

**FINAL ASSESSMENT AND STRATEGIES**

**FY 2021 - FY 2025**

**Prepared in accordance with**

**Section 309 of the COASTAL ZONE MANAGEMENT ACT**

**By the**

**FLORIDA COASTAL MANAGEMENT PROGRAM**

**June 2020**

# Table of Contents

INTRODUCTION.....	2
SUMMARY OF RECENT SECTION 309 ACHIEVEMENTS .....	3
ENHANCEMENT AREA ASSESSMENT .....	7
Wetlands.....	7
Coastal Hazards.....	12
Public Access.....	31
Marine Debris .....	47
Cumulative and Secondary Impacts .....	62
Special Area Management Planning.....	79
Ocean Resources.....	90
Energy and Government Facility Siting.....	113
Aquaculture .....	121
STRATEGIES.....	126
Tier I: Narrative Enforceable Policies.....	126
Tier I: Scaling-Up Sponge Restoration in Florida Bay.....	132
Tier I: SEACAR Expansion: Improved Data Collection and Analysis for Integrated Management, Monitoring, and Permitting .....	138
Tier I: Submerged Cultural Resources - Interagency Management and Research.....	145
Tier II: Marine Debris Research and Planning.....	162
Tier II: Shoreline Stabilization Techniques Impacts on Adjacent Shoreline and Ecosystem Response Guidebook - Critical Factors Determination .....	157
FIVE-YEAR BUDGET SUMMARY.....	166
SUMMARY OF STAKEHOLDER AND PUBLIC COMMENT .....	167
ACRONYM LIST.....	168
LIST OF FLORIDA’S 35 COASTAL COUNTIES.....	171
MAP OF FLORIDA’S COASTAL ZONE.....	172

## INTRODUCTION

The National Coastal Zone Management Program is a voluntary partnership between the federal government and U.S. coastal and Great Lakes states and territories authorized by the Coastal Zone Management Act (CZMA) of 1972. Section 309 of the CZMA established the Coastal Zone Enhancement Program to encourage states and territories to conduct self-assessments of their coastal management programs every five years.

Florida's Coastal Management Program (FCMP) was approved by the National Oceanic and Atmospheric Administration (NOAA) in 1981. The following Assessment and Strategy report was structured to conform to the Section 309 Program Enhancement Guidance provided by NOAA's National Ocean Service (NOS) Office for Coastal Management.

The assessment and strategies herein were developed by the Florida Department of Environmental Protection's (DEP) Office of Resiliency and Coastal Protection (RCP), through consultation with FCMP partner agencies. The assessment considers the effectiveness of existing management efforts in addressing Florida's coastal issues since the last assessment in 2016. Based on management needs identified by the assessment, strategies were developed to improve the FCMP. The resulting strategies cover the planning period from FY 2021 – FY 2025.

The FCMP provided an opportunity for public review and comment on the Draft Assessment and Strategy report in November and December of 2019 and in January of 2020.

## SUMMARY OF RECENT SECTION 309 ACHIEVEMENTS

**The Adaptation Action Initiative:** Through this strategy, DEP's RCP offers local communities funding to assist in planning for the effects of sea level rise. This strategy is the foundation of the DEP's Florida Resilient Coastlines Program (FRCP) and builds off a Section 309 strategy from 2011-2016.

A total of 67 projects have received financial support. Funded projects have included, but are not limited to, the following topics: resiliency planning, vulnerability assessment, inundation and economic vulnerability study, resilient coastlines planning, stormwater master planning, and comprehensive master planning.

On January 20<sup>th</sup>, 2019, Florida's Governor, Ron DeSantis, issued Executive Order (EO) Number 19-12 (State of Florida, 2019) regarding the protection of Florida's water resources. Section 3.A. of EO 19-12 directs DEP to "create the Office of Resilience and Coastal Protection to help prepare Florida coastal communities and habitats for impacts from sea level rise by providing funding, technical assistance and coordination among state, regional and local entities." DEP responded by creating the new RCP from the program staff of the previously existing DEP Florida Coastal Office. DEP enhanced the new RCP with the creation of the FRCP, managed within the RCP. The FRCP is funded by the Florida Coastal Management Program (FCMP) in partnership with NOAA, and the Florida Legislature.

**Statewide Ecosystem Assessment of Coastal and Aquatic Resources (SEACAR) program:** The SEACAR is a collaborative process involving academic institutions, non-governmental organizations (NGOs) and local, state, and federal natural resource managers. It utilizes current knowledge of coastal processes and scientific data obtained from inventory and monitoring programs around the state to guide management, planning, and restoration efforts.

In 2017, SEACAR Resource Assessment Teams identified ecological indicators within the following five submerged habitats: 1) submerged aquatic vegetation, 2) water column, 3) coral/coral reef, 4) oyster/oyster reef, and 5) coastal wetlands. Ecological indicators show statewide and site-specific trends over time, illustrate habitat change over time driven by biotic and abiotic factors which define community structure, and allow data to directly inform local and state planning and management decisions of aquatic resources throughout RCP managed areas.

The following are examples of supporting projects whose data will be incorporated into SEACAR:

- 1) The Florida Coastal Water Quality Assessment and Integration program provides near continuous data collection (i.e., water quality data from eight Aquatic Preserves (AP) every 15 minutes since 2004). By adopting National Estuarine Research Reserve (NERR) monitoring protocols and database management techniques, the existing AP water quality stations will seamlessly combine with the NERRs water quality, enabling the AP monitoring program to contribute to important national and regional initiatives.
- 2) The Historical Oyster Body Size project is an ongoing effort to increase the available historical data on oyster body size in Florida using samples of buried, dead oyster shells collected from 11

areas around the state. A report detailing the findings of the Historical Oyster Body Size Project will be completed.

SEACAR Subject Matter Expert teams met via a series of webinar and telephone calls in 2019 and will hold two in-person meetings in 2020 to discuss the datasets incorporated in the database so far, identify data gaps, and decide which datasets can be combined prior to analysis for each habitat type. The Subject Matter Expert teams will also refine the habitat indicators and data parameters as well as identify the appropriate geospatial extents of regions for analyses based on available data and ecological similarities.

Work is currently underway to integrate the SEACAR data into a publicly accessible interactive web application and to create a Decision Support Tool. The SEACAR teams are conducting outreach to educate resource managers on how to incorporate the SEACAR data products into management planning, restoration activities, and support of continued federal consistency through the regulatory process.

**Visitor Use Monitoring Protocol for Florida's Aquatic Managed Areas:** Work is underway to progress the strategy to improve public access management by developing a Visitor Use Monitoring Protocol for the state's aquatic managed areas. The first phase of the project included a literature review, identification of data sources, and the classification of Florida's APs based on a variety of characteristics. The research team chose one of each of the five classifications of APs for the development of a pilot visitor use monitoring protocol. During the second phase, research staff met with the AP staff at the representative sites to determine monitoring locations, dates, and methods that were most appropriate for each site, and collected visitor use data at the sites to analyze and use as the basis for the protocol development.

The next phases of the strategy will entail a full year of visitor use data collection at each of the APs and the development of a complete visitor use monitoring protocol based on the data collection and analysis. When available, the Visitor Use Monitoring Protocol will be incorporated into existing management plans for coastal and aquatic managed areas, including, but not limited to APs, NERRs, and Coral Reef Conservation Program (CRCP) areas.

**Aquatic Preserve (AP) Management Plan Updates:** The long-term goals of DEP's AP Program are to protect and enhance the ecological integrity of APs, restore areas to their natural condition, encourage sustainable use and foster active stewardship by engaging local communities in the protection of APs, and improve management effectiveness through a process based on sound science, consistent evaluation, and continual reassessment. AP Management Plans are integral in fulfilling these long-term goals and are used to guide aquatic resource protection and restoration, adjacent upland development, public access, and local government planning efforts.

The current AP Program strategy builds off a previous 2011-2016 strategy which created a new consistent format and updated six AP Management Plans developed in the 1980s. Since the last assessment and using the updated format, the following AP Management Plans were updated to identify key issues with input from local and regional stakeholders, including partner agencies, adjacent

landowners, elected officials, and the general public. The AP Management Plans are vetted through a public engagement process, including review and approval by the state Acquisition and Restoration Council (ARC). Updating AP Management Plans remains a top priority to effectively manage Florida's ocean and coastal resources.

The AP Management Plans that have been updated since the last assessment are listed below.

- **St. Joseph Bay State Buffer Preserve Management Plan:** approved by ARC June 2016
- **Rainbow Springs Aquatic Preserve Management Plan:** approved by ARC June 2016
- **Indian River Lagoon Aquatic Preserves System Management Plan:** approved by ARC June 2016
- **Cockroach Bay Aquatic Preserve Management Plan:** approved by ARC February 2017
- **St. Andrews Aquatic Preserve Management Plan:** approved by ARC February 2017
- **Yellow River Marsh Aquatic Preserve Management Plan:** approved by ARC February 2017
- **Charlotte Harbor Aquatic Preserves Management Plan:** approved by ARC February 2017
- **St. Martins Marsh Aquatic Preserve Management Plan:** approved by ARC April 2017
- **Tomoka Marsh Aquatic Preserve Management Plan:** approved by ARC October 2017
- **Alligator Harbor Aquatic Preserve Management Plan:** approved by ARC February 2018
- **Loxahatchee River-Lake Worth Creek Aquatic Preserve Management Plan:** approved by ARC June 2018
- **Rocky Bayou State Park Aquatic Preserve Management Plan:** approved by ARC August 2018
- **Oklawaha River Aquatic Preserve Management Plan:** approved by ARC October 2018
- **Pinellas County and Boca Ciega Bay Aquatic Preserves Management Plan:** approved by ARC February 2019
- **Lake Jackson Aquatic Preserve Management Plan:** approved by ARC October 2019
- **Fort Pickens Aquatic Preserve Management Plan:** draft complete, awaiting ARC approval
- **Northeast Florida Aquatic Preserves Management Plan:**
  - **Fort Clinch Aquatic Preserve:** draft under development
  - **Nassau River-St. Johns River Marshes Aquatic Preserve:** draft under development

**Florida Keys Vessel Turn-In Program:** The intent of the Florida Keys Vessel Turn-In Program was to create a proactive management approach to help alleviate the burden of neglected, abandoned, and deteriorated vessels in the waterways of the Florida Keys. Due to staff changes and the direct landfall of Hurricane Irma in the Florida Keys on September 20, 2017, the goals of this strategy have not been fulfilled. While the program did not realize its intended results, the Florida Fish and Wildlife Conservation Commission's (FWC) Derelict Vessel (DV) Program Administrator, Phil Horning, concludes in an interview for the *Living on the Edge: Coastal Wildlife Conservation Initiative Summer 2019 newsletter* (<https://content.govdelivery.com/accounts/FLFFWCC/bulletins/251bd1c>) that "more outreach is needed to convince the boating public that preservation of our environment through planned prevention actions is essential to keeping natural resources healthy for many years to come."

In an ongoing effort to prevent DVs and remove existing DVs, FWC has developed multiple programs and outreach initiatives, including modifying the DV Removal Grant Guidelines to make it easier and less expensive for local governments to remove DVs. FWC is also working to upgrade their existing DV database so that DV data is available for FWC, county, and local law enforcement officers to use in the

official investigations of DVs. The DV database also includes information available for public viewing online, including the location information for DVs throughout the state.

# ENHANCEMENT AREA ASSESSMENT

## Wetlands

**Section 309 Enhancement Objective:** Protection, restoration, or enhancement of the existing coastal wetlands base, or creation of new coastal wetlands. §309(a)(1)

*Note: For the purposes of the Wetlands Assessment, wetlands are “those areas that are inundated or saturated at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” [33 CFR 328.3(b)]. See also pg. 174 of the CZMA Performance Measurement Guidance<sup>1</sup> for a more in-depth discussion of what should be considered a wetland.*

### **PHASE I (HIGH-LEVEL) ASSESSMENT:**

#### **Resource Characterization:**

1. Using provided reports from NOAA’s Land Cover Atlas<sup>2</sup>, please indicate the extent, status, and trends of wetlands in the state’s coastal counties. You can provide additional or alternative information or use graphs or other visuals to help illustrate or replace the table entirely if better data are available. Note that the data available for the islands may be for a different time frame than the time periods reflected below. In that case, please specify the time period the data represents. Also note that Puerto Rico currently only has data for one time point so will not be able to report trend data. Instead, Puerto Rico should just report current land use cover for all wetlands and each wetlands type.

At the writing of this assessment, NOAA’s Land Cover Atlas data was not available for 2016 and the requested analysis for this item could not be completed. Due to the unavailability of the data, the associated NOAA Land Cover Atlas Wetland tables were removed. Alternatively, data from DEP on wetlands losses and gains is presented. These data sets are collected in part due to reporting requirements established by the Florida Legislature to create an inventory of wetlands in the state and establish a monitoring system to track impacts on losses of wetlands from permitted activities, as well as wetlands created, enhanced, or preserved as part of permitted projects. Each year the monitoring results are reported to the Legislature.

The following table is derived from data from Environmental Resource Permitting (ERP) activities permitted by the Water Management Districts (WMD) and by DEP. These data indicate that the acres of wetlands created, enhanced, or preserved are much greater than the area of wetlands permanently lost or temporarily disturbed. It should be noted that since these records are from ERP permits, these data present wetlands lost or created due to a permitted activity, i.e., construction. These data do not

---

<sup>1</sup> <https://coast.noaa.gov/czm/media/czmapmsguide2018.pdf>

<sup>2</sup> <https://coast.noaa.gov/digitalcoast/tools/lca.html> (NOAA OCM, 2019). Note that the 2016 data will not be available for all states until later Summer 2019. NOAA OCM will be providing summary reports compiling each state’s coastal county data. The reports will be available after all of the 2016 data is available.



account for losses due to natural processes, such as shoreline erosion or coastal storms. Nor do these data differentiate between freshwater and saltwater wetland changes.

**DEP ERP Wetlands Gain-Loss Data (October 2015 to September 2018)**

Date (Month/Year)	Acreage Permanently Lost <sup>o</sup>	Acreage Temporarily Disturbed	Acreage Preserved	Acreage Created	Acreage Improved
<b>Northwest Florida WMD (NFWWMD)</b>					
10/15 to 9/16	77.37	0.00	46.26	0.00	114.44
10/16 to 9/17	37.15	0.00	69.94	0.00	1.68
10/17 to 9/18	43.95	0.00	127.72	0.09	0.40
<b>Total NFWWMD</b>	<b>158.47</b>	<b>0.00</b>	<b>243.92</b>	<b>0.09</b>	<b>116.52</b>
<b>Southwest Florida WMD (SWFWMD)</b>					
10/15 to 9/16	622.83	123.32	2054.12	206.47	250.50
10/16 to 9/17	612.35	148.03	4046.24	207.26	482.39
10/17 to 9/18	832.13	93.32	4020.22	549.27	367.18
<b>Total SWFWMD</b>	<b>2067.31</b>	<b>364.67</b>	<b>10120.58</b>	<b>963</b>	<b>1100.07</b>
<b>St. John's River WMD (SJRWMD)</b>					
10/15 to 9/16	747.36	8.21	1947.21	65.31	760.53
10/16 to 9/17	562.56	50.37	1864.16	23.20	73.23
10/17 to 9/18	1472.93	19.76	2955.01	25.69	335.09
<b>Total SJRWMD</b>	<b>2782.85</b>	<b>78.34</b>	<b>6766.38</b>	<b>114.20</b>	<b>1168.85</b>
<b>South Florida WMD (SFWWMD)</b>					
10/15 to 9/16	1528.89	#	5852.11	202.77	1775.40
10/16 to 9/17	1034.38		2100.70	351.75	5054.21
10/17 to 9/18	865.96	0.24	16010.74	0.00	885.80
<b>Total SFWWMD</b>	<b>3429.23</b>	<b>0.24</b>	<b>23963.55</b>	<b>554.52</b>	<b>7715.41</b>
<b>Suwanee River WMD (SRWMD)</b>					
10/15 to 9/16	78.01	*	62.68	50.69	161.08
10/16 to 9/17	0.76	253.01	0.00	11.63	20.68
10/17 to 9/18	42.86	6.70	412.01	23.73	79.90
<b>Total SRWMD</b>	<b>121.63</b>	<b>253.84</b>	<b>474.69</b>	<b>86.05</b>	<b>261.66</b>
<b>WMD Subtotal</b>	<b>8559.49</b>	<b>697.09</b>	<b>41569.12</b>	<b>1717.86</b>	<b>10362.51</b>
<b>DEP</b>					
10/15 to 9/16	38.48	2.24	17.51	0.87	3.96
10/16 to 9/17	8.09 <sup>‡</sup>	0.00 <sup>‡</sup>	2.21 <sup>‡</sup>	2.16 <sup>‡</sup>	0.02 <sup>‡</sup>
10/17 to 9/18	118.31	0.05	#	#	#
<b>DEP Total</b>	<b>156.78</b>	<b>2.29</b>	<b>17.51</b>	<b>0.87</b>	<b>3.96</b>
<b>Grand Total (WMD+DEP)</b>	<b>8716.27</b>	<b>699.38</b>	<b>41586.63</b>	<b>1718.73</b>	<b>10366.47</b>

<sup>o</sup>Acreage permanently lost includes other surface waters (e.g., ditches, surface water management ponds, or other artificially created water bodies).

#Data not currently available

\*WMD did not track this information

‡2017 DEP updated ERP collection methodology; data should not be compared across years.

2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends of coastal wetlands since the last assessment to augment the national data sets.

The Florida Cooperative Land Cover Map (CLC) (FWC, 2018) is a partnership between the FWC and the Florida Natural Areas Inventory (FNAI). The GIS-based dataset contains ecologically-based statewide land cover data derived from existing sources and expert review of aerial photography. The CLC is revised continuously, with new versions being released every 6 – 12 months. FWC is the lead agency for updates and maintenance of the CLC, while FNAI provides guidance and contributes data. The CLC follows the Florida Land Cover Classification System.

In 2017, FWC’s Fish and Wildlife Research Institute published Technical Report 21, titled *Coastal Habitat Integrated Mapping and Monitoring Program Report for the State of Florida* (CHIMMP) (Radabaugh, et al., 2017). This technical report discusses the types of Florida’s coastal habitats and the various methods for classification, mapping of land cover data, and monitoring that are, or have been, employed in Florida. The report includes chapters specific to 12 coastal regions. The region-specific chapters cover threats to salt marshes and mangroves, summarize mapping and monitoring efforts, and provide recommendations for protection, management, and monitoring specific to the region. The report concludes by providing priorities and recommendations for ecosystem management of Florida’s coastal habitats.

See also data presented in [Cumulative and Secondary Impacts](#).

**Management Characterization:**

1. Indicate if there have been any significant changes at the state or territory level (positive or negative) that could impact the future protection, restoration, enhancement, or creation of coastal wetlands since the last assessment.

**Significant Changes in Wetland Management**

Management Category	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y
Wetlands programs (e.g., regulatory, mitigation, restoration, acquisition)	Y

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
  - a. Describe the significance of the changes;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

Several bills and statutes have been enacted by the Florida Legislature in recent years which may affect coastal wetlands and water resources, at least on a situational basis. It may be impractical to make generalized assumptions about the future outcomes of these changes. Since 2016, the following statutes affecting wetlands and water resources have been amended or created (See also [Cumulative and Secondary Impacts](#)):

- In 2016, the Florida Legislature amended 373.0421, Florida Statutes (F.S.) to include new requirements for recovery and prevention strategies with regards to minimum flows and minimum water levels. These include giving DEP or a WMD the authority to adopt a recovery or prevention strategy if the minimum flow or level of an established water body falls below its 20 year low, adding this plan to a water supply plan, and requiring the WMD to notify DEP if a water-use permit is denied due to impacts on minimum flow or minimum water levels.
- In 2018, the Florida Legislature passed 373.4146 F.S., which gives the DEP authority to assume the federal Clean Water Act (CWA), Section 404 dredge and fill permitting program. Under the CWA, states may seek to implement Section 404, which governs dredge and fill activities in wetlands and other waters. Before a state assumes Section 404 responsibilities, the U.S. Army Corps of Engineers (USACE) regulates those waters and reviews the related permits at the federal level. State assumption of the Section 404 program allows a state to regulate those waters and assume the jurisdictional responsibility to condition, approve, or deny dredge and fill permits rather than the USACE. For Florida's assumption of the Section 404 program to be considered, DEP must submit an application package to the U.S. Environmental Protection Agency (EPA) to assume the Section 404 program in conjunction with the existing ERP program, including rules to ensure that the state's program is as stringent as, and satisfies all requirements of, federal law. Provisions of state law which conflict with federal requirements cited in the CWA would not apply to state-administered 404 permits. State administered 404 permits, if the program is approved, would be for a period of no more than five years.

The following revision to the Florida Administrative Code (F.A.C.) has been implemented since the last assessment which may affect the regulation and conservation of coastal wetlands and associated water resources. (See also [Cumulative and Secondary Impacts](#)):

- 18-21 F.A.C. was updated, effective March 2019, to provide regulatory and proprietary guidance by clarifying rule language, deleting the need for appraisals in certain situations, amending a delegation of authority, deleting the need for surveys in certain situations, and eliminating unnecessary language.

Several new Basin Management Action Plans (BMAPs) have been created since 2016 as a means to achieve water quality restoration goals set forth in adopted Total Maximum Daily Loads (TMDLs). Implementation of these BMAPs may include watershed restoration projects that could affect some coastal wetlands and systems by improving water quality. A discussion of specific BMAPs adopted may be found under the management characterization of [Cumulative and Secondary Impacts](#).

None of the above are 309 or CZM-driven changes but are carried out by FCMP networked programs.

**Enhancement Area Prioritization:**

1. What level of priority is the enhancement area for the coastal management program?

<b>High</b>	_____
<b>Medium</b>	<u>  X  </u>
<b>Low</b>	_____

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Wetlands in Florida’s coastal zone provide crucial habitat, promote water quality, and provide a buffer to lessen the impacts of coastal storms. While Florida has been successful in fulfilling a “no net loss of wetland function” through the DEP ERP program, development and sea level rise continue to threaten increased wetland loss. Potential strategies which may benefit wetlands will be proposed under other enhancement areas.

**References:**

Florida Fish and Wildlife Conservation Commission [FWC]. (2018). Cooperative Land Cover, Version 3.3. Retrieved from website: <https://myfwc.com/research/gis/applications/articles/cooperative-land-cover/>

National Oceanographic and Atmospheric Administration Office for Coastal Management [NOAA OCM]. (2019). C-CAP Land Cover Atlas. Retrieved from website: <https://coast.noaa.gov/digitalcoast/tools/lca.html>

Radabaugh, K., Powell, C., and Moyer R., editors. (2017). Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute Technical Report No. 21. Coastal Habitat Integrated Mapping and Monitoring Program Report for the State of Florida. Retrieved from website: <https://myfwc.com/media/12072/chimmp-report-2017.pdf>

# Coastal Hazards

**Section 309 Enhancement Objective:** Prevent or significantly reduce threats to life and property by eliminating development and redevelopment in high-hazard areas, managing development in other hazard areas, and anticipating and managing the effects of potential sea level rise and Great Lakes level change. §309(a)(2)

*Note: For purposes of the Hazards Assessment, coastal hazards include the following traditional hazards and those identified in the CZMA: flooding; coastal storms (including associated storm surge); geological hazards (e.g., tsunamis, earthquakes); shoreline erosion (including bluff and dune erosion); sea level rise; Great Lake level change; land subsidence; and saltwater intrusion.*

## PHASE I (HIGH-LEVEL) ASSESSMENT:

### Resource Characterization:

1. In the table below, indicate the general level of risk in the coastal zone for each of the coastal hazards. The following resources may help assess the level of risk for each hazard. Your state may also have other state-specific resources and tools to consult. Additional information and links to these resources can be found in the “Resources” section at the end of the Coastal Hazards Phase I Assessment Template:

- The state’s multi-hazard mitigation plan
- Coastal County Snapshots: Flood Exposure
- Coastal Flood Exposure Mapper
- Sea Level Rise Viewer/Great Lakes Lake Level Change Viewer
- National Climate Assessment

**General Level of Hazard Risk in the Coastal Zone**

Type of Hazard	General Level of Risk <sup>3</sup> (H, M, L)
Flooding (riverine, stormwater)	H
Coastal storms (including storm surge)	H
Geological hazards (e.g., tsunamis, earthquakes)	L
Shoreline erosion	H
Sea level rise	H
Great Lakes level change	N/A
Land subsidence	M
Saltwater intrusion	H
Other (Wildfires)	H

Data from State of Florida Enhanced State Hazard Mitigation Plan (DEM, 2018):

[https://floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full\\_final\\_approved.6.11.2018.pdf](https://floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full_final_approved.6.11.2018.pdf)

<sup>3</sup> Risk is defined as “the estimated impact that a hazard would have on people, services, facilities and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage.” *Understanding Your Risks: Identifying Hazards and Estimating Losses. FEMA 386-2. August 2001*

- If available, briefly list and summarize the results of any additional data or reports on the level of risk and vulnerability to coastal hazards within your state since the last assessment. The state’s multi-hazard mitigation plan or climate change risk assessment or plan may be a good resource to help respond to this question.

**2018 State of Florida Enhanced State Hazard Mitigation Plan:** The 2018 SHMP (DEM, 2018) identifies hazards based on the history of disasters within the state. Florida is exposed to both natural, technical, and human-caused hazards. The most common types of risk in coastal counties, as seen in the table below, include flooding, hurricanes, tropical storms, tornadoes, and other severe storms. However, each county uses its own scale for assessing hazard risk. As a result, county risk levels may not be directly comparable.

County	Flood	Dam Failure	Hurricane / Tropical Storm	Tornado	Severe Storms	Wildfire	Drought	Extreme Heat	Winter Storms	Freeze	Erosion	Sinkholes	Landslides	Seismic Events	Terrorism	Technological Incidents	Mass Migration
Bay	H		H	H		M						L					
Brevard	H	L	H	H	H	MH	M	L	L		MH			L	L	M	
Broward	H		MH	H	H	MH	M	MH		L	MH	L			M	H	L
Charlotte	H		M	M	H	M	MH	L		M	M	L		L	L	M	
Citrus	H	L	H	H	H	H	H	M				H				H	
Collier	MH	L	MH		H	H					H						
Dixie	H		H	M	M	M	M	M	M	M	L	L			L	L	L
Duval	H		H	L	H	H	L	L		L					L	L	M
Escambia	H	L	H	MH	H	M	M			L	L	L	L	L	L	L	L
Flager	H		H	H	H	H	L	H			MH				L	L	
Franklin	H		H	H	H	MH	H	M	L	L	MH						
Gulf	H	L	H	M	M	H	M	M		M	M	L			L	M	
Hernando	H		H	H	H	H	H	L	H	H	M	H				L	
Hillsborough	H	M	MH	H	H	H	L	L	L	L	L	M			L	M	L
Indian River	H	L	H	M	H	M	H	M	M	M	H	L		L	L	M	
Jefferson	H	L	H	M	H	H	H	H	M	H	L	M					
Lee	M		M	M	H	H	M	M		H	H						
Levy	H		M	H		H	H	H		H	M	H					
Manatee	H	M	H	H	H	H	H	M	L	L	M	L		L	H	H	
Martin	H	L	M	M	H	M	L	L			M	L		L	L	M	L
Miami-Dade	H		H	H	H	L	M		M		M						
Monroe	H		MH	H	H	MH	L	L		L	H						
Nassau			L	L	M	L	L	L		L	L					L	
Okaloosa	MH	M	M	MH	MH	H	H	M		L	L	L					
Palm Beach	H		H	L	H	L	M	L		L	L				L	M	L
Pasco	MH		M	H	H	H	H	L	L	L	M	H				M	
Pinellas	M	L	H	H	H	M	M	H	L	L	H	M			M	H	
Santa Rosa	H		H	H	H	H	M	M	MH	MH	H						
Sarasota	H	L	H	H	H	H	H	H			H	M		L			
St. Johns	H		H	M	H	H	L	L	M	H	M				L	M	
St. Lucie	H		H	M	H	M	H	M		M	H	L				L	L
Taylor	M	L	H	H	H	H	M		L	L	M	M		L	L	L	
Volusia	H		H	H	H	H	M		L	L	H	L					
Wakulla	H	L	H	L	H	H					M	M			L	M	
Walton	H	L	H	H	H	M	L	L	L	L	H	L					

Data from State of Florida 2018 SHMP (DEM, 2018) – Table 10: County Hazard Ranking Matrix.

**Center for Emergency Management and Homeland Security (CEMHS) - Spatial Hazards Events and Losses Database for the United States (SHELDUS):** The CEMHS’s SHELDUS (CEMHS, 2018) is a county-level hazard dataset which provides summaries of hazardous events from 1960-2016. The most recent summary of the *SHELDUS Most Impacted Counties* includes a list of the top ten counties that experienced the highest financial losses in terms of damage costs. Four of the ten counties included on this list are Florida coastal counties (Miami-Dade, Broward, Collier, and Monroe Counties). Florida is also

currently ranked fourth in the list of states that received the most Presidential Disaster Declarations due to natural disasters between 1960 and 2016 (CEMHS, 2018).

**Florida Department of Health (DOH) - Climate Hazards:** The most common climate hazards in Florida are severe thunderstorms, wind, lightning, floods, tornadoes, tropical storms, and hurricanes. Due to Florida's geographic location, in many cases the frequency, magnitude, and impact of these hazards are much greater than in other parts of the country (DOH, 2014). The DOH's Building Resilience Against Climate Effects (BRACE) program (DOH, 2017) works to identify climate hazards and develop mitigation plans for their potential impacts to human health. The priority hazards of the BRACE program include hurricanes, other storms, sea level rise, flooding, drought, extreme heat, and wildland fires. DOH has partnered with Florida State University to manage and implement the BRACE program in Florida.

**DEP - Critically Eroded Beaches:** In November 2019, DEP's beach and inlet management programs were transferred to RCP from the Division of Water Resource Management (DWRM). RCP is now responsible for maintaining a list of Florida's critically eroding beaches and developing a long-term plan for their restoration. A critically eroded beach is a segment of shoreline where natural processes or human activities have caused, or contributed to, erosion and recession of the beach and dune system to such a degree that upland development, recreational interests, wildlife habitat, or important cultural resources are threatened or lost.

Under the DEP 2019 *Critically Eroded Beaches in Florida* report (released through DEP DWRM, June, 2019), there were 419.6 miles of critically eroded beach, 90.9 miles of non-critically eroded beach, 8.7 miles of critically eroded inlet, and 3.2 miles of non-critically eroded inlet identified within Florida. These values were very similar to those seen in the 2016 report (DEP DWRM, 2016), which is further described in Ocean Resources section, Phase I, Sand/Gravel; however, these datasets indicate the ongoing hazard of coastal erosion in Florida.

**FWC - 2019 SWAP:** In the FWC's *2019 Florida State Wildlife Action Plan* (FWC, 2019), several marine threats and conservation action plans are identified. Of all the threats listed, the coastal hazards mentioned are primarily based on climate change. These hazards include sea level rise, changes in precipitation and temperature, and other hydrological regimes that could result in the vulnerability of species or habitat.

**NOAA - High Tide Flooding:** In 2018, NOAA released the *Patterns and Projections of High Tide Flooding Along the U.S. Coastline Using a Common Impact Threshold* report which discusses the overall effects of climate change and the resulting increased hazard of high tide flooding nationwide (NOAA, 2018). Currently, high tide flooding occurs in low-lying areas; however, due to rising relative sea levels, cities are more frequently exposed to high tide flooding. Along the southeast Atlantic coast, the annual median frequency of high tide flooding increased by about 125% between the years 2000 and 2015 (from 1.3 days/year to 3.0 days/year). High tide flooding is an ongoing concern that will be continually monitored in the future.

**Florida Department of Business and Professional Regulation (DBPR) - Flood Resistant Construction, 6<sup>th</sup> Edition Florida Building Code:** In order to participate in the National Flood Insurance Program (NFIP), all

development in a flood hazard area must be regulated by the DBPR’s Florida Building Code (DBPR, 2017). The flood provisions found in this code help to safeguard public health, safety, and general welfare. The Federal Emergency Management Agency (FEMA) reported that structures built to NFIP criteria experience 80% less damage (Building a Safer Florida, Inc, 2017).

**Saltwater Intrusion:** Saltwater intrusion occurs in Florida through encroachment of seawater into aquifers, flow of saltwater into canals, rivers, and coastal marshes, and leakage of saltwater between aquifers. Several monitoring stations are currently present in Florida’s southern counties, including Miami-Dade and Broward Counties. The State of Florida is currently in the process of developing a statewide saltwater intrusion-monitoring network (Prinos, 2016). Specifically, the Florida Water Resources Monitoring Council is working on a Groundwater Quality Index and a Groundwater Percentile Ranking Index.

SWFWMD’s Geohydrologic Data Section Work Plan 2020 (SWFWMD, 2019) prioritizes data collection needs for SWFWMD’s Geohydrologic Data Section for fiscal years 2020 to 2025. The Geohydrologic Data Section is responsible for the collection of hydrogeologic data and the oversight of monitor well construction activities at SWFWMD. This Work Plan includes details on planned saltwater intrusion monitoring wells throughout SWFWMD.

**DEP - Florida Geological Survey:** The DEP Florida Geological Survey also maintains a list of geologic hazards which primarily include subsidence and sink holes, both of which occur in Florida’s coastal counties. Subsidence and sinkholes can occur naturally by soil settlement or from human impacts, such as by a broken water pipe. However, many times the cause of the incident is not known. Florida is more prone to the threat of sinkholes following a heavy rain event, such as a hurricane or tropical storm (DEPFGS, 2018).

**Management Characterization:**

1. In the tables below, indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) have occurred that could impact the CMP’s ability to prevent or significantly reduce coastal hazards risk since the last assessment.

**Significant Changes in Hazards Statutes, Regulations, Policies, or Case Law**

Topic Addressed	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Elimination of development/redevelopment in high-hazard areas <sup>4</sup>	Y	Y	N
Management of development/redevelopment in other hazard areas	Y	Y	Y
Climate change impacts, including sea level rise or Great Lakes level change	Y	Y	Y

<sup>4</sup> Use state’s definition of high-hazard areas.



**Significant Changes in Hazards Planning Programs or Initiatives**

<b>Topic Addressed</b>	<b>Employed by State or Territory (Y or N)</b>	<b>CMP Provides Assistance to Locals that Employ (Y or N)</b>	<b>Significant Changes Since Last Assessment (Y or N)</b>
Hazard mitigation	Y	Y	Y
Climate change impacts, including sea level rise or Great Lakes level change	Y	Y	Y

**Significant Changes in Hazards Mapping or Modeling Programs or Initiatives**

<b>Topic Addressed</b>	<b>Employed by State or Territory (Y or N)</b>	<b>CMP Provides Assistance to Locals that Employ (Y or N)</b>	<b>Significant Changes Since Last Assessment (Y or N)</b>
Sea level rise or Great Lakes level change	Y	Y	Y
Other hazards	Y	Y	Y

2. Briefly state how “high-hazard areas” are defined in your coastal zone.

The “coastal high-hazard area” is defined in 163.3178(2)(h)9, F.S. as “the area below the elevation of the category 1 storm surge line as established by a Sea, Lake, and Overland Surges from Hurricanes (SLOSH) computerized storm surge model.” Local governments are required to designate Coastal High Hazard Areas on their future land use map series.

3. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
- a. Describe the significance of the changes;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

**Statutes, Regulations, Policies, or Case Law:**

In 2017, the Florida Legislature passed 252.3655, F.S. which created an interagency workgroup for sharing information on various hazards that could affect the state. An annual progress report on the implementation of the state’s hazard mitigation plan will be submitted to the Governor, President of the Florida Senate, and the Speaker of the Florida House of Representatives.

The 6<sup>th</sup> Edition of the Florida Building Code (DBPR, 2017) includes technical updates to the flood provisions for buildings in flood hazard areas, including updates to building requirements and other applicable load and design requirements.

On January 20<sup>th</sup>, 2019, Florida’s Governor, Ron DeSantis, issued EO Number 19-12 (State of Florida, 2019) regarding the protection of Florida’s water resources. Section 3.A. of EO 19-12 directs DEP to “create the Office of Resilience and Coastal Protection to help prepare Florida coastal communities and

habitats for impacts from sea level rise by providing funding, technical assistance and coordination among state, regional and local entities.” DEP responded by creating the new RCP from the program staff of the previously existing DEP Florida Coastal Office. DEP enhanced the new RCP with the creation of the FRCP managed within the RCP. The FRCP is funded by the FCMP in partnership with NOAA and the Florida Legislature.

On August 1, 2019, Governor Ron DeSantis appointed Dr. Julia Nesheiwat as the first ever Chief Resiliency Officer (CRO) for the State of Florida. The CRO reports to the Executive Office of the Governor and will work in partnership with the DEP, the Florida Department of Transportation (FDOT), the Florida Division of Emergency Management (DEM), the Florida Department of Agriculture and Consumer Services (DACCS), the FWC, and the Florida Department of Economic Opportunity (DEO), in addition to local communities and stakeholders.

### **Hazards Planning Programs or Initiatives:**

**Florida Adaptation Planning Guidebook (FAPG):** In June 2018, the FAPG was published (FCMP, DEP & NOAA, 2018) as a resource for communities interested in vulnerability assessments and adaptation planning. The culmination of more than five years of research in partnership with various state agencies, the guidebook outlines steps and best practices for local governments. Development of the FAPG was funded by the FCMP and NOAA. This was a 309 or CZM-driven change.

**Post-Disaster Redevelopment Planning: Addressing Adaptation During Long Term Recovery:** An addendum to the Post-Disaster Redevelopment Planning Guide developed by DEM and the Florida Department of Community Affairs was published in June 2018 (DEO/DEM, 2018). This addition, developed by the DEM and DEO, serves as a way to augment the best management practices (BMPs) recommended by the initial Guide, and also consider ways to address potential sea level rise adaptation during the long-term recovery process. This was a 309 or CZM-driven change.

**Strategic Beach Management Plan (SBMP):** The Florida Legislature has declared the Department of Environmental Protection as the beach and shore preservation authority for the state and has directed the Department to develop and maintain a comprehensive long-term management plan for the restoration and maintenance of the state’s critically eroded beaches fronting the Atlantic Ocean, Gulf of Mexico, and the Straits of Florida, pursuant to Section 161.161, F.S. DEP initially adopted the SBMP in October 2000 and has periodically updated it through May 2018 (DEP, 2018). The strategies identified in the SBMP shall be eligible for state financial participation subject to DEP approval and appropriation from the Florida Legislature, pursuant to Section 161.091, F.S.

**Mitigate FL:** 252.3655, F.S., established the natural hazards interagency workgroup, known as Mitigate FL, to share information, coordinate ongoing efforts, and collaborate on statewide initiatives to address the impacts of natural hazards. The statute defines natural hazards as including sea-level change, high tides, storm surge, saltwater intrusion, stormwater runoff, flash

floods, inland flooding and coastal flooding. Each agency within the executive branch of state government, as well as each water management district (WMD) and the Florida Public Service Commission (PSC) are required to designate a liaison to this workgroup. The group is coordinated by the Division of Emergency Management and meets quarterly to share information, leverage agency resources, coordinate ongoing efforts, and provide information for inclusion in the annual report. The workgroup coordinator prepares an annual report that assesses the relevance, level, and significance of agency efforts to address the impacts of natural hazards. The report also strategizes and prioritizes ongoing efforts to address the impacts of natural hazards. The annual report is due to the Governor, President of the Senate, and Speaker of the House of Representatives by January 1<sup>st</sup> each year.

**Florida Coastal Resilience Forum:** The FRCP facilitates coordination of resiliency professionals by hosting a quarterly webinar forum that allows attendees from around Florida to learn about what their counterparts are working on. Participants provide project updates, introduce new resources and, most importantly, attendees can engage with each other asking for advice and recommendations. City, county, state and federal government representatives routinely attend these forums, along with universities, non-governmental organizations, and consultants. This was a 309 or CZM-driven change.

**Resilience Planning Grants (RPG):** Beginning in 2018 and through the FRCP, a program within DEP, DEP has awarded state funds through RPGs to provide financial assistance aimed at preparing coastal Florida communities for current and future effects of rising sea levels, including coastal flooding, erosion, and ecosystem changes. The RPGs provide individual awards of up to \$75,000. Since 2018, RPGs have been awarded for 29 separate projects, totaling over \$3 million in grant funds. In total, DEP has funded 61 projects in 10 counties since 2016. This was a 309 or CZM-driven change.

**Resilient Florida: Planning, Policy and Practice:** The first statewide workshop and networking event for Florida's resilience community was held in August 2019. The workshop was attended by local government elected officials, planners, floodplain managers, climate change adaptation professionals, natural resource managers, and park managers. Participants learned about coastal resilience, adaptation planning concepts and strategies, and resources offered by the FRCP, academic research centers, and resiliency-focused NGOs to prepare Florida's coastlines for the effects of sea level rise and coastal flooding. The FRCP, University of South Florida, Florida Sea Grant, (FSG), Florida Climate Institute, and the American Planning Association Florida Chapter partnered to present this workshop. This was a 309 or CZM-driven change.

#### **Hazards Mapping or Modelling Programs or Initiatives:**

**"Train the Trainers" Project of Special Merit:** This project enabled regional planners to offer training to local governments to increase their abilities to project, assess, and respond to sea level rise throughout five regional planning areas within the state. Planning areas were organized using partnerships between the regions' Regional Planning Councils, with vulnerability assessments completed for select communities in those regions. This was a 309 or CZM driven

change and was a Project of Special Merit related to the Community Resilience: Planning for Sea Level Rise 309 Project.

**Coastal Resilience Tool Demonstrations:** Initiated in 2017, this program uses FCMP staff to train local planners in communities throughout the state, with a focus on smaller communities. Demonstrations include visualization and mapping tools from organizations including NOAA, The Nature Conservancy, the University of Florida and FDOT, and various Gulf of Mexico Organizations. At the time of this assessment, 26 demonstrations have been held throughout the state. This was a 309 or CZM driven change.

**Southeast Florida Regional Climate Change Compact:** The Southeast Florida Regional Climate Change Compact was executed by Broward, Miami-Dade, Monroe, and Palm Beach Counties in January of 2010 to coordinate climate mitigation and adaptation activities across county lines. This was not a 309 or CZM-driven change.

**East Central Florida Regional Resilience Collaborative:** In 2018, the East Central Florida Regional Planning Council adopted a resolution to support a program to convene stakeholders across the region to develop a structure and framework for a regional resilience collaborative. Focus areas for this collaborative would include Health + Equity, Build Infrastructure + Natural Environment, and Economic Resilience. This collaborative was formalized in May of 2019 by the East Central Florida Regional Planning Council. This was not a 309 or CZM-driven change.

**Tampa Bay Regional Planning Council (TBRPC) Resiliency Hub:** The TBRPC is an association of local governments and gubernatorial representatives that provides a forum to coordinate planning for the community's future and provide an opportunity for sharing solutions among the local government jurisdictions in the six-county Tampa Bay region. The TBRPC makes information on the following groups, projects, and guidance documents available on its Resiliency Hub webpage (TBPRC, 2018):

- **Tampa Bay Regional Resiliency Coalition (TBRRC):** The TBRRC, coordinated by the TBRPC, is a group of local government officials that discuss complex regional issues, develop strategic regional responses for resolving them, and build consensus for setting and accomplishing regional goals. The objective of the TBRRC is to strengthen the region's ability to plan for the changing climate, reduce impacts, and secure increased levels of federal funding to support resilient infrastructure improvements, adaptation, and mitigation programs.
- **Federal Highway Administration (FHWA) Pilot Project (2108-2020):** In March 2019, the Tri-County Transportation Management Area, comprised of the Hillsborough, Pinellas, and Pasco Metropolitan Planning Organizations (MPOs), FDOT, and TBPRC received a grant from the FHWA to conduct a regional transportation vulnerability analysis. The purpose of the project is to provide information and recommendations to ensure the region's transportation system meets the near and long term functional, economic, and quality of life goals of Tampa Bay's residents, businesses, and visitors in the face of weather and climate changes. The project will also address FAST Act requirements for

MPO long range transportation planning. The study will focus on inland flooding, storm surge, and sea level rise.

- **ONE BAY Resilient Communities Working Group:** The ONE BAY Resilient Communities Working Group was created as a consolidation of the Tampa Bay Regional Transportation Authority Land Use Working Group, the ONE BAY Technical Team, and the TBRPC Regional Planning Advisory Committee. The group includes technical experts from various land use planning agencies, environmental groups, the development community, and transportation agencies who convene to present information and facilitate dialogue about regional resiliency solutions.
- The TBRPC's official 2019 *Tampa Bay All-Hazards Disaster Planning Guide* was developed in collaboration with multiple counties' emergency management offices. The guide includes hurricane evacuation zone maps for participating coastal counties in the Tampa Bay area.
- The **Tampa Bay Climate Science Advisory Panel** published its 2019 *Recommended Projections of Sea Level Rise in the Tampa Bay Region*.

**Tampa Bay Sea Level Rise and Habitat Change Projections:** The University of South Florida's Water Institute has developed models to estimate how Tampa Bay's habitats may change depending on future sea level rise rates, the habitats' response to higher sea level rise rates (varying rates of soil accretion), and potential policy decisions on whether vulnerable coastal land uses should be protected (USFWI, 2018).

**Northeast Florida Regional Council's Regional Resilience Exposure Tool (R2ET):** The R2ET (NFRC, 2019) is an interactive platform with an innovative map tool that allows users to determine if a specific resource (or multiple resources) will be exposed to coastal flooding. The types of flooding presented in the tool are FEMA flood hazard zones, storm surge for evacuation planning, depth of flood at defined storm occurrence intervals, and sea level rise at defined water levels. The flood layers can be overlaid on a variety of data to graphically analyze where specific vulnerabilities occur, from critical facilities and population density to low income/minority populations and wildlife. R2ET is intended to function as a base-line resource for citizens, businesses, and governmental actors to kickstart conversations about sea level rise and emergency preparedness. Utilizing this tool, as well as other community engagement resources offered by the Northeast Florida Regional Council, local communities will be able to have better-informed conversations about building a resilient future. This was not a 309 or CZM-driven change.

**University of Florida GeoPlan Center/FDOT Sea Level Scenario Sketch Planning Tool (2017 Update):** The 2017 update to the existing Sea Level Scenario Sketch Planning Tool added several new features to the interactive map viewer. Alongside the existing ability to view vulnerable transportation facilities and infrastructure to risks of sea level rise, the update also granted the ability to use the tool to view vulnerabilities to current flood risks, including storm surge and FEMA floodplain information. Many other new features were included in the tool during the 2017 update, including the ability to add new data to a map using Map Services. This was not a 309 or CZM-driven change.

**Cedar Key Living Shorelines Tool:** Funded by the Gulf of Mexico Climate and Resilience Community of Practice, the City of Cedar Key and the University of Florida applied the existing Virginia Institute of Marine Science Living Shoreline Suitability Model (which had been done in several other areas around the country including Tampa Bay) to coastal areas around Cedar Key. The model was developed to recommend best practices for shoreline management in both upland and waterward zones.

**Space Coast Transportation Planning Organization (TPO) Sea Level Rise Vulnerability Assessment (2018):** A vulnerability assessment was completed for the Space Coast TPO which covers the entirety of Brevard County, Florida. The project assessed transportation features and public service facilities for sea level rise inundation on three levels of projections and the years 2040, 2070, and 2100. The assessment focuses specifically at assets that contribute to transportation functionality within the County, including roadways, railroads, airports, transit, and other critical facilities deemed important for countywide transit. This was not a 309 or CZM-driven change.

**Climate Adaptation Explorer for Florida:** Developed by the Conservation Biology Institute, FWC, and the Peninsular Florida Landscape Conservation Cooperative, this tool provides a way for planners to address predicted impacts of climate change on Florida’s fish, wildlife, and ecosystems. This tool helps users learn more about climate impacts in Florida (in a general sense), and how they impact a selection of important wildlife species, ecosystems, and habitat systems in Florida along with potential mitigation and adaptation ideas.

**Enhancement Area Prioritization:**

1. What level of priority is the enhancement area for the coastal management program?

<b>High</b>	<u>  X  </u>
<b>Medium</b>	<u>      </u>
<b>Low</b>	<u>      </u>

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Coastal hazards are a high priority for the state, due to its geographic location in the southern U.S. with shorelines fronting both the Gulf of Mexico and Atlantic Ocean, its low-lying elevation, and extensive coastline. Since the last assessment, many forums, workshops, and planning documents have been created and have included stakeholder engagement. Stakeholders included citizens, FCMP partner agencies, and local, state, and federal agencies.

## **PHASE II (IN-DEPTH) ASSESSMENT:**

*Note: Identifying an enhancement area as a high priority does not necessarily mean the CMP would be required to develop a strategy for the enhancement area given other priority enhancement areas and available resources.*

### **In-Depth Resource Characterization:**

*Purpose: To determine key problems and opportunities to improve the CMP's ability to prevent or significantly reduce coastal hazard risks by eliminating development and redevelopment in high-hazard areas and managing the effects of potential sea level rise and Great Lakes level change.*

1. Based on the characterization of coastal hazard risk, what are the three most significant coastal hazards within your coastal zone? Also indicate the geographic scope of the hazard, i.e., is it prevalent throughout the coastal zone, or are there specific areas most at risk?

	<b>Type of Hazard</b>	<b>Geographic Scope</b> (throughout coastal zone or specific areas most threatened)
Hazard 1	Flooding (riverine, stormwater, tides)	Throughout
Hazard 2	Coastal storms (including storm surge)	Throughout
Hazard 3	Shoreline erosion	Throughout

2. Briefly explain why these are currently the most significant coastal hazards within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

In the *2018 State of Florida Enhanced State Hazard Mitigation Plan* (DEM, 2018), the top hazard resulting in the most disaster declarations between the years of 1953-2016 was identified as storms associated with flooding. The overall vulnerability of the state to flooding was rated high with an assigned score of 15 out of 15 (DEM, 2018). In addition, in the 2016 SHELDUS report (CEMHS, 2016), flooding was stated to be the costliest and most deadly hazard nationwide in 2016. Florida experiences inland flooding caused by rivers, flash floods, dam or dike failures, and coastal flooding from tidal flooding. Florida is prone to flooding due to its low-lying topography along with its subtropical climate. As of January 2018, 468 communities in Florida (98% of all communities) were participating in the NFIP. This participation amounts to 1.7 million NFIP policies, totaling over \$423 trillion dollars. Since 1978, there have been 255,725 NFIP claims in Florida, equating to over \$4.2 trillion (DEM, 2018).

DEM identified the second highest ranking hazard for Florida between 1953-2016 as coastal storms (hurricanes, tropical storms, storm surge), which was assigned a vulnerability score of 13 out of 15 (DEM, 2018). The largest hazard associated with hurricanes and other coastal storms is primarily storm surge and flooding from heavy rainfall. Other resulting hazards can include wind, tornadoes, surf, and offshore conditions. The entire state of Florida is prone to hurricanes and other coastal storms, as 35 of the 67 counties are bordering either the Gulf of Mexico or the Atlantic Ocean. Between 2006-2016,

the National Climatic Data Center (NCDC) reported 14 tropical storms and 7 hurricanes (DEM, 2018) that impacted Florida.

The DEM identified the third top ranking hazard as coastal erosion, which was assigned a score of 11 out of 15 for overall hazard vulnerability (DEM, 2018). Currently, Florida has 419.6 miles of critically eroded beach, 90.9 miles of non-critically eroded beach, 8.7 miles of critically eroded inlet, and 3.2 miles of non-critically eroded inlet identified within Florida (DEP, 2019). Florida’s beaches serve many crucial purposes, including providing habitats to various species, supporting the tourism economy, and providing a first line of defense against storms. It is also expected that with sea level rise and increased storm intensity and frequency, the rates of erosion will become more pronounced in the near future (DEM, 2018).

3. Are there emerging issues of concern, but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	Information Needed
Sea Level Rise	Sea level rise continues to be an emerging and ongoing issue as it affects each of Florida’s coastal communities and counties differently. Several adaptive strategies have been produced over the past 5-years to minimize sea level rise impacts and are discussed in the Management characterization section above. However, continued research and data are needed to improve model prediction accuracy. Increased accuracy in sea level rise predictions can be used to enhance community vulnerability analyses, assign focus areas, and implement the appropriate adaptation strategies.

Sea level rise continues to be an ongoing and emerging issue for the State of Florida. Several studies and programs have been implemented over the past five years to address this problem. In 2018, the Florida Adaptive Planning Guide was produced as part of the Florida Coastal Management Plan. The Adaptive Planning Guide contains research from 2011 to 2017 and provides guidance to Florida communities in preparing for the effects of sea level rise and other coastal hazards. Sea level rise poses a unique challenge as its effect and impacts vary across Florida’s coastal communities and counties, in magnitude, timeframes of occurrence, and consequence to the natural and engineered environment. While sea level rise has been an ongoing issue for some areas in Florida, it is also a new and emerging issue for other areas. Although vulnerability assessments and adaptation strategies have been developed to minimize the impacts of sea level rise in many communities, the ability for all of Florida’s coastal counties to implement these strategies depends on available funding (FCMP DEP NOAA, 2018). In addition to the Florida Adaptive Planning Guide, several other programs and models have been developed to identify sea level rise and are described in the Management Characterization section above.



**In-Depth Management Characterization:**

*Purpose: To determine the effectiveness of management efforts to address identified problems related to the coastal hazards enhancement objective.*

1. For each coastal hazard management category below, indicate if the approach is employed by the state or territory and if there has been a significant change since the last assessment.

**Significant Changes in Coastal Hazards Statutes, Regulations, and Policies**

<b>Management Category</b>	<b>Employed by State/Territory (Y or N)</b>	<b>CMP Provides Assistance to Locals that Employ (Y or N)</b>	<b>Significant Change Since the Last Assessment (Y or N)</b>
Shorefront setbacks/no build areas	Y	Y	N
Rolling easements	N	N	N
Repair/rebuilding restrictions	Y	Y	N
Hard shoreline protection structure restrictions	Y	N	N
Promotion of alternative shoreline stabilization methodologies (i.e., living shorelines/green infrastructure)	Y	Y	N
Repair/replacement of shore protection structure restrictions	Y	Y	N
Inlet management	Y	Y	N
Protection of important natural resources for hazard mitigation benefits (e.g., dunes, wetlands, barrier islands, coral reefs) (other than setbacks/no build areas)	Y	Y	N
Repetitive flood loss policies (e.g., relocation, buyouts)	N	N	N
Freeboard requirements	Y	Y	Y
Real estate sales disclosure requirements	Y	N	N
Restrictions on publicly funded infrastructure	Y	Y	N
Infrastructure protection (e.g., considering hazards in siting and design)	Y	Y	Y

**Significant Changes to Coastal Hazard Management Planning Programs or Initiatives**

<b>Management Category</b>	<b>Employed by State/Territory (Y or N)</b>	<b>CMP Provides Assistance to Locals that Employ (Y or N)</b>	<b>Significant Change Since the Last Assessment (Y or N)</b>
Hazard mitigation plans	Y	Y	Y
Sea level rise/Great Lake level change or climate change adaptation plans	Y	Y	Y
Statewide requirement for local post-disaster recovery planning	Y	Y	N
Sediment management plans	Y	Y	N
Beach nourishment plans	Y	Y	N
Special Area Management Plans (that address hazards issues)	Y	Y	Y
Managed retreat plans	Y	Y	N

**Significant Changes to Coastal Hazard Research, Mapping, and Education Programs or Initiatives**

<b>Management Category</b>	<b>Employed by State/Territory (Y or N)</b>	<b>CMP Provides Assistance to Locals that Employ (Y or N)</b>	<b>Significant Change Since the Last Assessment (Y or N)</b>
General hazards mapping or modeling	Y	Y	Y
Sea level rise mapping or modeling	Y	Y	Y
Hazards monitoring (e.g., erosion rate, shoreline change, high-water marks)	Y	Y	Y
Hazards education and outreach	Y	Y	Y

- Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state’s management efforts in addressing coastal hazards since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state’s management efforts?

**FAPG (2018):** The 2018 FAPG (FCMP, DEP & NOAA, 2018) was developed during the Community Resilience Initiative, which was directed by the DEP and the DEO as part of the FCMP. The report encompasses over five years of stakeholder engagement and research and aims to develop an adaptation plan for future vulnerability.

The guidebook assists Florida’s communities in preparing for and dealing with the effects of sea level rise, especially coastal flooding, erosion, and ecosystem changes. Communities can use the guidebook to learn about the steps of vulnerability assessment, adaptation planning, and implementation to create an adaptation plan. The guidebook is a culmination of the state’s management efforts to provide communities the tools needed for adaptation planning on the local level (FCMP DEP & NOAA, 2018).

## Identification of Priorities:

1. Considering changes in coastal hazard risk and coastal hazard management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve its ability to more effectively address the most significant hazard risks. *(Approximately 1-3 sentences per management priority.)*

### *Management Priority 1: Local Adaptation Planning*

*Description:* Local adaptation plans continue to be the one of the strongest mechanisms for addressing coastal hazards. Recognizing hazards on a regional level and planning for mitigation on a local level develops a comprehensive plan, while allowing communities to select the most appropriate solution. The FCMP program recognizes that local adaptation planning is not a one size fits all approach. While the FCMP currently provides technical assistance to communities to address coastal hazard risks, the FCMP can improve its technical assistance and outreach to local governments with regard to incorporating resiliency into local planning and budgeting. Counties in Florida are very diverse and the FCMP recognizes that certain localities require more assistance than others.

### *Management Priority 2: Comprehensive Approach to Coastal Resilience*

*Description:* Coastal resilience will be a continual strategy used in coastal hazard mitigation for ongoing sea level rise, increased storm frequency, and other factors associated with climate change. Although coastal resilience has been more of a focus in recent years, continual coordination amongst state and local agencies is needed to continue to develop comprehensive planning approaches. Further development of the planning approaches can also help the FCMP better align resources for use by local governments.

### *Management Priority 3: Comprehensive Approach to Sea Level Rise*

*Description:* Sea level rise has diverse impacts that can affect urban shorelines, natural habitats, high tide flooding, shoreline stabilization, and needed infrastructure upgrades. Although sea level rise is a slowly occurring factor of climate change, comprehensive mitigation plans are need on a state and local level to plan for future long-term changes. Development of a comprehensive approach to sea level rise can also help the FCMP plan for resource use by local governments.

2. Identify and briefly explain priority needs and information gaps the CMP has for addressing the management priorities identified above. The needs and gaps identified here should not be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	Y	Many of the coastal hazards impacting Florida are difficult to accurately predict, such as climate change, sea level rise, and increased frequency of king tides. Due to the constantly changing predictions on the impacts that coastal hazards will have on the diverse coastal communities and counties in Florida, continued hazard identification and risk assessment research is needed.
Mapping/GIS/modeling	Y	Several modeling and visualization tools have been identified and incorporated into local use for coastal hazard assessments over the past five-years. While the visualization tools are often simpler to use than modeling tools, they do not run customized analysis with local data. In order to accurately produce coastal hazard maps, GIS databases, and modeling tools that displaying current and future risk conditions, ongoing data collection and tool updates are needed.
Data and information management	Y	There have been several data sources, tools, and resources produced to assess coastal hazards including visualization tools, modeling tools, and decision support tools. Continual updates to these tools and resources are vital in providing updated trends and accurately predicting future hazards on a local scale. This includes making data and information readily available and accessible to researchers, governments, and the public.
Training/capacity building	Y	The level of training and experience required for use of the risk hazard assessment tools varies. While there are a range of tools available, the tools are constantly being updated and adapted for new locations. Therefore, there is an ongoing need to assist and train local communities on the most recent coastal hazard mitigation tools available.
Decision-support tools	Y	There have been several decision support tools developed and identified over the past 5-years. These tools are offered for a variety of experience and skill levels. To ensure the accuracy of these tools there is an ongoing need for the integration of public and private partners to consolidate risk assessment information into unified decision-support tools and update the tools with the latest datasets on a regular basis.
Communication and outreach	Y	Solutions to coastal hazards are primarily location based, due to the diverse coastal communities and counties in Florida. While many areas have had significant improvements in public involvement over the past 5- years, ongoing communication and outreach is needed. Structured discussions and other forms of public outreach allow for the development of unique local solutions to ongoing and emerging coastal hazards.

In Florida, the risk associated with coastal hazards is highly dependent on the location of the coastal community or county being assessed. For all the priority needs identified above, there has already been a significant amount of progress for each over the last 5-years, which is further described throughout the Coastal Hazards section. However, continual and regular updating of the available risk assessment

tools and associated datasets are necessary to improve accuracy and provide results on a more local scale. The priority needs identified above do not share the same level of precedence in all communities and counties. Florida is composed of a wide range of coastal communities and counties which vary in the level of funding and types of hazards affecting them. While one priority need may be an ongoing issue for one area, it may be a new and emerging issue for another.

**Enhancement Area Strategy Development:**

1. Will the CMP develop one or more strategies for this enhancement area?

Yes              X    
No              \_\_\_\_\_

2. Briefly explain why a strategy will or will not be developed for this enhancement area.

Coastal hazards have been identified as a high priority for the state, due to its geographic location in the southern U.S. with shorelines fronting both the Gulf of Mexico and Atlantic Ocean, its low-lying elevation, and extensive coastline. Strategies have been developed to enhance research, data collection, and management decisions related to coastal hazards and their impact on Florida.

**References:**

Center for Emergency Management and Homeland Security [CEMHS]. (2018). Spatial Hazard Events and Losses Database for the United States, Version 17.0. [Online Database]. Phoenix, AZ: Center for Emergency Management and Homeland Security, Arizona State University. Retrieved from website: <https://cemhs.asu.edu/sheldus>

Building a Safer Florida, Inc. (2017). Flood Resistant Construction and the 6<sup>th</sup> Edition Florida Building Code (2017). Retrieved from website: [http://www.floridabuilding.org/fbc/thecode/2017-6edition/BASF\\_2017\\_flood\\_061217.pdf](http://www.floridabuilding.org/fbc/thecode/2017-6edition/BASF_2017_flood_061217.pdf)

Florida Coastal Management Program, Florida Department of Environmental Protection, National Oceanic and Atmospheric Administration [FCMP DEP NOAA]. (2018). Florida Adaptation Planning Guidebook. Retrieved from website: <https://floridadep.gov/sites/default/files/AdaptationPlanningGuidebook.pdf>

Florida Department of Business and Professional Regulation [DBPR]. (2017). Building Code Information System, 6th Edition Florida Building Code, International Code Council, Inc. Retrieved from website: [www.FloridaBuilding.org](http://www.FloridaBuilding.org)

Florida Department of Economic Opportunity and Florida Department of Emergency Management [DEO/DEM]. (2018). Post-Disaster Redevelopment Planning: Addressing Adaptation During Long-Term Recovery, 2nd Revised Edition. Retrieved from website:

[https://www.cakex.org/sites/default/files/project/documents/PDRP%20SLR%20Guidebook%20Update\\_FINAL\\_061518-v8.pdf](https://www.cakex.org/sites/default/files/project/documents/PDRP%20SLR%20Guidebook%20Update_FINAL_061518-v8.pdf)

Florida Department of Environmental Protection Florida Geological Survey [DEPFGS]. (2018). Subsidence Incident Reports. Retrieved from website: <https://floridadep.gov/fgs/sinkholes/content/subsidence-incident-reports>

Florida Department of Environmental Protection Division of Water Resource Management [DEP DWRM]. (2019). Critically Eroded Beaches in Florida. Retrieved from website: <https://floridadep.gov/sites/default/files/DEP-Critically-Eroded-Beaches-2019.pdf>

Florida Department of Environmental Protection Division of Water Resource Management [DEP DWRM]. (2016). Critically Eroded Beaches in Florida. Retrieved from website: <https://floridadep.gov/sites/default/files/CriticalErosionReport.pdf>

Florida Department of Environmental Protection Division of Water Resource Management [DEP DWRM]. (2018). Strategic Beach Management Plan. Retrieved from website: <https://floridadep.gov/rcp/beaches-inlets-ports/content/strategic-planning-and-coordination>

Florida Department of Health [DOH]. (2014). Climate and Health. Retrieved from website: <http://www.floridahealth.gov/environmental-health/climate-and-health/index.html>

Florida Department of Health [DOH]. (2017). Building Resilience Against Climate Effects (BRACE). Retrieved from website: <http://www.floridahealth.gov/environmental-health/climate-and-health/brace/index.html>

Florida Division of Emergency Management [DEM]. (2018). State of Florida Enhanced State Hazard Mitigation Plan. Retrieved from website: [https://floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full\\_final\\_approved.6.11.2018.pdf](https://floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full_final_approved.6.11.2018.pdf)

Florida Fish and Wildlife Conservation Commission [FWC]. (2019). Florida's Wildlife Legacy Initiative: Florida's State Wildlife Action Plan. Tallahassee, Florida. Retrieved from website: <https://indd.adobe.com/view/9502ec1c-89dc-4c07-82b1-f098ad600878>

National Oceanic and Atmospheric Administration [NOAA]. (2018). Patterns and Projections of High Tide Flooding Along the U.S. Coastline Using a Common Impact Threshold. Retrieved from website: [https://tidesandcurrents.noaa.gov/publications/techrpt86\\_PaP\\_of\\_HTFlooding.pdf](https://tidesandcurrents.noaa.gov/publications/techrpt86_PaP_of_HTFlooding.pdf)

Northeast Florida Regional Council [NFRC]. (2019). Regional Resilience Exposure Tool (R2ET). Retrieved from website: <http://buildcommunityresilience.com/northeastflorida/>

- Prinos, S. (2016). Saltwater intrusion monitoring in Florida. Florida Scientist. 79(4):269. Retrieved from website:  
[https://www.researchgate.net/publication/315615092\\_Saltwater\\_intrusion\\_monitoring\\_in\\_Florida](https://www.researchgate.net/publication/315615092_Saltwater_intrusion_monitoring_in_Florida)
- Southwest Florida Water Management District [SWFWMD]. (2019). Geohydrologic Data Section Work Plan 2020. Retrieved from website:  
[https://www.swfwmd.state.fl.us/sites/default/files/medias/documents/Work\\_Plan\\_2020.pdf](https://www.swfwmd.state.fl.us/sites/default/files/medias/documents/Work_Plan_2020.pdf)
- State of Florida. (2019). State of Florida – Office of the Governor Executive Order Number 19-12. Retrieved from website:  
[https://protectingfloridatogether.gov/sites/default/files/documents/EO\\_19-12\\_0.pdf](https://protectingfloridatogether.gov/sites/default/files/documents/EO_19-12_0.pdf)
- Tampa Bay Regional Planning Council [TBRPC]. (2018). Resiliency Hub webpage. Retrieved from website:  
<http://www.tbrpc.org/resiliency-hub/>
- University of South Florida Water Research Institute [USFWRI]. (2018). Tampa Bay Sea Level Rise and Habitat Change Projections. Retrieved from website:  
<https://www.arcgis.com/apps/MapSeries/index.html?appid=051bb0bb82ab4642b2fb43821ac3bd5f>

## Public Access

**Section 309 Enhancement Objective:** Attain increased opportunities for public access, taking into account current and future public access needs, to coastal areas of recreational, historical, aesthetic, ecological, or cultural value. §309(a)(3)

### PHASE I (HIGH-LEVEL) ASSESSMENT:

#### Resource Characterization:

1. Use the table below to provide data on public access availability within the coastal zone.

**Public Access Status and Trends**

Type of Access	Current Number <sup>5</sup>	Changes or Trends Since Last Assessment <sup>6</sup> (↑, ↓, -, unkwn)	Cite Data Source
Beach access sites	2,200 public saltwater beach access sites	↑ 16 access sites (2,184 in 2014 FCMP Coastal Access Guide) ↑ 58 access sites (2,142 in 2010 Florida Assessment of Coastal Trends) ↑ 380 access sites (1,820 in 2010 DEP Outdoor Rec. Inv.)	Outdoor Florida (DEP, n.d.)
	1,640 public saltwater beaches	↑ 1 public saltwater beach (1,639 in 2012 Outdoor Florida Rec. Inv.)	Florida Outdoor Rec. Inv. [FORI] (DEP DRP, n.d.)**
	1,796 saltwater beaches	↑ 157 saltwater beaches (1,639 in 2012 Outdoor Florida Rec. Inv.)	SCORP 2019 (DEP, 2019a)
Shoreline (other than beach) access sites	419.2 miles of public saltwater beach	↓ 19.9 miles of public saltwater beach (439.1 miles in 2012 Outdoor Rec. Inv.)	FORI (DEP DRP, n.d.)**
	475.3 miles of saltwater beaches	↑ 36.2 miles of public saltwater beach (439.1 miles in 2012 Outdoor Rec. Inv.)	SCORP 2019 (DEP, 2019a)

<sup>5</sup> Be as specific as possible. For example, if you have data on many access sites but know it is not an exhaustive list, note “more than” before the number. If information is unknown, note that and use the narrative section below to provide a brief qualitative description based on the best information available.

<sup>6</sup> If you know specific numbers, please provide. However, if specific numbers are unknown but you know that the general trend was increasing or decreasing or relatively stable or unchanged since the last assessment, note that with a ↑ (increased), ↓ (decreased), – (unchanged). If the trend is completely unknown, simply put “unkwn.”



Type of Access	Current Number <sup>5</sup>	Changes or Trends Since Last Assessment <sup>6</sup> (↑, ↓, -, unkwn)	Cite Data Source
Recreational boat (power or nonmotorized) access sites	863 saltwater boating ramps	↑ 245 saltwater boating ramps since last assessment (618 in 2012 Outdoor Rec. Inv.)	FORI (DEP DRP, n.d.)**
	937 saltwater boating ramps	↑ 319 saltwater boating ramps (618 in 2012 Outdoor Rec. Inv.)	SCORP 2019 (DEP, 2019a)
	1,176 saltwater boating ramp lanes	↑ 248 saltwater boating ramp lanes (928 in 2012 Outdoor Rec. Inv.)	FORI (DEP DRP, n.d.)**
	1,268 saltwater boating ramp lanes	↑ 340 saltwater boating ramp lanes (928 in 2012 Outdoor Rec. Inv.)	SCORP 2019 (DEP, 2019a)
	860 saltwater marinas	↑ 213 marinas (647 in 2009 FWC Boating Access Study)  More than (inadequate data to determine; last assessment stated 105 public marinas)	FORI (DEP DRP, n.d.)**
	914 saltwater marinas	↑ 267 marinas (647 in 2009 FWC Boating Access Study)  More than (inadequate data to determine; last assessment stated 105 public marinas)	SCORP 2019 (DEP, 2019a)
	40,718 saltwater marina slips	More than (inadequate data to determine; last assessment stated 7,819 public marina slips)	FORI (DEP DRP, n.d.)**
	43,269 saltwater marina slips	More than (inadequate data to determine; last assessment stated 7,819 public marina slips)	SCORP 2019 (DEP, 2019a)
	162 saltwater kayak canoe launches	unkwn	SCORP 2019 (DEP, 2019a)
Number of designated scenic vistas or overlook points	N/A	N/A	N/A
Number of fishing access points (i.e., piers, jetties)	431 saltwater piers (124,845 ft.)	↑ 68 saltwater piers (7,307 ft.) since last assessment (363 saltwater piers (117,538 ft.) in 2012 Outdoor Rec. Inv.)	FORI (DEP DRP, n.d.)**
	486 saltwater piers (132,958 ft.)	↑ 123 saltwater piers (15,420 ft.) since last assessment (363 saltwater piers (117,538 ft.) in 2012 Outdoor Rec. Inv.)	SCORP 2019 (DEP, 2019a)

Type of Access	Current Number <sup>5</sup>	Changes or Trends Since Last Assessment <sup>6</sup> (↑, ↓, -, unkwn)	Cite Data Source
Number of fishing access points (i.e., piers, jetties)	69,119 ft. of saltwater jetties	↑ 9,888 ft. of jetties (59,231 ft. of saltwater jetties in 2012 Outdoor Rec. Inv.)	FORI (DEP DRP, n.d.)**
	69,300 ft. of saltwater jetties	↑ 10,069 ft. of jetties (59,231 ft. of saltwater jetties in 2012 Outdoor Rec. Inv.)	SCORP 2019 (DEP, 2019a)
	2,491 shoreline/bank fishing areas	unkwn	SCORP 2019 (DEP, 2019a)
Coastal trails/ boardwalks (Please indicate number of trails/boardwalks and mileage)	1,142 saltwater catwalks (214,315 ft.)	↑ 483 saltwater catwalks (43,331 ft.) since last assessment (659 saltwater catwalks (170,984 ft.) in 2012 Outdoor Rec. Inv.)	FORI (DEP DRP, n.d.)**
	800 saltwater catwalks (209,909 ft.)	↑ 141 saltwater catwalks (38,925 ft.) since last assessment (659 saltwater catwalks (170,984 ft.) in 2012 Outdoor Rec. Inv.)	SCORP 2019 (DEP, 2019a)
	344 miles of Florida National Scenic Trails	unkwn	FORI (DEP DRP, n.d.)**
	1,343.69 miles of single use hiking trails	unkwn	FORI (DEP DRP, n.d.)**
	3,278.05 multiuse hiking trails	unkwn	FORI (DEP DRP, n.d.)**
	2,919.90 miles of canoe/kayak trail	↑ 1,404.9 miles (1,515 miles of circumnavigational saltwater paddling trail in previous assessment)	FORI (DEP DRP, n.d.)**
	545.45 miles of single use nature study trails	unkwn	FORI (DEP DRP, n.d.)**
	758.25 miles of multiuse nature study trails	unkwn	FORI (DEP DRP, n.d.)**
	77.50 miles of Florida Trail	unkwn	FORI (DEP DRP, n.d.)**
Number of acres parkland/open space	7,196,017.70 acres of land	↑ 204,555.70 acres (6,991,462 acres in 2012 Outdoor Rec. Inv.)	FORI (DEP DRP, n.d.)**
	3,279,545.02 acres of water	↓ 179,092.98 acres (3,458,638 acres in 2012 Outdoor Rec. Inv.)	FORI (DEP DRP, n.d.)**

Type of Access	Current Number <sup>5</sup>	Changes or Trends Since Last Assessment <sup>6</sup> (↑, ↓, -, unkwn)	Cite Data Source
Number of acres parkland/open space	110,000 acres of Rookery Bay NERR*	↓ 2,822 acres (112,822 acres in 2012 Outdoor Rec. Inv.)	NERRs (NOAA, 2018c)
	234,715 acres of Apalachicola NERR*	↑ 62 acres (234,653 acres in 2012 Outdoor Rec. Inv.)	NERRs (NOAA, 2018a)
	73,352 acres of Guana Tolomato Matanzas NERR*	– no change (73,352 acres in 2012 Outdoor Rec. Inv.)	NERRs (NOAA, 2018b)
Access sites that are Americans with Disabilities Act (ADA) compliant	30 ADA compliant Beach and Coast Florida State National Parks	unkwn	Florida State Parks - Type: Beaches and Coast (FSP, n.d.)
	More than 7 beaches with free access to beach wheelchairs	unkwn	List of Florida Beaches That Offer Beach Wheelchairs in 2017 (Waldron-Gross, 2017)
	More than 6 counties have beaches with ADA compliance	unkwn	List of Florida Beaches That Offer Beach Wheelchairs in 2017 (Waldron-Gross, 2017)
Other (please specify)	N/A	N/A	N/A

\*NERR = National Estuarine Research Reserve

\*\* The data from the DEP Outdoor Recreational Inventory (DEP DRP, n.d.) represents the sum of the access type found across only the 35 coastal counties.

2. Briefly characterize the demand for coastal public access and the process for periodically assessing demand. Include a statement on the projected population increase for your coastal counties. There are several additional sources of statewide information that may help inform this response, such as the Statewide Comprehensive Outdoor Recreation Plan,<sup>7</sup> the National Survey on Fishing, Hunting, and Wildlife Associated Recreation,<sup>8</sup> and your state's tourism office.

**DEP – 2019 Statewide Comprehensive Outdoor Recreation Plan (SCORP):** DEP's SCORP plan utilizes public involvement through surveys, open house events, workshops, and economic studies to develop a recommended plan to meet Florida's growing recreational needs. The 2019 SCORP report (DEP, 2019a; 2019b) was developed between 2015-2018 in which a total of 7,000 residents and visitors were sampled for the participation study, 6,000 residents and visitors were sampled for the economic study, 2,500 opinion survey responses were collected, and \$145 billion in total economic output was documented for 35 outdoor activities in Florida.

Florida's population surpassed New York in 2014 and is currently the third largest state in the nation. According to the University of Florida's Bureau of Economic and Business Research, in 2017 Florida's population grew to 20.4 million, an 8.9% increase since 2010. Florida is projected to have 23 million residents by 2025 and 24.3 million residents by 2030 (DEP, 2019a).

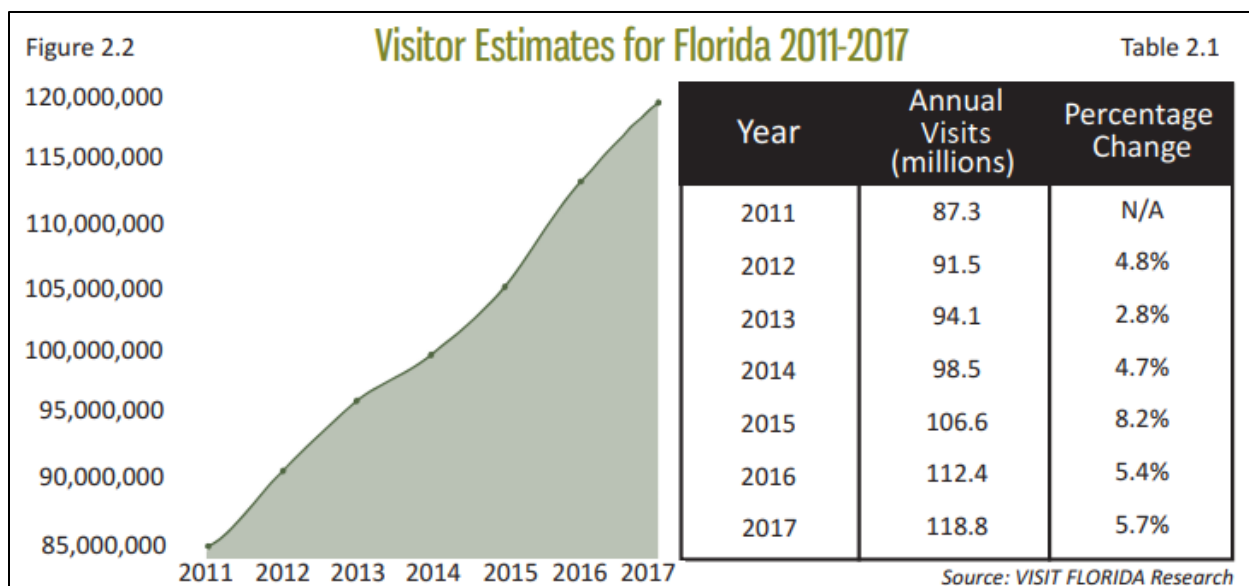
**National Survey of Fishing, Hunting, and Wildlife-Associated Recreation:** The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* (DOI, USFWS, & USCB, 2016) collected data from interviews with people on their fishing, hunting, and wildlife watching activities. The 2016 report concluded that over 103 million U.S. residents (16 years or older) participated in wildlife-related recreation. Of those participants, 35.8 million people fished, 11.5 million hunted, and 86.0 million participated in at least one type of wildlife watching activity (observing, feeding, or photographing). The total wildlife related recreation expenditure amounted to approximately \$156.9 billion, with \$81.0 billion spent by fishing and hunting sportspersons and \$75.9 billion spent by wildlife-watching participants. The total expenses were composed of \$42.5 billion in trip related costs, \$97.4 billion in equipment, and \$17.3 billion on other items such as licenses and land leasing. The 5-year comparison of total number of participants (16 years or older) between 2011 and 2016 resulted in a 16% increase. The number of sportspersons increased from 37.4 million in 2011 to 39.6 million in 2016. The original numbers of 33.1 million fishers and 13.7 million hunters in 2011 increased to 35.8 million fishers and 11.5 million hunters in 2016. The number of wildlife watchers increased by 20% from 2011 to 2016 (DOI, USFWS, & USCB, 2016).

**Florida State Tourism:** The *2019 Statewide Comprehensive Outdoor Recreation Plan (SCORP)* (DEP, 2019a; 2019b) provides visitor estimates for the state of Florida from 2011-2017 (seen in the table below).

---

<sup>7</sup> Most states routinely develop "Statewide Comprehensive Outdoor Recreation Plans", or SCROPs, that include an assessment of demand for public recreational opportunities. Although not focused on coastal public access, SCROPs could be useful to get some sense of public outdoor recreation preferences and demand. Download state SCROPs at [www.recpro.org/scorp-library](http://www.recpro.org/scorp-library).

<sup>8</sup> The National Survey on Fishing, Hunting, and Wildlife Associated Recreation produces state-specific reports on fishing, hunting, and wildlife associated recreational use for each state. While not focused on coastal areas, the reports do include information on saltwater and Great Lakes fishing, and some coastal wildlife viewing that may be informative and compares 2016 data to 2011, 2006 and 2001 information to understand how usage has changed. See: [www.wsfprprograms.fws.gov/subpages/nationalsurvey/national\\_survey.htm](http://www.wsfprprograms.fws.gov/subpages/nationalsurvey/national_survey.htm)



Florida Department of Environmental Protection. Visitor Estimates (DEP, 2019a): <https://floridadep.gov/parks/florida-scorp-outdoor-recreation-florida>

Based on these data, the state of Florida has seen a continual increase in annual visitors each year since 2011, with the largest increase in 2015 at 8.2% (DEP, 2019a). Tourism within Florida has continued to increase throughout 2018 and 2019, giving Florida eight consecutive years of record numbers of annual tourists. In 2018, the state had approximately 124.7 million visitors, a 5.3% increase since 2017. Within the first two quarters of 2019, the state had a tourism growth of 5.2% and 5.1% respectively, when compared to the first two quarters of 2018 (Visit Florida, 2019).

3. If available, briefly list and summarize the results of any additional data or reports on the status or trends for coastal public access since the last assessment.

**DEP – 2019 SCORP:** The 2019 SCORP report (DEP, 2019a; 2019b) addresses major issues in everyday recreation within four priority areas:

1. Health and Wellbeing
2. Public Access, Accessibility, and Connectivity
3. Economic Opportunities and Ecotourism
4. Resource Management and Stewardship

Each priority area includes a set of individual goals and strategies to improve ongoing recreational problems. According to the SCORP report, most Florida residents are satisfied with the quality of recreation facilities; however, only two-thirds are satisfied with the quantity of recreation facilities within their county. A total of 13% of Florida residents also responded that they were members of an outdoor recreation group or association. The recreational activities with the highest participation rates for Florida residents are as follows: fitness walking/jogging, wildlife viewing, saltwater beach activities, bicycling, visiting historic sites, picnicking, hiking, swimming in pools, saltwater fishing, and freshwater fishing. The most frequent recreational activities participated in by tourists are as follows: fitness

walking/jogging, recreational vehicle (RV)/trailer camping, swimming in outdoor pools, bicycling, saltwater beach activities, wildlife viewing, tent camping, golf, soccer, and tennis (DEP, 2019a).

Of the 35 outdoor activities assessed by the SCORP, saltwater beach activities (not including fishing) had the largest residential (54%) and visitor (59%) participation statewide. The trend of residential participation from 1985 to 2016 is shown in the table below (DEP, 2019b).

**Trend in Resident Saltwater Beach Activities (not including fishing)**

Activity	1985	1992	2002	2011	2016
Saltwater beach activities (not including fishing) - Residents	56%	27%	57%	63%	54%

Florida Resident Statewide Outdoor Recreation Participation Trends. (DEP, 2019b):  
<http://publicfiles.dep.state.fl.us/OPP%20Public%20Access/2019%20SCORP/SCORP%20Appendices.pdf>

The trend in saltwater beach activities for residents and tourists for each Florida region can be seen in the table below. Utilizing the current data, future participation rates were also estimated for 2025. The 2025 participation rates are projected to be lower for all regions. This trend is partially due to the 2018 law which makes it more difficult for a local government to allow public access to a privately-owned property. Although the law was suspended shortly after approval, the exact repercussions of the law are still not fully understood (DEP, 2019b).

**Saltwater Beach Activities**

Region	% Participation Rate by region of residence		% Participation Rate by activity location		Participant Type*		Total Participation**		Level of Service (Linear Feet/1,000 Participants) (Linear Feet)		
	Residents	Tourists	Residents	Tourists	Residents	Tourists	2016	2025	2016	2025	Supply
Central East	60	59	19.9	18.5	1,399,722	8,124,024	9,523,746	12,476,107	44.73	34.14	425,982
Central	44	59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Central West	54	59	21.7	18.5	1,406,756	8,124,024	9,530,780	12,390,014	<b>24.74</b>	<b>19.03</b>	235,838
North Central	56	59	2.3	0.6	161,777	264,196	425,973	540,986	<b>16.02</b>	<b>12.61</b>	6,823
Northeast	48	59	9.1	6.3	640,074	2,774,057	3,414,131	4,472,512	84.51	64.51	288,537
Northwest	58	59	10.8	17.1	759,648	7,529,583	8,289,231	10,941,785	99.69	75.52	826,354
Southeast	52	59	23.0	26.9	1,617,770	11,844,783	13,462,552	17,770,569	<b>24.27</b>	<b>18.39</b>	326,795
Southwest	59	59	13.6	12.1	956,594	5,327,950	6,284,545	8,232,754	64.24	49.04	403,746
<b>Statewide</b>	54	59	100	100	6,942,342	43,988,616	50,930,958	66,826,751	49.36	37.62	2,514,075

\* The participation figures in these tables represent the estimated number of individuals who participated in the activity at least one time during the year in Florida.

\*\* Total participation represents the combined number of residents and tourists who participated in the activity at least one time during the year in Florida.

**BOLD** numbers represent a number below the statewide median.

Appendix H – Level of Service Charts and Activity Profiles – Water Based Activities. (DEP, 2019b):  
<http://publicfiles.dep.state.fl.us/OPP%20Public%20Access/2019%20SCORP/SCORP%20Appendices.pdf>

The Central East, Southwest, and Northwest regions had the highest participation rates by region of residents. However, the Southeast and Central West regions had the highest participation rate by activity location for residents. The Southeast, Central East, and Central West regions had the highest participation rate by activity location for tourists (DEP, 2019b).

**DEP – 2016-2017 SCORP Economic Impact of Outdoor Recreation Activities in Florida:** In 2016-2017, the SCORP conducted a study (DEP, 2017) to examine the economic impacts of 35 outdoor activities on a county, regional, and statewide scale. This study concluded that outdoor recreation in Florida produced

approximately \$70 billion in visitor spending, \$20 billion in resident spending, \$60 billion in spending from parks/public lands, and \$10 billion in tax revenues. In total, outdoor recreation had an economic impact of over \$145 billion and provided 1.2 million jobs (DEP, 2017).

**Management Characterization:**

1. Indicate if the approach is employed by the state or territory and if there have been any significant state- or territory-level management changes (positive or negative) that could impact the future provision of public access to coastal areas of recreational, historical, aesthetic, ecological, or cultural value.

**Significant Changes in Public Access Management**

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	Y	N
Operation/maintenance of existing facilities	Y	Y	N
Acquisition/enhancement programs	Y	Y	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
  - a. Describe the significance of the changes;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

In 2016, the Florida Legislature passed 253.87 F.S., which required DEP to add federal conservation lands to the State-Owned Lands and Records Information System. Local governments were also required to send a list of their conservation lands to DEP for inclusion in the inventory. To fulfill the requirements of this legislation to further increase public awareness of recreational opportunities available to the public on Florida’s conservation lands, DEP created Outdoor Florida, a website and mobile application.

In 2018, the Florida Legislature passed 163.035 F.S., barring local, regional, and state governments from creating rules or ordinances based on customary use of any portion of the beach above the mean high-water line, unless based on judicial declaration. The Governor’s office responded by issuing EO 18-202, clarifying direction from the Governor’s office on the role of DEP in rulemaking for the new statute. EO 18-202 states that 163.035 F.S. “does not privatize or close access to any public beach in Florida.” This is not a 309 or CZM driven change. Likely future outcomes of the law are unknown at this time (DEP, 2018).

3. Indicate if your state or territory has a publicly available public access guide. How current is the publication and how frequently it is updated?<sup>9</sup>

**Publicly Available Access Guide**

Public Access Guide	Printed*	Online*	Mobile App*
State or territory has? (Y or N)	<ol style="list-style-type: none"> <li>1. Florida State Parks Maps and Trails</li> <li>2. Florida State Parks Brochures</li> <li>3. FWC Public Hunting Area Brochures</li> </ol>	<ol style="list-style-type: none"> <li>1. Outdoor Florida</li> <li>2. FWC Paddling Trails</li> <li>3. Florida Online Trail Guide</li> <li>4. Florida State Parks</li> <li>5. FWC Florida Public Boat Ramp Finder</li> <li>6. SWFWMD Recreation Maps<sup>#1</sup></li> <li>7. Florida Coastal Access Guide (FCMP)</li> </ol>	<ol style="list-style-type: none"> <li>1. Outdoor Florida</li> <li>2. The Official Guide for Florida State Parks – Pocket Ranger (GPS maps, trail data)</li> <li>3. FWC Boat Ramp Florida</li> <li>4. FWC Wildlife Management Area Fish/Hunt FL app (brochure and map access)</li> </ol>
Web address (if applicable)	<ol style="list-style-type: none"> <li>1. <a href="https://www.floridastateparks.org/parks-and-trails/jonathan-dickinson-state-park/publications">https://www.floridastateparks.org/parks-and-trails/jonathan-dickinson-state-park/publications</a></li> <li>2. <a href="https://www.floridastateparks.org/parks-and-trails/jonathan-dickinson-state-park/publications">https://www.floridastateparks.org/parks-and-trails/jonathan-dickinson-state-park/publications</a></li> <li>3. <a href="https://myfwc.com/hunting/wma-brochures/">https://myfwc.com/hunting/wma-brochures/</a></li> </ol>	<ol style="list-style-type: none"> <li>1. <a href="https://outdoorflorida.org/map.html">https://outdoorflorida.org/map.html</a></li> <li>2. <a href="https://myfwc.com/viewing/paddling-trails/">https://myfwc.com/viewing/paddling-trails/</a></li> <li>3. <a href="https://floridadep.gov/parks/ogt/content/online-trail-guide">https://floridadep.gov/parks/ogt/content/online-trail-guide</a></li> <li>4. <a href="https://www.floridastateparks.org/statewide-map">https://www.floridastateparks.org/statewide-map</a></li> <li>5. <a href="https://public.myfwc.com/LE/boatramp/public/CountyMap.aspx">https://public.myfwc.com/LE/boatramp/public/CountyMap.aspx</a></li> <li>6. <a href="https://www.swfwmd.state.fl.us/recreation">https://www.swfwmd.state.fl.us/recreation</a></li> <li>7. <a href="https://ca.dep.state.fl.us/mapdirect/?focus=coastalaccess">https://ca.dep.state.fl.us/mapdirect/?focus=coastalaccess</a></li> </ol>	<ol style="list-style-type: none"> <li>1. <a href="https://outdoorflorida.org/map.html">https://outdoorflorida.org/map.html</a></li> <li>2. <a href="http://www.pocketranger.com/apps/florida.html">http://www.pocketranger.com/apps/florida.html</a></li> <li>3. <a href="https://apps.apple.com/us/app/boat-ramp-florida/id1341752603">https://apps.apple.com/us/app/boat-ramp-florida/id1341752603</a></li> <li>4. <a href="https://myfwc.com/hunting/wma-brochures/">https://myfwc.com/hunting/wma-brochures/</a></li> </ol>
Date of last update	<ol style="list-style-type: none"> <li>1. Ongoing</li> <li>2. Ongoing</li> <li>3. Ongoing</li> </ol>	<ol style="list-style-type: none"> <li>1. Completed in 2016, 2017 update included state and federal lands, 2018 update included locally owned lands, updates ongoing</li> <li>2. Ongoing</li> <li>3. Ongoing</li> <li>4. Ongoing</li> <li>5. Ongoing</li> <li>6. Ongoing</li> <li>7. Ongoing</li> <li>8. Originally created in 2011, moved to Map Direct Lite in 2015, updated in 2018, updates ongoing</li> </ol>	<ol style="list-style-type: none"> <li>1. Completed in 2016, 2017 updates included state and federal lands, 2018 update included locally owned lands, most recent update in October 2018, updates ongoing</li> <li>2. Updated November 2017</li> <li>3. Ongoing</li> <li>4. Updated November 2019</li> </ol>
Frequency of update	As Needed	As Needed	As Needed

\*FWC = Florida Fish and Wildlife Conservation Commission, FCMP = Florida Coastal Management Program

<sup>#1</sup> Florida has several other regional public access guides as well. If available for the region, they will be found on the respective region's Florida Water Management District Website.

<sup>9</sup> Note some states may have regional or local guides in addition to state public access guides. Unless you want to list all local guides as well, there is no need to list additional guides beyond the state access guide. You may choose to note that the local guides do exist and may provide additional information that expands upon the state guides.



**Enhancement Area Prioritization:**

1. What level of priority is the enhancement area for the coastal management program?

High        X    
 Medium            
 Low              

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Public Access to Florida’s public lands and waters has always been a high priority. It is important for residents and visitors to access and enjoy all the natural beauty that Florida has to offer. Increasing and improving public access as well as understanding the types of visitors to public lands is important. Throughout the state stakeholders are continually providing public comments to managers of State managed lands, local governments, and other organizations that provides for and enhances public access. Stakeholders include all residents and visitors as well as organizations that work in concert with public lands to improve and enhance public access.

**PHASE II (IN-DEPTH) ASSESSMENT:**

*Note: Identifying an enhancement area as a high priority does not necessarily mean the CMP would be required to develop a strategy for the enhancement area given other priority enhancement areas and available resources.*

**In-Depth Resource Characterization:**

*Purpose: To determine key problems and opportunities to improve the CMP’s ability to increase and enhance public access opportunities to coastal areas.*

1. What are the three most significant existing or emerging threats or stressors to creating or maintaining public access within your coastal zone? Indicate the geographic scope of the stressor, i.e., is it prevalent throughout the coastal zone or are specific areas most threatened? Stressors can be private development (including conversion of public facilities to private); non-water-dependent commercial or industrial uses of the waterfront; increased demand; erosion; sea level rise or Great Lakes level change; natural disasters; national security; encroachment on public land; or other (please specify). When selecting significant stressors, also consider how climate change may exacerbate each stressor.

	<b>Stressor/Threat</b>	<b>Geographic Scope</b> (throughout coastal zone or specific areas most threatened)
Stressor 1	Private development/encroachment	Throughout
Stressor 2	Natural disasters/sea level rise/erosion	Throughout
Stressor 3	Increased demand	Throughout

- Briefly explain why these are currently the most significant stressors or threats to public access within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

Florida has over 825 miles of sandy beaches; however, 60% of beach property is privately owned. In order to maintain public access to the privately-owned beaches, customary-use beach access ordinances are passed by local governments (DEP, 2019c; Clarke, 2018). In 2018, the Florida Legislature proposed House Bill 631, which was set to become effective July 1, 2018 (Clarke, 2018). The proposed bill would have replaced the customary-use ordinances with a new process that would require cities and counties to go before a judge to declare that a portion of private beach should be available to the public (Mast, 2018). In response, on July 12, 2018, Governor Rick Scott issued EO 18-202 to preserve public access to beaches. The EO directed DEP to represent the public’s right to public beach access. As such, the DEP allows residents and visitors to report beach access violations and provides a full report to the Florida Legislature and government (DEP, 2018).

According to the *2018 State of Florida Enhanced State Hazard Mitigation Plan* (DEM, 2018), the top three coastal hazards identified in Florida were flooding, coastal storms, and shoreline erosion (see also [Coastal Hazards](#) section). In addition, Florida currently has 419.6 miles of critically eroded beach, 90.9 miles of non-critically eroded beach, 8.7 miles of critically eroded inlet, and 3.2 miles of non-critically eroded inlet identified within Florida (DEP DWRM, 2019); (See also [Ocean Resources](#) section.) The increased frequency and magnitude of storms, along with coastal erosion vulnerability, continues to be an ongoing threat to public access of beaches, trails, and other historic sites. In addition, sea level rise increases the threat of inundation of coastlines, resulting in the loss of public access to many historic sites (see also [Ocean Resources](#) section).

For eight consecutive years, Florida has had record breaking tourism rates (Visit Florida, 2019). In addition, based on the 2019 SCORP report, Florida currently has the third largest population in the nation which is expected to continue to grow until 2030 (DEP, 2019a). Due to the growing number of residents and visitors in Florida, there is an overall increased demand threat to the state’s recreational public access.

- Are there emerging issues of concern, but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	Information Needed
Sea Level Rise	Sea level rise continues to be an ongoing and emerging issue for the state of Florida, with the level on impact dependent on the area being assessed. Sea level rise poses a threat to coastal public infrastructure and access points, as more frequent inundation occurs. The ongoing need is for research, model updates, and future inundation maps to predict public access areas impacted by increased sea level rise and erosion.

Sea level rise poses a threat to coastal public infrastructure and access points as more frequent inundation from flooding occurs. Sea level rise increases the frequency and magnitude of flooding during storm and tidal events. There has been a significant amount of research performed on forecasting sea level rise over the last five-years. However, the results of the projections contain a wide range of possible future values, making it difficult to accurately determine. The threat of sea level rise is an ongoing issue for some coastal communities and communities and an emerging issue for others. There is an ongoing need to identify the risk that sea level rise puts on coastal access points currently and in the future.

**In-Depth Management Characterization:**

*Purpose: To determine the effectiveness of management efforts to address identified problems related to the public access enhancement objective.*

1. For each additional public access management category below that was not already discussed as part of the Phase I assessment, indicate if the approach is employed by the state or territory and if significant changes (positive or negative) have occurred at the state or territory level since the last assessment.

**Significant Changes to Public Access Management**

<b>Management Category</b>	<b>Employed by State/Territory (Y or N)</b>	<b>CMP Provides Assistance to Locals that Employ (Y or N)</b>	<b>Significant Changes since Last Assessment (Y or N)</b>
Comprehensive access management planning	Y	Y	N
GIS mapping/database of access sites	Y	Y	Y
Public access technical assistance, education, and outreach (including access point and interpretive signage, etc.)	Y	Y	N
Other (please specify)	N/A	N/A	N/A

2. For management categories with significant changes since the last assessment, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information.
  - a. Describe significant changes since the last assessment;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

**DEP Outdoor Florida:** DEP established Outdoor Florida (DEP, n.d.) in 2016 in order to increase awareness of recreational opportunities available to the public on Florida’s conservation lands. Outdoor Florida provides a web-based interactive map that allows the user to view various recreational activities across the state. The Outdoor Florida website is based on data from the FORI (DEP DRP, n.d.). Currently,

the website's activities and amenities are searchable for six main categories: 1) Beaches and swimming pools, 2) Boating, fishing, and hunting, 3) Sports, courses, and courts, 4) Education and history, 5) Camping and amenities, and 6) Trails. Each of these categories can then be further defined in the search based on the specific type of facility desired. Originally, the website only contained recreational activities that were located on state and federally owned lands. DEP had aimed to add recreational sites for locally owned lands by January 2018; however, the current status of these updates is not known (DEP, n.d.). This is not a 309 or CZM driven change.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's management efforts in providing public access since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state's management efforts?

**DEP – 2019 SCORP:** DEP's 2019 SCORP (DEP, 2019a; DEP, 2019b) report is part of an outdoor planning process for the expansion of public access to recreational activities. The current report represents the state's 11<sup>th</sup> official plan, which was developed by the DEP and the Division of Recreation and Parks (DRP) in coordination with the state and federal legislative requirements. The SCORP report is required to present recreational supply and demand, describe current recreational opportunities, estimate needs for additional recreational opportunities, and propose strategies for fulfilling the identified needs. Since the beginning of state recreational planning in 1963, the SCORP has assisted in the state's public access management efforts by addressing ongoing recreational issues, providing recommended solutions, and overall contributing towards the expansion of recreation opportunities within the state.

#### **Identification of Priorities:**

1. Considering changes in public access and public access management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve the effectiveness of its management effort to better respond to the most significant public access stressors. (*Approximately 1-3 sentences per management priority.*)

##### *Management Priority 1: Identify areas with inadequate public access*

*Description:* Lands and waters with inadequate public access or in need of improved public access should be identified by state and local agencies. These data will assist with quantifying the number of publicly available recreational areas, while also developing a priority level for each area of improvement.

##### *Management Priority 2: Further develop visitor count methodology*

*Description:* Documenting visitor numbers to submerged lands is difficult to determine unless visitor access to the site is through an attended gate. The ongoing Visitor Use Monitoring Protocol strategy in the last assessment is working towards this goal. Valuable data have been gathered via both traditional methods of visitor survey and newer technologies like drone-captured aerial imagery.

The data gathered in the Visitor Use Monitoring Protocol study could be further expanded and applied towards management goals.

2. Identify and briefly explain priority needs and information gaps the CMP has to help it address the management priorities identified above. The needs and gaps identified here do not need to be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	Y	Ongoing research needs to quantify recreational inventory, estimate number of annual visitors, document the participation by residents and visitors in various recreational activities, and determine the value of recreation and public access across the state.
Mapping/GIS	Y	Ongoing need for updated mapping/GIS information that depicts gaps in park availability, provides user friendly map access both online and through mobile apps, and continual updates to DEP's Florida Outdoor Recreational Inventory.
Data and information management	Y	Need to identify lands and waters with inadequate recreational access, or where existing access can be improved. Continued need to strengthen coordination of agencies and recreational providers for data collection and management planning.
Training/capacity building	Y	Need for organizations to promote inclusion training and expand on the capacity of recreational activities to be wheelchair accessible.
Decision-support tools	Y	Continual need to update supporting decision-making materials (reports/maps/training programs) with current data on public access and recreational use in order to assist in future local and state government decisions.
Communication and outreach	Y	Ongoing need to coordinate providers, agencies, and organizations to better connect recreational opportunities. Continued need to host public events to encourage exchange of information between recreation providers and user groups.
Other (specify)	N/A	N/A

**Enhancement Area Strategy Development:**

1. Will the CMP develop one or more strategies for this enhancement area?

Yes \_\_\_\_\_  
 No   X  

2. Briefly explain why a strategy will or will not be developed for this enhancement area.

A strategy will not be developed specific to the public access enhancement area. The FCMP is in the process of completing and finalizing the visitor use estimation strategy from the previous 309 cycle. For this strategy public access is the primary enhancement area being studied. This strategy has been delayed by several reasons including staff turnover, and COVID-19 which impacted the project beginning

in Spring of 2020. During the upcoming 309 strategy funding cycle, FCMP will also continue to update existing data products like the public access guide.

## References:

Clarke, P. (2018). Florida Law Threatening Public Beach Access Faces Strong Opposition. Impacting Travel. Retrieved from website: <https://www.travelpulse.com/news/impacting-travel/florida-law-threatening-public-beach-access-faces-strong-opposition.html>

Florida Department of Environmental Protection [DEP]. (2019a). 2019 Statewide Comprehensive Outdoor Recreation Plan (SCORPS) – SCORP Chapters. Retrieved from website: <http://publicfiles.dep.state.fl.us/OPP%20Public%20Access/2019%20SCORP/1SCORP%20Chapters.pdf>

Florida Department of Environmental Protection [DEP]. (2019b). 2019 Statewide Comprehensive Outdoor Recreation Plan (SCORPS) - SCORPS Appendices. Retrieved from website: <http://publicfiles.dep.state.fl.us/OPP%20Public%20Access/2019%20SCORP/SCORP%20Appendices.pdf>

Florida Department of Environmental Protection [DEP]. (2019c). Florida Coastal Access Guide. Retrieved from website: <https://floridadep.gov/rcp/coastal-access-guide/content/florida-coastal-access-guide>

Florida Department of Environmental Protection [DEP]. (2018). Florida Beach Access. Retrieved from website: <https://floridadep.gov/floridabeachaccess>

Florida Department of Environmental Protection [DEP]. (2017). 2016-2017 SCORP Economic Impact of Outdoor Recreation Activities in Florida Section 1. Retrieved from website: [https://floridadep.gov/sites/default/files/Economic-Study-Appx-A-w-tags\\_rev2019.pdf](https://floridadep.gov/sites/default/files/Economic-Study-Appx-A-w-tags_rev2019.pdf)

Florida Department of Environmental Protection [DEP]. (n.d.). Outdoor Florida. Accessed on November 8, 2019 from website: <https://outdoorflorida.org/home.html#>

Florida Department of Environmental Protection Division of Water Resource Management [DEP DWRM]. (2019). Critically Eroded Beaches in Florida. Retrieved from website: <https://floridadep.gov/sites/default/files/DEP-Critically-Eroded-Beaches-2019.pdf>

Florida Department of Environmental Protection Division of Recreation and Parks [DEP DRP]. (n.d.). Florida's Outdoor Recreation Inventory [FORI]. Accessed on November 8, 2019 from website: [http://prodenv.dep.state.fl.us/DrpOrpcr/outdoorRecreationInventory.do;DRPORPCR=ZC5LjA4aLDzUUnW2KxCBWC8QQAktBbWA\\_5VcMjODBlxefisSi7CB!1326099575?selectedPage=InventoryQuery](http://prodenv.dep.state.fl.us/DrpOrpcr/outdoorRecreationInventory.do;DRPORPCR=ZC5LjA4aLDzUUnW2KxCBWC8QQAktBbWA_5VcMjODBlxefisSi7CB!1326099575?selectedPage=InventoryQuery)

Florida Division of Emergency Management [DEM]. (2018). State of Florida Enhanced State Hazard Mitigation Plan. Retrieved from website:

[https://floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full\\_final\\_approved.6.11.2018.pdf](https://floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full_final_approved.6.11.2018.pdf)

Florida State Parks. (n.d.) Find a Park – Beaches and Coasts. Accessed on November 8, 2019 from website: [https://www.floridastateparks.org/parks-and-trails?parks%5B0%5D=park\\_type%3A70&keywords=&page=3](https://www.floridastateparks.org/parks-and-trails?parks%5B0%5D=park_type%3A70&keywords=&page=3)

Mast, T. (2018). Bills address public access to private beaches. Naples Daily News. Retrieved from website: <https://www.naplesnews.com/story/news/government/2018/01/26/bill-would-give-florida-courts-power-decide-whether-beaches-stay-open-public/1054573001/>

National Oceanic and Atmospheric Administration [NOAA]. (2018a). Apalachicola National Estuarine Research Reserve. Retrieved from website: <https://coast.noaa.gov/nerrs/reserves/apalachicola-bay.html>

National Oceanic and Atmospheric Administration [NOAA]. (2018b). Guana Tolomato Matanzas National Estuarine Research Reserve. Retrieved from website: <https://coast.noaa.gov/nerrs/reserves/gtm.html>

National Oceanic and Atmospheric Administration [NOAA]. (2018c). Rookery Bay National Estuarine Research Reserve. Retrieved from website: <https://coast.noaa.gov/nerrs/reserves/rookery-bay.html>

U.S. Department of the Interior [DOI], U.S. Fish and Wildlife Service [USFWS], and U.S. Department of Commerce, U.S. Census Bureau [USCB]. (2016). 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. Retrieved from website: <https://www.census.gov/library/publications/2018/demo/fhw-16-nat.html>

Visit Florida. (2019). Research – Estimates of Visitors to Florida by Quarter. Retrieved from website: <https://www.visitflorida.org/resources/research/>

Waldron-Gross. (2017). List of Florida Beaches That Offer Beach Wheelchairs in 2017. Retrieved from website: <https://traveltips.usatoday.com/list-florida-beaches-offer-beach-wheelchairs-109241.html>

## Marine Debris

**Section 309 Enhancement Objective:** Reducing marine debris entering the nation’s coastal and ocean environment by managing uses and activities that contribute to the entry of such debris. §309(a)(4)

### PHASE I (HIGH-LEVEL) ASSESSMENT:

#### Resource Characterization:

1. In the table below, characterize the existing status and trends of marine debris in the state’s coastal zone based on the best-available data.

Accurate assessment of the status and trends of marine debris in the coastal zone is difficult without a baseline. There are several marine debris mechanisms for counting and tracking marine debris, which are outlined within the assessment, but without a system analysis only rough trends with unknown margins of error can be attempted.

**Existing Status and Trends of Marine Debris in Coastal Zone**

Source of Marine Debris	Significance of Source (H, M, L, unkwn)	Type of Impact <sup>10</sup> (aesthetic, resource damage, user conflicts, other)	Change Since Last Assessment (↑, ↓, -, unkwn)
Beach/shore litter	H	Aesthetic, resource damage, user conflict	unkwn
Land-based dumping	M	Resource damage	-
Storm drains and runoff	M	User conflict, aesthetic, resource damage	unkwn
Land-based fishing (e.g., fishing line, gear)	M	Resource damage	-
Ocean/Great Lakes-based fishing (e.g., derelict fishing gear)	M	Aesthetic, resource damage, user conflict	-
Derelict vessels	M	Aesthetic, resource damage	↑
Vessel-based (e.g., cruise ship, cargo ship, general vessel)	M	Resource damage	unkwn
Hurricane/storm	M	Aesthetic, resource damage	↑
Tsunami	-	-	-
Aquaculture	M	Aesthetic, resource damage, user conflict	-

2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends or potential impacts from marine debris in the coastal zone since the last assessment.

<sup>10</sup> You can select more than one, if applicable.



**Derelict Vessels (DVs):** FWC works cooperatively with local governments to remove DVs throughout the state. DVs can harm mangroves, seagrasses, or other environmentally sensitive submerged lands. Oil, gas, and other hazardous materials can also be discharged into these environments and into the water from DVs. In addition, submerged DVs are a navigational hazard to other boaters. In all DV removals, teams are careful to consider sensitive environmental areas during each phase of this program. FWC maintains a publicly available online database with detailed information, including photos, for each of the vessels removed (FWC, 2019c).

After Hurricane Irma struck Florida in 2017, a coordinated program for DV identification, assessment, hazardous material removal, and DV removal was completed by federal and state agency teams within the Emergency Response Unified Command structure, specifically the U.S. Coast Guard (USCG), EPA FWC, and DEP. Ultimately, 983 vessels were removed and another 66 vessels were left *in situ* due to concerns with removal (FWC, 2019c). In addition, following hurricane Michael in 2018, the FWC removed 175 vessels in coordination with the USCG (DEP, 2020).

An overview of all DVs removed under contract by the FWC in the last five fiscal years can be seen below. The table below does not include DVs removed by local governments. There were no recorded DVs removed by FWC in 2015/2016 since there was no funding, other than County retained vessel registration fees. During 2015/2016 many counties removed their own vessels. Data for fiscal year 2019/2020 is incomplete as it began in early 2020. In previous years, FWC only reimbursed up to 75% of the DV removal cost; however, in fiscal year 2019/2020 the FWC is now providing 100% reimbursement. Due to this, the number of DV removal requests is expected to increase throughout the 2019/2020 reimbursement cycle (FWC, 2020).

**Annual Derelict Vessels Removed by FWC**

Fiscal Year	Vessels Removed
2015/2016	-
2016/2017	134
2017/2018	34
2018/2019	61
2019/2020*	5

\*data for FY19/20 reflects projects funded at the time of writing (February 2020). FWC anticipates many more projects funded throughout this fiscal year.

**Land-Based/Shore Litter:** State data from the Ocean Conservancy’s International Coastal Cleanup (ICC) illustrates that the amount of debris picked between 2015 and 2017 remained nearly constant. However, in 2018 there was a sharp rise in the amount of trash collected, even though the number of participants increased only slightly (OC ICC, 2016; OC ICC, 2017; OC ICC, 2018).

**Annual Pounds of Marine Trash Collected by the ICC in Florida**

Year	People Participating	Pounds of Trash Collected
2015 <sup>#1</sup>	29,276	346,265
2016 <sup>#2</sup>	26,898	281,915
2017 <sup>#3</sup>	21,010	173,552
2018 <sup>#4</sup>	30,349	495,751

<sup>#1</sup> OC ICC. 30<sup>th</sup> Anniversary International Coastal Cleanup Annual Report. (OC ICC, 2016): <https://oceanconservancy.org/wp-content/uploads/2017/04/2016-Ocean-Conservancy-ICC-Report.pdf>

<sup>#2</sup> OC ICC. Together for Our Ocean, International Coastal Cleanup 2017 Report. (OC ICC, 2017): <https://oceanconservancy.org/wp-content/uploads/2017/04/2017-Ocean-Conservancy-ICC-Report.pdf>

<sup>#3</sup> OC ICC. Building A Clean Swell, 2018 Report. (OC ICC, 2018). <https://oceanconservancy.org/wp-content/uploads/2018/07/Building-A-Clean-Swell.pdf>

<sup>#4</sup> OC ICC. The Beach and Beyond, 2019 Report. (OC ICC, 2019): <https://oceanconservancy.org/wp-content/uploads/2019/09/Final-2019-ICC-Report.pdf>

**Marine Debris Reporting and Removal Program (Annual Southeast Florida Reef Cleanup):** The Annual Southeast Florida Reef Cleanup began in 2011 as a way for DEP’s Marine Debris Reporting and Removal Program as well as the Southeast Florida Coral Reef Initiative (SEFCRI) to raise public awareness of the growing problem of marine debris and reduce its impacts in the region. Every summer, DEP and SEFCRI organize both shore-based and underwater cleanups in partnership with local dive charters in Miami-Dade, Broward, Palm Beach, and Martin Counties to remove marine debris from the local reefs and waterways. Over the past nine years, this partner initiative has removed over 3,267 pounds of debris from our reefs and waterways in the region. The annual amount of debris removed by weight from Palm Beach, Broward, and Miami-Dade Counties during the Southeast Florida Reef Cleanups from 2012 to 2019 can be viewed in tabular format below.

**Yearly amount of debris removed by weight from Palm Beach, Broward, and Miami-Dade Counties**

Year	Palm Beach (lbs.)	Broward (lbs.)	Miami-Dade (lbs.)
2015	221	114	134
2016	55.5	17	301
2017	61.5	84	10
2018	35.31	80	123
2019	2.8	112.6	96.14
<b>TOTAL</b>	<b>376.11</b>	<b>407.6</b>	<b>564.14</b>

**Relative percent of marine debris Items recovered off the reefs from Palm Beach, Broward, and Miami-Dade Counties during Southeast Florida Reef Cleanup events**

Category	2015	2016	2017	2018	2019
Fishing	67.8	42.7	35.6	43.2	43.2
Boating	2.8	16.7	2.0	4.2	6.6
Diving	1.2	1.4	1.6	4.7	4.2
Household	3.4	5.6	8.7	5.8	5.6
Trash	24.6	25.1	52.2	42.1	40.4

**2019 Florida Marine Debris Emergency Response Guide:** The purpose of the National Oceanographic and Atmospheric Administration’s *Florida Marine Debris Emergency Response Guide* (NOAA, 2019) is to improve preparedness for response and recovery operations. The guide includes data on prominent debris types, which were derived from a study by the FEMA in 2016. The following primary debris types were identified in the guide:

- Chemical, biological, radiological, and nuclear-contaminated
- Construction and demolition
- Electronic waste (e-waste)
- Hazardous waste
- Household hazardous waste/material
- Infectious waste
- Putrescent debris
- Soil, mud, and sand
- Vegetative debris
- Vehicles and vessels
- White goods

**Management Characterization:**

1. Indicate if the approach is employed by the state or territory and if there have been any significant state- or territory-level management changes (positive or negative) for how marine debris is managed in the coastal zone.

**Significant Changes in Marine Debris Management**

Management Category	Employed by State/Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Marine debris statutes, regulations, policies, or case law interpreting these	Y	Y	Y
Marine debris removal programs	Y	Y	Y

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
  - a. Describe the significance of the changes;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes and likely future outcomes of the changes.

## **Statutes, Regulations, Policies, or Case Law:**

On July 1, 2016, the Florida Legislature passed 327.4107, F.S. which defines an “At-Risk” vessel and specifies under what conditions an FWC officer or officer of a law enforcement agency (as specified in 327.70, F.S.) may determine that a vessel is at risk of becoming derelict. This law also allows an officer to take action with the owner of the vessel if it is considered to be at risk of becoming a DV.

## **Marine Debris Removal Programs:**

**Monofilament Recovery and Recycling Program (MRRP):** This is a program run by FWC that provides public education across the state about damages caused to the environment by discarded fishing line. The project encourages recycling and promotes volunteer events to help keep Florida waterways free of monofilament line (<http://mrrp.myfwc.com/>) (FWC, 2019d).

**Spiny Lobster, Stone Crab, and Blue Crab Trap Retrieval Program / Derelict Trap and Trap Debris Removal Program:** The FWC has two programs for the removal of lost and abandoned lobster and crab traps. The Spiny Lobster, Stone Crab, and Blue Crab Trap Retrieval Program contracts commercial fishermen to remove traps during closed fishing seasons. The Derelict Trap and Trap Debris Removal Program allows volunteers to remove derelict traps during open and closed seasons. (<https://myfwc.com/fishing/saltwater/trap-debris/>) (FWC, 2019b).

**Southeast Florida Marine Debris Reporting and Removal Program (MDP):** This program was established by DEP, FWC, and Palm Beach County Reef Rescue to provide a means for reporting and removing marine debris along the 105-mile northern extension of the Florida reef between Martin and Miami-Dade Counties, now known as the Southeast Florida Coral Reef Ecosystem Conservation Area. The program maintains a reporting system for the public, known as the Southeast Florida Action Network ([www.SEAFAN.net](http://www.SEAFAN.net)) to help locate areas with marine debris and organizes cleanup events to remove the debris ([www.SEAFAN.net/marinedebris](http://www.SEAFAN.net/marinedebris)) (DEP, 2019e).

**Clean Marina and Clean Boater Programs:** The Clean Marina Program (CM) is a DEP initiative that recognizes marinas, boatyards, and/or marine retailers that utilize environmental best management practices to help keep Florida waterways clean and free of debris. In order to receive the CM designation, a facility must apply and sign a pledge before an assessment is conducted and certification issued (<https://floridadep.gov/rcp/clean-marina>) (DEP, 2019b).

Similar to the CM, the DEP’s Clean Boater Program provides education on clean boating habits and environmental responsibilities for boaters and encourages boaters to take a clean boating pledge (<https://floridadep.gov/CleanBoating>) (DEP, 2019a).

**Florida Department of Agriculture and Consumer Sciences (DACS), Division of Aquaculture:** The DACS Division of Aquaculture maintains several programs to educate aquaculture farmers on the importance of managing aquaculture equipment in order to prevent loss and prevent equipment from becoming marine debris. On September 12, 2018, the DACS held a Shellfish Aquaculture Gear Management Workshop in Cedar Key, Florida to provide farmers and industry leaders with details

and information about aquaculture debris issues (DACS, 2018). Issues discussed during the workshop included gear management techniques, proper gear anchoring methods, and severe-storm preparation strategies.

In 2016, the DACS published the *Aquaculture Best Management Practices (BMP) Manual* (DACS, 2016). This manual provides BMPs that are required to be followed by all certified commercial aquaculturists, are enforceable by law, and do not supersede other applicable local, state, or federal regulations unless explicitly authorized in statute. Specific to the prevention of marine debris, the BMPs include a clause stating “Nets and moorings must be maintained in a whole and intact condition. No gear may be abandoned. Storage of nets or gear on the bottom is prohibited. Any net or gear accidentally dropped or lost during storm events that is not recovered immediately shall be tagged with a float, positioned using differential Global Positioning System, and reported to DACS within 24 hours. The lost net or gear shall be recovered within 30 days of the date lost. DACS shall be notified on the date the net or gear is recovered.”

**Enhancement Area Prioritization:**

1. What level of priority is the enhancement area for the coastal management program?

<b>High</b>	<u>  X  </u>
<b>Medium</b>	<u>      </u>
<b>Low</b>	<u>      </u>

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Marine debris continues to be a high priority issue in Florida as evidenced by the many existing and developing statewide initiatives which attempt to mitigate marine debris and its negative impacts. For example, the FCMP published *Marine Debris Reduction Guidance Plan* in 2017 (DEP, 2017), funded through the NOAA Marine Debris Program, and the *Hurricane Marine Debris Lessons Learned from the 2016 and 2017 Hurricane Seasons* (DEP, 2018) in 2018, which evaluated lessons learned from previous hurricane seasons through the lens of marine debris. Each of these documents actively included stakeholder participation from FCMP partner agencies, as well as local governments and other organizations throughout the state. FWC’s DV and trap removal programs actively engage stakeholders including local governments, private owners of the vessels and traps, residents, environmental organizations, and at times, law enforcement. Additionally, local authorities throughout the state continue their participation in the Ocean Conservancy’s ICC, which has collected nearly 1.3 million pounds of debris from Florida shores and waterways from 2015-2018.

**PHASE II (IN-DEPTH) ASSESSMENT:**

*Note: Identifying an enhancement area as a high priority does not necessarily mean the CMP would be required to develop a strategy for the enhancement area given other priority enhancement areas and available resources.*

## In-Depth Resource Characterization:

*Purpose: To determine key problems and opportunities to improve the CMP's ability to effectively management marine debris in the coastal zone.*

1. What are the three most significant existing or emerging challenges related to marine debris within your coastal zone? Indicate the geographic scope of the challenge, i.e., is it prevalent throughout the coastal zone, or are specific areas most threatened? Challenges can be land- or ocean-based marine debris reduction (e.g., behavior change to reduce waste, increase recycling, or litter less); catastrophic event-related debris; marine debris identification and removal; research and monitoring; education and outreach; or other (please specify). When selecting significant challenges, also consider how climate change may exacerbate each challenge.

	<b>Challenges</b>	<b>Geographic Scope</b> (throughout coastal zone or specific areas most threatened)
Challenge 1	Vessel based sewage	Throughout coastal zone
Challenge 2	Storm related	Throughout coastal zone
Challenge 3	Derelict vessels	Throughout coastal zone

2. Briefly explain why these are currently the most significant challenges related to marine debris in the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

Since the last assessment, storm related marine debris has become an issue due to the increase in coastal storm frequency. The most notable storms that occurred since the last assessment include Hurricane Matthew (2016), Hurricane Irma (2017), and Hurricane Michael (2018). Hurricane Matthew resulted in the removal of over 78,000 cubic yards of debris from state waters and cost \$15 million, and Hurricane Irma resulted in the removal over 250,000 cubic yards of marine debris which cost over \$43 million (DEP, 2018). The FCMP's *Hurricane Marine Debris Lessons Learned from the 2016 and 2017 Hurricane Seasons* (DEP, 2018) reflected on the lessons learned from the 2016 and 2017 hurricane seasons. The study included interviews with 23 various agencies, local governments, and organizations, many of which were partner agencies with the FCMP. The interview comments were then categorized into topics of overall lessons learned. The top three topics that were identified as needing the most improvement for future storm preparedness were: 1) advance planning, 2) communication, and 3) funding (DEP, 2018). In addition, DEP's *Florida Marine Debris Reduction Guidance Plan* (DEP, 2017) identified storm related debris as a hazard in need of improvement.

The discharge of untreated sewage from vessels into state waters is an ongoing obstacle in the state of Florida. The DEP Clean Vessel Act (CVA) Grant Program (DEP, 2019c) records the amount of sewage pumped from vessels at marinas throughout the state. DEP's Clean Marina Program (DEP, 2019b) requires and encourages clean facilities to perform regular trash management at their facilities. DEP's Clean Boater Program (DEP, 2019a) encourages boaters to bring their trash back to shore and properly

dispose of it. The DEP records the amount of sewage pumped from vessels, along with the number of vessels, and fees collected.

DVs are a significant problem along Florida’s coast and waterways, as they pose both environmental and navigation hazards. DVs can physically damage benthic resources, such as seagrasses and corals. There have also been many documented cases of pollution caused by submerged DVs via the discharge of fuels, oils, and other toxins into Florida waters. Submerged DVs are a boating safety hazard and could be struck by commercial or recreational vessels. The locations of DVs are continually being monitored and added to the FWC’s database and map (FWC, 2019a). In addition, the *Florida Marine Debris Reduction Guidance Plan* identified DVs as a marine debris hazard in need of improvement (DEP, 2017).

3. Are there emerging issues of concern, but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	Information Needed
Discharges of untreated municipal sewage and stormwater	Frequency, location, and level of impact
Impacts of marine debris to Florida species and habitats	Research regarding Florida marine debris and impacts to specific species and habitat, including types of debris, frequency of impact, and possible solutions.

**In-Depth Management Characterization:**

*Purpose: To determine the effectiveness of management efforts to address identified problems related to the marine debris enhancement objective.*

1. For each additional marine debris management category below that was not already discussed as part of the Phase I assessment, indicate if the approach is employed by the state or territory, and indicate if significant state- or territory-level changes (positive or negative) have occurred since the last assessment.

**Significant Changes to Management of Marine Debris**

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Marine debris research, assessment, monitoring	Y	Y	Y
Marine debris GIS mapping/database	Y	Y	Y
Marine debris technical assistance, education, and outreach	Y	Y	Y
Marine debris reduction programs (litter control, recycling, etc.)	Y	Y	Y
Marine debris storm response	Y	Y	Y

2. For management categories with significant changes since the last assessment, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information.
  - a) Describe significant changes since the last assessment;
  - b) Specify if they were 309 or other CZM-driven changes; and
  - c) Characterize the outcomes or likely future outcomes of the changes.

**Marine Debris Research, Assessment, and Monitoring:** See discussion above regarding the *Hurricane Marine Debris Lessons Learned from the 2016 and 2017 Hurricane Seasons* (DEP, 2018).

**Marine Debris GIS Mapping/Database:** See above regarding discussion of the FWC's DV database and map (FWC, 2019a).

**Marine Debris Technical Assistance, Education, and Outreach:** See discussion above regarding the DACS *Aquaculture Best Management Practices (BMP) Manual* (DACs, 2016).

**Marine Debris Reduction Programs (Litter Control, Recycling, etc.):** See discussion above regarding FCMP's 2017 *Florida Marine Debris Guidance Plan* (DEP, 2017).

**Marine Debris Storm Response:** Since the last assessment and following coastal storms, DEP has taken the lead in providing guidance and assistance to local governments in removing storm related marine debris (excluding vessels) from state waters. The effort is a large undertaking that requires coordination with a multitude of local, state, and federal agencies. Vessel removal is coordinated between the FWC and USCG. In 2019, NOAA updated the *Florida Marine Debris Emergency Response Guide: Comprehensive Guidance Document* (NOAA, 2019). This document provides a detailed listing of the roles and responsibilities of local, state, and federal agencies, as well as other entities. It also provides details on permitting and compliance requirements when responding to and removing debris from waterways in Florida.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's or territory's management efforts to reduce marine debris since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state's or territory's management efforts?

The *Florida Marine Debris Reduction Guidance Plan* (DEP, 2017) has an overarching goal of "reducing the amount and impacts of marine debris in Florida." This plan concludes by providing five specific goals, with details, on how to best achieve the overarching goal. Since 2017, the *Florida Marine Debris Reduction Guidance Plan* (DEP, 2017) has been updated and revised during the 2019 Florida Marine Debris Reduction Workshop. The workshop focused on assessing existing guidance, identifying gaps and research needs, and updating the existing reduction plan. The updated 2019 Florida Marine Debris Reduction Guidance Plan objectives are as follows (DEP, 2019d).



## 2019 Florida Marine Debris Reduction Guidance Plan Objectives

<b>Objective 1 – To build the capacity to improve reporting, response and data monitoring of marine debris interactions with wildlife and habitats</b>	
<b>Strategy 1.1 – Streamline/improve the reporting system for wildlife entanglements</b>	
<b>a</b>	Review existing data and protocols that are used for reporting
<b>b</b>	Identify critical data criteria that need to be reported with entanglement incidents
<b>c</b>	Outreach (Use one central, well publicized phone number statewide to report entanglements)
<b>d</b>	Include capability for responders to report occurrences to other agencies (improve collaboration/coordination).
<b>e</b>	Decrease turnaround time for available data
<b>f</b>	Create/update and provide dispatcher with flowchart for response and the key information to gather for protected and non-protected species
<b>Strategy 1.2 – Create a reporting system for significant habitat impacts</b>	
<b>a</b>	Review/assess any existing systems that may be in place (check with state, federal and local agencies, marine patrols, etc.)
<b>b</b>	Identify critical data criteria that need to be reported with habitats incidents
<b>c</b>	Identify ways for citizen scientists to contribute to reporting and monitoring efforts
<b>d</b>	Develop a flowchart for response and the key information to gather
<b>Strategy 1.3 – Establish response protocols for habitat impacts and mitigation</b>	
<b>a</b>	Review existing protocols
<b>b</b>	Identify permitting constraints
<b>c</b>	Identify critical data criteria that need to be included in the protocols
<b>d</b>	Identify habitat specific issues
<b>e</b>	Review existing restoration efforts (e.g. DEP/Coral Reef Conservation Program)
<b>Strategy 1.4 – Establish/expand guidelines and outreach for the reporting public</b>	
<b>a</b>	Review and evaluate existing guidelines
<b>b</b>	Stakeholder engagement for dissemination and effective implementation of the protocols
<b>c</b>	Identify funding options for outreach efforts and products
<b>d</b>	Solicit species and habitat experts to review guidelines
<b>e</b>	Establish a protocol for regular maintenance of the guidelines
<b>f</b>	Review outreach effectiveness

<b>Objective 2 – To better understand interactions and impacts of marine debris on wildlife and habitats</b>	
<b>Strategy 2.1 – Establish baseline information of impacts by species, habitats and debris types</b>	
<b>a</b>	Identify responsible agency to manage the clearinghouse
<b>b</b>	Develop a clearinghouse to collect data on entanglement/ingestion, and habitat incidents <ul style="list-style-type: none"> <li>• Develop partnerships for data sharing</li> <li>• Increase access to data (developing data sharing mechanisms)</li> </ul>
<b>c</b>	Develop a consistent formatting for guidelines
<b>d</b>	Identify hotspots for marine debris interactions and accumulations
<b>e</b>	Develop a statewide model and trend analysis to inform managers
<b>f</b>	Identify data gaps and research priorities
<b>Strategy 2.2 – Conduct research on the processes of how wildlife entanglements and ingestion occurs and impacts on species health and wildlife populations</b>	
<b>a</b>	Develop stakeholder surveys <ul style="list-style-type: none"> <li>• angler surveys to gather information on wildlife interactions and gear loss</li> <li>• surveys to report habitat impacts</li> </ul>
<b>b</b>	Directed research on wildlife interactions with, and the impacts of, marine debris (e.g. microplastics cycling and uptake by wildlife, hotspots of interactions, health and risk assessment, long term and cumulative effects)
<b>Strategy 2.3 – Develop impact minimization measures or guidelines</b>	
<b>a</b>	Identify stakeholders
<b>b</b>	Establish partnerships
<b>c</b>	Disseminate the information

The *Hurricane Marine Debris Lessons Learned from 2016 and 2017 Hurricane Seasons* study (DEP, 2018) provided priorities for action in five categories:

- 1) Funding: Identify and confirm criteria, requirements, and associated documentation necessary for FEMA reimbursement for marine debris removal.
- 2) Logistics: Develop protocols and methods for post-storm marine debris assessments.
- 3) Communications: Develop a public information system that provides information to the public and allows the public to report marine debris with a quality control check.
- 4) Advanced Planning: Identify waterside access and upland staging areas and provide for advance use agreements.
- 5) Staffing and Training: Identify and train staff across agencies who can serve in the role of Natural Resource Advisors.

NOAA's 2019 update to the *Florida Marine Debris Emergency Response Guide: Comprehensive Guidance Document* (NOAA, 2019) includes a discussion on gaps in response as reported by stakeholders. It also includes a variety of recommended actions about funding and policy, and pre-event data and research to improve Florida's emergency response to marine debris (NOAA, 2019).

## Identification of Priorities:

1. Considering changes in marine debris and marine debris management since the last assessment, as well as stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve the effectiveness of its management effort to better respond to the most significant marine debris challenges.  
(Approximately 1-3 sentences per management priority.)

### Management Priority 1: Increase the Capacity to respond to Emergency and Storm Related Debris

*Description:* By utilizing the lessons learned from previous coastal storms, and while continuing to learn and add to the lessons learned from new events, further improvements and fine tuning will come to light allowing to the process to be improved further. Some needs, such as maintaining a trained work force and updated mapping technology, will be needed to maintain and improve the response to marine debris after emergencies or storms. In addition, the evaluation of new systems or methods for communication, planning, training, and funding mechanisms that can increase the state's response capacity and shorten response time to emergency and storm related debris incidents are key to long-term change and improvement.

### Management Priority 2: Florida specific research regarding marine debris impact to Florida species and habitats

*Description:* Develop a research plan that specifically studies how marine debris in Florida impacts wildlife and habitat. Using the data from the research, develop management strategies focusing on preserving wildlife and protecting resource from impacts from marine debris.

### Management Priority 3: Planning and Outreach to Mitigate Derelict Vessels

*Description:* Educate target audiences on the consequences of DVs (i.e., impact, prevention, reporting, disposal, and legal consequences). Improve the existing DV inventory database, and methods for processing and removing vessels. Enhance the policies for preventing vessels from becoming abandoned and DVs.

2. Identify and briefly explain priority needs and information gaps the CMP has to help it address the management priorities identified above. The needs and gaps identified here do not need to be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	Y	New rapid assessment techniques using aerial and remote sensing technologies are needed.
Mapping/GIS	Y	Increased mapping is needed across all marine debris categories to identify marine debris "hot spots."
Data and information management	Y	Many data sources are incomplete. Need more comprehensive data regarding multiple marine debris categories.
Training/capacity building	Y	Training of teams to rapidly deploy after storm events is needed.
Decision-support tools	Y	Advanced planning for marine debris emergencies needs to be further developed.
Communication and outreach	Y	Outreach to the public and boating population on the impacts of DVs is needed. Improvement on the public's ability to report marine debris with a reliable and quality-controlled program is also needed.

**Enhancement Area Strategy Development:**

1. Will the CMP develop one or more strategies for this enhancement area?

Yes              X    
 No                   

2. Briefly explain why a strategy will or will not be developed for this enhancement area.

Marine debris is identified as a high priority issue in Florida as evidenced by the many existing and developing statewide initiatives which attempt to mitigate marine debris and its negative impacts. Developing a strategy to prioritize research will help bring focus to areas where change can be achieved to create the greatest potential positive effect.

**References:**

Florida Department of Agriculture and Consumer Services [DACs], Division of Aquaculture. (2016). Aquaculture Best Management Practices Manual. Retrieved from website: [https://www.DACS.gov/content/download/64045/file/BMP\\_Rule\\_and\\_Manual\\_FINAL.pdf](https://www.DACS.gov/content/download/64045/file/BMP_Rule_and_Manual_FINAL.pdf)

Florida Department of Agriculture and Consumer Services [DACs], Division of Aquaculture. (2018). Proceedings from the Shellfish Aquaculture Gear Management Workshop 2018. Retrieved from website: <https://marinedebris.noaa.gov/reports/2018-florida-shellfish-aquaculture-gear-management-workshop-proceedings>

Florida Department of Environmental Protection [DEP]. (2019a). Clean Boater Program. Retrieved from website: <https://floridadep.gov/CleanBoating>

Florida Department of Environmental Protection [DEP]. (2019b). Clean Marina Program. Retrieved from website: <https://floridadep.gov/rcp/clean-marina>

- Florida Department of Environmental Protection [DEP]. (2019c). Clean Vessel Act Grant Program. Retrieved from website: <https://floridadep.gov/rcp/cva>
- Florida Department of Environmental Protection [DEP]. (2019d). Florida Marine Debris Reduction Workshop. Retrieved from website: <https://pub-data.diver.orr.noaa.gov/marine-debris/floridaandcaribbean/FL%20MD%20Workshop%20WG%20Update%20presentations.pdf>
- Florida Department of Environmental Protection [DEP]. (2019e). Southeast Florida's Marine Debris Reporting and Removal Program. Retrieved from website: <https://floridadep.gov/rcp/coral/content/southeast-floridas-marine-debris-reporting-and-removal-program>
- Florida Department of Environmental Protection [DEP], Florida Coastal Office. (2018). Hurricane Marine Debris Lessons Learned from the 2016 and 2017 Hurricane Season. Retrieved from website: <https://floridadep.gov/sites/default/files/DEP-FCO-MD-Lessons-Learned-Final.pdf>
- Florida Department of Environmental Protection [DEP], Florida Coastal Office. (2017). Florida Marine Debris Reduction Guidance Plan. Retrieved from website: [http://publicfiles.dep.state.fl.us/CAMA/plans/FL\\_Marine\\_Debris\\_Reduction\\_Plan\\_2017.pdf](http://publicfiles.dep.state.fl.us/CAMA/plans/FL_Marine_Debris_Reduction_Plan_2017.pdf)
- Florida Fish and Wildlife Conservation Commission [FWC]. (2019a). Derelict Vessel Map. Retrieved from website: <https://public.myfwc.com/LE/ArrestNet/DerelictVessel/VesselMap.aspx>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2019b) Derelict Trap Retrieval and Debris Removal Programs. Retrieved from website: <https://myfwc.com/fishing/saltwater/trap-debris/>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2019c). Irma FWC Recovered Vessels. Retrieved from website: <https://myfwc.wufoo.com/reports/irma-fwc-recovered-vessels/>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2019d). Monofilament Recovery and Recycling Program. Retrieved from website: <http://mrrp.myfwc.com/>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2020). Division of Law Enforcement, Boating and Waterways Section (2020). FWC Derelict Vessel Removal Statistics [Email]. Retrieved from personal communication on January 27, 2020.
- National Oceanic and Atmospheric Administration [NOAA]. (2019). Florida Marine Debris Emergency Response Guide: Comprehensive Guidance Document. Retrieved from website: <https://marinedebris.noaa.gov/emergency-response-guide/florida-marine-debris-emergency-response-guide>

Ocean Conservancy, International Coastal Cleanup [OC ICC]. (2019). The Beach and Beyond, 2019 Report. Retrieved from website: <https://oceanconservancy.org/wp-content/uploads/2019/09/Final-2019-ICC-Report.pdf>

Ocean Conservancy, International Coastal Cleanup [OC ICC]. (2018). Building A Clean Swell, 2018 Report. Retrieved from website: <https://oceanconservancy.org/wp-content/uploads/2018/07/Building-A-Clean-Swell.pdf>

Ocean Conservancy, International Coastal Cleanup [OC ICC]. (2017). Together for Our Ocean, International Coastal Cleanup, 2017 Report. Retrieved from website: <https://oceanconservancy.org/wp-content/uploads/2017/04/2017-Ocean-Conservancy-ICC-Report.pdf>

Ocean Conservancy, International Coastal Cleanup [OC ICC]. (2016). 30<sup>th</sup> Anniversary International Coastal Cleanup Annual Report. Retrieved from website: <https://oceanconservancy.org/wp-content/uploads/2017/04/2016-Ocean-Conservancy-ICC-Report.pdf>

## Cumulative and Secondary Impacts

**Section 309 Enhancement Objective:** Development and adoption of procedures to assess, consider, and control cumulative and secondary impacts of coastal growth and development, including the collective effect on various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources. §309(a)(5)

### **PHASE I (HIGH-LEVEL) ASSESSMENT:**

#### **Resource Characterization:**

- Using National Ocean Economics Program Data on population and housing,<sup>11</sup> please indicate the change in population and housing units in the state’s coastal counties between 2012 and 2017. You may wish to add additional trend comparisons to look at longer time horizons as well (data available back to 1970), but at a minimum, please show change over the most recent five-year period data is available (2012-2017) to approximate current assessment period.

**Trends in Coastal Population and Housing Units**

	2012	2017	Percent Change (2012-2017)
Number of people	19,326,230	20,976,812	8.54% Increase
Number of housing units	9,050,008	9,439,621	4.31% Increase

Data from National Ocean Economics Program (NOEP, 2018)

- Using provided reports from NOAA’s Land Cover Atlas,<sup>12</sup> please indicate the status and trends for various land uses in the state’s coastal counties between 1996 and 2016. You may use other information and include graphs and figures, as appropriate, to help illustrate the information. Note that the data available for the islands may be for a different time frame than the time periods reflected below. In that case, please specify the time period that the data represent. Also note that Puerto Rico currently only has data for one time point so will not be able to report trend data. Instead, Puerto Rico should just report current land use cover for developed areas and impervious surfaces.

At the writing of this assessment NOAA’s Land Cover Atlas data was not available for 2016. The most recent data available was from 2011, which was the same data shown in the last assessment. Due to the unavailability of updated NOAA Land Cover Atlas data, the data shown below represents the same data from the previous assessment with land area cover from 2011 and a gain/loss since 2006.

<sup>11</sup><https://www.oceaneconomics.org/Demographics/PHsearch.aspx>. Enter “Population and Housing” section and select “Data Search” (near the top of the left sidebar). From the drop-down boxes, select your state, and “all counties.” Select the year (2012) and the year to compare it to (2017). Then select “coastal zone counties.”

<sup>12</sup>[www.coast.noaa.gov/digitalcoast/tools/lca.html](http://www.coast.noaa.gov/digitalcoast/tools/lca.html). Note that the 2016 data will not be available for all states until later Summer 2019. NOAA OCM will be providing summary reports compiling each state’s coastal county data. The reports will be available after all of the 2016 data is available.



**NOAA’s Land Cover Atlas on the Distribution of Land Cover Types in Coastal Counties  
Comparing 2006 and 2011 Data**

<b>Land Cover Type</b>	<b>Land Area Coverage in 2011 (Acres)</b>	<b>Gain/Loss Since 2006 (Acres)</b>
Developed, High Intensity	1,094,245	51,629
Developed, Low Intensity	1,850,155	47,229
Developed, Open Space	1,294,023	-16,085
Grassland	1,435,041	2,955
Scrub/Shrub	3,697,603	222,609
Barren Land	270,143	21,153
Open Water*	8,457,284	9,610
Agriculture	6,093,507	-121,728
Forested	6,603,551	-164,457
Wetlands	13,242,076	-51,973

\*Open Water = areas of open water, generally with less than 25 percent cover of vegetation or soil

To supplement the lack of updated NOAA Land Cover Atlas data, data from the Florida DEP is provided for the coastal counties. This data is a compilation of land use and land cover datasets created by the 5 Water Management Districts in Florida between the years of 2012 and 2019. This data was originally provided for the entire state of Florida but was processed in GIS to obtain only that pertaining to the 35 coastal counties. This data was not able to be compared to previous land cover datasets due to the range of dates that the data was obtained, and the differing land type categorization.

**FDEP Distribution of Land Cover Types in Florida’s Coastal Counties**

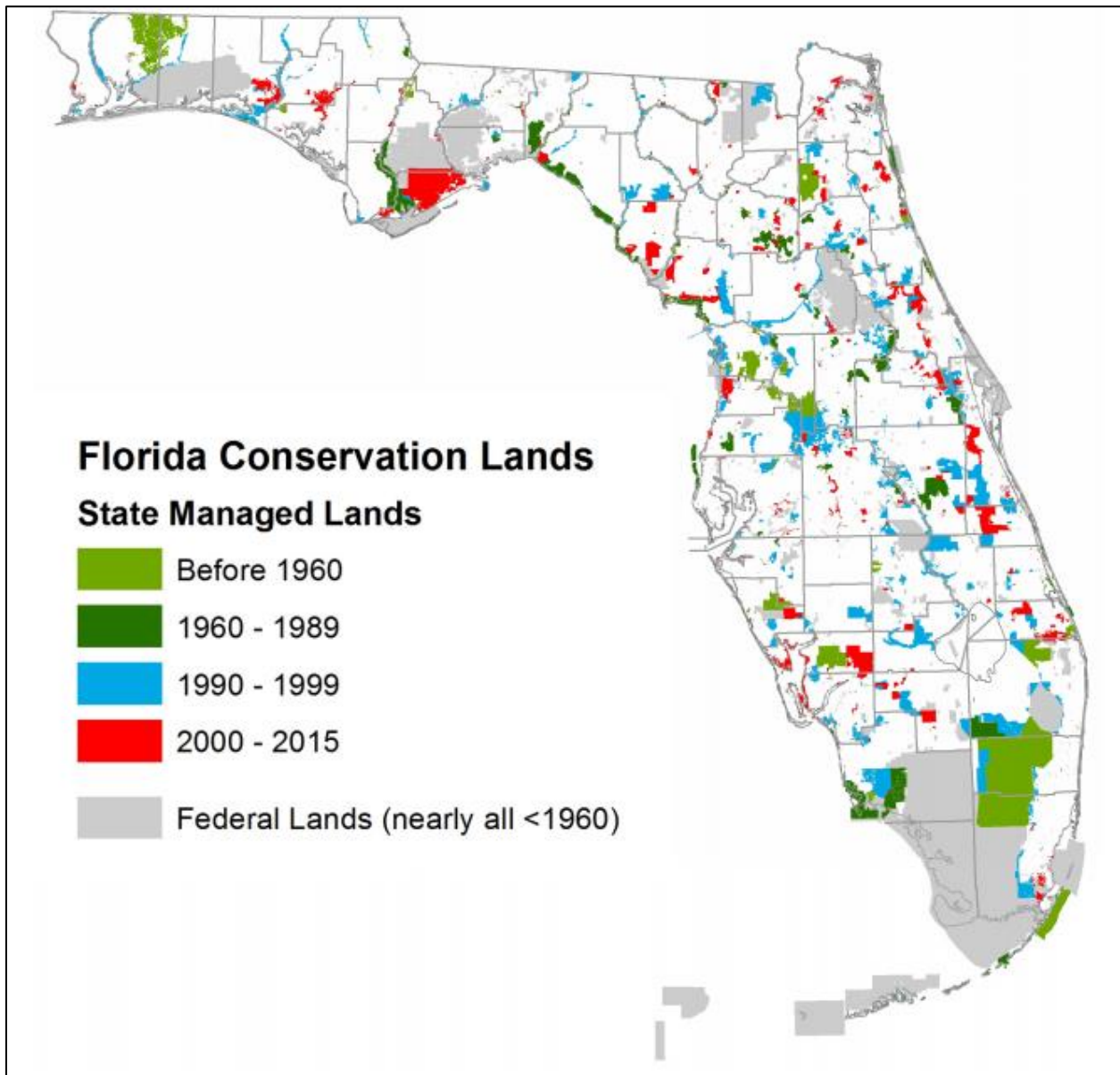
<b>Land Cover Type</b>	<b>Land Area Coverage from 2012-2019 (Acres)</b>
Agriculture	2,529,178
Barren Land	109,213
Rangeland	605,162
Transportation, Communication, and Utilities	369,902
Upland Forest	4,638,165
Urban and Built-Up	3,612,535
Water	3,351,944
Wetlands	7,177,645

At the writing of this assessment NOAA’s Land Cover Atlas data was not available for 2016. The above data was extracted for Florida’s Coastal Counties from the 2012-2019 FDEP Statewide GIS dataset. Gain/Loss data is unavailable due to range of years that dataset was collected and the varying land cover types used between the FDEP and NOAA Land Cover Atlas datasets. The Statewide Land Use Land Cover is located in references (DEP, 2020).

The figure below shows the conservation lands as they have progressed through the years.



Florida conservation lands and date of protection. Data Source: Florida Natural Areas Inventory  
Florida Conservation Lands (FNAI, 2016)



- Using provided reports from NOAA's Land Cover Atlas,<sup>13</sup> please indicate the status and trends for developed areas in the state's coastal counties between 1996 and 2016 in the two tables below. You may use other information and include graphs and figures, as appropriate, to help illustrate the information. Note that the data available for the islands may be for a different time frame than the time periods reflected below. In that case, please specify the time period the data represents. Also note that Puerto Rico currently only has data for one time point so will not be able to report trend

<sup>13</sup>[www.coast.noaa.gov/digitalcoast/tools/lca.html](http://www.coast.noaa.gov/digitalcoast/tools/lca.html). Note that the 2016 data will not be available for all states until later Summer 2019. NOAA OCM will be providing summary reports compiling each state's coastal county data. The reports will be available after all of the 2016 data is available.

data. Unless Puerto Rico has similar trend data to report on changes in land use type, it should just report current land use cover for developed areas and impervious surfaces.

According to a study conducted at the University of Florida’s GeoPlan Center, the state’s population is expected to increase to more than 33 million people by 2070 and developed land will increase from less than 20 percent to more than 33 percent (UFGC, 2018). This increase would mean that the developed land area in the state would increase to 11.6 million acres as compared to 6.4 million acres.

At the writing of this assessment NOAA’s Land Cover Atlas data was not available for 2016. The most recent data available was from 2011, which was the same data shown in the last assessment. Due to the unavailability of updated NOAA Land Cover Atlas data and lack of other data showing similar comparisons, the data shown below represents the same data from the previous assessment with land area cover from 2011 compared to the 2006 data. Based on the previous assessment data, the greatest acreage lost occurred to wetlands and agriculture.

**Development Status and Trends for Coastal Counties**

	2006	2011	Percent Net Change
Percent land area developed	4,155,651 (9.44%)	4,238,423 (9.62%)	82,772.5 (1.99%)
Percent impervious surface area	1,319,737 (3.00%)	1,364,533 (3.10%)	44,795.2 (3.39%)

*\* Note: Islands likely have data for another time period and may only have one-time interval to report. If so, only report the change in development and impervious surface area for the time period for which data are available. Puerto Rico does not need to report trend data.*

**How Land Use Is Changing in Coastal Counties**

How Land Use Is Changing in Coastal Counties	
Land Cover Type	Areas Lost to Development Between 2006-2011 (Acres)
Barren Land	20,145.0
Wetland	47,268.7
Open Water	722.1
Agriculture	43,394.6
Scrub/Shrub	10,624.7
Grassland	14,190.4
Forested	11,741.3

*\* Note: Islands likely have data for another time period and may only have one-time interval to report. If so, only report the change in land use for the time period for which high-resolution C-CAP data are available. Puerto Rico and the Northern Mariana Islands do not report.*

- Briefly characterize how the coastal shoreline has changed in the past five years due to development, including potential changes to shoreline structures such as groins, bulkheads and other shoreline stabilization structures, and docks and piers. If available, include quantitative data that may be available from permitting databases or other resources about changes in shoreline structures.

The State of Florida does not quantitatively track or categorize development along the shoreline from shoreline structures. It could be assumed that shoreline structures have increased over the last five years; however, the State of Florida does not track newly built structures, rebuilt structures, and demolished structures. It is unknown how many new structures have been built, how many structures

have been rebuilt due to storm or other damage, or how many structures have been demolished and not rebuilt.

There are various permitting avenues through which an owner would obtain a permit for a shoreline structure listed above. An applicant would apply for an ERP through their local DEP district office for groins, bulkheads, shoreline stabilization, docks and piers if the structure does not front the open coast. For projects that are on the beach, do not enter the water, and may impact the movement of sand along the beach, such as bulkheads and certain shoreline stabilization structures, DEP would issue a Coastal Construction Control Line Permit through the DEP office in Tallahassee. For projects that are on the beach and reach into the open waters of the state, a Joint Coastal Permit would be issued through the DEP office in Tallahassee.

5. Briefly summarize the results of any additional state- or territory-specific data or reports on the cumulative and secondary impacts of coastal growth and development, such as water quality, shoreline hardening, and habitat fragmentation, since the last assessment.

DEP publishes an annual report, the *Statewide Annual Report on Total Maximum Daily Loads, BMAPs, Minimum Flows or Minimum Water Levels, and Recovery or Prevention Strategies* report (DEP, 2019a), that summarizes the status of many of Florida's key programs to protect and restore the state's water resources. This report provides statewide summaries and is also available via an interactive web page which presents explanations of these programs, providing additional clarity and context (DEP, 2019d). Users of the webpage can explore specific water bodies, geographic areas, individual stakeholders, or projects of interest. All project data, or selected and filtered subsets of project data, are available for download from within the application.

DEP's 2018 Statewide Annual Report states that:

- The most frequently cited causes of impairment for rivers, streams, lakes, and estuarine segments are dissolved oxygen (DO), fecal coliform, and nutrients.
- Excessive amounts of total phosphorous, (TP), total nitrogen, (TN), and biochemical oxygen demand have also been detected.
- DEP identified Rainbow Spring Group and Rainbow Spring Group Run as impaired for nutrients because of an imbalance of flora and fauna evidenced by excessive algal growth and the smothering of submerged aquatic vegetation.
- DEP verified the Indian River Lagoon (IRL) Basin as impaired because of excessive amounts of TN and TP as evidenced by a decrease in seagrass distribution and by low DO.
- DEP identified the Lower St. Johns River as impaired for chlorophyll a in the freshwater section (Buffalo Bluff to Black Creek) and for DO in the marine section (Black Creek to the Atlantic Ocean near Mayport).
- Nitrate remains the greatest contaminant of concern in surface waters that receive groundwater input.

According to the 2018 Integrated Water Quality Assessment, the connectivity between the groundwater and surface water is significant and the groundwater that does enter the surface water systems can have an immense impact on the aquatic life and the DO and the nutrients TN and TP. The excessive

amounts of nutrients are contributing to the extreme plant and algal growth that are presenting overall issues for the state. A large portion of this nutrients increase is due to human and animal byproducts.

**Management Characterization:**

1. Indicate if the approach is employed by the state or territory and if there have been any significant state-level changes (positive or negative) in the development and adoption of procedures to assess, consider, and control cumulative and secondary impacts of coastal growth and development, including the collective effect on various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources, since the last assessment.

**Significant Changes in Management of Cumulative and Secondary Impacts of Development**

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	N	Y
Guidance documents	Y	Y	Y
Management plans (including Special Area Management Plans)	Y	Y	Y

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
  - a. Describe the significance of the changes;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

**Statutes, Regulations, and Policies:**

In 2016, the Florida Legislature amended 373.036 F.S. to require additional information to be provided in a Consolidated Water Management District’s (WMD) Annual Report on water quality and quantity projects that were part of a five-year work plan. Some of the additional information included: a list of BMAP projects, a priority ranking for each listed project in the report for which state funding through the work program is requested, the listing to be made available for public comment for 30 days, a quantitative estimate of benefit to the watershed for each project, and a grade for each water body or watershed that a listed project is in.

In 2016, the Florida Legislature amended 403.0623, F.S., requiring DEP, in coordination with WMDs, regional planning councils, water supply authorities, and the DACS, to establish water data collection standards.

In 2016, the Florida Legislature amended 403.067, F.S. with a list of requirements for new or revised BMAPs. This amendment also included enforcement procedures for these plans.

In 2016, the Florida Legislature created 403.0675, F.S. to require that DEP prepare annual progress reports for TMDLs BMAPs, minimum flows and levels, and recovery and prevention strategies. The DACS is required to prepare and publish an annual progress report for agricultural nonpoint source BMPs.

In 2017, the Florida Legislature created the Public Notice of Pollution Act (403.076, F.S. - 403.078, F.S.). The Public Notice of Pollution Act specifies owner and operator responsibilities in the event of a reportable pollution release, such as the event being reported to the State Watch Office within 24 hours. DEP is required to create a website where the public can view all public notices within 24 hours of receipt and create a related public mailing list for notices. DEP must also provide an electronic form and submission email for owners and operators to provide notice to the State Watch Office. These new statutes do not change emergency management responsibilities for the Governor, Division of Emergency Management, or political subdivisions.

In 2017, the Florida Legislature created 373.4598, F.S., which established criteria for leasing and acquiring land for the purpose of water storage reservoirs to help with issues in St. Lucie and Caloosahatchee estuaries from high-volume freshwater discharges from Lake Okeechobee.

See [Wetlands](#) section for other relevant information.

#### **Guidance Documents:**

***State of Florida – Office of the Governor EO Number 19-12:*** In January 2019, Governor Ron DeSantis issued an EO providing directives for *Achieving More Now for Florida’s Environment*. Based on the order, four specific state actions/directives were established: 1) the creation of the Office of Environmental Accountability and Transparency; 2) to establish a Blue-Green Algae Task Force; 3) to establish a Red Tide Task Force lead by the Florida Fish and Wildlife Commission (FWC); and 4) to enforce Restoration Initiatives. This information has pulled all of the statewide efforts into a website, *Protecting Florida Together* (DEP, 2019e), where the actions, responsible organizations, public information and updates are conveyed.

- ***Blue-Green Algae Task Force:*** The Governor’s EO Number 19-12, Section 1B, directs DEP, DEO, DOH, and Visit Florida to, “establish a Blue-Green Algae Task Force, charged with focusing on expediting progress toward reducing the adverse impacts of blue-green algae blooms now and over the next five years. This task force should support key funding and restoration initiatives to expedite nutrient reductions in Lake Okeechobee and the downstream estuaries. This task force should identify priority projects for funding that are based on scientific-data and build upon BMAPs to provide the largest and most meaningful nutrient reductions in key waterbodies, as well as make recommendations for regulatory changes.” DEP oversees this task force consisting of five appointed members. In 2019, the task force held five public meetings around the state. The task force’s final consensus document (DEP, 2019c) includes projects and actions items on the following subjects: 1)

BMAPs; 2) Agriculture and BMPs; 3) Human Waste – Onsite Sewage Treatment and Disposal Systems; 4) Human Waste – Sanitary Sewer Overflows; 5) Stormwater Treatment Systems; 6) Innovative Technologies and Applications; 7) Blue-Green Algae Blooms and Public Health; and 8) Science-based Decision Making, Data Needs, and Monitoring Programs.

- **Harmful Algal Bloom/Red Tide Task Force:** The EO also reinforces the Governor’s strategy for improving the state’s water quality overall by requiring that DEP and DOH participate in the FWC’s Harmful Algal Bloom/Red Tide Task Force to provide technical expertise and assistance with studies on the impacts of red tide (EO Number 19-12, Section 1J).

**Statewide Best Management Practice (BMP) Efficiencies for Nonpoint Source Management of Surface Waters Draft –July 2018 (DEP, 2018):** This report describes DEP’s methods used to calculate TN and TP reductions for urban stormwater loads related to surface watershed restoration, when site-specific information is not available. These calculation methods represent the typical performance of BMPs which can be helpful in selecting appropriate BMP types to achieve surface water nutrient load reductions related to the development and implementation of BMPs, 4e plans, and 4b/reasonable assurance plans.

#### **Management Plans:**

**BMAPs Adopted:** BMAPs provide a comprehensive set of strategies aimed at reducing pollutant loads to meet the allowable loadings set by TMDLs of specific pollutants. These local plans are developed to restore impaired waters, without CZM funds. The following BMAPs and BMAP Amendments were developed since the last assessment and can be found on DEP’s BMAPs webpage (DEP, 2019b):

- Crystal River/King’s Bay BMAP (adopted June 2018)
- DeLeon Spring (adopted June 2018)
- Gemini Springs (adopted June 2018)
- Homosassa and Chassahowitzka Springs Groups (adopted June 2018)
- Jackson Blue Spring and Merritts Mill Pond Basin (adopted June 2018)
- Upper Wakulla River and Wakulla Springs (adopted June 2018)
- Wacissa River and Wacissa Spring Group (adopted June 2018)
- Weeki Wachee (adopted June 2018)
- Lake Jesup BMAP Amendment (adopted July 2019)
- Orange Creek BMAP Amendment (adopted July 2019)
- Upper Ocklawaha River Basin BMAP Amendment (adopted July 2019)
- Caloosahatchee River and Estuary (adopted January 2020)
- Lake Okeechobee (adopted January 2020)
- St. Lucie River and Estuary (adopted January 2020)

**Surface Water Improvement and Management (SWIM) Plan updates:** In 1987, the Florida Legislature created the SWIM Act to protect, restore, and maintain the state’s highly threatened surface water bodies. Under the SWIM Act, the state’s five WMDs identify and list priority water bodies and implement plans to improve them. SWIM plans address cumulative anthropogenic

impacts on water quality and aquatic habitats on a watershed basis. Implemented by Florida's five water management districts, SWIM plans are developed without 309 and CZM funds. The following SWIM plans were developed since the last assessment and can be found on the Northwest Florida WMD and Southwest Florida WMD webpages (NFWWMD, 2017; SWFWMD, 2018):

- **Northwest Florida WMD:**
  - Apalachicola River and Bay Watershed, approved November 2017
  - Choctawhatchee River and Bay Watershed, approved October 2017 (Revised February 26, 2018)
  - Ochlockonee River and Bay Watershed, approved September 2017
  - Pensacola Bay System, approved October 2017
  - Perdido River and Bay Watershed, approved October 2017
  - St. Andrew Bay Watershed, approved November 2017
  - St. Marks River and Apalachee Bay Watershed, approved September 2017
- **Southwest Florida WMD:**
  - Weeki Wachee River SWIM plan, approved March 2017
  - Chassahowitzka River SWIM plan, approved August 2017
  - Homosassa River SWIM plan, approved August 2017

**Enhancement Area Prioritization:**

1. What level of priority is the enhancement area for the coastal management program?

<b>High</b>	<u>  X  </u>
<b>Medium</b>	_____
<b>Low</b>	_____

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Cumulative and secondary impacts from coastal growth and development are often difficult to quantify. Multiple state agencies and programs address cumulative and secondary impacts, including: land acquisition programs, wetlands permitting, TMDLs and watershed management, local comprehensive plans, minimum flows and levels programs, water supply development and planning, and special area management plans (SAMP). However, the independent priorities of these programs on land-based issues or specific habitats make it challenging to comprehensively assess cumulative and secondary impacts on coastal resources.

In addition, sea level rise is expected to compound impacts from coastal growth and development. The effects should be anticipated, evaluated, and incorporated into planning documents as appropriate. As a result, cumulative and secondary impacts from coastal growth and development continue to be a significant concern for the FCMP.

**PHASE II (IN-DEPTH) ASSESSMENT:**

**In-Depth Resource Characterization:**

*Purpose: To determine key problems and opportunities to improve the CMP’s ability to address cumulative and secondary impacts of coastal growth and development.*

1. What are the three most significant existing or emerging cumulative and secondary stressors or threats within your coastal zone? Indicate the geographic scope of the stressor, i.e., is it prevalent throughout the coastal zone, or are there specific areas that are most threatened? Stressors can be coastal development and impervious surfaces; polluted runoff; agriculture activities; forestry activities; shoreline modification; or other (please specify). Coastal resources and uses can be habitat (wetland or shoreline, etc.); water quality; public access; or other (please specify). When selecting significant stressors, also consider how climate change may exacerbate each stressor.

	<b>Stressor/Threat</b>	<b>Coastal Resource(s)/Use(s) Most Threatened</b>	<b>Geographic Scope</b> (throughout coastal zone or specific areas most threatened)
Stressor 1	Coastal development	Habitat, water quality, species composition	Throughout
Stressor 2	Runoff/stormwater	Habitat (bivalve reef, coral reef, coastal tidal stream, submerged aquatic vegetation), water quality	Throughout
Stressor 3	Shoreline modification	Habitat, water quality	Throughout

2. Briefly explain why these are currently the most significant cumulative and secondary stressors or threats from coastal growth and development within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

Florida’s SWAP (FWC, 2012) identifies stressors in the coastal zone based on the statewide threats listed below:

- Alterations of the physical environment - habitat loss and fragmentation are the most pervasive threats to wildlife statewide;
- Degradation of water resources - includes groundwater and surface withdrawal, drainage or channelization of wetlands, diversion of rainfall from impervious cover, contamination from industrial and agricultural operations, and contamination from inadequate stormwater and sewage management;
- Incompatible fire management - lack of appropriate fire management is a threat in many of Florida’s terrestrial habitats that lie within ecosystems that were historically fire-maintained; and
- Introduced plants and animals - species that become established as long-term reproducing populations have the potential to become invasive, causing damage to native species and



habitats, posing a threat to human health and safety, or causing high ecological and economic costs.

According to the University of Florida GeoPlan Center, an assessment determined that Florida was the state most susceptible to ecosystem loss for numerous wildlife habitats, largely due to coastal development which has dramatically increased over the last 50 years. The population of Florida has grown to more than 18 million people based on the census data, and the projection is that Florida's population will reach over 28 million by the year 2030. Based on this population increase and Florida's tourism-based economy, development is growing exponentially, particularly in coastal and upland habitats.

Development in coastal zones typically disrupts the ecological connectivity and can result in a significant loss of function with surrounding habitats to include landscape-level functions with sediment movement, hydrology, fire regime, and wildlife movements. While shoreline modifications may provide some recreation and security to humans and property from flooding and erosion, they can be detrimental to wildlife and their habitats. Shoreline modification (particularly shoreline hardening) threatens Florida's annelid reefs, beach/surf zone, coastal strand, coastal tidal rivers and streams, coral reefs, hard bottom, inlets, mangrove swamp, salt marsh, seagrass, and tidal flats. Hardened shorelines prevent landward migration of coastal habitats, threatening habitat loss and their associated ecosystem functions, such as foraging and nursery areas for wildlife, sea turtle and shorebird nesting sites, and water filtration. As sea level rises, the threat of constructing hardened shorelines to protect coastal development is expected to increase.

Degradation of Florida's water resources has a major influence on the state's natural resources. Industrial and agricultural processes can contaminate the water supply with chemicals such as pesticides and herbicides via runoff from inadequate stormwater drainage networks. This contaminated water also degrades wetlands and affects wildlife habitat.

- Are there emerging issues of concern, but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	Information Needed
Ocean acidification	Increased carbon dioxide in the atmosphere has been one of the leading causes of climate change. Approximately, one-third of the excess carbon dioxide in the atmosphere is absorbed in the ocean, resulting in the water becoming more acidic (FKNMS, 2019c). Further analysis of ocean acidification and its impacts to Florida’s marine wildlife and ecosystems (shellfish, corals), and economy (commercial and recreational fishing, tourism) are needed (Frank, 2020). The rate of ocean acidification and tolerance of specific ecosystems and species may also help predict future impacts.
Apalachicola oyster reefs	The Apalachicola Bay has experienced continual environmental and human stressors that have resulted in the decline in the number of oyster reefs present. These stressors have included a degradation in water quality, sea level rise, pollution, ocean acidification, climate change, and increased salinity. Analysis of the multiple sources of stressors affecting Apalachicola’s economically important oyster reefs and strategies to reduce their impact are needed to maintain the Apalachicola ecosystem.
Indian River Lagoon (IRL) system	The IRL has also experienced continual environmental and human related stressors that have resulted in harmful algal blooms, seagrass die-offs, and manatee and bird mortality events. Research on the multiple sources of stressors affecting the IRL system are needed to implement strategies for reducing their impact and improve the IRL ecosystem conditions.
Sea Level Rise	Sea level rise is an ongoing and emerging issue for the communities, counties, and marine ecosystems across the state of the Florida. Significant research has been performed over the last five-years to predict sea level rise; however, there are a wide range of predictions making the future impact difficult to determine. There is an ongoing need for further research on a local scale to analyze the risk associated with sea level rise and its threats to infrastructure, ecosystems, and the Florida economy.

**In-Depth Management Characterization:**

*Purpose: To determine the effectiveness of management efforts to address identified problems related to the cumulative and secondary impacts (CSI) enhancement objective.*

- For each additional cumulative and secondary impact management category below that is not already discussed as part of the Phase I assessment, indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) have occurred since the last assessment.

**Significant Changes to Management of Cumulative and Secondary Impacts (CSI) of Development**

<b>Management Category</b>	<b>Employed by State or Territory (Y or N)</b>	<b>CMP Provides Assistance to Locals that Employ (Y or N)</b>	<b>Significant Changes Since Last Assessment (Y or N)</b>
Methodologies for determining CSI impacts	Y	Y	N
CSI research, assessment, monitoring	Y	Y	N
CSI GIS mapping/database	Y	N	Y
CSI technical assistance, education and outreach	Y	Y	N
Other (please specify)	N/A	N/A	N/A

2. For management categories with significant changes since the last assessment, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information.
  - a. Describe significant changes since the last assessment;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

**CSI GIS mapping/database:**

***Coral Reef and Hardbottom Ecosystem Mapping, Monitoring, and Management Program:*** This was created and concluded in the previous 309 strategy and provided data resources for coral reef management by DEP’s CRCP and the Florida Keys National Marine Sanctuary (FKNMS) Advisory Council. It is included in this assessment due to the fact that it is still being used for permitting decisions, management decisions and is continually updated. FWC collaborated with NOAA/NOS to create a unified geodatabase for spatial analysis and data visualization of the Florida reef tract (The Unified Florida Reef Map). The coordinated coral/hardbottom mapping project received Projects of Special Merit funding for on-going benthic mapping and project enhancement. Technical assistance, education, and outreach were provided by a technical team to introduce the Unified Reef Map to marine resource managers in management focused meetings, and through the Our Florida Reefs Community Working Groups.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state’s or territory’s management efforts in addressing cumulative and secondary impacts of development since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state and territory’s management efforts?

While a variety of state programs address cumulative and secondary impacts (including SWIM plans, BMAPs, etc.), no studies have been conducted on a statewide basis to evaluate these programs.

**Identification of Priorities:**

1. Considering changes in cumulative and secondary impact threats and management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve the effectiveness of its management effort to better assess, consider, and control the most significant threats from cumulative and secondary impacts of coastal growth and development (*Approximately 1-3 sentences per management priority*).

*Management Priority 1: Resource Assessment*

*Description:* The impacts from coastal growth are often difficult to quantify when activities do not result in direct impacts, making mapping, monitoring, and assessments essential tools for management. These efforts must be applied at a scale which can influence local and state decisions and cross boundaries between land, coastal, and ocean activities. Enhancing the progress made within the last 5 years through the 309 funded SEACAR program will enable the FCMP to progress towards improved and consistent resource assessment methodology as well as allowing the program to focus on more detailed needs that can expand the knowledge base of the impacts to coastal resources.

*Management Priority 2: Coastal Resiliency*

*Description:* Coastal resiliency will be a continual strategy as ongoing sea level rise, increased storm frequency, and other factors associated with climate change create cumulative and secondary impacts. Although coastal resilience has been more of a focus in recent years, continual coordination amongst state and local agencies is needed to continue to develop comprehensive planning approaches. Specifically, there is a need to incorporate objectives which promote stormwater retrofitting, flood abatement and recovery, shoreline stabilization, and infrastructure upgrades. Further development of the planning approaches can also help the FCMP better align resources for use by local government.

2. Identify and briefly explain priority needs and information gaps the CMP has to help it address the management priorities identified above. The needs and gaps identified here do not need to be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	Y	The status and trends of coastal and ocean resources are constantly changing. There is an ongoing need to evaluate these trends and provide comprehensive resource assessments based on the most recent data available.
Mapping/GIS	Y	As coastal and ocean resource trends change there is an ongoing need to update current mapping projects. These maps include those related to

Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
		habitat (intertidal and subtidal), resource, and restoration projects, and shoreline changes (erosion, sea level rise).
Data and information management	Y	As coastal and ocean resource trends change and more recent and accurate data becomes available, there is an ongoing need to manage this data and incorporate it into data platforms. There is an ongoing need to coordinate data provided by various programs which assess cumulative and secondary impacts to make informed management decisions at state and local levels.
Training/capacity building	Y	As management decision tools and assessment strategies improve, there is an ongoing need to train local and state officials on the resources available. There is an ongoing need for incorporating coastal resiliency into local comprehensive plans, in addition to building cross-agency collaboration.
Decision-support tools	Y	As data and trend updates are identified for secondary impacts on coastal and ocean resources, there is an ongoing need for updated decision-support tools. These updated tools can then be incorporated into local management decisions to enable a unique location-based solution.
Communication and outreach	Y	There is an ongoing need to improve communication of cumulative and secondary impacts in a concise and accessible format for decision makers and the general public. Improved communication of cumulative and secondary impacts across state agencies and local governments, as well as to the public, will support informed management decisions and public education. Outreach and identification of cumulative and secondary impacts on a local scale will also promote unique location-based solutions.

The degree of cumulative and secondary impacts varies across Florida’s diverse coastal counties. While significant progress has been made to all the priority topics identified above over the past five-years, there is an ongoing need for improvement as the accuracy and availability of data improves. Utilizing updated state and local data and effectively communicating this information to decision makers, will promote informed management decisions and unique location-based solutions.

**Enhancement Area Strategy Development:**

1. Will the CMP develop one or more strategies for this enhancement area?

Yes              X    
No                      

2. Briefly explain why a strategy will or will not be developed for this enhancement area.

Cumulative and secondary impacts have been identified as a high priority enhancement area for the FCMP. Multiple strategies will incorporate cumulative and secondary impacts. This is due to the fact that cumulative and secondary impacts from coastal growth and development are prevalent and there are multiple state agencies and programs addressing cumulative and secondary impacts.

## References:

- Florida Department of Environmental Protection [DEP]. (2019a). 2018 Statewide Annual Report on Total Maximum Daily Loads, Basin Management Action Plans, Minimum Flows or Minimum Water Levels, and Recovery or Prevention Strategies. Retrieved from website: <https://floridadep.gov/dear/water-quality-restoration/content/statewide-annual-report>
- Florida Department of Environmental Protection [DEP]. (2019b). Basin Management Action Plans. Retrieved from website: <https://floridadep.gov/dear/water-quality-restoration/content/basin-management-action-plans-bmaps>
- Florida Department of Environmental Protection [DEP]. (2019c). Blue-green Algae Task Force Consensus Document #1, published October 11, 2019. Retrieved from website: <https://protectingfloridatogether.gov/state-action/blue-green-algae-task-force>
- Florida Department of Environmental Protection [DEP]. (2019d). Florida Statewide Annual Report webpage. Retrieved from website: <https://DEP.maps.arcgis.com/apps/MapSeries/index.html?appid=8f87f1fdc5fb422cac1dc7fa11e19702>
- Florida Department of Environmental Protection [DEP]. (2019e). Protecting Florida Together webpage. Retrieved from website: <https://protectingfloridatogether.gov/>
- Florida Department of Environmental Protection [DEP]. (2018). Statewide Best Management Practice Efficiencies for Nonpoint Source Management of Surface Waters, Draft – July 2018. Retrieved from website: <https://floridadep.gov/sites/default/files/BMP%20Efficiencies%20July%202018.pdf>
- Florida Department of Environmental Protection [DEP]. (2020). Statewide Land Use Land Cover from 2012-2019. Retrieved from website: <https://geodata.dep.state.fl.us/datasets/statewide-land-use-land-cover>
- Florida Department of Environmental Protection [DEP]. (2014). Integrated water quality assessment for Florida: 2014 sections 303(d), 305(b), and 314 report and listing update. Retrieved from website: [http://www.dep.state.fl.us/water/docs/2014\\_integrated\\_report.pdf](http://www.dep.state.fl.us/water/docs/2014_integrated_report.pdf)
- Florida Fish and Wildlife Conservation Commission [FWC]. (2012). Florida's State Wildlife Action Plan 2012: A Comprehensive Wildlife Conservation Strategy. Retrieved from website: <http://myfwc.com/media/2663010/StateWildlifeActionPlan.pdf>
- Florida Natural Areas Inventory [FNAI]. (2016). Florida Conservation Lands Dataset. Retrieved from website: <http://www.fnai.org/gisdata.cfm>
- Frank, Thomas. (2020). Ocean Acidification Threatens the U.S. Economy. Retrieved from website: <https://www.scientificamerican.com/article/ocean-acidification-threatens-the-u-s-economy/>
- National Ocean Economics Program [NOEP]. (2018). Population and Housing Data Search. Retrieved from website: <https://www.oceaneconomics.org/Demographics/PHsearch.aspx>

Northwest Florida Water Management District [NFWFMD]. (2017). Surface Water Improvement and Management Plan webpage. Retrieved from website: <https://www.nwfwater.com/Water-Resources/Surface-Water-Improvement-and-Management>

Southwest Florida Water Management District [SWFWMD]. (2017). About SWIM webpage. Retrieved from website: <https://www.swfwmd.state.fl.us/projects/swim>

State of Florida. (2019). State of Florida – Office of the Governor Executive Order Number 19-12: Achieving More Now for Florida’s Environment. January 2019. Retrieved from website: [https://floridadep.gov/sites/default/files/EO\\_19-12\\_0.pdf](https://floridadep.gov/sites/default/files/EO_19-12_0.pdf)

University of Florida GeoPlan Center [UFGC]. (2018). Florida 2070. Retrieved from: <https://www.geoplan.ufl.edu/portfolio/fl-2070/>

Volk MI, Hocht TS, Nettles BB, Hilsenbeck R, Putz FE, and Oetting, J. (2017). Florida Land Use and Land Cover Change in the Past 100 Years. *Florida's Climate: Changes, Variations, & Impacts*. Retrieved from [http://purl.flvc.org/fsu/fd/FSU\\_libsubv1\\_scholarship\\_submission\\_1515440747\\_56b1ed92](http://purl.flvc.org/fsu/fd/FSU_libsubv1_scholarship_submission_1515440747_56b1ed92)

## Special Area Management Planning

**Section 309 Enhancement Objective:** Preparing and implementing special area management plans for important coastal areas. §309(a)(6)

The Coastal Zone Management Act defines a special area management plan (SAMP) as “a comprehensive plan providing for natural resource protection and reasonable coastal-dependent economic growth containing a detailed and comprehensive statement of policies; standards and criteria to guide public and private uses of lands and waters; and mechanisms for timely implementation in specific geographic areas within the coastal zone. In addition, SAMPs provide for increased specificity in protecting natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas, including those areas likely to be affected by land subsidence, sea level rise, or fluctuating water levels of the Great Lakes, and improved predictability in governmental decision making.”

### **PHASE I (HIGH-LEVEL) ASSESSMENT:**

#### **Resource Characterization:**

1. In the table below, identify geographic areas in the coastal zone subject to use conflicts that may be able to be addressed through a SAMP. This can include areas that are already covered by a SAMP but where new issues or conflicts have emerged that are not addressed through the current SAMP.

Geographic Area	Opportunities for New or Updated Special Area Management Plans Major conflicts/issues
Panhandle barrier islands	Recreation; development; aesthetics; coexisting w/ wildlife; biodiversity; public trust/access
Coastal strand/marine and upland ecotone	Human use/disturbance; habitat loss
Critical Wildlife Areas	Recreation; development; aesthetics; coexisting w/ wildlife; biodiversity; public trust/access
Spoil islands and shoals/sandbars	Recreation; public access; coexisting w/ wildlife
Urban/wild land interface	Development; coexisting w/ wildlife
Florida reef tract	Degradation of coral; recreation; coexisting w/ wildlife; biodiversity; public trust/access
Florida’s shoreline	Climate change; public access; cultural and natural resources; economic viability; development; biodiversity
Florida state waters	Public trust/access; commercial use; species and habitat management
Sea level rise inundation areas	Habitat migration; anthropogenic intervention; development; investment prioritization; economic vitality



2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends of SAMPs since the last assessment.

Florida institutes an array of special area management planning statewide and at the local level. Natural resources are protected through a multi-agency effort to manage development, and public and private uses. DEP’s 2019 *Florida Coastal Management Program Guide* (DEP, 2019a) identifies five areas that are designated as Areas of Critical State Concern:

- Apalachicola Bay Area in the City of Apalachicola
- Big Cypress Swamp in Collier, Monroe, and Miami-Dade Counties
- Green Swamp in Polk and Lake Counties
- Florida Keys in Monroe County
- The City of Key West

No additional assessments were conducted or performed other than the program guide update.

**Management Characterization:**

1. Indicate if the approach is employed by the state or territory and if there has been any significant state- or territory-level management changes (positive or negative) that could help prepare and implement SAMPs in the coastal zone.

**Significant Changes in Special Area Management Planning**

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
SAMP policies, or case law interpreting these	Y	Y	Y
SAMP plans	Y	Y	Y

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
  - a. Describe the significance of the changes;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

**SAMP Plans:**

**AP Management Plan updates:** The DEP’s RCP manages 41 APs within Florida, encompassing approximately 2.2 million acres. All but four of these APs are located along the Florida coast. The long-term goals of the AP Program are to protect and enhance the ecological integrity of APs; restore areas to their natural condition; encourage sustainable use and foster active stewardship by engaging local communities in the protection of APs; and improve management effectiveness

through a process based on sound science, consistent evaluation, and continual reassessment. AP management plans are integral to fulfilling these long-term goals and are used to guide aquatic resource protection and restoration, adjacent upland development, public access, and local government planning efforts. 309 funding was used to update AP Management Plans originally developed in the 1980s and 1990s. Plans were updated using a revised format to reduce redundancy, while still meeting statutory requirements. The updated plans focus energy on addressing major key issues, rather than several issues at once. Key issues are identified with input from local and regional stakeholders, including cooperating/partner agencies, adjacent landowners, elected officials, and the general public, and are vetted through a public engagement process including review by Florida's ARC. The AP Management Plans that have been updated since the last assessment are listed below (E. Pearson, personal communication, November 22, 2019).

- **St. Joseph Bay State Buffer Preserve Management Plan:** approved by ARC June 2016
- **Rainbow Springs Aquatic Preserve Management Plan:** approved by ARC June 2016
- **Indian River Lagoon Aquatic Preserves System Management Plan:** approved by ARC June 2016
- **Cockroach Bay Aquatic Preserve Management Plan:** approved by ARC February 2017
- **St. Andrews Aquatic Preserve Management Plan:** approved by ARC February 2017
- **Yellow River Marsh Aquatic Preserve Management Plan:** approved by ARC February 2017
- **Charlotte Harbor Aquatic Preserves Management Plan:** approved by ARC February 2017
- **St. Martins Marsh Aquatic Preserve Management Plan:** approved by ARC April 2017
- **Tomoka Marsh Aquatic Preserve Management Plan:** approved by ARC October 2017
- **Alligator Harbor Aquatic Preserve Management Plan:** approved by ARC February 2018
- **Loxahatchee River-Lake Worth Creek Aquatic Preserve Management Plan:** approved by ARC June 2018
- **Rocky Bayou State Park Aquatic Preserve Management Plan:** approved by ARC August 2018
- **Oklawaha River Aquatic Preserve Management Plan:** approved by ARC October 2018
- **Pinellas County and Boca Ciega Bay Aquatic Preserves Management Plan:** approved by ARC February 2019
- **Lake Jackson Aquatic Preserve Management Plan:** approved by ARC October 2019

**Critical Wildlife Areas (CWAs):** CWAs are established by the FWC to provide needed conservation at locations that support significant concentrations of wildlife. CWAs are discrete sites, such as mangrove islands or sandbars, where species gather daily or seasonally for essential activities, such as breeding, feeding, or resting. The FWC establishes CWAs at sites where there is documented human disturbance interfering with these activities. CWAs are an important conservation tool for imperiled species. Many CWAs are established for the protection of wading birds and shorebirds during the breeding season. Both types of birds can be easily disturbed if people approach too closely. Such disturbance can cause birds to flush from their nesting sites, exposing eggs and chicks to predators, sun exposure, and other harm. State rule specifically prohibits dogs, vehicles, vessels, and fishing within areas posted as "Critical Wildlife Area - Closed to Public Access" (68A-19.005 F.A.C.) (FWC, 2019).

On November 16, 2016, FWC Commissioners approved the designation of 13 new CWAs and the re-establishment of five existing CWAs (FWC, 2016). The new CWAs established include:

- **Lanark Reef**, Franklin County
- **Flag Island**, Franklin County
- **Withlacoochee Caves**, Citrus County
- **Dot-Dash-Dit**, Manatee County
- **Roberts Bay**, Sarasota County
- **Broken Islands**, Lee County
- **Useppa Oyster Bar**, Lee County
- **Hemp Key**, Lee County
- **Matanzas Pass Island**, Lee County
- **Big Carlos Pass M52**, Lee County
- **Coconut Point East**, Lee County
- **BC49**, Brevard County
- **Stick Marsh**, Brevard County

The five CWAs that were re-established are:

- **St. George Causeway**, Franklin County
- **Alafia Banks**, Hillsborough County
- **Myakka River**, Sarasota County
- **Rookery Island**, Collier County
- **Bird Islands**, Duval/Nassau County

**State Park Unit Management Plans (UMP):** Each state park or state trail in the Florida State Parks system has an UMP that is reviewed every 10 years. Citizens are given the opportunity to provide comments and suggestions during each review event. The following state parks, which have lands in the coastal zone, have UMPs which were updated since the last assessment (DEP, 2019b).

- **Anastasia State Park UMP:** approved by ARC June 2016
- **Big Lagoon, Tarkiln Bayou, and Perdido Key State Park Multi-UMP:** approved by ARC December 2018
- **Crystal River Preserve State Park UMP:** approved by ARC October 2018
- **Curry Hammock State Park UMP:** approved by ARC December 2016
- **St. Sebastian River Preserve State Park UMP:** approved by ARC February 2019
- **Waccasassa Bay Preserve State Park UMP:** approved by ARC August 2019

**Florida's Imperiled Species Management Plan (ISMP):** The FWC's ISMP (FWC, 2018) was approved in November 2016 and amended in December 2018. The ISMP focuses on improving the conservation status of Florida's imperiled wildlife through reducing the risk of extinction, maintaining sufficient habitat, and improving public and partner support of conservation efforts. The ISMP addresses the conservation needs of 57 fish and wildlife species with a plan to be implemented over the course of 10 years. Subsequent changes in species listing status have occurred in 2017 and 2018 (FWC, 2018).

**Enhancement Area Prioritization:**

1. What level of priority is the enhancement area for the coastal management program?

<b>High</b>	<u>  X  </u>
<b>Medium</b>	<u>      </u>
<b>Low</b>	<u>      </u>

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Special area management planning is used widely throughout the state of Florida to manage user conflicts and protect natural resources. As seen in the many updated management plans listed above, Florida maintains an emphasis on site-specific management planning. Each of these management plans relies on multiple levels of stakeholder engagement in order to prioritize programs and address key issues. For example, Florida’s AP Management Plans identify key issues with input from local and regional stakeholders, including cooperating/partner agencies, adjacent landowners, elected officials, and the general public, and the key issues are further vetted through a public engagement process, including review by the ARC.

**PHASE II (IN-DEPTH) ASSESSMENT:**

*Purpose: To determine key problems and opportunities regarding the preparation and implementation of special area management plans for important coastal areas.*

1. What are the one to three most significant geographic areas facing existing or emerging challenges that would benefit from a new or revised SAMP or better implementation of an existing SAMP? For example, are there areas where existing management approaches are not working and could be improved by better coordination across multiple levels of government? What challenges are these areas facing? Challenges can be a need for enhanced natural resource protection; use conflicts; coordinating regulatory processes or review; additional data or information needs; education and outreach regarding SAMP policies; or other (please specify). When selecting significant challenges, also consider how climate change may exacerbate each challenge.

	<b>Geographic Scope</b> (within an existing SAMP area (specify SAMP) or within new geographic area (describe new area))	<b>Challenges</b>
Geographic Area 1	Gulf coast	Need to update SAMPs to help coordinate restoration efforts based on site specific resource assessments. This is an ongoing need and conditions change with major storm events and as new data comes on board.
Geographic Area 2	Communities and habitats vulnerable to sea level rise	Coastal flooding adaptation and implementation. This is an ongoing need. The work towards planning for sea level rise needs to be ongoing and updated with new data and changing conditions.
Geographic Area 3	Florida reef tract	Need for inter-agency comprehensive management; user conflicts; This work is not finished and is ongoing.

2. Briefly explain why these are currently the most significant challenges that may require developing a new SAMP or revising or improving implementation of an existing SAMP. Cite stakeholder input and/or existing reports or studies to support this assessment.

Florida’s existing SAMPs could benefit from site specific resources assessments to inform regulatory and planning decisions. The Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act (RESTORE) of 2012 established the Gulf Coast Restoration Trust Fund for restoration projects, and multiple initiatives have begun to evaluate restoration priorities for habitats, species, and public access. Existing SAMPs are being utilized to inform this prioritization process, making updated plans beneficial to a Gulf-wide effort. In 2016, the Gulf Coast Ecosystem Restoration Council (GCERC) updated the RESTORE Comprehensive Plan (GCERC, 2016). The 2016 GCERC Comprehensive Plan Update discusses the Initial Funded Priorities List, as well as the 10-year strategy for funded projects. The document also provides a table of funded allocations through 2031. RESTORE-funded projects have been distributed throughout the Florida Gulf coast counties. Many SAMPs may be affected by these restoration projects.

Florida’s low elevation and proximity of fresh water sources to the ocean make it particularly vulnerable to sea level rise. New or revised SAMPs which incorporate adaptation to future flooding and sea level rise will help manage the built infrastructure and natural resources of Florida’s coastal communities, improving resiliency to climate change.

The Florida reef tract is the largest barrier reef in the continental U.S. The reef community extends from Port St. Lucie, 130 miles north of Miami, to Key West. See the [Ocean Resources](#) section for a discussion on the influence of climate change, temperature change, problematic species and diseases, and user conflicts and how they affect Florida’s coral reef habitat. Development of a SAMP for the southern Florida region and the Florida Keys could provide a cooperative agreement and strategy to coordinate coral reef management by the FKNMS, national and state park units, and SEFCRI reef area into a single

comprehensive management unit, facilitating communication and support between agencies. The FKNMS is currently undergoing an update to their Environmental Impact Statement (EIS), but this document is specific to the geographic boundaries of the FKNMS. In addition, the coral reef capacity assessment postulated the application of a zoning structure to reduce user conflicts on Florida reefs. A SAMP could be developed to manage different uses along the Florida reef tract.

3. Are there emerging issues of concern, but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	Information Needed
Sea level Rise	Sea level rise continues to be an emerging and ongoing issue as it affects each of Florida’s coastal communities and counties differently. Although, Sea level rise research has increased over the past five years, there is an ongoing need for improved data to support updates to models and data layers. Increased accuracy in future sea level rise predictions will assist in analyzing impacted habitats and built infrastructure vulnerability.
Lake Okeechobee/Caloosahatchee River/St. Lucie River system	These habitats have experienced continual environmental and human related stressors that have resulted in harmful algal blooms, seagrass die-offs, and manatee and bird mortality events. Research on the multiple sources of water quality stressors affecting the systems system are needed to implement strategies for reducing their impact and improve the ecosystem conditions.
Apalachicola oyster reefs	The Apalachicola Bay has experienced continual environmental and human stressors that have resulted in the decline in the number of oyster reefs present. These stressors have included a degradation in water quality, sea level rise, pollution, ocean acidification, climate change, and increased salinity. Analysis of the multiple sources of stressors affecting Apalachicola’s economically important oyster reefs and strategies to reduce their impact are needed to maintain the Apalachicola ecosystem.

**In-Depth Management Characterization:**

*Purpose: To determine the effectiveness of management efforts to address identified problems related to the special area management planning enhancement objective.*

1. For each additional SAMP management category below that was not already discussed as part of the Phase I assessment, indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) have occurred since the last assessment.

**Significant Changes Related to Special Area Management Planning**

<b>Management Category</b>	<b>Employed by State or Territory (Y or N)</b>	<b>CMP Provides Assistance to Locals that Employ (Y or N)</b>	<b>Significant Changes Since Last Assessment (Y or N)</b>
SAMP research, assessment, monitoring	Y	Y	Y
SAMP GIS mapping/database	Y	Y	Y
SAMP technical assistance, education, and outreach	Y	Y	Y

2. For management categories with significant changes since the last assessment, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information.
  - a. Describe significant changes since the last assessment;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

New and/or updated SAMPs have utilized a variety of research, assessment, and monitoring procedures, mapping/database development, and technical assistance, education, and outreach methods since the last assessment. See Phase I Management Characterization for a listing of the individual SAMPs that have been updated since the last assessment.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state’s or territory’s special area management planning efforts since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state’s or territory’s management efforts?

Special area management planning is used widely throughout the state of Florida to manage user conflicts and protect natural resources. However, no studies have been conducted on a statewide basis to evaluate these plans.

The SEACAR project is ongoing and is a 309 funded project. The goal of the SEACAR project is to help guide the assessment process, generate communication and engagement activities, and identify use of ocean resources. The project has a five-year plan (ending in 2020) for completion and will result in a series of web and mapping tools, in addition to a tiered reporting format. The SEACAR assessment products will promote knowledge on the status and trends of coastal resources for the purpose of potential use within policy decisions, increase overall public awareness of coastal resource threats, and provide information to support state and local programs in planning and decision-making (DEP, 2019c).

## Identification of Priorities:

1. Considering changes with coastal resource protection or coastal use conflicts within defined geographic areas, special area management planning activities since the last assessment, and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve their ability to prepare and implement SAMPs to effectively manage important coastal areas. (*Approximately 1-3 sentences per management priority.*)

### *Management Priority 1: Local Adaptation Planning*

*Description:* Local regulation and comprehensive planning can be the best sources to address adaptation and management for coastal zones and natural hazards. Typically, this type of planning can directly reflect the overarching goals of the community. While the FCMP currently provides technical assistance to communities to address coastal hazard risks, the FCMP program recognizes that local adaptation planning is not a one size fits all approach with regard to incorporating resiliency into local planning and budgeting. Data described herein that specifically needs to be included in the planning includes site specific resource data and sea level rise data that is continuously being updated and processed.

### *Management Priority 2: Ongoing Update of Existing Management Plans*

*Description:* The management of Florida's 41 APs is integral to the effectiveness of the FCMP. There is an ongoing need to update AP management plans, which will improve the management of these special areas. This also includes the updating of the state park UMPs within the coastal zones.

### *Management Priority 3: Resource Assessment/Monitoring for Management and Restoration*

*Description:* Assessing and monitoring resources for management and restoration is a continued priority. Each update to a management plan addresses how a specific Special Area can maintain and add to the current resource assessment programs in place. The management plans provide guidance for the future work that will extend throughout the future. Continued work on objectives within the SEACAR project will provide a framework for the continued assessment of resources and use of data to guide management decisions.

2. Identify and briefly explain priority needs and information gaps the CMP has to help it address the management priorities identified above. The needs and gaps identified here do not need to be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.



Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	Y	There is an ongoing need on a state and local level for research on the status and trends of geographic areas with special area management. Updated research will provide improved vulnerability assessments, identify conflicts, and assist in the develop of a special area management plan specific to the geographic area.
Mapping/GIS	Y	As more recent and accurate research and data becomes available there is an ongoing need to update maps, GIS databases, and models with improved data layers. Mapping improvements will assist in hazard identification, sea level rise vulnerability assessments, resource assessments, and monitoring of aquatic managed areas.
Data and information management	Y	Continual data and information management is needed to provide readily accessible and accurate information at a state and local level. Improvement of data and information management will assist in management decisions and coordinate restoration projects. Areas of improvement include that related to habitat and living marine resources and low-cost data collect methods on visitor use of these resources.
Training/capacity building	Y	As there is an increased accuracy of data and improvement to decision-support tools, there is an ongoing need to assist local communities with incorporation of adaptation initiatives into local plans and budgeting. In addition, there is an ongoing need to the develop monitoring protocols of visitors/use at aquatic managed areas.
Decision-support tools	Y	There is an ongoing need to coordinate public and private partners to integrate and consolidate risk assessment information into one or more unified decision-support tools. Continual tool improvements will assist in local planning by supporting adaptative plans, development of cost-effective protocols for monitoring public use of aquatic managed areas, and aid in comprehensive assessments that can be used for place-based management decision making.
Communication and outreach	Y	Ongoing outreach to local governments and professional organizations are needed to implement adaptation action in local communities. Comprehensive resource assessments need to be publicly available to identify and inform others of the local hazards and management strategies being implemented.

**Enhancement Area Strategy Development:**

1. Will the CMP develop one or more strategies for this enhancement area?

Yes          X    
 No               

2. Briefly explain why a strategy will or will not be developed for this enhancement area.

SAMP is indicated as a high priority enhancement area for the FCMP as it is used widely throughout the state of Florida to manage user conflicts and protect natural resources. As seen in the many updated management plans listed above, Florida maintains an emphasis on site-specific management planning. Several strategies will incorporate SAMP as a core component.

## References:

- Florida Coastal Management Program, Florida Department of Environmental Protection, National Oceanic and Atmospheric Administration [FCMP, DEP & NOAA]. (2018). Florida Adaptation Planning Guidebook. Retrieved from website: <https://floridadep.gov/sites/default/files/AdaptationPlanningGuidebook.pdf>
- Florida Department of Environmental Protection [DEP]. (2019a). Florida Coastal Management Program Guide: A Guide to the Federally Approved Florida Coastal Management Program. Retrieved from website: <https://floridadep.gov/sites/default/files/FCMP-Program-Guide-2019.pdf>
- Florida Department of Environmental Protection [DEP]. (2019b). Management Plans. Retrieved from website: <https://floridadep.gov/parks/unit-management-plans>
- Florida Department of Environmental Protection [DEP]. (2019c). Statewide Ecosystem Assessment of Coastal and Aquatic Resources (SEACAR) - Assessment Products. Retrieved from website: <https://floridadep.gov/rcp/fcmp/content/seacar-assessment-products>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2019). Critical Wildlife Areas. Retrieved from website: <https://myfwc.com/conservation/terrestrial/cwa/>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2018). Florida's Imperiled Species Management Plan, November 2016, amended 2018. Retrieved from website: <https://myfwc.com/media/2030/imperiled-species-management-plan.pdf>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2016). Critical Wildlife Areas, November 2016. Retrieved from website: <https://myfwc.com/media/5870/cwa-post-meeting.pdf>
- Gulf Coast Ecosystem Restoration Council [GCERC]. (2016). Comprehensive Plan, Update 2016. Retrieved from website: [https://www.restorethegulf.gov/sites/default/files/CO-PL\\_20161208\\_CompPlanUpdate\\_English.pdf](https://www.restorethegulf.gov/sites/default/files/CO-PL_20161208_CompPlanUpdate_English.pdf)

## Ocean Resources

**Section 309 Enhancement Objective:** Planning for the use of ocean [and Great Lakes] resources.  
§309(a)(7)

**PHASE I (HIGH-LEVEL) ASSESSMENT:**

**Resource Characterization:**

1. Understanding the ocean and Great Lakes economy can help improve management of the resources it depends on. Using Economics: National Ocean Watch (ENOW),<sup>14</sup> indicate the status of the ocean and Great Lakes economy as of 2016 (the most recent data) in the tables below. Include graphs and figures, as appropriate, to help illustrate the information. Note ENOW data are not available for the territories. The territories can provide alternative data, if available, or a general narrative, to capture the value of their ocean economy.

**Status of Ocean and Great Lakes Economy for Coastal Counties (2016)**

	All Ocean Sectors	Living Resources	Marine Construction	Ship & Boat Building	Marine Transportation	Offshore Mineral Extraction	Tourism & Recreation
Employment (# of Jobs)	496,255	6,797	8,363	12,042	57,576	1,415	410,062
Establishments (# of Establishments)	22,749	922	832	483	1,512	297	18,703
Wages (Millions of Dollars)	14,635.92	280.01	448.01	591.42	3,498.63	80.86	9,737
GDP (Millions of Dollars)	31,340.52	801.81	949.03	943.61	8,562.60	290.83	19,792.64

Above data includes summed values for Florida Gulf of Mexico and Florida Southeast regions. Data from National Ocean Watch ENOW Explorer (NOAA OCM, 2016): <https://coast.noaa.gov/digitalcoast/tools/enow.html>

<sup>14</sup>[www.coast.noaa.gov/digitalcoast/tools/enow.html](http://www.coast.noaa.gov/digitalcoast/tools/enow.html). If you select any coastal county for your state, you are directed to various data displays for that county, In the upper left of the screen, click the “State” box, to the left of the county box so that the state name will be highlighted. Now the data will reflect statewide data for all of the state’s coastal counties. Make sure “2015” is selected for the year (top right corner). You can then click through the sector types by selecting the icons along the top and the type of economic data (employment, wages, GDP, etc.), by clicking through the icons on the left.

**Change in Ocean and Great Lakes Economy for Coastal Counties (2005-2016)<sup>15</sup>**

	All Ocean Sectors	Living Resources	Marine Construction	Ship & Boat Building	Marine Transportation	Offshore Mineral Extraction	Tourism & Recreation
Employment (# of Jobs)	92,866	2,554	-1,851	-1,529	4,791	-964	89,868
Establishments (# of Establishments)	2,185	319	113	81	283	42	1,347
Wages (Millions of Dollars)	5,211	155	-20	94	1,156	-22	3,849
GDP (Millions of Dollars)	10,088	476	-213	17	3,563	-20	6,263

Above change values were determined by subtracting the 2005 data from the 2016 data set. Data from National Ocean Watch ENOW Explorer (NOAA OCM, 2016): <https://coast.noaa.gov/digitalcoast/tools/enow.html>

- Understanding existing uses within ocean and Great Lakes waters can help reduce use conflicts and minimize threats when planning for ocean and Great Lakes resources. Using Ocean Reports<sup>16</sup>, indicate the number of uses within ocean or Great Lakes waters off of your state. For energy uses (including pipelines and cables, see the “Energy and Government Facility Siting” template following). Add additional lines, as needed, to include additional uses that are important to highlight for your state. Note: The Ocean Reports tool does not include data for the Great Lakes states. Great Lakes states should fill in the table as best they can using other data sources.

**Uses within Ocean or Great Lakes Waters**

Type of Use	Number of Sites
Federal sand and gravel leases ( <i>Completed</i> )	18
Federal sand and gravel leases ( <i>Active</i> )	4
Federal sand and gravel leases ( <i>Expired</i> )	0
Federal sand and gravel leases ( <i>Proposed</i> )	6
Beach nourishment projects	129
Ocean disposal sites	667
Principle ports ( <i>Number and Total Tonnage</i> )	8 Ports (154,044,896 tons/year)
Coastal maintained channels	430
Designated anchorage areas	43 Areas (1.71% coverage)
Danger zones and restricted areas	19 Total Areas (62.72% total coverage; 37.19% danger zone coverage; 25.49% restricted area coverage)

Above data from Ocean Reports (BOEM & NOAA, 2019): <https://www.coast.noaa.gov/digitalcoast/tools/ort.html>

<sup>15</sup> The trend data is available at the bottom of the page for each sector and type of economic data. Mouse over the data points for 2005 and 2015 to obtain the actual values and determine the change by subtracting 2005 data from 2015.

<sup>16</sup> [www.coast.noaa.gov/digitalcoast/tools/ort.html](https://www.coast.noaa.gov/digitalcoast/tools/ort.html). Go to “Quick Reports” and select the “state waters” option for your state or territory. Some larger states may have the “Quick Reports” for their state waters broken into several different reports. Use the icons on the left hand side to select different categories: general information, energy and minerals, natural resources and conservation, oceanographic and biophysical, transportation and infrastructure, and economics and commerce. Then scroll through each category to find the data to complete the table.

3. In the table below, characterize how the threats to and use conflicts over ocean and Great Lakes resources in the state’s or territory’s coastal zone have changed since the last assessment.

**Significant Changes to Ocean and Great Lakes Resources and Uses**

Resource/Use	Change in the Threat to the Resource or Use Conflict Since Last Assessment (↑, ↓, -, unkwn)
Benthic habitat (including coral reefs)	↑
Living marine resources (fish, shellfish, marine mammals, birds, etc.)	↑
Sand/gravel	↑
Cultural/historic	↑
Transportation/navigation	-
Offshore development <sup>17</sup>	-
Energy production	-
Fishing (commercial and recreational)	↑
Recreation/tourism	-
Sand/gravel extraction	-
Dredge disposal	-
Aquaculture	-
Other (please specify)	-

4. For the ocean and Great Lakes resources and uses in the table above that had an increase in threat to the resource or increased use conflict in the state’s or territory’s coastal zone since the last assessment, characterize the major contributors to that increase. Place an “X” in the column if the use or phenomenon is a major contributor to the increase.

<sup>17</sup> Offshore development includes underwater cables and pipelines, although any infrastructure specifically associated with the energy industry should be captured under the “energy production” category.

**Major Contributors to an Increase in Threat or Use Conflict to Ocean and Great Lakes Resources**

	Land-based development	Offshore development	Polluted runoff	Invasive species	Fishing (Comm and Rec)	Aquaculture	Recreation	Marine Transportation	Dredging	Sand/Mineral Extraction	Ocean Acidification	Other (Specify)
Benthic and coastal habitats (including coral reefs)	X		X	X	X		X				X	Disease, algal growth, climate change
Living marine resources (fish, shellfish, marine mammals, birds, etc.)	X		X	X	X		X					Algal blooms (red tides)
Sand/gravel	X									X		Coastal erosion from storms
Cultural/historic	X											Sea level rise
Fishing (commercial and recreational)	X		X		X		X					Algal blooms (red tides)

5. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends of ocean and Great Lakes resources or threats to those resources since the last assessment to augment the national data sets.

**Benthic and Coastal Habitats:** Florida’s population continues to grow, and human activities and development are persistent threats to benthic and coastal habitats. Direct, cumulative, and secondary impacts of development threaten the loss of coral reefs, seagrasses, saltmarsh, mangroves, oyster and shell reefs, hard bottom and soft-bottom habitat, and estuaries. Since no part of the state is more than 62 miles from the coast, all marine habitats are connected and affected by terrestrial land use and development. Current threats to benthic and coastal habitats include impacts resulting from residential and commercial development, natural system modifications, human intrusion and disturbance, climate change, and problematic species and diseases (FWC, 2019a).

Due to the population growth and the desire to live near the coastline, residential and commercial development is an ongoing threat to benthic and coastal habitats. Increased infrastructure reduces the percentage of pervious land, which results in increased runoff. Runoff can occur during rain or irrigation events and can result in sediment, pesticides, fertilizers, litter, and other contaminants entering the coastal environment. Overall, the runoff and contaminants lead to declines in water quality and may increase the likelihood of severe algal blooms (FWC, 2019a).

Other natural system modifications, which include water management, fire suppression, and beach nourishment also pose a threat to benthic and coastal communities. Water management projects such as dams and wetland drainage change the hydrology, salinity, turbidity, temperature, and nutrient content of the marine environment. Fire suppression is also thought to be an influencing factor in the decline of species of greatest conservation need (SGCN), especially those species associated with tidal marshes and mangrove forests. Beach nourishment events can result in the smothering of nearshore benthic habitats, resulting in an immediate habitat loss (FWC, 2019a).

While Florida is recognized for its beaches and other natural coastal landscapes, human intrusion and disturbance by both residents and tourists threaten benthic and coastal habitats. These marine habitats are often located in close proximity to densely populated areas and can be impacted by human activity, including boating, swimming, snorkeling, SCUBA diving, and other recreational activities. Boating activities can directly damage marine habitats (e.g., seagrass beds, salt marshes, and coral reefs) from propeller scarring and anchor damage. In addition, boat traffic increases wave intensity and suspended sediment concentrations (FWC, 2019a).

Climate change is an ongoing concern for benthic and coastal habitats, especially for coral reefs. Changes in temperature, sea level, salinity, precipitation, hydrologic regimes, and frequency of storms add additional stress to these already sensitive ecosystems. Mangroves are highly sensitive to freezing temperatures, which can stunt their growth. As for salt marshes, it is projected that 88% of the total salt marsh habitat will be lost with a three-meter rise in sea level. Corals are known to bleach (a stress response where the coral loses or expels its symbiotic microalgae, zooxanthellae, and appears white in color) in response to environmental stressors (e.g., temperature or salinity extremes, pollution, increased sedimentation, low oxygen, etc.). While a coral can survive a bleaching event, it is subsequently more susceptible to disease, predation, and mortality. Coral mass bleaching events, where many coral species bleach over a large area of reef, typically result from thermal stress (elevated sea temperatures of 1-2°C above the long-term temperature average). Climate change is anticipated to increase the severity and frequency of such mass bleaching events (FWC, 2019a; DEP, 2019d).

Benthic and coastal habitats, particularly coral reefs, can be severely impacted by macroalgal blooms and marine diseases. Coral reefs are adapted to nutrient-limited waters. Nutrient enrichment (from stormwater runoff, land-based sewage effluent, and upwelling) can lead to rapid growth and increased biomass of macroalgae and cyanobacteria, which can quickly overgrow and shade out existing corals and prevent coral recruitment to the benthos. Florida's coral reefs have experienced a number of local and widespread coral disease outbreaks since the early 1980s. However, a recent outbreak of the newly described coral disease, stony coral tissue loss disease has impacted Florida's coral reefs substantially. SCTLD was first reported in 2014 and since that time, it has had rapid progression across the entire Florida reef tract. The disease has a high coral mortality rate, impacting more than 20 species of scleractinian (stony, reef-building) coral. The cause of SCTLD remains unknown (Collier et al., 2008; FKNMS, 2019b; FKNMS, 2018; FWC, 2019a).

**Living Marine Resources:** Recent large-scale algal blooms (red tides) in Florida have resulted in the mass mortality of fish and marine mammals (Wei-Haas, 2018). Red tide is a high concentration of *Karenia brevis*, a naturally occurring microalgae which produces brevetoxins that can affect fish and other

vertebrates (DEP, 2019b). In 2018, Florida faced one of its worst red tides in history, which spanned over 100 miles along the state's western coast. As a result, over 450 sea turtles, 100 manatees, and countless other marine resources perished (Pittman, 2018). Red tide toxins can also accumulate in filter-feeders, such as oysters, which can then lead to neurotoxic shellfish poisoning in people or other marine shellfish predators (NOAA, 2018a). Although red tides are naturally occurring events that begin 10-40 miles offshore, they can become fueled by nutrient pollution from urban runoff as they migrate onshore. This can contribute to their longevity and severity (FWC, 2019b; FWC 2019c).

Invasive species, such as the Indo-Pacific lionfish (*Pterois volitans/miles* complex), are a constant threat to Florida's living marine resources. The lionfish is a predatory reef fish which was first reported off the Florida coast in 1985. Since its arrival, the lionfish has become a successful predator and food competitor with native fish species, with an ability to eat up to 30 times its own stomach volume (FWC, 2019a; FWC, 2019d, National Geographic, 2016). The presence of the lionfish has reduced the abundance of native fish, which serve vital ecological roles (FWC, 2019a). It is estimated that the presence of lionfish has reduced the tomtate (*Haemulon aurolineatum*) population, a native predatory fish, by 45% since the lionfish invasion first began (Ballew et al., 2016). In addition, the presence of one lionfish can reduce recruitment of other native reef fish by 79% (Ballew et al., 2016; NOAA, 2018b). The lionfish also has a rapid reproduction rate of three to four times that of other fish and has no natural predators in Florida. A young lionfish can then reach reproductive maturity within 6 months, which takes an average of 3-4 years for native reef fish (National Geographic, 2016).

Decreases in the abundance of marine herbivores/grazers can have a negative impact on coral reefs. Marine grazers play an important role in controlling macroalgal biomass. A reduction in this herbivory can result in decreased coral due to the high growth rates of macroalgae, which can out-compete corals and prevent coral larval settlement. Florida's coral reefs have become algal-dominated which is thought to be attributed mainly to poor water quality, along with a decline in marine algae grazers (FWC, 2019a).

Florida's Apalachicola Bay is continuing to experience several environmental, health, and safety concerns. The Apalachicola Bay was once a prime location for oyster harvesting; however, since 2012 the area has experienced extensive oyster die-offs due to low flow conditions, increased pollution, and unrestrained human growth and development upstream. As a result, several oyster harvesting regulations have been established for the Apalachicola Bay, including the FWC's restriction which limited the number and areas in which oysters could be harvested between September 2017 and May 2018 (Apalachicola Riverkeeper, 2019; Weather Channel, 2015; FWC, 2017). The Apalachicola Bay has also been classified as one of five Areas of Critical State Concern in the 2019 DEP FCMP Guide (DEP, 2019c).

**Sand / Gravel:** Erosion is a constant and ongoing phenomenon along Florida shorelines. According to the 2019 DEP Critically Eroded Beaches report (DEP DWRM, 2019), there are approximately 419.6 miles of critically eroded beach, 90.9 miles of non-critically eroded beach, 8.7 miles of critically eroded inlet, and 3.2 miles of non-critically eroded inlet. These records do not indicate substantial change since the 2016 report (DEP DWRM, 2016) in which there were 411.2 miles of critically eroded beach, 93.5 miles of non-critically eroded beach, 8.7 miles of critically eroded inlet, and 3.2 miles of non-critically eroded inlet. However, the 2016 and 2019 Critically Eroded Beach reports show the ongoing need for sand for beach nourishment projects and dune fill material.



In the most recent Oceans Report, (BOEM & NOAA, 2019) a total of 129 beach nourishment projects were recorded in Florida. Based on the *DEP 2018 Beach Management Plan Study* (DEP DWRM, 2018), offshore sand sources are typically preferred over upland sand sources based on economic cost. Currently, the regional offshore sand supply is adequate to meet beach nourishment needs in the five most southeastern coastal counties through 2060 (DEP DWRM, 2018). However, these offshore deposits are not available to all coastal counties in Florida who are need of sand, several, of which have completely diminished their own offshore sand supply.

**Cultural / Historical:** Sea level rise presents a threat to many cultural and historical resources located along the Florida coastline. These resources are valuable for not only their history, but also for supporting a portion of the state's tourism economy. Presently, the rise in mean sea level is estimated to be 6 to 10 inches by 2030, 14 to 26 inches by 2060, and 31 to 61 inches by 2100 (SLRWG, 2015). In Florida, there are estimated to be 302 historic places eligible for property loss and a total of 3,959 archaeological sites that will be lost with a sea level rise of 0 to 1 meters (0 to 39.4 inches) above the current mean sea level. An additional 210 historic places and 1,322 archaeological sites will be lost if sea level rise is greater than 1 to 2 meters (39.4 to 78.8 inches) (Anderson et al., 2017). *Preserving Florida's Heritage: Florida's Comprehensive Historic Preservation Plan 2017 – 2021*, produced by the Division of Historical Resources (DHR), within the Florida Department of State Division of Historical Resources (DHR), within the Florida Department of State (DOS), outlines objectives to incorporate historic preservation into disaster response plans and establish long term planning strategies for mitigating and adapting to sea level rise (DOS HR, accessed 2020).

Florida also has a great number of submerged cultural resources, many of which have been subjected to both permitted salvage and unpermitted disturbance and looting. DHR is charged with managing Florida's cultural resources on state-owned lands or state-owned sovereignty submerged lands. The DHR issues permits for exploration and salvage of historic shipwrecks, but sites are difficult to manage and monitor due to their offshore locations. The Comprehensive Historic Preservation Plan also identified the need to survey Florida's aquatic preserves and other submerged sovereignty lands to identify and document sites, and to provide assistance and training to land/resource managers and law enforcement officials on the management and protection of archaeological sites on public lands.

**Transportation / Navigation:** Several Florida ports have already conducted (or have proposed to conduct) expansion projects and/or projects to increase channel depths in order to accommodate additional terminals and larger ships. In addition to preparing port master plans for future growth, these ports have also considered the need for resiliency. In the *2019 Florida Seaports Resiliency Report* (FSTED, 2019), master plans are now incorporating issues related to historical storm surges and sea level rise. These ports are proactively planning to ensure that the appropriate infrastructure and equipment are updated (FSTED, 2019).

**Offshore Development:** Based on the current Ocean Reports (BOEM & NOAA, 2019), Florida state waters currently contain a total of 136 pipeline areas and 40 pipelines. Two additional pipeline plans have also been proposed in coastal counties through the Federal Energy Regulatory Commission one of which is approved and the other is pending (FERC, 2019a; FERC, 2019b). Florida also has 553 submarine

cable areas, 22 major existing submarine cables, and two proposed submarine cable projects (BOEM & NOAA, 2019; Submarine Cable Systems, 2019).

In 2014, the Bureau of Ocean Energy Management issued the first lease in Federal waters for marine hydrokinetic technology testing of offshore ocean current turbines. The lease was made to Florida Atlantic University's National Marine Renewable Energy Center and the testing area is located approximately 12 nautical miles offshore of Fort Lauderdale, Florida. The hydrokinetic technology tests consist of a buoy anchored to the seafloor which monitors ocean conditions. The current turbine prototypes will then be deployed and tested from vessels. Although current energy is not currently available in a large-scale capacity, this project is a key research opportunity to expand the nation's renewable energy potential (BOEM, 2014).

See also [Energy and Government Facility Siting](#).

**Energy Production:** There has been no notable increase or decrease in threats to Florida's energy production. Florida continues to produce fossil fuels, including natural gas and crude oil. The production of both fossil fuels has remained relatively the same between the years of 2016 and 2017. Florida produced 716 million cubic feet of natural gas and 1,934 thousand barrels of crude oil in 2016. In 2017, it produced 709 million cubic feet of natural gas and 1,923 thousand barrels of crude oil (EIA, 2018).

Between 2008 and 2018 Florida has increased its production of natural gas-fired electric power generation by adding nearly 16 GW of power. This has reduced the state's coal consumption from about 29 million tons in 2008 to 12 million tons in 2018. The U.S. Energy Information Administration (EIA) expects that the natural gas generation capacity will continue to grow as well, eliminating more emission-intensive and cost-competitive fuels (coal and petroleum liquids) (EIA, 2019)

Additionally, in 2018 solar energy accounted for approximately one-third of the state's renewable-sourced electricity generation. In 2016, the solar power generation was 429,000 MW hours. In 2018, the power increased to over 2.9 million MW hours (EIA, 2019).

See also [Energy and Government Facility Siting](#).

**Fishing (commercial and recreational):** Due to recent environmental issues, the FWC has implemented several limitations on fishing. The longevity and intensity of red tides in 2018 resulted in the expansion of the catch-and-release order for snook (*Centropomus undecimalis*) and redfish (*Sebastes viviparus*) from September 2018 to May 2019 for applicable coastal counties (Associated Press, 2018). However, after the red tides in 2019 the catch-and-release was applied again throughout May 31, 2020 for snook, redfish, and spotted seatrout (*Cynoscion nebulosus*) from Pasco to Collier County lines (FWC, 2019b; Associated Press, 2018).

The FWC has also applied fishing limits within the Apalachicola Bay for oyster season. Due to low water flow and high pollution, oyster populations in Apalachicola Bay have been in steep decline. To combat the issue, regulation of commercial bag limits was lowered to three bags per harvester from September

1, 2016 to May 31, 2017. This was only one of several conservation measures implemented (Commercial Fishing, 2016).

**Recreation / Tourism:** Currently, there is no identifiable increase or decrease in the threat to recreation and tourism. Despite numerous and prolonged red tides in recent years, Florida has experienced eight consecutive record years with regard to the annual number of tourists. In 2018, the state had approximately 124.7 million visitors, which was an 5.3% increase since 2017. Additionally, in the first two quarters of 2019, the state had a tourism growth of 5.2% and 5.1% respectively, when compared to the first two quarters of 2018 (Visit Florida, 2019).

See also [Public Access](#).

**Sand / Gravel Extraction:** There have been no positive or negative impacts in the threat to sand and gravel extraction. There are also no new major trends in sand and gravel extraction. In the case of sand extraction for beach nourishment projects, the material is brought to the project site by truck or ocean-going dredge vessels. The type of transportation used depends on the volume of material required for the project. While a dredge operation can be costly, it can be more cost effective to use a dredge in large scale projects in which the cost per unit of sand can be significantly reduced. For smaller projects, mobilization by truck is preferred (DEP DWRM, 2018).

**Dredge Disposal:** There is currently no identified increase or decrease in threats to dredge disposal. Dredge disposal permits are authorized by the USACE. Each permit is evaluated based on the U.S. Environmental Protection Agency's (EPA) criteria, which includes the need for dumping, environmental impacts, effect on recreation and economic value, effect on navigation, and allowed locations and methods of disposal. Florida currently has 10 ocean dredged material disposal sites (EPA, 2019).

**Aquaculture:** Domestic aquaculture accounts for approximately 20% of the country's seafood production. It is a popular and growing method of obtaining fish due to the increasing pressures on the ocean's ecosystem. Currently, aquaculture is permitted in upland facilities and in Florida state waters, which extend out to three miles offshore. However, the biggest potential for aquaculture is in federal waters (which extend between three and 200 miles offshore). On August 30, 2019, the EPA issued the first draft permit for a pilot fish aquaculture project that will be placed 45 miles off the coast of Sarasota, Florida. This small-scale project will provide future data on the potential impacts of ocean aquaculture on ocean resources. Potential threats from offshore aquaculture include the spread of diseases, escaped farmed fish competing for food with native species, accumulation of waste, imbalance of nutrients, and algae blooms (Douglas, 2019).

See also [Aquaculture](#).

#### **Management Characterization:**

1. Indicate if the approach is employed by the state or territory and if any significant state- or territory-level changes (positive or negative) in the management of ocean and Great Lakes resources have occurred since the last assessment?

**Significant Changes to Management of Ocean and Great Lakes Resources**

<b>Management Category</b>	<b>Employed by State or Territory (Y or N)</b>	<b>CMP Provides Assistance to Locals that Employ (Y or N)</b>	<b>Significant Changes Since Last Assessment (Y or N)</b>
Statutes, regulations, policies, or case law interpreting these	Y	Y	N
Regional comprehensive ocean/Great Lakes management plans	Y	Y	Y
State comprehensive ocean/Great Lakes management plans	Y	Y	N
Single-sector management plans	Y	Y	Y

The Coastal Partnership Initiative grant program was developed to promote the protection and effective management of Florida's coastal resources at the local level. The FCMP makes NOAA funds available on a competitive basis to eligible local governments. Eligible local governments are defined as Florida's 35 coastal counties and all municipalities within their boundaries that are required to include a coastal element in their local comprehensive plan. Florida's public colleges and universities, regional planning councils, national estuary programs, and nonprofit groups may also apply if an eligible local government agrees to participate as a partner (DEP, 2019a; DEP, 2019c).

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
  - a. Describe the significance of the changes;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

**Statutes, Regulations, Policies or Case Law Management Plans:**

***State of Florida – Office of the Governor EO Number 19-12:*** On January 20<sup>th</sup>, 2019 the Florida’s Governor, Ron DeSantis, issued an EO regarding the protection of Florida’s water resources. The current conditions of Florida’s water resources were stated to be one of the most critical issues facing the state. The EO was structured in three separate sections (State of Florida, 2019):

1. Focus on Rapid Improvement for Water Quality, Quantity, and Supply
2. Restructuring of DEP to Focus on Accountability, Transparency, and Science to Achieve More Now for Florida’s Environment
3. Ensure Florida’s Valuable and Vulnerable Coastlines and Natural Resources are Protected

The sections are directed to DEP, the DOH, Visit Florida, and the DEO. The orders specify the following relevant actions (State of Florida, 2019):

- Participate in the FWC Harmful Algal Bloom Task Force to provide technical expertise and assistance studying the causes and impacts of red tides.

- Direction of the DOH to participate in the FWC Task Force and study the air quality and human health impacts of red tide.
- Continue DEP's red tide emergency grant program.
- Continue studying options to prevent Georgia's harmful upstream water use from resulting in adverse impact to the Apalachicola River and Bay.
- Coordinate to prioritize scientific data, research, monitoring, and analysis needs to ensure coverage of current and upcoming environmental issues.
- Establish the RCP to prepare Florida's coastal communities and habitats for the impacts of sea level rise.
- Continue to take action to oppose all off-shore oil and gas activities along every Florida coast.
- Continue to take action to prevent hydraulic fracturing in Florida.

### **Regional Comprehensive Management Plans:**

***The Gulf of Mexico Alliance (GOMA):*** GOMA is a 501c3 non-profit organization with the objective of enhancing the environmental and economic health of the Gulf of Mexico (GOMA, 2019). GOMA continues to enhance Gulf of Mexico resource management through regional collaboration with the five Gulf States within priority areas.

- 2016 marked the inaugural year for the Gulf Star Partnership, with a commitment of nearly \$635,000 granted to regional projects. GOMA's Gulf Star program is a public-private partnership of agencies, businesses, and nonprofits that support the priorities directly tied to healthy ecosystems that impact Gulf economies.
- An ongoing project is the Gulf of Mexico Monitoring Community of Practice comprised of monitoring, restoration, and resource management practitioners and other individuals who share a common interest in maintaining Gulf ecosystem health and the associated monitoring activities required to understand environmental trends and track ecological response to conservation and restoration activities. It is comprised of GOMA Priority Issue Team members, local, state and federal agencies, universities, NGOs, business and industry, and other external partners.

### ***US Coral Reef Task Force (CRTF) – Resolutions and Local Action Strategies to Reduce***

***Threats to Coral Reefs:*** CRTF was established in 1998 by a Presidential EO #13089 to lead U.S. efforts to preserve and protect coral reef ecosystems. The CRTF includes leaders of 12 federal agencies, seven U.S. states, territories, commonwealths, and three Freely Associated States. The CRTF helps build partnerships, strategies, and support for on-the-ground action to conserve coral reefs. The CRTF works by consensus with all individuals providing input and expertise. CRTF members address new topics and issues that are priority concerns for the long-term health and sustainability of coral reef ecosystems and the communities that depend on them. One mechanism by which this is accomplished is through the passage of resolutions. Resolutions define the issue or problem and then set out a plan of action. The following (relevant) CRTF resolutions have been formally adopted since the last assessment:

Resolution 40-1: Coral Reef Restoration Urgent Action: Created the Restoration and Intervention Working Group in order to successfully increase coral reef resilience at a national level. (U.S. CRTF, 2018)

**Single-Sector Management Plans:**

**FKNMS:** The FKNMS is currently proposing a *Restoration Blueprint* (FKNMS, 2019a). This Draft EIS evaluates the impacts to the human and ecological environment from a variety of management measures that would further the existing sanctuary management in a comprehensive effort to protect the ecosystem and maintain the vibrant quality of life and economies of the Florida Keys. This Draft EIS considers various alternatives to help counteract the decline in resource conditions in the Florida Keys through a series of regulatory and management measures designed to reduce threats and, where appropriate, restore coral reefs, seagrasses, and other important habitats. Public comments on the document are being accepted through January 31, 2020.

**AP Management Plan updates:** See also [Special Area Management Planning](#).

**Critical Wildlife Areas (CWAs) updates:** See also [Special Area Management Planning](#).

**State Park Unit Management Plan (UMP) updates:** See also [Special Area Management Planning](#).

**Basin Management Action Plan (BMAP) updates:** See also [Cumulative and Secondary Impacts](#).

**Surface Water Improvement and Management (SWIM) Plan updates:** See also [Cumulative and Secondary Impacts](#).

3. Indicate if your state or territory has a comprehensive ocean or Great Lakes management plan.

Comprehensive Ocean/Great Lakes Management Plan	State Plan	Regional Plan
Completed plan (Y/N) (If yes, specify year completed)	Y; approved 1981	Y; GOMA 2004, GSAA 2009 (defunct)
Under development (Y/N)	N/A	N/A
Web address (if available)	N/A	<a href="https://gulfofmexicoalliance.org/documents/APIII.pdf">https://gulfofmexicoalliance.org/documents/APIII.pdf</a>
Area covered by plan	Entire state except federal and tribal lands*	GOMA: AL, FL, LA, MS, TX

**\*Note:** For planning and developing coordinated projects and initiatives relating to coastal resource protection and management and for completing federal consistency reviews of federally-licensed and permitted activities, only the geographical area encompassed by the 35 Florida coastal counties and the adjoining territorial sea is utilized (DEP, 2019c).

**Enhancement Area Prioritization:**

1. What level of priority is the enhancement area for the coastal management program?

**High**          X    
**Medium**             
**Low**               

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

There are many significant issues within this enhancement area that have previously been identified as a target of a 309 strategy and received 309 funding. This enhancement area is wide ranging and contains many of the highest priority single issues, including monitoring and management of coastal biological communities, water quality, and submerged cultural resources.

Each of the partner agencies within the FCMP is likely to have multiple issues that they are actively monitoring, maintaining, or managing that fall within the category of an Ocean Resources enhancement area.

**PHASE II (IN-DEPTH) ASSESSMENT:**

*Purpose: To determine key problems and opportunities to enhance the ability of state CMP to better address ocean and Great Lakes resources.*

1. What are the three most significant existing or emerging stressors or threats to ocean and Great Lakes resources within your coastal zone? Indicate the geographic scope of the stressor, i.e., is it prevalent throughout the coastal zone, or are specific areas most threatened? Stressors can be land-based development; offshore development (including pipelines, cables); offshore energy production; polluted runoff; invasive species; fishing (commercial and/or recreational); aquaculture; recreation; marine transportation; dredging; sand or mineral extraction; ocean acidification; or other (please specify). When selecting significant stressors, also consider how climate change may exacerbate each stressor.

	<b>Stressor/Threat</b>	<b>Geographic Scope</b> (throughout coastal zone or specific areas most threatened)
Stressor 1	Residential and Commercial Development	Throughout
Stressor 2	Biological Resource Use	Throughout
Stressor 3	Human Intrusion and Disturbance	Throughout

2. Briefly explain why these are currently the most significant stressors or threats to ocean and Great Lakes resources within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

In the *2019 Florida State Wildlife Action Plan (SWAP)* (FWC, 2019a), marine threats were listed by highest priority based on the provisions of the Conservation Measures Partnership Direct Threats, version 2.0. Based on this study, the greatest threat to marine ecosystems was identified as residential and commercial development. Residential and commercial development includes the construction of human settlements or other non-agricultural land within a substantial footprint of otherwise natural habitat. These developments increase the impervious surface present, causing inclined stormwater runoff and overall degraded water quality. In addition, coastal development also changes the habitat structure, water column abiotic factors, and prevents inland migration of habitats which naturally occurs due to sea level rise.

The second threat to marine ecosystems identified in the SWAP was biological resource use. This includes harvesting biological resources (deliberate and unintentional) for the aim of consumption or control of specific species. The overexploitation of these marine resources can negatively impact habitat structure, community structure, trophic dynamics, and positive feedback loops (FWC, 2019a).

Lastly, human intrusions and disturbances were identified in the SWAP as the third leading threat to marine ecosystems. Although tourism is a driving factor in Florida’s economy, certain human activities can alter, destroy, and disrupt habitats and species. Marine habitats can be impacted by humans from boating, swimming, snorkeling, SCUBA diving, and other marine related activities (FWC, 2019a).

3. Are there emerging issues of concern, but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	Information Needed
Climate change #1	Ongoing need for studies to examine the impacts of associated changes in sea level rise, precipitation and hydrological regimes, saline conditions, and temperature regimes.
Ocean acidification #2	Analysis of ocean acidification impacts on marine life, especially that of shellfish and corals.
IRL system #3	Research on multiple sources of water quality stressors contributing to harmful algal blooms, seagrass die-offs, and contamination and mortality of marine life.
Apalachicola oyster reefs #4	Further analysis of potential stressors, including environmental change and water quality, which have resulted in mass loss of oyster reefs.
Algal blooms #5, #6	Research and evaluation of algal blooms in relation to human activities (pollution, runoff from nutrient rich agriculture) and natural events (massive storms followed by red tides).
Stony Coral Tissue Loss Disease #7	Further research to identify potential relationships with pathogens and environmental factors, strategies to treat infected colonies, and identification of disease resistant genotypes.

#1 Florida’s State Wildlife Action Plan. (FWC, 2019a): <https://indd.adobe.com/view/9502ec1c-89dc-4c07-82b1-f098ad600878>

#2 Ocean Acidification is the ongoing decrease in the pH of the Earth’s ocean. (FKNMS, 2019c): <https://floridakeys.noaa.gov/ocean/acidification.html>

#3 Florida’s Indian River Lagoon in Environmental Crisis (Desai & Qureshi, 2016): <https://fcir.org/2016/08/06/floridas-indian-river-lagoon-in-environmental-crisis/>.



<sup>#4</sup> Florida's oysters in Apalachicola, Cedar Key face climate threats to survival (Spear & Sentinel, 2016) <https://www.tampabay.com/environment/floridas-oysters-in-apalachicola-cedar-key-face-climate-threats-to-survival-20190819/>  
<sup>#5</sup> Red Tide Update. (FWC, 2019b): <https://myfwc.com/fishing/saltwater/latest-news/>  
<sup>#6</sup> About Red Tide in Florida. (FWC, 2019c): <https://myfwc.com/research/redtide/fag/>  
<sup>#7</sup> Florida Reef Tract Coral Disease Outbreak. (FKNMS, 2019b): <https://floridakeys.noaa.gov/coral-disease/disease.html>

**In-Depth Management Characterization:**

*Purpose: To determine the effectiveness of management efforts to address identified problems related to the ocean and Great Lakes resources enhancement objective.*

1. For each of the additional ocean and Great Lakes resources management categories below that were not already discussed as part of the Phase I assessment, indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) have occurred since the last assessment.

**Significant Changes in Management of Ocean and Great Lakes Resources**

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Ocean and Great Lakes research, assessment, monitoring	Y	Y	Y
Ocean and Great Lakes GIS mapping/database	Y	Y	Y
Ocean and Great Lakes technical assistance, education, and outreach	Y	Y	N
Other (please specify)	N/A	N/A	N/A

2. For management categories with significant changes since the last assessment, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information.
  - a. Describe significant changes since the last assessment;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

**SEACAR:** The SEACAR project (DEP, 2019e) is a 309 funded project is aimed to help guide the assessment process, generate communication and engagement activities, and identify use of ocean resources within Florida. SEACAR’s geographic scope covers the RCP managed area and priority habitats. The following aquatic habitats are included in the assessment: water column, submerged aquatic vegetation, oyster reefs, coastal wetlands, and coral reefs (DEP, 2019d). The SEACAR assessment will complete the following:

- Identify long-term ecosystem conditions and index submerged habitat conditions.
- Identify indicators for the habitat index and demonstrate statewide trends and comparisons over time.

- Allow for the expansion of future indicators.
- Allow for adaptive management by determining the frequency of habitat index assessments.
- Identify data gaps.
- Utilize existing data.
- Incorporate assessment information into a Decision Support Tool.

The project has a five-year plan (ending in 2020) for completion and will result in a series of web and mapping tools in addition to a tiered reporting format. The SEACAR assessment products will promote knowledge on the status and trends of coastal resources for the purpose of potential use within policy decisions, increase overall public awareness of coastal resource threats, and provide information to support state and local programs in planning and decision-making (DEP, 2019e).

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's or territory's management efforts in planning for the use of ocean and Great Lakes resources since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state's or territory's management efforts?

While a variety of state agencies and programs address the management of ocean resources, no studies have been conducted on a statewide basis to evaluate these programs. Studies have been funded that evaluate particular areas but not a comprehensive review of effectiveness.

One area studied and funded as a 309 strategy in the last cycle is developing a Visitor Use Monitoring Protocol, which will be incorporated into existing management plans for coastal and aquatic managed areas including (but not limited to) APs, NERRs, and CRCP areas. This study is ongoing, and conclusions have not yet been reached.

#### **Identification of Priorities:**

1. Considering changes in threats to ocean and Great Lakes resources and management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve its ability to effectively plan for the use of ocean and Great Lakes resources. (*Approximately 1-3 sentences per management priority.*)

##### *Management Priority 1: Resource Assessment for Restoration and Management*

*Description:* Since the last assessment, the newly developed SEACAR project has identified ecological indicators used to better understand the statuses and trends of aquatic resources throughout the RCP's managed areas. These ecological indicators will provide data and information that will continually need to be evaluated and integrated into management tools for decision making within Florida's managed coastal areas. In addition to SEACAR's cataloging and analysis of ecological resources, better identification, documentation, and management of cultural resources is also a priority.

*Management Priority 2: Update Existing Management Plans*

*Description:* The cohesive management of Florida's 41 APs is an essential aspect to the overall effectiveness of the FCMP. There is an ongoing need to update AP management plans, which will improve the FCMP's ability to manage ocean resources

*Management Priority 3: Water Quality Monitoring of Stressors and Effects on Biological Communities*

*Description:* Since the last assessment, Florida has seen several water quality events that have resulted in stressed biological communities and impacts from decreased water quality in Florida's managed coastal areas. From the increasing salinity in the Apalachicola Bay and its effect on the oyster population, to severe algal blooms throughout the state and its effect on a host of natural communities, an increased understanding of these water quality events and the potential outcomes is needed to better understand how to effectively prepare for and manage any events in the future.

2. Identify and briefly explain priority needs and information gaps the CMP has to help it address the management priorities identified above. The needs and gaps identified here do not need to be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	Y	Ongoing need for the assessment of the impacts of climate change (sea level rise, ocean acidification, changes in precipitation and hydrological regimes, saline conditions, and temperature regimes). Ongoing need for water quality monitoring and its effects on ocean resources, particularly in the Indian Lagoon system and Apalachicola Bay. Need for assessment of water quality and its effects on prolonged algal blooms. Need for assessment of causes of coral loss due to climate change and Stony Coral Tissue Loss Disease. Need to better quantify effects of permitted shipwreck exploration and salvage techniques.
Mapping/GIS	Y	As there is an increase in accuracy and availability of ocean resource data, there is an ongoing need to update and enhance current mapping projects. These include providing updated maps on restoration projects, coral loss, wetland coverage, intertidal and subtidal habitats, inundation from sea level rise, and other significant ocean resources statuses on a state and local level.
Data and information management	Y	Need for continual updates on the status of ocean resources at state and local scales in order to establish appropriate management decisions and evaluations.
Training/capacity building	Y	There is an ongoing need to train local and state decision makers on resource assessment tools and management strategies available as the status and trends of ocean resources continues to be updated. Conduct training for land/resource managers and law enforcement officials to better protect cultural resources.
Decision-support tools	Y	Continual need for state and local ocean resource assessments to aid in appropriate government and management decision making.
Communication and outreach	Y	As the status and trends of ocean resources continues to be updated there is an ongoing need to compile publicly available resource assessments on a state and local level. The assessments can then be utilized in public outreach to introduce management strategies that can reduce the impact and threat of human activities on ocean resources.

**Enhancement Area Strategy Development:**

1. Will the CMP develop one or more strategies for this enhancement area?

Yes          X    
 No               

2. Briefly explain why a strategy will or will not be developed for this enhancement area.

There are many significant issues within the Ocean Resources enhancement area that will be identified as the target for a strategy or incorporated into strategies. This enhancement area is wide ranging and contains many of the highest priority single issues, including monitoring and management of coastal biological communities, water quality, and submerged cultural resources.

## References:

- Anderson, D.G., Bissett, T.G., Yerka, S.J., Wells, J.J., Kansa, E.C., Kansa, S.W., et al. (2017). Sea-level rise and archaeological site destruction: An example from the southeastern United States using DINAA (Digital Index of North American Archaeology). PLoS ONE 12(11): e0188142.  
<https://doi.org/10.1371/journal.pone.0188142>
- Apalachicola Riverkeeper. (2019). Threats. Retrieved from website:  
<http://apalachicolariverkeeper.org/threats/>
- Associated Press. (2018). New Fishing Rules on Snook and Redfish Due to Red Tide. Retrieved from website: <https://wusfnews.wusf.usf.edu/post/new-fishing-rules-snook-and-redfish-due-red-tide>
- Ballew, N., Bacheler, N., Kellison, G., and Schueller, A. (2016). Invasive lionfish reduce native fish abundance on a regional scale. Scientific Reports. 6: Article No. 32169.  
<https://doi.org/10.1038/srep32169>
- Bureau of Ocean Energy Management, NOAA National Centers for Coastal Ocean Science, NOAA Office for Coastal Management [BOEM & NOAA]. (2019). Ocean Reports. Retrieved from website:  
<https://www.coast.noaa.gov/digitalcoast/tools/ort.html>.
- Bureau of Ocean Energy Management [BOEM]. (2014). BOEM Issues First Renewable Energy Lease for Marine Hydrokinetic Technology Testing. Retrieved from website:  
<https://www.boem.gov/press06032014/>
- Collier C, Ruzicka R, Banks K, Barbieri L, Beal B, Bingham D, et al. (2008). The State of Coral Reef Ecosystems of Southeast Florida. In: Waddell, JE & Clarke, AM (eds.) The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2008. Silver Spring, MD: NOAA Technical Memorandum NOS NCCOS 73. NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team. Retrieved from website:  
<https://pdfs.semanticscholar.org/056b/8d30836861d1607311978931c9ab05761d59.pdf>
- Commercial Fishing. (2016). 2016-2017 Apalachicola Bay Oyster Season. Retrieved from website:  
<http://www.bing.com/search?q=commerical+fshing+problems+apachicola+bay+flordia&src=IE-SearchBox&FORM=IESR4A>
- Desai, L and Qureshi, Y (2016). Florida's Indian River Lagoon in Environmental Crisis. Florida Center for Investigative Reporting. Retrieved from website: <https://fcir.org/2016/08/06/floridas-indian-river-lagoon-in-environmental-crisis/>.
- Douglas, L (2019). The Battle Over Fish Farming in The Open Ocean Heats Up as EPA Permit Looms. Retrieved from website: <https://www.npr.org/sections/thesalt/2019/09/18/761978683/the-battle-over-fish-farming-in-the-open-ocean-heats-up-as-epa-permit-looms>

Federal Energy Regulatory Commission [FERC]. (2019a). Major Approved Pipeline Projects. Retrieved from website: <https://ferc.gov/industries/gas/indus-act/pipelines/approved-projects.asp>

Federal Energy Regulatory Commission [FERC]. (2019b). Major Pipeline Projects Pending. Retrieved from website: <https://www.ferc.gov/industries/gas/indus-act/pipelines/pending-projects.asp>

Florida Department of Environmental Protection [DEP]. (2019a). Coastal Partnership Initiative Grant Program. Retrieved from website: <https://floridadep.gov/fco/fco/content/coastal-partnership-initiative-grant-program>

Florida Department of Environmental Protection [DEP]. (2019b). Fact Sheet: Harmful Algal Blooms. Retrieved from website: <https://floridadep.gov/rcp/coral/documents/fact-sheet-harmful-algal-blooms>

Florida Department of Environmental Protection [DEP]. (2019c). Florida Coastal Management Program Guide: A Guide to the Federally Approved Florida Coastal Management Program. Retrieved from website: <https://floridadep.gov/sites/default/files/FCMP-Program-Guide-2019.pdf>

Florida Department of Environmental Protection [DEP]. (2019d). SEAFAN BleachWatch Program: Coral Bleaching Fact Sheet. Retrieved from website: <https://floridadep.gov/rcp/coral/documents/seafan-bleachwatch-program-coral-bleaching-fact-sheet>

Florida Department of Environmental Protection [DEP]. (2019e). Statewide Ecosystem Assessment of Coastal and Aquatic Resources (SEACAR) - Assessment Products. Retrieved from website: <https://floridadep.gov/rcp/fcmp/content/seacar-assessment-products>

Florida Department of Environmental Protection Division of Water Resource Management [DEP DWRM]. (2019). Critically Eroded Beaches in Florida. Retrieved from website: <https://floridadep.gov/sites/default/files/DEP-Critically-Eroded-Beaches-2019.pdf>

Florida Department of Environmental Protection Division of Water Resource Management [DEP DWRM]. (2018). Strategic Beach Management Plan: Introduction. Retrieved from website: [https://floridadep.gov/sites/default/files/SBMP-Introduction\\_0.pdf](https://floridadep.gov/sites/default/files/SBMP-Introduction_0.pdf)

Florida Department of Environmental Protection Division of Water Resource Management [DEP DWRM]. (2016). Critically Eroded Beaches in Florida. Retrieved from website: <https://floridadep.gov/sites/default/files/CriticalErosionReport.pdf>

[Florida Department of State Division of Historical Resources \[DOS HR\]. \(accessed 2020\). 2017-2021 Preserving Florida's Heritage Florida's Comprehensive Historic Preservation Plan.](https://dos.myflorida.com/media/699936/dhr-compplan-2017-2021.pdf) Retrieved from website: <https://dos.myflorida.com/media/699936/dhr-compplan-2017-2021.pdf>

- Florida Fish and Wildlife Conservation Commission [FWC]. (2019a). Florida's Wildlife Legacy Initiative: Florida's State Wildlife Action Plan. Tallahassee, Florida. Retrieved from website: <https://indd.adobe.com/view/9502ec1c-89dc-4c07-82b1-f098ad600878>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2019b). Red Tide Update. Retrieved from website: <https://myfwc.com/fishing/saltwater/latest-news/>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2019c). About Red Tide in Florida. Retrieved from website: <https://myfwc.com/research/redtide/faq/>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2019d). Lionfish - Pterois volitans. Retrieved from website: <https://myfwc.com/wildlifehabitats/nonnatives/marine-fish/scorpionfish-and-lionfish/lionfish/>
- Florida Fish and Wildlife Conservation Commission [FWC]. (2017). Restrictions for September 1, 2017 through May 31, 2018 for Commercial and Recreational Oyster Harvest from the Apalachicola Bay System – Order No. EO 17-34. Retrieved from website: <https://myfwc.com/media/3711/eo17-34.pdf>
- Florida Keys National Marine Sanctuary [FKNMS]. (2019a). A Blueprint for the Future: Restoring Florida Keys National Marine Sanctuary. Retrieved from website: <https://floridakeys.noaa.gov/blueprint/>
- Florida Keys National Marine Sanctuary [FKNMS]. (2019b). Florida Reef Tract Coral Disease Outbreak: Disease. Retrieved from website: <https://floridakeys.noaa.gov/coral-disease/disease.html>
- Florida Keys National Marine Sanctuary [FKNMS] (2019c). Ocean acidification is the ongoing decrease in the pH of the Earth's ocean. Florida Keys National Marine Sanctuary. Retrieved from website: <https://floridakeys.noaa.gov/ocean/acidification.html>.
- Florida Keys National Marine Sanctuary [FKNMS]. (2018). Case Definition: Stony Coral Tissue Loss Disease (SCTLD). Retrieved from website: Retrieved from website: <https://nmsfloridakeys.blob.core.windows.net/floridakeys-prod/media/docs/20181002-stony-coral-tissue-loss-disease-case-definition.pdf>
- Florida Seaport Transportation & Economic Development Council [FSTED]. (2019). Seaports Resiliency Report. Retrieved from website: <https://flaports.org/resource-types/documents/>
- Gulf of Mexico Alliance [GOMA]. (2019). Gulf of Mexico Building Partnerships for a Healthier Gulf. Retrieved from website: <https://gulfofmexicoalliance.org/>
- National Geographic. (2016). Saving the Reef: Lionfish in Florida. Retrieved from website: <https://blog.nationalgeographic.org/2016/08/29/saving-the-reef-lionfish-in-florida/>

- National Oceanic and Atmospheric Administration [NOAA]. (2018a). Fall 2018 Red Tide Event That Affected Florida and the Gulf Coast. Retrieved from website: <https://oceanservice.noaa.gov/hazards/hab/florida-2018.html>
- National Oceanic and Atmospheric Administration [NOAA]. (2018b). Impacts of Invasive Lionfish. Retrieved from website: <https://www.fisheries.noaa.gov/feature-story/impacts-invasive-lionfish>
- National Oceanic and Atmospheric Administration Office for Coastal Management [NOAA OCM]. (2016). NOAA Economics: ENOW Explorer. Retrieved from website: <https://coast.noaa.gov/digitalcoast/tools/enow.html>.
- Pittman, C. (2018). More manatees have died in Florida so far this year than in all of 2017. Miami Herald, Published August 7, 2018. Retrieved from website: [https://www.tampabay.com/news/environment/Lingering-Red-Tide-bloom-moves-north-killing-fish-near-mouth-of-Tampa-Bay\\_170656470/](https://www.tampabay.com/news/environment/Lingering-Red-Tide-bloom-moves-north-killing-fish-near-mouth-of-Tampa-Bay_170656470/)
- Sea Level Rise Work Group [SLRWG]. (2015). Unified Sea Level Rise Projection Southeast Florida. Retrieved from website: <https://southeastfloridaclimatecompact.org/wp-content/uploads/2015/10/2015-Compact-Unified-Sea-Level-Rise-Projection.pdf>
- Spear, K and Sentinel, O. (2016). Florida's oysters in Apalachicola, Cedar Key face climate threats to survival. Tampa Bay Times, Published August 16, 2019. Retrieved from website: <https://www.tampabay.com/environment/floridas-oysters-in-apalachicola-cedar-key-face-climate-threats-to-survival-20190819/>.
- State of Florida. (2019). State of Florida – Office of the Governor Executive Order Number 19-12. Retrieved from website: [https://protectingfloridatogether.gov/sites/default/files/documents/EO\\_19-12\\_0.pdf](https://protectingfloridatogether.gov/sites/default/files/documents/EO_19-12_0.pdf)
- Submarine Cable Systems. (2019). Submarine Cables. Retrieved from website: <http://www.submarinecablesystems.com/default.asp.pg-CableSystems>
- U.S. Coral Reef Task Force [CRTF]. (2018). Resolution 40-1: Coral Reef Restoration Urgent Action. Retrieved from website: [https://www.coralreef.gov/meeting40/pdf/resolution\\_40\\_1\\_coral\\_restoration.pdf](https://www.coralreef.gov/meeting40/pdf/resolution_40_1_coral_restoration.pdf)
- U.S. Energy Information Administration [EIA]. (2019). Facts About Florida. Retrieved from website: <https://www.eia.gov/beta/states/states/fl/overview>
- U.S. Energy Information Administration [EIA]. (2018). Energy Production Estimates in Physical Units, Florida. Retrieved from website: <https://www.eia.gov/state/search/#?1=80&5=121&2=190>



U.S. Environmental Protection Agency [EPA]. (2019). Managing Ocean Dumping in EPA Region 4. Retrieved from website: <https://www.epa.gov/ocean-dumping/managing-ocean-dumping-epa-region-4>

Visit Florida. (2019). Research – Estimates of Visitors to Florida by Quarter. Retrieved from website: <https://www.visitflorida.org/resources/research/>

Weather Channel. (2015). A Favorite Florida Delicacy is in Swift Decline. Retrieved from website: <https://weather.com/science/environment/news/apalachicola-bay-oysters-under-threat>

Wei-Haas, M. (2018). Red Tide is Devastating Florida's Sea Life. Are Humans to Blame? National Geographic, Published August 8, 2018. Retrieved from website: <https://www.nationalgeographic.com/environment/2018/08/news-longest-red-tide-wildlife-deaths-marine-life-toxins/>.

## Energy and Government Facility Siting

**Section 309 Enhancement Objective:** Adoption of procedures and enforceable policies to help facilitate the siting of energy facilities and Government facilities and energy-related activities and Government activities which may be of greater than local significance. §309(a)(8)<sup>18</sup>

### **PHASE I (HIGH-LEVEL) ASSESSMENT:**

#### **Resource Characterization:**

1. In the table below, characterize the status and trends of different types of energy facilities and activities in the state's or territory's coastal zone based on best-available data. If available, identify the approximate number of facilities by type. For ocean-facing states and territories (not Great Lakes states), Ocean Reports includes existing data for many of these energy facilities and activities.

---

<sup>18</sup> CZMA § 309(a)(8) is derived from program approval requirements in CZMA § 306(d)(8), which states:

“The management program provides for adequate consideration of the national interest involved in planning for, and managing the coastal zone, including the siting of facilities such as energy facilities which are of greater than local significance. In the case of energy facilities, the Secretary shall find that the State has given consideration to any applicable national or interstate energy plan or program.”

NOAA regulations at 15 C.F.R. § 923.52 further describe what states need to do regarding national interest and consideration of interests that are greater than local interests.

### Status and Trends in Energy Facilities and Activities in the Coastal Zone

Type of Energy Facility/Activity	Exists in Coastal Zone (# or Y/N)	Change in Existing Facilities/Activities Since Last Assessment (↑, ↓, -, unkwn)	Proposed in Coastal Zone (# or Y/N)	Change in Proposed Facilities/Activities Since Last Assessment (↑, ↓, -, unkwn)
Pipelines #1, #2, #3	136 pipeline areas, 40 pipelines	↑	2 (1 approved, 1 proposed)	-
Electrical grid (transmission cables) #3, #4	553 areas, 22 submarine cables	↑	2 submarine cables	-
Ports #3, #5	12 ports, 8 principle ports	-	Y	-
Liquefied natural gas (LNG) #6, #7, #8	2	↑	5 (1 approved, 4 proposed)	↑
Oil #3, #9, #10	16	↓	Y	↓
Gas #3, #9, #10	46	↑	Y	↑
Coal #3	10	↓	N	-
Nuclear #3, #11, #12	4	-	Y	-
Wind #3	N	-	N	-
Wave #13	N	-	N	-
Tidal #13	N	-	N	-
Current (ocean, lake, river) #13	N	-	Y	-
Hydropower #14, #15	N	-	N	-
Ocean thermal energy conversion	N	-	N	-
Solar #3	35	↑	Y	↑
Biomass #3	29	↑	Y	↑
Municipal solid waste #16	10	↑	Y	↑

#1 FERC Approved Major Pipeline Projects (FERC, 2019e): <https://www.ferc.gov/industries/gas/indus-act/pipelines/approved-projects.asp>

#2 FERC Major Pipeline Projects Pending (FERC, 2019f): <https://www.ferc.gov/industries/gas/indus-act/pipelines/pending-projects.asp>

#3 Ocean Reports (BOEM & NOAA, 2019): <https://marinecadastre.gov/oceanreports/@-10785379.929351171.4856714.592364172/4/eyJ0IjoicXliLCJlIjoib2NIYW4iLCJmIjowLCJzIjowLCJhIjoicXliIiwibCI6W119>

#4 Submarine Cables Current and Proposed (Submarine Cable Systems, 2019): <http://www.submarinecablesystems.com/default.asp.pg-CableSystems>

#5 FPC Seaports (FPC, 2019): <https://flaports.org/seaports/>

#6 FERC LNG (FERC, 2019d): <https://www.ferc.gov/industries/gas/indus-act/lng.asp>

#7 JAX LNG (JAX LNG, 2019): <http://pivotallng.com/Network-of-Assets/Jacksonville%20-%20FL>

#8 DOE –Division of Natural Gas (DOE, 2019c): <https://www.energy.gov/fe/listings/lng-reports>

#9 DEP Oil and Gas Data – State Production Data. (DEP, 2019a): <https://floridadep.gov/water/oil-gas/content/oil-and-gas-data>

#10 Florida Public Service Commission Review of the 2018 Ten-Year Site Plans of Florida’s Electric Utilities – Fuel Diversity (PSC, 2018): [www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2018/Review.pdf](http://www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2018/Review.pdf)

#11 Turkey Point Nuclear Plant on way to expansion. But will it survive a changing industry? (Staletovich, 2017): <https://www.miamiherald.com/news/local/environment/article151642422.html>

#12 FERC Nuclear Energy (FERC, 2008): <http://floridaenergy.ufl.edu/florida-energy-facts/nuclear-energy/>

#13 FERC Hydrokinetic Projects (FERC, 2019a): <https://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp>

#14 FERC Hydropower and FERC, Read the Story – FERC Projects (FERC, 2019b): <https://ferc-oepp.maps.arcgis.com/apps/MapSeries/index.html?appid=447e5523f6bc4a759c5667791d5af074>

#15 FERC Hydropower Preliminary Permits (FERC, 2019c): <https://www.ferc.gov/industries/hydropower/gen-info/licensing/pre-permits.asp>

#16 DEP Waste-to-Energy (DEP, 2017): <https://floridadep.gov/waste/permitting-compliance-assistance/content/waste-energy>

2. If available, briefly list and summarize the results of any additional state- or territory-specific information, data, or reports on the status and trends for energy facilities and activities of greater than local significance in the coastal zone since the last assessment.

**Florida Department of Agriculture and Consumer Services (DACS) - Office of Energy (OOE) Annual Report 2018:**

The 2018 DACS OOE report (DACS, 2018) evaluates energy related studies, analyses, and stakeholder input to promote statewide utilization of energy efficient and renewable technologies. The report also provides an overview of the current state of Florida's energy landscape and participation in both state and national organizations. The following represent some of key trends noted in the 2018 report:

- Florida has the 3<sup>rd</sup> largest state electrical consumption and imports natural gas, coal, uranium, and petroleum products.
- The main drivers of Florida's energy consumption of natural gas and petroleum are the transportation and residential sectors.
- Natural gas has become the dominant fuel source for electric generation.
- Florida is ranked 46<sup>th</sup> in the nation for total energy consumption per capita.
- Solar energy is the largest source of renewable energy in Florida, constituting 31.1% of total renewable energy generation statewide
- Biomass is the 2<sup>nd</sup> largest renewable energy source in Florida (22.9%).
- The 3<sup>rd</sup> largest renewable energy source in Florida is municipal solid waste (18.7%).

**PSC Review of the 2018 Ten-Year Site Plans:** Each year, the PSC reviews the Ten-Year Site Plans for Florida's electric utilities. The PSC's November 2018 *Review of the 2018 Ten-Year Site Plans of Florida's Electric Utilities* document (PSC, 2018) includes separate discussions based on a statewide perspective and a utilities perspective. The statewide perspective relates to the implications of combined trends within Florida's electric utilities regarding load forecasting, renewable generation, and traditional generation. The utility perspective section reports trends based on each individual utility facility within Florida including Florida Power & Light (FPL), Duke Energy Florida (DEF), Tampa Electric, Gulf Power, Florida Municipal Power, Gainesville Regional, Jacksonville Electric Authority, Lakeland Electric, Orlando Utilities Commission, Seminole Electric Cooperative, and City of Tallahassee Utilities. The following represent some of the identified trends represented in the state of Florida:

- Florida is expected to exceed the historic 2010 electric utilities peak by 2020, based on current projections.
- Renewable resources are continuing to expand in Florida with a current capacity of approximately 2,583 MW.
- 73% of Florida's renewable resources are represented by biomass, solar, and municipal solid waste.
- Florida's renewable resources are expected to increase by 7,049 MW over the 10-year planning period.
- Currently solar energy is projected to have the greatest increase in renewable generation.
- Since 2010, natural gas has displaced coal as the dominant fuel. In addition, natural gas has generated more net energy for load than all other fuels combined.
- Coal has continued to decline in the percent net energy for load, which was 29.3% in 2007, 17.3% in 2017, and is forecast to be around 11.8% in 2027.

- Oil use has decreased significantly from 2007 (6.7%) to 2017 (0.2%) and is expected to continue to decline throughout 2027 (projected at 0.1%).
- Nuclear capacity has remained stable between 2007 and 2017, in which the percent net energy for load was about 11.9%; this rate is expected to continue throughout 2027.

3. Briefly characterize the existing status and trends for federal government facilities and activities of greater than local significance<sup>19</sup> in the state’s coastal zone since the last assessment.

**Eagle LNG Partners (Jacksonville, FL):** Eagle LNG Partners have recently been approved under the FERC (Docket No. 16-15-LNG) to construct an LNG export terminal in Jacksonville, Florida. The facility will serve domestic and international markets. The project received final FERC authorization in September 2019 and is expected to commission in 2022 (Eagle LNG, 2019; FERC, 2019d; DOE, 2019d).

**JAX LNG:** The JAX LNG facility began operation in 2019 and became the first small-scale waterside LNG production facility in the United States. The facility is located at Dames Point in Jacksonville, Florida. The facility was established through a joint venture of Pivotal LNG and NorthStar Midstream. Currently the facility has the capability to produce 120,000 gallons of LNG per day and store more than two million gallons of LNG. Additional on-site space also allows for potential future expansion, which would increase production to 600,000 gallons per day and store up to four million gallons. In addition, the on-the-water location of the facility gives it the ability to service maritime LNG vessels (JAX LNG, 2019).

**American LNG Marketing (Hialeah, FL):** In 2015, American LNG Marketing was authorized (Dkt. No. 14-209-LNG) to export up to 60,000 metric tons of LNG from Hialeah, Florida (Miami-Dade County). The authorization was requested for a 20-year period, which begins on the date of first export or seven years from the date the authorization is requested. Notification of the terminal’s first export was received by the U.S. Department of Energy (DOE) in February 2016 (DOE 2019a).

**American LNG (Titusville, FL):** The DOE was notified in 2015 of the American LNG application (FE Dkt. 15-19-LNG) for the export of 600,000 metric tons of LNG per year. American LNG seeks a 20-year authorization which will begin either on the date of first export or seven years from the date of granted authorization, whichever is first. The proposed facility site is located in Titusville, Florida (DOE, 2019b).

**Floridian LNG Company:** In 2015, the DOE received an application (FE DKT. NO. 15-38-LNG) from Floridian LNG for a 20-year contract to export up to 14.6 billion cubic feet of natural gas per year. The facility will be located in Indiantown, Florida and will export via intermodal containers through other coastal counties across Florida (DOE, 2019e).

**Strom Inc. LNG:** The DOE was notified in 2015 (FE Dkt. No. 15-78-LNG) of Strom Inc.'s request for export of 56.42 billion cubic feet of LNG. Strom requested a 25-year period commencing on the date of the first export or five years from the date of authorization, whichever is first. The proposed site is in Crystal River, Florida (DOE, 2019f).

---

<sup>19</sup> The CMP should make its own assessment of what Government facilities may be considered “greater than local significance” in its coastal zone, but these facilities could include military installations or a significant federal government complex. An individual federal building may not rise to a level worthy of discussion here beyond a very cursory (if any at all) mention.

**Port Dolphin LNG Offshore Facility:** Port Dolphin Energy LLC, a subsidiary of Hoegh LNG, filed an application in 2007 for a LNG terminal located 28 miles offshore of Tampa, Florida. However, in 2015 Port Dolphin Energy requested that the FERC vacate several certificates and waivers for construction. The company intends to abandon the project due to changes in the LNG economy in the U.S. (the U.S. converting from an LNG importer into an exporter of LNG) (LNG World News, 2015).

**AES Ocean Express:** The 52.4-mile interstate natural gas pipeline is awaiting authorization under the FERC application for construction and operation. The project spans from the Exclusive Economic Zone boundary between the United States and the Bahamas. The pipeline will deliver to the FPL Lauderdale Power Plant in Broward County, Florida with an LNG terminal pending in the Bahamas (FERC, 2016).

**Florida Southeast Connection Pipeline:** Florida Southeast Connection was approved for the construction of a 126-mile interstate natural gas pipeline. The project extends from Intercession City, Florida to FPL Martin Clean Energy Center electric generation plant in Martin County, Florida. The project has already begun construction, which has continued throughout 2019; however, the pipeline is not yet completed (FERC, 2019e).

**Gulfstream Natural Gas System Pipeline Expansion Phase VI:** In 2019, Gulfstream proposed to construct, own, and operate metering equipment at an existing compressor station in Manatee County, Florida. The project stems from a precedent agreement with Tampa Electric Company in which Gulfstream will provide 78,000 dekatherms per day of firm service for 25 years. Currently, Gulfstream aims to request project authorization by June 1, 2020, begin construction by November 1, 2021, and begin service on December 1, 2022 (FERC, 2019f).

**Sabal Trail (Southeast Market Pipelines Project):** The Sabal Trail is a 517-mile interstate natural gas pipeline (268 miles contained in Florida) that provides power services to FPL and DEF. The Sabal Trail was placed into full commercial service in July 2017. The underground pipeline begins in Alabama and spans across 12 counties in Florida. Of the 12 counties covered in Florida, two are coastal counties (Citrus County and Levy County) (Sabal Trail Transmission, 2019).

#### **Management Characterization:**

1. Indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) that could facilitate or impede energy and government facility siting and activities have occurred since the last assessment.

### Significant Changes in Energy and Government Facility Management

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	N	N
State comprehensive siting plans or procedures	Y	N	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
  - a. Describe the significance of the changes;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

#### Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

**High**      \_\_\_\_\_  
**Medium**      X    
**Low**        \_\_\_\_\_

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

In January 2018, the Secretary of the Interior exempted Florida from an expanded plan of oil and gas drilling in Federal waters. Within the state boundaries, energy production is limited and thus not a high priority for the Coastal Management Program. However, what facilities do exist can and could continue to impact managed resources within the coastal zone, thus making this a medium priority enhancement area.

#### References:

Bureau of Ocean Energy Management NOAA National Centers for Coastal Ocean Science, NOAA Office for Coastal Management [BOEM & NOAA]. (2019). Ocean Reports. Retrieved from website: <https://www.coast.noaa.gov/digitalcoast/tools/ort.html>.

Eagle LNG Partners. (2019). Jacksonville, FL LNG Facility. Retrieved from website: <https://www.eaglelng.com/projects/jacksonville-fl>

Federal Energy Regulatory Commission [FERC]. (2016). Projects Near You. Retrieved from website: <https://www.ferc.gov/resources/projectsearch/SearchProjects.aspx?Region=Southeast>

Federal Energy Regulatory Commission [FERC]. (2019a). Hydrokinetic Projects. Retrieved from website: <https://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp>

Federal Energy Regulatory Commission [FERC]. (2019b). Hydropower and FERC, Read the Story – FERC Projects. Retrieved from website: <https://ferc-oepl.maps.arcgis.com/apps/MapSeries/index.html?appid=447e5523f6bc4a759c5667791d5af074>

Federal Energy Regulatory Commission [FERC]. (2019c). Hydropower Preliminary Permits. Retrieved from website: <https://www.ferc.gov/industries/hydropower/gen-info/licensing/pre-permits.asp>

Federal Energy Regulatory Commission [FERC]. (2019d). LNG. Retrieved from website: <https://www.ferc.gov/industries/gas/indus-act/lng.asp>

Federal Energy Regulatory Commission [FERC]. (2019e). Major Approved Pipeline Projects. Retrieved from website: <https://www.ferc.gov/industries/gas/indus-act/pipelines/approved-projects.asp>

Federal Energy Regulatory Commission [FERC]. (2019f). Major Pipeline Projects Pending. Retrieved from website: <https://www.ferc.gov/industries/gas/indus-act/pipelines/pending-projects.asp>

Florida Department of Agriculture and Consumer Services [DACs]. (2018). Office of Energy Annual Report. Retrieved from website: <https://www.DACS.gov/ezs3download/download/82803/2395231/Media/Files/Energy-Files2/2018%20Office%20of%20Energy%20Annual%20Report.pdf>

Florida Department of Environmental Protection [DEP]. (2017). Waste-to-Energy. Retrieved from website: <https://floridadep.gov/waste/permitting-compliance-assistance/content/waste-energy>

Florida Department of Environmental Protection [DEP]. (2019a). Oil and Gas Data – State Production Data. Retrieved from website: <https://floridadep.gov/water/oil-gas/content/oil-and-gas-data>

Florida Energy Systems Consortium [FESC]. (2008). Nuclear Energy. Retrieved from website: <http://floridaenergy.ufl.edu/florida-energy-facts/nuclear-energy/>

Florida Ports Council [FPC]. (2019). Seaports. Retrieved from website: <https://flaports.org/seaports/>

Florida Public Service Commission [PSC]. (2018). Review of the 2018 Ten-Year Site Plans of Florida’s Electric Utilities. Retrieved from website: [www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2018/Review.pdf](http://www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2018/Review.pdf)

JAX LNG. (2019). JAX LNG – The First Small-Scale Waterside LNG Production Facility in the United States is Operational. Retrieved from website: <http://jaxlng.com/newsroom/>



- LNG World News. (2015). Port Dolphin abandons LNG project. Retrieved from website: <https://www.lngworldnews.com/port-dolphin-energy-abandons-lng-project/>
- Sabal Trail Transmission. (2019). Sabal Trail. Retrieved from website: <http://sabaltrailtransmission.com/>
- Staletovich, J. Miami Herald. (2017). Turkey Point Nuclear Plant on way to expansion. But will it survive a changing industry? Retrieved from website: <https://www.miamiherald.com/news/local/environment/article151642422.html>
- Submarine Cable Systems. (2019). Submarine Cables. Retrieved from website: <http://www.submarinecablesystems.com/default.asp.pg-CableSystems>
- U.S. Department of Energy [DOE]. (2019a). American LNG Marketing LLC – FE Dkt. No. 14-209-LNG. Retrieved from website: <https://www.energy.gov/fe/downloads/american-lng-marketing-llc-fe-dkt-no-14-209-lng>
- U.S. Department of Energy [DOE]. (2019b). American LNG Marketing LLC – FE Dkt. No. 15-19-LNG. Retrieved from website: <https://www.energy.gov/fe/downloads/american-lng-marketing-llc-fe-dkt-no-15-19-lng>
- U.S. Department of Energy [DOE]. (2019c). Division of Natural Gas Regulation – LNG Reports. Retrieved from website: <https://www.energy.gov/fe/listings/lng-reports>
- U.S. Department of Energy [DOE]. (2019d). Eagle LNG Partners Jacksonville LLC - FE DOCKET NO. 16-15-LNG. Retrieved from website: <https://www.energy.gov/sites/prod/files/2019/10/f67/ord4445.pdf>
- U.S. Department of Energy [DOE]. (2019e). Floridian Natural Gas Storage Company LLC – FE DKT. NO. 15-38-LNG. Retrieved from website: <https://www.energy.gov/fe/downloads/floridian-natural-gas-storage-company-llc-fe-dkt-no-15-38-lng>
- U.S. Department of Energy [DOE]. (2019f). Strom Inc – FE Dkt. No. 15-78-LNG. Retrieved from website: <https://www.energy.gov/fe/strom-inc-fe-dkt-no-15-78-lng>

## Aquaculture

**Section 309 Enhancement Objective:** Adoption of procedures and policies to evaluate and facilitate the siting of public and private aquaculture facilities in the coastal zone, which will enable states to formulate, administer, and implement strategic plans for marine aquaculture. §309(a)(9)

### PHASE I (HIGH-LEVEL) ASSESSMENT:

#### Resource Characterization:

1. In the table below, characterize the existing status and trends of aquaculture facilities in the state’s coastal zone based on the best-available data. Your state Sea Grant Program may have information to help with this assessment.

**Status and Trends of Aquaculture Facilities and Activities**

Type of Facility/Activity	Number of Facilities	Approximate Economic Value (M)	Change Since Last Assessment - 2017	
			(↑, ↓, -, unkwn)	Change from 2017 to 2012
Catfish	35	\$0.46	↑	↓
Trout	2	-	↑	-
Other food fish	101	\$4.25	↑	↓
Baitfish	7	\$0.34	↑	↑
Crustaceans	34	\$4.73	↑	↓
Mollusks	162	\$17.3	↑	↑
Ornamental fish	158	\$34.5	↑	-
Sport or game fish	24	\$1.78	↑	↑
Other aquaculture products	113	\$8.82	↓	↓
<b>Total</b>	<b>636</b>	<b>\$72.18</b>		

Agriculture (April 2017) USDA, National Agriculture Statistic Service (USDA, 2019)

Florida’s aquaculture industry produces the greatest variety of aquatic species of any state in the nation. The state’s subtropical climate, vast marine and freshwater resources, cargo shipping infrastructure, and extensive coastline have made the state’s aquaculture industry uniquely diverse. The industry produces approximately 1,500 varieties of fish, plants, mollusks, crustaceans, turtles, and alligators. Aquaculture production occurs in a variety of upland facilities and on state-owned submerged lands (via a lease authorized by the Board of Trustees of the Internal Improvement Trust Fund). The aquaculture facility operating methods are varied and include ponds, flow-through and recirculating systems consisting of tanks, troughs or lined ponds, cages or pens, aquaponic systems, on-bottom and off-bottom mollusk culture, and other production methods.

Currently there are 593 certified upland aquaculture farms and 728 active commercial shellfish aquaculture leases on 1,578 acres of submerged lands. In perpetuity shellfish leases account for an additional 47 leases on 930 acres of submerged lands (DACS, 2019a). Florida aquaculture is unique in the variety of products produced by both large and small farm operations throughout the state. This

characteristic is reflected in the U.S. Department of Agriculture data showing 113 farms of other aquaculture products with sales of 8.82 million and 101 farms of other food fish products with sales of \$4.25 million (USDA, 2019).

2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends or potential impacts from aquaculture activities in the coastal zone since the last assessment.

Recent trends in aquaculture include the expansion of the shellfish aquaculture industry and the food fish industry, including species such as shrimp, Atlantic salmon, tilapia, and new marine species. The DACS, Division of Aquaculture continues to establish new lease area throughout the state, now totaling more than 700 leases and 25 Aquaculture Use Zones within 10 coastal Florida counties (Brevard, Charlotte, Collier, Dixie, Franklin, Indian River, Lee, Levy, Volusia, and Wakulla) (DACS, 2019b). These sites can be requested by applicants via submittal of an application to the DACS. In addition, new individual lease locations can also be proposed by applicants.

There are a variety of workshops conducted by the University of Florida, Institute of Food and Agricultural Science (IFAS), DACS, and other groups throughout the state covering many commodities (tropical fish, food fish, recirculating systems, aquaponics, etc.). Notably, the FSG program and DACS conducted several workshops in 2019 to address topics related to the production of shellfish seed and lease management. These workshops were open to hatchery operators, shellfish farmers, and other personnel. The workshops addressed advances in shellfish hatchery technology, gear management, hurricane preparation, and recovery and insurance options for leaseholders. (FSG, 2017a; UF/IFAS, 2019a; UF/IFAS, 2019b).

Increased demand for wild-caught and farm-raised seafood has also led to increased funding for further aquaculture research and development. Research studies aim to improve production efficiencies and sustainability of aquaculture products through a variety of topics, including increasing tolerance to environmental conditions, improving production methods, enhancing feed composition and performance, and reducing environmental impacts (FSG, 2017b). Due to the increasing pressure on wild fisheries, aquaculture has become an increasingly important sustainable alternative to meet domestic seafood demand. As U.S. aquaculture grows in diversity, production intensity, and scope, so does the need for research on a variety of topics. There are many institutions involved with aquaculture research in Florida, with much of the focus on increasing recirculating aquaculture system efficiency and diversification and permitting and operating aquaculture farms in state and federal waters.

Currently, aquaculture in state waters accounts for approximately 20% of the country's seafood. Within Florida, aquaculture is permitted on land or in state waters, which extend up to three miles offshore in the Atlantic and nine miles offshore in the Gulf of Mexico. On August 30, 2019, the EPA issued the first draft permit for a pilot aquaculture project within federal waters in the Gulf of Mexico, 45 miles off the coast of Sarasota, Florida (EPA, 2019). Pending permitting, this project will be the first small-scale fish aquaculture project in federal waters. In the pilot project, Kampachi Farms will farm 20,000 almaco jack (*Seriola rivoliana*) in a single floating net pen at a water depth of 130 feet. The project will be assessed for potential waste problems, threats to wild fish, diseases, algal blooms, and competition for food

(Douglas, 2019). A bill to streamline permitting of aquaculture facilities in federal waters (Advancing the Quality and Understanding of American Aquaculture Act, S. 3138) has recently been developed and submitted to both legislative bodies.

In 2018, the DACS Division of Aquaculture constructed an aquaponics education system at the Holland Building Wellness Garden in Tallahassee, Florida. The system is used to demonstrate to school-aged children how energy, water, and food can be sustainably integrated. The system is composed of solar panel and battery-operated pumps, live tilapia, and fresh produce yielded via the conversion of fish waste to fertilizer (DACs OOS, 2018). DACS and IFAS are actively engaged in a variety of K-12 education projects aimed to provide resources and support for the growing number of teachers and students interested in learning about aquaculture.

In the summer of 2019, DACS began the Army Corps of Engineers programmatic general permit (SAJ-99) modification process to include the production of native macroalgae species and commercial gear and scallop gear. Growing commercial interest in the cultivation of seaweed and scallops in Florida has led the DACS to pursue a streamlined permitting pathway in state waters for these farm types. Once approved, it is anticipated that a variety of research will be conducted to determine production, processing, and marketing methods for these new aquaculture commodities.

**Management Characterization:**

1. Indicate if the approach is employed by the state or territory and if there have been any state- or territory-level changes (positive or negative) that could facilitate or impede the siting of public or private aquaculture facilities in the coastal zone.

**Significant Changes in Aquaculture Management**

<b>Management Category</b>	<b>Employed by State or Territory (Y or N)</b>	<b>CMP Provides Assistance to Locals that Employ (Y or N)</b>	<b>Significant Changes Since Last Assessment (Y or N)</b>
Aquaculture comprehensive siting plans or procedures	Y	N	N
Other aquaculture statutes, regulations, policies, or case law interpreting these	Y	N	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
  - a. Describe the significance of the changes;
  - b. Specify if they were 309 or other CZM-driven changes; and
  - c. Characterize the outcomes or likely future outcomes of the changes.

**Aquaculture Statutes, Regulations, and Policies:**

In 2016, the Florida Legislature amended 597.010, F.S., allowing for the use of a small dredge on aquaculture leases, with the requirement of a natural resource assessment and individual authorization by the Board of Trustees of the Internal Improvement Trust Fund. This statute does not apply to public shellfish beds in state waters.

In November 2016, the DACS Aquaculture Division published an updated *Aquaculture Best Management Practices Manual* (DACS, 2016).

**Enhancement Area Prioritization:**

1. What level of priority is the enhancement area for the coastal management program?

<b>High</b>	<input type="checkbox"/>
<b>Medium</b>	<input checked="" type="checkbox"/>
<b>Low</b>	<input type="checkbox"/>

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Aquaculture continues to expand in Florida, in both open water and land-based facilities. In addition, aquaculture continues to provide important economic, social, and environmental benefits while protecting and enhancing commercial and recreational fisheries. Environmental impacts are mitigated through regulatory oversight and coordination with managed preserve areas.

**References:**

Douglas, L. (2019). The Battle Over Fish Farming in the Open Ocean Heats Up, As EPA Permit Looms. Retrieved from website: <https://www.npr.org/sections/thesalt/2019/09/18/761978683/the-battle-over-fish-farming-in-the-open-ocean-heats-up-as-epa-permit-looms>

Florida Department of Agriculture and Consumer Services [DACS]. (2016). Aquaculture Best Management Practices Manual (November 2016). Retrieved from website: [https://www.DACS.gov/content/download/64045/file/BMP\\_Rule\\_and\\_Manual\\_FINAL.pdf/](https://www.DACS.gov/content/download/64045/file/BMP_Rule_and_Manual_FINAL.pdf/)

Florida Department of Agriculture and Consumer Services [DACS]. Internal Data Supplied by DACS on December 9, 2019. (2019a).

Florida Department of Agriculture and Consumer Services [DACS]. (2019b). Aquaculture Submerged Land Leasing. Retrieved from website: <https://www.DACS.gov/Agriculture-Industry/Aquaculture/Aquaculture-Submerged-Land-Leasing#auz>

- Florida Department of Agriculture and Consumer Services Office of Energy [DACS OOE]. (2018). 2018 Office of Energy Annual Report. Retrieved from website:  
<https://www.DACS.gov/ezs3download/download/82803/2395231/Media/Files/Energy-Files2/2018%20Office%20of%20Energy%20Annual%20Report.pdf>
- Florida Sea Grant [FSG]. (2017a). Aquaculture, Upcoming Workshop: Advances in Shellfish Hatchery Technology (2017). Retrieved from website:  
<https://www.flseagrant.org/news/category/aquaculture/>
- Florida Sea Grant [FSG]. (2017b). Florida Sea Grant: Fostering Responsible Agriculture. Retrieved from website: <https://www.flseagrant.org/aquaculture/>
- United States Department of Agriculture [USDA], National Agriculture Statistical Service. (2019). 2017 Census of Agriculture: Florida State and County Data (April 2019). Volume 1. Geographic Area Series. Part 9. 27. Retrieved from website:  
[https://www.nass.usda.gov/Publications/AgCensus/2017/Full\\_Report/Volume\\_1\\_Chapter\\_1\\_US/usv1.pdf](https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_US/usv1.pdf)
- United States Environmental Protection Agency [EPA]. (2019). Notice of Proposed Issuance of National Pollutant Discharge Elimination System Permit, Public Notice No. 19FL00001, August 30, 2019. Retrieved from website: [https://www.epa.gov/sites/production/files/2019-08/documents/pn\\_draftpermit\\_kampachifarms\\_fl0a00001.pdf/](https://www.epa.gov/sites/production/files/2019-08/documents/pn_draftpermit_kampachifarms_fl0a00001.pdf/)
- University of Florida, Institute of Food and Agricultural Sciences [UF/IFAS]. (2019a). Videos. Retrieved from website: <http://shellfish.ifas.ufl.edu/resource-videos/>
- University of Florida, Institute of Food and Agricultural Sciences [UF/IFAS]. (2019b). Hurricane Workshop Presentations and Marker Tag Program. Retrieved from website:  
<http://shellfish.ifas.ufl.edu/news/hurricane-workshop-presentations-and-marker-tag-program/>

# STRATEGIES

The strategies listed below are shown by level of priority as Tier I or Tier II. The plans listed as Tier I, are the priority strategies that are planning to be funded. The subsequent Tier II strategies are presented as proposed strategies in the event additional funding is available.

## Tier I: Narrative Enforceable Policies

### I. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas (*check all that apply*):

- |  |  |
|--|--|
| <input type="checkbox"/> Aquaculture                           | <input checked="" type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy and Government Facility Siting | <input type="checkbox"/> Wetlands                                    |
| <input type="checkbox"/> Coastal Hazards                       | <input type="checkbox"/> Marine Debris                               |
| <input type="checkbox"/> Ocean/Great Lakes Resources           | <input type="checkbox"/> Public Access                               |
| <input type="checkbox"/> Special Area Management Planning      |  |

### II. Strategy Description

#### A. The proposed strategy will lead to, or implement, the following types of program changes (*check all that apply*):

- A change to coastal zone boundaries;
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised local coastal programs and implementing ordinances;
- New or revised coastal land acquisition, management, and restoration programs;
- New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management.

#### B. **Strategy Goal:** *State the goal of the strategy for the five-year assessment period. The goal should be the specific program change to be achieved or be a statement describing the results of the project, with the expectation that achieving the goal would eventually lead to a program change. For strategies that implement an existing program change, the goal should be a specific implementation milestone. For example, work with three communities to develop revised draft comprehensive plans that consider future sea level rise or, based on research and policy analysis, present proposed legislation on wetland buffers to state legislature for consideration. Rather than a lofty statement, the goal should be achievable within the time frame of the strategy.*

The goal of this strategy is to enhance the FCMP by increasing awareness of federal consistency benefits to network state agencies and create a summarization of enforceable policies that will make them easier to understand for all program stakeholders. The resulting policy document will

include the enforceable policies in a narrative format, as opposed to the current set of enforceable policies that reference twenty-four separate state statutes, which will also satisfy a request from NOAA for a legacy review of current enforceable policies.

**C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above.** *If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)*

This strategy will focus on education for and coordination with FCMP network agencies to increase understanding and uniform application of the federal consistency review process. The FCMP will also engage in a systematic review of all current enforceable policies in coordination with each network agency. This will lead to the creation of a new policy document that will summarize currently approved enforceable policies and make them more understandable, which in turn would increase coastal management engagement with state agencies, local governments, and federal liaisons.

**III. Needs and Gaps Addressed**

*Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.*

This strategy will address the following needs and gaps:

- Improve awareness of federal consistency procedures and benefits to partner state agencies. FCMP realized through partner agency interactions that varying agencies and offices have different interpretations on the meaning of federal consistency. This strategy will educate all parties through workshops and training documents to help achieve uniform federal consistency reviews.
- Increase understanding of what constitutes an enforceable policy within the federally approved FCMP in a way that is easier to understand for partner state agencies.
  - This should result in better coordination between state agencies and federal liaisons when it comes to matters of federal consistency.
  - This should help with coordination between state agencies and permit applicants to ensure they are compliant with federal consistency, if their project requires it.
  - This will also fulfill a NOAA request to perform a legacy review of the enforceable policies of FCMP for federal consistency purposes.
- The increased collaboration and resulting report from this project will allow FCMP to more easily summarize its enforceable policies in a way that its partner state agencies and other stakeholders will be able to easily understand.

**IV. Benefits to Coastal Management**

*Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.*



It was found in previous coordination with partner state agencies, during internal reviews of FCMP enforceable policies, and in review sessions in response to FCMP Routine Program Change submissions, that there was confusion among state agencies on federal consistency and its enforceable policies, along with the application of those policies. As part of this project, workshops will be held for the partner state agencies and water management districts to learn more about these topics. This would set the stage for future work on summarizing the enforceable policies of the FCMP. The initial step in this process would act as a legacy review of the enforceable policies of FCMP for federal consistency. This is something that has been requested of FCMP by NOAA in previous Routine Program Change submissions. In addition, this would also allow for each member of FCMP to use similar terminology when referring to FCMP enforceable policies and federal consistency, which would also reduce confusion among the state agencies and water management districts.

#### **V. Likelihood of Success**

*Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change, as well as the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.*

Similar work has been done in other states, with Virginia and Maryland shown as examples below, and the FCMP believes the strategy will be successful in Florida as well.

- Virginia worked with NOAA to craft narrative policies for Fisheries, Submerged Lands, Wetlands/Tidal Wetlands/Living Shorelines, and Beaches/Dunes.
  - The results of this project were draft versions of narrative enforceable policies that Virginia will submit as a Routine Program Change at a later time.
- Maryland submitted their narrative enforceable policies in their 2010 Routine Program Change.
  - This was in response to a NOAA recommendation from their previous Routine Program Change submission, which wanted discussion on approved policies.
  - Summary of legislative and regulatory programs with references to Maryland state statutes
  - Updates submitted will be based on legislative updates in the future
  - Summaries included different policy areas:
    - Core
    - Coastal Resources
    - Coastal Uses
    - Other quality-of-life policies to be added in the future

As stated above, partner agencies in Florida have shown a lack of understanding regarding the federal consistency review process, and the FCMP believes that this strategy will be a well utilized educational and collaboration opportunity.

#### **VI. Strategy Work Plan**

*Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. For*

*example, even if the final adoption of the program change is outside of the CMP's control, what steps will be included in the work plan so the CMP ensures the program change is considered, reviewed, and hopefully adopted by the outside entity? Who are the other stakeholders or elected officials that need to be engaged, and how and when during the strategy development process? What is the decision-making or voting process that is involved in the adoption of the program change, and how will the CMP interact with this process to ensure that the proposed program change is considered? If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCM recognizes that they may change somewhat over the course of the five-year strategy due to unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.*

**Strategy Goal:** The goal of this strategy is to enhance the FCMP by increasing awareness of federal consistency benefits to network state agencies and create a summarization of enforceable policies that will make them easier to understand for all program stakeholders. The resulting policy document will include the enforceable policies in a narrative format, as opposed to the current set of enforceable policies that reference twenty-four separate state statutes, which will also satisfy a request from NOAA for a legacy review of current enforceable policies.

**Total Years: 5**

**Total Budget: \$100,000**

**Year 1:** FY 2021-2022

**Description of activities:** Year 1 would focus on training workshops between FCMP staff and network state agencies/water management districts. Organization and facilitation of the workshops will be completed by existing RCP staff. Workshops will focus on unifying the interpretation of federal consistency and enforceable policies in the context of the FCMP, with examples of federal actions that required state review in the past. NOAA OCM staff will also be asked to participate in workshops to provide guidance on federal consistency responsibilities and expectations. The budget in Year 1 will be used to host workshops and cover travel expenses related to attendance.

**Major Milestone(s):**

- a. Organize and hold workshops for FCMP partner agencies on federal consistency and enforceable policies.
- b. Coordinate with NOAA OCM staff to include federal consistency basics and overview from the federal government perspective.

**Budget:** \$14,000

**Years 2 - 4:** FY 2022-2025

**Description of activities:** Years 2, 3, and 4 will include a legacy review of enforceable policies by RCP staff and state agencies. RCP lead staff will develop an example plan for converting a set of existing enforceable policies into narrative enforceable policies. This effort will be coordinated by a contractual (OPS) staff person with a legal or other relevant background. RCP lead staff will meet with each network state agency on their laws and enforceable policies, to assist in fulfilling NOAA's request to narrow the number of Florida Statutes currently considered to be enforceable policies to those that would cover federal actions. This effort will serve to make FCMP enforceable policies easier to understand for network agency partners, federal liaisons, and applicants. The budget in years two through four will cover the salary and fringe for one contractual (OPS) part-time staff member, who will serve as the lead for this effort.

**Major Milestone(s):**

- a. Hold initial meetings with each network state agency to review the laws/enforceable policies under their agency's jurisdiction.
- b. Compile and review enforceable policies, with the goal to narrow down the number of Florida Statutes considered to be enforceable policies.
- c. Hold follow-up meetings with each network state agency to ensure accuracy and mutual understanding.

**Budget:** \$81,000

**Year 5:** FY 2025-2026

**Description of activities:** Compile a final report with conclusions from each network state agency partner meeting and a detailed narrative of Florida's enforceable policies.

**Major Milestone(s):**

- a. A final report detailing the network agency meetings and the narrative enforceable policies for the state, pared down to the laws and statutes that cover federal actions.

**Budget:** \$5,000

**VII. Fiscal and Technical Needs**

**A. Fiscal Needs:** *If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.*

The requested funding should be sufficient for the scope of this project.

**B. Technical Needs:** *If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).*

The State possesses the technical knowledge, skills, and equipment to carry out the proposed strategy. RCP will hire one part time contractual staff member to lead this project, under the direction of FCMP program administration staff.

**VIII. Projects of Special Merit (Optional)**

*If desired, briefly state what projects of special merit the CMP may wish to pursue to augment this strategy. (Any activities that are necessary to achieve the program change or that the state intends to support with baseline funding should be included in the strategy above.) The information in this section will not be used to evaluate or rank projects of special merit and is simply meant to give CMPs the option to provide additional information if they choose. Project descriptions should be kept very brief (e.g., undertake benthic mapping to provide additional data for ocean management planning). Do not provide detailed project descriptions that would be needed for the funding competition.*

# Tier I: Scaling-Up Sponge Restoration in Florida Bay

## I. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas (*check all that apply*):

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Aquaculture                 | <input checked="" type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy and Government Facility Siting  | <input checked="" type="checkbox"/> Wetlands                         |
| <input checked="" type="checkbox"/> Coastal Hazards             | <input type="checkbox"/> Marine Debris                               |
| <input checked="" type="checkbox"/> Ocean/Great Lakes Resources | <input type="checkbox"/> Public Access                               |
| <input type="checkbox"/> Special Area Management Planning       |  |

## II. Strategy Description

### A. The proposed strategy will lead to, or implement, the following types of program changes (*check all that apply*):

- A change to coastal zone boundaries;
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised local coastal programs and implementing ordinances;
- New or revised coastal land acquisition, management, and restoration programs;
- New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management.

### B. **Strategy Goal:** *State the goal of the strategy for the five-year assessment period. The goal should be the specific program change to be achieved or be a statement describing the results of the project, with the expectation that achieving the goal would eventually lead to a program change. For strategies that implement an existing program change, the goal should be a specific implementation milestone. For example, work with three communities to develop revised draft comprehensive plans that consider future sea level rise or, based on research and policy analysis, present proposed legislation on wetland buffers to state legislature for consideration. Rather than a lofty statement, the goal should be achievable within the time frame of the strategy.*

Our goal is to develop a document detailing a first-of-its-kind comprehensive hard-bottom sponge restoration strategy to guide procedures and policies governing long-term sponge restoration efforts in the hard-bottom habitats of the Florida Keys, particularly in Florida Bay. Our vision is this document will ultimately be incorporated into the FKNMS's Restoration Blueprint. This strategy goal will entail a two-pronged effort. First, we will build the capacity to support a dedicated sponge restoration team composed of FWC staff and a network of volunteers that will continue refining the sponge propagation process and conduct sponge restoration efforts at a scale not previously feasible in the Florida Keys. The formation of the sponge restoration team will enable FWC and

partners to restore ecologically functional sponge communities within the degraded near-shore hard-bottom habitats of the FKNMS and those within DEP Lignumvitae Key and Coupon Bight Aquatic Preserves. This sponge restoration effort and subsequent habitat monitoring will allow the team to develop guidance for the development of our comprehensive sponge restoration strategy.

In concert with the sponge restoration effort, the FWC will engage with the NOAA FKNMS and its Center for Restoration and DEP. Using the lessons-learned from the developing sponge restoration effort, and through a series of facilitated meetings of resource managers from these agencies, the FWC will develop a hard-bottom sponge restoration strategy document that will guide long-term sponge restoration efforts in south Florida. The FWC will also coordinate with DEP to develop a Memorandum of Understanding that outlines a restoration strategy within the Aquatic Preserves.

**C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above.** *If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)*

Our proposed strategy will create a sponge restoration team and engage NOAA and DEP to develop and codify a long-term sponge restoration strategy for the Florida Keys. By forming a dedicated team of FWC researchers and volunteers, we will increase our ability to efficiently address present information gaps related to sponge propagation. The team formation and implementation of this portion of our strategy will occur during the first year. This will in turn allow us to produce a greater number of ecologically functional sponges in less time than is presently possible, which will allow for increased sponge transplantation in critical habitat areas within the managed areas in Florida Bay. The outcome of these experiments will guide our approach to increasing the rate of producing ecologically functional sponges for restoration. We envision producing and translocating a minimum of 50,000 hatchery-propagated sponges into degraded sponge communities within Florida Bay by the end of 2025.

**III. Needs and Gaps Addressed**

*Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.*

Our strategy addresses the key need to refine the sponge propagation process to support sponge restoration at a scale to restore ecosystem function to formerly productive sponge dominated hard-bottom habitat in Florida Bay. A key information gap at present remains how to most efficiently grow sponges within in situ nurseries. Although these nurseries have proven an effective way to grow out sponges, maintaining sponges in close proximity to one another has had the effect of slowing their growth, presumably by creating competition for food resources. Our proposed strategy entails evaluating methods of establishing sponges in nurseries that will reduce this competition and increase growth rates. Faster growing sponges in turn will expedite the propagation process resulting in increased production of sponge biomass available for restoration efforts. These refined procedures will guide the development of a sponge restoration strategy document suitable for inclusion into FKNMS's Restoration Blueprint that will guide a long-term and sustained sponge restoration.

#### **IV. Benefits to Coastal Management**

*Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.*

The sponge community in the Florida Keys has been severely degraded in recent decades, due most notably to a series of cyanobacterial blooms that have decimated sponges over an approximate 500 km<sup>2</sup> area of the central Florida Keys. The importance of sponges to the Florida Bay ecosystem is well documented. Sponges are important for water column nutrient cycling and they provide habitat for fishes and invertebrates, including economically valuable species such as the Caribbean spiny lobster. Given their importance, the sponge restoration team is a critical component in reversing recent sponge community degradation. The creation of the team will benefit coastal management in the Keys region by building capacity for habitat restoration projects and serving as an example for facilitated habitat restoration processes elsewhere in the state. This effort will also marry well with SEACAR data collection standardization and analysis efforts that will be simultaneously undertaken by the CMP and partner agencies, as the sponge restoration team can be influential in establishing data collection protocols for field assessments of benthic communities, a known data gap in the state. The procedures developed by this effort will guide a sponge restoration strategy document that will hopefully be adopted by state agencies and incorporated into FKNMS's Restoration Blueprint for the Florida Keys and guide sponge restoration monitoring efforts. In addition to the habitat analysis and monitoring guidance documentation produced by the sponge restoration team, methodologies to establish the team can be used for other regional habitat restoration planning projects as needs are identified by habitat analyses completed for SEACAR.

#### **V. Likelihood of Success**

*Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change, as well as the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.*

Working with the FKNMS and aquatic preserves within the Florida Keys to establish nurseries and formalize restoration efforts, via agency guidance documents and updates to their management plans, will be a key part of this project. FWC, NOAA, and DEP currently regularly coordinate on management projects, which provides an accessible line of communication for successfully accomplishing this strategy. Facilitated discussions involving key staff with timelines and deadlines for document creation and adoption will ensure that the project timeline stays on course. The FWC and our research colleagues have, over the previous decade, developed and refined the process of propagating sponges and maintaining thousands of them within in situ nurseries. These previous experimental-scale transplants have proven that sponges survive this process and through time facilitate the return of some ecological functions. Consequently, we expect that our proposed strategy will prove equally successful at establishing ecologically functional sponge communities, and the resulting strategy document will guide a sustained long-term restoration effort that will eventually restore healthy ecosystem function in much larger areas of Florida Bay than previously feasible.

## VI. Strategy Work Plan

*Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. For example, even if the final adoption of the program change is outside of the CMP's control, what steps will be included in the work plan, so the CMP ensures the program change is considered, reviewed, and hopefully adopted by the outside entity? Who are the other stakeholders or elected officials that need to be engaged, and how and when during the strategy development process? What is the decision-making or voting process that is involved in the adoption of the program change, and how will the CMP interact with this process to ensure that the proposed program change is considered? If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCM recognizes that they may change somewhat over the course of the five-year strategy due to unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.*

**Strategy Goal:** Our goal is to develop a document detailing a first-of-its-kind comprehensive hard-bottom sponge restoration strategy to guide procedures and policies governing long-term sponge restoration efforts in the hard-bottom habitats of the Florida Keys. Building first the capacity of FWC to conduct sponge restoration, we will begin restoring ecologically functional sponge communities within Florida Bay by ultimately transplanting a minimum of 50,000 sponges created within a series of in situ nurseries situated around the periphery of Florida Bay and transplant them into now degraded habitats within the Bay that were formerly productive sponge communities. This effort will inform the creation of a document guiding long-term sponge restoration in the Florida Keys. This restoration effort will be coordinated with staff at both FKNMS and FDEP. This effort will directly inform a document developed by the FWC through a series of facilitated meetings with resource managers from NOAA and DEP that details a comprehensive hard-bottom sponge restoration strategy for near-shore sponge restoration in the Florida Keys.

**Total Years: 5**

**Total Budget: \$375,000**

**Year(s): 1-2**

**Description of activities:** Form the sponge restoration team, which will at a minimum consist of present members of FWC Restoration Ecology Program staff, one additional staff member funded by this DEP initiative dedicated to sponge restoration activities, and a staff of citizen volunteers. The FWC will then initiate a series of facilitated meetings with NOAA's Restoration Center, FKNMS, and DEP to lay the groundwork for the development of a coordinated intra-agency sponge restoration strategy and to determine the most effective locations for restoration efforts. Establish a minimum of two new in situ sponge nurseries. Propagate new



sponges by the established method of cutting tissue from “donor” sponges, mounting them to calcium carbonate rocks, and placing them in nurseries for further healing and growth.

**Major Milestone(s):** The FWC will form a dedicated sponge restoration team. Second, the FWC will coordinate a series of facilitated meetings with resource managers to begin development of a shallow-water sponge restoration strategy to be incorporated into existing coral reef ecosystem restoration strategy documents. To form the dedicated sponge team, the FWC will conduct a competitive job search to recruit one research staff member dedicated to sponge restoration activities. Once recruited, this staff member will coordinate a volunteer recruitment effort to identify citizen scientist interested in assisting the agency with its sponge restoration efforts. With the addition of this staff member and citizen volunteers the FWC will create a dedicated sponge restoration team that will vastly increase the capacity to scale-up its present sponge restoration activities. Once active, this team will establish two new in situ sponge nurseries and create 10,000 new sponges for restoration efforts. Concurrent with this effort the FWC will identify the appropriate resource managers from NOAA and DEP and form a working group. This group will hold minimum of two facilitated meetings to outline a comprehensive hard-bottom sponge restoration strategy for south Florida.

**Budget:** \$150,000 (\$75,000 per year)

**Year(s):** 3-4

**Description of activities:** The FWC sponge restoration team will continue its sponge restoration efforts, propagating sponges and conducting a series of sponge restoration sites within Florida Bay to test and refine restoration methodologies. The FWC will continue to hold regular facilitated meetings with NOAA and DEP agency members. Using the lessons-learned by the sponge restoration team, they will draft a preliminary sponge restoration document that details a sponge restoration strategy for south Florida.

**Major Milestone(s):** Creation of 30,000 new sponges through the coordinated sponge restoration team efforts, the establishment of two sponge restoration sites, and the creation of the initial draft of a hard-bottom sponge water sponge restoration strategy document.

**Budget:** \$150,000 (\$75,000 per year)

**Year:** 5

**Description of activities:** Sponge propagation; Identify potential sponge restoration sites, conduct a sponge restoration effort; finalize a coordinated sponge restoration strategy document with FKNMS and DEP resource managers.

**Major Milestone(s):** Creation of 10,000 new sponges and a large-scale sponge restoration effort in Florida Bay; a formalized document to augment NOAA’s coral reef ecosystem restoration strategy guidelines that details a hard-bottom sponge restoration strategy for south Florida, including areas within FKNMS and the DEP Aquatic Preserves in the Florida Keys.

**Budget:** \$75,000

**VII. Fiscal and Technical Needs**

- A. Fiscal Needs:** *If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.*

The FWC's Restoration Ecology Program currently employs three staff supported by legislatively mandated funding through the state's Marine Resources Trust Fund. This staff and state-owned research vessels will be provided as an in-kind contribution to this sponge restoration project.

- B. Technical Needs:** *If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).*

The FWC and partner agencies possess the technical knowledge, skill, and equipment to conduct this proposed strategy. FWC will receive assistance from DEP for meeting facilitation. Policy documents will be drafted by FWC in coordination with DEP and NOAA staff.

**VIII. Projects of Special Merit (Optional)**

*If desired, briefly state what projects of special merit the CMP may wish to pursue to augment this strategy. (Any activities that are necessary to achieve the program change or that the state intends to support with baseline funding should be included in the strategy above.) The information in this section will not be used to evaluate or rank projects of special merit and is simply meant to give CMPs the option to provide additional information if they choose. Project descriptions should be kept very brief (e.g., undertake benthic mapping to provide additional data for ocean management planning). Do not provide detailed project descriptions that would be needed for the funding competition.*

Starting in Year 3 of this project, implement a water quality monitoring effort and surveys of the benthic communities in the areas of the sponge restoration effort to assess broader-scale ecosystem changes.

# Tier I: SEACAR Expansion: Improved Data Collection and Analysis for Integrated Management, Monitoring, and Permitting

## I. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas (*check all that apply*):

- |  |  |
|--|--|
| <input type="checkbox"/> Aquaculture                                 | <input checked="" type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy and Government Facility Siting       | <input type="checkbox"/> Wetlands                                    |
| <input checked="" type="checkbox"/> Coastal Hazards                  | <input type="checkbox"/> Marine Debris                               |
| <input checked="" type="checkbox"/> Ocean/Great Lakes Resources      | <input type="checkbox"/> Public Access                               |
| <input checked="" type="checkbox"/> Special Area Management Planning |  |

## II. Strategy Description

### A. The proposed strategy will lead to, or implement, the following types of program changes (*check all that apply*):

- A change to coastal zone boundaries;
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised local coastal programs and implementing ordinances;
- New or revised coastal land acquisition, management, and restoration programs;
- New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management.

### B. **Strategy Goal:** *State the goal of the strategy for the five-year assessment period. The goal should be the specific program change to be achieved or be a statement describing the results of the project, with the expectation that achieving the goal would eventually lead to a program change. For strategies that implement an existing program change, the goal should be a specific implementation milestone. For example, work with three communities to develop revised draft comprehensive plans that consider future sea level rise or, based on research and policy analysis, present proposed legislation on wetland buffers to state legislature for consideration. Rather than a lofty statement, the goal should be achievable within the time frame of the strategy.*

Over the last four years, the FCMP spearheaded a successful effort to collect, standardize, and begin to analyze datasets from over 200 programs across more than 50 agencies and institutions through the Statewide Ecosystem Assessment of Coastal and Aquatic Resources (SEACAR) strategy. The SEACAR project brought together teams of subject matter experts for key habitats (coastal wetlands, water column, coral reef/hardbottom, oyster reef, and submerged aquatic vegetation), and they collaboratively chose habitat indicators, such as water clarity, habitat acreage/cover, etc., for reporting and analysis. In its final year, the strategy will focus on the data analyses, technical report, and creation of an interactive public web interface for data distribution. As the project has

progressed, new priorities outside of the original strategy scope have emerged. Additionally, the previous Florida Coastal Office merged with several other divisions into the new Office of Resilience and Coastal Protection. The new office now includes beach and coastal permitting/regulatory staff, which has highlighted the need for a more holistic, integrated approach to resource management and permitting. The FCMP realizes the need to expand SEACAR to include monitoring data collected through regulatory processes, which will help inform future permitting, monitoring, and compensatory mitigation decisions.

This strategy will also develop a comprehensive list of the data collection protocols currently in use, the management goals for which the protocols were designed, as well as establish the current levels of comparability and limitations of the resulting data. This work will focus on assessments of oyster reefs, submerged aquatic vegetation, coastal wetlands, and coral reefs and will include a detailed information gap analysis using the findings from compiling the list of protocols. Recommendations for addressing gaps and protocol inter-comparability will be supported by statistical analyses using habitat data aggregated as part of SEACAR project. These quantitative comparisons of different methodologies will provide a sound scientific basis for developing a minimum set of standardized metrics and protocols.

In coordination with the gap analysis and in order to expand the indicators available for management and increase the power of the SEACAR database, data from benthic diversity surveys and surface elevation tables and metrics, relevant to assessing shoreline resiliency (e.g., shoreline type and position), will also be aggregated. Aggregated benthic diversity data will enable assessment using biotic indices, which have been successfully used for environmental monitoring both in Florida and around the world. There is currently no officially accepted biotic index for use in coastal habitat assessment by state agencies. One objective of this strategy will be to test one or more benthic indices for coastal assessment within RCP managed areas to advance the process of adopting a biotic index for use by state government agencies in estuarine and coastal habitats.

**C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above.** *If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)*

A continuing priority need for coastal management in Florida is a wide variety of consistently collected data (both in terms of temporal regularity and methodological standardization). Data collected through the first iteration of SEACAR identified numerous geographical, temporal, and subject-matter gaps in data availability. These gaps inhibit evaluations of the status and trends of multiple habitat types around the state, as well as direct comparisons of resilience metrics (e.g., shoreline types and their persistence/movement in response to sea level rise, hurricane events, etc.). Many of these data types exist but are collected by different entities around the state that often do not use directly comparable methodologies. This strategy will address this priority by developing a minimum set of standardized metrics and protocols, and aggregate data on at least three metrics relevant to managing priority submerged habitats across Florida and the Gulf of Mexico. Stakeholders from partnering agencies, non-governmental organizations, and academic institutions will be consulted throughout the process, through meetings and workshops, to increase

the accuracy of the findings and improve the chances that the resulting recommendations will be widely adopted into management and policy actions.

The large and diverse teams developed for the SEACAR project will be leveraged as the starting point for establishing the collaborative process for this strategy. Regulatory staff will be brought in to provide data, analysis, and expertise on the inclusion of permitting and monitoring data, along with recommended potential uses of the data. Targeted engagement, educational meetings, and workshops will be held around the state for data collectors and resource managers to learn how to use the data discovery interface, provide training for the standardized protocols and biotic index methodology, and partner for the development of integrated projects. Together, the expanded availability of geographically and temporally consistent data will greatly benefit habitat management by allowing managers and decision makers to compare data between programs and managed areas. The additional information and potential for status and trend analyses will also aid in management plan development.

All data collected and aggregated for this strategy will be stored and served publicly through the SEACAR database and interactive website. Additional educational resources will be developed for the general use of both the database and website in order to increase the awareness and use of consistently collected coastal habitat data. Through the inclusion of permitting and monitoring data, it is expected that SEACAR would have utility for permit applicants, and that targeted educational materials would be developed in coordination with regulatory staff.

### **III. Needs and Gaps Addressed**

*Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.*

This strategy will:

- Improve alignment between data collection and analysis with management and permitting decisions.
- Standardize documentation of mitigation projects and help inform RCP resource managers and regulatory staff of the level of success for similar projects.
- Collaboratively define and implement data collection protocols for assessment of key habitats.
- Expand the availability of consistent, reliable data.
- Address data gaps identified in the development of SEACAR, including coastal wetlands and oyster habitat mapping data.

### **IV. Benefits to Coastal Management**

*Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.*

The benefits of the SEACAR expansion will include:

- Standardizing protocols for field data collection and analysis
- Streamlining the permitting/leasing process on sovereignty submerged lands
- Increasing consistency in resource management and permit decisions statewide

- Integrating the agency's coastal work in managed areas into a single source
- Providing the public with a clear expectation of the data needed and timelines for permitting processes
- Measuring mitigation project successes and implementing adaptive management based on monitoring and analysis

#### V. Likelihood of Success

*Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change, as well as the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.*

This strategy, as an expansion of an existing project, already has buy-in from multiple FCMP network agencies. The APs staff have extensively collaborated in data collection and analysis, and they are familiar with the data collection needs. Staff have shown support for establishing protocols to increase field data collection consistency, which will allow for statewide data compilation and analysis. The recent merger of RCP and the Beaches regulatory division also presents a unique and timely opportunity to focus efforts on developing and implementing standardized data collection protocols.

#### VI. Strategy Work Plan

*Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. For example, even if the final adoption of the program change is outside of the CMP's control, what steps will be included in the work plan so the CMP ensures the program change is considered, reviewed, and hopefully adopted by the outside entity? Who are the other stakeholders or elected officials that need to be engaged, and how and when during the strategy development process? What is the decision-making or voting process that is involved in the adoption of the program change, and how will the CMP interact with this process to ensure that the proposed program change is considered? If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCM recognizes that they may change somewhat over the course of the five-year strategy due to unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.*

**Strategy Goal:** The goals of this strategy are to increase the amount of regional and statewide habitat data collected, and to leverage existing subject matter experts gathered for the initial SEACAR strategy to develop standardized field data collection protocols for RCP's managed areas, which will allow for data comparability and defensible trend analyses. The initial SEACAR strategy identified numerous data gaps that prevented statewide trend analyses for many habitat types, and this expansion of the SEACAR effort will focus on the steps necessary to fill those gaps. The need for

standardized field data collection methods has been identified repeatedly as a priority, as well as increasing the amount of data collected for many habitat types. Using the momentum and capacity from the initial SEACAR effort, the team will continue holding data team meetings, and bringing in regulatory and other staff as needed, to increase the use and utility of SEACAR data products. The project team will also develop guidance documents for RCP resource managers that will include the standardized field data collection protocols developed by the SEACAR stakeholder teams, and a wide array of training and outreach documents for both internal and external users of SEACAR data products.

**Total Years: 5**

**Total Budget: \$700,000**

**Year 1: FY 2021-2022**

**Description of activities:** Identify stakeholders using teams developed during SEACAR project as starting point. Hold meetings with stakeholders about compiling protocols, issues surrounding data comparability, and information gaps that should be addressed. Conduct statistical analysis and/or ground truthing as needed. Begin aggregating data on additional metrics for management. Convene regulatory staff to identify needs and information gaps related to remediation, mitigation, and monitoring within RCP managed areas, and begin to collect datasets for comparison.

**Major Milestone(s):**

- a. Creation of stakeholder teams for data collection protocol development.
- b. Catalog of existing data collection protocols with ranking for each based on confidence level and feasibility of statewide implementation.
- c. Preliminary report of data related to permitting, monitoring, and mitigation in RCP managed areas

**Budget: \$200,000**

**Year 2: FY 2022-2023**

**Description of activities:** Review findings from initial analyses with stakeholders. Hold multiple stakeholder meetings to finalize protocols list and recommendations for addressing data comparability and information gaps. Develop and finalize data collection protocol guidance documents for aquatic preserves and provide training for staff. Assess existing biotic index data. Continue regulatory data collection within RCP managed areas, preparing assessment of data comparability, and establish recommendations to increase consistency statewide.

**Major Milestone(s):**

- a. Official guidance for aquatic preserve data collection and management finalized
- b. Trainings on standardized data collection protocols held throughout aquatic preserves
- c. Compilation of existing biotic index data

- d. Initial regulatory data comparability assessment report and recommendations for consistency

**Budget:** \$150,000

**Year 3:** FY 2023-2024

**Description of activities:** Convene stakeholders on biotic index adoption discussions. Begin integrating new data into SEACAR database. Where possible, run data trend analyses using standardized datasets, or identify continuing data gaps that prevent scientifically defensible trend analyses.

**Major Milestone(s):**

- a. Standardized and directly comparable datasets will be collected and made available through SEACAR DDI.
- b. Report on data trend analyses and continued data gaps with recommendations for RCP managed areas to improve as feasible.

**Budget:** \$150,000

**Year 4:** FY 2024-2025

**Description of activities:** Write report on biotic index findings and recommendations for incorporation into RCP habitat management. Write report on recommendations for protocol modifications to improve data comparability statewide. Develop guidance documents with permitting staff to increase efficiency and consistency based on monitoring and mitigation data collected so far. Complete data integration into SEACAR database.

**Major Milestone(s):**

- a. Publish report on biotic index findings and develop guidance document for RCP habitat management with recommendations for incorporation of biotic indices
- b. Publish report on recommendations for continued standardization to improve data comparability
- c. Develop and publish guidance documents in coordination with permitting staff to fully incorporate permit monitoring and mitigation data into SEACAR

**Budget:** \$150,000

**Year 5:** FY 2025-2026

**Description of activities:** Conduct education and outreach related to use of SEACAR data products, standardized data collection protocols, and integration of SEACAR data products into management decisions. Train relevant staff in biotic index methods.



**Major Milestone(s):**

- a. Robust training and outreach program that increases the use and utility of SEACAR data products for resource management decisions and within the scientific community
- b. Final training and guidance documents related to SEACAR data product use for resource managers, data collection protocols, biotic index methods, and
- c. Convene regular stakeholder meetings to maintain/improve existing data, continue to collect new data, and cultivate relationships with scientists who provide and use SEACAR data products

**Budget:** \$50,000

**VII. Fiscal and Technical Needs**

- A. Fiscal Needs:** *If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.*

The requested funding should be sufficient for the scope of this project.

- B. Technical Needs:** *If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).*

The State possesses the technical knowledge, skills, and equipment to carry out the proposed strategy. RCP has a diverse statewide staff, including the aquatic preserve managers, regulatory permitting staff, and FCMP staff. Facilitation assistance and additional staff may be contracted as needed throughout the strategy implementation.

**VIII. Projects of Special Merit (Optional)**

*If desired, briefly state what projects of special merit the CMP may wish to pursue to augment this strategy. (Any activities that are necessary to achieve the program change or that the state intends to support with baseline funding should be included in the strategy above.) The information in this section will not be used to evaluate or rank projects of special merit and is simply meant to give CMPs the option to provide additional information if they choose. Project descriptions should be kept very brief (e.g., undertake benthic mapping to provide additional data for ocean management planning). Do not provide detailed project descriptions that would be needed for the funding competition.*

1. Projects to address data gaps
2. Projects to expand ecological, social, or other relevant parameters for the Program
3. Projects to expand the capabilities of decision support tools, including components to link upland and submerged land information.

# Tier I: Submerged Cultural Resources - Interagency Management and Research

## I. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas (*check all that apply*):

- |  |   |
|--|---|
| <input type="checkbox"/> Aquaculture                                 | <input type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy and Government Facility Siting       | <input type="checkbox"/> Wetlands                         |
| <input type="checkbox"/> Coastal Hazards                             | <input type="checkbox"/> Marine Debris                    |
| <input checked="" type="checkbox"/> Ocean/Great Lakes Resources      | <input type="checkbox"/> Public Access                    |
| <input checked="" type="checkbox"/> Special Area Management Planning |   |

## II. Strategy Description

### A. The proposed strategy will lead to, or implement, the following types of program changes (*check all that apply*):

- A change to coastal zone boundaries;
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised local coastal programs and implementing ordinances;
- New or revised coastal land acquisition, management, and restoration programs;
- New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management.

### B. **Strategy Goal:** *State the goal of the strategy for the five-year assessment period. The goal should be the specific program change to be achieved or be a statement describing the results of the project, with the expectation that achieving the goal would eventually lead to a program change. For strategies that implement an existing program change, the goal should be a specific implementation milestone. For example, work with three communities to develop revised draft comprehensive plans that consider future sea level rise or, based on research and policy analysis, present proposed legislation on wetland buffers to state legislature for consideration. Rather than a lofty statement, the goal should be achievable within the time frame of the strategy.*

Florida has the second longest continuous coastline in the United States. As a result, much of its archaeological and cultural resources exist underwater and in areas subject to coastal management. The DOS, DHR, Bureau of Archaeological Research (BAR) is responsible for the research, interpretation, management, and protection of archaeological resources located on public lands and in state waters. Spanning more than 14,000 years of human occupation, the state contains some of the finest and most significant submerged archaeological sites in the country. Florida's submerged archaeological sites provide tangible evidence of the past and insight into the lifeways of Florida's previous inhabitants. As the state regulatory agency responsible for

the permitting of archaeological work and the state research authority for Florida, BAR is responsible for the management of these resources. Florida's submerged archaeological sites are non-renewable resources and are currently threatened by both large- and small-scale illegal ground disturbance activities. Additionally, since the mid 1960's prop-wash deflection has been sanctioned for use in Florida's waters to quickly displace sediment and uncover submerged archaeological sites. Prop-wash deflection as an archaeological method has not been systematically analyzed to identify the short- and long-term effects on sites and submerged bottomlands. BAR aims to enhance the protection and management of submerged archaeological sites in coastal management zones through increased collaboration among Florida agencies with specific aims to:

1. Develop and oversee an educational program creating awareness and hands-on learning opportunities for law enforcement officers regarding the depth and breadth of Florida's submerged archaeological sites;
2. Quantify the environmental impact of prop-wash deflection and provide recommendations for updates and changes to DOS and State of Florida policies regarding its use;
3. Create best practices for underwater ground disturbance activities for state permits and distribute these to the DEP and USACE;
4. Develop and broaden partnerships with state and local law enforcement agencies to improve the management and protection of Florida's underwater cultural and archaeological heritage, including the development of memorandum of understanding (MOU) with agencies where applicable;
5. Draft an MOU for use between the DOS and DEP concerning ground disturbance activities located on Florida's sovereignty submerged lands;
6. Share results of educational and research efforts with land managers in the broader cultural resource community to develop best practices for collaboration and management wherever submerged cultural resources are found in coastal management areas.

**C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above.** *If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)*

#### **Background**

DHR is tasked under Chapter 267, *Florida Statutes*, with managing and protecting Florida's archaeological and cultural heritage through cooperative efforts with a number of partners, especially law enforcement agencies (LEA). At the same time, DHR continually investigates and updates best practices for archaeological resource management as new information, technology, and impacts are identified. Updates to resource management best practices are then communicated to law enforcement and other partners to ensure that Florida's archaeological sites are protected and maintained in the highest regard.

Numerous efforts on the part of DHR's and BAR's Underwater Program revealed the necessity of implementing specific program changes with respect to the education and research of underwater archaeological and cultural heritage across the state. BAR's research at various underwater sites in the previous 5 years shows that the impacts of both sanctioned and unsanctioned ground disturbance has the potential to extremely damage both cultural and natural resources. BAR learned that close cooperation with law enforcement is crucial for the continued protection of

these non-renewable resources. Unfortunately, the effects of ground disturbance on underwater archaeological sites and cultural resources are not an explicit component of either DHR's or LEA's programmatic efforts.

More research and training into the effects of various ground disturbance methodologies is needed to effectively manage submerged archaeological sites. Of particular concern is the use of prop-wash deflection: existing research of the effects of prop-wash deflection on submerged historic shipwrecks and associated sediments is severely lacking. This activity is currently permitted under Florida's Chapter 1A-31: Procedures for Conducting Exploration and Salvage of Historic Shipwreck Sites. Prop-wash deflection, a method invented by treasure hunters in 1963, is frequently used by salvage companies to quickly displace large amounts of sediment (Clausen 1967). Prop-wash deflection involves deflecting the flow of water from a vessel's propeller to the ocean floor. While salvors claim this method is efficient, monetarily feasible, and safe for archaeological site stratigraphy and artifacts, archaeologists documented destruction of site stratigraphy and the displacement and/or destruction of both prehistoric cultural and natural resources (Cockrell 1977; McKinnon 2016; Price 2015; US v. Fisher). DEP and USACE permit this type of activity based on DOS suggestions. DEP, USACE, and LEA; however, are unaware of the full impacts of prop-wash deflection. It is incumbent upon the DOS to scientifically study prop-wash deflection and other ground disturbance activities and communicate those results to Florida agencies involved in the permitting, regulation, and management of submerged cultural resources.

### **Strategy Description**

To address programmatic oversights, BAR's proposed strategy educates and expands upon BAR's management of submerged cultural resource sites. BAR will undertake novel approaches to document and research underwater archaeological ground disturbance activities in collaboration with law enforcement training focused on educating agencies about underwater cultural resource management, law, and impacts. These efforts will be integrated as BAR's Underwater Program develops and implements a law enforcement training program that, in addition to discussing the legal jurisdiction of DHR and law enforcement, provides hands on field experience about the nature of underwater archaeological sites, best practices for their management and protection, and the effects of ground disturbance activities on underwater sites. In addition, LEA will be encouraged to learn about, observe, and participate in work focused on documenting and understanding the impacts of ground disturbance activities as BAR actively investigates and researches them.

To ensure that DHR's educational and management efforts are aligned with current, reliable information, BAR will implement research efforts at underwater archaeological sites previously affected by ground disturbance. Prop-wash impact research will take place at locations where prop-wash deflection was formerly utilized, allowing identification of short- and long-term effects of this methodology on archaeological sites. Side-scan sonar and sub-bottom profiling will be used to document and investigate the effects of this method on surface and subsurface sediments. Sediment cores will be collected from within and outside of the boundaries of propwash deflection locations to compare stratigraphy. BAR may investigate additional underwater ground disturbance activities such as underwater looting of archaeological sites, boat and trawling impacts near cultural resources, legal and illegal fossil hunting, and underwater construction projects. Research efforts will include collaboration with LEA that have jurisdiction over underwater state lands and provide in-person experiences concerning the nature of underwater ground disturbance. For

example, law enforcement personnel brought to areas exhibiting prop-wash deflection disturbance, looting, or scientific excavation can directly observe the difference between archaeological investigations and looting/salvage. Personnel will gain a deeper understanding of the nature of underwater archaeological resources, facilitating improved management and protection of the resource.

The results of systematic scientific investigations of prop-wash ground disturbance and other sanctioned or unsanctioned disturbances at archaeological sites will be distributed to the broader scientific and resource management community through peer reviewed publications, professional presentations, and project reports. Approaches to law enforcement trainings and collaboration will be similarly presented to cultural resource managers who can develop similar efforts in other coastal management areas.

### **Program Changes and Implementation**

Through these efforts, multiple programmatic changes will be adopted and/or implemented. First, DHR will adopt and teach a field and classroom-based curriculum for educating LEA about the nature, management and protection of Florida's submerged archaeological and cultural resources. Second, DHR will establish programmatic agreements with applicable LEA to better protect and manage submerged cultural and archaeological resources with respect to ground disturbance and proper implementation of Florida Administrative Codes 1A-31 and 1A-32. Third, through cooperative efforts with law enforcement, DHR will establish and maintain an active research program that continually addresses the effects of ground disturbing activities on submerged resources around Florida to ensure that DHR is providing the most accurate and current information to its partners for resource management and protection. The results will be used to craft recommendations for changes to current DOS policies regarding the regulation of ground disturbing activities in state waters. Potential policies or areas subject to recommendations include F.A.C 1A-31, F.A.C. 1A-32, DHR's Module 3: Guidelines for use by Historic Preservation Professionals, Chapter 267.031(5)(n) *Florida Statutes*, and Chapter 1004.576 *Florida Statutes* (pertaining to fossil permits).

### **III. Needs and Gaps Addressed**

*Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.*

The following needs and gaps concern underwater archaeological ground disturbance activities in Florida:

1. There is a need for greater communication between agencies that permit, manage, and protect underwater archaeological ground disturbance activities in Florida: DOS, DEP, USACE, and all LEA with jurisdiction in the state. Various methodologies impact the archaeological and marine environment differently, and a greater understanding of these methodologies and management/protection requirements associated with all submerged ground disturbance is needed.
2. There is a gap in scientific data concerning prop-wash deflection, which is the least documented underwater ground disturbance methodology. Prop-wash deflection is

currently permitted for use in Florida waters, though its application as a suitable method for underwater archaeological excavation is based on anecdotal evidence only. There is a need for an accurate, detailed, and objective examination of this excavation methodology.

3. There is a need for a holistic, consistent, and statewide training program for LEA that accurately addresses management of underwater archaeological sites on state lands. These agencies enforce activities concerning submerged cultural resources, but inadequate training for law enforcement officers creates a gap in effective management of resources. These agencies often have little information concerning acceptable and legal ground disturbance activities, required permits, and agencies responsible for oversight of submerged resources.

To address these needs and gaps and successfully manage Florida's submerged cultural resources, the following will take place during the 5-year assessment:

1. DOS will conduct a scientific study of prop-wash deflection ground disturbance using remote sensing survey and sediment core collection. Law enforcement will be invited to learn about and participate in research activities to better understand the effects of ground disturbing activities. Data analysis will be used to compile an official report on the methodology.
2. DOS will conduct classroom and in-field trainings with law enforcement officers concerning this and other excavation methodologies, host training seminars concerning underwater ground disturbance activities at archaeological sites, and distribute information concerning appropriate permitting steps and requirements. A holistic training program will facilitate improved regulation of and enforcement concerning Florida's submerged cultural resources.
3. The results and official report of prop-wash deflections studies, ground disturbance research, approaches to law enforcement trainings, and ongoing collaborations will be distributed to permitting agencies in Florida and the broader cultural resource management community. Suggestions for best practices and a proposed memorandum of understanding between agencies regarding methodologies, trainings, and collaborations will be provided.

This strategy is the most appropriate approach to successfully identify and adopt best practices concerning underwater ground disturbance activities at archaeological sites. This strategy will facilitate communication between agencies involved in management, protection, and regulation of Florida's submerged cultural resources using up-to-date scientific evidence.

#### **IV. Benefits to Coastal Management**

*Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.*

There are multiple anticipated effects of the proposed strategy that concern three focus areas:

1. Underwater archaeological ground disturbance methodologies
  - a. Through the research conducted as part of this strategy, DHR will be better informed when evaluating permit applications for archaeological ground disturbance activities on Florida's sovereignty submerged lands.
  - b. The analysis will lead to the creation of best practices documents concerning acceptable methods of underwater archaeological ground disturbance methodologies. This document will be provided to any agencies permitting ground disturbing activities and ensure that non-renewable submerged cultural and archaeological resources are not inadvertently damaged or destroyed.

## 2. Law enforcement

- a. This strategy will provide hands-on training through classroom work and archaeological site visits for agencies with coastal and oceanic jurisdiction. The goals of the training program will be to arm officers with proper knowledge and procedures for protection of submerged cultural resources and to instill a sense of stewardship while providing educational information that can be shared with the public. This program will also be offered to resource managers, including aquatic preserve and state park staff, to increase their ability to effectively manage submerged cultural resources within their managed areas, identify possible ground disturbance activities, and encourage visitor stewardship through education and outreach.
- b. Best practices documents concerning acceptable methods of underwater archaeological ground disturbance methodologies will be used in training programs for law enforcement officials to facilitate recognition of permitted activities versus potential unpermitted looting in coastal management areas.
- c. DOS will work closely with LEA and land managers to clarify misconceptions concerning submerged archaeological sites and underwater archaeological ground disturbance activities. Correct information regarding these resources will lead to better management and protection on the part of Law Enforcement.

## 3. Management agencies

- a. Agencies will gain an accurate and clear understanding of underwater archaeological ground disturbance methodologies, especially prop-wash deflection, which may change how this activity is permitted by DOS, DEP, and USACE.
- b. More effective communication will exist between DOS, DEP, USACE, and LEA in Florida, which will positively impact the way underwater archaeological sites are managed and protected.

## V. Likelihood of Success

*Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change, as well as the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.*

Florida's LEA recently emphasized the investigation of cultural resources crimes. The development and implementation of an underwater archaeological law enforcement training program was previously requested by state and local law enforcement officials and will strengthen the protection of Florida's submerged resources. Like BAR's Archaeological Resource Management training program, this new program (once implemented), is highly likely to become an established component of BAR's program. BAR's proposed ground disturbance study and resulting best practices documents have the potential to create lasting program change in the permitting of submerged archaeological work in Florida. By documenting the overall impacts of ground disturbance activities, stakeholders and decision makers can enact and update policies to reflect the best interest of Florida's submerged cultural and archaeological resources. The broad dissemination of these results and approaches are likely to positively impact other cultural resource management communities around the world that manage submerged cultural heritage in coastal zones.

## VI. Strategy Work Plan

*Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. For example, even if the final adoption of the program change is outside of the CMP's control, what steps will be included in the work plan so the CMP ensures the program change is considered, reviewed, and hopefully adopted by the outside entity? Who are the other stakeholders or elected officials that need to be engaged, and how and when during the strategy development process? What is the decision-making or voting process that is involved in the adoption of the program change, and how will the CMP interact with this process to ensure that the proposed program change is considered? If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCM recognizes that they may change somewhat over the course of the five-year strategy due to unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.*

**Strategy Goal:** BAR will create a curriculum for LEA focused on submerged archaeological resource management, protection, and ground disturbance. Concurrently, BAR will identify agencies across Florida with jurisdiction over state submerged lands who will benefit from training opportunities. Two training curricula will be created: 1) A mixed classroom/field training program that educates law enforcement officers about underwater cultural resource regulation, management, and oversight combined with a short, in-field training session to identify known sites, associated ground disturbance, and assist with developing approaches to resource management and protection; 2) A field intensive training program that brings law enforcement officers to submerged cultural resource sites with active ground disturbance research or previously looted sites. This curriculum will educate officers about the range and effects of both scientific and unscientific/illegal ground disturbing activities via hands-on experiences. The implementation of these trainings will increase as the curriculum is developed, expanding to full implementation by Year 3. Throughout the five years of the curriculum's development and expansion, trainings will be refined based on the trainers' and law enforcement officers' experiences.

Concurrent with the LEA training program, BAR will conduct controlled scientific studies of ground disturbed sites. BAR will collect side scan sonar and sub-bottom profiling data over recently blown prop-wash deflector holes to determine remote sensing signatures and short-term effects of this methodology. BAR will collect sediment cores both outside of and within recent prop-wash deflector holes for stratigraphy comparison purposes. BAR will date sediment cores to determine if delicate prehistoric sediments exist in permit areas, which could be negatively affected by aggressive excavation methodologies. BAR will revisit the same prop-wash deflection holes within the year to collect additional remote sensing data and determine if the holes filled in and/or are still visible in remote sensing signatures. BAR will collect side scan sonar and sub-bottom profiling data over older permittee-reported prop-wash deflection holes to determine long term effects of



this methodology and ascertain if excavated holes are present in remote sensing signatures. Sediment cores will be collected from within and outside of older prop-wash holes. Stratigraphy will be compared across the immediate area and to stratigraphy within more recent blower holes. The results of the initial analyses will be shared with law enforcement as part of initial training efforts. After initial efforts, more extensive research into the effects of prop-wash deflection will take place with accompanying law enforcement personnel. If BAR and law enforcement schedules do not allow for combined efforts during research, BAR will schedule special training sessions to educate law enforcement about these disturbances. BAR will also continue to monitor and research underwater looting and other ground disturbance actions across the state of Florida. Where identified, BAR will collaborate with local law enforcement to provide trainings about these impacts and highlight approaches for their mitigation.

By year five, BAR will fully integrate new information about the effects of prop-wash deflection and any other investigated ground disturbance activities into law enforcement training efforts. Known sites ideal for educational opportunities will be established as part of the field curriculum, with the inclusion of new sites as they are identified. The results of the collaborative efforts and scientific study of prop-wash deflection and other ground disturbances at cultural resource sites will be disseminated to the archaeological community and both federal and state land managers across the United States to assist agencies in successful implementation of submerged resource management and protection programs. DHR will work with LEA across Florida to develop programmatic agreements to better manage and protect submerged cultural resources wherever applicable. The results of the collaborative efforts and research will be presented to DOS with recommendations for programmatic changes.

**Total Years: 5**

**Total Budget: \$368,473**

**Year 1: FY 2021-2022**

**Description of activities:** In Year 1, BAR staff will develop a law enforcement training program and offer the pilot trainings to officers from FWC, DEP, county sheriff's offices, local police departments, US Coast Guard, and other applicable LEA. Attendees will be surveyed, and results will be analyzed and used where feasible to improve the training course.

During one two-week field session, DHR will identify recent prop-wash locations within one 1A-31 permit area where staff will collect side scan sonar, sub-bottom profiling data, and obtain sediment cores from within and outside of prop-wash deflection depressions. If recent prop-wash deflection activities have not occurred, staff will target older depressions. BAR will work with local LEA to plan/implement field visits to the research area.

**Major Milestone(s):**

- a. Creation and piloting of a law enforcement training program for submerged cultural resource protection. Provide at least one classroom/field training.
- b. Collection of sediment cores and side scan sonar/sub-bottom profiler data within at least one 1A-31 permit area for analysis.
- c. Inclusion of new information from sediment cores and remote sensing into the submerged cultural resource protection training program.

**Budget:** \$161,445

**Year 2:** FY 2022-2023

**Description of activities:** In Year 2, BAR will continue to scientifically study the effects of ground disturbing activities while training law enforcement. The law enforcement training curriculum will be revised and improved based on feedback from Year 1. BAR will expand the number of trainings it will provide and will implement the field intensive component of the training program.

During two two-week field sessions, DHR will identify recent prop-wash locations within one 1A-31 permit area where staff will collect side scan sonar, sub-bottom profiling data, and obtain sediment cores from within and outside of prop-wash deflection depressions. BAR will also collect remote sensing data and sediment cores from 1A-31 permit areas containing older prop-wash deflection depressions. BAR will invite local law enforcement personnel to prop-wash research sites or other scientifically studied sites for educational opportunities.

**Major Milestone(s):**

- a. Revise and refine law enforcement trainings. Provide at least two classroom/field trainings and one field intensive training.
- b. Collection of sediment cores and side scan sonar/sub-bottom profiler data within at least two 1A-31 permit areas for analysis.
- c. Combine at least one law enforcement training field component with prop-wash research or another scientific archaeological research effort.

**Budget:** \$91,355

**Year 3:** FY 2023-2024

**Description of activities:** In Year 3, BAR will continue to scientifically study the effects of ground disturbing activities while training law enforcement. The law enforcement training curriculum will be revised and improved based on feedback from Years 1 and 2. BAR will increase the number of both classroom/in-field and field intensive trainings it will provide.

During two two-week field sessions, DHR will identify recent prop-wash locations within one 1A-31 permit area where staff will collect side scan sonar, sub-bottom profiling data, and obtain sediment cores from within and outside of prop-wash deflection depressions. BAR will also collect remote sensing data and sediment cores from 1A-31 permit areas containing older

prop-wash deflection depressions. BAR will investigate any reports of illegal ground disturbances and study the impacts of these disturbances. Local law enforcement personnel will be invited to prop-wash/looting research sites or other scientifically studied sites for educational opportunities.

**Major Milestone(s):**

- a. Continue to revise and refine content for law enforcement training based on feedback and experience. Provide at least three classroom/field trainings and two field intensive trainings.
- b. Collection of sediment cores and side scan sonar/sub-bottom profiler data within at least two 1A-31 permit areas for analysis.
- c. Bring law enforcement personnel to a scientifically studied submerged site during at least two field training components

**Budget:** \$52,512

**Year 4:** FY 2024-2025

**Description of activities:** In Year 4, BAR will continue to scientifically study the effects of ground disturbing activities while training law enforcement. The law enforcement training curriculum will be revised and improved based on feedback from Years 1-3. BAR will maintain the number of trainings it provided in Year 3 and begin discussions with law enforcement agencies about the development of programmatic agreements.

During one two-week field session, DHR will identify recent prop-wash locations within one 1A-31 permit area where staff will collect side scan sonar, sub-bottom profiling data, and obtain sediment cores from within and outside of prop-wash deflection depressions. If recent prop-wash deflection activities have not occurred, staff will target older depressions. BAR will investigate any reports of illegal ground disturbances and study the impacts of these disturbances. Local law enforcement personnel will be invited to prop-wash/looting research sites or other scientifically studied sites for educational opportunities.

**Major Milestone(s):**

- a. Continue to revise and refine content for law enforcement training based on feedback and experience. Provide at least three classroom/field trainings and two field intensive trainings.
- b. Collection of sediment cores and side scan sonar/sub-bottom profiler data within at least one 1A-31 permit area for analysis.
- c. Collaborate with law enforcement on the management and protection of at least one cultural resource site disturbed by unsanctioned ground disturbance.
- d. Bring law enforcement personnel to a scientifically studied or illegally looted submerged sited during at least three field training components.

**Budget:** \$33,491

**Year 5: FY 2025-2026**

**Description of activities:** In Year 5, DHR will analyze data collected during the prop-wash deflection study, draft a report, and create best practices documents for underwater archaeological ground disturbance activities. DHR will draft an MOU for relevant agencies (DEP, USACE, LEA). BAR will continue to study and document any sites subject to illegal ground disturbance. BAR may also investigate the impact of permitted ground disturbance offshore due to other impacts such as sand harvesting or construction. Law enforcement field trainings will be provided at these or other scientifically researched sites.

BAR will continue to work with local law enforcement develop programmatic agreements where useful for improving management and protection of archaeological resources. The collaborative and training efforts will be presented to DHR and DOS and recommended for full programmatic implementation.

**Major Milestone(s):**

- a. Develop MOU with relevant LEA for cooperative management and protection of submerged archaeological sites.
- b. Report of prop-wash study results drafted and disbursed to DEP, USACE, LEA, land managers, and wider archaeological community.
- c. Creation of best practices documents for underwater archaeological ground disturbance activities.
- d. Distribution of best practices documents to DEP, USACE, and LEA.
- e. Creation and distribution of MOU for use between DOS and DEP/USACE/LEA.
- f. Provide recommendations to DOS for programmatic changes based on field research results.
- g. Report results and successes of law enforcement trainings to the wider archaeological and cultural resource management community as well as DOS.

**Budget:** \$29,670

**VII. Fiscal and Technical Needs**

**A. Fiscal Needs:** *If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.*

309 funding is sufficient to carry out the proposed strategy.

**B. Technical Needs:** *If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).*

The State possesses the technical knowledge, skills, and equipment to carry out the proposed strategy. DOS will rent necessary sub-bottom profiling equipment for the remote sensing portion of the prop-wash deflection study. DOS is familiar with the equipment rental process and has successfully rented, run, and analyzed data collected from Edge Tech's sub-bottom profilers.

### VIII. Projects of Special Merit (Optional)

*If desired, briefly state what projects of special merit the CMP may wish to pursue to augment this strategy. (Any activities that are necessary to achieve the program change or that the state intends to support with baseline funding should be included in the strategy above.) The information in this section will not be used to evaluate or rank projects of special merit and is simply meant to give CMPs the option to provide additional information if they choose. Project descriptions should be kept very brief (e.g., undertake benthic mapping to provide additional data for ocean management planning). Do not provide detailed project descriptions that would be needed for the funding competition.*

- **Sediment Coring and Remote Sensing at the Ribault site, a 16<sup>th</sup> century shipwreck:** Document ongoing conditions and changes at Ribault shipwreck site, where prop-wash deflection was employed, to document long-term effects of salvage operations at archaeological sites.
- **Offshore Cultural Heritage Survey:** Perform remote sensing, underwater target identification, and limited test excavations at locations off Florida's Gulf Coast to identify preserved submerged archaeological sites that could be subject to damage or looting.
- **Documenting Florida's Rivers:** Working in conjunction with state law enforcement, identify riverine areas with dense concentrations of submerged archaeological sites that also are frequented by underwater fossil hunters and looters. Conduct surveys to document illegal underwater ground disturbance activities and record undocumented archaeological sites.

#### References:

Clausen, Carl J. (1967). A New Underwater Excavating System for the Archaeologist. Paper delivered before the Third Conference on Underwater Archaeology, Miami, Florida.

Cockrell, Sonny. (1977). Paper presented at the Conference on Florida Historic Wreck Archaeology.

McKinnon, Jennifer. (2016). A Preliminary Report of Investigations on the 18th-Century Pillar Dollar Wreck, Biscayne Bay, Florida, USA. *International Journal of Nautical Archaeology* 45(2):1–9.

Murphy, Larry E. (1990). 8SL17: Natural Site-Formation Processes of a Multiple-Component Underwater Site in Florida. Southwest Cultural Resources Center Professional Papers No. 39, Santa Fe.

Price, Melissa R. (2015). Intellectual "Treasure Hunting:" Measuring Effects of Treasure Salvors on Spanish Colonial Shipwreck Sites. Master's Thesis, Program in Maritime Studies, East Carolina University, Greenville.

*US v. Fisher*, 22F.3d 262 – Court of Appeals, (11th Circuit 1994).

# Tier I: Shoreline Stabilization Techniques Impacts on Adjacent Shoreline and Ecosystem Response - Critical Factors Determination

## I. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas (*check all that apply*):

- |  |  |
|--|--|
| <input type="checkbox"/> Aquaculture                                 | <input checked="" type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy and Government Facility Siting       | <input checked="" type="checkbox"/> Wetlands                         |
| <input checked="" type="checkbox"/> Coastal Hazards                  | <input type="checkbox"/> Marine Debris                               |
| <input checked="" type="checkbox"/> Ocean/Great Lakes Resources      | <input type="checkbox"/> Public Access                               |
| <input checked="" type="checkbox"/> Special Area Management Planning |  |

## II. Strategy Description

### A. The proposed strategy will lead to, or implement, the following types of program changes (*check all that apply*):

- A change to coastal zone boundaries;
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised local coastal programs and implementing ordinances;
- New or revised coastal land acquisition, management, and restoration programs;
- New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management.

### B. **Strategy Goal:** *State the goal of the strategy for the five-year assessment period. The goal should be the specific program change to be achieved or be a statement describing the results of the project, with the expectation that achieving the goal would eventually lead to a program change. For strategies that implement an existing program change, the goal should be a specific implementation milestone. For example, work with three communities to develop revised draft comprehensive plans that consider future sea level rise or, based on research and policy analysis, present proposed legislation on wetland buffers to state legislature for consideration. Rather than a lofty statement, the goal should be achievable within the time frame of the strategy.*

The goal of this strategy is to address long-term regulatory questions regarding living shorelines by monitoring and documenting impacts. By monitoring and comparing existing shoreline stabilization methods to address these questions updated state rules in Chapter 62-330, Florida Administrative Code (F.A.C.), and the associated, incorporated Applicants Handbook would provide simplified permitting path for the appropriate stabilization method. Both Federal and State regulatory agencies have long had questions regarding the impact of living shorelines on adjacent shorelines. This strategy will address two key questions: 1) Do the living shorelines work too well and

concentrate sediment only at that section while causing erosion on adjacent shorelines? 2) Do living shorelines have more of an effect on the adjacent shorelines than a hardened shoreline solution would? Addressing these two issues will help guide future state permitting decisions and result in revised rules, such as Chapter 62-330, Environmental Resource Permitting, F.A.C. or guidance regarding wetland permitting such as within the state's Environmental Permitting Operations and Procedures Manual.

**C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above.** *If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)*

The strategy will compare the impact of living shorelines to hardened shoreline erosion solutions, such as seawalls, on adjacent shorelines by monitoring the bathymetric changes and the accretion rates at both types of sites. This monitoring will close existing information gaps and identify any new ones regarding adjacent shoreline changes. Additional potential monitoring, in conjunction with the shoreline comparison monitoring, could be included to determine if living shorelines or seawalls contribute positively to the surrounding ecosystem through habitat availability or runoff filtering.

The strategy will address the long-term issues federal and state regulatory agencies have had regarding authorizing living shoreline projects. By addressing the specific concerns with in-situ data and reports, the permitting mechanism can be made more straightforward with an additional state general permit, such as the existing state general permit in Chapter 62-330.431, General Permit for Installation of Riprap, F.A.C. Currently there are over 40 existing state general permits for specific activities as provided in Chapter 62-330. 407 through .635, F.A.C.

**III. Needs and Gaps Addressed**

*Identify what priority needs and gaps the strategy addresses, and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.*

The proposed strategy will help address various needs and gaps within coastal hazards, namely flooding and coastal storms, which are two of the highest priority focus areas for Florida. Protecting the shoreline from erosion is a direct response to mitigate the impacts caused by these two coastal hazards. Determining the optimal shoreline protection option available for the impacted area is a key component to responding to and preparing for these two coastal hazards. This strategy will aid in answering some of the questions being asked by regulatory agencies regarding the most suitable shoreline protection options available for varying conditions along the Florida coast.

In addition, this strategy will provide more data regarding the variety of shoreline stabilization methods available to the public, adjacent to the state's Special Management Areas. The strategy should provide the additional information needed by regulatory agencies to reduce the processing time and complexity between living shoreline and bulkhead shoreline permitting. The shorelines proposed for monitoring in this strategy are mainly located in the Northwest Florida Aquatic Preserves. This strategy should result in an increased use of living shorelines as a selected shore

stabilization method. Overall, the living shorelines will increase the natural vegetative contributions to the ecosystem by filtering upland runoff and providing habitat to juvenile nektonic species, thus increasing wetland acreage and decreasing cumulative impacts.

#### **IV. Benefits to Coastal Management**

*Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.*

This strategy will benefit coastal management by providing permitting staff, resource managers, and coastal property owners with the data and information needed to enhance and advance resilience adaptation. The information and data will provide tools that will help guide monitoring and living shoreline creation statewide. The monitoring will show the comparison between the two basic shoreline protection techniques and their respective impacts. Both protection techniques could then be adjusted to create hybrid solutions that maximize the positive benefits while minimizing the negative impacts.

#### **V. Likelihood of Success**

*Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change, as well as the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.*

This strategy has a very high likelihood of success. The interest in living shorelines in comparison to other shoreline protection techniques is a regulatory and planning question throughout the state in urban and natural areas. The costs and benefits of armoring the state's shorelines compared to natural protection will continue to be an important question as sea level rise continues. Guidelines and guidance documents outlining the monitoring of these different shoreline techniques, especially in a direct comparison methodology, are needed to answer the questions regarding the two basic techniques of shoreline protection.

#### **VI. Strategy Work Plan**

*Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. For example, even if the final adoption of the program change is outside of the CMP's control, what steps will be included in the work plan so the CMP ensures the program change is considered, reviewed, and hopefully adopted by the outside entity? Who are the other stakeholders or elected officials that need to be engaged, and how and when during the strategy development process? What is the decision-making or voting process that is involved in the adoption of the program change, and how will the CMP interact with this process to ensure that the proposed program change is considered? If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCM recognizes that they may change somewhat over the course of the five-year strategy due to unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing*



*and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.*

**Strategy Goal:** Develop an adjacent shoreline monitoring Scope of Work (SOW) that will monitor the critical factors to determine Shoreline Stabilization Technique Impacts on Adjacent Shorelines.

**Total Years: 5 years**

**Total Budget: \$625,000**

**Year: 1**

**Description of activities:** Identify specific projects with varying shoreline stabilization methods to assess for their ability to provide shoreline protection, impact to adjacent shorelines, and overall ecological input. Organize initial meeting and consult with regulators at the state and local level to determine the critical questions regarding adjacent shoreline impacts, key shoreline stabilization methods, and resulting permitting hurdles. Coordinate with both state regulatory and commenting agencies in the SOW drafting process and form a review committee.

**Major Milestone(s):** Draft scope of work for initial monitoring parameters and schedule to determine adjacent shoreline impacts and ecological inputs from different shoreline protection methods. Initiate Request for Proposals process.

**Budget:** \$75,000

**Year(s): 2-3**

**Description of activities:** Design and begin the initial monitoring parameters at selected locations. Monitor bathymetry changes and accretion/erosion rates at sites offshore from living shorelines or vertical bulkhead shorelines with a control site. Conduct assessment of preliminary results and determine if monitoring parameters are providing needed information for long term review of different shoreline erosion prevention measures.

**Major Milestone(s):** Gather initial monitoring results and, with review committee of state regulatory and commenting agencies review to determine if adjustments need to be made to address environmental permitting issues and work toward greater permitting parity of the various shoreline stabilization techniques.

**Budget:** \$ 300,000

**Year: 4**

**Description of activities:** Start final assessment of results, summarize the monitoring information, and develop long term assessments of the shoreline erosion prevention impacts. Complete the draft summary document and submit to Review Committee for comments.

**Major Milestone(s):** Draft summary document and submit to reviewers.

**Budget:** \$150,000

**Year:** 5

**Description of activities:** Gather comments from reviewer, finalize summary document for distribution online or by hard copy and initiate appropriate state rule making process.

**Major Milestone(s):** Complete and distribute summary document and initiate appropriate rulemaking process.

**Budget:** \$100,000

**VII. Fiscal and Technical Needs**

**A. Fiscal Needs:** *If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.*

**B. Technical Needs:** *If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).*

**VIII. Projects of Special Merit (Optional)**

*If desired, briefly state what projects of special merit the CMP may wish to pursue to augment this strategy. (Any activities that are necessary to achieve the program change or that the state intends to support with baseline funding should be included in the strategy above.) The information in this section will not be used to evaluate or rank projects of special merit and is simply meant to give CMPs the option to provide additional information if they choose. Project descriptions should be kept very brief (e.g., undertake benthic mapping to provide additional data for ocean management planning). Do not provide detailed project descriptions that would be needed for the funding competition.*

Possible projects of special merit could include assessing additional communities (beach or mangrove communities), or different regions of the state. Utilizing a range of projects would aid in capturing the diverse impacts of shoreline protection methods statewide. The additional projects would be used to gather monitoring and ecological information on the impacts of natural shoreline protection and bulkheads to expand the geographic range of the results.

Another possible project of special merit would be to modify the existing living shoreline suitability models that have been developed for Tampa Bay and Cedar Key Florida to include additional regions of the state. This could then be used to provide a manual/ guide illustrating for local communities how to use the model for their sea level rise response planning and Comprehensive Plan updates.

## Tier II: Marine Debris Research and Planning

### I. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas (check all that apply):

- |  |  |
|--|--|
| <input type="checkbox"/> Aquaculture                                 | <input checked="" type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy and Government Facility Siting       | <input type="checkbox"/> Wetlands                                    |
| <input checked="" type="checkbox"/> Coastal Hazards                  | <input checked="" type="checkbox"/> Marine Debris                    |
| <input checked="" type="checkbox"/> Ocean/Great Lakes Resources      | <input type="checkbox"/> Public Access                               |
| <input checked="" type="checkbox"/> Special Area Management Planning |  |

### II. Strategy Description

#### A. The proposed strategy will lead to, or implement, the following types of program changes (*check all that apply*):

- A change to coastal zone boundaries;
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised local coastal programs and implementing ordinances;
- New or revised coastal land acquisition, management, and restoration programs;
- New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management.

#### B. **Strategy Goal:** *State the goal of the strategy for the five-year assessment period. The goal should be the specific program change to be achieved or be a statement describing the results of the project, with the expectation that achieving the goal would eventually lead to a program change. For strategies that implement an existing program change, the goal should be a specific implementation milestone. For example, work with three communities to develop revised draft comprehensive plans that consider future sea level rise or, based on research and policy analysis, present proposed legislation on wetland buffers to state legislature for consideration. Rather than a lofty statement, the goal should be achievable within the time frame of the strategy.*

Develop and define research goals to address marine debris impacts on species and habitats. The goal of this proposed strategy is to define and focus research, through discussion and collaboration, in areas and topics to provide guidance on priority areas of marine debris' impact on wildlife and habitats.

#### C. **Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above.** *If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)*

This strategy will help guide recovery/restoration project locations and development of guidelines to minimize or eliminate impacts to habitats or wildlife through different methods. Research and policies regarding sources of marine debris and modified guidelines to decrease debris into the marine environment will decrease impacts both short and long term. Key research and planning concepts would be:

1. Development of a Florida based System Analysis document to outline amounts of marine debris that are present and where the debris is being generated. This would result in guidelines and outline which programs should develop updated Best Management Practices (BMP) to minimize marine debris.
2. Development of a research plan state-wide, or by appropriate regions, utilizing existing data to enumerate the impacts of marine debris to wildlife and habitats. The Plan would provide management strategies to minimize these impacts for preservation and protection of wildlife and habitats both within managed areas and outside managed areas
3. Development of an assessment of existing BMPs for stormwater outfalls around the nation to determine if there are improved BMPs Florida can incorporate into rules or permits to decrease land-based debris from entering the waters of Florida.

### **III. Needs and Gaps Addressed**

*Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.*

Currently marine debris causes impacts throughout the marine environment from birds to marine mammals or from shading of seagrass to crushing of mangroves. While all are important impacts to decrease, a prioritization of research would help focus areas where the greatest potential positive change could be achieved. For example, marine debris “Hot Spots” are currently being mapped where marine debris accumulates due to input, tides and currents. A timed study will be needed afterward to assess how often/quickly these hot spots reaccumulate debris to fully address the issues in the long term. In addition, study results can be used to target public awareness campaigns. Although heightened public awareness has influenced the ways in which personal choices, waste handling, or collection can decrease the amount of marine debris entering the environment, this area should continue to be explored. Coordinated campaigns should be arranged with partner agencies to increase outreach and hopefully continue to decrease marine debris impacts.

### **IV. Benefits to Coastal Management**

*Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.*

Marine debris continues to be an issue in Florida waters and along Florida’s coasts. The debris is generated on land and sea, through storms. Better methods of tracking and discouraging creation of marine debris, and better ways of removing the debris would benefit the habitats, water quality, and public use of the coastal system.

## V. Likelihood of Success

*Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change, as well as the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.*

The Coastal Management Program and its network partners are currently working on several different plans to guide and focus marine debris removal from the “Florida Marine Debris Reduction Plan” to the “Lessons Learned from Hurricanes Mathew and Irma” document and FDACS’s Best Management Practices for aquaculture. The next steps will be to outline priority research needs on impacts to wildlife and species from marine debris, direct monitoring efforts and restoration, if needed, to the habitat impacted by debris or the removal of marine debris. In addition, a key step will be in identifying and reducing sources of marine debris or outlining ways to minimize impacts of the debris.

## VI. Strategy Work Plan

*Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. For example, even if the final adoption of the program change is outside of the CMP’s control, what steps will be included in the work plan so the CMP ensures the program change is considered, reviewed, and hopefully adopted by the outside entity? Who are the other stakeholders or elected officials that need to be engaged, and how and when during the strategy development process? What is the decision-making or voting process that is involved in the adoption of the program change, and how will the CMP interact with this process to ensure that the proposed program change is considered? If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCM recognizes that they may change somewhat over the course of the five-year strategy due to unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.*

**Strategy Goal:** To focus research and monitoring of marine debris on minimization of debris input and decreasing impacts to habitat and species.

**Total Years:** 3-4 years

**Total Budget:** \$275,000

**Description of Activities:** Leveraging both existing guidance documents and efforts that are in development, the FCMP and its network partners will collaboratively identify priority research needs related to marine debris impacts. Outreach campaigns for public awareness will also be coordinated with partner agencies, and the marine debris “hot spot” mapping and related efforts can be used to target outreach activities.

**Major Milestones:**

- a. Development of an outline of priority research needs related to marine debris impacts
- b. Marine debris outreach campaigns will be coordinated with partner agencies to increase public awareness and program visibility

**VII. Fiscal and Technical Needs**

**A. Fiscal Needs:** *If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.*

**B. Technical Needs:** *If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).*

**VIII. Projects of Special Merit (Optional)**

*If desired, briefly state what projects of special merit the CMP may wish to pursue to augment this strategy. (Any activities that are necessary to achieve the program change or that the state intends to support with baseline funding should be included in the strategy above.) The information in this section will not be used to evaluate or rank projects of special merit and is simply meant to give CMPs the option to provide additional information if they choose. Project descriptions should be kept very brief (e.g., undertake benthic mapping to provide additional data for ocean management planning). Do not provide detailed project descriptions that would be needed for the funding competition.*

Possible Projects of Special Merit include implementation of the research or monitoring that is determined to be a priority area or focus.

## FIVE-YEAR BUDGET SUMMARY

Strategy Title	Anticipated Funding Source (309 or Other)	Year 1 Funding	Year 2 Funding	Year 3 Funding	Year 4 Funding	Year 5 Funding	Total Funding
Tier I: Narrative Enforceable Policies	309	\$14,000	\$27,000	\$27,000	\$27,000	\$5,000	\$100,000
Tier I: Scaling-Up Sponge Restoration	309	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$375,000
Tier I: SEACAR Expansion	309	\$200,000	\$150,000	\$150,000	\$150,000	\$50,000	\$700,000
Tier I: Submerged Cultural Resources – Interagency Management and Research	309	\$161,445	\$91,355	\$52,512	\$33,491	\$29,670	\$368,473
Tier I: Shoreline Stabilization Techniques Impacts	309	\$75,000	\$150,000	\$150,000	\$150,000	\$100,000	\$625,000
<b>Tier I Total Funding:</b>	-	<b>\$525,445</b>	<b>\$493,355</b>	<b>\$454,512</b>	<b>\$435,491</b>	<b>\$259,670</b>	<b>\$2,168,473</b>
Tier II: Marine Debris Research and Planning	309	-	-	\$137,500	\$137,500	-	\$275,000
<b>Tier II Total Funding:</b>	-	-	-	<b>\$137,500</b>	<b>\$137,500</b>	-	<b>\$275,000</b>
<b>Total Funding:</b>	-	<b>\$525,445</b>	<b>\$493,355</b>	<b>\$592,012</b>	<b>\$572,991</b>	<b>\$259,670</b>	<b>\$2,443,473</b>

## SUMMARY OF STAKEHOLDER AND PUBLIC COMMENT

The FCMP has been seeking input from partner agencies, local governments, and interested parties for several years. The RCP has consulted with state and regional partners throughout development of the assessment and strategies. Communication regarding the 309 assessment ranged from telephone calls and email correspondence to in-person meetings.

To kick-off the 309 assessment a meeting was held in Tallahassee, FL on September 12, 2019. Partner agencies were invited and traveled to Tallahassee for the meeting. FCMP staff presented on the background and process for the 309 assessment and strategies. Additionally, NOAA also presented. Agencies were asked to be active participants in the assessment writing and review process and were presented with the eligibility criteria for strategies. The entire meeting included open and active question and answer periods. After presentations were complete, the participants were asked to participate in a roundtable discussion answering the following: *What are the important coastal issues that are not currently being addressed or should be enhanced?* The question resulted in 42 wide-ranging responses on topics such as, but not limited to, data collection, increased public education, monitoring efforts, hurricane preparation and response, proactive management, and habitat mapping.

During the development of the assessment, based on their area of expertise, stakeholders were asked to review assessments for comprehensiveness and to provide input for strategies for one or more of the nine enhancement areas defined in the 309 Guidance. The Florida Fish and Wildlife Commission; Department of Economic Opportunity; Division of Emergency Management; Department of Transportation; Department of Agriculture and Consumer Services; Department of Environmental Protection programs; and Florida's five Water Management Districts were included in the stakeholder process.

The majority of comments received provided suggestions for additional information on the status and trends of Florida's resources addressed by the nine enhancement areas, as well as suggestions for significant management changes since the last assessment. Stakeholders also recommended clarification of data tables and language for the Wetlands, Cumulative and Secondary Impacts, Special Area Management Planning, Aquaculture, Marine Debris, Coastal Hazards, Aquaculture and Public Access enhancement areas.



## ACRONYM LIST

AP	Aquatic Preserve
ARC	Acquisition and Restoration Council
BAR	Bureau of Archaeological Research
BMAP	Basin Management Action Plan
BMP	Best Management Practice
BOEM	Bureau of Ocean Energy Management
BRACE	Building Resilience Against Climate Effects
CEMHS	Center for Emergency Management and Homeland Security
CLC	Cooperative Land Cover
CM	Clean Marina Program
CMP	Coastal Management Program
CRCP	Coral Reef Conservation Program
CRO	Chief Resiliency Officer
CRTF	U.S. Coral Reef Task Force
CSI	Cumulative and Secondary Impacts
CWA	Clean Water Act
CWAs	Critical Wildlife Area
CZMA	Coastal Zone Management Act
DACS	Florida Department of Agriculture and Consumer Services
DBPR	Florida Department of Business and Professional Regulation
DEF	Duke Energy Florida
DEM	Florida Department of Emergency Management
DEO	Florida Department of Economic Opportunity
DEP	Florida Department of Environmental Protection
DHR	Division of Historic Resources
DO	Dissolved Oxygen
DOE	Department of Energy
DOH	Florida Department of Health
DOS	Department of State
DRP	Division of Recreation and Parks
DV	Derelict Vessel
DWRM	Division of Water Resource Management
EIA	U.S. Energy Information Administration
EIS	Environmental Impact Statement
ENOW	Economics: National Ocean Watch
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERP	Environmental Resource Permitting
F.A.C.	Florida Administrative Code
FAPG	Florida Adaptation Planning Guidebook
FCMP	Florida Coastal Management Program
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FGS	Florida Geological Survey

## ACRONYM LIST CONTINUED

FHWA	Federal Highway Administration
FKNMS	Florida Keys National Marine Sanctuary
FNAI	Florida Natural Areas Inventory
FORI	Florida Outdoor Recreation Inventory
FPC	Florida Ports Council
FPL	Florida Power & Light
FPSC	Florida Public Service Commission
FRCP	Florida Resilient Coastlines Program
F.S.	Florida Statutes
FSG	Florida Sea Grant
FWC	Florida Fish and Wildlife Conservation Commission
GCERC	Gulf Coast Ecosystem Restoration Council
GOMA	Gulf of Mexico Alliance
ICC	International Coastal Cleanup
IFAS	University of Florida Institute of Food and Agricultural Science
IPCC	Intergovernmental Panel on Climate Change
IRL	Indian River Lagoon
ISMP	Imperiled Species Management Plan
KeysMAP	Florida Keys Marine Adaptation Project
LEA	Law Enforcement Agencies
LNG	Liquified Natural Gas
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organizations
NERR	National Estuarine Research Reserve
NFIP	National Flood Insurance Program
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration
NOEP	National Ocean Economics Program
NOS	National Ocean Service
NWAP	Northwest Aquatic Preserves
NWFWMD	Northwest Florida Water Management District
OOE	Office of Energy
R2ET	Northeast Florida Regional Council's Regional Resilience Exposure Tool
RCP	Office of Resilience and Coastal Protection
RESTORE	Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act
RPG	Resilience Planning Grants
SAMP	Special Area Management Plan
SBMP	Strategic Beach Management Plan
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SEACAR	Statewide Ecosystem Assessment of Coastal and Aquatic Resources
SEFCRI	Southeast Florida Coral Reef Initiative
SFWMD	South Florida Water Management District
SGCN	Species of Greatest Conservation Need
SHELDUS	Spatial Hazards Events and Losses Database for the United States

## ACRONYM LIST CONTINUED

SJRWMD	St. John's River Water Management District
SLOSH	Sea, Lake, and Overland Surges from Hurricanes
SNMREC	Florida Atlantic University's National Marine Renewable Energy Center
SRWMD	Suwanee River Water Management District
SWAP	Florida State Wildlife Action Plan
SWIM	Surface Water Improvement and Management
SWFWMD	Southwest Florida Water Management District
TBRRRC	Tampa Bay Regional Resiliency Coalition
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
TPO	Transportation Planning Organization
UMP	Unit Management Plan
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
WMD	Water Management District

## LIST OF FLORIDA'S 35 COASTAL COUNTIES

MAP ID*:	COUNTY:
1	ESCAMBIA
2	SANTA ROSA
3	OKALOOSA
4	WALTON
5	BAY
6	GULF
7	FRANKLIN
8	WAKULLA
9	JEFFERSON
10	TAYLOR
11	DIXIE
12	LEVY
13	CITRUS
14	HERNANDO
15	PASCO
16	PINELLAS
17	HILLSBOROUGH
18	MANATEE
19	SARASOTA
20	CHARLOTTE
21	LEE
22	COLLIER
23	MONROE
24	MIAMI-DADE
25	BROWARD
26	PALM BEACH
27	MARTIN
28	ST. LUCIE
29	INDIAN RIVER
30	BREVARD
31	VOLUSIA
32	FLAGLER
33	ST. JOHNS
34	DUVAL
35	NASSAU

\*MAP ID corresponds to the Florida Coastal Zone map on the following page.

# MAP OF FLORIDA'S COASTAL ZONE

