

Sea Turtle Conservation and Coastal Park Management in Florida

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Table of Contents

I. Executive Summary.....	3
II. Introduction	5
III. Caveats.....	6
IV. Park Planning Legal Framework	7
a. Statutory Planning Mandate for State Parks	7
i. General Requirement	7
ii. Substantive Requirements	8
b. Local Park Management	10
i. Land Acquisition Programs	10
ii. Management Overlays.....	12
V. Methodology	15
a. Study Area.....	15
b. Management Planning Documents	17
c. Criteria Development.....	18
d. Criteria Matrix and Analysis.....	18
VI. Findings	28
a. Northeast Atlantic Region.....	28
i. State Parks.....	28
ii. Local Parks	35
b. Southeast Atlantic Region.....	36
i. State Parks.....	36
ii. Local Parks	45
c. Northwest Gulf Region	46
i. State Parks.....	46
ii. Local Parks	55
d. Southwest Gulf Region.....	55
i. State Parks.....	55
ii. Local Parks	63
VII. Discussion	64
a. State Parks.....	64
b. Local Parks.....	66
VIII. Conclusion.....	67
VIII. Recommendations.....	68
a. State Parks.....	68
b. Local Parks.....	68

I. Executive Summary

The Florida State Park System encompasses about 100 miles of sandy beaches, a significant proportion of which provide sea turtle nesting habitat. These state parks, together with many additional miles of county and municipal beachfront parks, host many thousands of sea turtle nests annually. While some parks may only include a mile or less of shoreline nesting habitat, others can span over ten miles along the Atlantic and Gulf coasts. Given the high percentage of suitable nesting habitat that falls within state, county and municipal park boundaries, coastal public park management plays a critical role in the long-term conservation of sea turtle populations in Florida.

Sea turtle and sea turtle habitat protection and management in Florida is subject to a multi-tiered regulatory scheme informed by federal, state and local law. In addition to this overarching regulatory framework, all state parks, and some county and municipal parks, rely on the park management plan to serve as the basic tool that guides conservation and management decisions within the park. This project analyzes the existing policy and planning framework for the conservation and management of sea turtles in Florida state, county and municipal coastal parks, reviews all readily available park management plans, and derives best management planning practices from the literature, subject matter experts and this analysis to offer guidance for park managers responsible for sea turtle nesting beaches.

We first identified all state, county and municipal coastal parks in Florida that include sandy nesting beaches and acquired their associated management plans where available. Guided by a literature review and expert opinion, we then developed a comprehensive list of criteria we deemed important for effective sea turtle management in public parks. We then evaluated the sufficiency of collected plans against the criteria using a spreadsheet-based modified stoplight approach (red, yellow, green, neutral). Finally, we analyzed the data to determine performance of each criteria regionally.

We conclude that, despite recent progress, many state park plans subject to state-mandated planning requirements have not been updated within the required statutory time frame, although a number of these could have been updated and are in the Acquisition and Restoration Council's review pipeline. Many plans reviewed for this report do not adequately address the best management planning practices we identified for sea turtle conservation. Although some of the criteria we used may not apply to specific parks or may be governed by broader system wide planning mandates. Data concerning county and municipal parks was difficult to access, and the local policy and planning framework was sometimes difficult to divine. For many local parks there is no park-specific management plan (either individually or cumulatively), and many rely solely on the broader federal, state or local regulatory framework applicable to all sandy beaches. Given the importance of coastal parks to sea turtles and their habitat, we believe that greater emphasis should be placed on the management plan as the foundation for sea turtle conservation in Florida's coastal parks.

We recommend that the Florida Department of Environmental Protection (FDEP) develop a statewide protocol for the management of sea turtles and their habitat to guide management across all state coastal parks with sea turtle nesting habitat. This could be incorporated by reference into individual park plans as they are updated. We recommend that the Acquisition and Restoration Council's review process of coastal park management plans in the pipeline be accelerated, that FDEP should seek legislative support for additional resources to address state park management planning, and that consideration be given to reducing the planning timeframe for management plan updates from 10 years to 5 or 7 years. We also recommend that all local and county parks should have individualized management plans (though small, proximate parks with similar characteristics could be grouped into a single plan), and state funding for local parks should be conditioned on assurance that there is a management plan and planning process in place.

II. Introduction

Sea Turtle conservation efforts in Florida and around the U.S. have been on the rise over recent decades following the official listing of sea turtles as federally endangered or threatened species under the Endangered Species Act.¹ Florida is a particularly important area for sea turtle conservation given that approximately 90% of all sea turtle nesting in the United States occurs on Florida's beaches.² In addition, the largest aggregation of loggerhead nesting in the world is found along Florida's mid-Atlantic shoreline. Sea turtle species known to regularly nest on Florida beaches include the loggerhead (*Caretta caretta*), green (*Chelonia mydas*) and leatherback (*Dermochelys coriacea*)³. Over 100 miles of this critical nesting habitat fall within the boundaries of state, county and municipal public parks.

Given that beach recreation and tourism is one of the driving forces of Florida's economy,⁴ nesting sea turtles share the beach with millions of visitors each year.⁵ This intensive use can directly affect nesting success through impacts of artificial light pollution,⁶ man-made debris and obstacles on the nesting beach,⁷ erosion⁸ and many additional factors.

¹ Jason Daley, *Endangered Species Act Is Working for Sea Turtles and Marine Mammals* (Jan. 19, 2019), SIERRA, <https://www.sierraclub.org/sierra/endangered-species-act-working-for-sea-turtles-and-marine-mammals>.

² *Sea Turtle Nesting Season Tips & Turtle Walk Info* (May 1, 2019), SEA TURTLE CONSERVANCY, <https://conserveturtles.org/nesting-season-tips/>.

³ FWC Fish and Wildlife Research Institute, *Statewide Atlas of Sea Turtle Nesting Occurrence and Density*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, <https://myfwc.com/research/wildlife/sea-turtles/nesting/nesting-atlas/> (last visited Dec. 3, 2019). Two additional species, Kemp's ridley (*Lepidochelys kempii*) and hawksbill (*Eretmochelys imbricata*), infrequently nest on Florida beaches but are often seen in offshore waters.

⁴ James R. Houston, *The Economic Value of Beaches- A 2008 Update*, 76 *Shore & Beach* 22 (2008); Valerie Seidel et al., *Economic Impact of Outdoor Recreation Activities in Florida (Final Report, August 2017)*, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/Economic-Study-Appx-A-w-tags.pdf> (last visited Dec. 3, 2019).

⁵ *Estimates of Visitors to Florida by Quarter*, VISIT FLORIDA, <https://www.visitflorida.org/resources/research/> (last visited Dec. 3, 2019); *Return on Investment for VISIT FLORIDA* (Jan. 1, 2018), OFFICE OF ECONOMIC & DEMOGRAPHIC RESEARCH, <http://edr.state.fl.us/Content/returnoninvestment/Tourism2018.pdf>.

⁶ Jacquelyn K. Lorne, Michael Salmon, *Effects of exposure to artificial lighting on orientation of hatchling sea turtles on the beach and in the ocean*, 3 *ENDANGERED SPECIES RESEARCH* 23 (2007), <https://www.int-res.com/articles/esr2007/3/n003p023.pdf>.

⁷ Hayley Rutger, *Beach Furniture Affects Nesting Turtles in Southwest Florida* (Jul. 12, 2017), MOTE MARINE LABORATORY AND AQUARIUM, <https://mote.org/news/article/beach-furniture-affects-nesting-turtles-southwest-florida>; Sea Turtle Conservancy, *Information About Sea Turtles: Threats from Beach Activities*, <https://conserveturtles.org/information-sea-turtles-threats-beach-activities/> (last visited Sept. 19, 2019); Florida Fish and Wildlife Conservation Commission Fish & Wildlife Research Institute, *The Hazards of Beach Furniture to Turtle Nesting*, <https://myfwc.com/research/wildlife/sea-turtles/threats/beach-furniture/> (last visited Sept. 19, 2019).

⁸ Ikuko Fujisaki, Margaret Lamont & Ray Carthy, *Temporal shift of sea turtle nest sites in an eroding barrier island beach*, 155 *OCEAN & COASTAL MGMT.* 24-29 (2018). "Beach instability and erosion can diminish sea turtle nesting success in several ways: (1) steep escarpments in the beach can hinder females from emerging onto the beach to nest; (2) removal of sand from the beach and creation of a rocky substrate or a shallow layer of sand can prevent nest excavation to a suitable depth; and (3) the washing out of nests that are incubating in the beach can expose eggs to predation and desiccation." Sara Bouchard et al., *Effects of Exposed Pilings on Sea Turtle Nesting Activity at Melbourne Beach, Florida*, 14 *JOURNAL OF COASTAL RESEARCH* 1343-7 (1998), citing C.L. Montague, *Ecological*

The goal of this project was to improve understanding of how sea turtle protection is addressed in state, county and municipal park management plans for managing sea turtles on Florida's coastal beaches. We assessed and compared management plans across four regions of Florida and sought to provide recommendations to interested state and local stakeholders in the form of Best Management Planning Practices (BMPPs) for how sea turtle management of public parks can be improved.

A key assumption underlying this project is that management planning drives management priorities, including funding and other resource protection activities.

III. Caveats

Given that this research was largely limited to a “desk review” of state and local coastal park plans, relevant statutes and regulations and related documentation, it is important to identify several caveats to our findings:

- This study does not include federal parks, nor does it include federal, state, local (county and municipal) or privately-owned coastal conservation lands other than parks.
- The study is based entirely on a “desk review” of publicly available state and local coastal park management plans. It did not consider any management activities that may be occurring but are not referenced in a plan or that are being conducted pursuant to system wide directives. For example, while many of the management plans did not expressly prohibit beach driving (one of the review criteria), it is our understanding that there is a system-wide directive to this effect.
- State and local coastal park management plans that are in the process of being updated may not be reflected in this review.
- The duration between plan updates may mean that managers are operationalizing criteria even in the absence of a plan directive, or based on direction from Tallahassee.
- Due to site-specific factors, some criteria may not have relevance to a particular park. For example, light pollution and the need for sea turtle friendly lighting is addressed inconsistently in state park management plans. However, it is worth noting that for various reasons, such as the absence of infrastructure in need of illumination, light pollution is not an issue within the boundaries of many coastal state parks.

engineering of inlets in southeastern Florida: design criteria for sea turtle nesting beaches, 18 JOURNAL OF COASTAL RESEARCH 267-76 (1993).

IV. Park Planning Legal Framework

a. Statutory Planning Mandate for State Parks

i. General Requirements

Section 253.034, Florida Statutes, governs the management of state-owned lands. “Conservation Lands” are defined in this section as “lands that are currently managed for conservation, outdoor resource-based recreation, or archaeological or historic preservation, except those lands that were acquired solely to facilitate the acquisition of other Conservation Lands.”⁹ Accordingly, all Florida State Parks are considered to be Conservation Lands. It is the intent of the Florida Legislature that all conservation lands be “managed to provide for areas of natural resource based recreation, and to ensure the survival of plant and animal species and the conservation of finite and renewable natural resources.”¹⁰

The Florida Department of Environmental Protection has stated that in the context of state parks, land management plans form “the basis for all aspects of planning, development and management of a given park”, applying a “system-wide philosophy and policy to each park.”¹¹ Each manager of state-owned conservation lands is required to submit a land management plan to the Division of State Lands at least once every 10 years.¹² Additionally, an updated land management plan must be submitted “whenever the manager proposes to add new facilities or make substantive land use or management changes that were not addressed in the approved plan, or within 1 year after the addition of significant new lands.”¹³

Land managers must first submit a draft land management plan to the Acquisition and Restoration Council (ARC) for review.¹⁴ Within 90 days of receiving a Land Management Plan, ARC must review the land management plan and submit recommendations to the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees).¹⁵ Upon review, the Board of Trustees may: approve the land management plan, approve the land management plan with modifications, or reject the land management plan.¹⁶ Each land management plan takes effect upon approval by the Board of Trustees.¹⁷ No statutory time limits are imposed on the Board of Trustees’ Management Plan review process.

⁹ Fla. Stat. § 253.034(1) (2018).

¹⁰ Fla. Stat. § 253.034(1) (2018).

¹¹ State Park Planning, Florida Department of Environmental Protection (June 4, 2018, 2:42 PM), <https://floridadep.gov/parks/parks-office-park-planning/content/state-park-planning>.

¹² Fla. Stat. § 253.034(5) (2018).

¹³ *Id.*

¹⁴ Fla. Stat. § 253.034(5)(d) (2018).

¹⁵ Fla. Stat. § 253.034(5)(d) (2018).

¹⁶ Fla. Stat. § 253.034(5)(h) (2018).

¹⁷ *Id.*

ii. Substantive Requirements

Section 253.034(5)(a), *Florida Statutes*, provides that each land management plan must include both short-term and long-term goals intended to ensure the conservation of the state's plant and animal species:

Each land management plan for state conservation lands shall provide a desired outcome, describe both short-term and long-term management goals, and include measurable objectives to achieve those goals. Short-term goals shall be achievable within a 2-year planning period, and long-term goals shall be achievable within a 10-year planning period. These short-term and long-term management goals shall be the basis for all subsequent land management activities.

The referenced "measurable objectives" include:

1. Habitat restoration and improvement.
2. Public access and recreational opportunities.
3. Hydrological preservation and restoration.
4. Sustainable forest management.
5. Exotic and invasive species maintenance and control.
6. Capital facilities and infrastructure.
7. Cultural and historical resources.
8. Imperiled species habitat maintenance, enhancement, restoration, or population restoration.¹⁸

Section 253.034(5)(c), *Florida Statutes*, requires that each land management plan contain:

1. A physical description of the land.
2. A quantitative data description of the land which includes an inventory of forest and other natural resources; exotic and invasive plants; hydrological features; infrastructure, including recreational facilities; and other significant land, cultural, or historical features.

¹⁸ Fla. Stat. § 253.034(5)(b) (2018).

3. A detailed description of each short-term and long-term land management goal, the associated measurable objectives, and the related activities that are to be performed to meet the land management objectives.
4. A schedule of land management activities which contains short-term and long-term land management goals and the related measurable objective and activities.
5. A summary budget for the scheduled land management activities of the land management plan. For state lands containing or anticipated to contain imperiled species habitat, the summary budget shall include any fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitat, which fees shall be used solely to restore, manage, enhance, repopulate, or acquire imperiled species habitat.

The land management plans developed for State-Owned Conservation Lands are extremely detailed and comprehensive documents. Development of land management plans requires involvement from the appointed managing agency, the public, and an advisory group.¹⁹ Once a land management plan has been drafted, it must undergo review from multiple state agencies.²⁰ The process for land management plan drafting and review is outlined below.

Drafting Process

1. Inventory Natural and Cultural Resources
2. Draft Resource Management Component
3. Preliminary Public Workshop (Optional)
4. Division of Recreation and Parks, Staff Park Planning Meeting
5. Draft Park Goals and Objectives
6. Draft Conceptual Land Use Plan.

Review Process

1. Department of Environmental Protection Review
2. Second Public Workshop
3. Advisory Group Review
4. Acquisition and Restoration Council Review
5. Approval by: Division of State Lands or Board Of Trustees Of The Internal Improvement Trust Fund (Governor and Cabinet).²¹

¹⁹ See, Fla. Stat. § 259.032(8)(b) (2018).

²⁰ See, Fla. Stat. § 253.034(5)(d) (2018); Fla. Stat. § 253.034(5)(g) (2018); Fla. Stat. § 253.034(5)(h) (2018).

²¹FLA. DIV. OF RECREATION AND PARKS, MANAGEMENT PLANNING PROCESS, https://floridadep.gov/sites/default/files/PlanningProcess_0.pdf (last visited Dec. 1, 2019).

b. Local Park Management

While all state parks are required to submit land management plans to the Division of State Lands, the same cannot be said for all of Florida's local (county and municipal) parks. Through our research, we identified four distinct categories of locally managed parks:

1. Parks for which the state retains title to the underlying parcel and the local government is designated as the managing entity.²²
2. Parks for which the state retains title to the underlying parcel but leases the parcel to the local government to manage as a local park.²³
3. Parks for which the local government utilized state funding to acquire title to the parcel and/or cover management costs.
4. Parks for which the local government acquires and manages the land without the use of state funds.

Based on our interpretation of the statutory requirements, land management plans must be developed for all parks to which the state retains title (categories 1 and 2 above).²⁴ This land management planning mandate does not apply where the title to the underlying parcel is held by the local government (categories 3 and 4). However, a menu of alternative management planning requirements may be imposed by local land acquisition programs and various management overlays.

i. Land Acquisition Programs

State Land Acquisition Programs

A significant portion of Florida's conservation lands were acquired using funds from the Florida Forever Program and its predecessor program, Preservation 2000.²⁵ The stated purpose of the Florida Forever Program is to: "provide grants to local governments and non-profit environmental organizations for the acquisition of community-based projects, urban open spaces, parks and greenways to implement local government comprehensive plans."²⁶ The Florida Forever Program imposes its own management planning requirement on all projects which utilize Florida Forever Funds.²⁷

²² State agencies which are initially appointed to manage State-Owned Conservation Lands have the authority to contract out land management duties to local governments. These contracts can delegate simple and specific management activities, and can go as far as appointing a local government as lead land manager. Fla. Stat. §253.032(7)(e) (2018).

²³ A land management plan applicable to state-owned conservation lands may include a leasehold transfer to a local government designated by ARC, so long as the land uses are consistent with "the protection, preservation, conservation, restoration, and proper management of the lands and their resources." Fla. Stat. § 259.032(8)(c) (2018).

²⁴ See, Fla. Stat. § 253.034(5) (2018).

²⁵ *Florida Forever*, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/lands/environmental-services/content/florida-forever> (last modified Oct. 24, 2019).

²⁶ Fla. Admin. Code R. 62-818.001.

²⁷ Fla. Admin. Code R. 62-818.011.

Florida Forever Management Plans

Prior to the release of any Florida Forever Funds, the recipient of such funds are required to submit a Florida Forever Management Plan to the Governing Board of the Florida Communities Trust (“Governing Board”).²⁸ Florida Forever Management Plans must detail how the project lands will be managed to further the project purposes outlined in the relevant Florida Forever Grant Application, and must additionally meet the terms and conditions laid out in the relevant Florida Forever Grant Agreement.²⁹ The Governing Board must approve a Florida Forever Management Plan if they determine that the Plan is consistent with the purposes stated in the Grant Application and the terms and conditions included in the Grant Agreement.³⁰ All revisions or modifications to an approved Florida Forever Management Plan must be reviewed and approved by the Governing Board.³¹

Florida Forever Stewardship Reports

Each grant of Florida Forever Funds includes a Stewardship Report Requirement.³² Stewardship Reports are used to insure that the requirements imposed at the time a grant was made continue to be followed, and to monitor management and use of the property.³³ Stewardship Reports are initially required to be submitted annually.³⁴ However, once a project has been fully developed as outlined in the approved Florida Forever Management Plan, a funding recipient may request that the Governing Board transfer the Stewardship Report requirement from an annual requirement to a five-year review cycle.³⁵ If a Stewardship Report requirement is transferred to a five-year review cycle, the Governing Board retains the authority to reinstate the annual Stewardship Report requirement.³⁶

Local Land Acquisition Programs

Several counties and municipalities in Florida have developed local land acquisition programs similar to the State programs.³⁷ Some of these local land acquisition programs impose management planning requirements for lands acquired using program funds. One example of a local land acquisition program with this management planning structure is Lee County’s “Conservation 20/20” Program.

Lee County: Conservation 20/20

²⁸ Fla. Admin. Code R. 62-818.011(1).

²⁹ *Id.*

³⁰ Fla. Admin. Code R. 62-818.011(2).

³¹ Fla. Admin. Code R. 62-818.011(3).

³² Fla. Admin. Code R. 62-818.013.

³³ Fla. Admin. Code R. 62-818.013(1).

³⁴ *Id.*

³⁵ Fla. Admin. Code R. 62-818.013(2).

³⁶ Fla. Admin. Code R. 62-818.013(2)(c).

³⁷ *Local Government Acquisition Programs in Florida*, LANDSCOPE AMERICA, http://www.landscape.org/florida/partners/local_acquisition/ (last visited Dec. 1, 2019).

In 1996 Lee County established its own local land acquisition program, “Conservation 20/20”.³⁸ The referendum which resulted in the creation of Conservation 20/20 was proposed and advocated for by Lee County citizens who desired for urban growth in their community to be balanced with preservation of local natural lands.³⁹ To date nearly 30,000 acres of conservation land has been acquired through Conservation 20/20.⁴⁰ Lee County’s *Parks and Recreation Land Stewardship Operations Manual* requires that Management Plans be developed for all lands acquired through Conservation 20/20.⁴¹

ii. Management Overlays

Though not falling within the traditional conception of park management planning, many managers of local parks interviewed during the research stage of this project indicated their reliance on various management overlays to guide park management. Overlays relevant to sea turtles referenced by these managers include Habitat Conservation Plans,⁴² Strategic Beach Management Plans,⁴³ contracts with Marine Turtle Permit holders,⁴⁴ local comprehensive plans and local ordinances.⁴⁵

Habitat Conservation Plans

³⁸ *About Conservation 20/20*, LEE COUNTY SW. FLA., <http://www.leegov.com/conservation2020/aboutc2020> (last visited Dec. 1, 2019).

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ LEE COUNTY PARKS AND RECREATION LAND STEWARDSHIP OPERATIONS MANUAL 1 (2012).

⁴² 2025 St. Johns County Comp Plan: Coastal Conservation Management Element. "The County shall protect sea turtles by implementing the St. Johns County Habitat Conservation Plan and through coordination with the DEP, FWC and U.S. Fish and Wildlife Service (FWS) on the enforcement and protection of sea turtles during their nesting times" (p. 32)"

⁴³ Atlantic Dunes Park (Palm Beach), Bath tub Beach Park and Sailfish Point (Martin), Brohard Beach and Service Club Park (Sarasota), Caspersen Beach Park (Sarasota), Chadwick Park (Sarasota), Chauncy Howard Park (Sarasota), Coquina Beach Park (Mantee), Coconut Drive Park (St. Lucie), Coolidge Park (Sarasota), Coral Cove Park (Palm Beach), Cortez Beach (Manatee), Crandon Park (Miami-Dade), Englewood Beach Park (Sarasota), Golden Beach Park (Miami-Dade), Greer Island Park (Manatee), Gulf Front Park (Manatee), Haulover Park (Miami-Dade), Hollywood North Beach Park (Brevard), Hudson Beach Park (Pasco), Jupiter-Carlin County Park (Palm Beach), Maxine Barritt Park (Sarasota), Nokomis Beach (Sarasota), Ocean City Park (Palm Beach), Ocean Reef Park (Palm Beach), Palmer Point Beach (Sarasota), Phipps Ocean Park (Palm Beach), Red Reef Park (Palm Beach), South Brohard Beach Park (Sarasota), South Inlet Park (Palm Beach), Sunny Isles Park (Miami-Dade), Surfside Park (Miami-Dade), Ted Sperling Park (Sarasota), Turtle Beach (Sarasota), Whitney Beach Park (Manatee).

⁴⁴ John Beasley Park (Okaloosa).

⁴⁵ Al Weeks Sr. North Shore Park (Volusia), Andy Romano Beachfront Park (Volusia), Bicentennial Park (Volusia) Burney Park (Nassau), Fred Howard Park (Pinellas), Gemini Beach Park (Brevard), Golden Sands Beach Park (Indian River), Humiston Beach Park (Indian River), Jaycee Conn Beach Park (Indian River), Mary McLeod Bethune Beach Park (Volusia), Millennium Beach Park (Brevard), Pelican Park (Brevard), Peters Point Beachfront Park (Nassau) Round Island Oceanside Park (Indian River), Sand Key Park (Pinellas), Seaside Park (Nassau), South Beach Park (Indian River), Tom Renick Park (Volusia), Tracking Station Beach Park (Indian River), Treasure Shores Beach Park (Indian River), Wabasso Beach Park (Indian River)

Under the Endangered Species Act (“ESA”), it is unlawful for any person or entity to commit “take” of any endangered species.⁴⁶ “Take” is defined to include the following acts: “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct”.⁴⁷ In 1982, the ESA was amended to include a mechanism through which non-Federal entities could apply for an “Incidental Take Permit”.⁴⁸ An Incidental Take Permit allows a non-Federal landowner to conduct an activity that is legal in all regards aside from the ESA, which results in the “incidental” taking of a listed species.⁴⁹ A taking is considered to be “incidental” if: “such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.”⁵⁰ All Incidental Take Permit applications must be accompanied by a Habitat Conservation Plan (“HCP”).⁵¹ HCPs are intended to ensure that the permitted activities’ effects on a listed species will be adequately minimized and mitigated.⁵²

As several species of sea turtle are uniquely vulnerable to activities conducted on Florida’s beaches, multiple counties in Florida have secured Incidental Take Permits accompanied by requisite Habitat Conservation Plans. While HCPs are well suited to address how specific activities effects on listed species will be minimized and mitigated, they are an insufficient tool for the comprehensive management of sea turtles in local and municipal coastal parks.

Strategic Beach Management Plans

The Florida Department of Environmental Protection (“FDEP”) is the declared beach and shore preservation authority for the state and was directed by the Florida Legislature to “develop and maintain a comprehensive long-term management plan for the restoration and maintenance of the state’s critically eroded beaches.”⁵³ In response, FDEP created the Strategic Beach Management Plan (“SBMP”) in 2000, and has updated the plan in 2008 and 2015.⁵⁴ The SBMP includes information and management strategies relating to beach nourishment and sand stabilization structures for beaches and coastal inlets.⁵⁵ Under the SBMP, FDEP is required to conduct “environmental or biological monitoring”, which “consists of the collection and analysis of nesting and hatching data for marine turtles”.⁵⁶ Pointing to SBMPs as the sole guidance for sea turtle management is troubling as the above statement is the extent of the sea turtle management

⁴⁶ Endangered Species Act 16 U.S.C. § 1538 (2018).

⁴⁷ Endangered Species Act 16 U.S.C. § 1532 (2018).

⁴⁸ *Habitat Conservation Plans FAQs*, U.S. FISH & WILDLIFE SERV.: N. FLA. ECOLOGICAL SERVICES OFF., <https://www.fws.gov/northflorida/HCP/HCP-FAQ.htm> (last updated Nov. 20, 2019).

⁴⁹ *Id.*

⁵⁰ Endangered Species Act 16 U.S.C. § 1539 (2018).

⁵¹ *Id.*

⁵² *Habitat Conservation Plans: Frequently Asked Questions*, U.S. FISH & WILDLIFE SERV., <https://www.fws.gov/endangered/what-we-do/hcp-faq.htm> (last updated July 15, 2013).

⁵³ Fla. Stat. § 161.091 (2018); Fla. Stat. § 161.101(2) (2018).

⁵⁴ FLA. DEP’T OF ENVTL. PROT., DIV. OF WATER RES. MGMT., STRATEGIC BEACH MANAGEMENT PLAN: INTRODUCTION (2018).

⁵⁵ *Id.*

⁵⁶ *Id.*

direction provided. The Strategic Beach Management Plan was not intended to provide guidance for local and municipal park management.

Land Management Contracts

State agencies are often appointed as managers of State-Owned Conservation Lands, but such is not always the case. The Board of Trustees and “lead land managing agencies” are authorized to “enter into contracts or interagency agreements with other governmental entities, including local soil and water conservation districts, or private land managers who have the expertise to perform specific management activities which a lead agency lacks, or which would cost more to provide in-house.”⁵⁷ Additionally, State agencies designated to manage conservation lands “may contract with local governments and soil and water conservation districts to assist in management activities, including the responsibility of being the lead land manager.”⁵⁸ Marine turtle monitoring duties fall under the “management activities” that can be contracted out by lead land managers.⁵⁹ In Florida, a significant portion of marine turtle monitoring duties are carried out by Marine Turtle Permit Holders.⁶⁰

Comprehensive Plans and Ordinances

Pursuant to Section 163.3177, Florida Statutes, each local government in Florida is required to adopt a comprehensive plan to guide local planning and land use decisions regarding capital improvements, conservation, future land use, transportation and other factors. Local government units abutting the Gulf of Mexico or the Atlantic are required to include a coastal management element in their comprehensive plan.⁶¹ This element must set forth the principles, guidelines, standards and strategies that will guide the local government’s decisions with respect to the coastal environment.⁶² Some local park managers with whom we consulted identified their county’s coastal management element as the guiding force for park management.

Some park managers also stated that sea turtle management was guided by local ordinances. Ordinances identified addressed impacts of artificial lighting⁶³ and beach furniture⁶⁴ on sea turtles. Though these ordinances are integral to the protection of sea turtles, they are inadequate in isolation to constitute a sufficiently comprehensive park management scheme.

V. Methodology

⁵⁷ Fla. Stat. § 259.032(5) (2018).

⁵⁸ Fla. Stat. § 259.032(7)(e) (2018).

⁵⁹ See generally, Fla. Stat. § 259.032(5) (2018).

⁶⁰ See, Fla. Stat. § 379.2431(1) (2018); Fla. Admin. Code R. 68E-1; *Guiding Principles for Marine Turtle Permit Program*, FLA. FISH AND WILDLIFE CONSERVATION COMMISSION, <https://myfwc.com/license/wildlife/marine-turtle-permit/guiding-principles/> (last visited Dec. 1, 2019).

⁶¹ Fla. Stat. § 163.3177(6)(g) (2018); Fla. Stat. § 380.24 (2018).

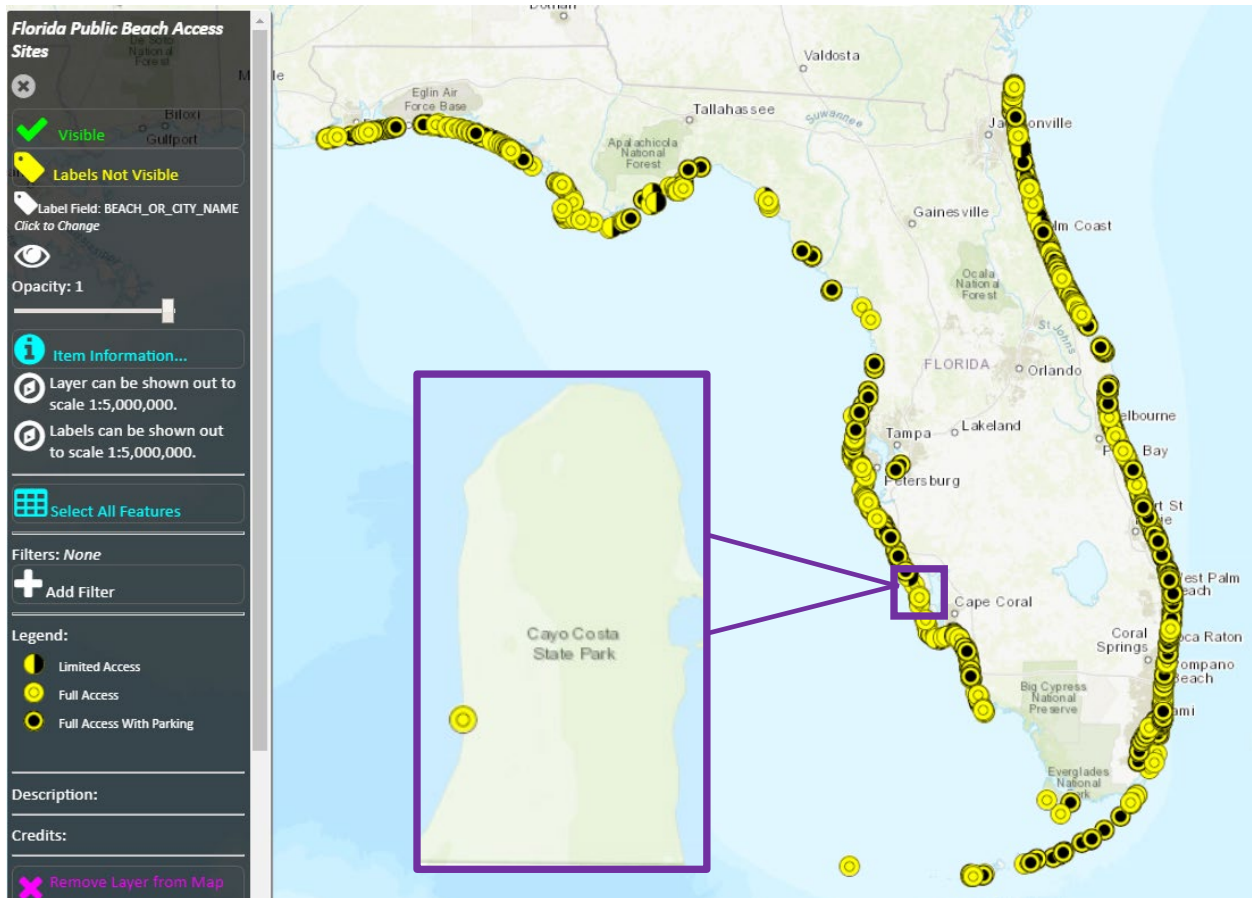
⁶² Fla. Stat. § 163.3177(6)(g) (2018).

⁶³ City of Miami Beach Park; Bowmans Beach County Park.

⁶⁴ Bowmans Beach County Park.

a. Study Area

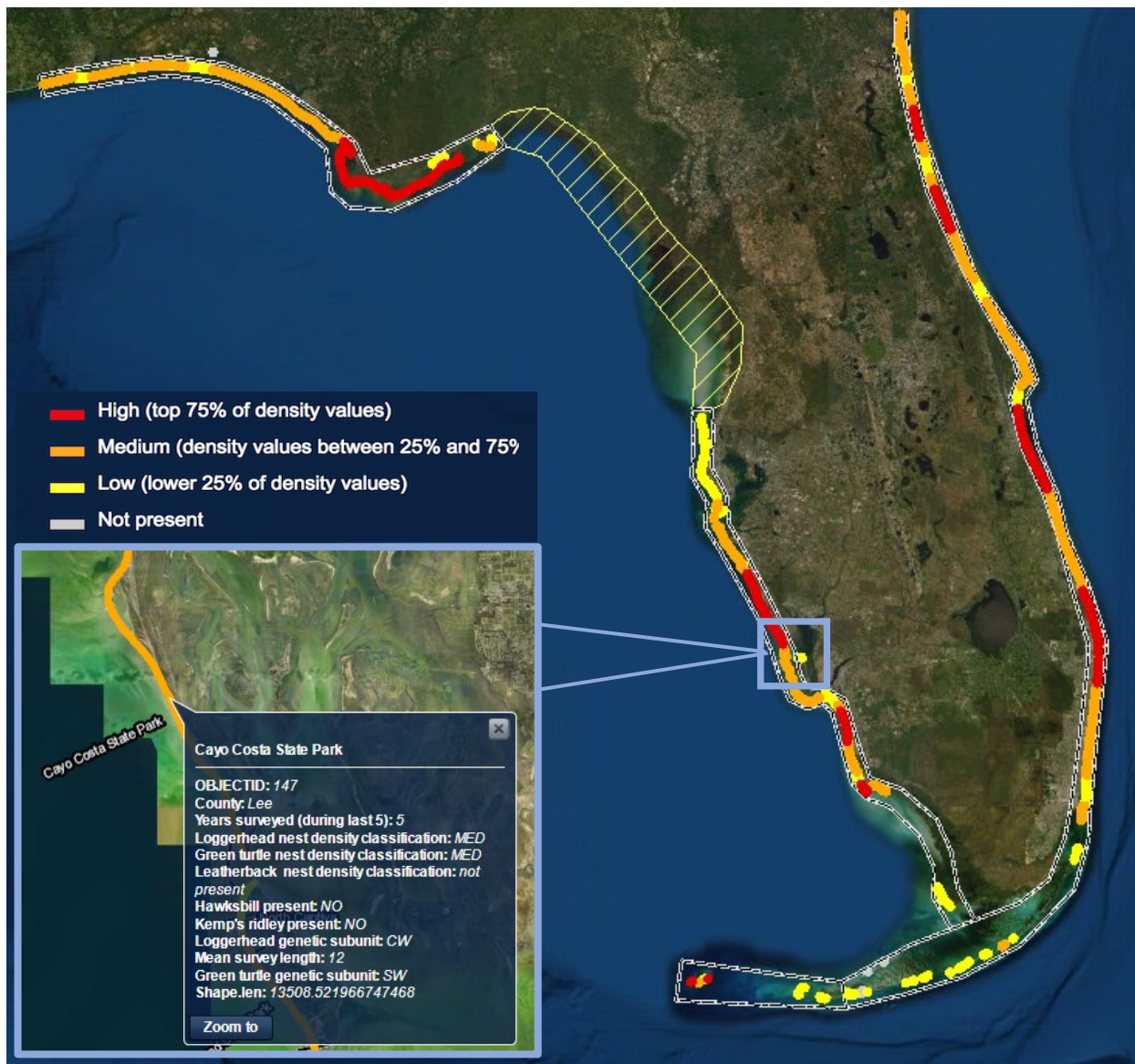
To determine the boundaries of our study area, we first cataloged all state and local parks containing sandy beaches in Florida using FDEP's Coastal Access Guide Map.⁶⁵ This interactive map displays data points indicating public access points. By zooming into each data point, we were able to determine whether the public beach access point corresponded to a state or local park.



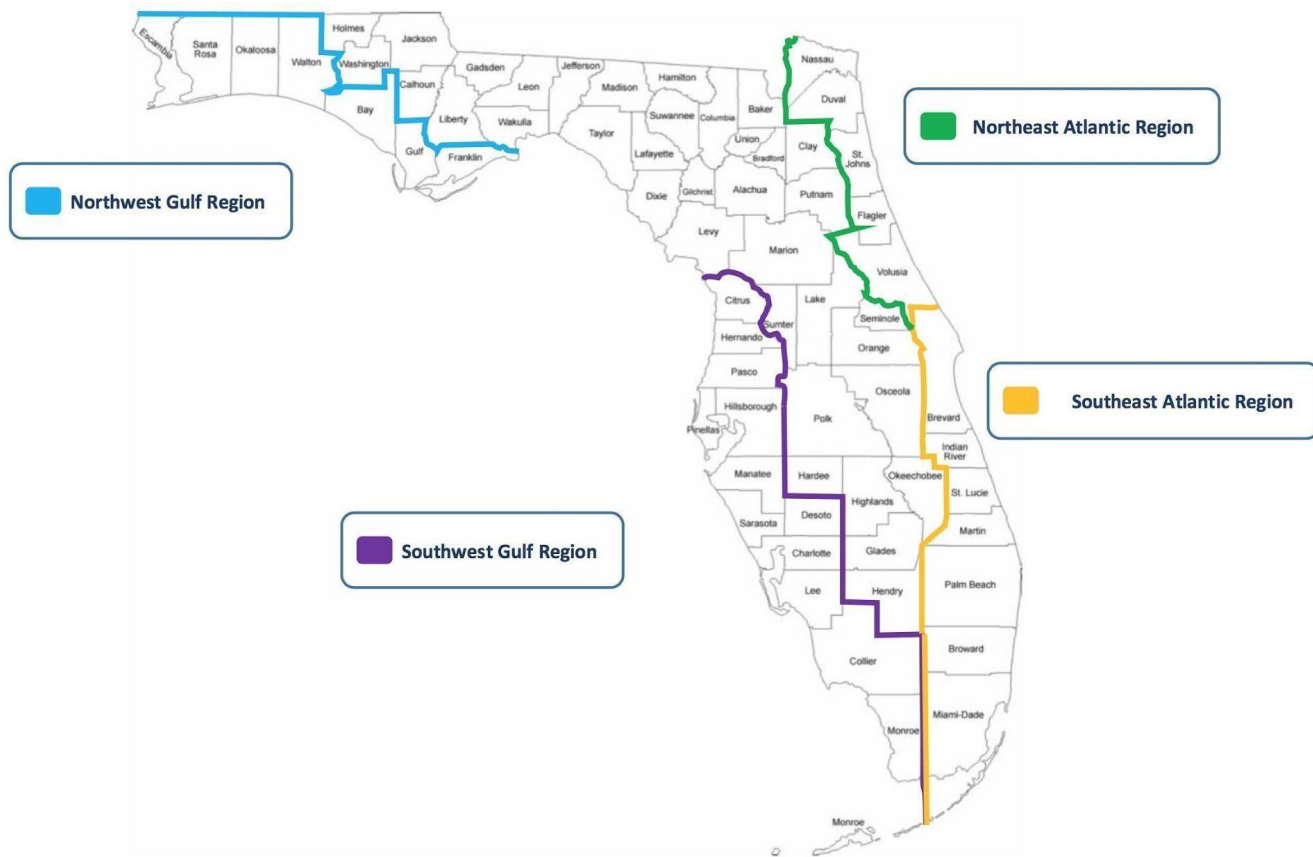
This list was further refined using the Fish and Wildlife Research Institute's Statewide Atlas of Sea Turtle Nesting Occurrence and Density.⁶⁶ This map utilizes color coding to represent areas of sea turtle nesting occurrence along Florida's coast and the corresponding nesting density.

⁶⁵Florida Department of Environmental Protection, *Coastal Access Guide Map*, MAP DIRECT, <https://ca.dep.state.fl.us/mapdirect/?focus=coastalaccess> (last updated Nov. 26, 2018).

⁶⁶ Florida Fish and Wildlife Research Institute, *Florida Sea Turtle Nesting Beach Monitoring Program*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, <http://ocean.floridamarine.org/SeaTurtle/nesting/FlexViewer/> (last visited Oct. 8, 2019); Florida Fish and Wildlife Research Institute, *Statewide Atlas of Sea Turtle Nesting Occurrence and Density*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, <https://myfwc.com/research/wildlife/sea-turtles/nesting/nesting-atlas/> (last visited Oct. 8, 2019).



Using a Google Sheet, we then cataloged this list of state and local parks with sea turtle nesting activity. To accommodate the large number of parks in our study area while maintaining clarity, we separated the Google Sheet into four tabs for each region of Florida. The boundaries of these four regions were drawn using FDEP's prior Beaches and Coastal Systems regional map.



b. Management Planning Documents

Using our compiled list of state and local parks, we compiled any available management planning documents corresponding with each park. Approved land management plans for all state parks in Florida are published on FDEP’s website.⁶⁷ Management planning documents pertaining to local parks were significantly more difficult to locate. Unlike state park land management plans, few local management planning documents were made obtainable online. Consequently, we contacted park management entities affiliated with each local park to request management planning documents and discuss sea turtle management practices utilized in these parks. Given this patchwork collection method required for local parks, we were unable to obtain management planning documents for most local parks represented in the study area.

⁶⁷ Office of Park Planning, *Management Plans*, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/parks/unit-management-plans#State%20Parks%20A%20-%20F> (last visited Oct. 8, 2019). The Division of State Lands is statutorily required to make publicly available an electronic copy of each land management plan for parcels exceeding 160 acres in size. F.S. 253.034(5)(g) (2018).

c. Criteria Development

Our development of criteria for effective sea turtle management was driven by expert opinion and supplemented by an extensive literature review. Initial discussions with experts in the field of sea turtle biology and management facilitated the creation of a framework of overarching criteria categories. These categories included 1) administration, 2) sea turtle management, 3) predation control, 4) lighting, 5) regulation of beach activities, 6) coastal resiliency and 7) educational programs and signage.

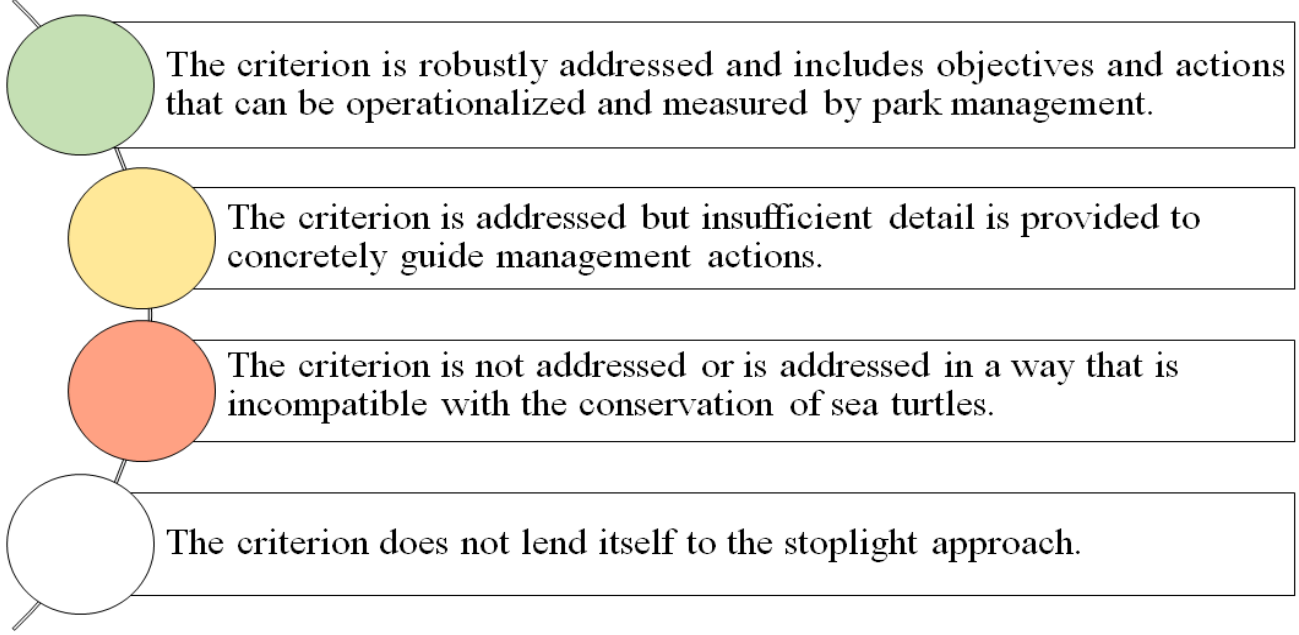
Using these discussions as guidance, we conducted a comprehensive literature review. Materials examined included technical reports, government management documents, conference papers and presentations, peer-reviewed scientific articles, and student dissertations and theses. These materials were analyzed and utilized to develop sub-criteria representing our conception of a framework for effective sea turtle management. (see Table 1, p.)

d. Criteria Matrix and Analysis

The Google Document initially created for the cataloging of coastal parks was expanded to accommodate this criteria framework. The criteria were organized to facilitate the analysis of each park's management planning documents against each criterion. Using this matrix, we evaluated the sufficiency of collected plans based on these criteria, indicating the extent to which each criterion was addressed in individual management planning documents.

To further facilitate comparisons within and across regions, we employed a modified stoplight approach.⁶⁸ We indicated the degree to which a given park's management planning documents complied with each stated criterion by coloring the corresponding cell in the criteria matrix green, yellow, red or neutral. Specific definitions were developed for each color to ensure uniformity in our analyses.

⁶⁸ This tool is frequently utilized in qualitative management performance assessments across sectors. Kristie Hadden, *The Stoplight Method: A Qualitative Approach for Health Literacy Research*, 1(2) HEALTH LIT. RES. PRACT. e18-e22 (2017); R.G. Halliday, L.P. Fanning & R.K. Mohn, *Use of the Traffic Light Method in Fishery Management Planning*, CANADIAN SCIENCE ADVISORY SECRETARIAT RESEARCH DOCUMENT 108 (2001); William T. Peterson et al., *Ocean Ecosystem Indicators of Salmon Marine Survival in the Northern California Current*, NORTHWEST FISHERIES SCIENCE CENTER, NATIONAL MARINE FISHERIES SERVICE (2014).



Particularized stoplight definitions were developed for the following criterion in light of their complex nature:

Criterion	Stoplight Definitions	
Addresses impacts of visitor use or increasing human carrying capacity	Green	Addressed with respect to sea turtles/sea turtle habitat
	Yellow	Addressed but with respect to sea turtles/sea turtle habitat
	Red	Not addressed
Allows special events	Green	Does not allow events
	Yellow	Events allowed but safeguards are provided to protect nesting turtles
	Red	Events allowed and no safeguards are provided to protect nests OR not addressed
Allows beach driving	Green	Beach driving is not allowed

	Yellow	Beach driving is allowed but safeguards to protect nesting turtles are identified
	Red	Beach driving is allowed and no safeguards are provided OR not addressed
Provides for the use of concessionaires	Green	Concessionaires are not allowed
	Yellow	Concessionaires are allowed but safeguards to protect nesting turtles are identified
	Red	Concessionaires are allowed and no safeguards are provided OR not addressed
Identifies education and signage regarding proper behavior on nesting beaches	Green	Addressed with respect to sea turtles/sea turtle habitat
	Yellow	Addressed generally but not with respect to sea turtles/sea turtle habitat
	Red	Not addressed
Identifies educational program on sea turtles and their protection	Green	Sea turtle education program specifically identified
	Yellow	Address general wildlife or natural resource education programs
	Red	Not addressed
Addresses coastal armoring and potential impacts	Green	Identify impacts and state that coastal armoring will not be utilized
	Yellow	Identify impacts but utilize coastal armoring
	Red	Do not identify impacts OR not addressed

Table 1. Sea Turtle Management Criteria

Administration	
Existence of management plan and year last updated	Managers of state conservation lands are required to submit to the Division of State Lands a land management plan at least every 10 years. ⁶⁹ Additionally, local government recipients of Florida Forever funds must prepare and submit a management plan to Florida Communities Trust. ⁷⁰
Sea turtle nesting density	Using Statewide Nesting Beach Survey data collected over a five-year period, the Florida Fish and Wildlife Research Institute produced a statewide atlas graphically representing the nesting occurrences and densities of loggerheads, green turtles and leatherbacks. Based on quartile ranks, a density classification of “low,” “medium” and “high” was developed and assigned for nesting beaches in Florida. ⁷¹
Designated critically eroded by FDEP	Pursuant to statutory mandate, FDEP identifies beaches of the state which are critically eroding and develops long-term restoration plans. Under this designation, a “critically eroded shoreline” is “a segment of shoreline where natural processes or human activities have caused, or contributed to, erosion and recession of the beach and dune system to such a degree that upland development, recreational interests, wildlife habitat or important cultural resources are threatened or lost.” ⁷² Given that sea turtles rely on sandy beaches for nesting, major beach erosion may reduce the area and conditions of suitable sea turtle nesting habitat. ⁷³

⁶⁹ Fla. Stat. §253.034(5) (2018).

⁷⁰ Fla. Admin. Code R. 62-818.001.

⁷¹ Florida Fish and Wildlife Research Institute, *Florida Sea Turtle Nesting Beach Monitoring Program*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, <http://ocean.floridamarine.org/SeaTurtle/nesting/FlexViewer/> (last visited Oct. 8, 2019); Florida Fish and Wildlife Research Institute, *Statewide Atlas of Sea Turtle Nesting Occurrence and Density*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, <https://myfwc.com/research/wildlife/sea-turtles/nesting/nesting-atlas/> (last visited Oct. 8, 2019).

⁷² Fla. Admin. Code R. 62B-36.002(5).

⁷³ Ikuko Fujisaki, Margaret Lamont & Ray Carthy, *Temporal shift of sea turtle nest sites in an eroding barrier island beach*, 155 OCEAN & COASTAL MGMT. 24-29 (2018). “Beach instability and erosion can diminish sea turtle nesting success in several ways: (1) steep escarpments in the beach can hinder females from emerging onto the beach to nest; (2) removal of sand from the beach and creation of a rocky substrate or a shallow layer of sand can prevent nest excavation to a suitable depth; and (3) the washing out of nests that are incubating in the beach can expose eggs to predation and desiccation.” Sara Bouchard et al., *Effects of Exposed Pilings on Sea Turtle Nesting Activity at Melbourne Beach, Florida*, 14 JOURNAL OF COASTAL RESEARCH 1343-7 (1998), citing C.L. Montague, *Ecological*

Sea Turtle Management	
Addresses sea turtles	<p>Each management plan is statutorily required to include short-term and long-term management goals, along with measurable objectives to achieve those goals. One management area that must be addressed is imperiled species habitat maintenance, enhancement, restoration, or population restoration.⁷⁴</p> <p>Imperiled species are those that are federally endangered, federally threatened, state threatened or Species of Special Concern.⁷⁵ All species of sea turtles are threatened or endangered, qualifying as imperiled species subject to the protections of Chapter 370, Florida Statutes.⁷⁶</p>
References the FWC Marine Turtle Conservation Handbook	<p>Activities involving sea turtles such as nest surveys and monitoring require a permit issued by the Florida Fish and Wildlife Conservation Commission (FWC) pursuant to the Marine Turtle Protection Act.⁷⁷ The FWC Marine Turtle Conservation Handbook “provides instructions on acceptable research and conservation techniques for all authorized activities” pursuant to a state permit.⁷⁸</p>
Identifies nest surveying or monitoring activities	<p>Nest surveys involve the evaluation of the distribution, abundance and trends in marine turtle nesting behavior on Florida’s sandy beaches.</p> <p>The FWC Fish and Wildlife Research Institute (FWRI) oversees two nesting survey programs: the Statewide Nesting Beach Survey Program (SNBS) and the Index Nesting Beach Survey program (INBS). The SNBS program applies to all state beaches and collects reports of total nest and false crawl counts during a given nesting season. The INBS program only applies to beaches identified as “index nesting beaches.” Following a period of 109 days during which daily monitoring activities occur, surveys report the number of nests attributable to each marine turtle species.</p> <p>The collection of nesting data through surveys is critical to sea</p>

engineering of inlets in southeastern Florida: design criteria for sea turtle nesting beaches, 18 JOURNAL OF COASTAL RESEARCH 267-76 (1993).

⁷⁴ Fla. Stat. §253.034(5)(a)-(b) (2018).

⁷⁵ Fla. Admin. Code R 68A-27.003; *Florida’s Official Endangered and Threatened Species List*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, <https://myfwc.com/media/1945/threatend-endangered-species.pdf> (last updated Dec. 2018); *Florida’s Imperiled Species*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, <https://myfwc.com/wildlifehabitats/wildlife/> (last visited Sept. 30, 2019).

⁷⁶ *Florida’s Official Endangered and Threatened Species List*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, <https://myfwc.com/media/1945/threatend-endangered-species.pdf> (last updated Dec. 2018)

⁷⁷ Fla. Stat. §379.2431(1) (2018).

⁷⁸ Fla. Admin. Code R 68E-1.004; *Marine Turtle Conservation Handbook*, at 1-2, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION (2016).

	turtle conservation, influencing decisions regarding allowable recreational activities on nesting beaches and the issuance of coastal construction permits. ⁷⁹
Addresses impacts of visitor use or increasing human carrying capacity ⁸⁰	The management goal of increasing human carrying capacity on nesting beaches is a potential threat to nesting success. Increased foot traffic is associated with direct habitat impacts through trampling and compacting of sand, damaging buried eggs, and harming pre-emergent hatchlings. ⁸¹ Visitation at night can also disturb nesting females, causing them to compromise their reproductive output or abandon nesting attempts altogether. ⁸² Development of facilities to support increasing carrying capacity can also exacerbate erosion and harm marine vegetation in important nesting habitat. ⁸³
Predation Control	
Identifies nest predation as a threat	Predation is a critical threat to sea turtle nesting success on many sandy beaches in Florida. ⁸⁴
Authorizes and describes	Given the substantial threat of nest predation to sea turtle

⁷⁹ Fla. Admin. Code R 68E-1.004; *Marine Turtle Conservation Handbook*, at 1-5, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION (2016).

⁸⁰ FDEP defines carrying capacity as “the amount of outdoor recreation which a given outdoor recreation area, resource, or facility can actually accommodate or provide at any given time under existing conditions.” Division of Recreation and Parks, *Outdoor Recreation in Florida- Florida’s Statewide Comprehensive Outdoor Recreation Plan*, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/OutdoorRecreationinFlorida2008.pdf> (2008)

⁸¹ Molly E. Lutcavage, Pamela Plotkin, Blair Witherington, and Peter L. Lutz, *Human Impacts on Sea Turtle Survival*, in *The Biology of Sea Turtles*, Volume I 15 (Peter L. Lutz & John A. Musick eds., 2017); Melissa L. Whaling, *How Tos for Turtle Tourism: A Review of Sea Turtle Tourism, its Impacts, and Guidelines to Inform Stakeholders in Martinique*, DUKE UNIVERSITY, NICHOLAS SCHOOL OF THE ENVIRONMENT, at 17, <https://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/14129/Whaling%20MP%20Final.pdf?sequence=1&isAllowed=y> (2017); Godfrey, M. H., & Drif., O., *Developing Sea Turtle Ecotourism in French Guiana: Perils and Practicalities*, 91 MARINE TURTLE NEWSLETTER 1-4 (2001).

⁸² Melissa L. Whaling, *How Tos for Turtle Tourism: A Review of Sea Turtle Tourism, its Impacts, and Guidelines to Inform Stakeholders in Martinique*, DUKE UNIVERSITY, NICHOLAS SCHOOL OF THE ENVIRONMENT, at 16, <https://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/14129/Whaling%20MP%20Final.pdf?sequence=1&isAllowed=y> (2017).

⁸³ Ga-Young Choi & Karen L. Eckert, *Manual of Best Practices for Safeguarding Sea Turtle Nesting Beaches*, Wider Caribbean Sea Turtle Conservation Network (WIDECASST) Technical Report No. 9 (2009); Karen L. Eckert, F. Alberto Abreu Grobois (eds.), *Proceedings of the Regional Meeting: “Marine Turtle Conservation in the Wider Caribbean Region: A Dialogue for Effective Regional Management,”* Santo Domingo (1999); Melissa L. Whaling, *How Tos for Turtle Tourism: A Review of Sea Turtle Tourism, its Impacts, and Guidelines to Inform Stakeholders in Martinique*, DUKE UNIVERSITY, NICHOLAS SCHOOL OF THE ENVIRONMENT, at 16, <https://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/14129/Whaling%20MP%20Final.pdf?sequence=1&isAllowed=y> (2017).

⁸⁴ Richard M. Engeman et al., *Impact on predation of sea turtle nests when predator control was removed midway through the nesting season*, 33 WILDLIFE RESEARCH 187-192 (2006).

predation control strategies	nesting success, intervention using predation control strategies are widely recommended and practiced. ⁸⁵
Lighting	
Identifies light pollution as a threat (See caveats at p. 5)	Light pollution from near-beach artificial lighting can impact sea turtle nesting behavior and disorient hatchlings. ⁸⁶
Provides for the use of sea turtle-friendly lighting	The threat to emergent hatchlings caused by light pollution can be addressed by retrofitting structures with turtle-friendly fixtures and lamps. ⁸⁷
Regulation of Beach Activities	
Allows special events (e.g. weddings, parties)	Special events on the beach such as concerts or parties on nesting beaches may negatively impact nesting success. Events are associated with increased foot traffic, artificial lighting, and debris, all of which may threaten nests.
Addresses beach driving (See caveats at p. 5)	The use of vehicles on nesting beaches is associated with several impacts on nesting success. Sand compaction caused by vehicles can hinder nesting females, while tire tracks left behind can trap emergent hatchlings on their journey to the ocean. Vehicles can also crush eggs and pre-emergent hatchlings. ⁸⁸

⁸⁵ Richard M. Engeman, David Addison & J.C. Griffin, *Defending against disparate marine turtle nest predators: nesting success benefits from eradicating invasive feral swine and caging nests from raccoons*, 50 ORYX 289-95 (2014); Richard M. Engeman et al., *Impact on predation of sea turtle nests when predator control was removed midway through the nesting season*, 33 WILDLIFE RESEARCH 187-192 (2006); Ahjond S. Garmestani & H. Franklin Percival, *Raccoon Removal Reduces Sea Turtle Nest Depredation in the Ten Thousand Islands of Florida*, 4 SOUTHEASTERN NATURALIST 469-472 (2005); Mellissa Mroziak, Michael Salmon & Kirt Rusenko, *Do wire cages protect sea turtles from foot traffic and mammalian predators?*, 3 CHELONIAN CONSERVATION AND BIOLOGY 693-698 (2000).

⁸⁶ Blair E. Witherington, R. Erik Martin, and Robbin N. Trindell, *Understanding, Assessing, and Resolving Light-Pollution Problems on Sea Turtle Nesting Beaches*, at 26, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, FWRI Technical Report TR-2, Version 2 (2014), https://f50006a.eos-intl.net/ELIBSQL12_F50006A_Documents/TR-2Rev2.pdf; Blair E. Witherington, *Behavioral Responses of Nesting Sea Turtles to Artificial Lighting*, 48 HERPETOLOGICA 36 (1992); Hu Z., Hu H., Huang Y., *Association between nighttime artificial light pollution and sea turtle nest density along Florida coast: A geospatial study using VIIRS remote sensing data*, 239 ENVIRO. POLLUT. 30-34 (2019).

⁸⁷ Blair E. Witherington, R. Erik Martin, and Robbin N. Trindell, *Understanding, Assessing, and Resolving Light-Pollution Problems on Sea Turtle Nesting Beaches*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, FWRI Technical Report TR-2, Version 2 (2014), https://f50006a.eos-intl.net/ELIBSQL12_F50006A_Documents/TR-2Rev2.pdf.

⁸⁸ Ga-Young Choi & Karen L. Eckert, *Manual of Best Practices for Safeguarding Sea Turtle Nesting Beaches*, Wider Caribbean Sea Turtle Conservation Network (WIDECAST) Technical Report No. 9 (2009); Paul E. Hosier, Medha Kochhar & Victoria Thayer, *Off-road Vehicle and Pedestrian Track Effects on the Sea-approach of Hatchling Loggerhead Turtles*, 8 ENVIRONMENTAL CONSERVATION 158-161 (1981); Molly E. Lutcavage, Pamela Plotkin, Blair Witherington, and Peter L. Lutz, *Human Impacts on Sea Turtle Survival*, in *The Biology of Sea Turtles*, Volume I 15 (Peter L. Lutz & John A. Musick eds., 2017); Melissa L. Whaling, *How Tos for Turtle Tourism: A Review of Sea*

Addresses beach raking	Beach raking, which is often performed using mechanized equipment, involves the removal of debris left by the tides and beachgoers from sandy beaches. Raking during nesting season may uncover and destroy nests and leave ruts that disrupt hatchlings' journey to the water. ⁸⁹
Provides for the use of concessionaires	The presence of concessionaires on sandy beaches can have a substantial impact on sea turtle nesting success. The sale or renting of recreational equipment such as lounge chairs, umbrellas, and canoes creates additional, sometimes fatal, obstacles both for nesting females and already-vulnerable hatchlings. ⁹⁰
Addresses the regulation of pets	Free-ranging domesticated pets are known to depredate sea turtle nests and may disturb nesting females, sometimes causing them to abandon nesting attempts. ⁹¹
Educational Programs and Signage	
Identifies education and signage regarding proper behavior on nesting beaches	Educational programs and appropriate signage regarding proper behavior on nesting beaches is essential considering the substantial impact of visitors on nesting beaches. Signage on nesting beaches can indicate where active nests are located and divert heavy foot traffic. Furthermore, educational programs can inform visitors about the impacts of pets, debris and artificial lighting and encourage appropriate behavior. ⁹²

Turtle Tourism, its Impacts, and Guidelines to Inform Stakeholders in Martinique, DUKE UNIVERSITY, NICHOLAS SCHOOL OF THE ENVIRONMENT, at 17, <https://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/14129/Whaling%20MP%20Final.pdf?sequence=1&isAllowed=y> (2017).

⁸⁹ Sea Turtle Conservancy, *Information About Sea Turtles: Threats from Beach Activities*, <https://conserveturtles.org/information-sea-turtles-threats-beach-activities/> (last visited Sept. 19, 2019); Florida Fish and Wildlife Conservation Commission, *Mechanical Beach Cleaning Guidelines*, <https://myfwc.com/wildlifehabitats/wildlife/sea-turtle/beach-activities/beach-cleaning-guidelines/> (last visited Sept. 19, 2019). Pursuant to the Florida Beach & Shore Preservation Act, FWC and DEP have formulated special conditions for beach cleaning to occur during nesting season to ensure the protection of marine turtles, their nests and hatchlings.

⁹⁰ Hayley Rutger, *Beach Furniture Affects Nesting Turtles in Southwest Florida* (Jul. 12, 2017), MOTE MARINE LABORATORY AND AQUARIUM, <https://mote.org/news/article/beach-furniture-affects-nesting-turtles-southwest-florida>; Sea Turtle Conservancy, *Information About Sea Turtles: Threats from Beach Activities*, <https://conserveturtles.org/information-sea-turtles-threats-beach-activities/> (last visited Sept. 19, 2019); Florida Fish and Wildlife Conservation Commission Fish & Wildlife Research Institute, *The Hazards of Beach Furniture to Turtle Nesting*, <https://myfwc.com/research/wildlife/sea-turtles/threats/beach-furniture/> (last visited Sept. 19, 2019).

⁹¹ Florida Fish and Wildlife Conservation Commission, *Dogs on the Beach*, FL.AUDUBON.ORG, https://fl.audubon.org/sites/default/files/static_pages/attachments/dogs_on_the_beach12.pdf; Joeline Hughes & David W. Macdonald, *A review of the interactions between free-roaming domestic dogs and wildlife*, 157 BIOLOGICAL CONSERVATION 341– 351 (2013); Sea Turtle Conservancy, *Information About Sea Turtles: Threats from Invasive Species Predation*, <https://conserveturtles.org/information-sea-turtles-threats-invasive-species-predation/>.

⁹² Ga-Young Choi & Karen L. Eckert, *Manual of Best Practices for Safeguarding Sea Turtle Nesting Beaches*, at 47-8, Wider Caribbean Sea Turtle Conservation Network (WIDECAST) Technical Report No. 9 (2009).

Identifies educational program on sea turtles and their protection	Achieving balanced coexistence between visitors and sea turtles on nesting beaches begins with education. Educational programs on threats to sea turtles and their ecological significance encourages more responsible practices and facilitates direct involvement with conservation efforts. ⁹³ Nest surveying and monitoring of Florida’s extensive sandy beaches would not be possible without citizen volunteers. ⁹⁴
Addresses dehooking protocol or other fishing education/rules pertaining to sea turtles	Sea turtles are frequently injured by interactions with recreational fishermen through hooking and entanglement. Hooking of the mouth or esophagus commonly results from attempts to bite the bait, though sea turtles may be hooked in other areas such as the front flipper. The risk of severe injury or mortality can best be mitigated through education and outreach familiarizing fishermen with rescue procedures and reporting. ⁹⁵
Coastal Resiliency	
Identifies sea level rise as a threat	Nesting habitat on sandy beaches is already vulnerable to hazards such as erosion and storm surge. These existing threats are increasingly exacerbated by ongoing sea level rise. ⁹⁶
Addresses coastal armoring and potential impacts	Coastal armoring structures such as seawalls and revetments are frequently utilized to protect upland structures from shoreline erosion. Contrary to their intended effect, armoring structures often increase passive erosion. This degradation of sandy beach habitat has a deleterious effect on sea turtle nesting. ⁹⁷

⁹³ Jared Hocking, *A Model Example of Community-Based Conservation* (June 27, 2019), DEFENDERS OF WILDLIFE, <https://defenders.org/blog/2019/06/model-example-of-community-based-conservation>; Richard Smith & Sarah Otterstrom, *Engaging Local Communities in Sea Turtle Conservation: Strategies from Nicaragua*, 26 THE GEORGE WRIGHT FORUM 39, <http://www.georgewright.org/262smith.pdf> (2009).

⁹⁴ Bianca M. Bradford & Glenn D. Israel, *Evaluating Volunteer Motivation for Sea Turtle Conservation in Florida*, UNIVERSITY OF FLORIDA IFAS EXTENSION, <https://ufdcimages.uflib.ufl.edu/IR/00/00/24/85/00001/WC05300.pdf> (last visited Oct. 4, 2019); *Florida Fish and Wildlife Conservation Commission, Sea Turtle Monitoring (the SNBS and INBS Programs)*, <https://myfwc.com/research/wildlife/sea-turtles/monitoring/> (last visited Oct. 4, 2019).

⁹⁵ Sarah A. Rose et al., *Sea turtles & fishing piers in Virginia: Mitigating hook & line interactions*, VIRGINIA AQUARIUM AND MARINE SCIENCE CENTER, <https://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/FundsInitiativesProjects/task94-04-16.pdf> (2018); Anne Rudloe & Jack Rudloe, *Site Specificity and the Impact of Recreational Fishing Activity on Subadult Endangered Kemp’s Ridley Sea Turtles in Estuarine Foraging Habitats in the Northeastern Gulf of Mexico*, 23(2) GULF OF MEXICO SCIENCE 186-191 (2005).

⁹⁶ Marianne R. Fish et al., *Predicting the Impact of Sea-Level Rise on Caribbean Sea Turtle Nesting Habitat*, 19(2) CONSERVATION BIOLOGY 482-491 (2004); L.A. Hawkes et al., *Investigating the potential impacts of climate change on a marine turtle population*, 13 GLOBAL CHANGE BIOLOGY 923-932 (2007).

⁹⁷ Molly Loughney Melius & Margaret R. Caldwell, *2015 California Coastal Armoring Report: Managing Coastal Armoring and Climate Change Adaptation in the 21st Century*, at 7-11, STANFORD LAW SCHOOL ENVIRONMENT AND

Addresses dune preservation, renourishment or restoration activities	Dune habitat restoration activities, including beach renourishment and vegetation restoration, are an important tool in the conservation of sea turtle nesting habitat. ⁹⁸ Renourishment projects can restore an eroded beach no longer suitable for nesting by depositing large amounts of sand which is spread to mimic the native beach structure. ⁹⁹ Planting and restoring native vegetation is vital to the stabilization of dunes and providing important nesting habitat. ¹⁰⁰
Address marine pollution or water quality	Entanglement in and ingestion of marine debris is a leading cause of injury and death in sea turtles. ¹⁰¹ These effects are most often due to plastic pollution including lost fishing nets, nylon fishing line, and plastic packaging. ¹⁰²

VI. Findings

a. Northeast Atlantic Region

i. State Parks

NATURAL RESOURCES LAW & POLICY PROGRAM, <https://law.stanford.edu/wp-content/uploads/2015/07/CalCoastArmor-FULL-REPORT-6.17.15.pdf>; Andrea E. Mosier & Blair E. Witherington, *Documented Effects of Coastal Armoring Structures on Sea Turtle Nesting Behavior*, FLORIDA MARINE RESEARCH INSTITUTE, <https://www.fws.gov/nc-es/ecoconf/mosier%20paper.pdf>; Andrea E. Mosier, *The Impact of Coastal Armoring Structures on Sea Turtle Nesting Behavior at Three Beaches on the East Coast of Florida*, Unpubl. Masters thesis, University of South Florida, St. Petersburg, Florida, 112 p (1998); Blair Witherington, Andrea Mosier & Shigetomo Hiram, *Barriers to Sea Turtle Nesting on Florida (United States) Beaches: Linear Extent and Changes Following Storms*, 27 JOURNAL OF COASTAL RESEARCH 450-8 (2011).

⁹⁸ Clay L. Montague, *Analysis of Beach Nourishment Data for Florida's Atlantic Coast During the Last Century, with Reference to Ecological Engineering of Sea Turtle Nesting Habitat*, UNIVERSITY OF FLORIDA DEPARTMENT OF ENVIRONMENTAL ENGINEERING SCIENCES, <https://www.fsbpa.com/06Proceedings/02-Clay%20Montague.pdf> (2006).

⁹⁹ Mario Jorge Mota, *Beach Restoration in Florida: Effects on Sea Turtle Nesting and Hatchling Physiology*, at 17-26, http://etd.fcla.edu/UF/UFE0041184/mota_m.pdf (2009) (unpublished Ph.D. dissertation, University of Florida).

¹⁰⁰ Office of Resilience and Coastal Protection, *Dune Restoration* (last modified Feb. 27, 2019), FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/rcp/rcp/content/dune-restoration>.

¹⁰¹ Pamela T. Plotkin & Anthony F. Amos, *Effects of Anthropogenic Debris on Sea Turtles in the Northwestern Gulf of Mexico*, THE UNIVERSITY OF TEXAS AT AUSTIN MARINE SCIENCE INSTITUTE, https://swfsc.noaa.gov/publications/TM/SWFSC/NOAA-TM-NMFS-SWFSC-154_P736.PDF (last visited Oct. 14, 2019).

¹⁰² Chris Wilcox et al., *A quantitative analysis linking sea turtle mortality and plastic debris ingestion*, 8 SCIENTIFIC REPORTS 12536 (2018); United Nations Environment Programme, *Fatal attraction: Turtles and plastic* (May 23, 2018), NEWS AND STORIES, <https://www.unenvironment.org/news-and-stories/story/fatal-attraction-turtles-and-plastic>.

Administration

Sea turtle nesting density. The northeast Atlantic region is home to eight state parks supporting sea turtle nesting activity.¹⁰³ Sea turtle nesting densities vary across these parks with two high, five medium and one low density nesting beach.¹⁰⁴ Turtle species known to nest in this region include loggerhead (*Caretta caretta*), green (*Chelonia mydas*) and leatherback (*Dermochelys coriacea*).¹⁰⁵

Year last updated. 37.5% of these parks have management plans which are out of date pursuant to the statutory requirement that an updated land management plan be submitted to the Division of State Lands at least once every 10 years.¹⁰⁶

Designated Critically Eroded. 50% of these parks are designated critically eroded by FDEP.¹⁰⁷ One additional park was identified by FDEP as experiencing non-critical shoreline erosion¹⁰⁸

Sea Turtle Management

Identifies nest survey or monitoring activities. All plans in this region indicated participation in nest survey or monitoring activities throughout nesting season pursuant to the Index Nesting

¹⁰³ Amelia Island State Park, Anastasia State Recreation Area, Big Talbot Island State Park, Fort Clinch State Park, Gamble Rogers Memorial State Park, Little Talbot Island State Park, North Peninsula State Recreation Area, and Washington Oaks Gardens State Park.

¹⁰⁴ Fish and Wildlife Research Institute, *Statewide Atlas of Sea Turtle Nesting Occurrence and Density*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, <https://myfwc.com/research/wildlife/sea-turtles/nesting/nesting-atlas/> (last visited Nov. 26, 2019).

¹⁰⁵ *Id.*

¹⁰⁶ Fla. Stat. § 253.034(5) (2018); Amelia Island State Park, Big Talbot Island State Park and Little Talbot Island State Park. These parks are all encompassed by one unit management plan. Division of Recreation and Parks, *Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved)* (June 13, 2008), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/Amelia%20Island%20State%20Park%202008%20Approved%20Plan.pdf>.

¹⁰⁷ Amelia Island State Park, Anastasia State Recreation Area, Fort Clinch State Park and Little Talbot Island State Park. Division of Water Resource Management, *Critically Eroded Beaches in Florida* (June 2019), at 21, 23, 25, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/FDEP-Critically-Eroded-Beaches-2019.pdf>.

¹⁰⁸ Big Talbot Island State Park. *Id.* at 23.

Beach Survey program.¹⁰⁹ Three plans also indicated participation in the Statewide Nesting Beach Survey program.¹¹⁰

Addresses impacts of visitor use or increasing human carrying capacity. 50% of plans addressed visitor impacts on natural resources generally. 75% of these plans contained similar language, stating generally that potential impacts of proposed uses or development on the park were assessed in the development of the plan.¹¹¹ 37.5% of parks in this region addressed visitor impacts in more explicit terms, and incorporated management actions to address these issues. These parks are encompassed in one unit management plan which identified direct impact of increasing visitor numbers on the dune habitat.¹¹² Accordingly, the plan stated the need for increased education to recreational users and for the restriction of foot traffic in these sensitive dune areas.¹¹³ One park failed to address visitor impacts entirely.¹¹⁴

¹⁰⁹ Amelia Island State Park, Anastasia Island State Park, Big Talbot Island State Park, Fort Clinch State Park, Gamble Rogers Memorial State Recreation Area, Little Talbot Island State Park, North Peninsula State Park and Washington Oaks Gardens State Park.

Amelia Island State Park, *supra* note 75, at 51; Division of Recreation and Parks, *Anastasia State Park Approved Unit Management Plan* (June 17, 2016), at 48, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/07-06-2016_Anastasia_AP.pdf; Division of Recreation and Parks, *Fort Clinch State Park Approved Unit Management Plan* (Aug. 18, 2017), at 45, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/FCSP_Approved_1.pdf; Division of Recreation and Parks, *Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved)* (April 2018), at 25, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/GRMSRAFB_02.16.2018%20ARC%20Approved%20UMP_0.pdf; Division of Recreation and Parks, *North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved)* (April 20, 2018), at 28, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/NPSP_04.20.2018%20ARC%20Approved%20UMP_0.pdf; Division of Recreation and Parks, *Washington Oaks Gardens State Park Approved Unit Management Plan* (Oct. 20, 2017), at 38, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/WOGSP_FinalApprovedPlan_20171226.pdf.

¹¹⁰ Fort Clinch State Park, Little Talbot Island State Park and Washington Oaks Gardens State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note 75; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), *supra* note 76, at 45; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), *supra* note 76, at 38.

¹¹¹ Anastasia State Park, Fort Clinch State Park, Gamble Rogers Memorial State Recreation Area and North Peninsula State Park.

Anastasia State Park Approved Unit Management Plan (June 17, 2016), *supra* note 76, at 63; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), *supra* note 76, at 104; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), *supra* note 76, at 54; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), *supra* note 76, at 55.

¹¹² Amelia Island State Park, Big Talbot Island State Park and Little Talbot Island State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note 75, at 6, 9.

¹¹³

¹¹⁴ Washington Oaks Gardens State Park.

Predation Control

Identifies nest predation as a threat. 87.5% of plans identified nest predation as a threat to sea turtle nests within park boundaries.¹¹⁵

Authorizes predation control strategies. 100% of plans in this region detailed predation control strategies authorized for employment within the park.¹¹⁶ Removal of predators found to be impacting imperiled species including sea turtles was authorized in all parks.¹¹⁷ One park also provided for nest screening with self-releasing cages to protect nests from predation.¹¹⁸

Lighting

Identifies light pollution as a threat. 62.5% plans in this region explicitly identified light pollution as a threat to hatchlings.¹¹⁹ One park addressed the potential disturbance of hatchlings

¹¹⁵ Amelia Island State Park, Anastasia State Park, Big Talbot Island State Park, Fort Clinch State Park, Gamble Rogers Memorial State Recreation Area, Little Talbot Island State Park and North Peninsula State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 55; Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 76, at 29; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 45; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76 at 26; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), supra note 76 at 28.

¹¹⁶ Amelia Island State Park, Anastasia State Park, Big Talbot Island State Park, Fort Clinch State Park, Gamble Rogers Memorial State Recreation Area, Little Talbot Island State Park, North Peninsula State Park and Washington Oaks Gardens State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 67; Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 76, at 29; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 45; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76 at 41; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), supra note 76 at 44; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76, at 45, 70.

¹¹⁷ Amelia Island State Park, Anastasia State Park, Big Talbot Island State Park, Fort Clinch State Park, Gamble Rogers Memorial State Recreation Area, Little Talbot Island State Park, North Peninsula State Park, Washington Oaks Gardens State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 67; Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 76, at 29; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 45; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76 at 41; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), supra note 76 at 28; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76, at 45, 70.

¹¹⁸ Fort Clinch State Park. Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 53.

¹¹⁹ Amelia Island State Park, Big Talbot Island State Park, Gamble Rogers Memorial State Recreation Area and North Peninsula State Park. See caveats at p. 5.

by lighting only during special events.¹²⁰ The remaining two parks did not address impacts of light pollution on sea turtles.¹²¹

Provides for the use of sea turtle-friendly lighting. 62.5% of plans stated that sea turtle-friendly lighting is required for future development within the park.¹²² One additional plan noted that turtle-friendly solar red lighting was installed on their major fishing pier.¹²³

Regulation of Beach Activities

Allows special events. 87.5% of plans provided that special events were allowed within the park,¹²⁴ including concerts, weddings and races. One of these plans identified safeguards to ensure the protection of nests during special events. This plan provided that events are to be reviewed in advance, particularly during sea turtle nesting season, “when loud noises or lighting may disturb nesting species.”¹²⁵

Addresses beach driving. 25% of plans explicitly stated that vehicular traffic on the beach is prohibited.¹²⁶ An additional 25% of plans state that driving on the beach is allowed in the park,

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 64; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76, at 26; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), supra note 76 at 28.

¹²⁰ Fort Clinch State Park. Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 46.

¹²¹ Anastasia State Park and Washington Oaks Gardens State Park. Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 76; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76.

¹²² Amelia Island State Park, Big Talbot Island State Park, Gamble Rogers Memorial State Recreation Area, Little Talbot Island State Park and North Peninsula State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 64; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76, at 26; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), supra note 76 at 28. See caveats at p. 5.

¹²³ Fort Clinch State Park. Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 117.

¹²⁴ Amelia Island State Park, Anastasia State Park, Big Talbot Island State Park, Fort Clinch State Park, Gamble Rogers Memorial State Recreation Area, Little Talbot Island State Park and Washington Oaks Gardens State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 11; Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 64; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 115; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76, at 65-6; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76, at 84.

¹²⁵ Fort Clinch State Park. Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 45-6.

¹²⁶ Fort Clinch State Park and Anastasia State Park. Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 64, at 28; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 33. See caveats at p. 5.

though these activities are regulated to some extent during marine turtle nesting season.¹²⁷ Another plan provided that driving is allowed on the beach and references potential impacts on shorebirds.¹²⁸ The remaining 37.5% of plans fail to address beach driving entirely.¹²⁹

Addresses beach raking. Beach raking activities are not addressed in any plans for this region. It is unclear whether this indicates an absence of beach raking or merely a failure to address it in the plans.

Provides for the use of concessionaires. Each of the plans for this region approves of the use of concessionaires.¹³⁰ Examples of existing concessions include canoe and kayak rentals, merchandise and food.¹³¹ It is unclear whether these concessionaires may be located directly on the nesting beach. No safeguards are identified to protect nesting sea turtles nor emergent hatchlings from the impacts of concessions on the beach.

¹²⁷ Amelia Island State Park and Washington Oaks Gardens State Park. Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 64; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76, at 33.

¹²⁸ Little Talbot Island State Park. Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 52.

¹²⁹ Big Talbot Island State Park, Gamble Rogers Memorial State Recreation Area and North Peninsula State Park.

¹³⁰ Amelia Island State Park, Anastasia Island State Park, Big Talbot Island State Park, Fort Clinch State Park, Gamble Rogers Memorial State Recreation Area, Little Talbot Island State Park, North Peninsula State Park and Washington Oaks Gardens State Park. But see caveats at p. 5.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 4; Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 64, at 7; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 7; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76, at 7; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), supra note 76 at 7; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76, at 7.

¹³¹ Gamble Rogers Memorial State Recreation Area and Washington Oaks Gardens State Park.

Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76, at 65; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76, at 7.

Addresses the regulation of pets. All plans in this region provide for the regulation of pets on the nesting beach.¹³² However, three of these parks provide that dogs are still frequently seen on the beach with their owners, indicating the difficulty of enforcement.¹³³

Educational Programs & Signage

Identifies public educational programs about sea turtles and their protection. 25% of parks in this region identify educational programs pertaining to sea turtles and their protection. One park provides for a number of interpretive exhibits about the conservation of sea turtles.¹³⁴ The other hosts “Turtle Talk” programs held during sea turtle nesting season to discuss the types of turtles nesting on the beach and how the nests are monitored.¹³⁵

Identifies education or signage regarding proper behavior on the nesting beach. One park explicitly identifies an educational program informing visitors about “how to share the beach” with nesting sea turtles.¹³⁶ The need for interpretive panels and educational programs to inform the public about the harm that human disturbance can cause to wildlife is identified by three parks, though no reference is made to sea turtles specifically.¹³⁷ One additional park provides for interpretive signs advising park visitors to stay off of beach dunes.¹³⁸

Addresses dehooking protocol or other fishing education/rules pertaining to sea turtles. One park in this region identified an established protocol for dehooking sea turtles.¹³⁹ The protocol

¹³² Amelia Island State Park, Anastasia State Park, Big Talbot Island State Park, Fort Clinch State Park, Gamble Rogers Memorial State Recreation Area, Little Talbot Island State Park, North Peninsula State Park and Washington Oaks Gardens State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 48; Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 64, at 34; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 45; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76, at 30; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), supra note 76 at 32; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76, at 33.

¹³³ Fort Clinch State Park, Little Talbot Island State Park and Washington Oaks Gardens State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 65; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 45; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76, at 75.

¹³⁴ Anastasia State Park. Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 64, at 61.

¹³⁵ Gamble Rogers Memorial State Recreation Area. Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76, at 57.

¹³⁶ Gamble Rogers Memorial State Recreation Area. *Id.*

¹³⁷ Amelia Island State Park, Big Talbot Island State Park and Little Talbot Island State Park. Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 6, 90.

¹³⁸ Fort Clinch State Park. Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 33.

¹³⁹ Fort Clinch State Park. *Id.* at 113.

identified is part of the Responsible Pier Initiative. Included in this initiative are signs educating fishermen who accidentally hook sea turtles and the provision of pier nets to safely remove hooks and release the turtles with minimal injury.

Coastal Resiliency

Identifies sea level rise as a threat. 62.5% of plans identified the potential impacts of future sea level rise on park resources.¹⁴⁰

Addresses coastal armoring and potential impacts. 87.5% of plans in this region addressed either existing or potential future coastal armoring in the park.¹⁴¹ Of those plans, 43% identified the potential impacts of coastal armoring on wildlife and other natural resources in the park.¹⁴²

Addresses dune preservation, renourishment or restoration activities. 75% of plans described dune preservation, renourishment or restoration strategies utilized in the park.¹⁴³ Activities addressed include the designation of dune crossovers, removal of exotic plant species, restoration of degraded areas and renourishment projects. One park provided that renourishment

¹⁴⁰ Anastasia State Park, Fort Clinch State Park, Gamble Rogers Memorial State Recreation Area, North Peninsula State Park and Washington Oaks Gardens State Park.

Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 64, at 54; Fort Clinch State Park. Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 84; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76, at 76; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), supra note 76 at 48; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76, at 76.

¹⁴¹ Amelia Island State Park, Anastasia State Park, Big Talbot Island State Park, Fort Clinch State Park, Gamble Rogers Memorial State Recreation Area, Little Talbot Island State Park and Washington Oaks Gardens State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 43, 48; Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 64, at 19; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 15-16; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), supra note 76, at 55, 59; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), supra note 76, at 15, 81.

¹⁴² Amelia Island State Park, Big Talbot Island State Park and Little Talbot Island State Park. Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 48.

¹⁴³ Amelia Island State Park, Anastasia State Park, Big Talbot Island State Park, Fort Clinch State Park, Little Talbot Island State Park and North Peninsula State Park.

Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), supra note 75, at 9; Anastasia State Park Approved Unit Management Plan (June 17, 2016), supra note 64, at 47; Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), supra note 76, at 41; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), supra note 76 at 23.

activities should be restricted to fall and winter months to avoid impacting nesting marine turtles.¹⁴⁴

Addresses marine pollution. 75% of plans addressed pollution and water quality in the marine and nesting beach environment.¹⁴⁵ Three plans addressed monitoring unauthorized waste dumping by boats.¹⁴⁶ One additional plan referred to cleaning up trash and man-made marine debris from the nesting beach¹⁴⁷

ii. Local Parks

Most of the local parks in this region are managed jointly under one master comprehensive plan. For example, The Volusia County Comprehensive Plan: Chapter 11 Coastal Management Element (2018) covered management of Al Weeks Sr. North Shore Park, Tom Renick Park, Mary McLeod Bethune Beach Park, Bicentennial Park and Andy Romano Beachfront Park. Similarly, the 2025 St. Johns County Comprehensive Plan: Coastal Conservation Management Element covered Ocean Hammock Park and Frank Butler Park East and West, while the 2030 Nassau County Comprehensive Plan - Coastal Management Element (2019) covered Seaside Park, Burney Park and Peters Point Beach Front Park. Covering this number of highly diverse parks in one plan led to many of the management plans for turtle protection to be subsumed into vague boilerplate language that is difficult to enforce. We contacted management for Flagler County, and we were told that there was not a centralized document for sea turtle management. Instead, Flagler County uses the land development code and code of ordinances for lighting language, beach driving and permits for beach activities. The Federal Statewide Programmatic Biological Opinion governs any earthwork on the beach, and its requirements are blended into any beach permits. Flagler County management also mentioned that they monitor for nests via Volusia Flagler Turtle Patrol and escarpments, which are addressed by the Road and Bridge Department. Generally, sea turtle management is not driven by management plans in Flagler county. We also spoke with management for the city of Jacksonville and they pointed to their sea turtle protocol specific to the parks in Jacksonville, and said that they also refer to the FWC Marine Turtle Conservation

¹⁴⁴ Fort Clinch State Park. Fort Clinch State Park Approved Unit Management Plan (Aug. 18, 2017), *supra* note 76, at 41.

¹⁴⁵ Amelia Island State Park, Big Talbot Island State Park, Gamble Rogers Memorial State Recreation Area, Little Talbot Island State Park, North Peninsula State Park, Washington Oaks Gardens State Park. Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note 75, at 12, 26; Gamble Rogers Memorial State Recreation Area at Flagler Beach Acquisition and Restoration Council Draft Unit Management Plan (Approved) (April 2018), *supra* note 76, at 22; North Peninsula State Park Acquisition and Recreation Council Draft Unit Management Plan (Approved) (April 20, 2018), *supra* note 76 at 26; Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), *supra* note 76, at 33.

¹⁴⁶ Amelia Island State Park, Big Talbot Island State Park and Little Talbot Island State Park. Amelia Island State Park, Big Talbot Island State Park, Little Talbot Island State Park, George Crady Bridge Fishing Pier State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note 75, at 26.

¹⁴⁷ Washington Oaks Gardens State Park. Washington Oaks Gardens State Park Approved Unit Management Plan (Oct. 20, 2017), *supra* note 76, at 33.

Handbook to make decisions. However, Huguenot Park in Duval County had its own individual management plan that (although it was out-of-date - updated in 2008), allowed for enough depth and breadth to comprehensively manage for sea turtle protection.

b. Southeast Atlantic Region

i. State Parks

Administration

Sea turtle nesting density. The southeast Atlantic region is home to twelve state parks supporting sea turtle nesting activity.¹⁴⁸ Nesting densities vary across these parks with four high, four medium and four low density nesting beaches.¹⁴⁹ Turtle species known to nest in this region include loggerhead (*Caretta caretta*), green (*Chelonia mydas*) and leatherback (*Dermochelys coriacea*).¹⁵⁰

Year last updated. 50% of these parks have management plans which are out of date pursuant to the statutory requirement that an updated land management plan be submitted to the Division of State Lands at least once every 10 years.¹⁵¹

¹⁴⁸ Avalon State Park, Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park Fort Pierce Inlet State Park, Fort Zachary Taylor State Park, Hugh Taylor Birch State Park, John D. MacArthur Beach State Park, John U. Lloyd Beach State Park, Long Key State Park, Sebastian Inlet State Recreation Area, St. Lucie Inlet Preserve State Park.

¹⁴⁹ Fish and Wildlife Research Institute, *Statewide Atlas of Sea Turtle Nesting Occurrence and Density*, FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION, <https://myfwc.com/research/wildlife/sea-turtles/nesting/nesting-atlas/> (last visited Nov. 26, 2019).

¹⁵⁰ *Id.*

¹⁵¹ Fla. Stat. § 253.034(5) (2018); Bahia Honda State Park, Fort Pierce Inlet State Park, Fort Zachary Taylor Historic State Park, Hugh Taylor Birch State Park, John D. MacArthur Beach State Park and Sebastian Inlet State Park. Division of Recreation and Parks, *Bahia Honda State Park Unit Management Plan (Approved Plan)* (May 23, 2003), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/2003%20Bahia%20Honda%20State%20Park%20Approved%20Plan.pdf>; Division of Recreation and Parks, *Fort Pierce Inlet State Park Unit Management Plan (Approved Plan)* (Dec. 8, 2006), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/Ft.%20Pierce%20Inlet%20State%20Park%202006%20Approved%20Plan.pdf>; Division of Recreation and Parks, *Fort Zachary Taylor Historic State Park Unit Management Plan (Approved)* (June 13, 2008), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/06.13.08%20Approved%20Plan.pdf>; Division of Recreation and Parks, *Hugh Taylor Birch State Park Unit Management Plan (Approved)* (April 21, 2006), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/04.21.06%20Approved%20Plan.pdf>; Division of Recreation and Parks, *John D. MacArthur Beach State Park Unit Management Plan (Approved)* (April 22, 2005), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/04.22.2005%20Approved%20Plan.pdf>; Division of Recreation and Parks, *Sebastian Inlet State Park Unit Management Plan (Approved)* (Dec. 12, 2008), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/2008%20Sebastian%20Inlet%20SP%20Approved%20UMP.pdf>.

Designated critically eroded. 75% of the parks in this region have been designated critically eroded by FDEP.¹⁵² One additional park is subject to a non-critical erosion designation.¹⁵³

Sea Turtle Management

Identifies nest survey or monitoring activities. All plans in this region identify nest survey or monitoring activities conducted within the park.¹⁵⁴ The detail with which these activities are described ranges from identifying the park's participation in the Index Nesting Beach Survey program¹⁵⁵ to the statement that "regular patrols of the beach during turtle nesting season should be conducted."¹⁵⁶ Activities explicitly mentioned include recording false crawls, species

¹⁵² Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, Fort Pierce Inlet State Park, Fort Zachary Taylor State Park, John U. Lloyd Beach State Park, Long Key State Park, Sebastian Inlet State Park, St. Lucie Inlet Preserve State Park. Division of Water Resource Management, *Critically Eroded Beaches in Florida* (June 2019), at 19, 33, 35, 37, 42, 44, 46-7, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/FDEP-Critically-Eroded-Beaches-2019.pdf>.

¹⁵³ John D. MacArthur Beach State Park. *Id.* at 39.

¹⁵⁴ Avalon State Park, Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, Fort Pierce Inlet State Park, Fort Zachary Taylor State Park, Hugh Taylor Birch State Park, John D. MacArthur Beach State Park, John U. Lloyd Beach State Park, Long Key State Park, Sebastian Inlet State Recreation Area, St. Lucie Inlet Preserve State Park

Division of Recreation and Parks, *Avalon State Park Approved Unit Management Plan* (Feb. 27, 2014), at 26, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/20140227_AvalonSP_ApprovedPlan.pdf; Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), *supra* note 119, at 18; Division of Recreation and Parks, *Bill Baggs Cape Florida State Park Approved Unit Management Plan* (Oct. 11, 2012), at 40, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/10.11.12_BBCFSP_AP.pdf; Division of Recreation and Parks, *Curry Hammock State Park Approved Unit Management Plan* (Dec. 16, 2016), at 51, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/Curry%20HammockSP_AppUMP_20170117_EP.pdf; Fort Pierce Inlet State Park Unit Management Plan (Approved Plan) (Dec. 8, 2006), *supra* note 119, at 20; Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note 119, at 25; Hugh Taylor Birch State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note 119, at 19; John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), *supra* note 119, at 20; Division of Recreation and Parks, *John U. Lloyd Beach State Park Approved Unit Management Plan* (Dec. 14, 2012), at 34, 53, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/12.14.2012%20Approved%20Plan.pdf>; Division of Recreation and Parks, *Long Key State Park Approved Unit Management Plan* (Dec. 16, 2016), at 20, 35, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/LongKeyStatePark_ApprovedPlan_December2016.pdf; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), *supra* note 119, at 21; Division of Recreation and Parks, *St. Lucie Inlet Preserve State Park Approved Unit Management Plan* (April 21, 2014), at 40, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/20140421_SLIPSP_ApprovedPlan.pdf.

¹⁵⁵ Avalon State Park, John D. MacArthur Beach State Park, John U. Lloyd Beach State Park, Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note 120, at 25; John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), *supra* note 119, at A 6-1; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note 120, at 33; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), *supra* note 119; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note 120, at 1.

¹⁵⁶ Fort Zachary Taylor Historic State Park. Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note 119, at 25.

identification and number of nests.¹⁵⁷ One park provides that although park staff does monitor the number of nests each year, they do not mark them or count hatchlings due to a low amount of predation in the park.¹⁵⁸ Two parks indicate that, though they are not index nesting beaches, they do participate in the Statewide Nesting Beach Survey program.¹⁵⁹

Addresses impacts of visitor use or increasing human carrying capacity. 33.3% of plans in this region generally reference visitor impacts on park resources,¹⁶⁰ such as “during the development of the unit management plan, the Division assesses potential impacts of proposed uses on the resources of the property.”¹⁶¹ 58.3% of plans identify visitor impacts on natural resources within the park with greater detail.¹⁶² One park in particular identifies “protection from visitor impacts” as a core management activity for turtles, requiring the clear marking and flagging of nests in response to heavy visitor use of the nesting beach.¹⁶³ One park does not address the impacts of visitor use on park resources.¹⁶⁴

¹⁵⁷ Avalon State Park, Curry Hammock State Park, Fort Zachary Taylor Historic State Park, John U. Lloyd State Park, Long Key State Park, John D. MacArthur Beach State Park and St. Lucie Inlet Preserve State Park. Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 26; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 51; Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note, at 25; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note, at 34; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 35; John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), *supra* note, at 20; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 40.

¹⁵⁸ Fort Pierce Inlet State Park. *Fort Zachary Taylor Historic State Park Unit Management Plan (Approved)* (June 13, 2008), *supra* note, at 20.

¹⁵⁹ Bahia Honda State Park and Bill Baggs Cape Florida State Park. Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), *supra* note, at 40; Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), *supra* note, at 40.

¹⁶⁰ Avalon State Park, Bahia Honda State Park, Fort Zachary Taylor Historic State Park and Sebastian Inlet State Park. Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 54; Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), *supra* note, at 25; Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note, at 35; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), *supra* note, at 9.

¹⁶¹ Avalon State Park and Bahia Honda State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 54; Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), *supra* note, at 25.

¹⁶² Bill Baggs Cape Florida State Park, Curry Hammock State Park, Hugh Taylor Birch State Park, John D. MacArthur State Park, John U. Lloyd State Park, Long Key State Park and St. Lucie Inlet Preserve State Park. Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), *supra* note, at 40, 44, 89; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 54, 60; Hugh Taylor Birch State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 17, 30; John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), *supra* note, at 30-1; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note, at 38, 63; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 54, 66; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 65.

¹⁶³ Bill Baggs Cape Florida State Park. Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), *supra* note, at 44.

¹⁶⁴ Fort Pierce Inlet State Park.

Predation Control

Identifies nest predation as a threat. 33% of plans state that predation of marine turtle nests is an issue in the park.¹⁶⁵ One additional park provides that raccoons occasionally raid sea turtle nests and prey on hatchlings but provides that “presently, this has not been a significant problem.”¹⁶⁶ One park notes that there is a low amount of predation in the area that does not rise to the level of a threat,¹⁶⁷ while four remaining parks do not address nest predation.¹⁶⁸

Authorizes predation control strategies. 83% of plans authorize the implementation of predation control strategies.¹⁶⁹ All but one of these parks lists removal as a core predator control strategy executed within the park.¹⁷⁰ Two parks utilize protective screens or self-releasing cages over nests.¹⁷¹

¹⁶⁵ Avalon State Park, Bahia Honda State Park, Bill Baggs Cape Florida State Park, John U. Lloyd State Park, Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), supra note, at 26; Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), supra note, at 19; Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), supra note, at 40; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), supra note, at 41; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), supra note, at 41; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), supra note, at 40.

¹⁶⁶ John D. MacArthur Beach State Park. *John D. MacArthur Beach State Park Unit Management Plan (Approved)* (April 22, 2005), supra note, at 21.

¹⁶⁷ Fort Pierce Inlet State Park. *Fort Pierce Inlet State Park Unit Management Plan (Approved Plan)* (Dec. 8, 2006), supra note, at 15.

¹⁶⁸ Curry Hammock State Park, Fort Zachary Taylor Historic State Park, Hugh Taylor Birch State Park and Long Key State Park.

¹⁶⁹ Avalon State Park, Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, Fort Pierce Inlet State Park, Fort Zachary Taylor Historic State Park, John U. Lloyd State Park, Long Key State Park, Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), supra note, at 31, 40; Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), supra note, at 19; Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), supra note, at 40; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), supra note, at 52; Fort Pierce Inlet State Park Unit Management Plan (Approved Plan) (Dec. 8, 2006), supra note, at 21; Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), supra note, at 23, 25-6; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), supra note, at 41-2; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), supra note, at 52; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), supra note, at 39; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), supra note, at 50.

¹⁷⁰ Avalon State Park, Bahia Honda State Park, Curry Hammock State Park, Fort Pierce Inlet State Park, Fort Zachary Taylor Historic State Park, John U. Lloyd State Park, Long Key State Park, Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), supra note, at 31, 40; Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), supra note, at 19; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), supra note, at 52; Fort Pierce Inlet State Park Unit Management Plan (Approved Plan) (Dec. 8, 2006), supra note, at 21; Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), supra note, at 23, 25-6; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), supra note, at 41-2; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), supra note, at 52; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), supra note, at 39; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), supra note, at 50.

¹⁷¹ Avalon State Park and Bill Baggs Cape Florida State Park. Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), supra note, at 31, 40; Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), supra note, at 40.

Lighting

Identifies light pollution as a threat. 41.6% of plans from this region reference the threat of artificial light pollution to marine turtles.¹⁷²

Provides for the use of sea turtle-friendly lighting. 25% of plans provide that sea turtle-friendly lighting will be utilized within the park.¹⁷³ Another park does not specifically reference sea turtle-friendly lighting measures but does identify the goal of improving “nesting success by reducing the use of artificial lighting near the beach.”¹⁷⁴ 66.7% of plans do not reference sea turtle-friendly lighting.¹⁷⁵

Regulation of Beach Activities

Allows special events. 33% of plans in this region provide that special events are allowed within the park.¹⁷⁶ Examples of hosted events include surfing competitions,¹⁷⁷ weddings, and other private events.¹⁷⁸ One park in particular states that “occasional special events can draw large crowds in excess of 6,000 people.”¹⁷⁹ Of the plans that refer to special events, none identify

¹⁷² Avalon State Park, John D. MacArthur State Park, John U. Lloyd State Park, Long Key State Park and St. Lucie Inlet Preserve State Park. See caveats at p. 5.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), supra note, at 26; John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), supra note, at 20; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), supra note, at 34; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), supra note, at 72; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), supra note, at 40.

¹⁷³ Avalon State Park, John U. Lloyd State Park and Long Key State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), supra note, at 26; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), supra note, at 53-4, 81; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), supra note, at 72. See caveats at p. 5.

¹⁷⁴ John D. MacArthur State Park. John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), supra note, at 20.

¹⁷⁵ Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, Fort Pierce Inlet State Park, Fort Zachary Taylor Historic State Park, Hugh Taylor Birch State Park, Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park.

¹⁷⁶ Fort Pierce Inlet State Park, Fort Zachary Taylor Historic State Park, John U. Lloyd State Park and Sebastian Inlet State Park.

Fort Pierce Inlet State Park Unit Management Plan (Approved Plan) (Dec. 8, 2006), supra note, at 26; Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), supra note, at 6; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), supra note, at 89; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), supra note, at 62.

¹⁷⁷ Fort Pierce Inlet State Park. Fort Pierce Inlet State Park Unit Management Plan (Approved Plan) (Dec. 8, 2006), supra note, at 26.

¹⁷⁸ Fort Zachary Taylor Historic State Park and John U. Lloyd State Park. Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), supra note, at 34; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), supra note, at 89.

¹⁷⁹ Sebastian Inlet State Park. Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), supra note, at 62.

safeguards to protect nesting sea turtles. The remaining parks do not address whether special events are allowed.¹⁸⁰

Addresses beach driving. One park provides that driving is not allowed on the park's beach.¹⁸¹ Another park provides that motorized vehicle usage is restricted to lightweight vehicles used only by park staff.¹⁸² The remaining 83% of plans do not address vehicle use on the beach.

Addresses beach raking. Two parks address beach raking in their plans. The first states that the "heavily used urban bathing beach is frequently raked to remove trash and debris,"¹⁸³ while the other provides that beach raking is not allowed.¹⁸⁴

Provides for the use of concessionaires. All plans for this region provide that concessionaires may be utilized in the park.¹⁸⁵ Examples of concessions identified include those that rent recreational equipment or sell food and merchandise.¹⁸⁶ One park references potential impacts of concessions on nesting turtles. This plan provides that because concessions are allowed on the beach, turtle nests are to be marked with circles and flags.¹⁸⁷

¹⁸⁰ Avalon State Park, Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, Hugh Taylor Birch State Park, John D. MacArthur State Park, Long Key State Park and St. Lucie Inlet Preserve State Park.

¹⁸¹ Avalon State Park. Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 26. See caveats at p. 5.

¹⁸² Bill Baggs Cape Florida State Park. Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), *supra* note, at 72.

¹⁸³ Hugh Taylor Birch State Park. *Hugh Taylor Birch State Park Unit Management Plan (Approved)* (April 21, 2006), *supra* note, at 27.

¹⁸⁴ Bill Baggs Cape Florida State Park. *Bill Baggs Cape Florida State Park Approved Unit Management Plan* (Oct. 11, 2012), *supra* note, at 22.

¹⁸⁵ Avalon State Park, Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock/Little Crawl Key State Park, Fort Pierce Inlet State Park, Fort Zachary Taylor Historic State Park, , Hugh Taylor Birch State Park, John D. MacArthur Beach State Park, John U. Lloyd State Park, Long Key State Park, Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park.

¹⁸⁶ Avalon State Park, Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, Fort Pierce Inlet State Park, Fort Zachary Taylor Historic State Park, Long Key State Park, John U. Lloyd State Park, Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 7; *Bahia Honda State Park Unit Management Plan (Approved Plan)* (May 23, 2003), *supra* note, at 23; *Bill Baggs Cape Florida State Park Approved Unit Management Plan* (Oct. 11, 2012), *supra* note, at 40; *Curry Hammock State Park Approved Unit Management Plan* (Dec. 16, 2016), *supra* note, at 7; *Fort Pierce Inlet State Park Unit Management Plan (Approved Plan)* (Dec. 8, 2006), *supra* note, at 31; *Fort Zachary Taylor Historic State Park Unit Management Plan (Approved)* (June 13, 2008), *supra* note, at 32; *Long Key State Park Approved Unit Management Plan* (Dec. 16, 2016), *supra* note, at 7; *John U. Lloyd Beach State Park Approved Unit Management Plan* (Dec. 14, 2012), *supra* note, at 74; *Sebastian Inlet State Park Unit Management Plan (Approved)* (Dec. 12, 2008), *supra* note, at 57; *St. Lucie Inlet Preserve State Park Approved Unit Management Plan* (April 21, 2014), *supra* note, at 80.

¹⁸⁷ Bill Baggs Cape Florida State Park. *Bill Baggs Cape Florida State Park Approved Unit Management Plan* (Oct. 11, 2012), *supra* note, at 40.

Addresses the regulation of pets. 83% of plans refer to the regulation of pets within the park to some degree.¹⁸⁸ 58.3% of parks regulate all domesticated pets,¹⁸⁹ while 25% only reference domesticated cats.¹⁹⁰ Of the parks that regulate all domesticated pets, two provide that dogs are still frequently seen in the park.¹⁹¹ The remaining two parks do not mention the regulation of pets.¹⁹²

Educational Programs & Signage

Identifies public educational programs about sea turtles and their protection. 41.6% of plans identify educational materials on sea turtles and their protection provided within the park. Three of these plans state that publications on sea turtles are made available to park visitors.¹⁹³ Another park provides a sea turtle awareness program during the nesting season which involves an informational presentation, question and answer session and guided beach walk.¹⁹⁴ The remaining

¹⁸⁸ Avalon State Park, Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, Fort Zachary Taylor Historic State Park, Hugh Taylor State Park, John U. Lloyd State Park, Long Key State Park, Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 31; Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), *supra* note, at 19; Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), *supra* note, at 49; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 49; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 39; Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note, at 26; Hugh Taylor Birch State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 20; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note, at 40; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 39; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), *supra* note, at 23; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 65.

¹⁸⁹ Avalon State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, John U. Lloyd State Park, Long Key State Park and Sebastian Inlet State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 31; Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), *supra* note, at 49; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 39; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note, at 40; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 39; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), *supra* note, at 23.

¹⁹⁰ Bahia Honda State Park, Fort Zachary Taylor Historic State Park and Hugh Taylor Birch State Park.

Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), *supra* note, at 19; *Fort Zachary Taylor Historic State Park Unit Management Plan (Approved)* (June 13, 2008), *supra* note, at 26; *Hugh Taylor Birch State Park Unit Management Plan (Approved)* (April 21, 2006), *supra* note, at 20.

¹⁹¹ Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park. Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), *supra* note, at 23; *St. Lucie Inlet Preserve State Park Approved Unit Management Plan* (April 21, 2014), *supra* note, at 65.

¹⁹² Fort Pierce Inlet State Park and John D. MacArthur Beach State Park.

¹⁹³ Avalon State Park, Long Key State Park and St. Lucie Inlet Preserve State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 55; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 71; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 78.

¹⁹⁴ John U. Lloyd State Park. John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note, at 67, 89.

plan provides public turtle walks and interpretive experiences to educate visitors about “the plight of sea turtles.”¹⁹⁵ 58.3% of plans do not reference sea turtle educational programs.¹⁹⁶

Identifies education or signage regarding proper behavior on the nesting beach. 25% of plans indicate efforts to educate visitors about proper behavior on the nesting beach.¹⁹⁷ One park utilizes interpretive signage to discourage problem activities such as disturbing sea turtles.¹⁹⁸ Another provides that additional interpretive signs are needed to educate park visitors of the need to stay away from sea turtle nests during nesting season.¹⁹⁹ The third plan references presentation and beach walks during nesting season to increase public awareness of marine turtles, following established no-disturbance guidelines.²⁰⁰

Addresses dehooking protocol or other fishing education/rules pertaining to sea turtles. No plans in this region reference efforts to educate fishermen on the protocol for dehooking marine turtles.

Coastal Resiliency

Identifies sea level rise as a threat. 58.3% of plans address sea level rise in their plans. Two of these plans state that the parks will be affected by “general sea level rise” without reference to resultant management considerations.²⁰¹ Five parks describe in greater detail the need to incorporate future sea level rise into management planning and decisions.²⁰²

Addresses coastal armoring and potential impacts. 66% of plans refer to coastal armoring to some degree in their plans. Two of these parks acknowledge the potential impacts of coastal armoring

¹⁹⁵ John D. MacArthur State Park. *John D. MacArthur Beach State Park Unit Management Plan (Approved)* (April 22, 2005), supra note, at 6, 20.

¹⁹⁶ Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, Fort Pierce Inlet State Park, Fort Zachary Taylor Historic State Park, Hugh Taylor Birch State Park, Sebastian Inlet State Park.

¹⁹⁷ Bahia Honda State Park, John U. Lloyd State Park and St. Lucie Inlet Preserve State Park.

Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), supra note, at 18, 22; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), supra note, at 34; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), supra note, at 79.

¹⁹⁸ St. Lucie Inlet Preserve State Park. St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), supra note, at 79.

¹⁹⁹ Bahia Honda State Park. Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), supra note, at 18.

²⁰⁰ John U. Lloyd State Park. John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), supra note, at 34.

²⁰¹ Hugh Taylor Birch State Park and John D. MacArthur State Park. Hugh Taylor Birch State Park Unit Management Plan (Approved) (April 21, 2006), supra note, at 10; John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), supra note, at 10.

²⁰² Avalon State Park, Curry Hammock State Park, John U. Lloyd State Park, Long Key State Park and St. Lucie Inlet Preserve State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), supra note, at 43; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), supra note, at 54; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), supra note, at 59; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), supra note, at 55; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), supra note, at 65.

on the coastal habitat. One park notes that the existing riprap “does not appear to be negatively affecting sea turtle nesting and erosion.”²⁰³ The other explicitly discourages the placement of armoring structures in favor of alternatives to coastal armoring.²⁰⁴

Addresses dune preservation, renourishment or restoration activities. All but one plan referenced dune preservation, renourishment or restoration activities occurring within the park.²⁰⁵ Activities addressed include dune replanting with native vegetation,²⁰⁶ removal of exotic plant species,²⁰⁷ actions to minimize impacts of foot traffic on the dune habitat²⁰⁸ and renourishment using native sediment.²⁰⁹

²⁰³ Sebastian Inlet State Park. Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), *supra* note, at 14.

²⁰⁴ John U. Lloyd State Park. John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note, at 54.

²⁰⁵ Avalon State Park, Bahia Honda State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, Fort Pierce Inlet State Park, Fort Zachary Taylor State Park, John D. MacArthur Beach State Park, John U. Lloyd Beach State Park, Long Key State Park, Sebastian Inlet State Recreation Area, St. Lucie Inlet Preserve State Park. Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 6; Bahia Honda State Park Unit Management Plan (Approved Plan) (May 23, 2003), *supra* note, at 11; Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), *supra* note, at 22; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 19, 20, 53; Fort Pierce Inlet State Park Unit Management Plan (Approved Plan) (Dec. 8, 2006), *supra* note, at 12; Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note, at 17; John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), *supra* note, at 6, 11; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note, at 25, 48; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 20; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), *supra* note, at 6; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 33, 58.

²⁰⁶ Avalon State Park, Curry Hammock State Park, John D. MacArthur State Park, John U. Lloyd State Park, Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 17; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 19; John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), *supra* note, at 11; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note, at 25, 27-8; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), *supra* note, at 6; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 33.

²⁰⁷ Bill Baggs Cape Florida State Park, Fort Zachary Taylor State Park, Long Key State park and St. Lucie Inlet Preserve State Park.

Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), *supra* note, at 22; Fort Zachary Taylor Historic State Park Unit Management Plan (Approved) (June 13, 2008), *supra* note, at 17; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 20; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 33.

²⁰⁸ Fort Pierce State Park, Sebastian Inlet State Park and St. Lucie Inlet Preserve State Park. Fort Pierce Inlet State Park Unit Management Plan (Approved Plan) (Dec. 8, 2006), *supra* note, at 12; Sebastian Inlet State Park Unit Management Plan (Approved) (Dec. 12, 2008), *supra* note, at 6; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 33.

²⁰⁹ Curry Hammock State Park. Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 53.

Addresses marine pollution. 66% of plans reference marine pollution in the park's coastal environment.²¹⁰ Five parks indicate removal of trash and other debris²¹¹ while three identify the management goal of preventing the accumulation of pollutants.²¹²

ii. Local Parks

Many of the local parks were managed jointly under one master management plan. For example, The Strategic Beach Management Plan: Central Atlantic Coast Region (2018) covered management of Fort Pierce (Coconut Drive Park), Bathtub Beach Park, Sailfish Point and Waveland Beach Park. Similarly, the Strategic Beach Management Plan: Southeast Atlantic Coast Region (2018) covered Coral Cove Park, Ocean City Park, Hollywood North Beach Park, South Inlet Park, Red Reef Park, Atlantic Dunes Park, Surfside Park, Phipps Ocean Park, Crandon Park, Key Biscayne, Haulover Park, Sunny Isles Park, Golden Beach, Loggia Beach, Ocean Inlet Park, Ocean Reef Park (Singer Island) and Jupiter-Carlin County Park. However, the state's Strategic Beach Management Plan was never intended to be used as a substitute for local coastal park management nor is it adequate as a park planning document.

Covering this number of highly diverse parks in one plan led to many of the management plans for turtle protection to be subsumed into vague boilerplate language that is difficult to enforce. However, the southeast region also offered numerous park plans that were particularly consistent with the project criteria, including the City of Miami Beach Parks in Miami-Dade County and Blind Creek Park in St. Lucie County. The plan for Lake Worth Lagoon Parks in Palm Beach County was also particularly detailed with regard to coastal armoring, and the plan for South Beach Regional Park in Brevard County was very detailed regarding dune preservation.

²¹⁰ Avalon State Park, Bill Baggs Cape Florida State Park, Curry Hammock State Park, Hugh Taylor Birch State Park, John D. MacArthur State Park, John U. Lloyd State Park, Long Key State Park and St. Lucie Inlet Preserve State Park. Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 42; Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), *supra* note, at 22; Curry Hammock State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 26; Hugh Taylor Birch State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 27; John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), *supra* note, at 19; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note, at 32; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 23, 35; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 31.

²¹¹ Avalon State Park, Bill Baggs Cape Florida State Park, Hugh Taylor Birch State Park, Long Key State park and St. Lucie Inlet Preserve State Park.

Avalon State Park Approved Unit Management Plan (Feb. 27, 2014), *supra* note, at 42; Bill Baggs Cape Florida State Park Approved Unit Management Plan (Oct. 11, 2012), *supra* note, at 22; Hugh Taylor Birch State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 27; Long Key State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 23, 35; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 31.

²¹² John D. MacArthur State Park, John U. Lloyd State Park and St. Lucie Inlet Preserve State Park. John D. MacArthur Beach State Park Unit Management Plan (Approved) (April 22, 2005), *supra* note, at 19; John U. Lloyd Beach State Park Approved Unit Management Plan (Dec. 14, 2012), *supra* note, at 32; St. Lucie Inlet Preserve State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 31.

c. Northwest Gulf Region

i. State Parks

Administration

Sea turtle nesting density. The northwest gulf region is home to ten state parks supporting sea turtle nesting activity.²¹³ According to FWRI's Statewide Nesting Atlas, three of these parks support high density nesting, four are identified as medium density and three as low density nesting beaches.²¹⁴ Turtle species known to nest in this region include loggerhead (*Caretta caretta*), green (*Chelonia mydas*) and leatherback (*Dermochelys coriacea*).²¹⁵

Year last updated. 10% of these parks have management plans which are out of date pursuant to the statutory requirement that an updated land management plan be submitted to the Division of State Lands at least once every 10 years.²¹⁶

Designated critically eroded. 60% of parks in this region contain critically eroded shorelines as designated by FDEP.²¹⁷

Sea Turtle Management

Identifies nest survey or monitoring activities. 100% of plans in this region identify nest survey or monitoring activities occurring within the park.²¹⁸ Six plans provide that daily monitoring occurs

²¹³ Bald Point State Park, Camp Helen State Park, Deer Lake State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park, Topsail Hill Preserve State Park.

²¹⁴ FWC Fish and Wildlife Research Institute, *Statewide Atlas of Sea Turtle Nesting Occurrence and Density*, Florida Fish and Wildlife Conservation Commission, <https://myfwc.com/research/wildlife/sea-turtles/nesting/nesting-atlas/> (last visited Dec. 9, 2019).

²¹⁵ *Id.*

²¹⁶ Fla. Stat. § 253.034(5) (2018); Bald Point State Park. Division of Recreation and Parks, *Bald Point State Park Unit Management Plan (Approved)* (April 21, 2006), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/Bald%20Point%20State%20Park%202006%20Approved%20Plan.pdf>.

²¹⁷ Bald Point State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Perdido Key State Park, St. Andrews State Park and T.H. Stone Memorial St. Joseph Peninsula State Park.

Division of Water Resource Management, *Critically Eroded Beaches in Florida* (June 2019), FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/FDEP-Critically-Eroded-Beaches-2019.pdf>.

²¹⁸ Bald Point State Park, Camp Helen State Park, Deer Lake State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park, Topsail Hill Preserve State Park.

Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 1; Division of Recreation and Parks, *Camp Helen State Park Approved Unit Management Plan* (April 21, 2014), at 34, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/04_21_2014%20Approved%20Plan.pdf; Division of Recreation and Parks, *Deer Lake State Park Approved Unit Management Plan* (Dec. 16, 2016), at 39, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/DLSP_Approved_TM_20170126.pdf; Division of Recreation and Parks, *Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan*

within the park during nesting season.²¹⁹ One plan provides that the park participates in the Index Nesting Beach Survey program.²²⁰ Three parks indicate participation in the Statewide Nesting Beach Survey program.²²¹ Other identified activities include nest marking²²² and the erection of boundary postings with signage.²²³ Two plans identify participation of volunteers in survey activities.²²⁴

Addresses impacts of visitor use or increasing human carrying capacity. All plans in this region acknowledge visitor use impacts on park resources to some degree. Two of these plans include the same language, providing that “during the development of the management plan, the division

(Aug. 19, 2016), at 45, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/14-09-2016_SGISP_AP.pdf; Division of Recreation and Parks, *Grayton Beach State Park Approved Unit Management Plan* (July 8, 2013), at 45, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/06.14.2013_GBSP_Approved_Plan.pdf; Division of Recreation and Parks, *Henderson Beach State Park Approved Unit Management Plan* (April 19, 2013), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/04.19.2013_HBSP_AP.pdf; Division of Recreation and Parks, *Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan* (Dec. 14, 2018), at 82, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/BL_TB_PK_Main%20UMP%20Components_Compressed.pdf; Division of Recreation and Parks, *St. Andrews State Park Approved Unit Management Plan* (April 22, 2016), at 44, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/St.AndrewsStatePark_ApprovedPlan_2016.pdf; Division of Recreation and Parks, *T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan* (July 7, 2014), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, at 72, https://floridadep.gov/sites/default/files/2014_St.JosephPeninsulaStatePark_AP.pdf; Division of Recreation and Parks, *Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan* (August 2019), at 46, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/08.2019%20THPSP_AGDraftUMP.pdf.

²¹⁹ Bald Point State Park, Deer Lake State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, St. Andrews State Park and T.H. Stone Memorial St. Joseph Peninsula State Park.

Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra note*, at 1; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra note*, at 39; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra note*, at 45; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra note*, at 45; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra note*, at 44; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra note*, at 72.

²²⁰ T.H. Stone Memorial St. Joseph Peninsula State Park. T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra note*, at 37.

²²¹ Deer Lake State Park and T.H. Stone Memorial St. Joseph Peninsula State Park.

Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra note*, at 57; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra note*, at 72.

²²² T.H. Stone Memorial St. Joseph Peninsula State Park. T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra note*, at 72.

²²³ St. Andrews State Park. St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra note*, at 44.

²²⁴ Deer Lake State Park and St. Andrews State Park. Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra note*, at 39; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra note*, at 44.

assessed the potential impacts of proposed uses or development on the park resources.”²²⁵ One plan states that sea turtles are managed for protection from visitor impacts²²⁶ while another enumerates the importance of minimizing negative human impacts on the dune habitat²²⁷

Predation Control

Identifies nest predation as a threat. 90% of plans in this region identify nest predation as a threat to sea turtles.²²⁸

Authorizes predation control strategies. Each plan identifies predation control strategies that may be implemented within the park.²²⁹ Removal of problem species is identified as a control strategy

²²⁵ Camp Helen State Park and Deer Lake State Park. Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 77; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 76.

²²⁶ Dr. Julian G. Bruce St. George Island State Park. Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 61.

²²⁷ Bald Point State Park, Grayton Beach State Park, Henderson Beach State Park and Perdido Key State Park. Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 15; Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 78, 123; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 57; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 53.

²²⁸ Bald Point State Park, Camp Helen State Park, Deer Lake State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 29; Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 43; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 34; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 59; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 46; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 45; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 28; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 41; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 8, 33.

²²⁹ Bald Point State Park, Camp Helen State Park, Deer Lake State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 29; Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 101-2; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 44; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 59; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 46; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 53; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 30; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 55; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 51; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 55.

in every plan.²³⁰ Three of these plans indicate that trapping and removal of coyotes should occur prior to sea turtle nest season.²³¹ Four plans also address screening of nests to prevent predation.²³²

Lighting

Identifies light pollution as a threat. 70% of plans in this region identify artificial light pollution as a threat to nesting sea turtles.²³³

Provides for the use of sea turtle-friendly lighting. 60% of plans provide that sea turtle-friendly lighting is utilized in the park.²³⁴ One plan also provides that incidents of improper lighting for housing developments neighboring the park will be reported to FWC.²³⁵

Regulation of Beach Activities

Allows special events. 50% of plans indicate that special events are held in the park.²³⁶ Examples of such events include fishing clinics, geo-caching challenges, and races. To safeguard sea turtle

²³⁰ *Id.*

²³¹ Grayton Beach State Park, St. Andrews State Park and T.H. Stone Memorial St. Joseph Peninsula State Park. Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 53; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 55; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 55.

²³² Grayton Beach State Park, Perdido Key State Park, St. Andrews State Park and T.H. Stone Memorial St. Joseph Peninsula State Park.

Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 101-2; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 53; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 55; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 55.

²³³ Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 43-4; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 72; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 45; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 38; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 28; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 25; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 27. See caveats at p. 5.

²³⁴ Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park and Topsail Hill Preserve State Park.

Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 82; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 72; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 73; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 38; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 28; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 73. See caveats at p. 5.

²³⁵ St. Andrews State Park. St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 44.

²³⁶ Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, St. Andrews State Park and Topsail Hill Preserve State Park.

nests, three of these plans state that special events on the beach may only be held during daylight hours for the duration of sea turtle nesting season.²³⁷ Beyond this, no additional safeguards are referenced to protect sea turtle nests during special events.

Addresses beach driving. 80% of plans address beach driving to some degree.²³⁸ Three plans reference beach driving without specifying whether such access is public or limited to park management²³⁹ while three additional plans indicate that beach driving is authorized only for resource management and park operations.²⁴⁰ Two additional parks only provide that driving on dunes is prohibited except through designed beach access areas without reference to use by the public or merely park management.²⁴¹ 70% of these plans provide that drivers should follow FWC

Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 62; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 73; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 38; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 93; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 80.

²³⁷ Grayton Beach State Park, Henderson Beach State Park and Topsail Hill Preserve State Park. Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 73; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 38; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 80.

²³⁸ Camp Helen State Park, Deer Lake State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 43; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 39; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 40; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 24, 25; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 54; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 28-9, 38; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 24, 28, 36, 38, 76; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 79. See caveats at p. 5.

²³⁹ Grayton Beach State Park, St. Andrews State Park and Topsail Hill Preserve State Park.

Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 24-5; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 28-9; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 79.

²⁴⁰ Camp Helen State Park, Henderson Beach State Park and T.H. Stone Memorial St. Joseph Peninsula State Park.

Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 39; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 54; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 36.

²⁴¹ Grayton Beach State Park, Perdido Key State Park and St. Joseph Peninsula State Park.

Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 43; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 53; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 24; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 24.

Best Management Practices for operating vehicles on the beach.²⁴² 40% of plans reference the impact of vehicular rutting on sea turtle hatchling recruitment success.²⁴³

Addresses beach raking. 30% of plans in this region explicitly prohibit beach raking activities on the beach.²⁴⁴ The remaining plans do not address beach raking.

Provides for the use of concessionaires. Each of these plans states that concessionaries may be employed within the park.²⁴⁵ Examples of such concessions include the rental of recreational equipment,²⁴⁶ the sale of snacks and the sale of sundry items.²⁴⁷ Safeguards to ensure protection of nesting sea turtles are not addressed in any plans.

²⁴² Camp Helen State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 43; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 39; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 53; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 25; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 38; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 76.

²⁴³ Camp Helen State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 39; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 38; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 38; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 79.

²⁴⁴ Henderson Beach State Park, Perdido Key State Park and St. Andrews State Park.

Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 49; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 24; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 37.

²⁴⁵ Bald Point State Park, Camp Helen State Park, Dr. Julian G. Bruce St. George Island State Park, Deer Lake State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 5; Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 8; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 78; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 7, 81; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 66; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 102; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 7, 64; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 93-4; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 98, 108; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 7.

²⁴⁶ Dr. Julian G. Bruce St. George Island State Park and T.H. Stone Memorial St. Joseph Peninsula State Park.

Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 66; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 108.

²⁴⁷ Dr. Julian G. Bruce St. George Island State Park. Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 66.

Addresses the regulation of pets. 100% of plans in this region regulate pets within the park.²⁴⁸ These plans provide that free ranging pets are subject to removal from the park. Two plans indicate that education of park visitors and more stringent enforcement of park regulations and local ordinances is needed.²⁴⁹ The presence of dogs on the beach is still an issue according to two of these plans.²⁵⁰

Educational Programs & Signage

Identifies public educational programs about sea turtles and their protection. 50% of plans in this region identify interpretive programs dedicated to sea turtles.²⁵¹ One program is dedicated to interpreting the “anatomy, life and importance of sea turtles”;²⁵² another covers what actions are taken to ensure the survival of sea turtles.²⁵³

Identifies education or signage regarding proper behavior on the nesting beach. 30% of plans identify interpretive programs designed to educate park visitors about proper behavior on the nesting beach.²⁵⁴ One of these programs is intended to enhance visitor understanding of

²⁴⁸ Bald Point State Park, Camp Helen State Park, Deer Lake State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 28; Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 96; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 44; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 46; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 36; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 52; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 30; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 52; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 51; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 55.

²⁴⁹ Bald Point State Park and T.H. Stone Memorial St. Joseph Peninsula State Park. Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 28; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 25.

²⁵⁰ St. Andrews State Park and T.H. Stone Memorial St. Joseph Peninsula State Park. St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 45; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 25.

²⁵¹ Bald Point State Park, Camp Helen State Park, Dr. Julian G. Bruce St. George Island State Park, Henderson Beach State Park and T.H. Stone Memorial St. Joseph Peninsula State Park.

Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 39; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 101; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 59; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 101.

²⁵² Henderson Beach State Park. Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 59.

²⁵³ T.H. Stone Memorial St. Joseph Peninsula State Park. T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 101.

²⁵⁴ Bald Point State Park. Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 46.

“responsible use” in the context of sea turtles.²⁵⁵ Another plan provides that educational outreach is needed to accompany posting in advance of sea turtle nesting.²⁵⁶

Addresses dehooking protocol or other fishing education/rules pertaining to sea turtles. Protocol for dehooking sea turtles is not addressed in any of these plans.

Coastal Resiliency

Identifies sea level rise as a threat. 80% of plans in this region identify sea level rise as a threat to be incorporated into management considerations.²⁵⁷

Addresses coastal armoring and potential impacts. 40% of plans reference coastal armoring to some degree.²⁵⁸ One of these plans identifies the existence of armoring structures within the park.²⁵⁹ Another provides that the park should stay informed regarding shoreline armoring adjacent to the park but does not make clear whether armoring will be utilized within the park.²⁶⁰ One of the remaining two plans indicates that coastal armoring is not present in the park while the other states that the use of hard shoreline stabilizations will be avoided in the park in the interest of conserving beach sediment.²⁶¹

²⁵⁵ Bald Point State Park. *Id.*

²⁵⁶ St Andrews State Park. St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 45.

²⁵⁷ Camp Helen State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 125; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 65; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 48; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 78; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 41; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 84; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 79; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 87.

²⁵⁸ Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park and Topsail Hill Preserve State Park. Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 81; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 48; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 40, 106; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 21.

²⁵⁹ St. Andrews State Park. St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 106.

²⁶⁰ Henderson Beach State Park. Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 48.

²⁶¹ Topsail Hill Preserve State Park. Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 21.

Addresses dune preservation, renourishment or restoration activities. 100% of plans refer to dune preservation, renourishment or restoration activities occurring within the park.²⁶² Activities described include planting dune vegetation,²⁶³ utilizing sand fencing to protect dunes,²⁶⁴ using dune crossovers to prevent degradation,²⁶⁵ and renourishment.²⁶⁶ One plan provides that any proposed restoration or nourishment projects must be “compatible with and sensitive to” sea turtle management.²⁶⁷

²⁶² Bald Point State Park, Camp Helen State Park, Deer Lake State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 10; Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 49; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 23; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 30; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 47-8; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 69; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 29; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 24, 78; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 27.

²⁶³ Bald Point State Park, Camp Helen State Park, Deer Lake State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 10; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 23; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 30; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 29; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 24; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 27.

²⁶⁴ Bald Point State Park. Bald Point State Park Unit Management Plan (Approved) (April 21, 2006), *supra* note, at 10.

²⁶⁵ T.H. Stone Memorial St. Joseph Peninsula State Park. T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 24.

²⁶⁶ Perdido Key State Park. Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 49.

²⁶⁷ Dr. Julian G. Bruce St. George Island State Park. Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 48.

Addresses marine pollution. 90% of plans address marine pollution.²⁶⁸ Each of these plans addresses the removal of trash, litter and debris from the beach.²⁶⁹ 50% of plans also identify as a management goal for the marine environment preventing the accumulation of pollutants.²⁷⁰

ii. Local Parks

Locating fact-specific data about the Northwest parks was not easy. However, Okaloosa was one county that provided some information. Okaloosa County relies on the Panhandle Gulf Coast Region Strategic Beach Management Plan for general land management and contracts out turtle management to local Permit Holders who abide by a Permit Holder Contract.

d. Southwest Gulf Region

i. State Parks

Administration

²⁶⁸Camp Helen State Park, Deer Lake State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 21, 124; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 26-7; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 26, 38; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 30, 31, 48; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 77; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 24, 26; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 35, 38; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 24, 37, 79; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 48, 86.

²⁶⁹ Camp Helen State Park, Deer Lake State Park, Dr. Julian G. Bruce St. George Island State Park, Grayton Beach State Park, Henderson Beach State Park, Perdido Key State Park, St. Andrews State Park, T.H. Stone Memorial St. Joseph Peninsula State Park and Topsail Hill Preserve State Park.

Big Lagoon State Park, Tarkiln Bayou Preserve State Park, Perdido Key State Park Approved Multi-Unit Management Plan (Dec. 14, 2018), *supra* note, at 21, 124; Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 27; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 38; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 31, 48; Grayton Beach State Park Approved Unit Management Plan (July 8, 2013), *supra* note, at 77; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 26; St. Andrews State Park Approved Unit Management Plan (April 22, 2016), *supra* note, at 35, 38; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 24; Topsail Hill Preserve State Park Advisory Group Draft Unit Management Plan (August 2019), *supra* note, at 86.

²⁷⁰ Camp Helen State Park, Deer Lake State Park, Dr. Julian G. Bruce St. George Island State Park, Henderson Beach State Park and T.H. Stone Memorial St. Joseph Peninsula State Park.

Camp Helen State Park Approved Unit Management Plan (April 21, 2014), *supra* note, at 26; Deer Lake State Park Approved Unit Management Plan (Dec. 16, 2016), *supra* note, at 26; Dr. Julian G. Bruce St. George Island State Park Approved Unit Management Plan (Aug. 19, 2016), *supra* note, at 30; Henderson Beach State Park Approved Unit Management Plan (April 19, 2013), *supra* note, at 24; T.H. Stone Memorial St. Joseph Peninsula State Park Approved Unit Management Plan (July 7, 2014), *supra* note, at 37.

Sea turtle nesting density. The southwest gulf region is home to nine state parks supporting sea turtle nesting activity.²⁷¹ According to FWRI's Statewide Nesting Atlas, two of these parks support high density nesting, four are identified as medium density and three low density nesting.²⁷² Turtle species known to nest in this region include loggerhead (*Caretta caretta*) and green (*Chelonia mydas*).²⁷³

Year last updated. 33% of these parks have management plans which are out of date pursuant to the statutory requirement that an updated land management plan be submitted to the Division of State Lands at least once every 10 years.²⁷⁴

Designated critically eroded. 44% of these parks contain segments which have been designated as critically eroded.²⁷⁵ 33% have been designated non-critically eroded.²⁷⁶

Sea Turtle Management

Identifies nest survey or monitoring activities. Though only one plan identifies the park's participation in the INBS program,²⁷⁷ all plans reference nest survey or monitoring activities

²⁷¹ Anclote Key State Park, Caladesi Island State Park, Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Gasparilla Island State Park, Honeymoon Island State Park, Lovers Key State Park and Stump Pass Beach State Park.

²⁷² FWC Fish and Wildlife Research Institute, *Statewide Atlas of Sea Turtle Nesting Occurrence and Density*, Florida Fish and Wildlife Conservation Commission, <https://myfwc.com/research/wildlife/sea-turtles/nesting/nesting-atlas/> (last visited Dec. 9, 2019).

²⁷³ *Id.*

²⁷⁴ Caladesi Island State Park and Honeymoon Island State Park.

Division of Recreation and Parks, *Caladesi Island State Park* (June 15, 2017), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/Caladesi%20Island%20State%20Park%202007%20Approved%20Plan.pdf>;

Division of Recreation and Parks, *Honeymoon Island State Park* (June 15, 2007), STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/Honeymoon%20Island%202007%20Approved%20Plan.pdf>.

²⁷⁵ Gasparilla Island State Park, Honeymoon Island State Park, Lovers Key State Park and Stump Pass Beach State Park.

²⁷⁶ Anclote Key State Park, Caladesi Island State Park and Cayo Costa State Park.

²⁷⁷ Delnor-Wiggins Pass State Park. Division of Recreation and Parks, *Delnor-Wiggins Pass State Park* (Oct. 9, 2009), at 16, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/10.09.2009%20Approved%20Plan.pdf>.

conducted within the park.²⁷⁸ Four plans identify nest monitoring generally²⁷⁹ while five reference nest surveys.²⁸⁰ Other activities identified include the erection of boundaries, posting signage around nests²⁸¹ and population counting.²⁸²

Addresses impacts of visitor use or increasing human carrying capacity. 77.7% of plans provide a detailed account of visitor impacts.²⁸³ Three of these plans address the impact of visitors on

²⁷⁸ Anclote Key State Park, Caladesi Island State Park, Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Gasparilla Island State Park, Honeymoon Island State Park, Lovers Key State Park and Stump Pass Beach State Park.

Division of Recreation and Parks, *Anclote Key Preserve State Park* (April 21, 2014), at 26, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/AncloteKeyPreserveSP_FinalApprovedPlan_20140421.pdf; Caladesi Island State Park (June 15, 2017), supra note, at 26; Division of Recreation and Parks, *Cayo Costa State Park* (March 2018), at 37, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/Cayo%20Costa%20State%20Park_Advisory%20Group%20Draft_March%202018_0.pdf; Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 28; Division of Recreation and Parks, *Don Pedro Island State Park* (Aug. 22, 2013), at 38, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/2013_DonPedroIslandStatePark_AP.pdf; Division of Recreation and Parks, *Gasparilla Island State Park* (July 7, 2014), at 26, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/2014_GasparillaIslandStatePark_AP.pdf; Honeymoon Island State Park (June 15, 2007), supra note, at 8; Division of Recreation and Parks, *Lovers Key State Park* (Dec. 9, 2005), at 19, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, <https://floridadep.gov/sites/default/files/2005%20Lovers%20Key%20State%20Park%20Approved%20Plan.pdf>; Division of Recreation and Parks, *Stump Pass Beach State Park* (Aug. 22, 2013), at 27, STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, https://floridadep.gov/sites/default/files/StumpPassBeachSP_FinalApprovedPlan_20130822%28FullFileSize%29.pdf.

²⁷⁹ Anclote Key State Park, Delnor-Wiggins Pass State Park, Honeymoon Island State Park and Lovers Key State Park.

Anclote Key Preserve State Park (April 21, 2014), supra note, at 26; Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 28; Honeymoon Island State Park (June 15, 2007), supra note, at 8; Lovers Key State Park (Dec. 9, 2005), supra note, at 19.

²⁸⁰ Anclote Key State Park, Caladesi Island State Park, Cayo Costa State Park, Gasparilla Island State Park and Stump Pass Beach State Park.

Anclote Key Preserve State Park (April 21, 2014), supra note, at 26; Caladesi Island State Park (June 15, 2017), supra note, at 26; Cayo Costa State Park (March 2018), supra note, at 37; Gasparilla Island State Park (July 7, 2014), supra note, at 26; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 27.

²⁸¹ Cayo Costa State Park and Gasparilla Island State Park.

Cayo Costa State Park (March 2018), supra note, at 37; Gasparilla Island State Park (July 7, 2014), supra note, at 26.

²⁸² Don Pedro Island State Park and Gasparilla Island State Park.

Don Pedro Island State Park (Aug. 22, 2013), supra note, at 38; Gasparilla Island State Park (July 7, 2014), supra note, at 26.

²⁸³ Anclote Key State Park, Caladesi Island State Park, Cayo Costa State Park, Don Pedro Island State Park, Gasparilla Island State Park, Honeymoon Island State Park and Stump Pass Beach State Park.

Anclote Key Preserve State Park (April 21, 2014), supra note, at 23, 42, 43, 50; Caladesi Island State Park (June 15, 2017), supra note, at 16, 18, 30; Cayo Costa State Park (March 2018), supra note, at 38; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 35; Gasparilla Island State Park (July 7, 2014), supra note, at 26, 55, 63; Honeymoon Island State Park (June 15, 2007), supra note, at 22, 36; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 28, 54, 61.

wildlife along the parks' beaches.²⁸⁴ Another plan identifies visitor impacts to the park's sensitive coastal habitats.²⁸⁵ Responses to visitor impacts addressed include balancing the intensity of recreational use with natural resource protection by placing signage around sea turtle nests²⁸⁶ and restricting access to sea turtle nesting areas.²⁸⁷ One plan states that the siting of a proposed ferry concession drop off point will exclude the sea turtle nesting area of beach.²⁸⁸ Another describes extensive monitoring efforts to evaluate impacts of nocturnal visitor use, providing that nocturnal recreational use may be restricted on beach to limit impact on wildlife including nesting sea turtles.²⁸⁹

Predation Control

Identifies nest predation as a threat. All plans in this region identify predation as a threat to nesting sea turtles and hatchlings.²⁹⁰

Authorizes predation control strategies. Each of these plans identifies predation control strategies utilized within the park.²⁹¹ The most commonly identified predator control strategy is trapping and

²⁸⁴ Anclote Key State Park, Caladesi Island State Park and Cayo Costa State Park. Anclote Key Preserve State Park (April 21, 2014), *supra* note, at 50; Caladesi Island State Park (June 15, 2017), *supra* note, at 30; Cayo Costa State Park (March 2018), *supra* note, at 38.

²⁸⁵ Gasparilla Island State Park. Gasparilla Island State Park (July 7, 2014), *supra* note, at 55.

²⁸⁶ Don Pedro Island State Park and Stump Pass Beach State Park. Don Pedro Island State Park (Aug. 22, 2013), *supra* note, at 35; Stump Pass Beach State Park (Aug. 22, 2013), *supra* note, at 57.

²⁸⁷ Stump Pass Beach State Park. Stump Pass Beach State Park (Aug. 22, 2013), *supra* note, at 57.

²⁸⁸ Stump Pass Beach State Park. *Id.* at 61.

²⁸⁹ Honeymoon Island State Park. Honeymoon Island State Park (June 15, 2007), *supra* note, at 22.

²⁹⁰ Anclote Key State Park, Caladesi Island State Park, Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Gasparilla Island State Park, Honeymoon Island State Park, Lovers Key State Park and Stump Pass Beach State Park.

Anclote Key Preserve State Park (April 21, 2014), *supra* note, at 67; Caladesi Island State Park (June 15, 2017), *supra* note, at 26; Cayo Costa State Park (March 2018), *supra* note, at 37; Delnor-Wiggins Pass State Park (Oct. 9, 2009), *supra* note, at 31; Don Pedro Island State Park (Aug. 22, 2013), *supra* note, at 37; Gasparilla Island State Park (July 7, 2014), *supra* note, at 31; Honeymoon Island State Park (June 15, 2007), *supra* note, at 19; Lovers Key State Park (Dec. 9, 2005), *supra* note, at 19; Stump Pass Beach State Park (Aug. 22, 2013), *supra* note, at 42.

²⁹¹ Anclote Key State Park, Caladesi Island State Park, Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Gasparilla Island State Park, Honeymoon Island State Park, Lovers Key State Park and Stump Pass Beach State Park.

Anclote Key Preserve State Park (April 21, 2014), *supra* note, at 67; Caladesi Island State Park (June 15, 2017), *supra* note, at 26; Cayo Costa State Park (March 2018), *supra* note, at 49; Delnor-Wiggins Pass State Park (Oct. 9, 2009), *supra* note, at 31; Don Pedro Island State Park (Aug. 22, 2013), *supra* note, at 37; Gasparilla Island State Park (July 7, 2014), *supra* note, at 33; Honeymoon Island State Park (June 15, 2007), *supra* note, at 25; Lovers Key State Park (Dec. 9, 2005), *supra* note, at 19; Stump Pass Beach State Park (Aug. 22, 2013), *supra* note, at 42, 77.

removal,²⁹² sometimes in conjunction with the placement of metal screens over nests.²⁹³ Two of these plans also identified visitor education programs as a component of controlling predation issues in the park.²⁹⁴

Lighting

Identifies light pollution as a threat. 55.5% of plans identify artificial lighting as a threat to sea turtles.²⁹⁵

Provides for the use of sea turtle-friendly lighting. Each plan that identified lighting as a threat made some provision for protection from artificial lighting impacts.²⁹⁶ Four of these plans provided that all external lighting in the park must incorporate turtle-friendly lighting in accordance with FWC Marine Turtle Lighting Guidelines²⁹⁷ The remaining plan stated that evening activities are limited during sea turtle nesting season and light sources on the beach are off to prevent disturbance to nesting sea turtles and hatchlings.²⁹⁸

²⁹² Anclote Key State Park, Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Gasparilla Island State Park, Honeymoon Island State Park, Lovers Key State Park and Stump Pass Beach State Park. Anclote Key Preserve State Park (April 21, 2014), *supra* note, at 67; Cayo Costa State Park (March 2018), *supra* note, at 49; Delnor-Wiggins Pass State Park (Oct. 9, 2009), *supra* note, at 49; Don Pedro Island State Park (Aug. 22, 2013), *supra* note, at 37; Gasparilla Island State Park (July 7, 2014), *supra* note, at 33; Honeymoon Island State Park (June 15, 2007), *supra* note, at 25; Lovers Key State Park (Dec. 9, 2005), *supra* note, at 19; Stump Pass Beach State Park (Aug. 22, 2013), *supra* note, at 42.

²⁹³ Caladesi Island State Park, Cayo Costa State Park, Don Pedro Island State Park, Gasparilla Island State Park and Stump Pass Beach State Park.

Caladesi Island State Park (June 15, 2017), *supra* note, at 26; Cayo Costa State Park (March 2018), *supra* note, at 49; Don Pedro Island State Park (Aug. 22, 2013), *supra* note, at 37; Gasparilla Island State Park (July 7, 2014), *supra* note, at 33; Stump Pass Beach State Park (Aug. 22, 2013), *supra* note, at 77.

²⁹⁴ Delnor-Wiggins Pass State Park and Lovers Key State Park. Delnor-wiggins p. 31, lovers key p. 19, Delnor-Wiggins Pass State Park (Oct. 9, 2009), *supra* note, at 31; Lovers Key State Park (Dec. 9, 2005), *supra* note, at 19.

²⁹⁵ Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Gasparilla Island State Park and Stump Pass Beach State Park. See caveats at p. 5.

Cayo Costa State Park (March 2018), *supra* note, at 38; Delnor-Wiggins Pass State Park (Oct. 9, 2009), *supra* note, at 28; Don Pedro Island State Park (Aug. 22, 2013), *supra* note, at 37; Gasparilla Island State Park (July 7, 2014), *supra* note, at 26; Stump Pass Beach State Park (Aug. 22, 2013), *supra* note, at 27.

²⁹⁶ Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Gasparilla Island State Park and Stump Pass Beach State Park. *Id.* See caveats at p. 5.

²⁹⁷ Cayo Costa State Park, Don Pedro Island State Park, Gasparilla Island State Park and Stump Pass Beach State Park.

Cayo Costa State Park (March 2018), *supra* note, at 38; Don Pedro Island State Park (Aug. 22, 2013), *supra* note, at 37; Gasparilla Island State Park (July 7, 2014), *supra* note, at 26; Stump Pass Beach State Park (Aug. 22, 2013), *supra* note, at 27.

²⁹⁸ Delnor-Wiggins Pass State Park. Delnor-Wiggins Pass State Park (Oct. 9, 2009), *supra* note, at 28.

Regulation of Beach Activities

Allows special events. 55.5% of plans indicated the occurrence of special events within the park²⁹⁹ including art shows,³⁰⁰ weddings³⁰¹ and other events. One park even stated that large special events in the park can draw up to 10,000 visitors.³⁰² One of these plans addressed potential impacts of events on nesting sea turtles, providing that “evening activities are limited to prevent disturbance to nesting sea turtles.”³⁰³

Addresses beach driving. While 33.3% of plans specified that driving on park beaches is limited to vehicles used for necessary management activities,³⁰⁴ 22.2% reference vehicle trails over dunes without clarifying whether these were for public or park-only use.³⁰⁵ One plan stated that driving on the beach should be in accord with FWC Best Management Practices to avoid conflicts with beach nesting species.³⁰⁶ 55.5% of plans do not address beach driving.³⁰⁷

Addresses beach raking. 22% of plans address beach raking. One provides that beach raking will not be conducted in order to preserve the wrack line and minimize impact to nesting shorebirds and sea turtles.³⁰⁸ The other plan provides that a mechanical beach cleaner capable of removing rocks is periodically used on the recreational beach.³⁰⁹

Provides for the use of concessionaires. 88.8% of plans provide for the use of concessionaires in the park.³¹⁰ Examples of concession services utilized include food service,³¹¹ sale of

²⁹⁹ Cayo Costa State Park, Delnor-Wiggins Pass State Park, Gasparilla Island State Park, Honeymoon Island State Park and Lovers Key State Park.

Cayo Costa State Park (March 2018), *supra* note, at 86; Delnor-Wiggins Pass State Park (Oct. 9, 2009), *supra* note, at 28; Gasparilla Island State Park (July 7, 2014), *supra* note, at 56; Honeymoon Island State Park (June 15, 2007), *supra* note, at 46, 48; Lovers Key State Park (Dec. 9, 2005), *supra* note, at 26.

³⁰⁰ Delnor-Wiggins Pass State Park. Delnor-Wiggins Pass State Park (Oct. 9, 2009), *supra* note, at 28.

³⁰¹ Lovers Key State Park. Lovers Key State Park (Dec. 9, 2005), *supra* note, at 26.

³⁰² Honeymoon Island State Park. Honeymoon Island State Park (June 15, 2007), *supra* note, at 48.

³⁰³ Delnor-Wiggins Pass State Park. Delnor-Wiggins Pass State Park (Oct. 9, 2009), *supra* note, at 28.

³⁰⁴ Cayo Costa State Park, Gasparilla Island State Park and Lovers Key State Park

Cayo Costa State Park (March 2018), *supra* note, at 35; Gasparilla Island State Park (July 7, 2014), *supra* note, at 24; Lovers Key State Park (Dec. 9, 2005), *supra* note, at 32. See caveats at p. 5.

³⁰⁵ Caladesi Island State Park and Honeymoon Island State Park. Caladesi Island State Park (June 15, 2017), *supra* note, at 16; Honeymoon Island State Park (June 15, 2007), *supra* note, at 14.

³⁰⁶ Cayo Costa State Park. Cayo Costa State Park (March 2018), *supra* note, at 35.

³⁰⁷ Anclote Key State Park, Caladesi Island State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park and Stump Pass Beach State Park.

³⁰⁸ Cayo Costa State Park. Cayo Costa State Park (March 2018), *supra* note, at 35.

³⁰⁹ Honeymoon Island State Park. Honeymoon Island State Park (June 15, 2007), *supra* note, at 12-13.

³¹⁰ Gasparilla Island State Park deed provides that no concession is allowed on the property. Gasparilla Island State Park (July 7, 2014), *supra* note, at A 1-2.

³¹¹ Caladesi Island State Park, Delnor-Wiggins Pass State Park and Lovers Key State Park.

Caladesi Island State Park (June 15, 2017), *supra* note, at 7; Delnor-Wiggins Pass State Park (Oct. 9, 2009), *supra* note, at 51; Lovers Key State Park (Dec. 9, 2005), *supra* note, at 28.

merchandise³¹² equipment rentals,³¹³ and ferry transit.³¹⁴ One plan provides that siting for the proposed ferry drop off concession will exclude the area of the beach used by nesting sea turtles.³¹⁵

Addresses the regulation of pets. All but one plan address the regulation of pets in the park.³¹⁶ Four plans identify free ranging domesticated pets as exotic species subject to removal.³¹⁷ Other bases for the regulation of pets identified include the enforcement of a local pet ordinance,³¹⁸ DEP program directive 930,³¹⁹ and code FAC 62D.³²⁰ Some plans identified the use of educational programs, interpretation and signs to further prevent disturbances of sea turtles by pets.³²¹

Educational Programs & Signage

Identifies public educational programs about sea turtles and their protection. 77.7% of plans identify educational efforts to inform park visitors about sea turtles.³²² Such efforts include the

³¹² Delnor-Wiggins Pass State Park. Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 51.

³¹³ Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Lovers Key State Park and Stump Pass Beach State Park.

Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 51; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 72; Lovers Key State Park (Dec. 9, 2005), supra note, at 28; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 61.

³¹⁴ Caladesi Island State Park, Cayo Costa State Park, Don Pedro Island State Park, Honeymoon Island State Park and Stump Pass Beach State Park.

Caladesi Island State Park (June 15, 2017), supra note, at 7; Cayo Costa State Park (March 2018), supra note, at 86; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 72; Honeymoon Island State Park (June 15, 2007), supra note, at 41; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 61.

³¹⁵ Stump Pass Beach State Park. Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 61.

³¹⁶ Anclote Key State Park, Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Gasparilla Island State Park, Honeymoon Island State Park, Lovers Key State Park and Stump Pass Beach State Park. Anclote Key Preserve State Park (April 21, 2014), supra note, at 44; Cayo Costa State Park (March 2018), supra note, at 72; Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 23; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 35; Gasparilla Island State Park (July 7, 2014), supra note, at 33; Honeymoon Island State Park (June 15, 2007), supra note, at 29; Lovers Key State Park (Dec. 9, 2005), supra note, at 16; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 34.

³¹⁷ Anclote Key State Park, Delnor-Wiggins Pass State Park, Gasparilla Island State Park and Stump Pass Beach State Park.

Anclote Key Preserve State Park (April 21, 2014), supra note, at 32; Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 23; Gasparilla Island State Park (July 7, 2014), supra note, at 33; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 34.

³¹⁸ Lovers Key State Park. Lovers Key State Park (Dec. 9, 2005), supra note, at 16.

³¹⁹ Lovers Key State Park. *Id.* at 5, 16.

³²⁰ Cayo Costa State Park. Cayo Costa State Park (March 2018), supra note, at 72.

³²¹ Don Pedro Island State Park and Lovers Key State Park. Don Pedro Island State Park (Aug. 22, 2013), supra note, at 37; Lovers Key State Park (Dec. 9, 2005), supra note, at 5, 16.

³²² Caladesi Island State Park, Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Gasparilla Island State Park, Honeymoon Island State Park, Lovers Key State Park and Stump Pass Beach State Park. Caladesi Island State Park (June 15, 2017), supra note, at A 6-1; Cayo Costa State Park (March 2018), supra note, at 62, 92; Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 29; Don Pedro Island State Park (Aug. 22, 2013),

provision of educational materials,³²³ interpretive talks,³²⁴ and posting efforts accompanied by outreach.³²⁵

Identifies education or signage regarding proper behavior on the nesting beach. 88% of plans in this region identified educational efforts pertaining to proper behavior on the nesting beach.³²⁶ Topics addressed include interpretation to educate visitors about how to minimize human-related disturbances to nesting sea turtles,³²⁷ signage around sea turtle nests,³²⁸ and restricting access to nesting sites prior to nesting season.³²⁹

Addresses dehooking protocol or other fishing education/rules pertaining to sea turtles. No plans in this region address dehooking protocol. However, one plan did identify the need to control litter associated with fishing activities such as monofilament line and terminal tackle to avoid interaction with turtles, providing that education and adequate disposal receptacles are essential³³⁰

Coastal Resiliency

Identifies sea level rise as a threat. 66.6% of plans in this region identify sea level rise as a threat to be incorporated into management considerations.³³¹

supra note, at 75; Gasparilla Island State Park (July 7, 2014), supra note, at 26; Honeymoon Island State Park (June 15, 2007), supra note, at 45; Lovers Key State Park (Dec. 9, 2005), supra note, at 8; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 42.

³²³ Caladesi Island State Park and Stump Pass Beach State Park. Caladesi Island State Park (June 15, 2017), supra note, at A 6-1; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 42.

³²⁴ Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park and Lovers Key State Park. Cayo Costa State Park (March 2018), supra note, at 92; Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 29; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 75; Lovers Key State Park (Dec. 9, 2005), supra note, at 8.

³²⁵ Gasparilla Island State Park. Gasparilla Island State Park (July 7, 2014), supra note, at 26.

³²⁶ Caladesi Island State Park, Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park, Gasparilla Island State Park, Honeymoon Island State Park, Lovers Key State Park and Stump Pass Beach State Park. Caladesi Island State Park (June 15, 2017), supra note, at A 6-1; Cayo Costa State Park (March 2018), supra note, at 35; Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 29; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 37; Gasparilla Island State Park (July 7, 2014), supra note, at 26; Honeymoon Island State Park (June 15, 2007), supra note, at 8; Lovers Key State Park (Dec. 9, 2005), supra note, at 5; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 28, 56-7.

³²⁷ Delnor-Wiggins Pass State Park, Honeymoon Island State Park and Lovers Key State Park.

Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 29; Honeymoon Island State Park (June 15, 2007), supra note, at 8; Lovers Key State Park (Dec. 9, 2005), supra note, at 5.

³²⁸ Caladesi Island State Park, Cayo Costa State Park, Don Pedro Island State Park, Gasparilla Island State Park and Stump Pass Beach State Park.

Caladesi Island State Park (June 15, 2017), supra note, at A 6-1; Cayo Costa State Park (March 2018), supra note, at 35; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 37; Gasparilla Island State Park (July 7, 2014), supra note, at 26; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 28.

³²⁹ Caladesi Island State Park, Gasparilla Island State Park and Stump Pass Beach State Park.

Caladesi Island State Park (June 15, 2017), supra note, at A 6-1; Gasparilla Island State Park (July 7, 2014), supra note, at 26; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 56-7.

³³⁰ Honeymoon Island State Park. Honeymoon Island State Park (June 15, 2007), supra note, at 30.

³³¹ Anclote Key State Park, Cayo Costa State Park, Don Pedro Island State Park, Gasparilla Island State Park, Honeymoon Island State Park and Stump Pass Beach State Park.

Addresses coastal armoring and potential impacts. 22% of these plans address coastal armoring. One plan notes recent reconstruction efforts on the existing seawall and riprap in the park.³³² The other states that beach nourishment would be preferred over any type of hard stabilization within the park.³³³

Addresses dune preservation, renourishment or restoration activities. Every plan addresses dune preservation, renourishment or restoration activities occurring in the park. One plan identifies the need for renourishment and repair of dunes with specific reference to marine turtles.³³⁴ Other activities addressed include the planting of dune vegetation,³³⁵ renourishment,³³⁶ and providing a boardwalk over dunes to prevent degradation.³³⁷

Addresses marine pollution. 66.6% of plans address marine pollution management. 5 plans refer generally to preventing the accumulation of pollutants in the marine substrate³³⁸ and one addresses removal of trash, litter other debris from the beach.³³⁹

ii. Local Parks

Many of the local parks were managed jointly under one master management plan. For example, The Strategic Beach Management Plan: Southwest Gulf Coast Region (2018) covered management of Anna Maria Island (containing smaller parks such as Cortez Beach, Gulf Front Park, Coquina Beach Park and Manatee Public Beach), Longboat Key (containing Whitney Beach and Greer Island Park), Lido Key (containing Coolidge Park and Ted Sperling Park), Siesta Key (containing Turtle Beach and Palmer Point Beach), Casey Key (containing Nokomis Beach),

Anclote Key Preserve State Park (April 21, 2014), supra note, at 46; Cayo Costa State Park (March 2018), supra note, at 79; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 57; Gasparilla Island State Park (July 7, 2014), supra note, at 46; Honeymoon Island State Park (June 15, 2007), supra note, at 12; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 47.

³³² Gasparilla Island State Park. Gasparilla Island State Park (July 7, 2014), supra note, at 45.

³³³ Cayo Costa State Park. Cayo Costa State Park (March 2018), supra note, at 79; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 17.

³³⁴ Delnor-Wiggins Pass State Park. Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 27.

³³⁵ Gasparilla Island State Park. Gasparilla Island State Park (July 7, 2014), supra note, at 18.

³³⁶ Cayo Costa State Park, Delnor-Wiggins Pass State Park, Gasparilla Island State Park and Lovers Key State Park. Cayo Costa State Park (March 2018), supra note; Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 27; Gasparilla Island State Park (July 7, 2014), supra note, at 18; Lovers Key State Park (Dec. 9, 2005), supra note, at 31.

³³⁷ Caladesi Island State Park, Don Pedro Island State Park and Stump Pass Beach State Park. Caladesi Island State Park (June 15, 2017), supra note, at 16; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 86; Stump Pass Beach State Park (Aug. 22, 2013), supra note, at 23.

³³⁸ Anclote Key State Park, Cayo Costa State Park, Delnor-Wiggins Pass State Park, Don Pedro Island State Park and Honeymoon Island State Park.

Anclote Key Preserve State Park (April 21, 2014), supra note, at 20; Cayo Costa State Park (March 2018), supra note, at 35; Delnor-Wiggins Pass State Park (Oct. 9, 2009), supra note, at 15; Don Pedro Island State Park (Aug. 22, 2013), supra note, at 10; Honeymoon Island State Park (June 15, 2007), supra note, at 7.

³³⁹ Gasparilla Island State Park. Gasparilla Island State Park (July 7, 2014), supra note, at 46.

Venice Beach (containing Chauncy Howard Park, Caspersen Beach, South Brohard Beach Park, Maxine Barritt Park, Brohard Beach and Service Club Park) and Manasota Key (containing Englewood Beach and Chadwick Park). Covering this number of highly diverse parks in one plan led to many of the management plans for turtle protection to be subsumed into vague boilerplate language that is difficult to enforce. However, the southwest region also offered the only three examples in Florida of local parks with their own distinct management plans - Bowditch Point Regional Park, Clam Pass Park and Barefoot Beach Preserve County Park. With regard to management plan format, these three park plans serve as excellent examples of customized, detailed plans that allow for enough depth and breadth to comprehensively manage for sea turtle protection.

VII. Discussion

a. State Parks

Criteria most lacking across state parks (scoring below 50% statewide): dehooking protocol or other fishing education/rules pertaining to sea turtles; safeguards where concessionaires are allowed; beach raking; safeguards where special events are allowed; potential impacts of coastal armoring where armoring is addressed; education or signage regarding proper behavior on the nesting beach; sea turtle-friendly lighting; beach driving; educational program on sea turtles and their protection. The percentage of plans that address a given criterion in each region and statewide is illustrated in the following table:

Criterion	Northwest Gulf Region	Southwest Gulf Region	Northeast Atlantic Region	Southeast Atlantic Region	Statewide
Addresses dehooking protocol or other fishing education/rules pertaining to sea turtles	0%	0%	12.5%	0%	3%
Provides safeguards where concessionaires are allowed	0%	12.5%	0%	8.3%	5%
Addresses beach raking	30%	22%	0%	16.6%	18%
Provides safeguards where special events are allowed	60%	20%	14%	0%	24%

Addresses potential impacts of coastal armoring where armoring is addressed	25%	0%	42.9%	2.5%	28.57%
Identifies education or signage regarding proper behavior on the nesting beach	30%	88.8%	12.5%	25%	38%
Provides for the use of sea turtle-friendly lighting	50%	77.7%	25%	41.6%	46%
Addresses beach driving (See caveats at p. 5)	80%	44.5%	62.5%	17%	49%
Identifies educational program on sea turtles and their protection	50%	77.7%	25%	41.6%	49%
Identifies light pollution as a threat (See caveats at p. 5)	70%	55.5%	62.5%	41.6%	56%
Addresses impacts of visitor use or increasing human carrying capacity	80%	77.7%	37.5%	58%	64%
Management plan is up to date	90%	66.6%	62.5%	50%	66.6%
Identifies sea level rise as a threat	80%	66.6%	62.5%	58.3%	66.6%
Identifies nest predation as a threat	90%	100%	87.5%	33%	74%
Address marine pollution or water quality	90%	66.6%	75%	66%	74%
Addresses dune preservation, renourishment or restoration activities	100%	100%	75%	91.6%	92%

Authorizes and describes predation control strategies	90%	100%	100%	83%	92%
Addresses the regulation of pets	100%	100%	100%	83%	95%
Identifies nest survey or monitoring activities	100%	100%	100%	100%	100%

State coastal parks vary widely in the degree to which they address the criteria for sea turtle protection in their management plans. For example, the number of plans which identify educational programs or signage regarding proper behavior on the nesting beach range from 12.5% in the northeast Atlantic region to 88.8% of plans in the southwest gulf region. This inconsistency illustrates the lack of centralized guidance for comprehensive sea turtle management in state parks.

b. Local Parks

There is no readily available repository for local park management plans. Local coastal parks vary widely in the extent to which they engage in management planning, have exhaustive management planning processes, or adequately address the protection of sea turtles. Local governments with referendum-based land acquisition programs tend to have the most comprehensive management planning processes for local parks. For example, the acquisition manual accompanying Brevard County’s referendum-based Environmentally Endangered Lands Program provides that site-specific management plans must be developed for each acquired site.³⁴⁰

Even when combined, regulatory overlays such as Habitat Conservation Plans, local lighting restrictions, comprehensive plans, Strategic Beach Management Plans, beach nourishment permit conditions, and statewide or local regulatory programs are an inadequate substitute for park-specific management plans. In consultation with local park managers, many justified the absence of park management plans by indicating that these overlays were sufficient guidance for sea turtle management within the park. However, even where combined, these overlays do not encompass the breadth of management considerations embodied in our criteria framework.

³⁴⁰ Brevard County Resolution No. 2004-201, Aug. 24, 2004; Brevard County Environmentally Endangered Lands Program, *Land Acquisition Manual*, on file with the authors.

VIII. Conclusion

For Sea Turtles, Florida's state and local coastal parks are diamonds in the rough along the State's glittering and congested shorelines. Ensuring that these publicly owned properties are managed in the best interests of sea turtles, even in the face of competing interests, requires sound and consistent management. A robust and up-to-date management plan provides the basis for the decisions that ensure the quality of nesting and near-shore habitat for sea turtles and other beach-dependent species. Maintaining this quality is a daunting task for managers faced with limited resources and conflicting priorities. A park manager should be able to point to a fully vetted, up-to-date and approved plan from which to allocate resources, prioritize activities and resolve conflicts.

Despite recent progress, many coastal state park plans subject to state-mandated planning requirements have not been updated within the required statutory time frame, although a number of these could be in the Acquisition and Restoration Council's review pipeline. Based on our review, many of the plans reviewed for this report do not adequately address the best management planning practices we identified for sea turtle conservation. However, it is also the case that some of the criteria we used may not apply to specific parks, may be implemented regardless of whether it is addressed in any individual park plan, or may be governed by broader system-wide planning mandates. Because this report is a "desk study," and relied only on the language in the plans we reviewed to compare to our best management criteria, we acknowledge it may not be fully reflective of actual state park management.

Information concerning county and municipal coastal parks was difficult to access, and the local policy and planning framework, if any, was sometimes difficult to divine. For many local parks there is no park-specific management plan (either individually or cumulatively). Many rely solely on the broader federal, state or local regulatory framework applicable to all sandy beaches, which we believe to be inadequate for park-specific management.

Given the importance of coastal parks to sea turtles and their habitat, and notwithstanding the individual good work being done by park managers across the state and local parks system, we believe that greater emphasis should be placed on the management plan as the foundation for sea turtle conservation in Florida's coastal parks, and offer the following recommendations.

IX. Recommendations

a. State Parks

- Statutory and regulatory management planning mandates should incorporate consideration of these criteria for effective sea turtle management.
- FDEP should seek legislative support for greater resources to address the backlog in coastal state park management planning and to provide technical assistance to local governments to develop or enhance management plans and planning processes (especially where ARC review is required).
- A statewide management plan or protocol that addresses sea turtle and nesting beach protection could be created that could be incorporated by reference into every coastal park management plan. This protocol should be developed with stakeholder input, and subject to periodic review. This could model the statewide protocols that have been developed for shorebird protections and prescribed fires.³⁴¹
- ARC review of coastal park management plans in the pipeline, if any, should be accelerated.
- Given the pace of coastal change, (especially sea level rise), consideration should be given to reducing the planning timeframe for management plan updates from 10 years to 5 or 7 years.

b. Local Parks

- Receipt of funding from the state for park acquisition or management should trigger the ARC-reviewed land management plan requirement.
- All local and county parks should have individualized management plans (though small, proximate parks with similar characteristics could be grouped into a single plan).
- Local land acquisition programs should incorporate management planning requirements.
- State conservation funding for acquisition and/or management of local coastal parks, including support for capital improvements, should be conditioned on assurance that there is a management plan and management planning process in place, and that the plan adequately addresses the criteria for sea turtle protection within parks.

³⁴¹ On file with the author.

