assets and personnel to public need and threats to more effective enforcement.
S-96	Coordinate marine law enforcement interagency cross training in conservation and cooperation to increase enforcement and coverage.
S-97	Reduce lobster bag limit in SEFCRI region during mini season to reduce take during mini season and increase distribution.
S-98	Simplify FWC rules and regulations to reduce complexity (fish sizes fork length versus overall - snapper one size, grouper one size pelagic) to make rules simpler.

S-99	Increase number of FWC enforcement officers; funding for enforcement; and retention of experienced officers to improve enforcement for better protection of reefs and better retention of experienced personnel.
S-100	Redefine the Port of Miami anchorage zone to remove four areas with reported coral from the existing anchor zone, reduce anchor damage currently being caused by ships anchoring zone which includes some coral reef.
S-101	Create/enhance "LEED"-like certification program for coastal construction companies and projects, as well as individuals working in the industry, to encourage smart development and best practices for coastal construction.
S-102	Adopt effective quality control procedures for development projects to insure standards are met, damage minimized, and mitigation goals are met.
S-103	Create and enforce BMPs that eliminate destructive impacts to coral reefs from coastal construction projects (beach renourishment, port expansion, etc.) to eliminate burials, habitat removal, and excessive siltation and turbidity on coral reefs.
S-104	Set new and appropriate water turbidity standards for marine construction to limit damage from coastal constructions to reefs and associated habitats.
S-105	Mandate the relocation of various benthic organisms (e.g. corals, octocorals, and sponges) from areas to be dredged (or lost due to other activities) in order to minimize impacts.
S-106	Establish educational turbidity monitoring certification program to improve the quality of turbidity data that are used to evaluate project-related threats to resources.
S-107	Encourage region-wide biological monitoring (e.g. via BMAs) to document condition of resources that may be impacted by nourishment projects and inform regulatory decisions to ensure ecological functions are maintained.
S-108	Revise/create UMAM (Uniform Mitigation Assessment Method) for coral reef environments to improve application of this rule to coastal ecosystems, to provide more consistent/accurate calculations, and to ensure ecological functions are maintained.
S-110	Eliminate coastal storm water runoff to eliminate land-based sources of beach erosion reducing the need for renourishment projects and improve near shore water quality.
S-114	Apply lessons learned from past projects to future projects to minimize impacts to resources and improve success of mitigation activities.
S-115	Reduce/eliminate beach renourishment projects to prevent excessive siltation and turbidity.
S-116	Improve beach management (e.g. raking) to make beaches more sustainable and lessen the need for beach projects.
S-120	Improve management of beach renourishment projects to reduce impacts to coral reefs (including nearshore reef), make beaches more sustainable, and minimize need for future renourishment projects.
S-121	Review shipping and yachting industry sewage dumping rules to make sure discharge areas are far from SE FL coral reefs to reduce nitrogen threats to reefs.
S-122	Eliminate offshore sediment dredging for beach nourishment to reduce muddy runoff turbidity and sediment stress on corals, eliminate damage from dredging "accidents," and degradation of sea turtle nesting beaches.
S-123	Create, establish, and monitor no take areas to comprise at least 20-30% of SEFCRI Region and incorporate evaluation.
S-124	Facilitate the creation of regional beach management agreements (BMAs), which take an ecosystem approach to projects such as beach nourishment and storm-water pipe removal to maintain beaches and protect resources.

North Community Working Group

Code	1st Draft RMAs
-------------	----------------------------------

N-1	Educate the public on the effects of land-based sources of pollution to reduce the amount of pollutants entering storm drains and waterways
N-2	Develop a volunteer team (e.g. CSO or Dive Club) to educate, monitor/research, and remove debris and exotics.
N-3	Create annual coral reef festival to raise awareness and funds for coral reefs and to engage residents and visitors.
N-4	Develop public service announcement and signage (such as a traveling display) to include climate change and its affects, marine debris, etc. to educate public and highlight the value and vulnerability of southeast Florida reefs
N-5	Develop and implement a Florida reefs and coastal eco-systems curriculum for K through 12 that includes educating educators on resources available to provide science-based foundation for making future decisions to protect coral reefs and to also educate parents
N-6	Continue education and outreach about Lionfish, including teaching folks to capture and prepare Lionfish and educating the public on the dangers of invasive species, to increase pressure to Lionfish, relieve pressure on c current reef fish, and decrease popularity of invasive species to pet owners.
N-7	Require online exam to people purchasing fishing license to test the knowledge of the people about the Coral Reef Protection Act, FWC Rules, and basic boating laws.
N-8	Develop a public education campaign, like "Be Floridian," to encourage eco-friendly yard and garden maintenance to help reduce the amount of nutrients and other pollutants reaching the reefs through residential run-off. (Better in LBSPWQ?)
N-10	Designate high school students to do at least 8 hours of community service that help ocean conservation to show future generations their role in keeping coral reefs.
N-11	Engage elected officials and other decision-makers in reef awareness by having annual events focused on reef ecosystems to develop collaborative relationships with community leaders.
N-12	Produce educational information for health reef practices about the benefits of mooring buoys and how to anchor properly, safe and prudent dive practices, and how to identify reef safe products to increase public awareness and overall better stewardship of our reefs.
N-14	Develop and distribute educational materials highlighting the economic and recreational values of southeast Florida reefs to enhance awareness by residents, elected officials, and visitors.
N-15	Establish a community supported organization (CSO) (i.e. Friends of SE FL Coral Reefs) to enable better community engagement in coral reef efforts and target funding for conservation activities more effectively and efficiently.
N-17	Create continuing education programs for targeted industries with coastal projects to include landscaping to reduce negative coastal impacts.
N-18	Develop culture-based fishery and coral reef education program (stakeholders <--> managers) to anticipate adverse impacts to non-traditional (Floridian) fishery populations.
N-21	Develop and distribute welcome packets for new FL residents that provide information on impacts to reef systems and how they can be addressed to raise awareness and influence behavior change to reduce impacts to reefs.
N-22	Market a FWC hotline and SEAFAN reporting to better increase citizen observance.
N-23	Create marine industry program (i.e. Bluestar) to show local shops and boats are approved and participate in local marine conservation and awareness.
N-24	Implement diver education program (local ecology) to reduce direct physical impacts to reefs. (Better in EOA?)
N-25	Strengthen penalties and fines for non-compliance of reef-related regulations to enhance voluntary stewardship, to discourage illegal activities, and to express that violations will not be tolerated.
N-26	Enforce existing reef and water quality regulations to improve water quality and reef health.

N-27	Establish co-management agreements with capable and responsible local communities and NGOs to address staff capacity gaps at FWC and FDEP.
N-28	Establish a single law enforcement entity that has the responsibility for enforcement of local, state, and federal reef-related regulations to reduce duplication of effort or overlap and to increase efficiency.
N-29	Increase retention and recruitment of enforcement officers in order to improve relationships with stakeholders as well as officers understanding of use and abuse in the areas they patrol.
N-30	Educate enforcement personnel and the public on reef-related regulations to provide better protection to the reefs.
N-31	Increase legal support for FWC so officers can respond more effectively so that the officers have a greater impact to deter offenders since they are backed by the legal system.
N-32	Perform efficiency/retention study of the FWC law enforcement to ensure the best use of current and future funding to improve compliance of existing regulations.
N-33	Install webcams to catch offenders and keep people informed on weather and water conditions.
N-34	Apply funds from vessel registration and fishing licenses to increase money for law enforcement and conservation actions.
N-35	Develop (by FWC) and implement a training program for local law enforcement to cross train marine units to increase law enforcement on the water, provide additional enforcement for peak periods, and increase presence to decrease marine-related violations and build relationships between agencies.
N-36	Raise the cost of lobster stamp (both commercial and recreational) to use money to put towards enforcement of laws.
N-37	Improve existing FWC hotline to more efficiently report emergencies or violations, send pictures, and be able to report a problem to assist agencies to enforce the regulations that protect our coral reefs.
N-38	Evaluate and enforce lighting regulations to make sure they are effectively protecting sea turtles.
N-39	Develop restricted airspace (altitude 500 feet) to give control of the space above the reefs to prevent air craft of flying too low over the water leaving that air space for enforcement and rescue.
N-40	Enforce illegal catches on piers, jetties, docks, and beaches to increase fish stocks using these habitats.
N-41	Collect a "reef impact fee" to fund enforcement, education, and mitigation programs.
N-43	Increase funding specifically designated to recruit and retain for on-the-water enforcement officers/compliance personnel to encourage voluntary compliance and effectively enforce regulations and improve recruitment and retention of officers.
N-44	Educate judges and prosecuting attorneys on the importance of imposing penalties for environmental violations that are severe enough to prevent future violations.
N-45	Require certification for fishing license and/or course for charter fishing boats to increase awareness to local laws and to promote ethical angling practices.
N-46	Require reef-related community service for resource violations to improve health of reef ecosystem and help educate the violator.
N-47	Implement a lost gear removal program that allows user groups to report lost gear, so it can be retrieved in a timely manner to prevent unnecessary loss of habitat.
N-48	Alternate years of mini season (e.g. odd years allow mini season, even years no allowance) to change population of lobsters so as to make this fishery more sustainable.
N-49	Eliminate lobster mini season to reduce damage to reef by overzealous divers.
N-51	Promote collaboration between fishing and diving industries to help each party learn to respect the resources and their impact they can have on coral reefs.

N-53	Prohibit the use of commercial nets that indiscriminately remove fish and damage reef resources in designated areas to prevent adverse impacts.
N-54	Install weather reporting equipment to assist law enforcement and mariners before venturing out to assist in knowing the conditions, traffic, and use of the reefs at any given time.
N-55	Limit the number of lobsters allowed on mini season and number of lobster permits to reduce the take during this two-day period.
N-58	Support efforts to control invasive Lionfish on reefs and estuaries to decrease predation on native species.
N-59	Ban the practice of spearfishing on SCUBA to enable sustainable use of our Florida Reefs.
N-60	Identify and implement fisheries management measures in the SEFCRI Region to increase the population and size of individuals of snapper, grouper and other important reef fish. This should be based on data from the 3-year reef visual census conducted by FDEP, NOVA SE University, and Partners and fisheries dependent data.
N-61	Regulate take of parrot fish on the reef and nearshore habitats to increase the population of herbivores on the reef.
N-62	Require commercial operators (diving, fishing, sightseeing, tours, etc.) to provide educational info to patrons to promote ethical stewardship of all marine ecosystems (including reefs and everglades).
N-63	Maintain legislature that bans net fishing in shallow water to eliminate the fishing equipment that end up on the reefs.
N-64	Require registration of commercial fishing gear (all nets and traps) to prevent and track lost gear (ghost nets).
N-65	Standardize catch size limits for commercial/recreational important species with similar life histories and appearance to make it easier to enforce regulations and catch within limits.
N-68	Reduce and regulate fertilizers and pesticides to reduce nutrient and pollutant loading to improve water quality and provide protection to the reefs.
N-69	Support and provide money incentives and initiatives to restore and preserve wetlands north of Lake O to stop discharges to coastal estuaries to protect estuaries and reefs.
N-70	Restore and create estuarine habitats and redirect historical freshwater flows to increase habitat, improve water quality, and support nursery areas for reef fauna.
N-71	Develop and implement a monitoring program to detect, identify, and eliminate sources of pollution flowing through inlets to improve water quality and protection to reef.
N-72	Stop land-based sources of pollution to protect near shore reefs from pollution.
N-74	Reduce nutrient content of freshwater runoff to improve water quality and reduce algae on the reef.
N-75	Promote/offer free pump out stations to better water quality and allow boats a better option than dumping off shore.
N-76	Require increased setbacks whenever waterfront properties are redeveloped to reduce the potential for adverse impacts.
N-78	Reduce ground water pollution in targeted watersheds associated with priority reef areas to improve water quality and reef health. (For Tier 2 data sheet --> will require research to identify relative contribution of groundwater pollution).
N-79	Upgrade regional wastewater treatment outputs to prevent introduction of pollutants to improve water quality.
N-80	Ensure the timely closure of all sewer outfalls in the SEFCRI region to end the direct release of wastewater onto the coral reefs.
N-81	Create storm water catchment areas with enhanced capacities to clean water in order to reduce the amounts of and improve the quality of fresh water released to sea.

N-82	Support initiatives that increase storm water storage, treatment and contaminant removal and reuse from all surface water to restore healthy estuaries.
N-84	Reduce storm water runoff in targeted watersheds or inlet contributing areas associated with priority reef areas to improve water quality and reef health.
N-85	Require governmental entities to ID point-source inputs into estuaries and retro-fit them as needed to reduce pollutant loadings to restore health estuaries.
N-86	Regulate point-specific water quality discharge (Regulating the quality of water discharges from facilities, such as power plants, and their proximity to coral reefs helps know stress factors on the reef. Poor water quality = unhealthy reef).
N-87	Promote existing "rain garden" programs to relevant landowners to reduce rainwater runoff and the chemical load of water released to sea.
N-88	Increase FDEP field staff capacity to monitor all beach and coastal projects and beach closures related to water quality to ensure permit compliance and minimize impacts to reef ecosystem.
N-89	Establish partnerships with local government to uphold restrictions on seasonal use of fertilizer ordinances to reduce nutrient load on reefs.
N-90	Direct funds from the water and land legacy amendment toward acquiring properties that will help preserve and restore coastal/wetland habitats to benefit coral reefs.
N-94	Develop and implement a "Green Club TM" certification program for golf courses (similar to Blue Star for dive industry and clean marina programs) to provide an incentive mechanism for golf courses to reduce their impact on marine environment.
N-97	Target LBSP reduction activities at identified hotspots and water shed of nonpoint source pollution along SEFCRI reef tract to improve water quality and reef health.
N-98	Develop, fund, and implement a SEFCRI-wide beach management plan for sustainable management of beaches and to protect and minimize impacts to reefs from turbidity caused by erosion.
N-99	Designate a mitigation bank and fee program for development projects in SEFCRI region to offset impacts of development to reef ecosystem and fund its management and restoration.
N-100	Create MPAs within FRT based on current science and data to develop site specific goals for a management plan to protect sensitive species and habitat.
N-102	Install permanent erosion stabilizers (undercurrent stabilizers) to eliminate silting caused by constant beach renourishment.
N-106	Minimize the use of beach renourishment and other coastal construction projects to prevent negative impacts and destruction of near shore environments.
N-110	Enable movement of natural sand transport, interrupted by construction of inlets, via dedicated, moveable, seagoing dredge vessels similar to Hillsboro Inlet District, to help eliminate wasteful and harmful dredge and fill projects.
N-113	Eliminate Lake Worth inlet dredging project to reduce siltation on coral reefs and keep coastal communities and habitat in balance.
N-114	Reinstate funding for regulatory agencies (reinstate FDEP Dive Teams throughout the state) to monitor reefs, assess potential impacts, assist other agencies (fish/coral surveys) with protection and monitoring.
N-115	Restore and enhance coral reef and nearshore hardbottom habitats to maintain and improve ecosystem services, such as fisheries, tourism, and shoreline protection.
N-116	Coordinate regional "living shoreline" objectives to promote the use and protection of natural infrastructure (e.g. coral reefs, native vegetations, mangrove wetlands) to provide natural barriers to storm surge and maintain coastal biodiversity.
N-117	Revise coastal permitting process to establish a no net loss of coral from development projects practice to minimize impacts of development on reef systems.

N-119	Improve capacity of army corps of engineers to monitor and enforce coastal and beach projects to improve compliance with permit conditions and minimize impacts to reef systems.
N-120	Pass legislation to ban one-time-use plastic bags to protect marine environment (i.e. turtles).
N-121	Pass legislation restricting the use of "single-use plastics" to limit harm to numerous species of coral reef animals and plants.
N-123	Develop a sustainable finance plan to support coral reef conservation efforts in the SEFCRI Region and implement specific fundraising mechanisms from that plan. Could include benefit races, concerts...this would increase local capacity to conserve SEFCRI coral reef resources.
N-124	Increase protection of wrack line to reduce erosion of beach to provide nutrients for critters.
N-125	Reduce negative impacts from beach raking/cleanup practices to provide ecological benefits to beach ecosystem.
N-128	Increase the total area of mangrove, sea grass, oyster beds, corals and other habitats to restore the natural ecosystem's ability to improve water quality.
N-132	Improve compliance/enforcement of mitigation projects by monitoring results to hold agencies/project sponsors accountable.
N-133	Establish mooring buoys and anchoring areas at appropriate locations to prevent adverse impacts and are preferred by boaters.
N-134	Install marker buoys (to include lighted and marked beacons) to clearly designate the boundaries of different use areas to enhance the abilities of enforcement personnel to do their job and for boaters to identify protected areas. (Better in Enforcement?)
N-135	Develop and implement emergency preparedness plans for rapid response/restoration prior to significant impacts to minimize long-term damage.
N-136	Establish invasive species control strategy and increase/target removal to reduce stress to reef ecosystem.
N-137	Designate the entire SEFCRI region as a particularly sensitive sea areas (PSSA) to reduce direct impacts from large vessel grounding and cable drag events on the reef.
N-138	Conduct reef, waterway, and beach clean-ups to remove debris and promote reef-sensitive use to minimize adverse impacts.
N-139	Include bathtub reef or other near shore hard bottom N. of St. Lucie Inlet as part of management of southeast Florida reef tract to provide a buffer for coral migration or range expansion I in the face of climate change.
N-140	Restrict anchoring in preserve to encourage the use of the mooring buoys and internally control the number of divers on each reef to prevent anchor and chain scaring to the reefs.
N-142	Install a limited number of mooring buoys to limit the number of divers that would place stress on the reef as mooring buoys do not stop anchoring to create a procedure to regulate and monitor the users.
N-143	Designate no anchor zones and increase number of mooring buoys on SEFCRI coral reef tract to minimize boating impacts to our coral reefs.
N-144	Implement MPA planning process to set aside areas to enhance population of most prolific reproduction of reef fish and coral.
N-145	Create/rotate limited use areas to allow reef recovery.
N-146	Establish and implement a zoning framework for the SEFCRI Region that includes no-take reserves, no anchor areas, restoration areas, and seasonal protection for spawning aggregations to enable both sustainable use and protection of our Florida reefs.
N-147	Develop and establish no-take zones or areas of restricted activity (include reefs and everglades) to protect and reduce pressure on reefs, stop use of tackle and traps that damage reefs, and avoid user conflicts to reduce pressure on juvenile and forage fish.
N-148	Nominate southeast Florida reef tract for National Marine Sanctuary (www.nominate.noaa.gov) to provide broader federal protection for the southeast Florida reef tract.

N-149	Procure funding sources to sustain the development, staffing, and maintenance of a managed marine protected area to benefit the people who use the reefs.
-------	---

XXVIII. Edited List of 2nd Draft Proposed RMAs for SEFCRI Review

Code	2 nd Draft RMAs
N-1	Educate the public on the effects of land-based sources of pollution to reduce the amount of pollutants entering storm drains and waterways
N-5	Develop and implement a Florida reefs and ecosystems curriculum for K-12 that includes educating educators on available resources to provide science-based foundation for making future decisions to protect coral reefs and to also educate the community.
N-7	Offer an online exam to receive a discount on fishing licenses (create an incentive-based program).
N-8	Develop a public education campaign, like "Be Floridian," to encourage eco-friendly yard and garden maintenance to help reduce the amount of nutrients and other pollutants reaching the reefs through residential run-off.
N-14	Develop and distribute educational materials highlighting the economic and recreational values of southeast Florida reefs to enhance awareness by residents, elected officials, and visitors.
N-15	Develop, promote and maintain citizen supported organizations (CSO) (i.e. Friends of SE FL Coral Reefs) to enable better community engagement in coral reef efforts and target funding for conservation activities more effectively and efficiently
N-18	Develop culture-based fishery and coral reef education program (stakeholders <--> managers) to anticipate adverse impacts to non-traditional (Floridian) fishery populations.
N-19	Update NOAA Nautical Charts to include reef habitat layers to create a better educated boater.
N-21	Develop and distribute welcome packets for new FL residents that provide information on impacts to reef systems and how they can be addressed to raise awareness and influence behavior change to reduce impacts to reefs.
N-23	Create a marine industry program (e.g. Bluestar) for industry users, including commercial and private, to raise awareness and reduce impacts to coral reefs to show promote (a better word here?) local shops and boats that are approved and participate in local marine conservation and awareness.
N-25	Strengthen penalties and fines for non-compliance of reef-related regulations to enhance voluntary stewardship, to discourage illegal activities, and to express that violations will not be tolerated.
N-33	Install webcams to catch offenders and keep people informed on weather and water conditions.
N-35	Develop and implement a cross-training program for local marine units and beach patrol officers, to improve recognition of conservation regulations, increase law enforcement presence on the water and provide additional enforcement for peak periods to build relationships between agencies and decrease marine-related violations.
N-36	Raise the cost of lobster stamp (both commercial and recreational) to use money to put towards enforcement of laws.
N-37	Improve existing FWC hotline to more efficiently report emergencies or violations, send pictures, and be able to report a problem to assist agencies to enforce the regulations that protect our coral reefs.
N-41	Collect a "reef impact fee" to fund enforcement, education, and mitigation programs.
N-44	Educate judges and prosecuting attorneys on the importance of imposing penalties for environmental violations that are severe enough to prevent future violations.
N-45	Require certification for fishing license and/or course for younger generations to increase awareness of local laws and promote ethical angling practices
N-59	Ban the practice of spearfishing on SCUBA to enable sustainable use of our Florida Reefs.
N-64	Require registration and tagging of lead line for all cast nets and traps, as well as reporting the coordinates of any lost nets to FWC for retrieval, for commercial and recreational fisherman, within St. Lucie State Park to prevent and track lost gear (ghost nets).
N-65	Standardize catch size limits for commercial/recreational important species with similar life histories and appearance to make it easier to enforce regulations and catch within limits.

N-68	Reduce and regulate fertilizers and pesticides to reduce nutrient and pollutant loading to improve water quality and provide protection to the reefs and promote the use of Florida friendly herbicides and pesticides to reduce or eliminate toxic chemicals.
N-69	Support and provide money incentives and initiatives to restore and preserve wetlands north of Lake O to stop discharges to coastal estuaries to protect estuaries and reefs.
N-70	Prioritize the protection of existing and the restoration of historical mangrove, seagrass, oyster and other estuarine habitats, to and redirect historical freshwater flows, increase habitat, improve water quality, and support nursery areas for reef fauna.
N-71	Develop and implement a monitoring program to detect, identify, and eliminate sources of pollution flowing through inlets to improve water quality and protection to reef.
N-75	Promote/offer free pump out stations to better water quality and allow boats a better option than dumping off shore.
N-78	Reduce ground water pollution in targeted watersheds associated with priority reef areas to improve water quality and reef health.
N-82	Support existing and create innovative new initiatives that increase storm water storage, and reduce stormwater runoff, enhance treatment, increase reuse, and reduce nutrients and other contaminants, from all surface water to restore healthy estuaries.
N-87	Promote existing "rain garden" programs to relevant landowners to reduce rainwater runoff and the chemical load of water released to sea.
N-89	Establish partnerships with local government to uphold, enhance, or create restrictions on seasonal use of fertilizer ordinances to reduce nutrient load on reefs.
N-94	Develop and implement a "Green Club TM" certification program for golf courses (similar to Blue Star for dive industry and clean marina programs) to provide an incentive mechanism for golf courses to reduce their impact on marine environment.
N-97	Target LBSP reduction activities at identified hotspots and water shed of nonpoint source pollution along SEFCRI reef tract to improve water quality and reef health.
N-106	Minimize the use of beach renourishment and other coastal construction projects to prevent negative impacts and destruction of near shore environments, by using appropriate, and improved, available strategies such as bypassing and dune creation.
N-113	Eliminate Lake Worth inlet dredging project to reduce siltation on coral reefs and keep coastal communities and habitat in balance.
N-114	Reinstate funding for regulatory agencies (reinstate FDEP Dive Teams throughout the state) to monitor reefs, assess potential impacts, assist other agencies (fish/coral surveys) with protection and monitoring.
N-116	Coordinate regional "living shoreline" objectives to promote the use and protection of natural infrastructure (e.g. coral reefs, native vegetation, mangrove wetlands) to provide natural barriers to storm surge and maintain coastal biodiversity.
N-117	Revise reef mitigation process for permitted and non-permitted activities.
N-120	Pass legislation and local ordinances to restrict or to ban one-time-use plastic bags and Styrofoam to protect marine environment (i.e. turtles).
N-137	Designate the entire SEFCRI region as a particularly sensitive sea areas (PSSA) to reduce direct impacts from large vessel grounding sand cable drag events on the reef.
N-146	Establish and implement a zoning framework for the SEFCRI Region that includes no-take reserves, no anchor areas, restoration areas, and seasonal protection for spawning aggregations to enable both sustainable use and protection of our Florida reefs.
S-1	Remove tires and debris from failed artificial reef projects and reef tract to reduce damage to existing corals and habitat and create better recruitment substrate
S-2	Create and fund one SEFCRI-wide mooring buoy program as a more coordinated and cost-effective way of protecting reefs from anchor damage.

S-3	Implement a management plan to better monitor and research coral reef disease, working with the Coral Disease Consortium, to reduce coral mortality
S-8	Develop strategies for coral population enhancement through restocking and larval recruitment to establish recovery zones and recruitment for corals and fish.
S-25	Revisit and amend ocean outfall legislation to ensure the timely closure (prior to 2025) of all treated wastewater outfall pipes and build/upgrade infrastructure for advanced water treatment and reuse to improve ocean water quality, reduce destruction algal blooms, and increase water reuse in the SEFCRI region.
S-28	Support restoration of historical/natural "Everglades" water flow to minimize pulses of freshwater and protect marine ecosystems from poor water quality (nutrients).
S-52	Create an effective reef protection mascot/logo campaign to increase awareness for protection.
S-54	Apply for UNESCO world heritage site status for entire Florida reef tract to increase awareness and protection of Florida coral reefs
S-64	Include all state and federal MPAs on Florida DEP website (www.dep.state.fl.us/coastalsites/) to improve public outreach and education, promote state and federal communication and cooperation, promote holistic ecosystem perspective, and clarify currently misleading map.
S-65	Nominate SEFCRI region for consideration as a National Marine Sanctuary to engender protection and benefits, a legal forum, discussion, understanding and collaboration, and balance uses towards sustainable resources.
S-75	Initiate collection of a user fee from divers via licensed dive boats and/or annual license to fund state-sponsored or state approved reef conservation, protection, programs, or projects
S-86	Ban live mounts of all shark species to reduce shark mortality due to charter fishing practices that ensure mount sales and dockside marketing.
S-87	Modify or enhance existing regulations to increase protection for parrotfish and other important herbivores for coral ecosystem protection.
S-91	Develop a telephone app to allow the public to photograph violations and document time, boat numbers, GIS coordinates, and violation to state FWC and federal enforcement personnel to improve regulatory compliance and enforcement and improve public involvement, outreach and education concerning coastal protection in Florida.
S-92	Establish a no anchor zone on reefs during beach festivals, as air sea show, music events, etc. to protect reefs from anchor damage by the multitude of boats viewing or listening to the events.
S-93	Increase presence of enforcement of land-based fishing violations to protect fish biomass.
S-95	Improve law enforcement management efficiency to match assets and personnel to public need and threats to for more effective enforcement.
S-97	Maintain lobster mini season but reduce the bag limit to six lobsters per person per day to be consistent state wide and require the review of educational materials and completion of an educational quiz in order to receive annual license.
S-98	Simplify FWC rules and regulations to reduce complexity (fish sizes fork length versus overall - snapper one size, grouper one size pelagic) to make rules simpler.
S-99	Increase number of FWC enforcement officers; funding for enforcement; recruitment and retention of on water officers to improve enforcement for better protection of resources.
S-100	Redefine the Port of Miami anchorage zone to remove four areas with reported coral from the existing anchor zone, reduce anchor damage currently being caused by ships anchoring zone which includes some coral reef.
S-101	Create/enhance "LEED"-like certification program for coastal construction companies and projects, as well as individuals working in the industry, to encourage smart development and best practices for coastal construction.
S-102	Adopt effective quality control procedures for development projects to insure standards are met, damage minimized, and mitigation goals are met.

S-103	Create and enforce BMPs that eliminate destructive impacts to coral reefs from coastal construction projects (beach renourishment, port expansion, etc.) to eliminate burials, habitat removal, and excessive siltation and turbidity on coral reefs.
S-104	Set new and appropriate water turbidity standards for marine construction to limit damage from coastal constructions to reefs and associated habitats.
S-106	Establish educational turbidity monitoring certification program to improve the quality of turbidity data that are used to evaluate project-related threats to resources.
S-107	Encourage region-wide biological monitoring (e.g. via BMAs) to document condition of resources that may be impacted by nourishment projects and inform regulatory decisions to ensure ecological functions are maintained.
S-108	Revise/create UMAM (Uniform Mitigation Assessment Method) for coral reef environments to improve application of this rule to coastal ecosystems, to provide more consistent/accurate calculations, and to ensure ecological functions are maintained.
S-114	Apply lessons learned from past projects to future projects to minimize impacts to resources and improve success of mitigation activities.
S-116	Maintain the ecological function of the wrackline by reducing beach raking practices.
S-120	Improve management of beach renourishment projects to reduce impacts to coral reefs (including nearshore reefs), make beaches more sustainable, and minimize need for future renourishment projects.
S-121	Review shipping and yachting industry sewage dumping rules to make sure discharge areas are far from SE FL coral reefs to reduce nitrogen threats to reefs.
S-124	Facilitate the creation of regional beach management agreements (BMAs), which take an ecosystem approach to projects such as beach nourishment and storm-water pipe removal to maintain beaches and protect resources.
S-125	Amend 403.93345 Statute of the Coral Reef Protection Act to allow FWC Officers discretion to issue a citation or a warning for reef damage, which includes anchoring, to give FWC officers more discretionary authority in enforcement.

XXIX. List of Archived Recommended Management Actions

Code	Archived RMAs
Focus Area: Education and Outreach	
S-5	Reduce exotic and invasive species through regulation and improving methodology, which improves recruitment and maintenance of fish populations and maintains ecosystems
S-49	Provide educational curriculum for Florida schools starting in elementary schools covering Florida marine, river and estuary environments to ensure future generations will continue to protect our Florida marine environment.
S-51	Increase qualification of coral reef education for open water SCUBA certification to reduce diver impact
S-55	Improve coral reef conservation talks and information on dive boats before diving to reduce the impact of touching, standing, and kicking corals by the 3+ million dive days in south Florida.
S-59	Create a non-governmental southeast Florida task force for climate change, ocean acidification, and their effects on coral reef ecosystem that works with federal/global organizations and will be in place to implement solutions to benefit from local involvement.
S-60	Include and promote information about SEFCRI reefs to hotels in southeast Florida to educate tourists about the importance of the reef tract beyond the sun and fun.

S-63	Implement blue-star-like program for charter dive and fishing operators to allow "tourists" to make informed selections on environmentally responsible operators.
S-64	Include all state and federal MPAs on Florida DEP website (www.dep.state.fl.us/coastalsites/) to improve public outreach and education, promote state and federal communication and cooperation, promote holistic ecosystem perspective, and clarify currently misleading map.
S-73	Mandate insurance program for all reef users to fund conservation, protection, enforcement, programs, and projects.
S-74	Implement ongoing Lionfish management strategies to reduce invasive species.
N-3	Create annual coral reef festival to raise awareness and funds for coral reefs and to engage residents and visitors.
N-4	Develop public service announcement and signage (such as a traveling display) to include climate change and its affects, marine debris, etc. to educate public and highlight the value and vulnerability of southeast Florida reefs
N-6	Continue education and outreach about Lionfish, including teaching folks to capture and prepare Lionfish and educating the public on the dangers of invasive species, to increase pressure to Lionfish, relieve pressure on c current reef fish, and decrease popularity of invasive species to pet owners.
N-10	Designate high school students to do at least 8 hours of community service that help ocean conservation to show future generations their role in keeping coral reefs.
N-11	Engage elected officials and other decision-makers in reef awareness by having annual events focused on reef ecosystems to develop collaborative relationships with community leaders.
N-12	Produce educational information for health reef practices about the benefits of mooring buoys and how to anchor properly, safe and prudent dive practices, and how to identify reef safe products to increase public awareness and overall better stewardship of our reefs.
N-22	Market a FWC hotline and SEAFAN reporting to better increase citizen observance.
N-24	Implement diver education program (local ecology) to reduce direct physical impacts to reefs. (Better in EOA?)
N-58	Support efforts to control invasive Lionfish on reefs and estuaries to decrease predation on native species.
N-62	Require commercial operators (diving, fishing, sightseeing, tours, etc.) to provide educational info to patrons to promote ethical stewardship of all marine ecosystems (including reefs and everglades).
N-136	Establish invasive species control strategy and increase/target removal to reduce stress to reef ecosystem.
N-149	Procure funding sources to sustain the development, staffing, and maintenance of a managed marine protected area to benefit the people who use the reefs.
Fo	
S-66	Create citizen monitoring groups to assist with enforcement and emergency response.
S-76	Increase license fees to have more available funds for resource management (fees currently some of the lowest in USA).
S-78	Raise cost of fishing and boating violations to deter actions that adversely affect coral reefs.
S-79	Enact better enforcement for all types of recreational and commercial fishing in areas zoned for fishing to protect coral reef ecosystem balance.

S-80	Require mandatory completion/passing of safe boating practices specific to marine ecosystems impact or renewal of vessel registration (prior to purchase or rental of boat) to reduce anchor damage and groundings.
S-89	Implement rule change to establish numerical bag limit for forage fish species that don't have established bag limits.
S-93	Increase presence of enforcement of land-based fishing violations to protect fish biomass.
S-94	Enhance existing reserve officer program in FWC "need program manager and protocols" to increase officer present, public outreach, and efficiency.
S-96	Coordinate marine law enforcement interagency cross training in conservation and cooperation to increase enforcement and coverage.
N-2	Develop a volunteer team (e.g. CSO or Dive Club) to educate, monitor/research, and remove debris and exotics.
N-28	Establish a single law enforcement entity that has the responsibility for enforcement of local, state, and federal reef-related regulations to reduce duplication of effort or overlap and to increase efficiency.
N-29	Increase retention and recruitment of enforcement officers in order to improve relationships with stakeholders as well as officers understanding of use and abuse in the areas they patrol.
N-30	Educate enforcement personnel and the public on reef-related regulations to provide better protection to the reefs.
N-31	Increase legal support for FWC so officers can respond more effectively so that the officers have a greater impact to deter offenders since they are backed by the legal system.
N-32	Perform efficiency/retention study of the FWC law enforcement to ensure the best use of current and future funding to improve compliance of existing regulations
N-33	Install webcams to catch offenders and keep people informed on weather and water conditions.
N-34	Apply funds from vessel registration and fishing licenses to increase money for law enforcement and conservation actions.
N-38	Evaluate and enforce lighting regulations to make sure they are effectively protecting sea turtles.
N-39	Develop restricted airspace (altitude 500 feet) to give control of the space above the reefs to prevent air craft of flying too low over the water leaving that air space for enforcement and rescue.
N-40	Enforce illegal catches on piers, jetties, docks, and beaches to increase fish stocks using these habitats.
N-43	Increase funding specifically designated to recruit and retain for on-the-water enforcement officers/compliance personnel to encourage voluntary compliance and effectively enforce regulations and improve recruitment and retention of officers.
N-45	Require certification for fishing license and/or course for younger generations to increase awareness of local laws and promote ethical angling practices
N-46	Require reef resource-related community service for resource violations to improve health of reef ecosystem and help educate the violator
N-54	Install weather reporting equipment to assist law enforcement and mariners before venturing out to assist in knowing the conditions, traffic, and use of the reefs at any given time.
N-65	Standardize catch size limits for commercial/recreational important species with similar life histories and appearance to make it easier to enforce regulations and catch within limits.

N-134	Install marker buoys (to include lighted and marked beacons) to clearly designate the boundaries of different use areas to enhance the abilities of enforcement personnel to do their job and for boaters to identify protected areas. (Better in Enforcement?)
Focus Area: Fishing, Diving, Boating and Other Uses/Restoration	
S-3	Implement a management plan to better monitor and research coral reef disease, working with the Coral Disease Consortium, to reduce coral mortality
S-7	Construct more scientific-based artificial reefs to rebuild coral reef habitat
S-11	Develop methods and control of boring sponges in coral communities to improve coral stability and health and to reduce the spread of macroalgae in dead coral areas
S-13	Develop plans to restore damaged reefs to create healthy ecosystems where none exist now
S-15	Restore ESA listed coral species by researching and sustaining coral nurseries plus transplanting to natural reefs. Creation of corals will restore reefs, increase coral populations and engender natural reproductive success.
S-17	Improve understanding of coral ecosystems trends and populations through monitoring and research to establish accurate baseline management tools.
S-23	Enhance existing estuaries (and add more estuaries) and restore potential estuarine areas to support coral reef ecosystem function.
S-24	Create monitoring system (and reporting system) for existing and new artificial reefs to allow evaluation of success and help develop new artificial reef plans.
S-68	Maximize coral reef resilience to effects of climate change by reducing local pressures of overfishing and habitat degradation to reduce coral stress so coral can better cope with natural disturbances.
S-83	Increase fish-size limits (e.g. hogfish) to increase female opportunity to produce/lay eggs.
S-85	Allocate reef fish quotas for conservation and non-extractive tourism, recreation, diving, snorkeling, education, and science to improve resource conservation, reduce overfishing and fishing damage to reefs, improve the diversity and quality of recreation, enhance reef fish populations, accelerate coral reef recovery, and improve conservation ethics and resource balance.
N-47	Implement a lost gear removal program that allows user groups to report lost gear so it can be retrieved in a timely manner to prevent unnecessary loss of habitat.
N-48	Alternate years of mini season (e.g. odd years allow mini season, even years no allowance) to change population of lobsters so as to make this fishery more sustainable.
N-49	Eliminate lobster mini season to reduce damage to reef by overzealous divers.
N-51	Promote collaboration between fishing and diving industries to help each party learn to respect the resources and their impact they can have on coral reefs.
N-53	Prohibit the use of commercial nets that indiscriminately remove fish and damage reef resources in designated areas to prevent adverse impacts.
N-55	Limit the number of lobsters allowed on mini season and number of lobster permits to reduce the take during this two-day period.
N-60	Identify and implement fisheries management measures in the SEFCRI Region to increase the population and size of individuals of snapper, grouper and other important reef fish. This should be based on data from the 3-year reef visual census conducted by FDEP, NOVA SE University, and Partners and fisheries dependent data.
N-61	Regulate take of parrot fish on the reef and nearshore habitats to increase the population of herbivores on the reef.

N-63	Maintain legislature that bans net fishing in shallow water to eliminate the fishing equipment that end up on the reefs.
N-90	Direct funds from the water and land legacy amendment toward acquiring properties that will help preserve and restore coastal/wetland habitats to benefit coral reefs.
N-115	Restore and enhance coral reef and nearshore hardbottom habitats to maintain and improve ecosystem services, such as fisheries, tourism, and shoreline protection.
N-128	Increase the total area of mangrove, sea grass, oyster beds, corals and other habitats to restore the natural ecosystem's ability to improve water quality.
N-133	Establish mooring buoys and anchoring areas at appropriate locations to prevent adverse impacts and are preferred by boaters.
N-135	Develop and implement emergency preparedness plans for rapid response/restoration prior to significant impacts to minimize long-term damage
N-138	Conduct reef, waterway, and beach clean-ups to remove debris and promote reef-sensitive use to minimize adverse impacts
N-139	Include bathtub reef or other near shore hard bottom N. of St. Lucie Inlet as part of management of southeast Florida reef tract to provide a buffer for coral migration or range expansion in the face of climate change.
N-140	Restrict anchoring in preserve to encourage the use of the mooring buoys and internally control the number of divers on each reef to prevent anchor and chain scaring to the reefs.
N-142	Install a limited number of mooring buoys to limit the number of divers that would place stress on the reef as mooring buoys do not stop anchoring to create a procedure to regulate and monitor the users.
N-143	Designate no anchor zones and increase number of mooring buoys on SEFCRI coral reef tract to minimize boating impacts to our coral reefs.
N-145	Create/rotate limited use areas to allow reef recovery.
Foc	
S-26	Revisit and amend sewage outfall legislation, work to get clean up in place before 2025 and without the 5% loophole to prevent sewage/nitrogen from reaching and killing southeast Florida coral reefs.
S-34	Ban fertilizing during rainy season as well as limit the types of fertilizer that can be sold to the public to reduce elevated levels of nutrients - primarily nitrogen and phosphorus - into canals, rivers, lakes and estuaries.
S-37	Eliminate and ban the use of non-organic fertilizers, weed killers, and insecticides to reduce or eliminate toxic chemicals from entering bays, estuaries, and oceans through storm runoff.
S-44	Florida ban on plastic bags to reduce plastic in the oceans and on the reef.
S-121	Review shipping and yachting industry sewage dumping rules to make sure discharge areas are far from SE FL coral reefs to reduce nitrogen threats to reefs.
N-26	Enforce existing reef and water quality regulations to improve water quality and reef health.
N-72	Stop land-based sources of pollution to protect near shore reefs from pollution.
N-74	Reduce nutrient content of freshwater runoff to improve water quality and reduce algae on the reef.
N-76	Require increased setbacks whenever waterfront properties are redeveloped to reduce the potential for adverse impacts.

N-79	Upgrade regional wastewater treatment outputs to prevent introduction of pollutants to improve water quality.
N-80	Ensure the timely closure of all sewer outfalls in the SEFCRI region to end the direct release of wastewater onto the coral reefs.
N-81	Create storm water catchment areas with enhanced capacities to clean water in order to reduce the amounts of and improve the quality of fresh water released to sea.
N-84	Reduce storm water runoff in targeted watersheds or inlet contributing areas associated with priority reef areas to improve water quality and reef health.
N-85	Require governmental entities to ID point-source inputs into estuaries and retro-fit them as needed to reduce pollutant loadings to restore health estuaries.
N-86	Improve regulation of point-specific water quality discharge (Regulating the quality of water discharges from facilities, such as power plants, and their proximity to coral reefs helps know stress factors on the reef. Poor water quality = unhealthy reef)
N-87	Promote existing "rain garden" programs to relevant landowners to reduce rainwater runoff and the chemical load of water released to sea.
N-89	Establish partnerships with local government to uphold, enhance, or create restrictions on seasonal use of fertilizer ordinances to reduce nutrient load on reefs.
N-121	Pass legislation restricting the use of "single-use plastics" to limit harm to numerous species of coral reef animals and plants.
Focus Area: Maritime Industry and Coastal Construction Impacts	
S-9	Protect near shore juvenile fish habitat from renourishment projects to enhance fishery and stop reduction of habitat
S-12	Promote alternative mitigation activities (for example, transplanting nursery-grown corals) to offset functional degradation or temporary loss of resources
S-105	Mandate the relocation of various benthic organisms (e.g. corals, octocorals, and sponges) from areas to be dredged (or lost due to other activities) in order to minimize impacts.
S-115	Reduce/eliminate beach renourishment projects to prevent excessive siltation and turbidity.
S-122	Eliminate offshore sediment dredging for beach nourishment to reduce muddy runoff turbidity and sediment stress on corals, eliminate damage from dredging "accidents," and degradation of sea turtle nesting beaches.
N-17	Create continuing education programs for targeted industries with coastal projects to include landscaping to reduce negative coastal impacts.
N-88	Increase FDEP field staff capacity to monitor all beach and coastal projects and beach closures related to water quality to ensure permit compliance and minimize impacts to reef ecosystem.
N-98	Develop, fund, and implement a SEFCRI-wide beach management plan for sustainable management of beaches and to protect and minimize impacts to reefs from turbidity caused by erosion.
N-99	Designate a mitigation bank and fee program for development projects in SEFCRI region to offset impacts of development to reef ecosystem and fund its management and restoration.
N-102	Install permanent erosion stabilizers (undercurrent stabilizers) to eliminate silting caused by constant beach renourishment.

N-106	Minimize the use of beach renourishment and other coastal construction projects to prevent negative impacts and destruction of near shore environments, by using appropriate, and improved, available strategies such as bypassing and dune creation.
N-110	Enable movement of natural sand transport, interrupted by construction of inlets, via dedicated, moveable, seagoing dredge vessels similar to Hillsboro Inlet District, to help eliminate wasteful and harmful dredge and fill projects.
N-119	Improve capacity of army corps of engineers to monitor and enforce coastal and beach projects to improve compliance with permit conditions and minimize impacts to reef systems.
N-124	Increase protection of wrack line to reduce erosion of beach to provide nutrients for critters.
N-125	Reduce negative impacts from beach raking/cleanup practices to provide ecological benefits to beach ecosystem.
N-132	Improve compliance/enforcement of mitigation projects by monitoring results to hold agencies/project sponsors accountable.
Focus Area: Place-Based Management Strategy	
S-16	Create MPAs within SEFCRI area that amount to ~20% of area and are well defined to protect reefs and minimize user conflict.
S-18	Design and designate county marine parks to enhance and diversify public activities and enjoyment, separate conflicting and incompatible activities, improve public safety, accelerate coral reef recovery, and enhance coral reef resource conservation.
S-20	Define and prioritize reefs and habitat areas for extra protection to reduce fishing stress, accelerate reef recovery, protect reef fish, benefit public education, and benefit recreational diving and snorkeling
S-22	Develop marine protected zones in local high density coral areas to reduce anthropogenic impacts and improve coral protection for local healthy sites.
S-38	Establish replicated marine reserves to determine impacts of water quality versus fishing on resources to increase knowledge of threats, public education, protection of fish populations, and public awareness.
S-82	Create zones to exclude fishing traps and commercial gear in special high density coral areas to reduce storm and current movement trap/gear damage to the reef ecosystem.
S-84	Create no-take zones for sharks and barracuda in aggregate areas to protect overfished predators in areas where most vulnerable.
S-123	Create, establish, and monitor no take areas to comprise at least 20-30% of SEFCRI Region and incorporate evaluation.
N-100	Create MPAs within FRT based on current science and data to develop site specific goals for a management plan to protect sensitive species and habitat.
N-144	Implement MPA planning process to set aside areas to enhance population of most prolific reproduction of reef fish and coral.
N-147	Develop and establish no-take zones or areas of restricted activity (include reefs and everglades) to protect and reduce pressure on reefs, stop use of tackle and traps that damage reefs, and avoid user conflicts to reduce pressure on juvenile and forage fish.
N-148	Nominate southeast Florida reef tract for National Marine Sanctuary (www.nominate.noaa.gov) to provide broader federal protection for the southeast Florida reef tract.

XXX. Prioritized List of Final Recommended Management Actions

Focus Area Color Key:

Education and Outreach
Enforcement
Fishing, Diving, Boating and Other Uses/Restoration
Land-Based Sources of Pollution
Maritime Industry and Coastal Construction Impacts
Place-Based Management Strategy

Click the RMA code (e.g., N-35) below to view the Full RMA document online:

Priority 1

<u>N-35</u>	Develop and implement a cross-training program for local marine units and beach patrol officers, to improve recognition of conservation regulations, increase law enforcement presence on the water and provide additional enforcement for peak periods to build relationships between agencies and decrease marine-related violations.
<u>S-92</u>	Protect reefs from anchor damage during beach and coastal events (i.e. festivals, air shows, etc.).
<u>S-99</u>	Increase number of FWC enforcement officers; funding for enforcement; recruitment and retention of on water officers to improve enforcement for better protection of resources.
<u>N-70</u>	Protect and restore mangroves, seagrass beds, oyster reefs and other estuarine habitats.
<u>N-137</u>	Designate the entire SEFCRI region as a particularly sensitive sea areas (PSSA) and/or area to be avoided (ATBA).
<u>S-8</u>	Establish coral reef gardens, which are areas for the recovery, restoration, and recruitment of corals and fish, created under strong guidance from scientists and monitored by the community through an educational campaign.

<u>S-65</u>	Nominate the Southeast Florida Coral Reef Initiative region for consideration as a National Marine Sanctuary to be co-managed with the State of Florida to engender protection and benefits, a legal forum, discussion, understanding and collaboration, and balance uses towards sustainable resources.
<u>N-68</u>	Reduce and regulate fertilizers, herbicides, fungicides, and pesticides and promote BMPs to reduce nutrient and pollutant loading to improve water quality and provide protection to the reefs and promote the use of Florida friendly herbicides and pesticides-to eliminate adverse impacts to the coastal environment and its watershed.
<u>N-69</u>	Support and provide money incentives and initiatives to restore and preserve wetlands north of Lake Okeechobee to stop discharges to coastal estuaries to protect estuaries and reefs.
<u>N-71</u>	Maintain and coordinate a unified monitoring program to detect, identify, and eliminate sources of pollution flowing through inlets to improve water quality and protection to reef.
<u>N-78</u>	Reduce ground water pollution from sources such as septic and storage tank infrastructure to watersheds associated with priority reef areas to improve water quality and reef health.
<u>N-82</u>	Support and promote existing and create innovative new initiatives that increase storm water storage, and reduce stormwater runoff, enhance treatment, increase reuse, and reduce nutrients and other contaminants to the watershed, especially from surface water, to restore healthy estuaries.
<u>N-97</u>	Target, prioritize, and implement LBSP reduction activities at identified pollution hotspots within SEFCRI watersheds to improve coastal water quality.
<u>S-28</u>	Support Everglades flow restoration to reduce LBSP and improve water quality in estuaries and inlet contributing areas connected to the coral reef ecosystems of SE Florida.
<u>S-104</u>	Set new and appropriate water turbidity standards and support the efforts to improve turbidity monitoring methods for marine construction to limit damage from coastal constructions to reefs and associated habitats.
<u>S-120</u>	Improve management and maintenance activities of beaches to reduce impacts to coral reefs (including nearshore reefs), make beaches more sustainable, and minimize need for future renourishment projects.

<u>N-146</u>	Establish and implement a Marine Protected Area (MPA) zoning framework for areas of special interest within the OFR region to enable sustainable use, reduce user conflict, and improve coral reef ecosystem conditions. Tools that could be used to improve coral reef habitat may include no-take reserves, no anchor areas, restoration areas, and seasonal protection for spawning aggregations.
---------------------	--

Priority 2

<u>N-5</u>	Enhance the SEFCRI Florida reefs and ecosystems curriculum, including educating educators on available resources, and mandate that it be taught once in elementary school, once in middle school and once in high school (every school year) to provide science-based foundation for making future decisions to protect coral reefs.
<u>N-15</u>	Promote citizen supported organization (CSO) Friends of Our Florida Reefs to enable better community engagement in coral reef efforts and target funding for conservation activities more effectively and efficiently.
<u>N-25</u>	Strengthen penalties and fines for non-compliance of reef- related regulations, to include civil penalties, to discourage illegal activities, and to express that violations will not be tolerated.
<u>N-44</u>	Educate relevant judges and prosecuting attorneys on the importance of imposing penalties for environmental violations that are severe enough to prevent future violations.
<u>S-54</u>	Apply for United Nations Educational Scientific and Cultural Organization (UNESCO) world heritage site status for entire Florida Reef Tract to increase awareness and appreciation of the ecological and cultural significance of Florida's coral reef ecosystem.
<u>S-97</u>	In order to reduce habitat damage that occurs during lobster mini season, maintain lobster mini season but reduce the bag limit to six lobsters per person per day to be consistent reef-tract wide, and require the review of educational materials and completion of an educational quiz in order to receive an annual spiny lobster permit.
<u>N-1</u>	Educate the public on the effects of land-based sources of pollution to reduce the amount of pollutants entering storm drains and waterways.
<u>N-116</u>	Coordinate and implement regional "living shoreline" objectives to increase the use and protection of natural infrastructure (e.g., coral reefs, native vegetation, mangrove wetlands) to provide natural barriers to storm surge and maintain coastal biodiversity with the agreement of property owners.

<u>S-25</u>	Strongly encourage elected and regulatory officials to oppose extensions to dates established in existing sewage treatment outfalls legislation to ensure the timely closure (prior to 2025) of all treated wastewater outfall pipes and build/upgrade infrastructure for advanced water treatment and reuse capacity to improve ocean water quality.
<u>N-113</u>	Eliminate Lake Worth inlet port expansion project to reduce siltation on coral reefs and keep coastal communities and habitat in balance.
<u>N-114</u>	Reinstate funding for regulatory agencies (reinstate SED FDEP Dive Teams) to provide in water permit compliance monitoring as needed for reef related projects and assist other agencies with monitoring (fish/coral surveys).
<u>S-1</u>	Remove tires and debris from failed Broward County (Ft. Lauderdale and Deerfield Beach) (a.k.a. Osborne tire reef) artificial tire reef projects and the reef tract to eliminate damage to existing corals.
<u>S-100</u>	Support redefining the Port of Miami anchorage zone to remove four areas with reported coral from the existing anchor zone, reduce anchor damage currently being caused by ships anchoring zone which includes some coral reef.
<u>S-102</u>	Develop and integrate more effective quality control procedures in the regulatory framework, and triggers within permits for corrective action during coastal development projects to ensure protection of marine habitat and species.
<u>S-103</u>	Incorporate existing, and adaptively integrate, Best Management Practices into project design and construction practices to avoid and minimize impacts to coral reefs from coastal construction projects.
<u>S-108</u>	Revise/create UMAM (Uniform Mitigation Assessment Method) for coral reef environments to improve application of this rule to coastal ecosystems, to provide more consistent/accurate calculations, and to ensure ecological functions are maintained.
<u>S-2</u>	Create and fund one SEFCRI-wide mooring buoy program as a more coordinated and cost-effective way of protecting reefs from anchor damage.

Priority 3

<u>N-19</u>	Make nautical charts featuring reef benthic natural resource coverage in the SEFCRI region widely available and accessible to boaters.
--------------------	--

<u>N-23</u>	Following the example and spirit of successful “Blue Star” programs in Florida other develop areas of the world, create a voluntary marine industry education/certification program in the SEFCRI region to increase professional and consumer user awareness, responsibility, and personal pride, leading to voluntary reduction of typical user reef damage and negative impacts.
<u>S-67</u>	Provide incentives to divers and fishermen to eradicate invasive species of marine organisms proliferating the SEFCRI coral reef system to provide a natural ecological balance of marine and plant life for the coral reef system.
<u>S-95</u>	Perform comprehensive study to determine how to improve law enforcement management to match assets and personnel to public needs to increase efficiency and improve employee retention.
<u>S-125</u>	Request FWC to make a rule change in the marine life rule to better define the word “take” (take, touch, anchor on, or damage in any way) to improve enforcement of Coral Reef Protection Act.
<u>N-59</u>	Establish maximum size limits to complement existing regulations for ecologically significant reef-associated fish species (including but not limited to grouper and snapper species and hogfish) to increase numbers of the larger, more fecund individuals within the southeast Florida assemblage.
<u>S-87</u>	Modify or enhance existing regulations to increase protection for parrotfish and other important herbivores for coral ecosystem protection.
<u>N-8</u>	Promote public education programs like “be Floridian”, “rain gardens”, “nature scape”, and “Florida Yards and Neighborhoods” to encourage eco-friendly yard and garden maintenance to help reduce the amount of nutrients and other pollutants reaching the reefs through residential run-off.
<u>N-75</u>	Promote/offer free pump out stations to better water quality and allow boats a better option than dumping off shore.
<u>N-120</u>	Encourage influential entities to lobby for legislation to overturn current legislation restricting bans on plastic bags to protect marine habitats and wildlife.
<u>N-117</u>	Improve impact minimization and mitigation activities for unavoidable impacts to resources to reduce and offset lost ecosystem function; including the use of non-traditional mitigation strategies.

<u>S-101</u>	Create a training program based on existing Best Management Practices (BMPs) that will be required for coastal construction on-site project contractors to be implemented by January 1, 2020, as required in a coastal construction permit.
<u>S-106</u>	Establish an educational turbidity monitoring certification program to improve the quality of turbidity data that are used to evaluate project-related threats to resources.
<u>S-107</u>	Encourage region-wide biological monitoring (e.g. via BMAs) to document condition of resources that may be impacted by nourishment projects and inform regulatory decisions to ensure ecological functions are maintained.
<u>S-114</u>	Create and implement a mechanism that allows permitting agencies to apply lessons learned from past projects to future projects to minimize impacts to resources and improve success of mitigation activities.
<u>S-116</u>	Maintain the ecological function of the wrackline by reducing beach raking practices.
<u>S-124</u>	Facilitate the creation of regional (inlet-to-inlet) beach management strategies, such as can be achieved through a beach management agreement (BMA), which take an ecosystem approach to projects such as beach nourishment and storm-water pipe removal to maintain beaches and protect resources.

Priority 4

<u>N-14</u>	Enhance distribution of materials (continue current activities) highlighting the economic and recreational values of southeast Florida reefs to enhance awareness by residents, elected officials, and visitors.
<u>N-18</u>	Augment existing fishery and coral reef education programs to incorporate multi-cultural fishing practices including addressing environmental ethics.
<u>N-21</u>	Develop and distribute welcome information digital video or image packages for new Florida residents and visitors that provide information on impacts to reef systems and how they can be addressed to raise awareness and influence behavior change to reduce impacts to reefs.
<u>N-37</u>	Continue to improve existing Florida Fish and Wildlife Conservation Commission hotline and significantly increase (at least double existing investment in) marketing about the hotline to more efficiently report emergencies or violations, send pictures, and be able to report a problem to assist agencies to enforce the regulations that protect our coral reefs.
<u>N-41</u>	Develop a voluntary “Florida Reef Tract Stewardship and Job Creation fund” fee to fund education and conservation programs.

<u>N-123</u>	Develop and implement a sustainable finance plan to support coral reef conservation efforts in the SEFCRI Region.
<u>S-52</u>	Create an effective reef protection mascot/logo campaign to increase awareness for protection.
<u>S-75</u>	Initiate voluntary donation program from all reef users via licensed dive boats or fishing boats/charters. This donation would support reef conservation programs or projects.
<u>S-91</u>	Develop a telephone app to allow the public to photograph violations and document time, boat numbers, GIS coordinates, and violation to state FWC and federal enforcement personnel to improve regulatory compliance and enforcement and improve public involvement, outreach and education concerning coastal protection in Florida.
<u>N-7</u>	Offer an online exam to receive a discount on fishing licenses (create an incentive-based program).
<u>N-27</u>	Establish co-management agreements with capable and responsible local communities and NGOs to address staff capacity gaps at FWC and FDEP.
<u>N-36</u>	Develop a stakeholder initiative to raise the cost of recreational lobster stamps statewide and dedicate the additional funds for improved species enforcement in the southeast Florida region (including Monroe County).
<u>S-98</u>	Simplify FWC rules and regulations to reduce complexity (fish sizes fork length versus overall - snapper one size, grouper one size, and pelagic) to make rules simpler and standardize catch size limits for important species with similar life histories and appearance to make it easier to enforce regulations and catch within limits.
<u>N-64</u>	Encourage voluntary labeling of lead line for all cast nets over six feet, as well as reporting the day, time and coordinates of any lost nets to St. Lucie Inlet Preserve State Park staff, SEAFAN, or participating local dive shops for retrieval on an as needed basis, for commercial and recreational fisherman, within the preserve to prevent and track lost gear (ghost nets).
<u>S-86</u>	Ban live mounts of all shark species (catch for the sole purpose of taxidermy/mounting or marketing with no intention to retain) in order to reduce shark mortality due to charter fishing practices that ensure mount sales and dockside marketing and promote proper handling and release techniques for shark species to reduce mortality in catch & release scenarios.

<p><u>N-94</u></p>	<p>Create, support and promote a certification program and adaptive Best Management Practices for all golf courses (similar to Blue Star for dive industry and clean marina programs) to provide an incentive mechanism for golf courses to eliminate adverse impacts on the coastal environment and its watershed.</p>
<p><u>S-110</u></p>	<p>Eliminate over beach discharge of water to eliminate those sources of beach erosion reducing the amount of beach fill needed which may improve near shore water quality.</p>