



Clearwater Harbor and Saint Joseph Sound Comprehensive Conservation and Management Plan:

Task 5b. CCMP Goals and Targets

Prepared for:



Pinellas County

Prepared by:



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The objective of this report is to provide a summary of the goals and targets for the Clearwater Harbor-St. Joseph Sound (CHSJS) Comprehensive Conservation and Management Plan (CCMP). Perhaps the most critical element of the CCMP will be the establishment of regionally-specific goals and targets for each essential resource component. In this case the regions of concern (Figure 1) include:

- St. Joseph Sound,
- Clearwater Harbor North, and
- Clearwater Harbor South.

A draft State of the Resource Report has been developed and is in the initial stages of review by the CCMP stakeholders:

- Pinellas County,
- Southwest Florida Water Management District,
- U.S. Environmental Protection Agency (EPA),
- Florida Department of Environmental Protection (FDEP),
- U.S. Army of Corps of Engineers,
- Pasco County,
- City of Tarpon Springs,
- City of Dunedin,
- City of Clearwater, and
- City of Largo.

The purpose of the State of the Resource Report is to define the area covered by the CCMP, identify the critical resources in both the estuary and its watershed, and to define goals and objectives for these resources. The report serves as compendium of much of the environmental data/information for the CHSJS Estuary.

As an initial step of the analyses presented in the State of the Resource Report, the critical resources were identified, attributes that contributed to stress them were identified, and a list of potential management issues was compiled to help guide the development of the final CCMP. These lists were then formulated into a list of critical questions that became the analytical pathway for establishing appropriate goals and targets. Where the data allow, quantitative targets for resource protection and restoration are presented. When the data do not allow defensible quantitative targets to be proposed qualitative targets are presented. Both the quantitative and qualitative targets will provide critical context and input to the CCMP development process.

Currently, considerable work to develop numeric nutrient criteria for freshwater and estuarine water bodies within the state of Florida has been undertaken by EPA, FDEP, and others. These criteria will provide the regulatory limits to nitrogen and phosphorus in these waters. As part of the development of water quality targets for the CHSJS Estuary and its watershed, recommended numeric nutrient criteria are presented.

The following summarizes the draft goals and targets as they are proposed in the State of the Resource Report. A full discussion on the goal and targets development can be found in the draft State of the Resource Report (Janicki Environmental, 2011).

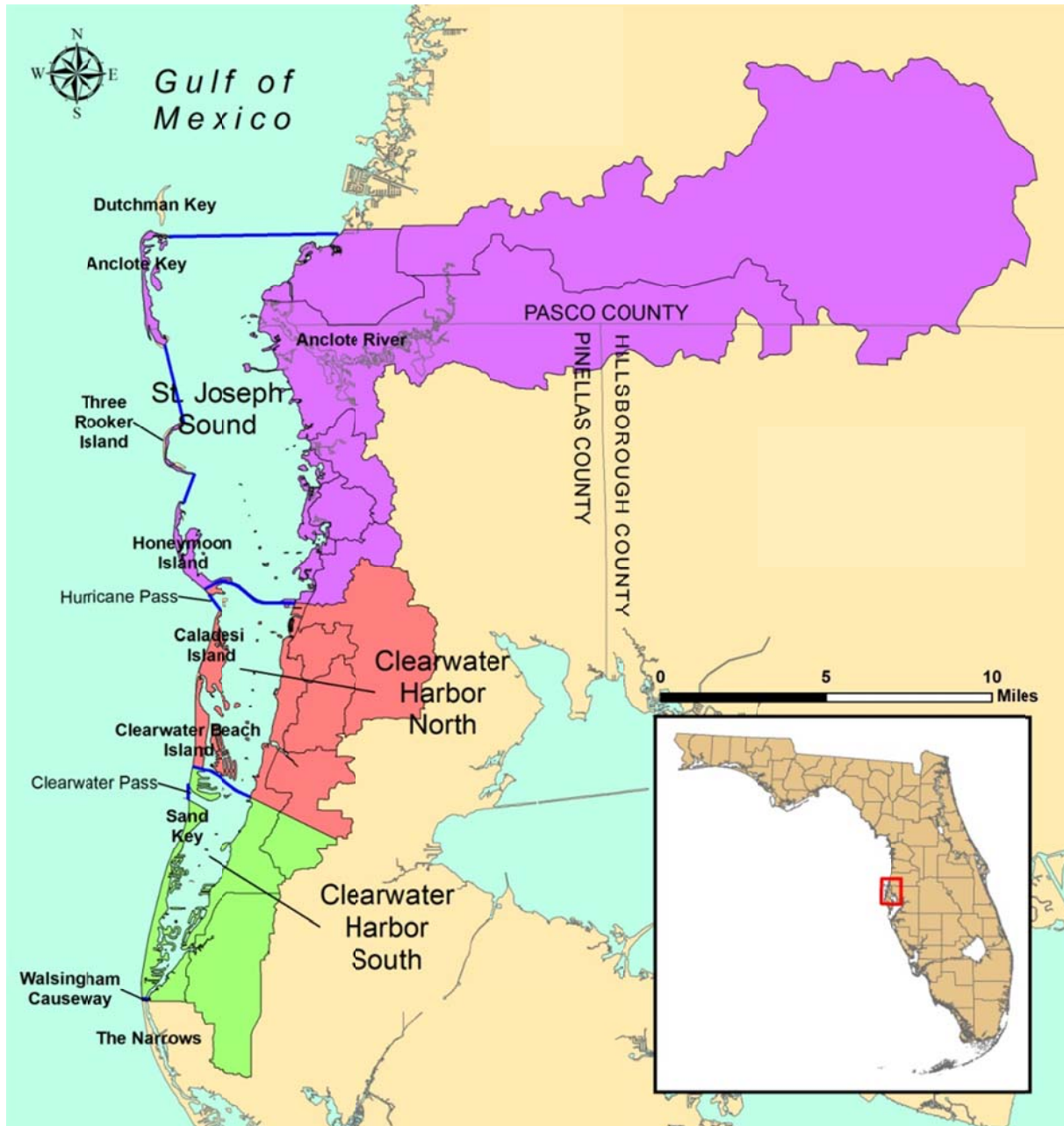


Figure 1. CHSJS CCMP area location map.

CHSJS WATERSHED GOALS AND TARGETS

Water Quality

While it is difficult to propose that the quality (i.e., nutrient concentrations) of the water entering an estuary is not an important determinant of the estuarine water quality, it is also difficult to conclude that a stream is impaired when its DPV is exceeded while the downstream estuary is meeting its designated uses. Therefore, either acceptance of or recommendation for DPVs should necessarily reference an appropriate implementation strategy that ensures improper conclusion of any impairment when the downstream estuary is meeting its designated uses.

Specific recommendations for appropriate water quality targets for water bodies within the CHSJS Watershed depend upon the definition of critical environmental response variables and quantitative endpoints that achieve the designated uses in the CHSJS Estuary. Seagrasses are being proposed as a key indicator of estuarine health and are examined in detail in Chapter 5, as well as the ambient water quality observed in the CHSJS Estuary. Recommendations for water quality within the CHSJS Watershed and watershed loading that are protective of seagrasses in the CHSJS are presented in Chapter 5.

Watershed Habitats

Given the extensive loss of both native uplands and wetlands has occurred in the CHSJS Watershed, a no net loss in these habitats would seem an appropriate target. The no net loss strategy would result in uplands targets for the CCMP as follows:

Upland Targets:

- **St. Joseph Sound** **1,701 acres**
- **Clearwater Harbor North** **604 acres**
- **Clearwater Harbor South** **241 acres**

Wetland Targets:

- **St. Joseph Sound** **2,045 acres**
- **Clearwater Harbor North** **223 acres**
- **Clearwater Harbor South** **61 acres**

These targets should be regarded as a minimum and the goals of the CCMP should be, in particular, restoration of wetland habitats to the extent practical. Given that wetland acreage cannot reasonably be restored to its historic extent, one potential restoration target might be to restore those lost or degraded historic wetlands that are currently in agriculture or rangeland within the CCMP. In total, these areas add up to 706 acres in St. Joseph Sound and 222 acres in Clearwater Harbor. Flanagan and Richardson (2010) identified historic wetland habitats that had been converted to agriculture as good candidate sites for wetland restoration and water quality improvement due to their underlying geomorphology.

CHSJS ESTUARY GOALS AND TARGETS

Seagrasses

Based on estimates from an historical period (i.e.,1942) and a series of current seagrass surveys conducted within the CHSJS Estuary, seagrass targets have been proposed.

The proposed segment-specific seagrass targets for the CHSJS Estuary are:

- St. Joseph Sound 12,539 acres
- Clearwater Harbor North 5,142 acres
- Clearwater Harbor South 1,595 acres

The targets for both Clearwater Harbor North and Clearwater Harbor South are based on the historical seagrass cover. The St. Joseph Sound target is the mean from the last two seagrass surveys (2008 and 2010) since the losses from the historical period have not been attributed to water quality degradation.

Estuarine Water Quality

The proposed segment-specific estuarine chlorophyll a targets and thresholds are:

	TARGET	THRESHOLD
• St. Joseph Sound	1.9 µg/L	3.1 µg/L
• Clearwater Harbor North	3.5 µg/L	5.4 µg/L
• Clearwater Harbor South	4.8 µg/L	7.6 µg/L

The proposed segment-specific TN and TP concentration-based numeric criteria are:

	TN Criterion	TP Criterion
• St. Joseph Sound	0.66 mg/L	0.05 mg/L
• Clearwater Harbor North	0.61 mg/L	0.05 mg/L
• Clearwater Harbor South	0.58 mg/L	0.06 mg/L

The proposed segment-specific TN and TP loading-based numeric criteria are:

	TN Criterion	TP Criterion
• St. Joseph Sound	180 tons/yr	38 tons/yr

- Clearwater Harbor North 111 tons/yr 20 tons/yr
- Clearwater Harbor South 43 tons/yr 6 tons/yr

The proposed segment-specific % transmittance targets and thresholds are:

	TARGET	THRESHOLD
• St. Joseph Sound	90%	83%
• Clearwater Harbor North	82%	75%
• Clearwater Harbor South	74%	62%

Estuarine Emergent Wetlands

The recommended management goal is protection of existing estuarine wetland areas and, where possible, identification of opportunities for restoration of both salt marsh and salterns particularly in Clearwater Harbor North and Clearwater Harbor South. The areal losses of salt marshes and salterns in each segment are:

	SALT MARSH	SALTERN
• St. Joseph Sound	0 acres	3 acres
• Clearwater Harbor North	6 acres	10 acres
• Clearwater Harbor South	< 1 acre	< 1 acre

Benthic Macroinvertebrates and Sediments

The limited availability of data for the CHSJS Estuary precludes establishing quantitative goals or targets for either benthic community integrity or sediment quality. The proposed goals for benthic community integrity or sediment quality include:

- To minimize the extent of contaminated and/or hypoxic benthic sediments.
 - To develop a benthic sampling program designed to provide a baseline characterization of sediment quality and the benthic invertebrate community.
 - To establish sediment quality targets, similar to those developed for the Tampa Bay estuary, that maintain the sediment quality necessary for a diverse benthic community.
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Fish and Fish Habitats

The limited availability of fisheries data for the CHSJS Estuary precludes establishing quantitative targets. However, the proposed goals for the preservation and protection of fish stocks should include:

- Maintaining the current extent of seagrasses and shoreline habitat (i.e., fisheries habitat).
 - Leveraging existing fish research efforts to provide a more quantitative estimate of the relative abundance of fishes over various habitat types within the study area.
 - Facilitating existing creel surveys to obtain accurate information on angler pressure.
 - Facilitating research into the utilization of the estuarine segments by the bay scallop.
 - Public education to reduce anthropogenic stressors on fish habitat.
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Charismatic Megafauna

Management goals for these species should focus on the protection of the habitat, including water quality, seagrass, and shorelines, as well as conservation of forage sources such as seagrasses for manatees and turtles, and sustainable fish populations for bottlenose dolphins. The proposed goals are:

- Public education regarding the human interactions with these animals among the boating and fishing community will continue to be an important part of the management strategy for these species and should be emphasized in the future.
 - Facilitating future research into causes of sea turtles and manatee strandings
 - Protecting crucial habitats within the estuaries
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Birds and Bird Habitats

The following actions which should be continued or added to ongoing activities for the protection of the birds of the CHSJS Estuary include:

- Population estimates: Continue annual surveys to report nesting activity and regional bird populations. Long-term surveys of nesting birds allow regional managers to respond to immediate management needs and implement habitat improvements necessary to promote successful reproduction.
- Colony protection: Post nesting colonies and patrol them to reduce/prevent human disturbance, enlist the boating public, whether they are residents or tourists, to maintain buffer distances and avoid impacting nesting birds.

- Public education: Engage the community in the conservation requirements of locally valuable resources, including the printing and distribution of boater's guides, fishing regulations and wildlife needs, and proper disposal of fishing line. This creates the culture of conservation needed for the long-term commitment of resources to manage regional resources, as well as the short-term compliance with nesting sites posted to protect nesting birds and reduction of fishing line debris in the environment, among other factors. Two key public education strategies in progress are: 1) updating the *Clearwater Harbor/St. Joseph Sound Boaters Guide* and increasing its distribution at marinas, bait shops, boat ramps, and directly to boaters themselves, and 2) giving presentations to the public about habitat values to birds in CHSJS, bird populations, conservation needs, and appropriate recreational use of these habitats.
- Predator control: Reducing the regional meso-carnivore population as recommended by the USDA APHIS Wildlife Services (Parker Hall, USDA APHIS Wildlife Services, pers. comm.), and removing mammalian predators (especially raccoons) immediately from bird nesting islands to allow nesting success are priorities. In addition, raccoon population control programs have improved nesting opportunities for beach-nesting birds on Anclote Key and Honeymoon Island.
- Wildlife law enforcement: Encourage cooperation among law enforcement agencies, landowners, and management authorities to empower officers and improve law enforcement of wildlife and habitat laws regionally. Continued training of law enforcement staff through Marine Unit Interagency Law Enforcement Workshops would improve enforcement of bird and wildlife laws regionally, and increase compliance with trespassing prohibitions in posted bird nesting areas.
- Habitat management: Actions by governments and private landholders to protect and incrementally restore natural communities (including freshwater wetlands) should be planned to provide the key nesting, foraging, and roosting habitats required by these birds. Habitat loss, whether long in the past or presently, continues to reduce the capacity of the region to support large populations of these species. The Florida State Park staff have undertaken large-scale vegetation habitat management projects on Anclote Key, Honeymoon Island, and Caladesi Island, removing Australian pines, Brazilian peppers, and other non-native plant species. In addition, Pinellas Aquatic Preserve staff have removed Australian pines, Brazilian peppers, and non-native vegetation from several of the islands in St. Joseph Sound and Clearwater Harbor North, and replanted these spoil islands with native trees and plants. The Pinellas Aquatic Preserve staff has proposed clearing SJS Spoil Island Marker 29 to promote habitat for nesting Least Terns. Issues regarding this proposal that need to be resolved include posting as a "no trespassing, bird colony" site, patrol and monitoring of recreational boater compliance, erosion management, developing a plan to manage plant succession, suitability of the location, and other considerations. Pinellas County Environmental Management and Audubon's Florida Coastal Islands Sanctuaries are providing technical assistance for this project.
- Climate change: Global warming affecting sea level rise is an obvious threat to birds that nest, forage, or otherwise rely on coastal habitats. Long-term planning to offset coastal habitat losses and protect similar habitats inland and the coastal uplands that are part of the critical ecosystem will be needed to ensure wildlife population health.
- Fishing line accumulation. Removal of line and other entangling debris from bird nesting, roosting, and foraging islands and other habitat sites can help protect birds and other wildlife. In October, when birds are not nesting, Audubon's FCIS and Tampa Bay Watch organize a community-wide Monofilament CleanUp! as a preemptive action to prevent

mortality. Public education of fishermen and others regarding proper disposal of entangling litter material and methods of releasing birds, especially pelicans, from hooks and lines if caught should be expanded.

- Coordination with public agencies and others who own and manage bird nesting colony sites allows a region-wide perspective on the local, national, and international importance of the birds and wildlife of the CHSJS Estuary.
 - Protecting nesting islands from erosion due to weather-driven or boat-wake waves can be achieved by a site-specific planned and engineered placement of wavebreaks and wave action deflection devices, complemented by oysterbars and marsh vegetation, as potential management tools to reduce erosion of nesting islands. Addition of a wavebreak to control erosion on Sand Key Dunedin West similar to the rock rip-rap device constructed south of Clearwater Harbor Bird Island I-25 would protect this locally valuable pelican and wading bird colony from continued habitat loss.
 - Creating habitat – Adding material to two dredged spoil islands in southern Clearwater Harbor, one for recreation (Compass Key, near Marker 8) and one for beach-nesting birds (Marker 10), with clean material from Clearwater Pass maintenance dredging has been proposed. Issues to resolve would include permitting, avoiding seagrasses, erosion management, management responsibility, and funding.
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REFERENCES

Janicki Environmental, Inc. 2011. Clearwater Harbor-St. Joseph Sound: State of the Resource Report. Prepared for Pinellas County and the Southwest Florida Water Management District.