

FINAL ASSESSMENT AND STRATEGIES

FY 2016 – FY 2020

Prepared in accordance with

Section 309 of the COASTAL ZONE MANAGEMENT ACT

By the

FLORIDA COASTAL MANAGEMENT PROGRAM

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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 Office of Ocean and Coastal Resource Management (OCRM).

The assessment and strategies herein were developed by the Florida Coastal Office, 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 2011. Based on management needs identified by the assessment, strategies were developed to improve the FCMP. The resulting strategies cover the planning period from FY 2016 – 2020.

The FCMP provided an opportunity for public review and comment on the Assessment and Strategy report in March, 2015.

SUMMARY OF RECENT SECTION 309 ACHIEVEMENTS

Aquatic Preserve (AP) Management Plan Updates: Six AP management plans originally developed in the 1980s were updated since the last assessment. The long-term goals of the AP Program are to protect and enhance the ecological integrity of aquatic preserves; restore areas to their natural condition; encourage sustainable use and foster active stewardship by engaging local communities in the protection of aquatic preserves; 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 new management plans incorporate a revised format. The revised format is less redundant, while still meeting statutory requirements, and focuses energy on addressing major key issues instead of several issues at once. Key issues are identified with input from local and regional stakeholders, including partner agencies, adjacent landowners, elected officials, and the general public, and are vetted through a public engagement process including review 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.

- **Biscayne Bay Aquatic Preserves Management Plan:** approved by the Acquisition and Restoration Council (ARC) June, 2012
- **Apalachicola National Estuarine Research Reserve Management Plan (including Apalachicola Bay Aquatic Preserve):** approved by ARC August, 2013
- **Big Bend Seagrasses Aquatic Preserve Management Plan:** approved by ARC April, 2014
- **Estero Bay Aquatic Preserve Management Plan:** approved by ARC August, 2014
- **Wekiva River Aquatic Preserve Management Plan:** approved by ARC October, 2014
- **Indian River Lagoon Aquatic Preserves Management Plan:** draft completed and reviewed by public and advisory committee September, 2014

Community Resiliency: Planning for Sea Level Rise: In 2011, The Department of Economic Opportunity (DEO) initiated a strategy to determine how to best integrate adaptation to potential sea level rise into current planning mechanisms including the local comprehensive plan, local hazard mitigation plan, and post-disaster redevelopment plan. This effort was steered by a Focus Group of statewide experts on adaptation and coastal vulnerability, as well as stakeholders in the coastal area. DEO researched similar efforts in other states, and how the "adaptation action area" may be implemented at the local level, and adaptation planning will be piloted in three communities. All lessons learned will be compiled and disseminated statewide in the final year of the strategy.

DEO received additional funding through a Project of Special Merit (PSM) in 2012 to work with the City of Ft. Lauderdale as they integrate Adaptation Action Areas into their local comprehensive plan. Formally submitted program changes include Florida Statutes 163.3164 (Community Planning Act; definitions) and 163.3177 (Required and optional elements of comprehensive plan; studies and surveys). These statutory changes were submitted to NOAA as part of the Routine Program Change document in 2012. The changes were approved by OCRM on August 9th, 2012.

Coordinated Coral and Hardbottom Ecosystem Mapping, Monitoring, and Management Program: The Florida Fish and Wildlife Conservation Commission (FWC) collaborated with NOAA/NOS to create a

unified geodatabase for spatial analysis and data visualization of the Florida coral reef tract ([The Unified Florida Reef Map](#)), addressing the need for a single coordinated perspective. 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 (OFR) Community Working Groups. The Coral Reef and Hardbottom Mapping, Monitoring, and Management Program provides data resources for coral reef management by FDEP's Coral Reef Conservation Program (CRCP) and the Florida Keys National Marine Sanctuary Advisory Council. In 2013, the project received PSM funding for ongoing benthic mapping and project enhancement.

Florida Estuarine Habitat Restoration: Creating and Testing Statewide Planning Guidance: The Estuarine Habitat Restoration Planning Guide for Florida was developed by the Northeast Restoration Team, led by the St. Johns River Water Management District, and was completed in 2013. The Planning Guide provides guidance for regional estuarine habitat restoration plans in Florida, fulfilling a program change by establishing new statewide guidelines for estuary restoration. In addition, the team completed the Northeast Florida Estuarine Habitat Restoration Plan in 2014 to coordinate regional management and funding efforts to improve estuarine restoration.

Special Area Management Planning for the Florida Fish and Wildlife Conservation Commission's (FWC) Critical Wildlife Areas: FWC Critical Wildlife Areas (CWAs) protect wildlife from human disturbance during critical periods of their life cycles, such as nesting or migration. CWAs are monitored by biologists, and protection efforts are coordinated with local governments and state agencies, such as the Department of Environmental Protection (DEP) and FWC law enforcement. A Special Area Management Plan was completed in 2013 for the Critical Wildlife Conservation Areas system allowing for statewide coordination and management of Florida's 19 CWAs, most of which are located along the coast. Implementation of a statewide Special Area Management Plan improves communication between CWA partners and improves compliance for existing regulations, providing stronger conservation for critical wildlife while maintaining public access and recreational use of CWAs.

Marine Debris and Aquaculture Use Zones: The Florida Department of Agriculture and Consumer Services (DACS), Division of Aquaculture revised the state's Aquaculture Best Management Practices (BMPs) to provide guidance for reducing marine debris from shellfish aquaculture use zones. New BMPs were written to prevent production gear losses off lease sites, and to require collection and cleanup. Prior to this 309 strategy, there were no existing BMP resources to educate shellfish farmers on how to reduce marine debris. In addition to new and revised BMPs, DACS conducted shellfish processor workshops and contracted, installed, and managed marine debris collection containers at seven shellfish processor or publically accessible locations. DACS also contracted for removal of marine debris at deepwater sites (usually around fifteen feet) that experience strong tidal flow.

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. 17 of the CZMA Performance Measurement Guidance¹ for a more in-depth discussion of what should be considered a wetland.

Phase I Assessment

Resource Characterization:

- Using provided reports from NOAA’s Coastal Change Analysis Program (C-CAP) Land Cover Atlas², 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.

Coastal Wetlands Status and Trends		
Current state of wetlands in 2011 (acres)	13,286,479.25 (30.17% of state)	
Net change in total wetlands (gained or lost)*	from 1996-2011	from 2006-2011
	-151,148	-51,973.1
Net change in freshwater (palustrine wetlands) (gained or lost)*	from 1996-2011	from 2006-2011
	-132,701	-39,415.3
Net change in saltwater (estuarine) wetlands (gained or lost)*	from 1996-2011	from 2006-2011
	-17,445.1	-13,498.3
Net change in Unconsolidated Shore wetlands (gained or lost)*	from 1996-2011	from 2006-2011
	-1,001	940.5

¹ <http://coastalmanagement.noaa.gov/backmatter/media/czmapmsguide11.pdf>

² <http://www.csc.noaa.gov/ccpatlas/>. Summary reports compiling each state’s coastal county data are provided on the ftp site.

How Wetlands Are Changing*		
Land Cover Type	Area of Wetlands Transformed to Another Type of Land Cover between 1996-2011 (Acres)	Area of Wetlands Transformed to Another Type of Land Cover between 2006-2011 (Acres)
Development	-194,354.0	-47,268.7
Agriculture	15,766.7	-5,571.0
Barren Land	-32,665.6	-16,142.8
Water	-9,827.2	19,419.5

* Negative change indicates wetlands lost; positive change indicates wetlands gained

Using data from NOAA’s C-CAP Land Cover Atlas, which classifies remotely sensed Landsat imagery, the first table above indicates net changes (gains or losses) in wetland type, and the second table indicates four land cover types most likely to be associated with those net changes between 1996-2011 and 2006-2011. Some of the changes may not reflect permanent wetland losses, and changes to water may reflect a loss of vegetated wetlands, but could also be associated with gains in un-vegetated wetland types (such as unconsolidated bottom), which C-CAP does not map.

Overall, coastal wetlands are in decline, and development is the leading cause of this decline. However, the rate of decline is decreasing, which may be due to increasing protection, restoration, and mitigation efforts in Florida, as well as economic restrictions on development (Florida Department of Environmental Protection, 2012 p. 78).

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.

Florida’s Environmental Resource Permitting (ERP) program regulates activities involving the alteration of surface water flows, including the dredging and filling of wetlands. ERP is processed by the Department of Environmental Protection (DEP) or one of the five water management districts, with an intent of “no net loss of wetland function.” Florida does not have a goal of no net loss or gain of wetland acreage (DEP, 2011). The table below provides the latest summary of wetland loss/gain data recorded through the ERP program. Between 2008 and 2013, approximately 12,000 acres of wetlands were recorded as permanently lost, 1,300 acres temporarily disturbed, 61,000 acres preserved, 9,400 acres created, and 82,000 acres improved.

State ERP Wetland Loss/Gain Data 2008-2013*					
Permitting Agency/ Timeframe	Acreage Permanently Lost	Acreage Temporarily Disturbed	Acreage Preserved	Acreage Created	Acreage Improved
NFWWMD					
10/08 to 09/09	6.70	3.52	242.72	3.48	27.24
10/09 to 09/10	7.41	3.49	1138.78	5.68	13.63
10/10 to 09/11 [§]	13.07	0.59	93.41	2.65	9.76
10/11 to 9/12	32.92	2.57	188.61	5.40	19.99
10/12 to 9/13	36.89	2.69	48.38	15.75	37.70
Total	96.99	12.86	1711.90	32.96	108.32
SWFWMD					
10/08 to 09/09	682.77	170.78	4266.07	1119.38	764.81
10/09 to 09/10	354.77	93.13	3379.11	910.78	1019.27
10/10 to 09/11	430.20	105.08	3947.53	1088.34	1743.49
10/11 to 9/12	403.2 ^β	88.57 ^β	23.64 ^β	284.84 ^β	269.42 ^β
10/12 to 9/13	421.55	56.85	1808.63	127.27	293.10
Total	1889.29	425.84	13401.34	3245.77	3820.67
SJRWMD					
10/08 to 09/09	1109.43	13.17	5577.01	63.59	709.89
10/09 to 09/10	479.38	15.47	2531.81	9.20	176.90
10/10 to 09/11	872.00	310.00	3676.24	61.17	627.17
10/11 to 9/12	1397.42 ^β	3.02	3369.91	46.49	1828.00
10/12 to 9/13	380.66	5.77	2268.58	14.46	660.11
Total	2841.47	347.43	17423.55	194.91	4002.07
SFWMD					
10/08 to 09/09	263.03	Did not track this information	584.62	44.91	310.88
10/09 to 09/10	543.12		3525.64	80.82	62693.89
10/10 to 09/11	577.00		3327.75	1108.04	3067.73
10/11 to 9/12	1140.38		17036.58	2152.38	3247.50

State ERP Wetland Loss/Gain Data 2008-2013*					
Permitting Agency/ Timeframe	Acreage Permanently Lost	Acreage Temporarily Disturbed	Acreage Preserved	Acreage Created	Acreage Improved
10/12 to 9/13	3031.19		3405.31	2513.07	3959.33
SFWMD					
Total	5554.72	0.00	27879.90	5899.22	73279.33
SRWMD					
10/08 to 09/09	0.00	5.44	1.20	0.00	**
10/09 to 09/10	0.71	4.26	0.00	0.30	0.00
10/10 to 09/11	5.58	20.43	28.64	0.00	0.75
10/11 to 9/12	17.31	0.04	0.00	0.00	131.48
10/12 to 9/13	4.32	0.83	5.30	0.00	21.28
Total	27.92	31.00	35.14	0.30	153.51
DEP					
10/08 to 09/09	41.20	429.58	246.92	0.66	293.20
10/09 to 09/10	30.32	7.48	297.71	4.81	230.43
10/10 to 09/11	11.85	16.95	96.19	4.23	7.56
10/11 to 09/12	41.75	2.76	37.10	0.32	35.12
10/12 to 09/13	1253.92	14.30	19.40	5.72	6.26
Total	1379.04	471.07	697.32	15.74	572.57
Grand Total	11789.43	1288.20	61149.15	9388.90	81936.47
AVERAGE Acres/Year	2357.89	257.64	12229.83	1877.78	16387.29

* Environmental Resource Permitting (ERP) Program processed by DEP or one of the five water management districts (WMDs): Northwest, Southwest, St. Johns River, South Florida, and Suwannee River

^β 2011 SWFMD adjusted methodology to reflect only acres of creation, preservation & restoration accounted for during application review using final Uniform Mitigation Assessment Method (UMAM) data

^δ Acreage permanently lost includes other surface waters which could include ditches, surface water management ponds, or other artificially created water bodies

** Did not track this information

Averaged over the five year period from 2008 to 2013, ERP results indicate a decrease in wetland loss, relative to previous ERP monitoring described by FACT 2010 (below). An average of approximately 2,400

acres were permanently lost per year, 250 acres temporarily disturbed per year, 12,000 acres preserved per year, 1,900 acres created per year, and 16,000 acres preserved per year.

Florida Assessment of Coastal Trends (FACT) 2010 (2012): Although Florida continues to lose wetlands due to land use conversion, the state has met its policy goal of “no net loss of wetland function” for the past few years. The ERP program of the FDEP Office of Submerged Lands and Environmental Resources (SLER) showed a decrease in wetland loss in Florida from 2004 to 2010, averaging less than 4,000 acres of wetland loss per year. During the same timeframe, 1,771 acres of wetland were created per year, while another 15,164 acres/year were improved. In addition, 16,744 acres/year were preserved, for a total of more than 100,000 acres of preserved wetlands during the six year period.

The Florida Forever land acquisition program steadily increased statewide land conservation from 2001 to 2010. However, economic conditions drastically reduced the trend, seeing only a 0.2% increase in conservation land in 2010.

Understanding Future Sea Level Rise Impacts on Coastal Wetlands in the Apalachicola Bay Region of Florida’s Gulf Coast (2012): A Sea Level Affecting Marshes Model (SLAMM) assessment was completed using 306 Coastal Partnership Initiative (CPI) funds. The Nature Conservancy’s final report examines sea level rise impacts on wetlands, species, development, infrastructure, and cultural resources in the Apalachicola region. Salt and brackish marsh habitat are expected to increase, replacing lost forested wetlands and affecting habitat-dependent species.

Sea Level Rise, Inundation, and Marsh Migration: Simulating Impacts on Developed Lands and Environmental Systems (2015): A SLAMM assessment of the Matanzas River Basin simulated land cover change through wetland migration under three sea level rise scenarios. The model suggested a difference between allowing wetlands to migrate onto developed lands and blocking wetland migration onto developed lands. If wetlands were allowed to migrate onto developed lands, wetland coverage of the study area increased under each sea level rise scenario assessed by a maximum of 1%. If wetlands were not allowed to migrate onto developed lands, wetland coverage of the study area decreased by a maximum change of -6%. Beaches, tidal flats, and saltmarshes were the most affected land cover types, gaining or losing area depending on the sea level rise scenario. The report is a product of the Planning for Sea Level Rise in the Matanzas Basin project led by the Guana Tolomato Matanzas National Estuarine Research Reserve (GTM NERR) and the University of Florida.

Gulf of Mexico Alliance Sea-Level Affecting Marshes Model (SLAMM) analyses (2011):

- The Gulf of Mexico Foundation funded sea level rise sensitivity analyses for the Great White Heron National Wildlife Refuge (NWR), Ten Thousand Islands NWR, and Lower Suwannee NWR to support the Habitat Conservation and Restoration Priority Issue team of the Gulf of Mexico Alliance. Application of SLAMM in each of the refuges predicted significant impacts to wetlands habitats, such as mangroves, tidal flats, irregularly and regularly flooded marsh, etc., under a variety of sea level rise scenarios by 2100.
- An additional SLAMM analysis for Saint Andrew and Choctawhatchee Bays was provided by The Nature Conservancy through a Mississippi Department of Marine Resources grant to support the

Coastal Community Resiliency Team of the Gulf of Mexico Alliance. Moderate to severe changes in habitat were predicted under the sea level rise scenarios by 2100.

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.

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.

Statutes, regulations, policies:

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.

An amendment to the Florida Constitution was passed by referendum during the 2014 general election requiring that 33% of the funds presently being collected from excise taxes be set aside solely for land conservation and acquisition (e.g. “Florida Forever”) and therefore be inaccessible for any other use (e.g. general revenue funds, etc.). This, along with generally-improving economic conditions within the state, may facilitate future acquisition of important conservation lands (coastal and otherwise).

Several administrative rule changes have been implemented during this time period, which may affect the regulation and conservation of coastal wetlands and associated water resources. These include, but are not limited to, the following revisions to the F.A.C. (See Cumulative & Secondary Impacts):

- New statewide ERP rules (Chapter 62-330, F.A.C.): New statewide ERP rules ensure DEP and the five Water Management Districts will follow the same rules across authority boundaries, which will facilitate consistent statewide wetland management.

- New dissolved oxygen criteria for surface waters (Chapters 62-302.533, F.A.C.): New dissolved oxygen criteria provide updated standards for monitoring, compliance, and enforcement of dissolved oxygen levels in surface waters, which may result in improved water quality in wetlands.
- New numeric nutrient criteria for surface waters (Chapter 62-302.531 & .532, F.A.C.): New numeric nutrient criteria provide clear targets to facilitate monitoring, compliance, and enforcement of nitrogen and phosphorous levels, which may result in improved water quality in wetlands.
- New allocations of Total Maximum Daily Loads (TMDLs) (Chapter 62-304, F.A.C.): TMDLs are revised as water quality of impaired waterbodies improve. New allocations of TMDLs provide clear standards for inputs into impaired waterbodies that must be met over time, which may result in improved water quality in wetlands.

Potentially-relevant policy changes include the implementation of several new Basin Management Action Plans (BMAPs) via secretarial order under s. 403.067(7) F.S., as a means to achieve water quality restoration goals set forth in adopted 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

Wetlands Programs:

Estuarine Habitat Restoration Planning Guide for Florida: See [Special Area Management Planning](#)
The Northeast Florida Estuarine Habitat Restoration Plan: See [Special Area Management Planning](#)

Enhancement Area Prioritization:

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

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

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

Wetlands provide crucial habitat and promote water quality. While Florida has been successful in fulfilling a “no net loss of wetland function,” development and sea level rise continue to threaten wetland loss. Potential strategies to develop comprehensive assessments of ocean and coastal resources at Florida’s place-based management locations and to update Aquatic Preserve management plans, which may benefit wetlands, will be proposed under other enhancement areas.

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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 Assessment

Resource Characterization:

- Flooding:** Using data from NOAA’s State of the Coast “Population in the Floodplain” viewer³ and summarized by coastal county through NOAA’s Coastal County Snapshots for Flood Exposure,⁴ indicate how many people were located within the state’s coastal floodplain as of 2010 and how that has changed since 2000. You may use other information or graphs or other visuals to help illustrate.

Population in the Coastal Floodplain			
	2000	2010	Percent Change from 2000-2010
No. of people in coastal floodplain ⁵	4,346,439	5,190,743	19.43%
No. of people in coastal counties ⁶	12,285,697	14,194,603	15.54%
Percentage of people in coastal counties in coastal floodplain	35.38%	36.57%	-----

FEMA estimates that roughly 41% of Florida is prone to flooding, which is the highest percentage of all 50 states (Southwest Florida Water Management District, 2006). Florida also has the highest population located in the floodplain of any other state, and approximately 1.11 million of the 2.41 million National Flood Insurance policies are in Florida (NOAA State of the Coast, 2012).

³ <http://stateofthecoast.noaa.gov/pop100yr/welcome.html>. Note FEMA is in the process of updating the floodplain data. This viewer reflects floodplains as of 2010. If you know the floodplain for your state has been revised since 2010, you can either use data for your new boundary, if available, or include a short narrative acknowledging the floodplain has changed and generally characterizing how it has changed.

⁴ www.csc.noaa.gov/digitalcoast/tools/snapshots

⁵ To obtain exact population numbers for the coastal floodplain, download the Excel data file on the State of the Coast “Population in the Floodplain” viewer: <http://stateofthecoast.noaa.gov/pop100yr/welcome.html>. Summary population data for each coastal state is available on the ftp site.

⁶ To obtain population numbers for coastal counties, see spreadsheet of coastal population and critical facilities data provided or download directly from <http://www.csc.noaa.gov/digitalcoast/data/stics>. Summary population data for each coastal state is available on the ftp site.

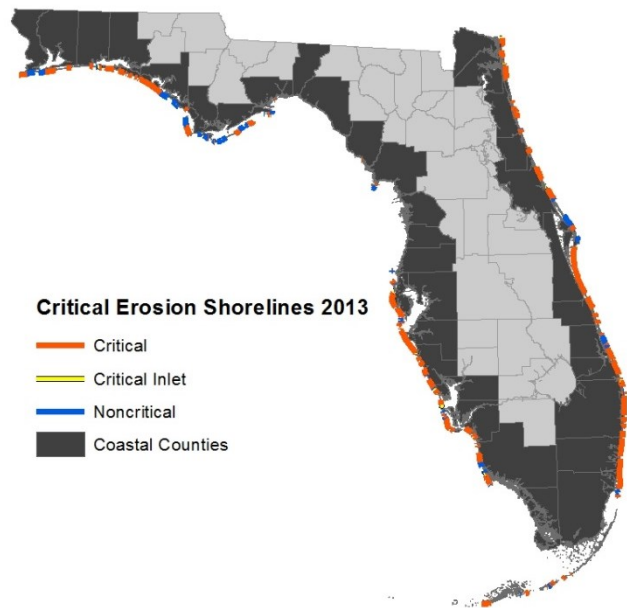
2. **Shoreline Erosion:** Using data from NOAA’s *State of the Coast* “Coastal Vulnerability Index,”⁷ indicate the vulnerability of the state’s shoreline to erosion. You may use other information or graphs or other visuals to help illustrate or replace the table entirely if better data is available.

Vulnerability to Shoreline Erosion		
Vulnerability Ranking	Miles of Shoreline Vulnerable	Percent of Coastline ⁸
Very low (>2.0m/yr) accretion	90	2%
Low (1.0-2.0 m/yr) accretion)	329	8%
Moderate (-1.0 to 1.0 m/yr) stable	2,590	64%
High (-1.1 to -2.0 m/yr) erosion	448	11%
Very high (<-2.0 m/yr) erosion	593	15%

The most recent Florida Department of Environmental Protection (DEP) “Critically Eroded Beaches in Florida” report listed 407.3 miles of critically eroded beach and 93.9 miles of non-critically eroded beach (DEP, 2014, p. 3) out of the 825 total miles of sandy beach in Florida. These numbers are similar to the previous 309 Assessment, citing 397.4 miles of critically eroded and 96 miles of non-critically eroded beach for 2009.

The Bureau of Beaches and Coastal Systems definition of Critical Erosion:

“Critically eroded area is a segment of the shoreline where natural processes or human activity have caused or contributed to erosion and recession of the beach or dune system to such a degree that upland development, recreational interests, wildlife habitat, or important cultural resources are threatened or lost. Critically eroded areas may also include peripheral segments or gaps between identified critically eroded areas which, although they may be stable or slightly erosional now, their inclusion is necessary for continuity of management of the coastal system or for the design integrity of adjacent beach management projects” (DEP, 2014, p. 5).



⁷ <http://stateofthecoast.noaa.gov/vulnerability/welcome.html> (see specifically “Erosion Rate” drop-down on map). The State of the Coast visually displays the data from USGS’s Coastal Vulnerability Index.

⁸ To obtain exact shoreline miles and percent of coastline, mouse over the colored bar for each level of risk or download the Excel data file.

3. **Sea Level Rise:** Using data from NOAA’s *State of the Coast “Coastal Vulnerability Index”*,⁹ indicate the vulnerability of the state’s shoreline to sea level rise. You may provide other information or use graphs or other visuals to help illustrate or replace table entirely if better data is available.

Coastal Vulnerability Index Ranking		
Vulnerability Ranking	Miles of Shoreline Vulnerable	Percent of Coastline
Very low	-	-
Low	371.9	9.2%
Moderate	1966.9	48.5%
High	1251.7	30.9%
Very high	461.9	11.4%

According to a Florida Oceans and Coastal Council’s (FOCC) report on sea level rise in Florida, sea level rise is expected to exacerbate flooding and storm surge, i.e. hurricane damage, as well as erosion and salt water intrusion. By 2030, the replacement value of built-environment and infrastructure in Florida’s coastal counties is projected to be \$3 trillion, which will be vulnerable to sea level rise and its associated impacts (FOCC, 2010).

4. **Other Coastal Hazards:** In the table below, indicate the general level of risk in the coastal zone for each of the coastal hazards. The state’s multi-hazard mitigation plan is a good additional resource to support these responses.

Type of Hazard	General Level of Risk ¹⁰ (H, M, L)
Flooding (riverine, stormwater)	H
Coastal storms (including storm surge) ¹¹	H
Geological hazards (e.g., tsunamis, earthquakes)	L
Shoreline erosion ¹²	H
Sea level rise	H
Great Lake level change	N/A
Land subsidence (including sinkholes)	M
Saltwater intrusion	H
Tornadoes	M
Wildfires	M

5. 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.

⁹ <http://stateofthecoast.noaa.gov/vulnerability/welcome.html> (see “Vulnerability Index Rating” drop-down on map). The State of the Coast visually displays the data from USGS’s Coastal Vulnerability Index.

¹⁰ 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*

¹¹ In addition to any state- or territory-specific information that may help respond to this question, the U.S. Global Change Research Program has an interactive website that provides key findings from the 2014 National Climate Assessment for each region of the country, including regions for the coasts and oceans, and various sectors. The report includes findings related to coastal storms and sea level rise that may be helpful in determining the general level of risk. See <http://nca2014.globalchange.gov/>.

¹² See NOAA State of the Coastal Vulnerability to Sea Level Rise Tool (select “Erosion Rate” from drop-down box) <http://stateofthecoast.noaa.gov/vulnerability/welcome.html>. The State of the Coast visually displays the data from USGS’s Coastal Vulnerability Index.

2013 State of Florida Enhanced Hazard Mitigation Plan: The risk assessment for the State of Florida Hazard Mitigation Plan (SHMP) was originally developed in 2004. The Florida Division of Emergency Management (DEM) contracted for the revision of the risk management section in 2007, 2010, and 2013. A qualitative Hazard Summary for each county was developed based on the county's Local Mitigation Strategies. The information for the Coastal Counties is provided below. As seen from the table, relatively high risks for coastal counties include flooding, hurricanes, and erosion. However, each county uses its own scale for assessing hazard risk. As a result, county risk levels may not be directly comparable.

State of Florida Hazard Mitigation Plan State Risk Assessment, 2013

County	Flooding	Dam Failure	Hurricanes	Tornadoes	Severe Storms	Wildfires	Drought	Extreme Heat	Winter Storms	Freezes	Erosion	Sinkholes	Landslides	Seismic Events	Terrorism	Technological Events	Mass Migration
Bay	H		H	H		M						L					
Brevard	H	L	H	H	H	H	MH	L	L	L	M	L	L	L	H	H	L
Broward	H		H	H	H	M	MH	L			M	L			M		L
Charlotte	H	M	H	MH	H	M	MH			L	MH	L		L			
Citrus	H	L	H	MH	H	M	M	L			MH	MH					
Collier	MH		H		MH	M		M	M	M		L	L		L		
Dixie	H	L	H	M	M	M	M	M			L	L		L			
Duval	H		H	L	L	H	M	L			L			L	L		
Escambia	H	L	H	L	H	M	M			L	M	L	M	L	L		L
Flagler	M	L	H	MH	MH	H	H		L	L			MH	L	L	MH	
Franklin	H	L	H		MH	MH	M		M		MH		MH	L	L	MH	
Gulf	H	L	H	M	MH	MH	MH				H	L	H	L	M	MH	
Hernando	H		H	MH	MH	MH	MH	L	M	M	MH	M		L			
Hillsborough	M	L	H	MH	H	M	M		L	L	L	L		M	L	L	
Indian River	H		H	MH	MH	L	MH	MH		MH	MH	M	M	L	L	M	M
Jefferson	H	L	MH	MH	M	H	MH		MH	MH	M	L	M	L	L	H	
Lee	H	L	H	H	MH	H	M	M	M	M	H	L		L			
Levy	H	L	MH	M		M	M	M	M	M	L	M					
Manatee	H	L	H	H	H	H	M	M	M	M	M	L	L		L		
Martin	MH		H	L	MH	M	M	M			L	L			L	M	L
Miami-Dade	H		H	M	H	M	L	L		L					L	L	M
Monroe	H		H	M	MH	L	L	L			L				L	L	M
Nassau	MH	L	H	MH	M	MH	M	L	M	M	M	L	L	L	L	M	
Okaloosa	H	L	H	M	H	M	M	L	L	L	L	L	L	L			
Palm Beach	H	L	H	MH	MH	M	MH	M	L	L	L	L	L	L	M	M	L
Pasco	H	L	H	H	M	H	L	L	L	L	H	H	L	L	M	L	L
Pinellas	M		H	M	H	M	M	H	L	L	H	M		L	M	M	
Santa Rosa	MH	L	MH	H	H	L	M	M	M	M	H	L		L			
Sarasota	H	L	H	L	H	H	L				H	L		L			
St. Johns	MH		H	MH	MH	MH	L	L	M	M		MH	MH	L	L	M	L
St. Lucie	H	L	H	L	M	M	L	M		M	M	L		L		L	
Taylor	MH		H		MH	MH	M		M		L	L		L			
Volusia	H		H	H	M	H	H	M	L	L	M	L		L	M	L	
Wakulla	H	L	H	M		M	L		L		L	M		L			
Walton	H	L	H	H	H	L	L	L	L	L	H	L					

Spatial Hazards Events and Loss Database for the United States (SHELDUS): SHELDUS provides summaries of hazardous event losses from 1960-2009. The largest monetary losses for Florida involve hurricanes and tropical storms followed by flooding. The category with the greatest number of events is severe weather followed by wind. The greatest economic losses were in the South Florida region and the very northwest portions of Florida (University Of South Carolina Hazards and Vulnerability Research Institute, 2014).

Climate-Sensitive Hazards in Florida: The Building Resilience Against Climate Effects (BRACE) program at the Florida Department of Health (DOH) collaborated with the University of South Carolina Hazards and Vulnerability Research Institute to assess the following climate-sensitive hazards in Florida, and the intersection of those hazards with social and medical vulnerability: hurricane winds, storm surge, flash flooding, sea level rise, extreme heat, drought, and wildland fires. Existing climate scenarios project heat, drought, and sea level rise vulnerability to the year 2100 with a high, medium, and low range of outcomes for these three hazards. Probability indexes are used in conjunction with historical patterns to

explain possible changes in hurricane winds, storm surge, flooding, and wildland fires. Despite uncertainty of long-term climatological trends, climate-sensitive hazards are generally expected to increase in severity. The report identifies the need for comprehensive planning across all jurisdictions utilizing the best available data and methods (University Of South Carolina Hazards and Vulnerability Research Institute, 2012).

2012 State Wildlife Action Plan - Florida Fish and Wildlife Conservation Commission (FWC): The State Wildlife Action Plan includes a chapter on adapting to potential future coastal hazards and provides a vulnerability assessment of species, and recommendations for adaptation actions. Sea level rise is highlighted as one of the most important long-term threats to Florida. Amphibians were generally predicted to be the most vulnerable to sea level rise effects due to their inability to effectively disperse and their need for specific hydrologic conditions. Most reptiles assessed were predicted to be highly to extremely vulnerable. Birds and mammals may be less susceptible to sea level rise relative to reptiles and amphibians due to their greater mobility and dispersal abilities. However, some species of birds and mammals were predicted to be highly to extremely vulnerable (FWC, 2012).

Understanding Future Sea Level Rise Impacts on Coastal Wetlands in the Apalachicola Bay Region of Florida's Gulf Coast (2012): A Sea Level Affecting Marshes Model (SLAMM) assessment was completed using 306 Coastal Partnership Initiative (CPI) funds. The Nature Conservancy's final report examines sea level rise impacts on wetlands, species, development, infrastructure, and cultural resources in the Apalachicola region. Salt and brackish marsh habitat are expected to increase, replacing lost forested wetlands and affecting habitat-dependent species.

Sea-Level Rise, Inundation, and Marsh Migration: Simulating Impacts on Developed Lands and Environmental Systems (2015): A SLAMM assessment of the Matanzas River Basin simulated land-cover change through wetland migration under three sea-level rise scenarios. The model suggested a difference between allowing wetlands to migrate onto developed lands and blocking wetland migration onto developed lands. If wetlands were allowed to migrate onto developed lands, wetland coverage of the study area increased under each sea level rise scenario assessed by a maximum of 1%. If wetlands were not allowed to migrate onto developed lands, wetland coverage of the study area decreased by a maximum change of -6%. Beaches, tidal flats, and saltmarshes were the most affected land cover types, gaining or losing area depending on the sea level rise scenario. The report is a product of the Planning for Sea Level Rise in the Matanzas Basin project led by the Guana Tolomato Matanzas National Estuarine Research Reserve (GTM NERR) and the University of Florida.

Gulf of Mexico Alliance Sea-Level Affecting Marshes Model (SLAMM) analyses:

- The Gulf of Mexico Foundation funded sea level rise sensitivity analyses for the Great White Heron National Wildlife Refuge (NWR), Ten Thousand Islands NWR, and Lower Suwannee NWR to support the Habitat Conservation and Restoration Priority Issue team of the Gulf of Mexico Alliance. Application of SLAMM in each of the refuges predicted significant impacts to habitats, such as mangroves, estuarine beach, undeveloped dry land, tidal flat, developed dry land, irregularly and regularly flooded marsh, etc., under a variety of sea level rise scenarios by 2100.
- An additional SLAMM analysis for Saint Andrew and Choctawhatchee Bays was provided by The Nature Conservancy through a Mississippi Department of Marine Resources grant to support the Coastal Community Resiliency Team of the Gulf of Mexico Alliance. Moderate to severe changes in habitat were predicted under the sea level rise scenarios by 2100.

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) have occurred that could impact the CMP’s ability to prevent or significantly reduce coastal hazards risk since the last assessment.

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 that address:			
<i>elimination of development/redevelopment in high-hazard areas¹³</i>	Y	Y	N
<i>management of development/redevelopment in other hazard areas</i>	Y	Y	Y
<i>climate change impacts, including sea level rise or Great Lake level change</i>	Y	Y	Y
Hazards planning programs or initiatives that address:			
<i>hazard mitigation</i>	Y	Y	Y
<i>climate change impacts, including sea level rise or Great Lake level change</i>	Y	Y	Y
Hazards mapping or modeling programs or initiatives for:			
<i>sea level rise or Great Lake level change</i>	Y	Y	Y

<http://www.floridajobs.org/community-planning-and-development/programs/technical-assistance/community-resiliency/coastal-high-hazard-areas#EvacStudies>

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 of Florida Statutes 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 (CHHA) 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:

Community Planning Act (2011): In July, 2011, the Florida Legislature adopted “Adaptation Action Areas” into statute (see Sections 163.3164(1) and 163.3177(6)(g)(10), Florida Statutes (F.S.)). "Adaptation action area" (or "adaptation area") is an optional comprehensive plan designation for areas that experience coastal flooding and are vulnerable to the related impacts of rising sea levels

¹³ Use state’s definition of high-hazard areas.

to prioritize funding for infrastructure needs and adaptation planning. Local governments that adopt an adaptation action area may consider policies within the coastal management element to improve resilience to coastal flooding. Criteria for the adaptation action area may include: (a) Areas below, at, or near mean high water; (b) Areas which have a hydrological connection to coastal waters; and/or, (c) Areas designated as evacuation zones for storm surge. In addition, the Act contained broader growth management changes that have implications for coastal management by shifting planning and development discretion to local governments. For example, transportation, school, and park concurrency became optional for local governments, and local governments were delegated the discretion to implement concurrency as optional elements, or delete existing elements through plan amendments. The Act was not a 309 or CZM-driven change per se, but Sections 163.3164(1) and 163.3177(6)(g)(10), F.S. were formally submitted to NOAA as part of the 2012 Routine Program Change document, and were approved by OCRM on August 9th, 2012.

2010 Florida Building Code, Flood Resistant Construction Standards (2012): The 2010 Florida Building Code (FBC) was adopted by the Florida Building Commission in 2012. The 2010 FBC now contains flood resistant construction standards for all development activities, including several higher standards, such as a freeboard (1 to 3 feet above design flood levels) for nearly all new and substantially improved structures. Adoption of flood resistant construction standards ensures that communities across the state are requiring all new and substantially improved structures to be built to standards that are resilient to coastal flood hazards and forces. This was not a 309 or CZM-driven change.

Amendment to Section 163.3178, F.S., Coastal management (2015): In 2015, the Florida Legislature amended Section 163.3178, F.S., adding local comprehensive plan redevelopment component requirements. Specifically, the amendments require that redevelopment components: include development and redevelopment principles, strategies, and engineering solutions that reduce flood risk in coastal areas resulting from high-tide events, storm, surge, flash floods, stormwater runoff, and sea level rise; encourage the use of best practices to remove property from FEMA flood zones; identify techniques and practices that may reduce losses and claims under flood insurance policies; be consistent with or more stringent than Florida Building Code flood-resistant construction requirements and flood plain management regulations of 44 C.F.R. part 60; require construction seaward of coastal control lines be consistent with chapter 161; and encourage local governments to participate in the National Flood Insurance Program Community Rating System. As a result, local governments are now required to address the risks of coastal hazards to development – including sea level rise – in their comprehensive plans. The amendment was not a 309 or CZM-driven change.

Hazards planning programs, or initiatives:

Community Resiliency Initiative, Planning for Sea Level Rise (309): In 2011, the Department of Economic Opportunity (DEO) kicked-off a five-year project to integrate adaptation to potential sea level rise into current planning mechanisms including the local comprehensive plan, local hazard mitigation plan, and post-disaster redevelopment plan. This effort is steered by a Focus Group of statewide experts on adaptation and coastal vulnerability, as well as stakeholders in the coastal area. First, DEO researched similar efforts in other states, and how the "adaptation action area" may be implemented at the local level. Next, adaptation planning was piloted in three communities. Finally, all lessons learned will be compiled and disseminated statewide.

Adaptation Action Area PSM (309) (2012): The Department of Economic Opportunity (DEO) received additional funding through a Project of Special Merit (PSM) to work with the City of Ft. Lauderdale as they integrate Adaptation Action Areas into their local comprehensive plan.

Model Flood Damage Prevention Ordinance (2012): Following the adoption of the 2010 Florida Building Code (FBC), the Florida Division of Emergency Management (FDEM) produced a model *Flood Damage Prevention Ordinance* for all communities in Florida. As of November 2014, nearly two-thirds of communities have adopted a variation of the model ordinance, including the majority of the state's most populated places. The model ordinance serves to ensure that all development activities that are not regulated by the FBC (i.e., non-structural building activities) are resilient to coastal flood hazards and forces. This was not a 309 or CZM-driven change.

Local Mitigation Handbook and State Mitigation Plan Review Guide: In 2013, FEMA updated the Local Mitigation Handbook for local governments to use in developing or updating local hazard mitigation plans. FEMA is proposing changes to their State Mitigation Plan Review Guide, which have not yet been approved. The proposed changes include strengthening requirements for assessing risk considering a changing climate and changes in land use and development. This was not a 309 or CZM-driven change.

Post-Disaster Redevelopment Planning: Addressing Adaptation During Long-term Recovery: The Florida Department of Economic Opportunity and Division of Emergency Management produced an addendum to the *Post-Disaster Redevelopment Planning: A Guide for Florida Communities* guidebook for the fifth phase of the 309 supported Statewide Post-Disaster Redevelopment Planning Initiative. The addendum provides guidance for communities looking to address sea level rise in their Post-Disaster Redevelopment Plans, including policy recommendations and processes to conduct hazard vulnerability analyses to improve long-term sustainability of redevelopment.

Hazards mapping or modelling programs or initiatives:

Building Resilience Against Climate Effects (BRACE) Program (2012): The BRACE Program at the Florida Department of Health (DOH) is working to improve the ability of the public health sector to respond to health effects related to climate variability by analyzing the current and projected future impacts of climate on health. The program is funded by the United States Centers for Disease Control and Prevention through 2016 (DOH, 2014), and is not driven by 309 or CZM.

Hillsborough County Pilot Project and Hillsborough 2040 Transportation Plan (2014): Hillsborough County was selected by the Federal Highway Administration to conduct a pilot project to assess the regional transportation system's resiliency to extreme weather. The Hillsborough County Metropolitan Planning Organization (MPO), Hillsborough County Public Works-Hazard Mitigation Section, Planning Commission, Tampa Bay Regional Planning Commission, and the University of South Florida, will utilize sea level rise data and models developed for FDOT by UF's GeoPlan Center to develop strategies to offset the effects of inland flooding, storm surge, and sea level rise. Some of these mitigation projects will be included in the Hillsborough 2040 Transportation Plan.

ONE BAY Resilient Communities Working Group (2014): In 2014, the ONE BAY Livable Communities Working Group (a partnership of the Tampa Bay Regional Planning Council, Tampa Bay Estuary Program, Southwest Florida Water Management District, Tampa Bay Partnership Regional Research

& Education Foundation, Tampa Bay Area Regional Transportation Authority, and the Urban Land Institute Tampa Bay District Council) became the ONE BAY Resilient Communities Working Group. The ONE BAY Resilient Communities Working Group convenes several times each year to present information and facilitate dialogue about regional resiliency solutions to improve quality of life in the Tampa Bay region by ensuring that communities can effectively adapt to, prepare for and recover from sea level rise and other coastal hazards. The initiative provides a platform for sharing information related to sea level rise and coastal resilience planning specific to Tampa Bay. Potential outcomes include a website clearinghouse of research, programmatic efforts, and decision support tools; consensus on a sea level rise projection scenario for the region; and incorporating sea level rise into local government plans, policies, and regulations.

Planning for Sea Level Rise in Matanzas Project - Guana Tolomato Matanzas National Estuarine Research Reserve (NERR) & University of Florida (UF): The Guana Tolomato Matanzas (GTM) NERR has partnered with UF's College of Design, Construction, and Planning to develop science and planning tools for sea level rise adaptation with funding from NOAA's NERR System Science Collaborative. Staff from GTMNERR and the university are working to obtain stakeholder input, perform vulnerability assessments, analyze land use conflicts, develop ecological conservation designs, and perform a governance readiness assessment for future adaptation efforts. The end products of the Planning for Sea Level Rise in Matanzas project will be a report with findings and recommendations and a planning toolbox to provide guidance to decision makers and stakeholders within the Matanzas basin.

State-wide Bridge Analysis: Wave-loading Vulnerability (2004, In Progress): The Florida Department of Transportation (FDOT) has addressed sea level rise in recent transportation system vulnerability assessments. Following the destruction of the I-10 bridges over Escambia Bay during Hurricane Ivan in 2004, FDOT initiated a project to assess the wave loading vulnerability of the state's bridges (FDOT, 2010). As part of this effort, the department contracted with Ocean Engineering Associates (OEA) to conduct an analysis of the bridges in Miami-Dade and Monroe Counties (Ocean Engineering Associates, 2008). OEA included an adjustment for 2100 relative sea level rise in its design water surface elevations following the method developed by Titus and Narayanan (1995). The department is conducting similar vulnerability analyses of bridges throughout the state.

Sketch Planning Tool - Florida Department of Transportation (FDOT) & University of Florida (UF): The FDOT Office of Policy Planning provides technical support to the state's Metropolitan Planning Organizations (MPOs) including guidance on preparing their long-range transportation plans (LRTPs). The department is currently funding development of a Sketch Planning Tool by UF's GeoPlan Center that can be used as a module with the department's environmental screening tool (EST) during the Efficient Transportation Decision Making process (ETDM). The GeoPlan Center's Sketch Planning Tool will allow EST users to assess the vulnerability of existing and proposed transportation projects to sea level rise inundation for a variety of scenarios.

Sea level rise initiatives at National Estuarine Research Reserves (NERRS): The Florida Department of Environmental Protection (FDEP) collaborates with NOAA through the NERRS System-wide Monitoring Program (SWMP) by conducting long-term monitoring of biological and physical parameters at Florida's National Estuarine Research Reserves: Apalachicola, Guana Tolomato Matanzas, and Rookery Bay. Apalachicola, Guana Tolomato Matanzas, and Rookery Bay are in the

process of determining strategies to implement Sentinel Sites to understand sea level rise impacts under the NERRS Sentinel Sites Program (NERRS SSP). The NERRS SSP will build upon SWMP by monitoring trends in vegetative habitat change related to changes in sea level and inundation. In addition, the Apalachicola National Estuarine Research Reserve (ANERR) participates in NOAA's Northern Gulf of Mexico Sentinel Sites Cooperative. Long-term monitoring within the reserve will contribute to an integrative ecosystem approach to addressing sea level change. ANERR also participates in the National Centers for Coastal Ocean Science (NCCOS)-funded Ecological Effects of Sea Level Rise project in the northern Gulf of Mexico, led by the University of Central Florida. The project utilizes laboratory experiments and field operations at three NERRS (Apalachicola - FL, Grand Bay - MS, and Weeks Bay - AL) to build coupled models of hydrodynamics, salinity, sedimentation, vegetation, and oyster dynamics, as well as classified maps indicating high and low risk areas.

Southeast Florida Regional Climate Compact: Regional Climate Action Plan (2012): A collaborative effort among Broward, Miami-Dade, Monroe, and Palm Beach counties to develop a climate change action plan, specific accomplishments include the development of regionally-consistent methodologies for mapping sea-level rise impacts, assessing vulnerability, and understanding the sources of regional greenhouse gas emissions. The compact calls for concerted action in reducing greenhouse gas emissions, and anticipating and adapting to regional and local impacts of a changing climate. Although the Regional Climate Action Plan was not a 309 or CZM project, the 309 Community Resiliency Initiative has provided technical support to the Regional Climate Compact, including an Adaptation Action Areas White Paper used to support the Regional Climate Action Plan.

Enhancement Area Prioritization:

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

High	<u> X </u>
Medium	<u> </u>
Low	<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 threat to Florida's coastal resources. The Florida coast sustains and enchants both visitors and natives of the state, and its relationship to the economy is vital: in 2010, Florida's coastal counties contributed over \$584 billion in gross regional product to the state's economy (Florida Ocean Alliance, 2013). Although it may be our greatest asset, Florida's coastal communities are at risk to potential damage from coastal hazards. 65,029 homes and as many as 121,909 people sit within one foot of projected sea-level rise (Climate Central, 2014). The ability to adapt to a changing coastline may ensure the state's viability over the next century.

Pursuant to Florida's current 309 Community Resiliency Initiative, the Department of Economic Opportunity (DEO) has developed technical assistance and guidance materials in order to integrate sea level rise adaptation into all levels of hazard mitigation and land use planning in the state of Florida. Following completion of this current initiative, local communities will need support to adopt and implement sea level rise adaptation strategies.

A five-year initiative is proposed in order to:

1) Support optional, local adoption of adaptation plans or adaptation components into existing planning mechanisms; and

2) Implement adaptation approaches.

Phase II Assessment

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.

1a. **Flooding In-depth** (for all states besides territories): Using data from NOAA's *State of the Coast* "Population in the Floodplain" viewer¹⁴ and summarized by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,¹⁵ indicate how many people at potentially elevated risk were located within the state's coastal floodplain as of 2010. These data only reflect two types of vulnerable populations (people under 5/over 65 years old, and people in poverty). 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.

2010 Populations in Coastal Counties at Potentially Elevated Risk to Coastal Flooding ¹⁶				
	Under 5 and Over 65 years old		In Poverty	
	# of people	% Under 5/Over 65	# of people	% in Poverty
Inside Floodplain	1,096,236	23%	618,784	13%
Outside Floodplain	2,280,659	24%	1,389,769	14%

1b. **Flooding In-depth** (for all states besides territories): Using summary data provided for critical facilities, derived from FEMA's HAZUS¹⁷ and displayed by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,¹⁸ indicate how many different establishments (businesses or employers) and critical facilities are located in the FEMA floodplain. You can provide more information or use graphs or other visuals to help illustrate or replace the table entirely if better information is available.

Critical Facilities in the FEMA Floodplain						
	Schools	Police Stations	Fire Stations	Emergency Centers	Medical Facilities	Communication Towers
Inside Floodplain (statewide)	35,416	5,130	3,762	228	2,166	6,232

¹⁴ <http://stateofthecoast.noaa.gov/pop100yr/welcome.html>

¹⁵ <http://www.csc.noaa.gov/digitalcoast/tools/snapshots>

¹⁶ To obtain exact population numbers for the coastal floodplain, download the excel data file from the State of the Coast's "Population in Floodplain" viewer.

¹⁷ <http://www.fema.gov/hazus>; can also download data from NOAA STICS <http://www.csc.noaa.gov/digitalcoast/data/stics>. Summary data on critical facilities for each coastal state is available on the ftp site.

¹⁸ <http://www.csc.noaa.gov/digitalcoast/tools/snapshots>

Critical Facilities in the FEMA Floodplain						
	Schools	Police Stations	Fire Stations	Emergency Centers	Medical Facilities	Communication Towers
Coastal Counties	932	135	99	6	57	164

2. Based on the characterization of coastal hazard risk, what are the three most significant coastal hazards¹⁹ within the coastal zone? Also indicate the geographic scope of the hazard, i.e., is it prevalent throughout the coastal zone or are specific areas most at risk?

	Type of Hazard	Geographic Scope (throughout coastal zone or specific areas most threatened)
Hazard 1	Flooding	Throughout
Hazard 2	Hurricanes	Throughout
Hazard 3	Erosion	Throughout

3. 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.

Flooding, hurricanes, and erosion are three of Florida’s top hazards within the coastal zone, intrinsically connected to each other, as well as other hazards (e.g., sea level rise, storm surge, etc.).

Second only to Alaska in miles of coastline and with relatively low elevation, Florida has the highest population located in the floodplain of any other state, and the most National Flood Insurance policies. According to the State of Florida Enhanced Hazard Mitigation Plan (SHMP), flooding is a significant risk throughout the coastal zone, and poses the greatest risk of any natural hazard in the state. In addition, coastal flooding is projected to increase in the future due to the exacerbated impacts of sea level rise.

Hurricanes are a pervasive threat throughout the coastal zone as well, and the potential for large scale destruction by a single storm warrants a significant hazard rating. Although no hurricanes have made landfall in Florida since the last assessment, according to the Building Resilience Against Climate Effects (BRACE) Program at the Florida Department of Health (DOH), Florida has the highest record of landfalling hurricanes than any other state.

Florida’s beaches attract tourists, providing millions of dollars into the state’s tourism driven economy each year. The length of critically eroded beach in Florida has increased 79.4 miles, from 327.9 miles in 2000 to 407.3 miles in 2014. The length of non-critically eroded beach has decreased 13.8 miles, from 107.7 in 2000 to 93.9 miles in 2014.

4. 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	Ongoing need for research and data support to update models and data layers, as well as vulnerability analyses of local communities to

¹⁹ See list of coastal hazards at the beginning of this assessment template.

Emerging Issue	Information Needed
	examine and plan for current and future risks of sea level rise

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.

Management Category	Employed by State/Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Change Since the Last Assessment (Y or N)
Statutes, Regulations, and Policies:			
<i>Shorefront setbacks/no build areas</i>	Y	Y	N
<i>Rolling easements</i>	N	N	N
<i>Repair/rebuilding restrictions</i>	Y	Y	N
<i>Hard shoreline protection structure restrictions</i>	Y	N	N
<i>Promotion of alternative shoreline stabilization methodologies (i.e., living shorelines/green infrastructure)</i>	Y	Y	N
<i>Repair/replacement of shore protection structure restrictions</i>	Y	Y	N
<i>Inlet management</i>	Y	Y	N
<i>Protection of important natural resources for hazard mitigation benefits (e.g., dunes, wetlands, barrier islands, coral reefs) (other than setbacks/no build areas)</i>	Y	Y	N
<i>Repetitive flood loss policies (e.g., relocation, buyouts)</i>	N	N	N
<i>Freeboard requirements</i>	Y	Y	Y
<i>Real estate sales disclosure requirements</i>	Y	N	N
<i>Restrictions on publicly funded infrastructure</i>	Y	Y	N
<i>Infrastructure protection (e.g., considering hazards in siting and design)</i>	Y	Y	Y
Management Planning Programs or Initiatives:			
<i>Hazard mitigation plans</i>	Y	Y	Y
<i>Sea level rise/Great Lake level change or climate change adaptation plans</i>	Y	Y	Y
<i>Statewide requirement for local post-disaster recovery planning</i>	Y	Y	N
<i>Sediment management plans</i>	Y	Y	N
<i>Beach nourishment plans</i>	Y	Y	N
<i>Special Area Management Plans (that address hazards issues)</i>	Y	Y	Y
<i>Managed retreat plans</i>	Y	Y	Y
Research, Mapping, and Education Programs or Initiatives:			

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

Community Resiliency Initiative: The 309 Community Resiliency Initiative serves to lay a foundation for integrating adaptation into Florida’s community planning. Upon completion of this initiative, communities will have guidance and resources to assist them plan for adaptation to current and future risks.

A number of innovative communities (including the Initiative’s pilot communities) across the state have started to address long-term coastal hazards since the Initiative began. These innovators have provided examples and lessons learned for other communities across the state to utilize. As of fiscal year 2014/2015 – the Initiative’s fourth year – these innovative communities and the work from the Initiative have created momentum for additional communities to incorporate long-term coastal resiliency into their local planning and budgeting mechanisms. Based on all available information, it is possible that up to 60 percent of coastal communities will address resiliency (e.g., sea level rise) in a plan, strategy, or regulation by 2017. This statistic assumes, that many communities in Pinellas, Palm Beach, Monroe, Miami-Dade, and Broward counties will follow the lead of their counties and neighboring communities.

Identification of Priorities:

- 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 zoning and comprehensive planning tools are the strongest mechanisms for addressing coastal hazard risk. These tools represent the goals and desires of each community. Rather than a one-size-fits-all approach, comprehensive plans allow communities to address coastal hazards in many different ways. The CMP can improve its ability to more effectively address coastal hazard risk by continuing to provide technical assistance and outreach to local governments for incorporating resiliency into local planning and budgeting mechanisms.

Management Priority 2: Comprehensive approach to coastal resiliency

Description: There is a need for coordination amongst state agencies for a more comprehensive approach to planning for sea level rise that considers the diverse impacts of sea level rise on urban shorelines, as well as natural habitats, including (but not limited to) stormwater retrofit and water quality enhancement initiatives, flood abatement and recovery, shoreline stabilization, and infrastructure upgrades (capital improvement programs). A comprehensive approach will also allow the CMP to better align resources for 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	Ongoing, hazard identification and risk assessments
Mapping/GIS/modeling	Y	Ongoing, need to update maps/GIS/models with additional data layers
Data and information management	Y	Ongoing, need to coordinate data on hazard identification and risk assessments (many sources)
Training/Capacity building	Y	To assist local communities incorporate adaptation initiatives into local plans and budgeting mechanisms
Decision-support tools	Y	Coordination of public and private partners to integrate and consolidate risk assessment information into one or more unified decision-support tools
Communication and outreach	Y	Ongoing communication outreach to local governments and professional organizations

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.

Statutory changes such as the Community Planning Act, have provided the impetus for incorporating adaptation into local comprehensive plans to prepare for future flooding risk. DEO’s success with pilot communities through the 2011-2015 Community Resiliency Initiative will provide guidance, which will need to be disseminated statewide. A new Adaptation Action strategy is necessary to further the Community Resiliency Initiative, and to provide local communities with the financial and technical assistance to incorporate adaptation planning into their comprehensive plans.

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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 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 ²⁰	Changes or Trends Since Last Assessment ²¹ (↑, ↓, -, unkwn)	Cite data source
Beach access sites	2,184 access sites (developed and undeveloped)	unkwn	FCMP Coastal Access Guide, 2014
	2,142 access sites (2010)	↑ 637 access sites (1,505 in year 2000)	Florida Assessment of Coastal Trends 2010 (FDEP)
	1,820 saltwater beach access points	↓ 3.8% since 1998 (1,883 points)	Outdoor Rec. Inv. Sited in FACT 2010, pg. 178 (FDEP)
	1,639 public saltwater beaches	↓ 1 public saltwater beach since last assessment	Outdoor Rec. Inv. 2012 (FDEP)
Shoreline (other than beach) access sites	439.1 miles of public saltwater beach	↓ .85 miles of public saltwater beach since last assessment	Outdoor Rec. Inv. 2012 (FDEP)
Recreational boat (power or nonmotorized) access sites	618 public saltwater boat ramps	unkwn	Outdoor Rec. Inv. 2012 (FDEP)
	928 public saltwater boat ramp lanes	unkwn	
	105 public marinas	unkwn	Outdoor Rec. Inv. 2012 (FDEP)
	7,819 public marina slips	unkwn	

²⁰ 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.

²¹ 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.”

Public Access Status and Trends			
Type of Access	Current number ²⁰	Changes or Trends Since Last Assessment ²¹ (↑, ↓, -, unkwn)	Cite data source
	2,756 public and private recreational boating facilities (other than stand-alone boat ramps), 647 having a marina	Last assessment mentions 2,445 marine facilities, 615 having a boat ramp and 651 having a marina.	FWC Boating Access Study 2009 (FWC)
Number of designated scenic vistas or overlook points	N/A		
Number of fishing access points (i.e. piers, jetties)	363 saltwater piers (117,538 ft) 59,231 ft. of saltwater jetties	↑ 38 saltwater piers since last assessment ↑ 5,275 ft. of saltwater jetties since last assessment	Outdoor Rec. Inventory 2012 (FDEP)
Coastal trails/ boardwalks	No. of Trails/ boardwalks		
	659 saltwater catwalks (170,984 ft)	↑ 185 saltwater catwalks since last assessment	Outdoor Rec Inventory 2012 (FDEP)
	Miles of Trails/boardwalks	unkwn	Outdoor Rec Inventory 2012 (FDEP)
	13,233.3 miles of public trails	unkwn	Outdoor Rec Inventory 2012 (FDEP)
	1,515 miles on Circumnavigational Saltwater Paddling Trail	unkwn	Previous 309 Assessment
Number of acres parkland/open space	Total sites	unkwn	
	6,991,462 land acres 3,458,638 water acres		Outdoor Rec Inventory 2012 (FDEP)
	3 NERRS: Rookery Bay: 112, 822 acres Apalachicola: 234,653 acres GTM : 73,352 acres		Outdoor Rec Inventory 2012 (FDEP)
	Sites per miles of shoreline		

Public Access Status and Trends			
Other	2,398,000 saltwater anglers spent a total of 36,348,000 days fishing in FL in 2011	- The total saltwater anglers (2,437,000) was higher in 2001, but deemed not to be a significant difference from 2011 by the survey analysts.	National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (USFWS)
	1,367,933 FL salt/fresh water fishing license holders (2013)	- The average of all FL fishing license holders over a ten year period (2004 – 2013) was 1,326,021 (3.1% increase). The average of all FL fishing license holders over the last 309 cycle (2006 – 2010) was 1,387,204 (1.4% decrease).	National Fishing License Reports (USFWS)
Percent of monitored beaches under a EPA notification action	96.6% of beach days open and safe for swimming (2012)	Similar percentages in previous years, changing by +/- 1.5% since 2008	<u>EPA Beach Report 2012 (USEPA)</u>

- 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.²² There are several additional sources of statewide information that may help inform this response, such as the Statewide Comprehensive Outdoor Recreation Plan,²³ the National Survey on Fishing, Hunting, and Wildlife Associated Recreation,²⁴ and your state’s tourism office.

The Division of Recreation and Parks periodically surveys residents and tourists on their participation in outdoor recreation activities. The most recent survey conducted was the 2011 Florida Outdoor Recreation Participation Study, published in the Statewide Comprehensive Outdoor Recreation Plan (SCORP). The survey provides estimates on 26 different outdoor recreational activities for 2011.

Similar to the findings cited in the previous 309 assessment, the results show that many of the top participation activities either directly or indirectly relate to the coastal system. These include saltwater beach activities, wildlife viewing, fishing, boating, bicycling, picnicking, and visiting historical or archeological sites. Overall, 63% of residents and 49% of tourists participated in saltwater beach activities (SCORP Chapter 4, 2013).

Participation estimates are measured against supply, provided from the Outdoor Recreational Inventory, to generate a Level of Service indicator for each activity, both currently and projected into 2020. Regions with dense populations tend to have the greatest needs.

Saltwater Beach Activities

Region	% Participation*		Total Participation**		Level of Service (Linear Feet/1,000 Participants)	
	Residents	Tourists	2011	2020	2011	2020
Northwest	56	49	4,797,766	5,529,272	171.65	148.94

²² See NOAA’s Coastal Population Report: 1970-2020 (Table 5, pg. 9): <http://stateofthecoast.noaa.gov/coastal-population-report.pdf>

²³ 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/scorps.

²⁴ 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 2011 data to 2006 and 2001 information to understand how usage has changed. See www.census.gov/prod/www/fishing.html.

Region	% Participation*		Total Participation**		Level of Service (Linear Feet/1,000 Participants)	
	Residents	Tourists	2011	2020	2011	2020
North Central	61	49	1,401,282	1,594,591	6.9	6.06
Northeast	64	49	3,936,970	4,576,776	69.32	59.63
Central West	66	49	7,864,074	9,063,856	30.08	26.10
Central	58	49	15,470,090	18,041,492	NA	NA
Central East	60	49	3,951,010	4,559,720	109.03	94.48
Southwest	69	49	5,542,199	6,460,991	76.15	65.32
Southeast	64	49	11,237,444	12,766,640	28.18	24.80
Statewide	63	49	54,229,825	62,631,758	46.32	40.11

**Percent of participation represents the percentage of residents and tourists who participated in activity at least one time during the year*
*** Total participation represents the combined number of residents and tourists who participated in activity at least once time during the year*
BOLD numbers represent a number below the statewide median

Source: Statewide Comprehensive Outdoor Recreation Plan (SCORP) – Appendix H, 2013

The Northwest region has the highest level of service of any region, with a relatively small population and high availability of beaches. The Southeast region has a lower level of service due to high populations of residents and tourists, and reduced beach access due to private coastal development. The North Central region has the lowest level of service due to low availability of sandy beaches as a result of the low-energy Gulf coastline (SCORP Appendix H, 2013).

The population within the state’s 35 coastal shoreline counties is projected to increase by 1,616,597 people, or 11.39% percent, between 2010 and 2020 (University of Florida, Bureau of Economic and Business Research, 2014). The State of Florida will continue to be one of the fastest growing states in the country, with much of this growth taking place in the coastal areas.

As population increases, the level of service for saltwater beach activities is expected to decline due to increased demand and a lack of undeveloped beaches. Therefore, public access opportunities to the state’s existing saltwater beaches will need to be expanded to accommodate future demands (SCORP Appendix H, 2013).

SCORP does not calculate levels of service for certain outdoor activities, such as saltwater boating, since the resources that support them (open water areas) are extensive (SCORP Appendix H, 2013). However, quantifying demand and use of aquatic resources is necessary in order to evaluate and manage access to boat ramps, and human impacts on coastal and aquatic resources.

Florida’s aquatic managed areas, such as its 41 aquatic preserves, currently count visitor use using locally developed methods for data collection. As a result, data is collected using widely varying methods, levels of effort, and completeness. Unfortunately, these disparate methods are not directly comparable, and cannot be used to effectively evaluate visitor use or levels of service statewide.

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.

According to the Florida Assessment of Coastal Trends (FACT) 2010, increasing density of coastal populations and erosion caused by storms have contributed to a loss of public access points over time. However, as of 2010 there were 1,820 saltwater beach access points distributed along 825 miles of

Florida’s sandy beaches – approximately one access point every half mile. Saltwater beach activities have the highest participation of both residents and tourists out of recreation opportunities in Florida (SCORP, 2013).

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.

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.

No significant management changes regarding public access have occurred since the last assessment.

3. Indicate if your state or territory has a publically available public access guide. How current is the publication and how frequently it is updated?²⁵

Public Access Guide	Printed	Online	Mobile App
State or territory has? (Y or N)	State Park Brochures Florida Trail Brochures	1. Florida Coastal Access Guide (FCMP) 2. State Parks Map 3. State Trails Map 4. WMD Recreation Guides	Florida Pocket Ranger Official FL State Parks Outdoors Guide (parks, trails, and coastal access)
Web address (if applicable)	http://www.floridastateparks.org/resources/statewide.cfm	1. http://www.dep.state.fl.us/cmp/beachaccess/ 2. http://www.floridastateparks.org/findapark/default.cfm	http://www.pocketranger.com/apps/Detail/88e1a042-03f5-c63b-5bf8-d78622277c4e

²⁵ 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. However, you may choose to note that the local guides do exist and may provide additional information that expands upon the state guides.

Public Access Guide	Printed	Online	Mobile App
		3.http://www.floridastateparks.org/findapark/statetrailsmap.cfm 4.http://mysuwanneeriver.com/index.aspx?nid=59 http://floridaswater.com/recreation/ http://www.nfwmd.state.fl.us/lands/recreation/ http://www.swfwmd.state.fl.us/recreation/ http://my.sfwmd.gov/portal/page/portal/xweb%20protecting%20and%20restoring/recreation	
Date of last update	Varied	1.2012-Complete, 2014-Partial Update 2. Ongoing 3. Ongoing 4. Ongoing	Ongoing
Frequency of update	As Needed	As Needed	As Needed

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.

Managing submerged resources includes managing visitor impacts. Visitor numbers to submerged sites are difficult to calculate unless visitors access the site through an attended gate. Currently, estimates of visitor numbers of state-owned and managed uplands and submerged sites are reported annually to the Florida Legislature through the Land Management Uniform Accounting Council Annual Report. State agencies have varied methodologies for estimating visitor numbers to submerged resources, which vary widely among the agencies and from year to year. Developing a uniform methodology for state agencies which manage submerged resources will 1) produce more reliable numbers to inform state legislators and managers of the resource uses and interests of citizens and visitors, and the levels of service for those uses, and 2) allow managers to focus resources in high use areas and take measures to reduce impacts before they occur.

Phase II Assessment

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. Use the table below to provide additional data on public access availability within the coastal zone not reported in the Phase I assessment.

Public Access Status and Trends			
Type of Access	Current number ²⁶	Changes or Trends Since Last Assessment ²⁷ (↑, ↓, –, unkwn)	Cite data source
Access sites that are ADA compliant ²⁸ Parking	No. of Sites 650	unkwn	Florida Coastal Access Guide
	Percent of Sites 29.8%		
Access sites that are ADA compliant Accessible	No. of Sites 441	unkwn	
	Percent of Sites 20.2%		

According to Florida’s Coastal Access Guide, 650 out of 2,184 (≈ 29.8%) coastal access sites have ADA compliant parking. 441 out of 2184 (≈ 20.2%) coastal access sites are listed as “Accessible” by ADA standards.

In addition, the Florida Fish and Wildlife Conservation Commission (FWC) provides a list of ADA compliant freshwater fishing access sites. The Florida Division of Recreation and Parks (DRP) provides information on accessible fishing piers, trails, boat tours, and state parks with beach wheelchairs available.

2. What are the three most significant existing or emerging threats or stressors to creating or maintaining public access within the 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.

	Stressor/Threat	Geographic Scope (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

²⁶ 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.

²⁷ 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/unchanged since the last assessment, note that with a ↑ (increased), ↓ (decreased), – (unchanged). If the trend is completely unknown, simply put “unkwn.”

²⁸ For more information on ADA see www.ada.gov.

- 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.

According to FACT 2010 and SCORP 2013, Florida has a high level of satisfaction for coastal access. However, public access is continually changing due to conversion of land uses and erosion. Coastal access points are increasingly threatened landward, via privatization, and seaward, via erosion. As coastal population and development increases, encroachment threatens to cut off existing access points. Encroachment by sea is expected to increase due to the effects of sea level rise, increased flooding, and coastal storms, which may cause a loss of access points, beaches, and bridges. Additional stressors to providing coastal access in Florida are increasing demand and maintenance costs. Demand for public access includes demand for adequate facilities, such as parking and restrooms, in addition to access points, which requires more space and resources.

- 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	Ongoing need for research to update models to predict public access areas impacted by increased sea level rise and erosion

In-Depth Management Characterization:

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

- 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.

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)
Comprehensive access management planning	Y	Y	N
GIS mapping/database of access sites	Y	Y	N
Public access technical assistance, education, and outreach (including access point and interpretive signage, etc.)	Y	Y	N

- 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.

No significant management changes regarding public access have occurred 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 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?

Florida's Statewide Comprehensive Outdoor Recreation Plan 2013: The tenth edition of Florida's Statewide Comprehensive Outdoor Recreation Plan (SCORP), written in accordance with Florida Statute 375.021, documents recreational supply and demand, describes current recreational opportunities, estimates needs for additional opportunities, and proposes recommendations to meet those needs. Densely populated regions in the Northwest, Central West, Central and Southeast regions tend to have the greatest needs, and growing populations will increase demand statewide. The level of service provided for certain saltwater activities, such as boating, were not calculated since open water resources accommodate high demand. More reliable visitor counts would improve assessments of public access supply and demand.

State of Florida Land Management Uniform Accounting Council Annual Report 2014: The 2014 Annual Report contains a summary of Fiscal Year 2013 to 2014 expenditures by Florida's land management agencies. Some management costs are not included, such as costs for managing submerged lands, because it is difficult to quantify the actual acreage involved. Specific to Florida's coastal and aquatic managed areas, submerged lands are always open to the public for commercial and recreational use. Management of these lands by CMP partner agencies including the Florida Coastal Office and FWC enhances private industry and public recreation. For example, The Biscayne Bay Economic Study (2005) showed Biscayne Bay (including the Biscayne Bay Aquatic Preserves) contributed \$13.7 billion in output, \$6.9 billion in income, 143,000 jobs and \$686 million in tax revenue for Miami-Dade. During 2013 to 2014, the managed uplands of the three National Estuarine Research Reserves generated 703 jobs, \$2.5 million in sales tax revenues, and a total economic benefit of \$35.1 million to local communities.

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: _____ Develop Visitor Count Methodology _____

Description: Visitor numbers to submerged sites are difficult to calculate unless visitor access to the site is through an attended gate. State agencies have varied methodologies for estimating visitor

numbers to submerged resources. These methodologies vary widely among the agencies and from year to year. Developing a unified visitor count methodology will help produce more reliable data and assess visitor impacts.

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 to research and quantify value of recreation and public access. Estimating visitor will help quantify use.
Mapping/GIS	Y	Ongoing updates to coastal access guide
Data and information management	Y	Need to develop visitor count methodology
Training/Capacity building	Y	Need to train state agencies to use methodology
Decision-support tools	N	
Communication and outreach	Y	Need to keep public informed of public access opportunities

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.

The assessment identified a need for standardized statewide visitor count methodology. A uniform methodology will be developed to be applied by state agencies managing submerged resources throughout the state. The methodology will 1) produce more reliable numbers to inform State Legislatures and managers of the use and interest of its citizens and visitors of those resources, and 2) allow managers to focus resources in high use areas and take measures to reduce impacts before they occur.

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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 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.

Source of Marine Debris	Existing Status and Trends of Marine Debris in Coastal Zone		
	Significance of Source (H, M, L, unknwn)	Type of Impact ²⁹ (aesthetic, resource damage, user conflicts, other)	Change Since Last Assessment (↑, ↓, -, unknwn)
<i>Land-based</i>			
Beach/shore litter	H	User conflicts, aesthetic, resource damage	-
Dumping	M	Resource damage	-
Storm drains and runoff	M	User conflict, aesthetic, resource damage	-
Fishing (e.g., fishing line, gear)	M	Resource damage	-
Other (Shellfish Aquaculture Production Gear)	H	User conflict	-
<i>Ocean or Great Lake-based</i>			
Fishing (e.g., derelict fishing gear)	M	Resource damage, aesthetic, user conflicts	-
Derelict vessels	H	Aesthetic, resource damage	-
Vessel-based (e.g., cruise ship, cargo ship, general vessel)	M	Resource damage	-
Hurricane/Storm	M	Aesthetic, resource damage	-
Other (tire artificial reef)	H	Aesthetic, resource damage	-

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.

²⁹ You can select more than one, if applicable.

The Southeast Florida Reef Cleanup is an annual event held by the Southeast Florida Coral Reef Initiative (SEFCRI) through their Marine Debris Report and Removal Program. Volunteers collect and categorize marine debris into five main groups: 1) fishing debris (e.g., monofilament, leader, lure); 2) trash (e.g., bottles, cans, plastic bags); 3) household debris (e.g., plastic chair, bungee cord, ceramic tile); 4) boating debris (e.g., lines, zincs), and 5) scuba/snorkeling debris (e.g., snorkel, weight belt, mesh bag). The data in the table below indicate the two most prevalent marine debris categories for the past three cleanups are fishing debris and trash.

SE Florida Reef Cleanup Percent Contribution of Marine Debris by Group

Category	2011	2012	2013
Fishing	31.67%	43.70%	43.00%
Boating	15.00%	4.90%	8.00%
Diving	6.67%	2.10%	1.00%
Household	16.67%	10.30%	7.00%
Trash	30.00%	39.00%	41.00%

SE Florida Marine Debris Report and Removal Program, 2011-2013

Retrieval of Lost/Derelict Traps

The Florida Fish and Wildlife Conservation Commission (FWC) has two programs dedicated to removing lost and abandoned spiny lobster, blue crab, and stone crab traps. The chart below shows that the number of abandoned spiny lobster and blue crab traps collected have decreased since 2009. However, the number of stone crab traps removed increased in 2013.

Annual Number of Traps Removed

Year	Lobster	Stone Crab	Blue Crab
2009	4265	1306	1839
2010	1167	1139	1089
2011	843	1238	1781
2012	887	983	1214
2013	1963	2060	1618

Florida Fish and Wildlife Conservation Commission Lobster and Crab Trap Retrieval Program, 2009 - 2013

Derelict Vessels

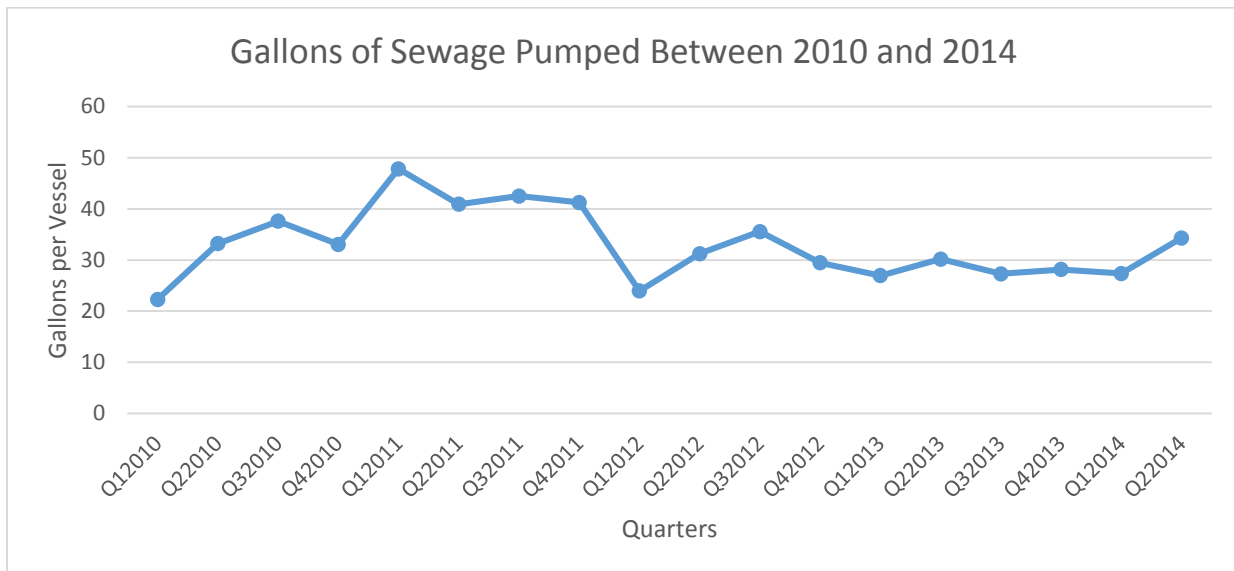
FWC is the primary authority for derelict vessels within the state. Derelict vessels are environmental hazards, as well as navigational hazards to other boaters. Although FWC and local authorities remove many derelict vessels from Florida waters, many remaining derelict vessels are illegitimately picked up by individuals or lost to the ocean. Data recorded by FWC show the number of derelict vessel cases opened in Florida increased sharply in FY 2011 (by 179 cases from FY 2010), but decreased back to FY 2010 levels by FY 2014. The number of cases closed by FWC also increased somewhat in FY 2011, and stayed around that level before decreasing in FY 2014.

# of Cases	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Opened	332	511	429	382	312
Closed	129	231	196	233	159

Florida Fish and Wildlife Conservation Commission Division of Law Enforcement, 2009-2014

Vessel-Based Sewage

The Florida Department of Environmental Protection's (DEP's) Clean Vessel Act Program records the amount of sewage pumped from vessels at marinas throughout the state. The Clean Marina Program requires and encourages clean facilities to perform regular trash management at their facilities. The Clean Boater Program encourages boaters to bring their trash back to shore and properly dispose of it. DEP records the amount of sewage pumped from vessels, along with the number of vessels and fees collected. Averaging the raw sewage data by the total number of vessels indicates there is not a substantial change in the amount of sewage pumped from vessels at marinas since the last assessment (between the second quarter (Q2) of 2010 and Q2 2014). However, there was some fluctuation during this period, with a sharp rise in the first quarter (Q1) of 2011 and a sharp drop in Q1 of 2012.



Florida Department of Environmental Protection Clean Marina Program, 2010 - 2014

Storm Drains and Runoff

Data collected from 76 surface water stations and 49 ground water wells by DEP for its 2014 Watershed Assessment showed no discernable trends in the quality of surface water. Some stations recorded increases in specific indicators (such as Chlorophyll a and coliform bacteria), but there were no statewide increases/decreases found.

Land-Based/Shore Litter

State data from the Ocean Conservancy's International Coastal Cleanup (ICC) show the amount of debris picked up has stayed roughly constant between 2010 and 2013, with beach data mirroring trends in the number of volunteers participating in the event (outside of an anomalous result from Golden Gate Canal, Collier County in 2012). According to the available data, small increases in the number of fishing gear and dumped appliances/building materials have occurred since 2011. The FCMP uses the ICC data in its outreach efforts to encourage participation in the annual coastal cleanup event.

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.

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	N
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.

Marine Debris and Aquaculture Use Zones

Using CZM 309 funds, the Florida Department of Agriculture and Consumer Services (DACS), Division of Aquaculture proposed to revise the state’s Aquaculture Best Management Practices (BMPs) to provide guidance for the problem of marine debris in aquaculture use zones. Before this project, there were no existing BMP resources to educate shellfish farmers to help reduce marine debris. DACS revised these BMPs, conducted shellfish processor workshops, and has contracted, installed, and managed marine debris collection containers at seven shellfish processor or publically accessible locations. DACS has also contracted for removal of marine debris at deepwater sites (usually around 15 feet) that experience strong tidal flow.

Marine Debris Emergency Response Program

Local and state agencies, in coordination with the FCMP, can implement actions and resources to respond to the presence of marine debris of unknown origins that pose an imminent threat to health, human safety, or natural resources. The program is designed to address extraordinary marine debris that may exceed the capabilities of local or state agencies to collect, handle, transport, and properly dispose of marine debris. Extraordinary marine debris includes large fishing nets, heavy towing cables, and other debris which require heavy lifting or commercial salvagers to recover, and for which there may be substantial disposal costs, including recovery of sensitive natural resources such as coral reefs. Partnerships between FDEP, FWC, United States Coast Guard (USCG), and others organize rapid response teams to react to these marine debris emergencies.

Florida Fish and Wildlife Conservation Commission AT RISK Vessel Program

Initiated in 2010, FWC coordinates with 59 other law enforcement agencies throughout the state to reduce the number of derelict vessels that cause both navigational and environmental hazards in Florida’s waterways. When law enforcement personnel observe vessels displaying indicators which

usually precede a derelict condition, officers attempt to communicate with the vessel owners. Usually, the owners of the vessel respond positively and bring the vessel into better condition. If the vessel becomes legally derelict, the vessel may be removed by law enforcement authorities at the vessel owner's expense.

Broward County Tire Removal

In 2012, Broward County proposed to continue removal of waste tires from the Osborne Reef, near Ft. Lauderdale. These tires are part of a 700,000 tire artificial reef created in the 1970's, but loose tires from the reef have been damaging nearby coral reefs and other sensitive environmental areas. The project proposed to leverage local funding to build off of previous removal efforts. In October 2014, DEP contracted with Industrial Divers Corporation of Fort Lauderdale to remove 100,000 tires from the site over a 12-18 month period.

Derelict Fishing Gear Identification and Removal Project: Miami-Dade County

In partnership with Miami-Dade Sea Grant Extension and NOAA's Southeast Fisheries Science Center, Miami-Dade County planned this project in order to reduce impacts of derelict fishing gear in waters surrounding the Florida Keys Reef Tract and Biscayne Bay. The project identified sensitive and impacted areas in the selected regions using the NOAA Fisheries Reef Fish Visual Census, developed derelict fishing gear criteria, removed (about) 1000 derelict traps from Biscayne Bay, and enhanced and restored nearshore marine ecosystems in 145 square miles of Miami-Dade County.

Debris Removal in Sea Turtle and Shorebird Habitat in Northwest Florida

The University of Florida targeted removal of shoreline debris from an area of about 47 mi (74 km) in northwest Florida from St. George Island (Franklin County) to Santa Rosa Beach (Walton County). These cleanups were scheduled before sea turtle nesting season, which reduced negative impacts of debris upon nesting activities. The project also collected data on the identification and mapping of debris location, density, and composition in conjunction with sea turtle and seabird surveys.

Debris Removal for Sea Turtle Nesting Habitat Restoration in Biscayne National Park

In 2013, the Coastal Cleanup Corporation looked to restore critical sea turtle nesting sites in Elliot Key. Fifteen cleanups were scheduled within Biscayne National Park where volunteers focused on removing plastics, glass, foamed plastics, rubber, and discarded fishing gear, which could interfere with female sea turtles making their way from the ocean to their nesting sites.

Enhancement Area Prioritization:

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

High	<u> X </u>
Medium	<u> </u>
Low	<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, an emergency marine debris removal program is being organized by FCMP, FWC, USCG, and local authorities to respond to extraordinary marine debris (e.g., towing lines draped over coral reefs and large, loose commercial fishing nets), and FWC continues its effort to reduce the number of derelict vessels through its AT RISK program. In addition, local authorities throughout the state continue their participation in the Ocean Conservancy’s International Coastal Cleanup, which has collected over 1.3 million pounds of debris from our shores and waterways over the last four years.

In a previous 309 strategy, Marine Debris and Aquaculture Use Zones, DACS proposed to reduce the amount of marine debris resulting from aquaculture facilities by implementing best management practices. Significant challenges to reducing marine debris remain, such as the ongoing threat of coastal storms, hurricanes, and flooding, which contribute significant amounts of debris to coastal waters.

Phase II Assessment

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 the coastal zone? Indicate the geographic scope of the challenge, i.e., is it prevalent throughout the coastal zone or is a specific area(s) 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/removal; research and monitoring; education and outreach; or other (please specify). When selecting significant challenges, also consider how climate change may exacerbate each challenge.

	Challenges	Geographic Scope (throughout coastal zone or specific area(s) most threatened)
Challenge 1	Derelict Vessels	Throughout coastal zone
Challenge 2	Derelict Fishing Gear	Throughout coastal zone
Challenge 3	Vessel-based Sewage	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.

With over 1,197 miles of coastline and 2,276 miles of tidal shoreline, derelict vessels are a significant problem along Florida’s coast and waterways. In addition to effects on aesthetic vistas, there have been many documented cases of physical damage to benthic resources, such as seagrasses and corals, caused by derelict vessels. There have also been many documented cases of pollution caused by submerged derelict vessels via the discharge of fuels, oils, and other toxins into Florida waters. Many submerged derelict vessels have been struck by both commercial and recreational vessels causing concern for human safety and value of life upon Florida’s waterways (P. Horning, FWC, personal communication, 2014).

A substantial component of the submerged marine debris in Florida is from the lobster, stone crab and blue crab trap fisheries. Trap debris appears to be caused primarily by boat propellers disconnecting traps from their floating buoys, and hurricanes/coastal storms. The lost traps harm seagrass, coral, and protected species, and reduce the number of lobster and crabs available to the fishery. Trap debris is also an aesthetic issue affecting south Florida's diving and tourist economy. The vulnerability of traps to propellers presents a space and user conflict, which is difficult to manage. It is also challenging to improve the resiliency of traps to hurricanes and storms (T. Matthews, FWC, personal communication, 2014).

The size and scale of Florida's boating industry makes vessel-based sewage a significant marine debris-related challenge, and a management concern. Florida's \$56 billion tourism industry, \$14 billion marine industry, and \$6.6 billion fishing industry rely on clean waterways and coastlines (FDEP Clean Marina Program, 2015). Florida's Clean Marina and Clean Boater programs educate boaters and marina managers on the effects of marine debris in Florida's waters. The Clean Marina Program requires and encourages clean facilities to perform regular trash management at their facilities, and the Clean Boater Program encourages boaters to bring their trash back to shore and properly dispose of it (B. Leonard, DEP, personal communication, 2014).

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

Emerging Issue	Information Needed
Fishing Techniques and Gear	Risks associated with modification of fishing techniques and locations related to lost fishing gear
Habitat Marine Damage	Distribution and frequency of lost material contributions from vessels (commercial and recreational)

In-Depth Management Characterization:

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

- 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.

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	N
Marine debris technical assistance, education, and outreach	Y	Y	Y
Marine debris reduction programs (litter control, recycling, etc)	Y	Y	Y

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 emergency 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.
- Describe significant change(s) since the last assessment;
 - Specify if it was a 309 or other CZM-driven change; and
 - Characterize the outcomes and/or likely future outcomes of the change(s).

Marine Debris and Aquaculture Use Zones

Using CZM 309 funds, the Florida Department of Agriculture and Consumer Services (DACS), Division of Aquaculture proposed to revise the state’s Aquaculture Best Management Practices (BMPs) to provide guidance for the problem of marine debris in aquaculture use zones. Before this project, there were no existing BMP resources to educate shellfish farmers to help reduce marine debris. DACS revised these BMPs, conducted shellfish processor workshops, and has contracted, installed, and managed marine debris collection containers at seven shellfish processor or publically accessible locations. DACS has also contracted for removal of marine debris at deepwater sites (usually around 15 feet) that experience strong tidal flow.

New BMPs for shellfish culture and marine net pens and cages, aim to prevent production gear losses off the lease site. Mollusk farmers must properly dispose of worn or damaged bags, netting, or other materials. Marine pen or cage operations must develop, implement, and maintain a solid waste management plan, which includes proper disposal of feed bags, packaging, and other materials. These requirements are reiterated in the sovereignty submerged land aquaculture lease agreement.

Marine Debris Emergency Response Program

Local and state agencies, in coordination with the FCMP, can implement actions and resources to respond to the presence of marine debris of unknown origins that pose an imminent threat to health, human safety, or natural resources. The program is designed to address extraordinary marine debris that may exceed the capabilities of local or state agencies to collect, handle, transport, and properly dispose of marine debris. Extraordinary marine debris includes large fishing nets, heavy towing cables, and other debris which require heavy lifting or commercial salvagers to recover, and for which there may be substantial disposal costs, including recovery of sensitive natural resources such as coral reefs. Partnerships between FDEP, FWC, United States Coast Guard (USCG), and others organize rapid response teams that to react to these marine debris emergencies.

Florida Fish and Wildlife Conservation Commission AT RISK Vessel Program

Initiated in 2010, FWC coordinates with 59 other law enforcement agencies throughout the state to reduce the number of derelict vessels that cause both navigational and environmental hazards in Florida’s waterways. Law enforcement personnel attempt to communicate with vessel owners; when officers observe vessels displaying indicators that usually precede a derelict condition, officers will tag the “at risk vessel” and list the indicators present. If the indicators are repaired or corrected, and the responding officer is notified, the vessel will have its “at risk” status removed. Failure to correct or repair

the listed indicators will result in a Derelict Vessel Investigation, which may involve criminal charges. Usually, vessel owners respond positively and bring the vessel into better condition. If the vessel becomes legally derelict, the vessel may be removed by law enforcement authorities at the vessel owner's expense.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state or territory's management efforts to reduce marine debris since the last assessment. If not, is there any information that you are lacking to assess the effectiveness of the state or territory's management efforts?

According to data collected by FWC, approximately 60% of derelict vessel cases reported to law enforcement are removed by their owners after a warning. The state's effectiveness in the management of derelict vessels relies on the funding available for the removal of derelict vessels. Counties are now responsible for this funding, which is more costly than they can afford. As volunteers and funding resources have become increasingly scarce, the number of derelict vessels have increased statewide (P. Horning, FWC, personal communication, 2014)

A joint study between NOAA, FWC, and the Keys Marine Laboratory, published in 2014 examined lobster trap debris patterns of accumulation in the Florida Keys National Marine Sanctuary. The study found that trap debris was not proportionally distributed with fishing effort. The highest concentrations of trap debris were found to be on or near coral reefs, even after fishermen insisted that they avoided the reefs. This result was due to the effect of wind distribution on the lost traps, causing them to move from their original locations. It was estimated that 85,548 ghost traps and 1,056,127 non-fishing traps (or remnants of traps) were present in the study area. The study suggested that given the large numbers of traps in the fishery and the lack of effective measures for managing the loss of gear, the generation of debris will likely continue alongside the number of traps deployed (Uhrin, Matthews, and Lewis, 2014).

A University of Miami study published in 2012 created a GIS model of marine debris "hot spots." Five years of derelict lobster trap removal data from Biscayne National Park were analyzed to assess removal efficiency and develop a spatial mapping tool to guide future removal. Remotely-sensed data and validated locations of previous debris collection were combined. The resulting spatial models showed regions of debris accumulation, helping to reduce the search area by 95% and encompassing 100% of the validated sites. However, the amount of debris removed increased with increased effort, suggesting that the overall amount of debris may be exceeding current removal capabilities (Martens and Huntington, 2012).

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 their management effort to better respond to the most significant marine debris challenges. *(Approximately 1-3 sentences per management priority.)*

Management Priority 1: Planning and outreach to mitigate derelict vessels

Description: New strategies to plan for and mitigate the physical and chemical damage to environmentally and economically important resources caused by derelict vessels need to be

enacted statewide. Additional/improved education programs to inform the public about derelict vessel impacts are also necessary.

Management Priority 2: Planning and outreach to mitigate derelict fishing gear

Description: Crustacean traps make up a large portion of the marine debris generated in Florida. Lessons and tactics learned from previous projects, including the Marine Debris and Aquaculture Use Zones project mentioned above, need to be expanded to more locations.

Management Priority 3: Collection of more comprehensive marine debris data in multiple categories

Description: More complete and consistent data collection in multiple marine debris categories would greatly aid state and local agencies in understanding the scale of debris problems, and aid in mitigation efforts.

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 monitoring, planning, and outreach techniques
Mapping/GIS	Y	Maps for derelict vessels already exist. Data is lacking, however.
Data and Information Management	Y	Many data sources are incomplete. More comprehensive data regarding multiple marine debris categories is needed.
Training/Capacity Building	Y	Resources to collect derelict vessels, fishing gear, and other marine debris need to be enhanced and expanded
Decision Support Tools	Y	Pre-planning for marine debris emergencies (such as the Emergency Marine Debris Response team) need to be expanded
Communication & Outreach	Y	Policies to enable the public to contact FWC and local authorities to collect derelict equipment (especially vessels) need to be encouraged

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.

The state needs to focus on the management of derelict vessels and mitigating derelict vessel impacts to protect vital regions of Florida’s waterways and coastlines. A strategy will be proposed to enhance derelict vessel planning, outreach, and mitigation efforts in a Monroe County pilot project conducted by Monroe County officials with FWC cooperation.

REFERENCES

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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 Assessment

Resource Characterization:

- Using National Ocean Economics Program Data on population and housing,³⁰ please indicate the change in population and housing units in the state’s coastal counties between 2012 and 2007. 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 (2012-2007) to approximate current assessment period.

Trends in Coastal Population and Housing Units				
Year	Population		Housing	
	Total (# of people)	% Change (compared to 2002)	Total (# of housing units)	% Change (compared to 2002)
2007	13,840,794	7.4%	6,747,752	11.7%
2012	14,584,428	12.1%	6,940,168	14.2%

- Using provided reports from NOAA’s Land Cover Atlas³¹, please indicate the status and trends for various land uses in the state’s coastal counties between 2006 and 2011. You may use other information and include graphs and figures, as appropriate, to help illustrate the information.

Distribution of Land Cover Types in Coastal Counties		
Land Cover Type	Land Area Coverage in 2011 (Acres)	Gain/Loss Since 2006 (Acres)
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

³⁰ www.oceaneconomics.org/. Enter “Population and Housing” section. From drop-down boxes, select your state, and “all counties.” Select the year (2012) and the year to compare it to (2007). Then select “coastal zone counties.” Finally, be sure to check the “include density” box under the “Other Options” section.

³¹ www.csc.noaa.gov/ccpatlas/. Summary data on land use trends for each coastal state is available on the ftp site.

Between 2006 and 2011, total scrub/shrub land cover increased by the largest acreage, followed by low to high intensity developed areas. Acreage of barren land and developed open space increased and decreased respectively, by moderate amounts. Open water and grassland showed minimal gains. The largest decreases in acreage were experienced by agriculture, forests, and wetlands.

- Using provided reports from NOAA’s Land Cover Atlas³², please indicate the status and trends for developed areas in the state’s coastal counties between 2006 and 2011 in the two tables below. You may use other information and include graphs and figures, as appropriate, to help illustrate the information

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%)

Percent land area developed and percent impervious surface area increased between 2006 and 2011.

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

Wetlands and agriculture lost the greatest acreage to development, followed by barren land, grassland, forested land, and scrub/shrub. Land cover classified as open water, which has less than 25 percent cover of vegetation or soil, lost minimal acreage (772.1 acres ≈ 1.2 sq. miles).

- Using data from NOAA’s State of the Coast “Shoreline Type” viewer,³³ indicate the percent of shoreline that falls into each shoreline type.³⁴ You may provide other information or use graphs or other visuals to help illustrate.

Shoreline Types	
Surveyed Shoreline Type	Percent of Shoreline
Armored	20%
Beaches	8%
Flats	3%
Rocky	0%
Vegetated	69%

³² www.csc.noaa.gov/ccapatlas/. Summary data on land use trends for each coastal state is available on the ftp site.

³³ <http://stateofthecoast.noaa.gov/shoreline/welcome.html>

³⁴ Note: Data are from NOAA’s Environmental Sensitivity Index (ESI) Maps. Data from each state was collected in different years and some data may be over ten years old now. However, it can still provide a useful reference point absent more recent statewide data. Feel free to use more recent state data, if available, in place of ESI map data. Use a footnote to convey data’s age and source (if other than ESI maps).

The majority of Florida's shoreline is vegetated (e.g., wetland vegetation, mangroves, etc.). Twenty percent of the shoreline is armored by manmade structures (e.g., seawalls) designed to prevent erosion and protect buildings.

5. If available, briefly list and 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 and habitat fragmentation, since the last assessment to augment the national data sets.

Integrated Water Quality Assessment for Florida 2014: Florida's sections 303(d), 305(b), and 314 report to the U.S. Environmental Protection Agency under the Federal Water Pollution Control Act (Clean Water Act), uses data from Florida's Department of Environmental Protection (DEP) Ambient Monitoring Networks, Total Maximum Daily Loads Program, and other state agencies and universities to provide an overview of the status and overall condition of Florida's surface and groundwater.

- The most frequently cited causes of impairment for rivers, streams, lakes, and estuarine segments are dissolved oxygen, fecal coliform, mercury (in fish tissue), and nutrients.
- Specifically, the most frequently cited causes of impairment for estuarine segments assessed are mercury (in fish tissue), dissolved oxygen, nutrients, and fecal coliform; and for coastal segments assessed: mercury (in fish tissue) and dissolved oxygen.
- Nitrate remains the greatest contaminant of concern in surface waters that receive groundwater input.
- Groundwater wells show increasing signs of saltwater intrusion (increases in calcium, sodium, chloride, and potassium in groundwater samples), increasing trends in rock-matrix indicators (increases in calcium, magnesium, potassium, and alkalinity within the rock-matrix), and decreasing trends in groundwater pH.
- The overall quality of potable aquifers was good, but arsenic, pesticides, nitrates, and volatile organic compounds remain contaminants of greatest concern for groundwater.

Literature Review and Synthesis of Land-Based Sources of Pollution Affecting Essential Fish Habitats in Southeast Florida (2013): 144 publications and technical reports were reviewed and synthesized to identify and describe the effects of land based sources of pollution on marine and estuarine habitats. The cumulative effects of degraded water quality cause changes in marine and estuarine habitats and community structure.

- The discharge of treated and untreated wastewater, stormwater from urban development, and agriculture, as well as increased watershed populations have contributed to habitat and water quality degradation in southeast Florida.
- Excess nutrient pollution, sedimentation, and turbidity caused by land based development negatively affect coral reefs, mangroves, seagrass, oyster reef and shell habitats, soft-bottom, and hard bottom and worm reef habitats. The effects of pathogens are habitat specific, and pollutants such as heavy metals and hydrocarbons affect oyster and seagrass habitats to a greater degree than other habitats. The impacts of personal care products and pharmaceuticals have not been studied well enough to determine the level of threat they pose to marine and estuarine habitats.
- Excess nutrient pollution in coastal waters have coincided with an increase in harmful algal blooms

Harmful Algal Blooms: Harmful algal blooms (HABs) are a recurring phenomenon along Florida’s east and west coasts. Since the last assessment, algal blooms of various species occurred throughout the Gulf—*Karenia brevis* blooms are a nearly annual occurrence, and caused the death of over 200 manatees in 2013. Although the algal species involved are not necessarily toxic, they often cause fish kills by depleting dissolved oxygen content—an important factor of water quality.

Water quality is a particular concern within the Indian River Lagoon system. Early spring to late fall in 2011 saw two phytoplankton blooms within the system, causing a reduction of roughly 47,000 acres of seagrasses (accounting for almost 60% of the total coverage), and the death of a variety of marine life, including large losses of manatees, pelicans, and bottlenose dolphins. The cause of the phenomenon appears to have been a combination of numerous events that impacted nutrient loading into the lagoon, such as long-term droughts and long-term nutrient enrichment. Subsequent brown tide blooms in 2012 and 2013, as well as continuing deaths of manatees, pelicans, and dolphins, have maintained concern about water quality and HABs in the Indian River Lagoon (SJRWMD, 2013).

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.

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 SAMPs)	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, policies:

Section 373.4131, F.S.: Effective July 1, 2012, Section 373.4131, F.S. required DEP and Florida’s five water management districts to develop statewide environmental resource permitting (ERP) rules. Chapter 62-330, Florida Administrative Code (F.A.C.) was amended to serve as the primary rule (detailed below), to achieve a more consistent, effective, and streamlined approach to implement the ERP program. This was not a 309 driven change, but will be implemented by FCMP partners.

Several administrative rule changes (not 309 driven) have been implemented since the last assessment, which may have implications for future cumulative and secondary impacts on coastal resources. These include, but are not limited to, the following revisions to the F.A.C.:

- **New Statewide ERP rule (SWERP) (Chapter 62-330, F.A.C.)** – An Environmental Resource Permit is required for development or construction to prevent flooding and to protect water quality, wetlands, and other surface waters. Effective October 1, 2013 (with subsequent amendments), Chapter 62-330, F.A.C. became the new statewide rule for implementing the Environmental Resource Permitting (ERP) program under Section 373.4131, F.S. With this new program, one rule applies to all of the water management districts and DEP rather than five similar but different rules, which provides for consistent thresholds, types of permits, and procedures governing the review of applications, modifications and operational requirements.
- **New dissolved oxygen criteria for surface waters (Chapters 62-302.533, F.A.C.)** – Effective August 1, 2013, Chapter 62-302.533, F.A.C. established new dissolved oxygen criteria for Class I (potable water supplies), Class III (fish consumption; recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife), and Class III-Limited waters (fish consumption; recreation or limited recreation; and/or propagation and maintenance of a limited population of fish and wildlife). Prior to the adoption of this new criteria, Florida’s dissolved oxygen criteria were adopted more than thirty years ago. The new criteria provide updated standards to facilitate monitoring, compliance, and enforcement, which may improve the management of cumulative and secondary impacts.
- **New numeric nutrient criteria for surface waters and estuaries (Chapter 62-302.531 & .532, F.A.C.)** – Numeric nutrient criteria are measurable levels of nitrogen and phosphorus (nutrients) set at values that will protect the designated uses of a waterbody from the harmful effects of nutrient pollution. Chapter 62-302.531 & .532, F.A.C. became effective July 3, 2012 and August 20, 2013 respectively, providing for numeric interpretations of the existing narrative nutrient criteria from Chapter 62-302.50(47)(a) and (b), F.A.C. The numeric criteria provide clear standards for monitoring, compliance, and enforcement, which may improve the management of cumulative and secondary impacts.
- **New allocations of Total Maximum Daily Loads (TMDLs) (Chapter 62-304, F.A.C.)** – Effective June 7, 2013, Chapter 62-304, F.A.C. established TMDLs and their allocations, for waters that have been verified to be impaired by a pollutant pursuant to Chapter 62-303, F.A.C. The Chapter lists TMDLs for Florida’s basins, some of which were previously adopted. The new allocations of TMDLs provide clear standards for inputs into impaired waterbodies that must be met over time, which may facilitate the management of cumulative and secondary impacts.

Community Planning Act 2011: See Coastal Hazards

Guidance documents:

ERP Applicant’s Handbook Volumes I and II: DEP and Florida’s five water management districts developed Applicant’s Handbooks for guidance in understanding the rules, procedures, standards, and criteria of the ERP program. Volume I is adopted by DEP and applies statewide to all regulated activities, and Volume II is adopted by DEP and by the water management districts for use within the geographical area of each applicable district.

Management Plans:

Basin Management Action Plans (BMAP) Adopted: BMAPs provide a comprehensive set of strategies in order to reduce pollutant loadings to meet the allowable loadings set by Total Maximum Daily Loads (TMDLs) of specific pollutants. These local plans are developed to restore impaired waters, without CZM funds.

- Santa Fe River (February, 2012)
- Lake Harney, Lake Monroe, Middle St. Johns River, and Smith Canal (August, 2012)
- Everglades West Coast Basin (November, 2012)
- Caloosahatchee Estuary Basin (November, 2012)
- Indian River Lagoon (February, 2013)
- St. Lucie River and Estuary (May, 2013)
- Alafia River Basin (April, 2014)
- Upper Ocklawaha River Basin (July, 2014)
- Orange Creek (July, 2014)
- Lake Okeechobee (December, 2014)

Surface Water Improvement and Management (SWIM) Plan updates: 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.

- **St. Johns River Water Management District:** Orange Creek Basin SWIM plan approved 2011
- **Northwest Florida Water Management District:** Ochlockonee River & Bay and Perdido River & Bay initial draft plans developed, but not finalized

Enhancement Area Prioritization:

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

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

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. 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 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 Florida’s Coastal Management Program.

Phase II 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 the 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.

	Stressor/Threat	Coastal Resource(s)/Use(s) Most Threatened	Geographic Scope (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.

FWC’s State Wildlife Action Plan (SWAP) identified coastal development as a significant stressor to many coastal habitats including: annelid reef, beach/surf zone, bivalve reef, coastal tidal river or stream, coral reef, inlet, mangrove swamp, salt marsh, seagrass, subtidal unconsolidated marine/estuary sediment, and tidal flat. The effects of coastal development include degraded water quality, habitat fragmentation, habitat disturbance, and altered species composition. As Florida’s coastal population continues to grow, the cumulative effects of coastal development will increase, reducing the resiliency of coastal habitats and ocean resources to sea level rise. In addition, sea level rise will present new challenges including pollution from abandoned infrastructure, such as septic tanks.

Polluted runoff and stormwater as a result of coastal development, agriculture, and inadequate stormwater and sewage management and maintenance is a significant threat to water quality. The health of coastal and ocean habitats such as bivalve reef, coral reef, coastal tidal streams, and submerged aquatic vegetation, are particularly susceptible to declining water quality. Sea level rise may exacerbate the effects of runoff in Florida’s surface waters, necessitating proactive management and stormwater system retrofitting to mitigate the effects of saltwater intrusion, changes in precipitation, and flooding.

Shoreline modification (particularly shoreline hardening) threatens Florida’s annelid reefs, beach/surf zone, coastal strand, coastal tidal rivers or 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 utilizing hardening shorelines to protect coastal development is expected to increase.

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	Ongoing need for research and data support to update models and data layers to analyze built infrastructure vulnerability
Ocean acidification	Analysis of threats to FL’s wildlife, ecosystems, and economy
Apalachicola oyster reefs	Analysis of the multiple sources of water quality stressors affecting Apalachicola’s economically important oyster reefs, as well as potential impacts of ocean acidification
Indian River Lagoon system	Research on multiple sources of water quality stressors affecting the IRL system, contributing to harmful algal bloom events, seagrass die-off, and manatee and bird mortality events

In-Depth Management Characterization:

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

1. 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.

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)
Methodologies for determining CSI impacts	Y	Y	Y
CSI research, assessment, monitoring	Y	Y	Y
CSI GIS mapping/database	Y	N	Y
CSI 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.

Methodologies for determining CSI impacts and CSI research, assessment, monitoring: Various statutes, guidance documents, and management plans have been adopted or updated since the last assessment, which provide methodologies for determining CSI impacts, and describe CSI research, assessment, and monitoring activities. See Phase I Management Characterization for details.

CSI GIS mapping/database:

Coral Reef and Hardbottom Mapping, Monitoring, and Management Program: See Ocean Resources

CSI technical assistance, education and outreach:

Community Resiliency: Planning for Sea Level Rise (309): See Coastal Hazards

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 Surface Water Improvement and Management Plans, Basin Management Action Plans, 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.

Management Priority 2: Coastal Resiliency

Description: The need for a comprehensive, multi-agency approach to incorporate coastal resiliency into management decisions has been identified through stakeholder involvement, in regards to both urban shorelines and natural habitats. Specifically, there is a need to incorporate objectives which promote stormwater retrofitting, flood abatement and recovery, shoreline stabilization and infrastructure upgrades.

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 to evaluate the status of coastal and ocean resources, as well as long term effects from the Deepwater Horizon Oil Spill; comprehensive resource assessments
Mapping/GIS	Y	Ongoing need to update/enhance current mapping projects, including mapping of habitat/resources and restoration projects. There is also a need to map shoreline, intertidal and subtidal habitats, particularly along urban shorelines
Data and information management	Y	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	Need training for incorporating coastal resiliency into local comprehensive plans; need capacity building for cross-agency collaboration
Decision-support tools	Y	Need easily accessible resource assessments that can be incorporated into tools for local management decisions
Communication and outreach	Y	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

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.

The assessment has identified priorities for enhanced resource assessment, mapping, data management, capacity building, decision support, and communication to evaluate cumulative and secondary impacts of coastal growth and development. Considering the complexity of cumulative and secondary impacts, and the numerous programs in place that address them, a strategy will be developed to coordinate and assess resource information for state and local decisions.

Key components of this strategy will include the implementation and utilization of monitoring and mapping efforts and assessments at scales appropriate for ecologically based management decisions. The strategy will develop assessments that can be easily referenced for local decisions. Additionally, the assessments may be used to develop outreach materials to enhance public awareness of local resources.

The strategy will focus on areas where aquatic management programs have been established. These programs are ideally situated to consider both land based activities and aquatic resources. This coordination will assist the state and place-based managers in making management, regulatory, preservation, and restoration decisions regarding cumulative and secondary impacts on coastal resources.

To promote a comprehensive approach to coastal resiliency, an Adaptation Action Initiative is proposed under the Coastal Hazards and Special Area Management Planning enhancement areas, which may benefit the management of cumulative and secondary impacts of coastal growth and development.

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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 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 special area management plan (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 & 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. No reports on status and trends of special area management planning in the state of Florida have been completed since the last assessment.

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 help prepare and implement SAMPs in the coastal zone.

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 Policies:

Community Planning Act 2011: See Coastal Hazards

SAMP Plans:

National Estuarine Research Reserve (NERR) Management Plan updates: The national system of Estuarine Research Reserves provides opportunities for long-term research, education, stewardship, and conservation of various regional estuarine types, through federal-state cooperation. Updated management plans describe the natural and cultural resources within NERR boundaries, and identify priorities to strategically research, monitor, protect, and manage the described resources, as well as provide public access and education opportunities.

- **Rookery Bay National Estuarine Research Reserve Management Plan:** approved by Florida Acquisition and Recreation Council (ARC) February, 2012; approved by NOAA October, 2012; approved by Board of Trustees of the Internal Improvement Trust Fund March, 2014
- **Apalachicola National Estuarine Research Reserve Management Plan:** approved by ARC August, 2013; approved by NOAA February, 2014

Aquatic Preserve (AP) Management Plan updates: The long-term goals of the AP Program are to protect and enhance the ecological integrity of aquatic preserves; restore areas to their natural

condition; encourage sustainable use and foster active stewardship by engaging local communities in the protection of aquatic preserves; 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. 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 instead of 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 the Acquisition and Restoration Council (ARC).

- **Biscayne Bay Aquatic Preserves Management Plan:** approved by ARC June, 2012
- **Apalachicola National Estuarine Research Reserve Management Plan (including Apalachicola Bay Aquatic Preserve):** approved by ARC August, 2013
- **Big Bend Seagrasses Aquatic Preserve Management Plan:** approved by ARC April, 2014
- **Estero Bay Aquatic Preserve Management Plan:** approved by ARC August, 2014
- **Wekiva River Aquatic Preserve Management Plan:** approved by ARC October, 2014
- **Indian River Lagoon Aquatic Preserves Management Plan:** draft completed and reviewed by public and advisory committee September, 2014

Estuarine Habitat Restoration Planning Guide for Florida: Developed by the St. Johns River Water Management District as part of a 309 strategy, which includes the Northeast Florida Estuarine Habitat Restoration Plan (below). Completed in 2013, the document provides guidance for regional estuarine habitat restoration plans in Florida, fulfilling a program change by establishing new statewide guidelines for estuary restoration.

The Northeast Florida Estuarine Habitat Restoration Plan: Completed in 2014 as part of the 309 strategy to develop and test statewide estuary planning and guidance for estuary restoration, the plan coordinates regional management and funding efforts to improve restoration activities and success.

SAMP for Florida Fish and Wildlife Conservation Commission's (FWC) Critical Wildlife Areas (CWAs): A 309 strategy completed in 2012 to develop a SAMP for the FWC's CWA system. CWAs protect important wildlife areas from human impacts, and implementing a SAMP for the CWA system allows for statewide coordination and management.

Southwest Florida Regional Ecosystem Restoration Plan 2013: Three Southwest Florida National Estuary Programs (NEPs), Tampa Bay, Sarasota Bay, and Charlotte Harbor, developed a plan to advise the Gulf Coast Ecosystem Restoration Council and the State of Florida on restoration needs in Southwest Florida for projects under the 2012 RESTORE Act.

Species Action Plans: FWC completed 60 final draft Species Action Plans in 2013 without CZM funds, which describe individual species threats and conservation needs. The plans are expected to be approved in 2015, and will be included in a comprehensive Imperiled Species Management Plan for Florida.

Community Resiliency: Planning for Sea Level Rise (309): See Coastal Hazards

Enhancement Area Prioritization:

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

High	<u> X </u>
Medium	<u> </u>
Low	<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. Examples include Florida’s Aquatic Preserve Management Plans. Florida’s Aquatic Preserves encompass approximately 2.2 million acres. All but four of the aquatic preserves are located along Florida’s 8,400 miles of coastline in the shallow waters of marshes and estuaries. The preserves provide a system of significant protections to ensure that Florida’s most popular and ecologically important underwater ecosystems are cared for in perpetuity. Each of these special places is managed with strategies based on local resources, issues, and conditions and are developed through a stakeholder engagement process resulting in site specific management plans.

A more focused aquatic preserve management plan format was developed and is being implemented at numerous aquatic preserves and buffer preserves across the state. The revised format is less redundant, while still meeting statutory requirements, and focuses energy on addressing major key issues instead of 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 the Acquisition and Restoration Council (ARC). Updating Aquatic Preserve Management Plans remains a top priority to effectively manage Florida’s ocean and coastal resources.

Florida communities are also starting to develop sea level rise Adaptation Action Plans. A major component of an Adaptation Action Plan is one or more special management overlay areas. In 2011, the Florida Legislature adopted “Adaption Action Areas” language into statute (see Sections 163.3164(1) and 163.3177(6)(g)(10), Florida Statutes). It is very likely that communities will use these Action Areas as Special Area Management devices, in which communities choose to focus or limit actions in these special areas. A strategy will be proposed to support local communities incorporate coastal hazard adaptation into their comprehensive plans. As a result, the SAMP enhancement area remains a high priority.

Phase II Assessment

In-Depth Resource Characterization:

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 special area management plan (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.

	Geographic Scope (within an existing SAMP area (specify SAMP) or within new geographic area (describe new area))	Challenges
Geographic Area 1	Gulf Coast	Need to update SAMPs to help coordinate restoration efforts based on locally relevant resource assessments
Geographic Area 2	Communities and habitat vulnerable to sea level rise	Coastal flooding adaptation and implementation
Geographic Area 3	Florida Reef Tract	Need for comprehensive management between agencies; user conflicts

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 locally relevant resource assessments to inform regulatory and planning decisions. Along the Gulf coast in particular, the level of impacts from the 2010 Deepwater Horizon Oil Spill are still under evaluation. The Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act (RESTORE Act) 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. For example, the ANERR Management Plan was used to help the state prioritize potential projects for the first round of RESTORE funding. Other SAMPs, including additional NERR management plans, AP management plans, sanctuary plans, restoration plans, FWC imperiled species and habitat management plans, etc., will be used to help prioritize the NFWF Gulf Environmental Benefit Fund (GEBF) Florida Restoration Strategy.

Florida’s low elevation and proximity of fresh water sources to the ocean make it particularly vulnerable to sea level rise. According to the 2010 Florida Oceans and Coastal Council (FOCC) report on Climate Change and Sea Level Rise in Florida, “Three-fourths of Florida’s population resides in coastal counties that generate 79% of the state’s total annual economy” (FOCC, 2010, p. 1). 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 2014 Florida coral reef capacity assessment addressed the benefits of coordination and management across the Florida Reef Tract. 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 the SEFCRI reef area into a single comprehensive management unit, facilitating communication and support between agencies. 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	Ongoing need for research and data support to update models and data layers to analyze habitat and built infrastructure vulnerability
Indian River Lagoon system	Research on multiple sources of water quality stressors affecting the IRL system, contributing to harmful algal bloom events, seagrass die-off, and manatee and bird mortality events
Apalachicola oyster reefs	Analysis of the multiple sources of water quality stressors affecting Apalachicola’s economically important oyster reefs, as well as potential impacts of ocean acidification

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.

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 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 employed 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.

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.

Comprehensive, easy to read, and publically accessible statewide and local assessments on habitats and living marine resources are needed for state and local management decisions. Recurrent assessments could provide a means to evaluate the impacts of prior management actions and identify trends.

A strategy will be proposed to establish publically available comprehensive assessments of ocean and coastal resources at Florida's place-based management locations. The strategy will enable place based managers to determine the effectiveness of their programs over the long term.

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 special area management plans to effectively manage important coastal areas. (*Approximately 1-3 sentences per management priority.*)

Management Priority 1: Local Adaptation Planning

Description: Local zoning and comprehensive planning tools are the strongest mechanisms for addressing adaptation to coastal hazards. These tools represent the goals and desires of each community. Rather than a one-size-fits-all approach, comprehensive plans allow communities to address coastal hazards in many different ways. The CMP can improve its ability to prepare and implement special area management plans by continuing to provide technical assistance and outreach to local governments for incorporating resiliency into local planning and budgeting mechanisms.

Management Priority 2: Resource Assessment/Monitoring for Management and Restoration

Description: Since the last assessment, restoration across the Gulf has increased as a result of funding allocated from the Deepwater Horizon Oil Spill. In Florida, much of the Deepwater Horizon funding will be made available directly to local governments for restoration efforts. The local governments will be relying on place-based experts to provide resource information as funding becomes available. Establishing comprehensive resource assessments at place-based management locations will improve special area management plans, and the ability to prioritize restoration efforts. In addition, development of a visitor use monitoring program at Florida’s managed areas to quantify public access and use of Florida’s aquatic managed areas will inform management decisions and improve SAMPs.

Management Priority 3: Update Existing Management Plans

Description: The management of Florida’s 41 aquatic preserves is integral to the effectiveness of Florida’s Coastal Management Program. There is an ongoing need to update aquatic preserve management plans, which will improve the management of these special areas.

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 sea level rise vulnerability assessments; need for state and local assessments of resource status and trends; need for baseline inventory of visitor use numbers and activities at aquatic managed areas
Mapping/GIS	Y	Ongoing need to update maps/GIS/models with additional data layers for hazard identification and sea level rise vulnerability assessments, resource assessments, and monitoring of aquatic managed areas
Data and information management	Y	Habitat and living marine resource information is needed at a state and local scale for management decisions and to coordinate restoration projects; low-cost visitor use data collection methods
Training/Capacity building	Y	To assist local communities incorporate adaptation initiatives into local plans and budgeting mechanisms; develop visitor/use monitoring protocol at aquatic managed areas
Decision-support tools	Y	Coordination of public and private partners to integrate and consolidate risk assessment information into one or more unified decision-support tools to assist local communities with adaptation; develop cost-effective protocol for monitoring public use of aquatic managed areas; comprehensive state and local resource assessments to aid place-based manager decision making
Communication and outreach	Y	Outreach to local governments and professional organizations to implement adaptation action in local communities; easy to read, publicly available comprehensive resource assessments

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.

The assessment identified a need to assist local communities incorporate coastal hazard adaptation initiatives into local plans and budgeting mechanisms. A strategy will be proposed to provide local communities with the financial and technical assistance to incorporate adaptation planning into their comprehensive plans. The strategy will build upon the current Coastal Resiliency Initiative, and will improve FCMP ability to plan for coastal hazards through special area management planning.

The assessment also identified a need for easy to read, publicly available comprehensive resource assessments at state and local levels to inform management and restoration decisions. A strategy will be proposed to establish assessments of ocean and coastal resources at place-based management locations, such as Aquatic Preserves. Additional strategies will be proposed to update Aquatic Preserve Management Plans, and to develop a visitor use monitoring program for aquatic managed areas.

REFERENCES

Florida Oceans and Coastal Council. (2010). Climate change and sea-level rise in Florida: An update on the effects of climate change on Florida’s ocean and coastal resources. Retrieved from FOCC website: http://www.floridaoceanscouncil.org/reports/Climate_Change_and_Sea_Level_Rise.pdf

Page, G. G., & Swanenberg, A. (2014). An analysis of issues affecting the management of coral reefs and associated capacity building needs in Florida. Prepared by SustainaMetrix for coral reef managers in Florida and NOAA’s Coral Reef Conservation Program.

Ocean Resources

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

Phase I 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),³⁵ indicate the status of the ocean and Great Lakes economy as of 2011, as well as the change since 2005, in the tables below. Include graphs and figures, as appropriate, to help illustrate the information.

Status of Ocean and Great Lakes Economy for Coastal Counties (2011)				
	Establishments (# of Establishments)	Employment (# of Jobs)	Wages (Millions of Dollars)	GDP (Millions of Dollars)
Living Resources	508	3,212	\$102,790,000	\$299,980,000
Marine Construction	687	5,855	\$284,676,000	\$610,264,000
Ship & Boat Building	382	7,838	\$341,308,000	\$567,007,000
Marine Transportation	1,366	48,689	\$2,633,347,000	\$6,244,805,000
Offshore Mineral Extraction & Exploration* (see below)	290	1,265	\$60,238,000	\$333,489,000
Tourism & Recreation	21,768	349,047	\$7,326,241,000	\$16,443,563,000
All Ocean Sectors	25,001	415,906	\$10,748,600,000	\$24,499,108,000

*Offshore Mineral Extraction and Exploration includes limestone, sand, and gravel, as well as oil and gas exploration and production.

Change in Ocean and Great Lakes Economy for Coastal Counties (2005-2011)				
	Establishments (% change)	Employment (% change)	Wages (% change)	GDP (% change)
Living Resources	-15.75%	-24.3%	-17.97%	-5.19%
Marine Construction	-4.45%	-42.68%	-39.19%	-42.8%
Marine Transportation	11.15%	-7.76%	12.39%	32.4%
Ship & Boat Building	-4.98%	-42.24%	-31.44%	-31.4%
Offshore Mineral Extraction & Exploration	13.73%	-46.83%	-41.47%	-0.05%

³⁵ www.csc.noaa.gov/enow/explorer/. If you select any coastal county for your state, you receive a table comparing county data to state coastal county, regional, and national information. Use the state column for your responses.

Change in Ocean and Great Lakes Economy for Coastal Counties (2005-2011)				
	Establishments (% change)	Employment (% change)	Wages (% change)	GDP (% change)
Tourism & Recreation	25.42%	9.01%	24.42%	22.06%
All Ocean Sectors	21.58%	3.1%	14.04%	18.17%

Considering all ocean sectors, Florida’s ocean economy grew from 2005 to 2011. Tourism and Recreation is Florida’s greatest economic sector for the coast, contributing approximately 67.1% to the ocean economy gross domestic product (GDP) as of 2011. Marine Transportation provides the second greatest contribution, at approximately 25.5% of the ocean economy GDP. Tourism and Recreation was the only sector to show a positive increase in all four economic indicators from 2005 to 2011. Marine Transportation decreased in employment, and increased in establishments, wages, and GDP. Offshore Mineral Extraction and Exploration increased in establishments and declined in employment, wages, and GDP. The Living Resources, Marine Construction, and Ship and Boat Building sectors decreased across all four indicators.

Although Living Resources, Marine Construction, and Ship and Boat Building represent a smaller proportion of Florida’s ocean economy GDP than Tourism and Recreation and Marine Transportation, these traditional sectors strongly affect coastal community character. Both tourists and residents are attracted to Florida’s coasts by the local fisheries, boating industries, and working waterfront aesthetics, which influences the larger category of Tourism and Recreation. The sustainability of these historical and cultural lifestyles is crucial to Florida’s ocean economy.

2. 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 (↑, ↓, -, or unkwn)
Resource	
<i>Benthic and Coastal Habitat</i>	↑
<i>Living Marine Resources</i>	↑
Non-living Resources	
<i>Sand/gravel</i>	-
<i>Cultural/historic</i>	-
Use	
<i>Transportation/navigation</i>	-
<i>Offshore development</i> ³⁶	-
<i>Energy production</i>	-
<i>Fishing (commercial and recreational)</i>	-
<i>Recreation/tourism</i>	-

³⁶ Offshore development includes underwater cables and pipelines, although any infrastructure specifically associated with the energy industry should be captured under the “energy production” category.

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 (↑, ↓, -, or unkwn)
<i>Sand/gravel extraction</i>	-
<i>Dredge disposal</i>	-
<i>Aquaculture</i>	-

3. For the ocean and Great Lakes resources and uses in Table 2 (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.

Major Contributors to an Increase in Threat or Use Conflict to Ocean and Great Lakes Resources												
Resource	Major Reasons Contributing to Increased Resource Threat or Use Conflict (Note All that Apply with “X”)											
	Land-based development	Offshore development	Polluted runoff	Invasive species	Fishing (Comm & Rec)	Aquaculture	Recreation	Marine Transportation	Dredging	Extreme Weather	Ocean Acidification	Sea Level Rise
<i>Benthic and Coastal Habitat</i>	X		X	X	X		X	X	X	X	X	X
<i>Living Marine Resources</i>	X		X	X	X		X	X	X	X	X	X

4. 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.

Summary of Threats

Benthic and Coastal Habitat

Florida’s population continues to grow, and human activities and development are persistent threats to benthic and coastal habitat. 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. Mining and drilling, hydrological modifications and freshwater flow diversion, dredge and fill operations, sedimentation, turbidity, and shoreline alterations threaten habitat structure and function. Land-based nutrient and pollutant runoff, leaking onsite septic systems, and stormwater discharge remain significant threats to water quality, and may increase the likelihood and severity of [harmful algal blooms](#) (FACT 2010, 2012; FWC, 2012; FWC, 2013; Gregg, 2013).

The ability of living species to provide structural habitat for healthy ecosystems and fisheries is affected by inputs (e.g., nutrient loads, freshwater discharge and drainage patterns, etc.) from land-based development in the coastal zone as well as development in other states up river. Ecosystem services of

benthic and coastal habitats include, but are not limited to providing: primary production supporting higher trophic levels, larval settlement areas, nursery habitat, nutrient uptake, sediment and shoreline stabilization, and water filtration. Sedimentation, turbidity, excessive nutrient exposure and freshwater discharges, and pollutants inhibit the ability of mangroves, seagrass, saltmarsh, oyster reefs, and coral reefs to provide these ecosystem services (Gregg, 2013). Continuing declines of these habitats indicate water quality degradation from land-based development persists as a significant threat and is an impediment to restoration (See Cumulative and Secondary Impacts for additional information on development, water quality, and management plans used to reduce threats to coastal resources) (FWC, 2012; FWC, 2013; Gregg, 2013).

In addition, vessel impacts (including derelict vessels) and propeller scarring continually threaten coral reefs and seagrass beds. Parasites, pathogens, invasive species, and fishing pressure threaten coastal habitats to varying degrees, and are particularly harmful to seagrass beds and coral reefs (FWC, 2012; FWC, 2013).

Temperature extremes can also negatively impact benthic and coastal habitat. Corals often respond to stress by expelling the colorful algae that live within their otherwise clear tissues, which lowers their productivity. This phenomenon is called "coral bleaching" because it reveals the stark white coral skeleton. Bleaching events are expected to increase with rising temperatures, and available monitoring data suggests summer 2014 was the worst bleaching year since 2005 (FRRP, 2014). Cold weather can also harm coral reefs, evidenced by an extreme cold weather anomaly in 2010 (Lirman et al., 2011).

Finally, long-term threats to Florida's ocean resources from the 2010 Deepwater Horizon Oil Spill, sea level rise, and ocean acidification are still under evaluation. These long-term threats operate at different spatial and temporal scales than more direct, local threats (such as vessel impacts), and may synergistically combine with documented stressors, such as runoff, stormwater discharge, etc., for cumulative negative impact (FWC, 2012; Freeman et al., 2012; FWC, 2013).

Living Marine Resources

Coastal development, water quality, harvest, competition for space (ship strikes, noise, etc.), and invasive species endure as local threats to living marine resources (FACT 2010, 2012; FWC 2012). Regional to global threats such as the Deepwater Horizon Oil Spill, increasing temperature, sea level rise, and ocean acidification may exacerbate resource availability and use-conflicts, but remain relatively uncertain and unquantified (FWC, 2012).

Functional habitat and water quality are vital for the recruitment and survival of finfish, shellfish, marine mammals, sea turtles and seabirds. Threats to habitat and water quality (described under Benthic and Coastal Habitat) affect vitality and abundance, as well as trophic level interactions. Habitat loss threatens to reduce foraging, nesting, and spawning areas. Runoff, harmful algal blooms, and oil spills threaten disease, die-offs, and bioaccumulation of toxins. Invasive species, such as lionfish, continue to compete with native resources and disrupt ecosystems (FACT 2010, 2012; FWC, 2012).

In addition to habitat and water quality threats, fisheries are threatened by harvest and user conflicts between recreational and commercial fishers. Marine mammals, sea turtles, and seabirds are threatened by capture as fisheries bycatch, and by space conflicts including: entanglements in fishing gear, ship strikes, noise and light pollution, cold stress, and nest site disturbance.

Non-living Resources

Threats to sand resources have not significantly changed since the prior assessment. The majority of Florida's coastal counties have access to adequate sand resources within state waters. However, in Southeast Florida, sand resources suitable for nourishment projects in feasible extraction areas are scarce in state waters, requiring exploration in federal waters. Currently, sand resource extraction and nourishment projects are conducted as needed. FDEP is working with the U.S. Department of the Interior's Bureau of Ocean Energy Management (BOEM) to develop a Regional Sand Allocation Program to proactively coordinate nourishment project needs with appropriate resources (Ousley et al., 2013).

Cultural/historic resources include Florida's coastal archeological sites, such as shipwrecks and historic lighthouses. As non-renewable resources, once these sites are disturbed or destroyed they are gone forever. Disruption and/or destruction via development, human activities, and coastal hazards, such as storms and sea level rise, persist as threats to cultural/historic resources (Florida Division of Historical Resources, 2014; Freeman et al., 2012).

Use-Conflicts

A variety of use-conflicts exist in Florida due to the extent of Florida's coastal and ocean resources and diversity of resource uses and users. However, use-conflicts have not increased or decreased since the last assessment.

Use-conflicts can arise over competition for resources, and in developmental use of the coast, both in-state and between states. For example, the Chattahoochee and Flint Rivers in Georgia and Alabama are the greatest contributors of contaminants in the Apalachicola-Chattahoochee-Flint (ACF) River basin. The Florida portion comprises approximately 12% of the entire drainage basin, has a limited population, and is mostly undeveloped. Population growth and development in and around Atlanta have increased the demand for upstream water use, contributing to oyster mortality in Apalachicola Bay (FDEP, 2013). Reduced freshwater flow caused by upstream development is exacerbated by drought. In 2014, Florida received over \$6 million in federal disaster relief funds to provide assistance for fishing communities affected by excessive drought conditions in 2012 (NOAA, 2014). While concern for this long-standing use-conflict continues, the use-conflict has not increased since the last assessment.

In addition, several ports in Florida have expanded, or proposed to expand, to attract new, larger vessels using the Panama Canal. Much deeper entrance canals and turning basins are required for these larger vessels, and the ports are located in areas where habitat, living and non-living resources would be affected. Coastal management decisions are made balancing the potential economic benefits of port expansions with the potential impacts to habitat, living resources, and non-living resources.

For example, Port Dolphin is a deepwater port that has been authorized offshore of Tampa to potentially bring natural gas into Florida. The proposed pipeline running from the port into the state will cross sand resources that two local governments want to use for beach restoration. In an agreement between the state and Port Dolphin LLC, the sand resources will be removed prior to the pipeline being installed, thus averting a major conflict.

Status, Trend, and Threat Data and Reports

Cetacean Unusual Mortality Event in Northern Gulf of Mexico (2010 to present): An ongoing unusual mortality event (UME), defined under the Marine Mammal Protection Act as "a stranding that is

unexpected; involves a significant die-off of any marine mammal population; and demands immediate response,” was declared for dolphins and whales in the northern Gulf of Mexico from February 2010 through the present. NOAA provides historical data of all stranded cetaceans by state:

Year	FL Panhandle
Average (2002-2009)	20
2010 (Feb-Dec)	33
2011 Total	33
2012 Total	29
2013 Total	26
2014 Total	47
2015 (through Feb 15)	2

Source: http://www.fisheries.noaa.gov/pr/health/mmume/cetacean_gulfofmexico.htm

Research into the causes of this ongoing UME considers multiple contributing factors, including the Deepwater Horizon oil spill (Carmichael et al., 2012; Litz et al., 2014; Venn-Watson et al., 2015). A new study identifies spatial, temporal, and demographic clusters within the UME, which suggest causes may vary by location, time, and population. For example, in contrast to other Gulf States which were more heavily oiled by the Deepwater Horizon oil spill, Florida’s annual numbers of stranded bottlenose dolphins were not elevated during the UME period (Venn-Watson et al., 2015). Other potential contributing causes include environmental stressors such as sustained cold weather events, depleted food resources, bacterial or viral infections, etc. (Carmichael et al., 2012; Litz et al., 2014).

Decadal changes in oyster reefs in the Big Bend of Florida’s Gulf Coast: Oyster reefs are one of the most endangered marine habitats in the world. Between 1982 and 2011, oyster reefs in the Big Bend region declined by 66%, predominantly offshore. Evidence suggests this decline is due to reduced survival and recruitment as a result of decreased freshwater inputs, increasing oyster reef vulnerability to wave action and sea level rise (Seavey et al., 2011).

Endangered and Threatened Wildlife and Plants: Final Listing Determinations on Proposal to List 66 Reef-building Coral Species and to Reclassify Elkhorn and Staghorn

Corals (2014): The NOAA National Marine Fisheries Service (NMFS) final rule to implement the final listing determination of 20 species as threatened: five in the Caribbean (*Dendrogyra cylindrus*, *Orbicella annularis*, *Orbicella faveolata*, *Orbicella franksi*, and *Mycetophyllia ferox*); and 15 in the Indo-Pacific under the Endangered Species Act (ESA) of 1973, as amended. The two species listed in 2006 as threatened (*Acropora cervicornis* and *Acropora palmata*) in the Caribbean still warrant listing as threatened.

Florida Assessment of Coastal Trends (FACT) 2010 (2012): Produced by Florida’s Coastal Management Program (FCMP) with 306 funds, FACT assesses a variety of indicators to illustrate broad trends and program changes from 2000-2010 in eight focus areas: coastal society, coastal habitats, living resources, environmental health, coastal access, coastal hazards, environmental stewardship, and waterfront revitalization.

Florida Fish and Wildlife Conservation Commission (FWC), Fish and Wildlife Research Institute (FWRI): As part of FWRI’s work, which includes the assessment and restoration of ecosystems and studies of fisheries, wildlife, etc., FWRI collects and provides fisheries data, manatee mortality statistics, and information on sea turtle cold-stunning events.

- Fisheries:

[Florida’s Inshore and Nearshore Species: 2013 Status and Trends Report](#) summarizes the condition of 136 species or groups using a combination of recent stock assessments, commercial landings, recreational catch rates, and fishery independent data. In 2012, 70 species or groups on the Atlantic coast were considered stable, five were increasing, three were decreasing, and 56 were too rare to determine. On the Gulf coast, 100 species or groups were considered stable, five were increasing, zero were decreasing, and 27 were too rare to determine.

Commercial landings decreased in 2012 on both coasts, with a sharper decline on the Gulf coast. However, commercial landings have shown a slight increasing trend since a period (1982-2012) low in 2005. Recreational catch, harvest, and fishing trips have shown decreasing trends since 2004, but the number of fishing trips has been increasing since 2010.

- Manatees:

According to FWC’s Florida Manatee Management Plan and Florida Manatee Cold-related Unusual Mortality Event, January – April 2010 report, there are no statistical estimates of abundance for either statewide or regional Florida manatee populations. A 2010 survey during an extreme cold weather event recorded a minimum count of 5,076 manatees (FWC, 2007; FWRI, 2010).

The table below contains FWRI manatee mortality data from 2009 through 2014. The first three columns—watercraft, flood gate/lock, and other human—are human related impacts. Considering the five-year averages and combining the three human related impact categories, the human related causes of manatee mortality appear roughly evenly distributed with the individual natural causes—perinatal, cold stress, and other natural. Although combined natural causes accounted for the majority of documented deaths, human related causes remain a concern. According to the Florida Manatee Management Plan, human actions have likely had an effect on the distribution and seasonal abundance of manatees via the dredging of canals, inlets, and bays, damming of rivers, introduction of non-native plants, destruction of seagrasses, and proliferation of artificial warm-water discharges (FWC, 2007).

Mortality Data from 1/1/2009 through 12/31/2014

Year	Watercraft	Flood Gate/Lock	Other Human	Perinatal	Cold Stress	Natural	Unrecovered	Undetermined	Undetermined other	Total
2014	68	3	9	99	26	26	16	88	36	371
2013	73	5	10	129	39	196	100	129	149	830
2012	82	12	8	70	30	58	8	87	37	392
2011	88	2	4	78	114	40	12	99	16	453
2010	83	1	5	97	282	23	67	183	25	766
2009	97	5	7	114	56	37	10	90	13	429
5-year average	84	5	6	97	104	70	39	117	48	574

Source: FWRI <http://myfwc.com/media/2703511/preliminary.pdf>

Category descriptions: <http://www.myfwc.com/research/manatee/rescue-mortality-response/mortality-statistics/categories/>

The variability of cold stress manatee mortality caused by cold weather events is also reflected in the table, with relatively high cold stress manatee mortality documented in 2010 and 2011. FWRI described the 2010 manatee die-off as unprecedented in the history of manatee management in Florida due to the geographic range, severity, and duration of the cold weather event (FWRI, 2010). FWRI also documents manatee deaths cause by red tide, which is recorded as a natural cause of mortality. Since the last assessment, 335 positive or suspected red tide manatee mortalities were recorded. The majority of these mortalities occurred in 2013 (276 deaths) (FWC, 2014).

- Sea turtles:

Sea turtles continue to be threatened by coastal construction, shoreline hardening, artificial lighting, poaching, marine debris, and fishing gear. Five years is a short period to determine statewide trends in sea turtle mortality and nesting, and sea turtles face additional threats far from Florida's waters throughout their life history. Since the last assessment, increased search efforts by FWRI have documented a higher frequency of cold-stunned turtles, which is not necessarily indicative of an increase in cold-stunning events. Over 3,000 cold-stunned turtles were documented in Florida in 2010. No cold-stunnings were recorded in 2011 or 2013. In 2012, 21 cold-stunned turtles were found in St. Joseph Bay during January and February. In 2014, 230 cold-stunned turtles were found in St. Joseph Bay in January, and another 5 were found in November. At the time of this report, 13 cold-stunned turtles were found in January 2015.

Florida's State Wildlife Action Plan (SWAP) 2012: FWC's comprehensive wildlife conservation strategy describes Florida's species, habitats, threats, and non-regulatory action opportunities. FWC revises the Action Plan every five years. Funding is provided by FWC and U.S Fish and Wildlife Service's State Wildlife Grant program. The current condition of some, but not all, of the marine habitats described by SWAP are:

- Bivalve reef: poor and declining
- Coral reef: poor and declining
- Seagrass: poor and declining
- Mangrove swamp: poor and declining
- Salt marsh: poor and declining
- Hard bottom: poor and declining

Florida Reef Resilience Program (FRRP) Disturbance Response Monitoring: During the hottest, sunniest months of the summer, when bleaching is most likely to occur, The Nature Conservancy coordinates the FRRP - a network of scientific divers from public agencies, universities and other non-governmental organizations spanning the entire Florida Reef Tract from the Dry Tortugas to the St. Lucie Inlet on Florida's east coast. More than 1,600 surveys have been completed since 2005. Data from these surveys allow scientists to zero in on which corals and reefs have been more or less resilient in years past by measuring coral species diversity, abundance, size and condition. Data show that none of Florida's reefs are immune to bleaching and coral diseases. Some areas with larger and more abundant corals also show low levels of bleaching and disease. Preliminary 2014 data show the most severe bleaching event recorded since the inception of the FRRP.

Literature Review and Synthesis of Land-Based Sources of Pollution Affecting Essential Fish Habitats in Southeast Florida (2013): 144 publications and technical reports were reviewed and synthesized

to identify and describe the effects of land based sources of pollution on marine and estuarine habitats including: coral reefs, mangroves, seagrass, oyster reef and shell habitats, soft-bottom, and hard bottom and worm reef habitats. Excess nutrient pollution, sedimentation, and turbidity negatively affect all of these habitats. The effects of pathogens are habitat specific, and pollutants such as heavy metals and hydrocarbons affect oyster and seagrass habitats to a greater degree than other habitats. The impacts have personal care products and pharmaceuticals have not been studied well enough to determine the level of threat they pose to marine and estuarine habitats.

Natural Resource Damage Assessment – April 2012 – Status Update for the Deepwater Horizon Oil Spill: On April 20, 2010 an explosion and fire on the Deepwater Horizon mobile offshore drilling unit killed 11 men and injured 17 others. An estimated 4.1 million barrels of oil were released directly into the Gulf of Mexico over three months. Due to the geographic extent and ecological complexity of the affected area, the impacts will take years to assess. Pursuant to Natural Resource Damage Assessment (NRDA) responsibilities under the Oil Pollution Act of 1990, the Status Update provides an overview of potential impacts to the Gulf of Mexico ecosystem caused by the Deepwater Horizon oil spill and outlines the assessment process and activities.

Oyster Fishery Disaster Relief Funds: Excessive drought in 2012 prompted the Department of Commerce to declare a fishery disaster for the Florida west coast oyster fishery in 2013. In 2014, Florida received over \$6 million in disaster relief funds to provide assistance for the affected fishing communities.

Seagrass Integrated Monitoring and Mapping (SIMM) Report No. 1 (2013): Developed by FWC and supported by FCMP funds (306), the SIMM report provides an overview of Florida seagrass monitoring and mapping efforts and a statewide summary of seagrass status. As of 2013, there are about 2,179,000 acres of seagrass in nearshore Florida waters, mostly in southern Florida (1,300,000 acres), and in the Big Bend and Springs Coast region (618,000). Seagrass coverage has decreased since the 1950s and is still declining in some areas. Acreage is decreasing along the Panhandle and Big Bend regions, except in Santa Rosa Sound and St. Andrew Bay where acreage is increasing, Big Lagoon, Northern Big Bend, and Springs Coast where acreage is stable, and Franklin County and the Cedar Keys where total acreage is unknown. Acreage is increasing along the southwest coast, except along Springs Coast where acreage is stable, Estero Bay where acreage is decreasing, and Rookery Bay where total acreage is unknown. Acreage is stable in the Florida Keys and Florida Bay, and increasing along the east coast. Fragmentation, sedimentation, stormwater runoff, propeller scarring, nutrients, phytoplankton, hurricanes/storms, hypoxia, turbidity, and salinity changes were described as stressors to seagrass beds throughout the report.

Severe 2010 Cold-Water Event Caused Unprecedented Mortality to Corals of the Florida Reef Tract and Reversed Previous Survivorship Patterns: In January 2010, an extreme cold-water anomaly caused rapid coral mortality unprecedented in spatial extent and severity on the Florida Reef Tract. The event reversed resilience patterns that will take decades to recover, and demonstrated the impacts extreme weather can have on coral reefs (Lirman et al., 2011).

Southeast Florida Sediment Assessment and Needs Determination (SAND) Study: The SAND study quantified suitable sand resources in State and Federal waters for St. Lucie, Martin, Palm Beach, Broward, and Miami-Dade Counties. The assessment considers beach nourishment needs through the next 50-years accounting for storms, construction losses, and sea level change. The report found that offshore resources exceed needs by 100,000,000 cubic yards.

Understanding Future Sea Level Rise Impacts on Coastal Wetlands in the Apalachicola Bay Region of Florida’s Gulf Coast (2012): The Nature Conservancy’s report, developed with FCMP funds (306), examines sea level rise impacts on wetlands, species, development, infrastructure, and cultural resources in the Apalachicola region. Salt and brackish marsh habitat are expected to increase, replacing lost forested wetlands and affecting habitat-dependent species. Sea level rise will significantly impact development, infrastructure, and cultural resources—including dozens of National Historic Registry sites.

US Coral Reef Task Force (USCRTF) – Resolutions and Local Action Strategies (LAS) to Reduce Threats to Coral Reefs: Florida’s LAS, the Southeast Florida Coral Reef Initiative (SEFCRI) has developed over 130 different projects identifying threats to, and ways to reduce or eliminate those threats, to SE Florida’s coral reefs: <http://www.dep.state.fl.us/coastal/programs/coral/reports/>. These threats include: land based sources of pollution, fishing, diving, boating, marine debris, and coastal construction.

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?

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
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

Coastal Partnership Initiative:

The Florida Coastal Management Program has made funds available as pass-through grants to state agencies, water management districts and local coastal governments for projects that protect coastal resources and communities in four priority areas: resilient communities, coastal resource stewardship, access to coastal resources, and working waterfronts. In some cases, public colleges and universities, regional planning councils, national estuary programs and non-profit groups may work as partners with eligible applicants for grants.

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.

Regional comprehensive management plans:

The Gulf of Mexico Alliance (GOMA): GOMA continues to enhance Gulf of Mexico resource management through regional collaboration with the five Gulf States within six priority areas.

- GOMA attained 501c3 non-profit status in 2011, facilitating funding opportunities and regional collaboration across agencies and industries.
- GOMA also established a Business Advisory Council in 2012 to support communication between the alliance and industry groups, with representatives from the following industries: tourism, oil and gas, manufacturing, utilities/energy, transportation, commercial and recreational fishing, seafood processing, and agriculture.

None of these developments were 309 or CZM driven changes, but involved the participation of CMP partner agencies including: Florida Department of Environmental Protection, Florida Fish and Wildlife Conservation Commission – Fish and Wildlife Research Institute, Department of Health, and Department of Economic Opportunity; Academic partners: Florida A&M, University of Florida, University of South Florida – Florida Institute of Oceanography; Rookery Bay National Estuarine Research Reserve and Apalachicola National Estuarine Research Reserve, in addition to federal partners.

The Governors’ South Atlantic Alliance (GSAA): The GSAA was initiated just before the last assessment period. Since the last assessment, technical teams and issue areas were developed to enhance four priorities: healthy ecosystems, working waterfronts, clean coastal and ocean waters, and disaster-resilient communities. The FCMP provided 306 funds to Florida’s technical teams to assist in coordination with the alliance. In addition, GSAA developed a South Atlantic regional data portal to provide publicly available georeferenced data of ocean resources since the last assessment. The portal was not a 309 or FCMP driven change.

US Coral Reef Task Force (USCRTF) – Resolutions and Local Action Strategies (LAS) to Reduce Threats to Coral Reefs: USCRTF was established in 1998 by Presidential Executive Order to lead U.S. efforts to preserve and protect coral reef ecosystems. The USCRTF includes leaders of 12 federal agencies, seven U.S. states, territories, commonwealths, and three Freely Associated States. The USCRTF helps build partnerships, strategies, and support for on-the-ground action to conserve coral reefs. The USCRTF works by consensus with all individuals providing input and expertise. USCRTF 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) USCRTF resolutions have been formally adopted since the last assessment:

Resolution 28:2 Coral Reefs and Climate Change Renewed Call to Action: Resolution 28:2 reaffirms the USCRTF’s prior resolutions on Coral Reefs and Climate Change, and encourages its members to work together to confront the challenges of climate change, ocean acidification, and their impacts on coral reefs.

Resolution 25.1: USCRTF Engagement in the National Ocean Policy and Framework for FY11-14 Priority Action: Resolution 25.1 states that the USCRTF will act as a leading intergovernmental body

contributing to implementation of the National Ocean Policy as it pertains to coral reef ecosystems in the Pacific and Atlantic/Caribbean regions.

Single-sector management plans:

Our Florida Reefs (OFR) Community Planning Process – Comprehensive Management Plan:

Hosted by the FDEP CRCP and the Southeast Florida Coral Reef Initiative (SEFCRI), this planning process brings together the community of local residents, reef users, business owners, visitors and the broader public in Miami-Dade, Broward, Palm Beach, and Martin counties to discuss the future of coral reefs in this region. This process is designed to increase public involvement in the future management of southeast Florida’s coral reefs by seeking input from community members on the development of recommendations that can become part of a comprehensive management strategy to ensure healthy coral reefs in the future. A comprehensive set of prioritized management recommendations will be complete by June 2016. These will lead to the first ever comprehensive management plan for the coral reefs in this region and may result in multiple program changes. The FCMP, through FWC, has provided multiyear funding for the OFR process via 309 and special merit funding.

Florida Keys National Marine Sanctuary (FKNMS) Management Plan and Zoning/Regulatory

Review Process: In response to requests by the public, shifting environmental conditions and threats in the Keys, better scientific information, and legal requirements, the FKNMS is conducting a review of sanctuary regulations, including the rules and boundaries for marine zones in the sanctuary and surrounding national wildlife refuges. The updated FKNMS management plan will incorporate two aquatic preserves (Coupon Bight and Lignumvitae). Additionally, the U.S. Fish and Wildlife Service’s Florida Keys National Wildlife Refuges Complex, which co-manages 20 of the sanctuary’s 27 Wildlife Management Areas, will play a key role in the review while simultaneously updating its own Backcountry Management Plan. The review is an ongoing process, currently estimated to be completed – including an updated management plan - in 2016-17. Program changes may be proposed.

National Estuarine Research Reserve (NERR) Management Plan updates: See [Special Area Management Planning](#)

Aquatic Preserve (AP) Management Plan updates: See [Special Area Management Planning](#)

Estuarine Habitat Restoration Planning Guide for Florida: See [Special Area Management Planning](#)

The Northeast Florida Estuarine Habitat Restoration Plan: See [Special Area Management Planning](#)

Southwest Florida Regional Ecosystem Restoration Plan 2013: See [Special Area Management Planning](#)

Surface Water Improvement and Management (SWIM) Plan updates: See [Cumulative & 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

Comprehensive Ocean/Great Lakes Management Plan	State Plan	Regional Plan
Under development (Y/N)		
Web address (if available)		GOMA Governor’s Action Plan II: http://www.gulfofmexicoalliance.org/tools-and-resources/publications/
Area covered by plan	Entire state except federal and tribal lands*	GOMA: AL, FL, LA, MS, TX GSAA: NC, SC, GA, FL

***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 (FL Coastal Management Program Guide).

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.

Ocean Resources are a high priority for Florida’s Coastal Management Program because of their economic value, providing both financial and intrinsic benefits to society. Recognizing these potential benefits, ocean resources are increasingly being incorporated into management plans and initiatives. For example, according to the St. Johns River Water Management District (SJRWMD), historical coastal city waterfront areas in northeast and central Florida are increasingly basing their urban redevelopment and long-term economic growth initiatives on sustainability and livability benefits brought by water quality and estuary productivity and health.

Multiple-use conflicts develop from the diversity of stakeholders and their competing interests, which necessitate management to enhance and protect Florida’s resources. As a result, the ocean resources enhancement area has consistently been designated high priority in past assessments.

Strategies will be developed to enhance ecosystem assessments in Florida’s managed aquatic areas, update Aquatic Preserve Management Plans, and address the issue of derelict vessels, which will improve CMP management of ocean resources and use conflicts.

Phase II Assessment

In-Depth Resource Characterization:

Purpose: To determine key problems and opportunities to enhance the state CMP to better address planning for the use of ocean resources.

1. What are the three most significant existing or emerging stressors or threats to ocean and Great Lakes resources within the 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.

	Stressor/Threat	Geographic Scope (throughout coastal zone or specific areas most threatened)
Stressor 1	Degradation of water quality	Throughout
Stressor 2	Human access/use: development, navigation, recreation, etc.)	Throughout
Stressor 3	Harvest (e.g., fishing)	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.

According to FWC’s State Wildlife Action Plan (SWAP) the degradation of water quality is one of the most ubiquitous statewide threats, and is a source of stress to marine habitats including coral reefs, bivalve reefs, mangroves, seagrass beds, and salt marsh. Degradation of water quality includes groundwater and surface water withdrawal, drainage or channelization of wetlands, diversion of rainfall from impervious surfaces, contamination from industrial and agricultural operations, and contamination from inadequate stormwater and sewage management. These issues are expected to be further complicated by sea level rise, ocean acidification, and changes in temperature and precipitation. These impacts may affect important factors of water quality including salinity, contamination, and the loss of habitats which provide ecosystem services, such as water filtration.

Human access/use of the coast and ocean resources contributes to habitat loss and fragmentation, as well as the degradation of water resources. According to SWAP, habitat loss and fragmentation is a significant statewide threat, and as population increases more land will be developed with the highest pressure occurring on coastal and upland habitats. Navigation and coastal infrastructure can result in alteration to coastal and marine ecosystems by altering the physical environment. The threat of sea level raise may increase the use of potentially harmful methods to protect coastal infrastructure and public coastal access, such as shoreline hardening.

Commercial and recreational fisheries are crucial to Florida’s economy, necessitating effective management. The harvest of ocean resources directly threatens individual target species, potentially impacting trophic level interactions and affecting the broader ecosystem. Diverse fish and invertebrate populations promote habitat health, particularly for Florida’s seagrass beds, coral reefs, and mangrove forests. SWAP recognized fishing pressure as a threat to marine and estuarine habitats including: beach/surf zone, bivalve reef, coastal tidal river or stream, coral reef, hard bottom, inlet, mangrove swamp, pelagic, and seagrass.

- 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	Ongoing need for research and data support to update models and data layers to analyze habitat vulnerability at a state and local level
Ocean acidification	Analysis of threats to FL's wildlife, ecosystems, and economy
Indian River Lagoon system	Research on multiple sources of water quality stressors affecting the IRL system, contributing to harmful algal bloom events, seagrass die-off, and manatee and bird mortality events
Apalachicola oyster reefs	Analysis of the multiple sources of water quality stressors affecting Apalachicola's economically important oyster reefs, as well as potential impacts of ocean acidification

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.

- 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.

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

- 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.
 - Describe significant changes since the last assessment;
 - Specify if they were 309 or other CZM-driven changes; and
 - Characterize the outcomes or likely future outcomes of the changes.

Coral Reef and Hardbottom Mapping, Monitoring, and Management Program: A 309 strategy to provide data resources for coral reef management by FDEP's Coral Reef Conservation Program (CRCP) and the Florida Keys National Marine Sanctuary Advisory Council. 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 (PSM) 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 (OFR) 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 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.

Linking management activities to the status of ocean resources will require time and resources, and will be challenging to accomplish. The potential results of management decisions, such as the modification of human behavior and the impact of sharing information needed for management decisions, is challenging to track and/or study. Extensive monitoring to directly link management decisions with their impacts on ocean resources may be cost prohibitive, but preservation and/or recovery of ocean resources could provide an indicator of efforts (note – declines would not necessary mean failure).

Comprehensive, easy to read, and publically accessible statewide and local ocean resource assessments on habitats and living marine resources are needed at a state and local scale for management decisions. Recurrent assessments could provide a means to evaluate the impacts of prior management actions.

A strategy will be proposed to establish publically available comprehensive assessments of ocean and coastal resources at Florida's place-based management locations. The strategy will enable place based managers to determine the effectiveness of their programs over the long term.

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 Management and Restoration

Description: Since the last assessment, restoration across the Gulf has increased as a result of funding allocated from the Deepwater Horizon Oil Spill. In Florida, much of the Deepwater Horizon funding will be made available directly to local governments for restoration efforts. Local governments will be relying on place-based experts to provide resource information as funding becomes available. There is a need for detailed resource assessments applicable at local and Gulf-

wide scales to coordinate and prioritize restoration projects, which will improve CMP ability to plan for the use of ocean resources. In addition, the state has an opportunity to improve its management of derelict vessels and mitigate the damage caused by these vessels in order to protect vital regions of Florida’s waterways and coastlines.

Management Priority 2: Coastal Resiliency

Description: The need for a comprehensive, multi-agency approach to incorporate coastal resiliency into management decisions has been identified through stakeholder involvement, in regards to both urban shorelines and natural habitats. Specifically, there is a need to incorporate objectives which promote stormwater retrofitting, flood abatement and recovery, shoreline stabilization, and infrastructure upgrades. Promoting coastal resiliency will improve CMP ability to proactively plan for the use of ocean resources.

Management Priority 3: Update Existing Management Plans

Description: The cohesive management of Florida’s 41 aquatic preserves is an essential aspect to the overall effectiveness of Florida’s Coastal Management Program. There is an ongoing need to update aquatic preserve management plans, which will improve FCMP’s ability to manage ocean resources.

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 sea level rise vulnerability assessments to evaluate the status of shoreline, intertidal and subtidal habitats, as well as long term effects from the Deepwater Horizon Oil Spill; Ongoing need for state and local assessments of ocean resource status and trends; need to survey environmental damage associated with derelict vessels
Mapping/GIS	Y	Ongoing need to update/enhance current mapping projects, including mapping of restoration projects. There is also a need to map shoreline, intertidal and subtidal habitats, particularly along urban shorelines
Data and information management	Y	Habitat and living marine resource information is needed at a state and local scale for management decisions and evaluations
Training/Capacity building	Y	Need guidance for incorporating coastal resiliency into local comprehensive plans; need training/capacity building to address derelict vessel removal
Decision-support tools	Y	Need comprehensive state and local resource assessments to aid local government and place-based manager decision making
Communication and outreach	Y	Need communication of state and local data to compile publicly available resource assessments; conduct outreach on impacts of derelict vessels and titling procedures

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.

A strategy will be proposed to establish easy to read, publicly available comprehensive assessments of ocean and coastal resources at Florida's place-based management locations. The assessments will guide management decisions, including upland decisions, and will enable place based managers to determine the long term effectiveness of their programs.

Strategies will also be proposed to continue to update existing management plans for Florida's aquatic preserves, and to enhance derelict vessel planning, outreach, and mitigation efforts with a pilot project in Monroe County.

To promote a comprehensive approach to coastal resiliency, an Adaptation Action Initiative is proposed under the Coastal Hazards and Special Area Management Planning enhancement areas.

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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)³⁷

Resource Characterization:

1. In the table below, characterize the status and trends of different types of energy facilities and activities in the state’s coastal zone based on best available data. If available, identify the approximate number of facilities by type. The MarineCadastre.gov may be helpful in locating many types of energy facilities in the coastal zone.

Status and Trends in Energy Facilities and Activities in the Coastal Zone				
Type of Energy Facility/Activity	Exists in CZ		Proposed in CZ	
	(# or Y/N)	Change Since Last Assessment (↑, ↓, -, unkwn)	(# or Y/N)	Change Since Last Assessment (↑, ↓, -, unkwn)
<i>Energy Transport</i>				
Pipelines ³⁸	Y	↑	Y	↑
Electrical grid (transmission cables)	Y	↑	N	-
Ports	Y	-	Y	-
Liquid natural gas (LNG) ³⁹	N	-	Y	↑
<i>Energy Facilities</i>				
Oil	Y	↓	N	-
Gas	Y	↑	Y	↑
Coal	Y	↓	N	-
Nuclear ⁴⁰	Y	↑	Y	-
Wind	N	-	N	-
Wave ⁴¹	N	-	N	-
Tidal	N	-	N	-
Current (ocean, lake, river)	N	-	Y	↑
Hydropower	Y	-	N	-
Ocean thermal energy conversion	N	-	N	-

³⁷ 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.

³⁸ For approved pipelines (1997-present): www.ferc.gov/industries/gas/indus-act/pipelines/approved-projects.asp

³⁹ For approved FERC jurisdictional LNG import/export terminals: www.ferc.gov/industries/gas/indus-act/lng/exist-term.asp

⁴⁰ The Nuclear Regulatory Commission provides a coarse national map of where nuclear power reactors are located as well as a list that reflects their general locations: www.nrc.gov/reactors/operating/map-power-reactors.html

⁴¹ For FERC hydrokinetic projects: www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp

Status and Trends in Energy Facilities and Activities in the Coastal Zone				
Type of Energy Facility/Activity	Exists in CZ		Proposed in CZ	
	(# or Y/N)	Change Since Last Assessment (↑, ↓, -, unkwn)	(# or Y/N)	Change Since Last Assessment (↑, ↓, -, unkwn)
Solar	Y	↑	Y	↑
Biomass	Y	↑	Y	↑
Municipal solid waste burners	Y	-	Y	↑

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.

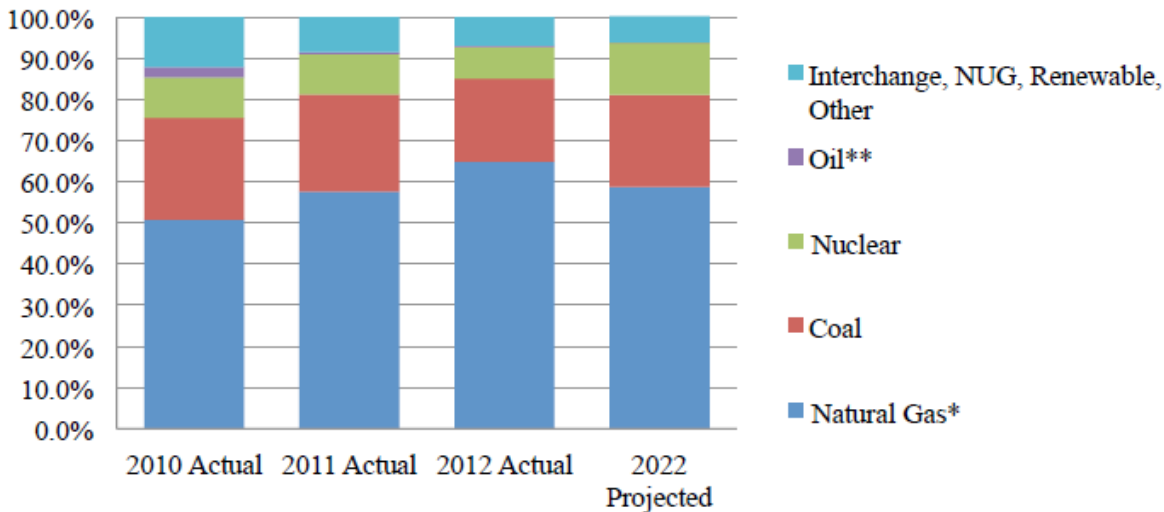
Florida Department of Agriculture and Consumer Services (FDACS) - Office of Energy Annual Report 2013:

- Although most of Florida’s electricity is generated in state, almost all fuel is imported and refined out of state
- Florida remains reliant on natural gas
- Crystal River Nuclear Plant is in the decommissioning process, while two new nuclear units are planned for completion at Turkey Point in 2022 and 2023
- Duke Energy Florida has submitted an application for two natural gas combined cycle units
- The largest source of renewable energy is municipal solid waste burners
- Florida has more biomass resources than any other state
- Solar capacity has increased as a result of Florida’s solar rebate program and large utility installations
- Transportation accounts for more than one-third of Florida’s total energy use. Current trends include public transportation improvements (rail lines), and increased use of alternative fuels (LNG-Natural Gas Fuel Fleet Vehicle Rebate Program) and electric vehicles (EV charging stations).
- In 2014 Florida Atlantic University’s (FAU) Southeast National Marine Renewable Energy Center (SNMREC) signed a five-year lease agreement with the Bureau of Ocean Energy management to install the world’s first ocean current test site offshore Broward County to investigate the efficiency and environmental effects of various types of ocean turbines deployed to produce electricity.

Florida Public Service Commission’s Ten Year Site Plans: Each year, the Public Service Commission reviews Ten Year Site Plans for Florida’s electric utilities including: Florida Power & Light, Duke Energy Florida, Florida Municipal Power Agency, Jacksonville Electric Authority, Orlando Utilities Commission, Gulf Power, Tampa Electric Company, Lakeland Electric, Seminole Electric Cooperative, City of Tallahassee, and Gainesville Regional Utilities. The site plans contain descriptions of existing facilities, demand and consumption forecasts, and environmental and land use information.

Florida Electric Generation Fuel Source Mix

Source: PSC 2013 Ten Year Site Plan Review



*Includes both utility and non-utility generation.

**Includes both residual and distillate oil.

Summary

The Florida Department of Agriculture and Consumer Services (FDACS) continues to promote an “all of the above” approach to energy resources. Natural gas remains the largest fuel source and continues to expand with additional pipelines to fuel power plants. Liquid natural gas (LNG) facilities are also proposed, but none are currently operational. LNG facilities are particularly in demand for the marine transportation industry. Nuclear energy continues to be developed as well, but on a slower timescale.

In contrast, environmental regulation costs, such as the federal Mercury and Air Toxics Standards (MATS Rule), and a shift to natural gas are curbing the use of coal. The number of coal facilities has declined since the last assessment, and more are expected to be phased out. For example, Duke Energy Florida has submitted an application for two natural gas combined cycle units for a total nominal generating capacity of 1,640 MW adjacent to the Crystal River Energy Complex. If approved, the additional capacity will be online in 2018. Two older coal fired units at Crystal River are scheduled for retirement in 2018 with the addition of the new gas fired units. However, coal continues to generate a relatively large sector of Florida’s energy.

Electrical grid improvements are focused on efficiency and durability, as opposed to new systems or facilities. Trends include the installation of smart meters to track energy use, and the “hardening” of systems to increase natural hazard resiliency.

Renewables continue to experience modest growth, supported by state and local grants, rebates, and incentives. However, renewable energy sources are still under ten percent total energy production

(including biomass). Utility and commercial scale solar facilities and residential solar hot water heaters have proven to be cost effective, but photovoltaic cells are not yet as cost effective for individuals. Biomass and municipal solid waste facilities make up the majority of Florida’s renewable energy production. Availability of biomass and waste resources contributes to the high feasibility and capacity of facilities.

Sources: FDACS – Office of Energy & FDEP – Siting Coordination Office

3. Briefly characterize the existing status and trends for federal government facilities and activities of greater than local significance⁴² in the state’s coastal zone since the last assessment.

The Florida Gas Transmission (FGT) Company

The Florida Gas Transmission Company, a subsidiary of Citrus Corporation, completed construction in 2011 of 482.8 miles of pipeline through Florida and Alabama. The pipeline provides additional service to Florida and the Gulf Coast, connects to the FGT mainline, provides additional natural gas pipeline service to power plants in Martin and Miami-Dade counties, and establishes new natural gas service to power plants in Manatee and Suwannee Counties (Federal Energy Regulatory Commission, 2010).

AES Ocean Express

The FERC application description reads “Application for authorization to construct and operate a new 52.4 mile interstate natural gas pipeline from the Exclusive Economic Zone boundary between the U.S. and The Bahamas to Broward County, Florida, delivering at the Florida Power & Light (FPL) Lauderdale Power Plant. (LNG terminal pending in the Bahamas)” (Federal Energy Regulatory Commission, 2014). FERC rescinded authorization in 2013 because AES failed to begin construction by the deadline (Jan. 29, 2012).

Sabal Trail (Southeast Market Pipelines Project)

Sabal Trail is proposing to construct 460 miles of pipeline from Alabama to Florida, and Hunters Creek (14 miles) and Citrus County (24 miles) Lines. They also plan to construct three new compressor stations, and a natural gas hub in Osceola County. Florida Southeast Connection (FSC) plans to construct 126 miles of pipeline in Florida originating at the proposed Sabal Trail gas hub in Osceola County, and extending to the Florida Power and Light Company’s Martin Clean Energy Center.

Crowley (Carib Energy)

Crowley Company was granted a 20-year license to export LNG to the Caribbean, South and Central America, despite the US lacking a free trade agreement with those countries. However, there are currently no operational FERC approved facilities eligible for export; the first eligible Martin County facility should begin construction in 2015, and be operational in 2016.

Clean Energy Fuels Corp.

Clean Energy Fuels Corp. plans to build an LNG production facility in Jacksonville to supply the transportation industry—including LNG fueled ships. The facility could be operational in 2016.

⁴² 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).

Sea Star LNG Plant

Pivotal LNC Inc. and WesPac Midstream LLC intend to develop plans for a new LNG plant in Jacksonville, FL. The plant will supply fuel to two Sea Star container ships.

Port Dolphin

Port Dolphin Energy LLC, a subsidiary of Höegh LNG, filed an application with the Maritime Administration to construct a deepwater port located in federal waters approximately 28 miles offshore of Tampa, Florida. The Maritime Administration issued a license to Port Dolphin Energy LLC on April 19, 2010 (US Department of Transportation, 2014). At this time, construction is expected to commence in 2017.

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.

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
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.

In 2013, Florida Legislature amended Chapter 377, F.S., to clarify that rules regarding the regulation of the production of natural gas apply only to native natural gas or gas naturally occurring in the state. Amendments declared the storage of natural gas in underground reservoirs to be in the public interest and provided that natural gas reservoirs be regulated. Amendments assigned regulatory authority of natural gas injection, storage, and recovery to DEP’s Division of Water Resource Management, and described permitting and natural resource protection measures.

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.

Leasing/drilling moratoria on sovereign submerged lands as provided by chapters 253 and 377, Florida Statutes and a congressional leasing moratoria on the Outer Continental Shelf off of Florida's west coast help to reduce the risk of negative impacts from the oil and gas industry in Florida waters. In addition, the majority of fuel sources are imported from out of state, and extraction activities on land are limited.

However, Florida's coastal zone includes the entire state, and energy facility siting and the types of energy permitted throughout the state can affect coastal habitat and water quality.

Management opportunities exist in planning for the expansion of the natural gas and LNG industry, promotion of renewables, and improving existing regulations, e.g. developing a state coal ash policy.

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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)

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.

Type of Facility/Activity	Status and Trends of Aquaculture Facilities and Activities- 2012		
	# of Facilities	Approximate Economic Value (M)	Change Since Last Assessment (↑, ↓, -, unkwn) change from 2005 to 2012 Facility # Economic Value
Ornamental Fish	101	\$27.1	↓ ↓
Mollusks	139	\$19.6	↓ ↑
Aquatic Plants	19	\$7.2	↑ ↑
Turtles	26	\$3.1	↑ ↑
Tilapia	47	\$3.1	↑ ↑
Other Food Fish	31	\$2.9	↑ ↑
Hybrid Striped Bass	3	\$1.2	↑ ↑
Catfish	17	\$.69	↓ ↓
Live Rock	12	\$.85	↑ ↑
All Other Aquaculture	N/A	\$15.3	N/A ↑
Total	395	\$81.04	

Aquaculture (June 2013) USDA, National Agricultural Statistics Service

Florida aquaculture is varied in both species that are cultured and methods that are used. There are state hatcheries, academic hatcheries, and private hatcheries. The hatcheries can be outdoor ponds or raceways, or indoor tanks and raceways. Clam, oyster, and live rock aquaculture is conducted on state-owned submerged lands through leases. Currently there are 569 aquaculture leases totaling approximately 1,250 acres.

Florida aquaculture is unique in the variety of products produced at the predominately small farms across the state. This characteristic is reflected in the USDA numbers of 126 farms of “other species” with sales of 12.9 million.

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 leasing of the entire water column for off-bottom oyster farming. Approximately 36 lease modifications have been approved by the Board of Trustees (BOT) to allow use of the full water column for off-bottom culture methods. The BOT also approved an

Aquaculture Use Zone (AUZ) in Oyster Bay, Wakulla County for full water column use, and delegated authority to the Florida Department of Agriculture and Consumer Services (FDACS) to administer water column modifications in four AUZs including Dog Island, Pelican Reef, Horseshoe, and Long Bar. In addition, the Wakulla Environmental Institute was granted a management agreement for 5 acres of submerged land to train aquaculturists in this new-to-Florida oyster aquaculture method.

FDACS, in cooperation with the Shellfish Aquaculture Extension Program, hosted regional off-bottom oyster aquaculture workshops to introduce production methods and gear, marketing, sovereignty submerged land lease modification, and federal regulatory information. Additional regulatory authorization is required for this new type of lease, including authorization from the U.S. Coast Guard due to potential navigational hazards. FDACS held several workshops to aid leaseholders with the completion of permit applications.

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.

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)
Aquaculture BMP	Y	N	N
Aquaculture policies	Y	N	N
Aquaculture program guidance	Y	N	Y
Research, assessment, monitoring	Y	N	Y
Mapping	Y	N	N
Aquaculture education and outreach	Y	N	N
Aquaculture marine debris	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.

Guidance:

New guidance and workshops have been held for a new type of in-water aquaculture: off-bottom oyster culture. Using different methods, oyster cages are suspended or floated in the water column to improve access to phytoplankton, avoid predation, and improve aeration. This new type of aquaculture requires expensive production gear, hatchery produced seed and can be very labor intensive to prevent

biofouling and re-distribute rapidly growing oysters amongst the production gear. FDACS, as the lead state agency regarding aquaculture, has held several workshops and demonstrations, in conjunction with Florida Sea Grant, to aid aquaculturists with this new method. These efforts were not supported by 309 or CZMA funds.

Monitoring:

FDACS continues to monitor shellfish harvesting areas to insure the harvest of wholesale, and safe shellfish. FDACS has been coordinating with the Department of Environmental Protection’s Division of Environmental Assessment and Restoration so that all of the state agencies are monitoring water quality using the same standard operating procedures. These efforts are not supported by 309 or CZMA funds.

Marine Debris:

FDACS received both CZMA funds and 309 funding to help address and educate aquaculturists and the public about marine debris. The funding has helped to educate aquaculturists about the importance of preventing the loss of and recovering aquaculture generated marine debris.

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.

Aquaculture is given a medium prioritization level. Aquaculture continues to expand in Florida, in both open water facilities and land-based facilities, and aquaculture continues to be an important economic contributor to rural coastal communities. Economic and environmental impacts are balanced through regulatory oversight and coordination with managed preserve areas.

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STRATEGIES

Adaptation Action Initiative

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 & Government Facility Siting | <input type="checkbox"/> Wetlands |
| <input checked="" type="checkbox"/> Coastal Hazards | <input type="checkbox"/> Marine Debris |
| <input 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:** To work with at least 10 communities statewide to address adaptation in long-term public investment decisions.

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 Florida Department of Economic Opportunity (DEO) in partnership with the Florida Department of Environmental Protection and Florida Division of Emergency Management, is currently implementing the Community Resiliency Initiative (2011-2015), which will result in guidance materials for adaptation to current and future coastal flooding impacts. The Initiative serves to lay a foundation for integrating adaptation into Florida's community planning. Upon completion of this Initiative, communities will have guidance and resources to assist them in planning for adaptation to current and future risks.

In cooperation with other agency partners, DEO proposes to provide assistance to local governments to take action related to adaptation to current and future risks of coastal flooding. First, DEO will collaborate with other state agencies on a quarterly basis to discuss current and upcoming resiliency resources and efforts. This collaborative approach will provide both interagency coordination and direct support to local governments that are involved in the Adaptation Action Initiative.

The four program changes identified above represent feasible outcomes due to the nature of the assistance that DEO will promote during the proposed 5-year plan. Chapter 2015-69, §1, Laws of Florida, obligates communities updating the Coastal Management Element of their comprehensive plans to “include development and redevelopment principles, strategies, and engineering solutions that reduce the flood risk in coastal areas which results from high-tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea-level rise.” Due to this new requirement, communities assisted by the proposed 5-year plan may implement all or part of the four program changes. The proposed 5-year plan will encourage a proactive approach to this new requirement by connecting communities to teams of coastal planning experts.

On an annual basis, DEO will select up to two communities through a competitive process to receive enhanced technical assistance for adaptation. Communities that are deemed to be at a high risk to coastal hazards and can demonstrate support and partnerships at the local level will be given priority. Selected communities will be eligible to receive a combination of financial assistance to support plan development, expertise from a skilled team, and staff support from DEO.

Communities will first conduct a vulnerability analysis to examine current and future risks. Next, each community will research all plans for redevelopment and investment and compile a list of projects proposed in areas at risk. A team of state, regional, and local representatives will visit sites slated for development and investment in vulnerable areas to brainstorm high-level ways to incorporate mitigation to current risk and adaptation to future risk into project design and implementation, as well as future policy decisions. Each community will then prepare a report with potential infrastructure and community development alternatives and policy actions to mitigate future risks and protect local investments.

Each community will conduct public meetings to receive input on local priorities to incorporate into development and redevelopment decisions. Using the information gathered from the risk and vulnerability analysis, expert visit consultation, and public meetings, the community will craft a list of potential policy and development-based actions to address adaptation in their current planning frameworks and future investment decisions. DEO staff will then assist the community with the identification of potential resources to implement the actions and projects identified in its adaptation action plan.

DEO will continue to conduct outreach on community resiliency based on the tools developed during the Community Resiliency Initiative, best practices from local experiences through professional conferences, webinars, and other outreach methods.

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.

In July 2011, the Florida Legislature adopted “Adaptation Action Areas” into statute with the Community Planning Act. Section 163.3168, F.S., recognizes the need for innovative planning and development strategies that promote a diverse economy and vibrant rural and urban communities, while protecting environmentally sensitive areas. Section 163.3164(1) and Section 163.3177(6)(g)(10), F.S., encourage local governments to create optional comprehensive plan designations called “Adaptation Action Areas” for areas that experience coastal flooding and are vulnerable to the related impacts of rising sea levels for the purpose of prioritizing funding for infrastructure needs and adaptation planning. As noted above, the Florida Legislature recently amended Section 163.3178, F.S., to require local governments to address the impacts of sea level rise in their comprehensive plans. The Adaptation Action Initiative will promote these statutory changes and the management priority identified in the 309 Assessment for implementing adaptation planning into local plans and long-term public investment decisions.

The Assessment also identified sea level rise as an emerging issue requiring ongoing research, data support, and vulnerability assessments. The Adaptation Action Initiative strategy will build upon the current 309 Community Resiliency Initiative, providing the technical and financial assistance required for local communities to conduct vulnerability assessments and plan for sea level rise.

The Adaptation Action Initiative will also promote the priority to develop a comprehensive approach to coastal resiliency by forming a state agency collaborative and network of communities committed to adaptation. Members of this new collaborative will be recruited from the existing pool of participants involved in the Community Resiliency Initiative Focus Group in addition to welcoming new community participants. The new network of communities will grow with each successive year of adaptation planning facilitated by the Adaptation Action Initiative. At the end of the five-year strategy, at least ten communities will have tangible adaptation initiatives and ideas, which they may develop and improve alongside their peers into the future. Plans and other examples of efforts developed by Adaptation Action Initiative communities will be made available to a wider audience of Florida communities (through the DEO website) for reference and guidance.

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.

Projected impacts from current and future coastal flooding threaten to exacerbate the vulnerability of Florida’s already at-risk natural resources, local economies, and infrastructure in coastal communities. Adapting to these impacts will require strategic policy and development decisions and sound new infrastructure investments to avoid long-term economic impacts. This strategy will integrate resilient planning and design practices into future development and investment decisions at the local level, as well as establish a state agency collaborative to coordinate resiliency efforts, improving Florida’s Coastal Management Program.

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 and 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 Adaptation Action Initiative strategy has statutory support, as well as vetted guidance materials to engender high likelihood of success in achieving its strategy goal – to assist at least ten communities implement adaptation into their local plans and long-term public investment decisions.

Due to the statutory support provided by the Community Planning Act, the Initiative is unlikely to face regulatory barriers, facilitating successful implementation in communities statewide. In particular, the amendments to section 163.3178, F.S., pursuant to Chapter 2015-69, §1, Laws of Florida, will require communities to “include development and redevelopment principles, strategies, and engineering solutions that reduce the flood risk in coastal areas which results from high-tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea-level rise.” The proposed initiative will aid and assist communities in developing and implementing those principles, strategies, and engineering solutions.

In addition, The Adaptation Action Initiative is the next logical step in expanding upon the 2011-2015 Community Resiliency 309 strategy. DEO’s familiarity with the 309 process and engagement with pilot communities provides a solid foundation for attaining the new strategy goal within five years. Three pilot communities will soon be working collaboratively with a consultant team of experts to develop three adaptation plans based upon the adaptation planning process designed by DEO. Fort Lauderdale’s Adaptation Action Area project, a 309 Project of Special Merit under the Community Resiliency Initiative, will also provide ongoing examples and collaboration opportunities for this new five-year initiative.

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. 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, OCRM recognizes that they may change somewhat over the course of the five-year strategy 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: Provide financial and technical assistance to assist local governments address adaptation in long-term public investment decisions.

Total Years: 5

Total Budget: \$800,000.00

Year(s): 1-5

Description of activities:

The initiative will:

1. Use the vetted guidance materials developed during the Community Resiliency Initiative to provide technical assistance to assist local governments plan and take action to adapt to current and future coastal risks.
2. Form a state agency collaborative that meets regularly and shares information on resiliency efforts and resources.
3. Leverage the expertise and resources from other state agencies and provide a conduit for getting this information and expertise to the communities.
4. Provide direct financial and technical support to local governments for adaptation planning and assist in the identification of resources to implement actions identified.
5. Integrate resilient planning and design practices into future development and investment decisions at the local level.
6. Address adaptation in at least 10 communities statewide and provide best practices for practical adaptation action at the local level.
7. Create a network of communities committed to adaptation to future risks to facilitate peer-to-peer exchange on successes and overcoming challenges.

Major Milestone(s): Prepare plans for at least two communities each year.

Budget:

Category	Yearly	Five-Year Total
OPS Support – Planning Staff	\$52,309.05 (Hourly Wage + FICA + Health).	\$261,545.25
Travel (Staff, state agency partner and community travel)	\$14,000.00	\$70,000.00
Financial Assistance to Local Governments	\$89,127.30 (approximately \$44,563.65 each) for the preparation of plans for at least 2 communities.	\$445,636.50
Indirect Costs	\$4,563.65	\$22,818.25
TOTAL	\$160,000.00	\$800,000.00

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.

In addition to the requested 309 funding, the State Legislature has provided funding for two positions to manage and coordinate this proposed strategy.

- (1) Strategy Coordinator: $\$56,710.67 \times 5 \text{ years} = \$283,552.35$; and,
- (2) Strategy Manager: $\$29,418.87 \times 5 \text{ years} = \$147,094.35$.

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 and skills necessary to carry out the proposed strategy as a result of the previous 309 Community Resiliency Initiative. Additional trained personnel (consultants) may be hired to provide direct assistance to participating local communities.

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.

Provide consultants to assist Florida communities with integration of adaptation strategies into local planning and budgeting mechanisms.

Aquatic Preserve Management Plan Updates

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 & 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:** To complete updating the remaining management plans for the state's 41 aquatic preserves (APs), and request delegation of authority for final approval.

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 lead to program enhancements by revising special area management plans and pursuing revised authority for administrative decisions.

The 2011-2015 cycle of AP management plan updates funded by 309 produced a revised format for management plans. The revised format focuses management plan activities to address key issues, which are identified through a public engagement process. 2016-2020 309 Funding to update AP management plans will be used for OPS staff to help develop the remaining plans, room rentals for public meetings,

advertisement costs for public meetings, staff travel to conduct or attend public meetings, and supplies to print the plans for distribution.

In addition, this strategy will pursue revised authority for administrative decisions. AP management plans go through an extensive public review process, and plans are currently statutorily required to be approved by the Governor and Cabinet to be considered final. It has been challenging getting AP management plans on a Governor and Cabinet agenda. The Florida Department of Environmental Protection's (DEP) Florida Coastal Office (FCO) plans to request delegation of authority for AP management plan approval during this 309 cycle, mirroring the current approval process for the state's upland management plans.

I. 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.

DEP/FCO is responsible for managing the state's 41 APs. With close to two million acres of submerged lands to manage, effective and efficient management is critical for the long-term protection of Florida's most valuable coastal resources. This strategy will address needs identified by the SAMP and Ocean Resources Assessments to update management plans, which were originally developed in the 1980s and 1990s.

The updated management plans will describe AP management activities and guide management for the protection, maintenance, restoration, and sustainable public use of natural resources and habitats within each AP, allowing for consistency if staffing changes. The plans will also offer guidance to local and state decision makers on the protection, maintenance, restoration, and sustainable public use of the surrounding natural resources and habitats, which many of the communities rely upon for their thriving ecotourism industries. Updating publicly available descriptions of AP management activities is necessary to coordinate planning and management efforts both within and beyond APs to ensure coastal resources are adequately protected, efforts do not conflict and are not unnecessarily duplicated, and public use is adequately promoted. For example, updated AP management plans will be used with other SAMPs along the Gulf Coast to help DEP and the Florida Fish and Wildlife Conservation Commission prioritize the National Fish and Wildlife Foundation Gulf Environmental Benefit Fund Florida Restoration Strategy. Similarly, the recently updated Apalachicola National Estuarine Research Reserve (managed in conjunction nearby APs, such as Apalachicola Bay) management plan was used to prioritize RESTORE Act projects.

Long-term AP management goals remain: to protect and enhance ecological integrity; restore areas to their natural condition; and encourage sustainable use and foster active stewardship by engaging local communities in the protection of APs. Updating the remaining AP management plans will help further these long term goals and help address threats identified by the Assessment, such as degradation of water quality, and competition for space (human access/use), by focusing management efforts under the following categories: community outreach and stewardship; adjacent land uses and conservation; public access and use; water resource monitoring; water quantity; and habitat impacts. Involving the public through local stakeholder engagement processes will help ensure each plan utilizes and appreciates local knowledge, considers local priorities, and fosters community support.

In addition to an extensive public review process, which includes seeking management plan approval from DEP's Acquisition and Restoration Council (ARC), management plans must be approved by the Governor and Cabinet to be considered final. Requesting the delegation of authority to approve AP management plans will eliminate the need for final approval by the Governor and Cabinet, thereby expediting the process.

II. 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.

Florida's APs provide a system of significant protections to ensure that Florida's most popular and ecologically important submerged ecosystems are cared for in perpetuity. Each of these special places is managed with strategies based on local resources, issues, and conditions and are developed through a stakeholder engagement process resulting in site specific management plans.

A more focused AP management plan format has been developed and is being implemented at numerous APs and buffer preserves across the state. The revised format is less redundant, while still meeting statutory requirements, and focuses energy on addressing major key issues instead of 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 ARC.

This strategy will enable FCO to define specific key issues (e.g., ecosystem health, land use, water resource management, human activities and geophysical conditions) associated with each site, and to identify goals, objectives and strategies on how to address those issues through active management. For example, active water quality monitoring at APs contributes to state knowledge about the status of Florida's water quality. Active monitoring may be used to identify areas or habitats most in need of and suitable for restoration, such as oyster reef restoration. Each AP serves as a reference site for Florida's coastal resources, which benefits coastal management.

Active management through site specific AP management plans will benefit the coastal zone by assisting with the coordination and prioritization of planning, management, restoration, and conservation efforts from local to regional scales. For example, local AP management plans can be used to coordinate regional or state projects to protect or improve habitat and water quality. In addition, updated management plans developed with public input will help ensure current management practices promote public access opportunities.

Requesting delegated authority for approval of AP management plans will benefit coastal management by eliminating the challenge of getting AP management plans on a Governor and Cabinet agenda, decreasing the amount of time it takes for final approval and allowing AP managers to implement the revised plans sooner. The process for updating AP management plans will continue to require ARC approval, which is similar to the required process for other state managed uplands.

III. 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 and 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 likelihood of success for updating additional AP management plans (revised SAMPs) is high. The revision of AP management plans has been an FCO priority for several years. Of the 41 APs, 14 (34 percent) have a management plan that has been revised and approved by the Governor and Cabinet or ARC within the past ten years, and 23 (56 percent) have a management plan currently in some stage of development. Most revised plans were funded through a previous successful 309 strategy.

This new strategy will also benefit from lessons learned from the previous strategy. For example, under the previous strategy, management plans initially took a long time to produce. FCO implemented a new employee work plan system (Smart Goals) to develop deliverables, such as AP management plans, in a timely manner. As a result, AP managers are evaluated on their management plan development and accomplishments.

As the remaining management plans are updated and the economy improves, it is anticipated that DEP will have the capacity to maintain a cycle which will keep each of the plans updated at least every 10 years.

The likelihood of success for obtaining delegation of approval authority is less certain, depending on the political climate and time. However, the benefit of obtaining approval authority is worth pursuing to facilitate the approval process of updated management plans.

IV. 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. 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, OCRM recognizes that they may change somewhat over the course of the five-year strategy 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: Complete, or initiate, updating the remaining 27 management plans from the state's 41 APs, and request delegation of authority for final approval.

Total Years: 4

Total Budget: \$150,000

Final Outcome(s) and Products: A draft or final management plan for all sites initiated, and streamlined approval process via delegation of approval authority.

Year: 1

Description of activities: Develop and receive public input on 3-5 site management plans (including: development of background information [local history, geology,

hydrology/watershed, projected population, natural communities, listed and invasive species, historic and current public use, etc.] and initial issue development, and if possible, holding formal public meetings to receive input on the draft plans).

Major Milestone(s): 3-5 management plans drafted, and if possible, held public meetings for those 3-5 management plans.

Budget: \$40,000

Years: 2, 4, and 5 (Following lessons learned from previous grant cycles, year 3 will be used to complete deliverables and regroup for the final two years. No funding will be requested for year 3)

Description of activities: Pursue approval [by ARC] on all management plans that have gone through the public review process. Request delegation of approval authority from the Governor and Cabinet for all management plans that have been approved by ARC. In addition, develop and receive public input on an additional 9-15 site management plans (including: development of background information and initial issue development, and if possible, holding formal public meetings to receive input on the draft plans).

Major Milestone(s): Held public meetings for 11-15 draft management plans. Revised plans for ARC review and approval and, if delegation authority was not granted, Governor and Cabinet review and approval. Requested, and hopefully received, delegation authority from the Governor and Cabinet for approval of management plans.

Budget: \$110,000

V. 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 revision of AP management plans is an FCO priority. FCO has presented legislative budget requests to cover these efforts in the past. However, due to the current economic climate, no “new” concepts have been supported. It is anticipated that DEP will have the resources to maintain a revision cycle after all of the plans have been initially updated.

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.

Development of a Visitor Use Monitoring Protocol for Florida's Aquatic Managed Areas

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 & 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 checked="" 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:** To improve public access management by 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) Aquatic Preserves, National Estuarine Research Reserves (NERRS), and Coral Reef Conservation Program 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:

In 2008, Senate bill 542 (later incorporated in Chapter 253, Florida Statute) extended funding for the Florida Forever land acquisition program until 2020. The law required many changes in the way conservation land management agencies document and report their efforts, and in the allocation of

funding for the management of those lands. The changes increased the importance of accurately accounting for the number of visitors visiting managed areas, including submerged lands.

All of Florida's coastal and aquatic managed areas include submerged lands, which enable unfettered access from any direction. Unfettered access presents challenges to submerged land managers attempting to assess visitor use; sites accessible from all sides do not lend themselves to the traditional techniques of counting visitors, such as entrance gate counts. Consequently, visitation data at coastal and aquatic managed areas is currently collected using inconsistent methods, which does not provide for an accurate statewide assessment of visitation.

Strategy Overview:

Florida's Coastal Management Program (FCMP) partner agencies will address the current lack of consistent visitor use monitoring methods by developing a statewide, cost-effective protocol, which will provide scientifically defensible, comparable data that can be used to evaluate public use of Florida's coastal resources, future access needs, and potential impacts of visitors in coastal and aquatic managed areas.

First, a steering committee of Florida Coastal Office managers will be formed to identify an external partner(s) to conduct a baseline study of visitor use numbers and activities. This baseline study will collect data using and evaluating multiple concurrent methods, including but not limited to aerial surveys, water-based point counts, boat trailer counts, dock surveys, and/or existing data collected by public and private partners, such as marina launch counts or fees collected with iron rangers.

The steering committee will then work with the external partners to develop a cost effective, easily implementable, and statistically defensible visitor use monitoring protocol. A major component of the protocol design will allow for a subset of low-cost data collection methods to be used on an ongoing basis following the more comprehensive baseline study. The data collected using the sub-set of methods will then be used in conjunction with the more complete dataset from the baseline study to make ongoing estimates of visitor use and activities.

The scientifically defensible design of the Visitor Use Monitoring Protocol will provide more accurate estimates of visitation numbers and activities. The protocol and resulting estimates will enhance the ability of state and local managers to focus limited management resources on specific areas or priorities, and will be incorporated into coastal and aquatic area management plans. Improved estimates of visitor use will also help the public, land managing agencies, and decision makers better understand the value and importance of coastal and aquatic managed areas. The steering committee will determine the best outreach methods to disseminate results in the final year of the strategy.

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 addresses needs and gaps identified by the Public Access, Special Area Management Planning (SAMP), and Ocean Resources enhancement areas.

According to the Statewide Comprehensive Outdoor Recreation Plan (SCORP) referenced under Public Access, many of the top recreational activities in Florida either directly or indirectly relate to the coastal system. However, both SCORP and the State of Florida Land Management Uniform Accounting Council Annual Report (2014) lack figures (which were more easily calculated for land-based activities) for some coastal recreation and management activities due to the challenges of quantifying variables in submerged land areas with unlimited access.

Despite the challenges of unfettered access, local submerged land managers are currently required to contribute to a statewide visitation database. Lacking the resources needed to develop a statewide visitor use monitoring protocol, managers must use locally developed methods for data collection. As a result, data is collected using widely varying methods, levels of effort, and completeness. Thus, the information collected is not comparable at a state level and cannot be applied to state management decisions. The proposed strategy will provide submerged land managers with credible methods to collect and analyze data in a way that provides accurate assessments of visitor use patterns, is comparable with other sites, and serves as a scientifically defensible mechanism to inform management decisions.

In addition, user conflicts associated with public and commercial uses, as well as species and habitat management within Florida's jurisdictional waters were identified as major issues in the SAMP assessment. Assessment and monitoring of coastal resources and habitats were highlighted as management priorities for both the SAMP and Ocean Resources assessments, and the need to research and quantify the value of coastal and aquatic managed area visitor use was described throughout the Public Access assessment. A statewide visitor use monitoring protocol incorporated into management plans will provide submerged land managers with more accurate assessments of visitor use and their activities, improving efforts to address user conflicts between different user groups, and user conflicts that are incompatible with coastal habitat and species protection.

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.

To meet the goals of the national Coastal Zone Management Act, the national Coastal Zone Management Program "...takes a comprehensive approach to coastal resource management—balancing the often competing and occasionally conflicting demands of coastal resource use, economic development, and conservation." The FCMP addresses these competing demands, and national CZMA goals, by balancing the needs for resource protection and public access opportunities throughout the state's coastal and aquatic managed areas, including Aquatic Preserves, NERRs, and Coral Reef Conservation Program areas (FL reef tract).

In addition to national CZMA priorities, Florida's coastal and aquatic area managers must meet state mandates to manage Florida's coastal resources for the benefit of future generations by balancing public access and resource protection. For example, Aquatic Preserves are lands set aside by the Florida Legislature for their exceptional biological, aesthetic, and scientific values as sanctuaries for the benefit of future generations. Inventorying visitor use within Florida's coastal and aquatic managed areas will help managers meet their mandate by improving the management and protection of resources and habitats held in public trust for generations to come. The proposed strategy will enhance the ability of managers to:

- Protect natural resources by understanding where boating use is heaviest and most frequent in relation to natural resource presence;
- Promote responsible vessel access and use;
- Provide public access for recreation, and plan for future access needs, by understanding where opportunities exist for greater on-water access while recognizing the need for balancing use with resource protection;
- Prioritize water-dependent uses and development by quantifying and qualifying the use of vessels within aquatic preserves and identifying areas of high vessel use and other watercraft in relation to natural resources and access points;
- Coordinate state and federal actions by having a thorough understanding of vessel use patterns and intensity within aquatic preserves;
- Support economic analyses of the value of coastal and aquatic managed areas, and the resources they protect.

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 and 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 high likelihood of success. Similar approaches have been utilized to complete studies of the Coral Reef Conservation Program focus area and to develop a visitor use monitoring program for Everglades National Park, which may provide useful examples that can be applied to a statewide methodology.

In addition, this strategy will benefit from the existing statewide network of coastal and aquatic managed areas where submerged land managers currently collect and report visitation numbers. The proposed strategy will build upon, and greatly improve the methods by which this information is collected, which will result in information that is defensible and meaningful to local and statewide decision makers.

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. 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, OCRM recognizes that they may change somewhat over the course of the five-year strategy 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: Establish new cost-effective visitor use protocol for monitoring public use of coastal and aquatic managed areas in a consistent manner statewide to more effectively manage these areas.

Total Years: 5

Total Budget: \$400,000

Year(s): 1

Description of activities: A steering committee of Florida Coastal Office managers will be formed to compare similar protocols implemented by other state agencies, other states, etc., and to identify an external partner, potentially academic, to serve as the principal investigator on the project. The steering committee will also reach out to FCMP partner agencies for voluntary participation.

Major Milestone(s):

Steering committee formed.

Examine examples of similar protocols used by other state agencies, other states, etc.

External partner(s) identified.

Solicit participation by FCMP partner agencies.

Budget: \$50,000

Year(s): 2

Description of activities: A protocol and baseline study will be designed with the intention of using it to develop an ongoing monitoring protocol. The study design will develop a draft plan for monitoring logistics, such as aerial survey locations, duration, frequency, and patterns.

Major Milestone(s):

Draft protocol and baseline study designed.

Budget: \$50,000

Year(s): 3-4

Description of activities: During the third and fourth years of this strategy, the baseline study will be carried out using multiple concurrent methods, including aerial surveys as well as several more low-cost methods. Local partnerships will be leveraged to support aerial surveys over aquatic managed areas. Before conducting the baseline study statewide, it will be pilot-tested in one to three representative locations. Following the pilot implementation, the study design and draft monitoring protocol will be adjusted and then carried out in the remaining locations. The pilot locations will have repeat baseline studies conducted only if adjustments to study design and draft protocol are considered by the project team to be substantial.

Major Milestone(s): Baseline study completed and pilot-tested in 1-3 locations.

Budget: \$200,000

Year(s): 5

Description of activities: In the fifth and final year of this project, the draft protocol will be implemented statewide. The full baseline study will be repeated in one or more representative areas as quality control. A final report of the project will be completed and will include the following components, among others, determined by the project team: a finalized protocol, standard operating procedures for data collection, visitor use estimation

formulas, and a schedule for repeating the baseline study. The steering committee will select appropriate outreach efforts based on the data collected.

Major Milestone(s):

Final report.

Finalized visitor use monitoring protocol.

Outreach effort initiated.

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.

The requested 309 funding will be sufficient to carry out the proposed strategy. If funding constraints make funding of the full amount impossible, the project could be scaled to capture a representative sample of aquatic preserves.

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 some of the technical knowledge and skills to complete this strategy (additional knowledge and skills will be compensated by an external partner, likely through academic institutions). A team of qualified staff from the Florida Coastal Office and Aquatic Preserves will serve on the project steering committee. This team will provide feedback on the feasibility and usability of various methods and data types. They will also implement locally relevant methods during the pilot phase of the project.

The state does not possess dedicated staff with the knowledge and skills to lead the effort to design the baseline study and monitoring protocol and has identified several potential academic and government partners to serve in this role. Upon receipt of funding, the Florida Coastal Office will work with an academic institution or partner agency to serve in a lead role on the strategy.

Statewide Ecosystem Assessment Program of Florida's Coastal Aquatic Managed Areas

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 & 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: To enhance scientifically based regional, local and state submerged and upland management, planning, and policy decisions by establishing a comprehensive statewide Ecosystem Assessment Program (Program) of Florida's coastal resources. The Program will work to eliminate the divide between upland and submerged land management decisions by integrating and collaborating on the analysis and sharing of scientific information.

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:

Florida's economy is dependent on the health of its natural coastal and ocean resources. In 2010, Florida's coastal counties generated 79% of the state's economy contributing over \$584 billion in gross regional product to Florida's economy. "More than 228,000 jobs in Florida are directly created by activities that use ocean resources. When indirect effects are taken into account, the number of jobs supported by ocean resources exceeds 440,000. In 2011, about one out of every

twenty dollars' worth of Florida's gross domestic product resulted from use of the state's ocean resources" (Florida Oceans Alliance, <http://www.floridaoceanalliance.org/wp-content/uploads/2015/08/Healthy-Oceans-Generate-Jobs-for-Floridas-Economy-May-2013.pdf>). This strategy will develop a new statewide Ecosystem Assessment Program to inform planning, management and policy of the state's coastal and ocean resources.

Florida's Department of Environmental Protection Florida Coastal Office (FCO) leads the state on regional planning efforts in the Gulf, South Atlantic and Caribbean. As part of these coordination efforts FCO worked to collect all geospatial data relevant to coastal and ocean planning in consultation with key state agencies (e.g. Florida Fish and Wildlife Conservation Commission (FWC), Department of Agriculture and Consumer Services) in addition to federal, academic, and industry stakeholders (e.g., U.S. Geologic Survey, National Marine Sanctuary Program, Florida Seagrant, Florida Institute of Oceanography, Mote Marine Laboratory, Harbor Branch Oceanographic Institute, University of Miami, Audubon, and the cruise and fishing industry). These data have been incorporated into the regional data efforts and portals supported by the three regional ocean partnerships mentioned above, in addition to a FCO mapping portal (<http://ca.dep.state.fl.us/mapdirect/?focus=oceandata>).

Through the regional planning process and response to and recovery from the Deepwater Horizon Oil Spill (also led by the Florida Department of Environmental Protection), Florida has realized two needs as they relate to coastal and ocean planning. The first is the need link upland and submerged data into an integrated system. The second is to provide information in a format accessible and usable at a locally relevant level. Both of these findings are supported by the Governors' South Atlantic Alliance's Information, Management System Regional Assessment (Appendix A). Results of the Regional Assessment show the top four types of coastal and ocean management categories which could benefit from improved spatial data are related to species management/protection, habitat protection/conservation, water quality, and habitat restoration (options also included aquaculture, offshore energy, sediment management, beach nourishment, ports/shipping planning). Florida survey responses also indicated that existing geospatial data was at a larger scale than needed for local management decisions. This strategy will address these top priority needs identified for the region and for Florida.

The need for local data to inform local and regional decisions, which impact the health of the region, has been illustrated throughout Florida's history. The celebrated restoration and recovery of seagrass in Tampa Bay provides an example. In the 1960s and 1970s, Tampa Bay experienced significant seagrass loss along with documented nutrient pollution problems. Local documentation of these ecological changes prompted funding allocations towards advanced wastewater treatment for domestic wastewater, increasing beneficial reuse of domestic wastewater previously discharged, and stormwater treatment. In addition, the formation of the Tampa Bay National Estuary Program in 1991 and the Nitrogen Management Consortium in 1996 contributed to the progress in addressing long-term nitrogen management in Tampa Bay. As a result of the reductions in nitrogen loading, chlorophyll *a* levels have improved and seagrass coverage has increased to the highest levels since the 1950s, in spite of a 500% increase in the area's human population during this same period. The recovery of seagrasses in Tampa Bay is a great success, and like all of Florida's estuaries the health of this bay is important for many species including key fisheries species, such as redfish, seatrout, and tarpon.

For example, spotted seatrout (*Cynoscion nebulosus*) support one of the largest and most popular inshore sport fisheries along the southeastern US and in Florida, and utilize estuaries like Tampa Bay for spawning. In the mid-1980's and 1990's there was concern about the sustainability of this species. Commercial landings dropped from a range of 3.5 million to 1.8 million during the 1950s and 1970s to rarely exceeding 30,000 fish in the 1980s. Fisheries management and habitat restoration have contributed to the increased reproductive success of this species. However, Florida's coastal population growth will continue to impact fish that spawn close to shore through increased fishing pressure and spawning habitat degradation.

Tarpon are another important fisheries species for Florida, which spend the majority of the first year of life inshore in marshes and mangroves. They rely on healthy habitat for food and shelter during this critical time of development, and as adults (Figure 1). In addition to commercial and recreational fisheries, Tampa Bay provides critical areas for many threatened and endangered species (Figure 2).

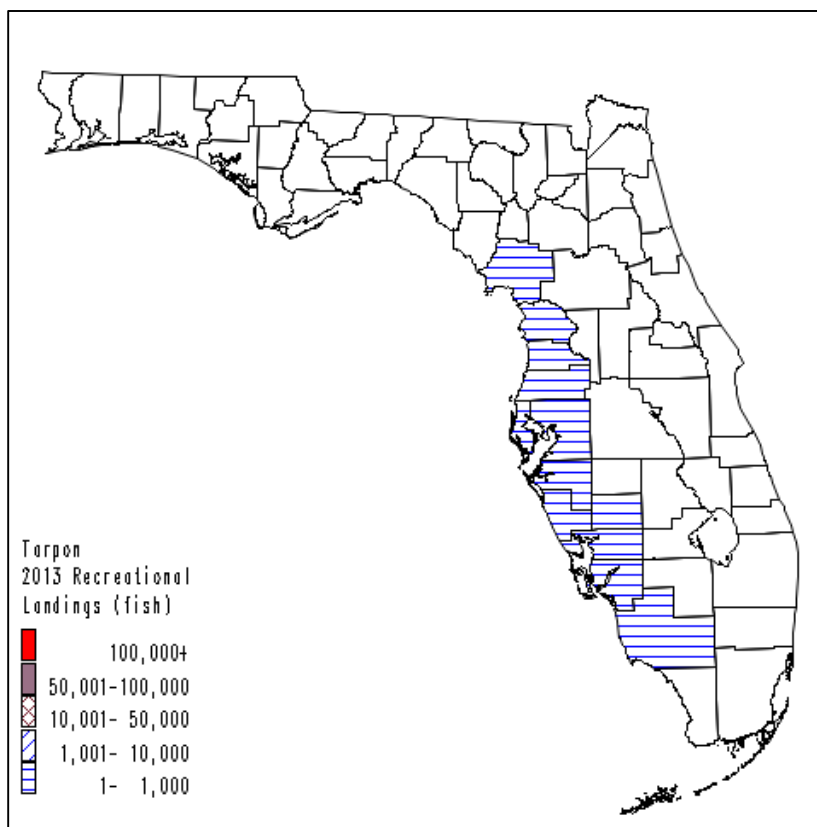


Figure 1. Geographic distribution of tarpon landed (numbers of fish) by recreational anglers during 2013 by region. [Note: Many anglers catching tarpon release these fish back into the wild. A possession limit of 2 fish (requiring a \$50 kill tag for each fish) is allowed, but few anglers buy the required tag and the distribution of landings do not necessarily reflect where tarpon are caught in Florida. For example, many fish are caught on Florida's gulf coast (e.g., in Boca Grande Pass and Tampa Bay area), but recreational interviews of tarpon anglers who have retained (landed) a tarpon are uncommon.] *Florida Fish and Wildlife Conserv. Comm., FMRI (2014)*

Tampa Bay provides just one example of how upland management activities are linked to the adjacent submerged lands and the Gulf of Mexico, demonstrating the crucial connection of Florida’s estuarine ecosystems to broader ocean systems. Planning, managing, and restoring ecosystems requires a detailed understanding of abiotic and biotic conditions in order to identify threats including long term and/or secondary impacts of uses, and to preserve Florida’s coastal resources for future generations. As managers to over 2.4 million acres of state coastal lands, FCO is in a unique position to implement this level of understanding statewide.

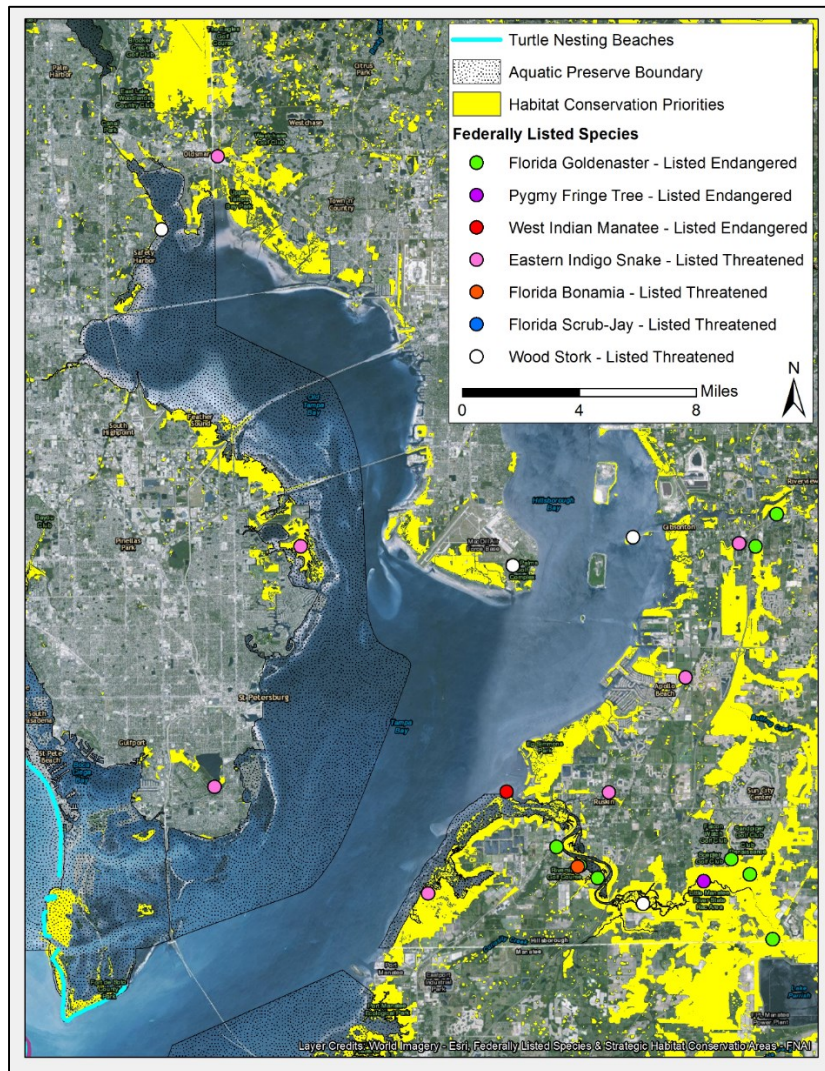


Figure 2. Tampa Bay, Florida. Threatened and endangered species occurrence is shown for Tampa Bay in addition to the Florida National Areas Inventory Habitat Conservation Priorities. The Habitat Conservation Priorities data layer prioritizes places on the landscape that would protect both the greatest number of rare species and those species with the greatest conservation need.

FCO manages 41 special aquatic areas established as preserves to be maintained in essentially natural conditions for the benefit of future generations. In coordination with NOAA, FCO also

manages three National Estuarine Research Reserves (NERRs) representing unique biogeographical regions, the Florida Keys National Marine Sanctuary (FKNMS), and the Coral Reef Conservation Program (CRCP). These areas total over 2.4 million acres of lands (submerged lands and coastal uplands) and form a network of place-based management locations.



FCO and Florida Coastal Management Program partner agencies including the Department of Environmental Protection, FWC, and Florida’s five water management districts (WMDs) collect a variety of coastal resource ecological data (e.g., water quality, nutrient levels, bacteria/pathogens, submerged aquatic vegetation (SAV), etc.) within these place-based management locations, which can be used to inform local and state management, planning, and policy decisions. However, the types of data collected and methods used are not always consistent between and outside of these locations. In addition, the information collected is not always readily available in formats usable by managers, planners, policy makers, and the public. As a result, there is a lack of accessible, directly comparable, and scientifically defensible statewide data on the statuses and trends of Florida’s coastal resources.

A new program is needed to comprehensively assess the statuses and trends of coastal resources statewide and system-wide, and to make these assessments collaborative and accessible to managers, planners, policy decision makers, and the public. This Program will collaborate with local and state managers to produce a Florida Submerged Lands Assessment Report (Report) which will include web based outreach materials and interactive mapping tools. Indicators of ecological health will be established for piloted parameters which will be used to address the cumulative and secondary threats, needs, and gaps discussed in the 309 Assessments.

Strategy Overview:

This five-year strategy will develop and pilot a comprehensive ecosystem assessment program (Program), which will synthesize, interpret, and disseminate information about the ecological health (statuses and trends) of Florida's coastal resources through a Florida Submerged Lands Assessment Report (Report) and associated web and mapping products including a decision support tool. Information gained from the Program will be used to enhance local, state and regional land management and planning programs and inform policy decisions which address threats to coastal ecosystems.

The Program will build upon existing coastal resource monitoring efforts at Florida's coastal and aquatic managed areas, and the five-year strategy will pilot the Program process and products. First, FCO staff will coordinate with FCMP partners such as FWC and WMDs and other data providers to form a Resource Assessment Data Team (RADT). The RADT will convene and evaluate the existing monitoring network and identify 1-3 coastal resource data pilot parameters (e.g. water quality, nutrients, seagrass, etc.) to be recommended for assessment and evaluation statewide throughout Florida's coastal and aquatic managed areas. Parameters will be selected based on existing monitoring capacity and value as indicators to evaluate threats to key resources, such as seagrass.

Utilizing the RADT and the Coastal Training Program network, a second Resource Assessment Partner Team (RAPT) will be formed to include regional, local and state managers and planners. The RADT and RAPT will meet to collaborate and develop a consensus on the pilot parameters, thresholds and products of the Program to ensure that data and associated tools can be readily incorporated into existing planning and management processes and procedures.

FCO will communicate progress and products of the Program to Florida stakeholders (e.g. governmental entities, planning councils, academic institutions, and non-governmental entities) regionally, in addition to presenting to the three Regional Ocean Partnerships (ROP) with which Florida participates. FCO will coordinate with each ROP to support the inclusion of assessment data into existing portals.

During the final year, FCO will evaluate existing decision support tools, identifying those with the ability to link upland and submerged land data. FCO will identify the best candidate and support development of this tool and its application to help address planning and management needs identified during the pilot.

The Program will continuously coordinate the RADT and RAPT to ensure scientifically defensible information is readily available and applicable to local, state, and regional decisions. Final products will include the Report, a Program web application, and a decision support tool. These final

deliverables will be used by resource managers and planners to inform and enhance existing programs and plans (e.g., Florida's Coastal and Estuarine Lands Conservation Program (CELCP), Surface Water Improvement and Management (SWIM) program, etc.), or to establish new local or state programs or plans in order to address the ecological health of the area. Such programs or plans may focus on restoration of certain habitat types, research to identify causes for changing conditions, and/or education efforts to modify human behaviors that impact resources.

Resulting deliverables will also be used to evaluate the success of implemented management plans, strategies, and policy decisions, as well as communicate relevant statuses and trends of coastal resources to local and state decision makers. Finally, deliverables will provide the public with local and state data in accessible, digestible formats.

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 Program will strengthen FCMP efforts to address priority needs and gaps identified throughout the Cumulative and Secondary Impacts (CSI), Ocean Resources, and Special Area Management Planning enhancement areas. Priority needs to reduce threats to coastal resources include comprehensive resource assessments at local and state scales in order to evaluate status and trends of coastal ecosystems, coordinate, prioritize, and evaluate management and restoration efforts, and comprehensively plan for the use of ocean resources.

The Ocean Resources and Cumulative and Secondary Impacts (CSI) enhancement areas recognized the difficulty in addressing collective impacts of altering upland habitats on coastal resources. Direct impacts are more easily regulated and monitored by the state because activities that result in a direct impacts (e.g., gain/loss of wetlands due to development) are relatively quantifiable. Despite multiple state agencies and programs that address various components of cumulative and secondary impacts, quantifying cumulative and secondary impacts in coastal ecosystems remains a challenge. This strategy and the resulting Program will help FCMP work towards addressing the challenge of assessing cumulative and secondary impacts by comprehensively evaluating ecological parameters throughout the existing statewide network of coastal and aquatic managed areas to achieve periodic snapshots of statuses and trends of Florida's coastal resources.

Accessible and comprehensive statewide assessments on the status and trends of coastal resources will help local and state resource managers and planners address pervasive threats identified throughout the Assessment. For example, development and degradation of water quality were identified as significant threats to coastal resources in the Ocean Resources and CSI enhancement areas. The Literature Review and Synthesis of Land-based Sources of Pollution Affecting Essential Fish Habitats in Southeast Florida (2013) cited under CSI described cumulative impacts of degraded water quality on marine and estuarine environments. Assessing water quality parameters such as nutrient levels, turbidity, sedimentation, etc., and the status of resources such as coral reefs and seagrass will help provide insight into cumulative and secondary impacts of activities surrounding coastal resources. Using water quality parameters as indicators will enable resources managers and planners to evaluate change over time, to identify the restoration needs of a specific habitat type,

ecosystem, or region, and to produce comprehensive restoration plans tailored for specific resource or regional needs.

In addition, The Deepwater Horizon Oil Spill recovery efforts revealed the need to evaluate resources statewide in order to prioritize and implement state and local efforts that will provide the largest ecological benefit to the Gulf of Mexico. The state provides place-based managers for aquatic lands and resources through the four programs outlined above (Aquatic Preserves, NERRS, FKNMS, and CRCP). Due to limited resources, these managers must prioritize issues and topics based on available funding, existing expertise, and partnerships, which inhibits consistent ecological assessments.

The proposed Program will develop a system-wide approach to assessing the status and trends of coastal resources at Florida's place-based management areas. The resource assessments will help provide consistent data on the status of ocean resources at local scales, which will be synthesized into a comprehensive statewide deliverables, such as comprehensive restoration plans.

Comprehensive assessments applicable at both local and state scales will assist efforts by local and state managers in addressing significant emerging threats identified by the Assessment, such as harmful algal blooms in Indian River Lagoon, threats to oyster reefs in Apalachicola, sea level rise, and ocean acidification. The causes of these significant issues are often a combination of local and much broader (regional to global) inputs, yet the impacts vary by location. Locally relevant data will help local resource managers, planners, and communities provide solutions catered to their individual needs.

Ocean Resources, Cumulative and Secondary Impacts, and Special Area Management Planning also identified a lack of studies that illustrate the effectiveness of the state's efforts in addressing these enhancement areas. While a variety of state agencies and programs address the management of coastal resources, no studies have been conducted on a statewide bases to evaluate these programs. Implementing recurring assessments on a cycle to be determined by the resource assessment team will help provide benchmarks (statuses and trends) that can be used to evaluate policies and management efforts over time.

Data from this Program will be used to:

- Identify/support priority conservation areas for Florida's Coastal and Estuarine Lands Conservation Program (CELCP)
- Guide and prioritize Natural Resource Damage Assessment (NRDA) and RESTORE projects
- Support implementation of National Estuary Program (NEP) Comprehensive Conservation and Management Plans
- Support Bureau of Beaches and Coastal Systems programs such as the Beaches, Inlets & Ports Program
- Support AP and NERR management plan updates
- Produce comprehensive restoration plans tailored to specific habitat, resource, or regional needs
- Inform Environmental Resource Permitting (ERP) program mitigation and permitting decisions
- Enhance the Surface Water Improvement and Management (SWIM) program
- Support management of FWC Critical Wildlife Areas

- Promote an understanding of the statuses and trends of coastal resources among local and state lawmakers to increase potential for scientifically sound policy decisions
- Increase public awareness of threats to coastal resources, benefits of coastal resources, and positive trends

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 develop a new program to:

1. Provide comprehensive ecosystem assessments of coastal resources in Florida addressing priority needs identified by the Assessment
2. Provide information on the ongoing statuses and trends of coastal resources at locally relevant scales to support state and local programs, plans, and decision making (outlined in Needs and Gaps Addressed)
3. Provide one way to measure success of FCMP, federal, state, and local management activities and policy decisions by providing continual status and trend assessments over time
4. Provide education materials understood by a wide variety of stakeholders including resource managers, planners, decision makers, and the public
5. Provide an interactive web application with assessment data and mapping tools
6. Incorporate assessment data in existing ROP portals
7. Provide a decision support tool to assist local, state, and regional managers in planning and management

Accessible statewide assessments will benefit Florida's CMP by better enabling comprehensive planning for ocean and coastal resources. Establishing system-wide assessments at Florida's place-based management locations will provide the data needed to evaluate coastal resource statuses and trends, cumulative and secondary impacts, ecosystem level health, and the efficacy of management decisions. Furthermore, the statewide program will benefit local communities by ensuring accessible, applicable data of consistent quality across the state. Consistent data will help coastal managers and planners prioritize and focus management and restoration efforts by providing comprehensive ecosystem snapshots, which will be used to produce comprehensive plans.

In addition, the assessments will help translate valuable ecological data into easy to read, publicly available documents capable of informing Florida's diverse population of coastal stakeholders. Florida's populous is drawn to the state's pristine aquatic resources, and approximately two-thirds of Floridians live in counties that border an aquatic preserve. Management plans developed for each aquatic preserve and NERR focus on management strategies that address stakeholder's issues of concern. The proposed strategy will provide an opportunity to better inform a variety of stakeholders on the ecological health of Florida's protected areas by establishing a consistent system-wide approach to assess ecological health. Increased awareness by legislators and the public will improve environmental literacy, promote policy changes when necessary, and provide support for scientifically sound policies and programs.

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 and 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 need for comprehensive statewide ecosystem assessments of submerged aquatic resources was recognized in 2009/2010, and an effort was initiated to identify existing monitoring within FCO aquatic managed areas. The Deepwater Horizon Oil Spill occurred shortly after initiation and all efforts were halted in order to focus on response and recovery. This strategy expands upon the earlier effort and has a high likelihood of success.

Utilizing managed areas where the state has already identified aquatic resources as state priorities will take advantage of existing infrastructure and streamline data needs. Florida's coastal and aquatic managed areas are actively managed by FCMP partners such as DEP, FWC, and water management districts, and include the statewide network of aquatic preserves, NERRs, FKNMS, and the CRCP. These programs have place-based managers who already collect data and provide feedback for local and state decisions.

Initially identifying 1-3 parameters (in the pilot) that are already gathered by FCMP partners in coastal and aquatic managed areas and adding parameters over time will allow the Program to develop gradually at a manageable pace and scale. As planned, the system-wide approach will provide a strong basis for influencing future management decisions and guiding restoration and education efforts.

An initial investment is needed to reinvigorate past efforts for comprehensive statewide resource assessments and encourage investment of time and personnel by FCMP partner agencies. In order to ensure long-term success (i.e., state funding in addition to CZM funds), the strategy includes a plan to inform state and local agencies and elected officials on the five-year pilot, including a clear presentation on Program deliverables. Additionally, key stakeholders will be engaged throughout development in order to gain buy in and support at the local level.

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. 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, OCRM recognizes that they may change somewhat over the course of the five-year strategy 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:

Total Years: 5 years

Total Budget: \$1,000,000

Year(s): 1

Description of activities:

Florida Coastal Office staff will form a Resource Assessment Data Team (RADT) which will consist of the agencies, land managers, and/or universities that currently collect long-term ecological data within the FCO managed areas. The team will engage in a workshop to identify 1-3 key stressors and indicators available data, data needs and gaps, and to evaluate the layout of a report which can be recommended for a statewide approach. Utilizing the RADT and the Coastal Training Program network, a second Resource Assessment Partner Team (RAPT) will be formed to include regional, local and state managers and planners. The RADT and RAPT will meet to collaborate and develop a consensus on the pilot parameters, thresholds, and product formats to ensure that Program information can be readily incorporated into existing planning and management processes and tools.

Major Milestone(s):

- Resource Assessment Data Team formed
- RADT Ecological Assessment Workshop executed
- Data gap analyses
- Evaluation of assessment report formats
- Resource Assessment Partner Team formed
- Joint RADT & RAPT Ecological Assessment Workshop executed
- Collaborative agreement on 1-3 parameters, thresholds, and reporting format for the Program products (including: Report, interactive webpage, and mapping tools)

Budget: \$150,000

Year(s): 2

Description of activities:

Contractors will be brought on board to initiate the recommended Report and products identified in year 1. Existing data will be compiled and analyzed in consultation with the RADT and RAPT. New or additional local and state partners may be identified through the process and brought in as part of data compilation and synthesis.

Major Milestone(s):

Contract issued to produce the recommended pilot Report
Data compilation and syntheses initiated
Coordination meetings with RADT and RAPT

Budget: \$250,000

Year(s): 3

Description of activities: Finalize Report and associated products. Synthesized data will be used to generate draft assessment reports in at least two formats. One format is envisioned to be web based and provide interactive mapping tools, while the other is a hard copy format. These reports will be presented to the RADT and RAPT for feedback and vetting before being finalized.

Major Milestone(s):

Data compilation and synthesis finalized.
Draft Report and Products presented to the RADT and RAPT.

Final draft format(s) agreed on.

Budget: \$250,000

Year(s): 4

Description of activities: Final report will be generated and featured online. FCO leadership will present the Program to stakeholders (e.g. governmental entities, planning councils, academic institutions, and non-governmental entities) regionally through a series of regional meetings. Additionally, the Program will be presented to the Gulf of Mexico, South Atlantic and Caribbean Regional Ocean Partnerships including the Gulf and Atlantic Integrated Ocean Observing System programs. FCO will coordinate with each Regional Ocean Partnership to support the inclusion of assessment data into existing portal frameworks. To the extent that resources allow, data compilations and synthesis will begin/continue for other resource parameters identified as priorities through this process. The final Report will be available to the public, decision makers, non-governmental organizations, and other governmental entities.

Major Milestone(s):

Final Report produced.

Interactive web application launched.

Regional stakeholder meetings completed.

Presentation of Program to 3 Regional Ocean Partnership.

Incorporation of assessment data to existing ROP portals (GSAA currently has established portal).

Budget: \$250,000

Year(s): 5

Description of activities: Development of decision support tools linking upland and submerged land Program data. During this year an evaluation of products considered through the Deepwater Horizon restoration process (e.g. Greenlinks, RIOS, etc.) will occur to determine the most appropriate tool. RADT and RAPT will be incorporated into the decision process. Program data and other relevant management and planning data will be incorporated into the tool.

Major Milestone(s):

Decision support tool evaluation and development.

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.

The requested 309 funding is sufficient to carry out the proposed strategy. Data existing in a variety of formats will be incorporated into the assessment. Any identified data gaps will be considered and prioritized to be pursued through state funds or other granting opportunities. GSAA hosts a regional portal which can be expanding through this effort.

- 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).

Generally, the state possesses the technical knowledge, skills, and equipment to carry out the proposed strategy. Specific, minor needs will be addressed on a local scale.

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.

PSM may include the following:

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 tool, including components to link upland and submerged land information.

References:

Lowerre-Barbieri, S., S. Walters, and J. Bickford. 2008. Spatial and temporal reproductive dynamics of spotted seatrout in Tampa Bay and adjacent waters. Page 135-151 in Investigations into Nearshore and Estuarine Gamefish Behavior, ecology, and life history in Florida. Sport Fish Restoration Act Report. 188p.

Michael D. Murphy, David Chagaris, and Dustin Addis. March 2011. An assessment of the status of spotted seatrout in Florida waters through 2009. Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute. IHR 2011-002

Florida Keys Vessel Turn-In Program

A Programmatic Shift in Addressing Derelict and Abandoned Vessels

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 & Government Facility Siting | <input type="checkbox"/> Wetlands |
| <input type="checkbox"/> Coastal Hazards | <input checked="" 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:** To reduce the number of derelict vessels (Marine Debris) in state waters by implementing a Florida Keys Vessel Turn-In Program. The Florida Wildlife Conservation Commission (FWC) and Monroe County will address the root causes of abandoned and derelict vessels by developing an educational and programmatic approach for vessel owners to properly dispose of their vessels, which will reduce and prevent the accumulation of marine debris in our coastal environment.

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/History:

Abandoned and derelict vessels have been a problem throughout Florida for many years, presenting environmental and navigational issues, as well as significant costs (financial and staff resources) for

removals. An estimated 772 derelict or abandoned vessels were removed statewide from 2009-2014. Although local governments and agencies throughout the state continue to remove derelict vessels, the current management programs have not prevented derelict vessels from accumulating. Program managers acknowledge that a programmatic shift is necessary to prevent a continual increase of derelict and abandoned vessels.

FWC and the Monroe County Marine Resources Office recognize that the Florida Keys is a magnet for liveaboards and the use of vessels for affordable housing. Monroe County leads the state in the number of derelict vessels removed at an average annual cost of \$180,000 to dispose of approximately 60 vessels. Data indicates that most derelict vessels removed have been either stored (long-term), or inhabited and abandoned due to their deteriorating condition. Most derelict vessel owners cannot afford to own or maintain a boat. In many cases, the last 'real' owner of the vessel, rather than paying to dispose of the vessel, passes it on to an unwary (often homeless) person who moves onto the vessel with no boating knowledge or financial means to maintain the vessel. The vessel title is often not properly transferred, creating owner/responsible party identification problems for law enforcement.

Monroe County also struggles with the management of floating structures (often referred to as *houseboats*). Floating structures are often poorly designed, incapable of navigation, and expensive to remove. These structures are not true "vessels" and cannot be regulated through proper registration or marine safety standards. The Monroe County Board of County Commissioners has recognized issues with floating structures and expressed political support for a prohibition on anchoring of floating structures, as provided for in Section 327.60(3), F.S. In addition, the draft 2030 Monroe County Comprehensive Plan (Policy 202.3.1) requires that liveaboard floating structures moored to land be restricted to marina facilities.

As a result of these challenges, State and County officials and resource managers seek to strengthen and improve marine debris management by addressing the root causes of derelict and abandoned vessels through programmatic changes.

Strategy Overview:

Existing abandoned and derelict vessel programs throughout the state represent a reactive approach to management; while effective in removing derelict vessels, these programs have not had a significant impact on the reduction or prevention of such vessels. This strategy will implement a proactive management approach through a pilot Vessel Turn-in Program (Program) in the Florida Keys.

The Program will address the socioeconomic and behavioral issues associated with the use of unattended and liveaboard vessels and will develop a process by which a vessel owner can surrender their titled vessel to a local participating 'agent' for proper disposal. Participating agents will be identified, enrolled, and authorized (as needed) throughout the Program area to assist with Program activities (e.g., marinas, resource agencies, and municipalities). Collection and staging locations will also be identified and evaluated to assist with disposal efforts (e.g., designated boat ramps (state or county), waste transfer stations, and debris staging sites). Identifying local participating agents and collection and staging locations as needed will provide for cost efficiency in the Program as well as convenience to boaters participating in the Program. The implementation of this strategy will ensure that vessels are not abandoned and allowed to sink, reducing environmental impacts, navigational hazards, and removal costs, and potentially preempting owners from facing criminal action (a 1st degree misdemeanor), which may occur if the vessel were to become derelict.

It is anticipated that the Program will reduce the number of abandoned and derelict vessels, provide a cost savings in the removal and disposal of vessels, protect the environment from impacts associated with abandoned and derelict vessels, and reduce the navigational hazards created by sunken and unattended vessels. In addition, this programmatic shift addresses the behavior of vessel owners, helps them recognize their roles and responsibilities as a vessel owner, and provides a means for the owner to properly dispose of their vessel as it approaches the end of its lifespan. The Program will include participation criteria and application procedures, vessel disposal processing, and a boater education and outreach campaign. With political support expressed by the Monroe County Board of County Commissioners, a new local ordinance to prohibit the anchoring of floating structures within waters of Monroe County will be implemented to address the management gap regarding floating structures. The Florida Keys Vessel Turn-in pilot program will also result in the production of an FWC guidance document for statewide adoption.

Objectives/Activities:

- 1) Survey and analyze environmental damage associated with existing derelict vessels in site-specific areas of the Keys and produce a baseline environmental study.
- 2) Develop/Implement an education/outreach campaign for boaters, including:
 - a. Identify barriers and benefits to Program participation.
 - b. Educate the boating public on impacts of abandoned and derelict vessels as well as benefits of Program participation; produce fact sheet highlighting Program benefits and impacts of abandoned and derelict vessels (i.e. benthic damage from marine debris, water quality degradation, hazards to navigation).
 - c. Conduct outreach on titling procedures and the importance of titling vessels with every transfer in ownership; produce a frequently asked questions (FAQ) sheet on titling procedures; host public seminars on title laws.
 - d. Conduct outreach on Program benefits, guidelines and procedures; conduct public workshops in sub-areas of Monroe County to promote Program participation.
 - e. Launch a community-based social marketing campaign incorporating the above elements using television and radio public service announcements (PSA's), social media, etc.
- 3) Develop and implement the Vessel Turn-In Program
 - a. Create criteria, procedures, and application process for the Program.
 - b. Enroll local participating program agents to assist with the Program.
 - c. Coordinate/implement Program activities with participating boat owners, including: ownership verification, application acceptance, title surrender, and vessel disposal processing.
 - d. Produce program summary*
- 4) Develop and adopt a new local ordinance designed to prohibit the anchoring of floating structures within waters of Monroe County.
- 5) Develop a statewide guidance document** for adoption by FWC for statewide implementation.

***Program Summary:**

The final step in the five (5) year timeline is a summary of the Program to evaluate the various elements for success in implementation. This summary shall include the following evaluation measures:

- The number of vessels surrendered for disposal under the Program;
- A comparison of the number of routine derelict vessel removals vs. the number of vessels surrendered during the Program period;
- Any cost savings realized through implementation of the Program;
- Results of stakeholder input on the acceptance and utilization of the Program; and
- A brief sociological synopsis focusing on any behavioral changes or patterns observed as a result of the Program.

****Guidance Document:**

Upon successful completion of the Program, FWC will develop a guidance document which can be implemented statewide or utilized by local governments to develop their own program(s). The guidance document will encourage agencies to implement derelict vessel management program changes, which emphasize the root causes of the accumulation of derelict and abandoned vessels. The guidance document will also discuss similar programmatic changes in other states, and how such changes have successfully addressed their own regional issues of abandoned and derelict vessels.

I. 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.

Derelict vessels were highlighted as one of the most significant marine debris management challenges, and a top management priority in the Marine Debris enhancement area. Derelict vessels were also described as a threat to benthic habitat and a management priority in the Ocean Resources enhancement area. Specific priorities described a need for derelict vessel planning and outreach.

In addition, the location of the pilot project in Monroe County addresses previously identified management needs. The Florida Keys National Marine Sanctuary (FKNMS), contains an abundance of sensitive marine resources including seagrass beds and coral reefs of national significance. The FKNMS identified derelict vessel removal as an action item in their Management Plan, which indicates that alternative funding sources are critical for effective waterway management. Vessel owners in the Florida Keys need an alternative disposal method for their vessels when unable to pay for the removal themselves. Current absence of an alternative often leads to the dumping or abandoning of the vessels in state waters. Offering this service will mitigate the accumulation of abandoned and derelict vessels.

Furthermore, improved ownership verification and accountability, as well as a new local ordinance for floating structures will improve enforcement, and providing a viable alternative for derelict vessels will strengthen the courts prosecution of derelict vessel owners.

II. 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 prevent and reduce the accumulation of derelict vessels, which will benefit coastal management by:

- 1) Reducing navigational and environmental hazards created by drifting/dragging derelict and abandoned vessels (e.g. damage to habitats, maritime infrastructure and private docks/shorelines; threats to public safety; and pollution).
- 2) Reducing financial and staff resource demands on the administration, enforcement, and legal processing of derelict vessels, thereby providing cost savings, which could be applied to promote additional conservation measures, restoration efforts, and other management priorities.
- 3) Reducing the accumulation of marine debris by removing vessels before they are subject to the adverse cycle that ultimately leads to abandonment.
- 4) Improving use of existing authority to prosecute derelict vessel owners.
- 5) Improving authority to regulate floating structures.
- 6) Addressing the need to change the behavior of vessel owners.
- 7) Addressing the socioeconomic problems associated with vessel abandonment.
- 8) Properly managing the uses and activities that contribute to debris entering the coastal environment.

III. 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 and 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.

Likelihood of attaining the strategy goal and program changes within the five-year assessment cycle is high. Similar programs have already been implemented in California and Washington. Both states have indicated success in reducing derelict vessels. Coordination with these partners will provide assistance with further development and implementation of this Program.

The objectives outlined in the strategy provide clear stepwise goals with tangible deliverables including the baseline environmental study, educational fact sheets, Vessel Turn-in Program criteria and procedures, program summary, etc. Each objective supports the overall comprehensive strategy. For example, the baseline environmental study will provide data to support the education and outreach campaign, which will promote public involvement and improve success of the Vessel Turn-in Program.

Collaboration between agencies with shared interest in reducing derelict vessels and their impacts – FWC, Monroe County, and FKNMS – will provide a high degree of program support, and the scale of this pilot program within Monroe County is appropriate for completing the described program changes within the five year timeframe. The final guidance document will provide guidance to implement additional local or statewide programs, promoting additional program changes.

IV. 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. 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, OCRM recognizes that they may change somewhat over the course of the five-year strategy 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: Implement the Florida Keys Vessel Turn-in Program

Total Years: 5

Total Budget: \$254,000 over 5 years

Please see **Table A** at the end of this strategy for descriptions of activities and major milestones.

Task/Activities	Year 1 Funding	Year 2 Funding	Year 3 Funding	Year 4 Funding	Year 5 Funding	Total Funding
Operational and procurement Costs of Materials for Outreach and Education	\$20,000	\$5,000	\$5,000	\$5,000	-	-
Vessel Turn In Program Removal Cost	\$30,000	\$45,000	\$45,000	\$45,000	\$45,000	-
Baseline Study prior to Implementation	\$9,000	-	-	-	-	-
Budget	\$59,000	\$50,000	\$50,000	\$50,000	\$45,000	\$254,000

V. 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 309 funding will be sufficient to carry out this proposed strategy for a pilot Florida Keys Vessel Turn-in Program. At the conclusion of this strategy, FWC and Monroe County officials will produce a guidance document based on Program results. FWC and Program team members will solicit both funding and support for a statewide Vessel Turn-in Program.

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).

All technical needs will be provided by the county and the state. The state will also be assisting the county with management details and oversight as the program is developed and executed.

Table A.

Timeline for Florida Keys Vessel Turn-In Program										
	Year 1		Year 2		Year 3		Year 4		Year 5	
	1st half	2nd half	1st half	2nd half	1st half	2nd half	1st half	2nd half	1st half	2nd half
Baseline Environmental Study	ID & survey site-specific Target Areas to assess environmental damage assoc. w/ abandoned & derelict vessels	analyze data and prepare results for a Baseline Study	complete final Baseline Study document							
VTIP program	develop program criteria, procedures & application process	enroll local participating program agents	coordinate/implement program activities <i>(e.g. ownership verification, application acceptance, title surrender & vessel disposal processing)</i>							
								draft Program Summary	finalize Program Summary	
Boater Education & Outreach Campaign	develop educational materials & outreach efforts inc. DV Fact Sheet, Vessel Titling FAQs, Seminars, Workshops, PSAs	launch campaign inc. production & distribution of educational materials, conduct public workshops & seminars, advertise PSA announcements	continue campaign throughout duration of program							
								conduct stakeholder surveys		
New Local Ordinance			develop new local ordinance re: floating structure prohibition	seek public input & adopt new ordinance						
Statewide Implementation								develop statewide Guidance Document	adoption of statewide Guidance Document	

5-Year Budget Summary by Strategy

At the end of the strategy section, please include the following budget table summarizing your anticipated Section 309 expenses by strategy for each year.

Strategy Title	Year 1 Funding	Year 2 Funding	Year 3 Funding	Year 4 Funding	Year 5 Funding	Total Funding
Adaptation Action Initiative	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$800,000
Aquatic Preserve Management Plan Updates	\$40,000	\$40,000	-	\$30,000	\$40,000	\$150,000
Development of a Visitor Use Monitoring Program for Florida's Aquatic Managed Areas	\$50,000	\$50,000	\$100,000	\$100,000	\$100,000	\$400,000
Ecosystem Assessment Report of Florida's Protected Areas	\$150,000	\$250,000	\$250,000	\$250,000	\$100,000	\$1,000,000
Florida Keys Vessel Turn-in Program	\$59,000	\$50,000	\$50,000	\$50,000	\$45,000	\$254,000
Total Funding	\$459,000	\$550,000	\$560,000	\$590,000	\$445,000	\$2,604,000

SUMMARY OF STAKEHOLDER AND PUBLIC COMMENT

The Florida Coastal Management Program (FCMP) has been seeking input from partner agencies, local governments, and interested parties for several years. A component of the 2013/2014 strategic planning process was an online survey soliciting input regarding management priorities for the next five years, and suggestions for FCMP improvements. In addition, the Coastal Managers Forum (CMF), which was created in 2013 and meets quarterly with representatives from each of the state partner agencies, was requested to propose strategies for the 309 process. The Florida Coastal Office consulted with state and regional partners, most of whom are members of the CMF, throughout development of the assessment and strategies. Communication regarding the 309 assessment ranged from telephone calls and email correspondence to in-person meetings.

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; Division of Recreation and Parks; Department of Transportation; Department of Agriculture and Consumer Services; Department of Environmental Protection programs: Submerged Lands and Environmental Resources Coordination, Siting Coordination Office, Bureau of Beaches and Coastal Systems, Office of Greenways and Trails, Outer Continental Shelf Program, Coral Reef Conservation Program, Industrial Wastewater Program; 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, Marine Debris, and Ocean Resources enhancement areas.

Common management needs and priorities emerged from stakeholder feedback including: improved coordination between state agencies and between state and local governments, comprehensive resource assessments and monitoring, data management, and mapping efforts. These management needs and priorities were incorporated throughout the assessment and strategies.

Collectively, stakeholder feedback highlighted the inherent connectivity of the nine enhancement areas, and priorities for program changes. As a result, each strategy promotes program changes under at least two predominant enhancement areas to reflect this connectivity.

A 30-day public comment period was provided in March 2015. No comments were received during this period. Two comments were received regarding Section 309 during the Section 312 evaluation public meeting in July, 2015; a representative from the Nature Conservancy recommended the FCMP continue DEO's community resiliency efforts in local communities, and the need for statewide resource assessments.

ACRONYM TABLE	
AP	Aquatic Preserve
BMAP	Basin Management Action Plan
BMP	Best Management Practices
BOEM	Bureau of Ocean Energy Management
BP	British Petroleum
CELCP	Coastal and Estuarine Land Conservation Program
CERP	Comprehensive Everglades Restoration Plan
COET	Center of Excellence in Ocean Energy Technology
CRCP	Coral Reef Conservation Program
CREMP	Coral Reef Evaluation and Monitoring Program
CRIS	Coastal Resource Information System
CSI	Cumulative And Secondary Impacts
CWA	Critical Wildlife Management Area
CZMA	Coastal Zone Management Act
DACS	Florida Department of Agricultural and Consumer Services
DEM	Florida Division of Emergency Management
DEO	Florida Department of Economic Opportunity
DEP	Florida Department of Environmental Protection
DO	Dissolved Oxygen
DOH	Florida Department of Health
DV	Derelict Vessel
EPA	(United States) Environmental Protection Agency
ERP	Environmental Resource Permit
FAC	Florida Administrative Code
FCMP	Florida Coastal Management Program
FCO	Florida Coastal Office
FEMA	Federal Emergency Management Agency
FGS	Florida Geological Survey
FKNMS	Florida Keys National Marine Sanctuary
FNAI	Florida Natural Areas Inventory
FOCC	Florida Oceans and Coastal Council
F.S.	Florida Statute
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute within FWC
GAME	Geospatial Assessment of Marine Ecosystems
GIS	Geographic Information System
GOMA	Gulf of Mexico Alliance
GTM	Guana-Tolomato-Matanzas
HAB	Harmful Algal Bloom

IRL	Indian River Lagoon
LIDAR	Light Detection and Radar
LNG	Liquefied Natural Gas
MFL	Minimum Flows and Levels
MOU	Memoranda of Understanding
NCRI	National Coral Reef Institute
NEEPP	Northern Everglades and Estuaries Protection Program
NERR	National Estuarine Research Reserve
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration
NRDA	Natural Resource Damage Assessment
NFWFMD	Northwest Florida Water Management District
NWI	National Wetlands Inventory
OCRM	Office of Ocean and Coastal Resource Management within NOAA
OGT	Office of Greenways & Trails within DEP
OTEC	Ocean Thermal Energy Conversion
PDRP	Post-Disaster Redevelopment Plan
GSAA	Governor's South Atlantic Alliance
SAMP	Special Area Management Plan
SAV	Submerged Aquatic Vegetation
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SEFCRI	Southeast Florida Coral Reef Initiative
SFWMD	South Florida Water Management District
SIMM	Seagrass Integrated Mapping & Monitoring
SLOSH	Sea, Lake and Overland Surge Hazard
SLR	Sea Level Rise
TMDL	Total Maximum Daily Loads
USFWS	United States Fish and Wildlife Service
WMD	Water Management District

FLORIDA'S 35 COASTAL COUNTIES

COUNTY
BAY
BREVARD
BROWARD
CHARLOTTE
CITRUS
COLLIER
DIXIE
DUVAL
ESCAMBIA
FLAGLER
FRANKLIN
GULF
HERNANDO
HILLSBOROUGH
INDIAN RIVER
JEFFERSON
LEE
LEVY
MANATEE
MARTIN
MIAMI-DADE
MONROE
NASSAU
OKALOOSA
PALM BEACH
PASCO
PINELLAS
SANTA ROSA
SARASOTA
ST. JOHNS
ST. LUCIE
TAYLOR
VOLUSIA
WAKULLA
WALTON

