UNITED NATIONS

EP

United Nations Environment Program

UNEP

Original: ENGLISH

Proposed areas for inclusion in the SPAW list

ANNOTATED FORMAT FOR PRESENTATION REPORT FOR:

Florida Keys National Marine Sanctuary

USA

Date when making the proposal : ***October 5th, 2010***

CRITERIA SATISFIED :

Ecological criteria	**Cultural and socio-economic criteria**
Conservation value	Productivity
Critical habitats	Socio-economic benefits

Area name: Florida Keys National Marine Sanctuary

Country: USA

Contacts

Focal Point	Last name: MORRISON First name: Steve Position: National Ocean Service, International Programs Office Email: steve.morrison@noaa.gov Phone: (301)713-3078-221
Manager	Last name: E. Kiene, Ph.D. First name: William Position: Regional Science Coordinator Email: W.Kiene@noaa.gov Phone: (409) 621-5151 x109

SUMMARY

ANNEXED DOCUMENTS

Management Plan

Chapter 1. IDENTIFICATION

a - Country:

USA

b - Name of the area:

Florida Keys National Marine Sanctuary

c - Administrative region:

Florida

d - Date of establishment:

1/1/90

e - If different, date of legal declaration:

not specified

f - Geographic location

Longitude X: -81.807404
Latitude Y: 24.55212

g - Size:

99467 sq. km

h - Contacts

Contact adress: Regional Science Coordinator NOAA's National Marine Sanctuaries Southeast, Gulf of Mexico and Caribbean Region 4700 Avenue U, Building 216 Galveston, Texas 77551 Tel: (409) 621-5151 x109
Website: http://floridakeys.noaa.gov/welcome.html
Email address: W.Kiene@noaa.gov

i - Marine ecoregion

70. Floridian

Comment, optional

none

Chapter 2. EXECUTIVE SUMMARY

Present briefly the proposed area and its principal characteristics, and specify the objectives that motivated its creation :

The Florida Keys National Marine Sanctuary extends approximately 220 miles southwest from the southern tip of the Florida peninsula. Located adjacent to the Keys' land mass are spectacular, unique, and nationally significant marine environments, including seagrass meadows, mangrove islands, and extensive living coral reefs. These support rich biological communities possessing extensive conservation, recreational, commercial, ecological, historical, research, educational, and aesthetic values that give this area special national significance.

They are the marine equivalent of tropical rain forests, in that they support high levels of biological diversity, are fragile and easily susceptible to damage from human activities, and possess high value to humans if properly conserved. The marine environment of the Florida Keys supports over 6,000 species of plants, fishes, and invertebrates, including the Nation's only coral reef that lies adjacent to the continent, and one of the largest seagrass communities in this hemisphere. Attracted by this natural diversity and tropical climate, approximately four million tourists visit the Keys annually, where they participate primarily in water-related sports such as fishing, diving, boating, and other activities.

Explain why the proposed area should be proposed for inclusion in the SPAW list

EXPECTED DEVELOPMENT AND TRENDS OF THREATS TO AND PRESSURES UPON THE AREA
Deal briefly in succession with:
- The demographic development in and around the site
- The development of economic activities (other than tourism and recreation) within the area
- The development of local demand on tourism and recreation
- The development of tourism pressure on the area

According to you, to which Criteria it conforms (Guidelines and Criteria B Paragraph 2)

Conservation value
Critical habitats

Cultural and socio-economic criteria

Productivity
Socio-economic benefits

Chapter 3. SITE DESCRIPTION

a - General features of the site

Terrestrial surface under sovereignty, excluding wetlands:

266 *sq. km*

Wetland surface:

0 *ha*

Marine surface:

9947 *sq. km*

Global comment for the 3 previous fields (optional):

Wetland surface (ha): Extensive (adjacent Everglades NP, and mangroves surround the islands of the Keys.

b - Physical features

Brief description of the main physical characteristics in the area:

See below.

Geology:

The Florida Keys are located at the southern edge of the Floridan Plateau, a large carbonate platform composed of 7,000 m of marine sediments. The plateau incorporates all of Florida and the adjacent continental shelves of the Gulf of Mexico and Atlantic Ocean. Sediments have been accumulating in the region for 150 million years and have been structurally modified by subsidence and sea level fluctuation. The crystalline and sedimentary basement rocks of the South Florida Basin underlie the plateau. The basin is a block-faulted feature associated with the breakup of North America and Africa during the Mesozoic era. Further block-faulting during this era created the Straits of Florida, the water body separating the plateau from the Bahamas and Cuba. Subsequent sea level transgressions flooded the area, initiating episodic reef building and marine deposition. Between 100,000 and 125,000 years ago, sea level was approximately 6 m higher than it is today. Sediments were deposited in a series of bays and lagoons in South Florida, while a large reef complex flourished to the east. To the south, tidal exchange between the Atlantic Ocean and the Gulf of Mexico formed a large series of cross-bedded, carbonate (oolitic) sand bars. Sea level fluctuations attributed to glaciation are largely responsible for the region's current morphology. During the Wisconsin Glaciation, sea level dropped between 15 and 30 m, exposing the entire platform to marine and subaerial erosion. Sea level rose again approximately 6,000 years ago, flooding the area and forming the current physiographic regions. Lithified remnants of the ancient reef complex formed the Upper Keys, while the Lower Keys were formed from the oolitic sand bars. Florida Bay occupies the southern portion of the old lagoonal structure.

Topography:

Length of sandy beaches: 50 km

Hydrodynamics:

Estuarine areas:

Florida Bay lies between the extensive freshwater ecosystem of the Everglades and the marine environments of the Florida Keys National Marine Sanctuary. Florida Bay is approximately 1,550 km2 and an average depth of 1.5 to 2 m. Its most distinct feature is a patchwork of interconnected mud banks composed of shelly calcareous silt, which forms a series of oval-shaped basins 4.8 to 6.4 km long, 5.1 to 7.7 km wide, and 1.5 to 1.8 m deep. To the west, these banks gradually mix with the more clastic sediments of the southwest continental shelf. The bay has been termed an active lime-mud factory, with silts and muds composed of 90 percent calcium carbonate, with aragonite the primary constituent mineral. Biogenic sediments derived from a variety of marine organisms (primarily the green algae Penicillus) continually accumulate. Because of the bay's shallow depth, large seasonal variations in temperature and salinity are common, and abundant sediment contributes to turbidity levels. As winter storms pass through the area, large amounts of sediment-rich cool water are transported through the channels between the Keys to the Florida

Reef Tract. During periods of warm, stable weather, tidal currents can transport high-temperature water in the same direction. This influx directly affects reef production by changing water temperature, salinity, and turbidity levels

Underwater formations:

The porous limestone foundation of the Florida Keys provides for localized discharge of groundwater around the islands of the Keys.

Others:

The Florida Reef Tract: linear zones of living coral reefs and associated habitats paralleling the Keys for 130 km.

Mean annual precipitation (in mm) 12,450 mm.

Freshwater springs: Existence and brief description, including marine offsprings

c - Biological features

Habitats

Brief description of dominant and particular habitats (marine and terrestrial)*: List here the habitats and ecosystems that are representative and/or of importance for the WCR (i.e. mangroves, coral reefs, etc):

The biological diversity that the region supports makes the Keys' ecosystem ecologically, economically, aesthetically, and biogeographically unique within the United States.

The freshwater, estuarine, and saltwater wetlands of the Lower Everglades/South Peninsular Florida region provide a variety of habitat features that encourage a complex mixture of invertebrates, fishes, amphibians, reptiles, birds, and mammals. In addition, the area's diverse wetland and successional communities provide food, shelter, and nesting sites for many resident and migratory organisms.

Florida Bay's mangrove islands and seagrass beds are highly productive, faunally rich ecosystems that provide food, protection, and nesting sites for many species of fishes, amphibians, reptiles, birds, and mammals. These areas are critically important to commercial and recreational fish species, as 70 to 90 percent of the harvested species in the Gulf depend on coastal wetlands and seagrass beds during at least part of their life cycle. The shallow mud banks are essential for various species of wading birds, as they provide the only feeding access to the bay's fish populations.

The Keys' nearshore habitats and tidal channels are transitional areas of species mixing between the Gulf and the Atlantic, and the presence or absence of tidal passes, coupled with their bathymetric features (e.g., depth, width, current velocity, etc.), plays an important role in the distribution of biota and the establishment of marine communities within the Sanctuary. The region is an area of ecological and biological mixing where the temperate waters of the Gulf meet the tropical waters of the Atlantic, producing one of the most complex habitats in the Sanctuary. The majority of the commercially and recreationally important species in the region forage and seek shelter in the nearshore habitat both in their early life stages and as adults.

Major Atlantic Ocean habitats include: 1) the mangrove fringe and nearshore hardbottom; 2) inshore patch reef; 3) Hawk Channel (mid-channel) reef; 4) Hawk Channel (mid-channel) seagrass and softbottom; and 5) reef tract habitats. The complex reef tract community is composed of habitats including offshore patch reef, seagrass, back reef/reef flat, bank reef/transitional reef, intermediate reef, deep reef, outlier reef, and sand and softbottom environments.

The region's reefs are highly complex and diverse communities whose success is limited by the presence of suitable substrate and a narrow range of environmental and hydrographical parameters. Corals are the principal builders of the reef community and form the main source of spatial complexity and shelter. Biogeographic and environmental factors determine the density and diversity of the species on coral reefs.

Detail for each habitat/ecosystem the area it covers:

Marine / coastal ecosystem categories ***Detail for each habitat / ecosystem the area covers***	Size (estimate)		Description and comments
	unit	Area covered	
Mangroves			
Mangroves	ha	95000	
Coral reefs			
Bank Barrier Coral Reefs	ha	not given	Bank Barrier Coral Reefs 356 km long
Sea grass beds			
Seagrass beds	ha	1000000	
Other marine ecosystems			
Marine surface	ha	994700	
Terrestrial ecosystems	Size (estimate)		
	unit	Area covered	

Flora

Brief description of the main plant assemblages significant or particular in the area:

The Seagrasses and Mangroves of the Keys and surrounding region are highly productive and essential ecological habitats for numerous species that live in the Florida Keys National Marine Sanctuary. Turtle grass (*Thalassia testudinum*) is the dominant submerged macrophyte in both areal extent and biomass. Manatee grass (*Syringodium filiforme*) and shoal grass (*Halodule wrightii*) are found where conditions prevent dense turtle grass growth. Manatee grass is prevalent in deep channels on the outer fringes of Florida Bay, while shoal grass is common in shallow waters on banks or adjacent to mangrove islands.

Most islands are fringed by red mangroves, which form a narrow outer border of taller trees at the periphery and exhibit the characteristics of the fringe mangrove forest. A broader zone of black mangroves generally dominates inside the red mangrove fringe.

Numerous species of algae occur on the reefs of the Florida Keys including encrusting red algae of the genera *Lithothamnium, Goniolithon*, and *Peyssonellia*. Other plants present include *Halimeda opuntia, Bryopsis pennata, Dictyota spp., Udotea conglutiata* and *Galazura obtusat*.

List of plant species within the site that are in SPAW Annex I

List of species in SPAW annex I	Estimate of population size	Comments if any

List of plant species within the site that are in SPAW Annex III

List of species in SPAW annex III	Estimate of population size	Comments if any
Cymodoceaceae: Halodule wrightii	not given	

Cymodoceaceae: Syringodium filiforme	not given	
Hydrocharitaceae: Thalassia testudinum	not given	

List of plant species within the site that are in the IUCN Red List. UICN red list : http://www.iucnredlist.org/apps/redlist/search You will specify the IUCN Status (CR:critically endangered; EN:endangered; VU:vulnerable).

List of species in IUCN red list that are present in your site	IUCN Status	Estimate of population size	Comments if any
Thalassia : testudinum	Unknown	not given	Turtle grass
Syringodium : filiforme	Unknown	not given	Manatee grass
Halodule : wrightii	Unknown	not given	Shoal Grass
Goniolithon : alternans	Unknown	not given	

List of plant species within the site that are in the national list of protected species

List of species in the national list of protected species that are present in your site	Estimate of population size	Comments if any

Fauna

Brief descript° of the main fauna populations and/or those of particular importance present (resident or migratory) in the area:

The South Florida and Florida Keys region contains one of North America's most diverse assemblages of terrestrial, estuarine, and marine fauna. The area has mangrove-fringed shorelines, mangrove islands, seagrass meadows, hardbottom habitats, thousands of patch reefs, and one of the world's largest coral reef tracts, which create one of the most complex ecosystems on Earth that houses thousands of animal species. Bisecting the region is the Florida Keys, which serve as a partial biogeographic barrier between the warm-temperate waters of the Gulf of Mexico and the tropical to subtropical waters of the Atlantic Ocean. This division has resulted in a marine ecosystem with fauna components that are found in both the warm-temperate and tropical Caribbean.

List of animal species within the site that are in SPAW Annex II

List of species in SPAW annex II	Estimate of population size	Comments if any
Gasteropods: Orthalicus reses reses	not given	Stock Island tree snail
Reptiles: Crocodylus acutus	not given	American crocodile
Reptiles: Eumeces egregius	not given	Florida Keys Mole skink
Reptiles: Caretta caretta	not given	Atlantic loggerhead
Reptiles: Chelonia mydas	not given	Atlantic green turtle
Reptiles: Eretmochelys imbricata	not given	Hawksbill turtle
Reptiles: Lepidochelys kempii	not given	Atlantic ridley turtle
Reptiles: Dermochelys coriacea	not given	Leatherback turtle
Birds: Mycteria americana	not given	Wood stork
Birds: Haliaeetus leucocephalus	not given	Bald eagle
Birds: Sterna antillarum antillarum	not given	Least tern

Birds: Sterna dougallii dougallii	not given	Roseate tern
Birds: Vermivora bachmanii	not given	Bachman's warbler
Birds: Ammodramus maritimus mirabilis	not given	Cape Sable seaside sparrow
Mammals: Balaenoptera physalus	not given	Fin whale
Mammals: Balaenoptera borealis	not given	Sei whale
Mammals: Megaptera novaeangliae	not given	Humpback whale
Mammals: Eubalaena glacialis	not given	Right whale
Mammals: Physeter macrocephalus	not given	Sperm whale
Mammals: Trichechus manatus	not given	Florida manatee
Mammals: Peromyscus gossypinus allopatica	not given	Key Largo cotton mouse

List of animal species within the site that are in SPAW Annex III

List of species in SPAW annex III	Estimate of population size	Comments if any

List of animal species within the site that are in the IUCN Red List. IUCN Red List : http://www.iucnredlist.org/apps/redlist/search You will specify the IUCN Status (CR:critically endangered; EN:endangered; VU:vulnerable).

List of species in IUCN red list that are present in your site	IUCN Status	Estimate of population size	Comments if any
Crocodylus : acutus	VU - Vulnerable	not given	American Crocodile
Chelonia : mydas	EN - Endangered	not given	Atlantic green turtle Green Turtle
Eretmochelys : imbricta	CR - Critically endangered	not given	Hawksbill turtle
Caretta: Caretta	CR - Critically endangered	not given	Atlantic loggerhead
Lepidochelys: kempii	CR - Critically endangered	not given	Atlantic ridley turtle
Dermochelys : coriacea	CR - Critically endangered	not given	Leatherback turtle
Haliaeetus : leucocephalus	Unknown	not given	Bald Eagle
Pelecanus : occidentalis	Unknown	not given	Brown pelican
Ammodramus : maritimus mirabilis	Unknown	not given	Cape Sable Seaside Sparrow
Sterna : antillarum	Unknown	not given	Least tern
Egretta : caerulea	Unknown	not given	Little Blue Heron
Egretta: tricolor	Unknown	not given	Tricolored Heron Louisiana Heron
Pandion : haliaetus	Unknown	not given	Osprey
Charadrius: melodus	Unknown	not given	Piping plover
Sterna : dougallii	Unknown	not given	Roseate tern
Mycteria : americana	Unknown	not given	Wood stork
Balaenoptera : physalus	EN - Endangered	not given	Fin whale
Megaptera : novaeangliae	Unknown	not given	Humpback Whale

Eubalaena : glacialis	EN - Endangered	not given	North Atlantic Right Whale
Balaenoptera : borealis	EN - Endangered	not given	Sei Whale
Physeter : macrocephalus	VU - Vulnerable	not given	Sperm Whale
Trichechus : manatus	VU - Vulnerable	not given	West Indian Manatee Florida Manatee
Peromyscus : gossypinus allapaticola	Unknown	not given	Key Largo Cotton Mouse
Odocoileus : virginianus clavium	Unknown	not given	White-tailed Deer Key Deer

List of animal species within the site that are in the national list of protected species

List of species in the national list of protected species that are present in your site	Estimate of population size	Comments if any

d - Human population and current activities

Inhabitants inside the area or in the zone of potential direct impact on the protected area:

	Inside the area		In the zone of potential direct impact	
	Permanent	Seasonal	Permanent	Seasonal
Inhabitants	80000	3000000	77841	56635

Comments about the previous table:

Permanent 80,000 2003 data. Seasonal number (additional to permanent) ~3 Million (visitors & non-permanent residents). Inhabitants within the zone of potential direct impact on the protected area Main human settlements and their populations : 1996 data.

Description of population, current human uses and development:

Description of the population inside the area:

Of the 1,700 islands in the Keys, approximately 70 are inhabited. In 2003 the total resident population was approximately 80,000. Seasonal visitors, including those living in residential accommodations, in tourist facilities, aboard vessels, or with friends and relatives.

Description of the population within the zone of potential direct impact on the protected area: Because of the region's unique geography, the Keys are divided into discreet population centers. Larger islands, such as Key Largo, have multiple population foci, while other islands have just one. Several inhabited Keys have never been the focus of concentrated growth, however, and remain rural. Certain areas have also become the center of communities, and can be defined by their “sense of community,” rather than their population. The size of an area is often determined by the boundaries of the islands on which it is located. Monroe County's economy is essentially based on tourism and tourist-related service industries, and the Keys' population fluctuates seasonally. Peak tourist populations occur in the first quarter (January to March) of each year. The tourist season is longer in the Upper Keys than in the Lower Keys, extending from January to August, and is based on weekend tourists from Miami and South Florida.

Activities	Current	Possible	Description / comments, if any

	human uses	development	
Tourism	very important	increase	Tourism is the number one industry in the Florida Keys, with over $1.2 billion dollars being spent annually by over 3 million visitors. The majority of visitors participate in activities such as snorkeling, SCUBA diving, recreational fishing, viewing wildlife and studying nature. Recreational and commercial fishing are the next most important sectors of the local economy, annually contributing an estimated $500 million and $57 million respectively. Distinct winter and summer peaks.
Fishing	significant	increase	~ 5000 commercial fishing permits issued ~ 30,000 recreational fishing permits issued
Agriculture	unknown	unknown	
Industry	unknown	unknown	
Forestry	unknown	unknown	
Others	unknown	unknown	

e - Other relevant features

f - Impacts and threats affecting the area

Impacts and threats *<u>within</u>* the area

Impact and threats	level	Evolution In the short term	Evolution In the long term	Species affected	Habitats affected	Description / comments
Exploitation of natural ressources: Fishing	very important	increase	increase	- Decapod crustaceans (shrimp, stone crab, and spiny lobster) - Snappers (e.g., yellowtail), - Groupers, - King mackerels, - Spanish mackerels		Two recent (2000-01, 2003) non-concurrent studies showed that 3.64 million person days were spent fishing on natural reefs annually in the Florida Keys. Concomitant with increasing fishing pressure associated with increasing population, average fishing power (the proportion of stock removed per unit of fishing effort) may have quadrupled in recent decades because of technological advances in fishing tackle, hydroacoustics (depth sounders and fish finders), navigation (charts and global positioning systems), communications, and vessel propulsion. In southwest Florida (including Monroe

						County), decapod crustaceans (shrimp, stone crab, and spiny lobster), snappers (e.g., yellowtail), groupers, king mackerels, and Spanish mackerels dominate commercial catches. In Monroe County, the total annual commercial landings for these species average almost 15 million pounds. In recent years, crustaceans have comprised 81 to 92 percent of the total catch value, while finfish made up the remainder. Poaching by fishers is a constant threat and a focus of much law enforcement activity.
Exploitation of natural ressources: Agriculture	limited	not specified	not specified			Not commented
Exploitation of natural ressources: Tourism	very important	not specified	not specified			Two recent (2000-01, 2003) Non-concurrent studies showed that 3.64 million person days were spent fishing on natural reefs annually in the Florida Keys.
Exploitation of natural ressources: Industry	limited	not specified	not specified			Not commented
Exploitation of natural ressources: Forest products	limited	not specified	not specified			Not commented
Increased population	very important	increase	increase			Most pressures stem from the 5 million annual visitors and approximately 80,000 year-round residents of Monroe County. Their high levels of use in the Sanctuary have significant direct and indirect effects on the ecosystem. Sanctuary visitors primarily seek water-related recreation, including diving, snorkeling, fishing and boating.
Invasive alien species	significant	not specified	not specified			Harmful algal blooms

Pollution	limited	not specified	not specified			Not commented
Other	very important	not specified	not specified			Climatic events play an important role in the ecosystem productivity of the Florida Keys NMS. Winter storms are common and recent cold periods have killed fish, manatees and corals. Summertime tropical cyclones are always a threat to this area. Recent periods of high sea temperature has caused many corals of the Keys to die due to coral bleaching. Diseases of coral have caused significant declines in coral species abundance and cover on coral reefs. Vessel groundings and anchor damage Dredging and Desalination plants Pollution from point and non-point sources, marinas, boats, and cruise ships Poaching by fishers is a constant threat and a focus of much law enforcement activity. Demand by an increased population and infrastructures Assess whether the current human presence or an expected increase in visitation (tourism, passage of vehicles and boats) and any human immigration into the area, or plans to build infrastructures, are considered a threat. Increasing human populations and development remains a constant threat to the regions natural resources.

Impacts and threats *<u>around</u>* the area

Impact and threats	Level	Evolution In the short term	Evolution In the long term	Species affected	Habitats affected	Description / comments
Exploitation of natural	significant	not specified	not specified			All recreational and commercial fishing is regulated, including

ressources: Fishing						gear, catch limits, season and species.
Exploitation of natural ressources: Agriculture	limited	not specified	not specified			Not commented
Exploitation of natural ressources: Tourism	limited	not specified	not specified			Not commented
Exploitation of natural ressources: Industry	limited	not specified	not specified			Not commented
Exploitation of natural ressources: Forest products	limited	not specified	not specified			Not commented
Increased population	limited	not specified	not specified			Not commented
Invasive alien species	limited	not specified	not specified			Not commented
Pollution	significant	not specified	not specified	- Fishes - Sea grass	- Water - Beaches	Pollution Name any point and non-point sources of external pollution in the nearby areas, including solid waste, and especially those affecting water up-current. Recent declines in coral recruitment, increases in the frequency and size of fish kills, and seagrass die-offs are implicated in declining water quality within the sanctuary. Pressures to water quality in the sanctuary are best described by the following: • Point sources of pollution: These are sources that release effluents directly into surface waters. When the Florida Keys NMS was designated in 1990 there were 19 facilities actively discharging into sanctuary waters, which included water treatment plans, power plants, a desalination plant, and other industrial facilities. • Non-point sources of pollution: These are discharges not made directly to surface waters. The primary non-point contributors within the sanctuary in 1990 were domestic

						wastewater (cesspits and septic tanks), abandoned landfills, marinas/live-aboards, and stormwater runoff. Beach closures are often a result of this type of pressure to water quality. • External input: Examples of this input include Florida Bay, Biscayne Bay, and canal structures operated by the local water management district. Additionally, the regions boundary currents (Loop and Florida), transport most of the water from the west coast of Florida, Mississippi River outfall, contributions from Central America and northern South America (Orinoco Flow), and various islands of the Caribbean. Lastly, eddies that form along boundary currents paralleling the shoreline can cause periodic upwelling of cold, nutrient-rich waters.
Other	significant	not specified	not specified			Global climatic change is considered a significant threat to ocean environments and ecosystems worldwide. This includes temperature increases, sea level rise and ocean acidification. All of these impacts, which are predicted to occur due to elevated greenhouse gases in the atmosphere and to natural causes, are of significant concern for the habitats, ecosystems and human communities in the Florida Keys and beyond.

h - Information and knowledge

Information and knowledge available

While a comprehensive knowledge of the FKNMS is a goal, it is a continuing moving target. However, FKNMS is fortunate to have a large volume of research and a wealth of expertise to draw upon from a variety of scientific, economic and social sectors that a satisfactory level of knowledge has been assembled to create the management plan for the sanctuary.

These publications are referenced in the management plan documents.

List of the main publications

Title	Author	Year	Editor / review

Briefly indicate in the chart if any regular monitoring is performed and for what groups/species

Species / group monitored (give the scientific name)	Frequency of monitoring (annual / biannual / etc...)	Comments (In particular, you can describe here the monitoring methods that are used)

Chapter 4. ECOLOGICAL CRITERIA

(Guidelines and Criteria Section B/ Ecological Criteria) *Nominated areas must conform to at least one of the eight ecological criteria. Describe how the nominated site satisfies one or more of the following criteria. (Attach in Annex any relevant supporting documents.)*

Conservation value:

Florida Bay's mangrove islands and seagrass beds are highly productive, faunally rich ecosystems that provide food, protection, and nesting sites for many species of fishes, amphibians, reptiles, birds, and mammals. These areas are critically important to commercial and recreational fish species, as 70 to 90 percent of the harvested species in the Gulf depend on coastal wetlands and seagrass beds during at least part of their life cycle. The shallow mud banks are essential for various species of wading birds, as they provide the only feeding access to the bay's fish populations.

Critical habitats:

The Keys' nearshore habitats and tidal channels are transitional areas of species mixing between the Gulf and the Atlantic, and the presence or absence of tidal passes, coupled with their bathymetric features (e.g., depth, width, current velocity, etc.), plays an important role in the distribution of biota and the establishment of marine communities within the Sanctuary. The region is an area of ecological and biological mixing where the temperate waters of the Gulf meet the tropical waters of the Atlantic, producing one of the most complex habitats in the Sanctuary. The majority of the commercially and recreationally important species in the region forage and seek shelter in the nearshore habitat both in their early life stages and as adults.

Chapter 5. CULTURAL AND SOCIO-ECONOMIC CRITERIA

(Guidelines and Criteria Section B / Cultural and Socio-Economic Criteria) *Nominated Areas must conform, where applicable, to at least one of the three Cultural and Socio-Economic Criteria. If applicable, describe how the nominated site satisfies one or more of the following three Criteria (Attach in Annex any specific and relevant documents in support of these criteria).*

Productivity:

In 1978 the State legislature passed the Florida Coastal Management Act. NOAA's Office of Ocean and Coastal Resource Management approved the state's program in 1981, and has provided management grants of approximately $2 million per year in accordance with Section 306 of the Federal Coastal Zone Management Act. Federal approval of the state's program also mandated that Federal activities within and seaward of the coastal zone had to be consistent, to the maximum extent possible, with the policies of approved State coastal management programs. The Florida Coastal Management Plan is structured as a network of State agencies that improves the effectiveness and efficiency of implementing existing laws and programs in the coastal zone.

Socio-economic benefits:

The linkages between the economic health of the human communities of the Florida Keys to that of the ecosystem's health is an essential aspect of why the Florida Keys National Marine Sanctuary exists. As a result, each habitat within the ecosystem has an essential link to nearly all aspects of the social and economic health of the Florida Keys.

Chapter 6. MANAGEMENT

a - Legal and policy framework (attach in Annex a copy of original texts, and indicate, if possible, the IUCN status)

National status of your protected area:

National Marine Sanctuary Act
Florida Keys National Marine Sanctuary and Protection Act
Federal Register Notice: FKNMS Final Rule
Amendment: The Area to be Avoided
No-Discharge Zone
No-Discharge Zone Fact Sheet
Federal Register Notice: Technical Corrections and Minor Substantive Changes
Sanctuary Wide Regulations
Regulations by Zone
Tortugas Final Supplemental Environmental Impact Statement/Final Supplemental Management Plan (SEIS/SMP)
Federal Register Notice Vol. 66, No. 11, 15 CFR Part 922
Anchoring on Tortugas Bank
FSEIS Executive Summary
Draft SEIS/SMP

IUCN status (please tick the appropriate column if you know the IUCN category of your PA):

unknown

b - Management structure, authority

NOAA's Office of National Marine Sanctuaries

c - Functional management body (with the authority and means to implement the framework)

Description of the management authority

The National Oceanic and Atmospheric Administration (NOAA), a Federal agency, has been assigned responsibility for managing the nations thirteen National Marine Sanctuaries and has developed regulations uniquely suited to protect the resources at each sanctuary.

Means to implement the framework

The National Marine Sanctuaries Act [pdf] (NMSA) authorizes the Secretary of Commerce to designate and protect areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or esthetic qualities as national marine sanctuaries.

Day-to-day management of national marine sanctuaries has been delegated by the Secretary of Commerce to NOAA's National Marine Sanctuary Program (program).

The primary objective of the NMSA is to protect marine resources, such as coral reefs, sunken historical vessels or unique habitats. The NMSA provides several tools for protecting designated national marine sanctuaries. For example—

The NMSA provides the program with the authority to issue regulations for each sanctuary and the system as a whole. These regulations can, among other things, specify the types of activities that can and cannot occur within the sanctuary. [See section 308 of the NMSA.]

d - Objectives (clarify whether prioritized or of equal importance)

Objective	Top priority	Comment
Zoning	No	
Regulations for each zone	No	
Governing body(ies)	No	

e - Brief description of management plan (attach in Annex a copy of the plan)

Formal management plan documents that describes in detail the management framework of the sanctuary have been published: http://floridakeys.noaa.gov/management/welcome.html
Formulation and approval of the management framework. Mention how the management framework was formulated, e.g. by an expert team and /or under consultation and/or participation with other institutions or stakeholders. State the legal status of the management framework, whether it is officialized, and how, and if it is binding for other institutions and sectors involved in the area.
The establishment of the Florida Keys National Marine Sanctuary (FKNMS) began with an act of the US Congress in 1990. What followed was a vigorous designation process that culminated in the National Oceanic and Atmospheric Administration and the State of Florida jointly undertaking the implementation of the sanctuary in 1997. This resulted in the first marine area in the US to embrace management at the ecosystem scale and to implement a network of restricted-use zones in the ocean. This initial zoning plan was modified through a public comment process.

This first phase of the sanctuary's designation gave sanctuary staff and its Advisory Council the experience necessary to achieve an even greater success in designating the Tortugas Ecological Reserve, which adjoins the western boundary of the sanctuary. At the center of this effort was the Tortugas 2000 Working Group. This body was composed of representatives from user and conservation groups as well as government agencies. Its purpose was to reach consensus on the boundaries and regulations for the Reserve.
In a series of meetings, detailed spatial patterns of the Tortugas marine environments and their uses by fishers and divers were presented. Based on these data, several boundary and zoning alternatives were compiled by sanctuary staff and debated by the Working Group. Consensus was reached on a preferred alternative in May 1999, and this preferred plan was recommended to NOAA for implementation.

Management plan - date of publication

: 12/1/07

Management plan duration

: not specified

Date of Review planned

: not specified

f - Clarify if some species/habitats listed in section III are the subject of more management/recovery/protection measures than others

Habitats

Marine / costal / terrestrial ecosystems	Management measures	Protection measures	Recovery measures	Comments/description of measures
Mangroves	no	no	no	
Coral	yes	yes	no	The 1992 amendments to the FKNMSPA (Section 7(a)(4)) are much more specific, calling on the Secretary of Commerce to: • identify priority needs for research and amounts needed to improve management of the Sanctuary, and in particular, the coral reef ecosystem within the Sanctuary; • identify clearly the cause-and-effect relationships between factors threatening the health of the coral reef ecosystem in the Sanctuary; and • establish a long-term ecological monitoring program and database, including methods to disseminate information on the management of the coral reef ecosystem.
Sea grass beds	no	no	no	
Wetlands	no	no	no	

Forests	no	no	no	
Others	no	no	no	

Flora

Species from SPAW Annex 3 present in your area	Management measures	Protection measures	Recovery measures	Comments/description of measures
Cymodoceaceae: Halodule wrightii	no	no	no	
Cymodoceaceae: Syringodium filiforme	no	no	no	
Hydrocharitaceae: Thalassia testudinum	no	no	no	

Fauna

Species from SPAW Annex 2 present in your area	Management measures	Protection measures	Recovery measures	Comments/description of measures
Gasteropods: Orthalicus reses reses	no	no	no	
Reptiles: Crocodylus acutus	no	no	no	
Reptiles: Eumeces egregius	no	no	no	
Reptiles: Caretta caretta	no	no	no	
Reptiles: Chelonia mydas	no	no	no	
Reptiles: Eretmochelys imbricata	no	no	no	
Reptiles: Lepidochelys kempii	no	no	no	
Reptiles: Dermochelys coriacea	no	no	no	
Birds: Mycteria americana	no	no	no	
Birds: Haliaeetus leucocephalus	no	no	no	
Birds: Sterna antillarum antillarum	no	no	no	
Birds: Sterna dougallii dougallii	no	no	no	
Birds: Vermivora bachmanii	no	no	no	
Birds: Ammodramus maritimus mirabilis	no	no	no	
Mammals: Balaenoptera physalus	no	no	no	
Mammals: Balaenoptera borealis	no	no	no	
Mammals: Megaptera novaeangliae	no	no	no	
Mammals: Eubalaena glacialis	no	no	no	

Mammals: Physeter macrocephalus	no	no	no	
Mammals: Trichechus manatus	no	no	no	
Mammals: Peromyscus gossypinus allopatica	no	no	no	

g - Describe how the protected area is integrated within the country's larger planning framework (if applicable)

not specified

h - Zoning, if applicable, and the basic regulations applied to the zones (attach in Annex a copy of the zoning map)

Name	Basic regulation applied to the zone

i - Enforcement measures and policies

Emergency regulations
Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality, or minimize the imminent risk of such destruction, loss, or injury, any and all activities are subject to immediate temporary regulation, including prohibition. Any such temporary regulation may be in effect for up to 60 days, with one 60-day extension. Additional or extended action will require notice and comment rulemaking under the Administrative Procedure Act, notice in local newspapers, notice to Mariners, and press releases.

Penalties
(a) Each violation of the NMSA or FKNMSPA, any regulation in this part, or any permit issued pursuant thereto, is subject to a civil penalty of not more than $100,000. Each day of a continuing violation constitutes a separate violation.
(b) Regulations setting forth the procedures governing administrative proceedings for assessment of civil penalties, permit sanctions, and denials for enforcement reasons, issuance and use of written warnings, and release or forfeiture of seized property appear at 15 CFR part 904.

j - International status and dates of designation (e.g. Biosphere Reserve, Ramsar Site, Significant Bird Area, etc.)

International status		Date of designation
Biosphere reserve	no	
Ramsar site	no	
Significant bird area	no	
World heritage site (UNESCO)	no	
Others:	no	

k - Site’s contribution to local sustainable development measures or related plans

not specified

l - Available management resources for the area

Ressources		How many/how much	Comments/description
Human ressources	Permanent staff	59	
	Volunteers		
	Partners		
Physical ressources	Equipments		
	Infrastructures		
Financial ressources	Present sources of funding		Note if the basic financing is ensured: a core funding for basic staff, protection and information measures. Who provides the core funding? Briefly assess the degree of adequacy of the present financial means for the area, either low, moderate, satisfactory; e.g. the implementation of the management plan, including protection, information, education, training and research. The FKNMS budget is part of the ONMS federal budget allocation within the Department of Commerce’s National Oceanographic and Atmospheric Administration’s budget. ONMS budget has been level for a number of years, which has severely slowed implementation of new programs for FKNMS.
	Sources expected in the future		
	Annual budget (USD)		

Conclusion Describe how the management framework outlined above is adequate to achieve the ecological and socio-economic objectives that were established for the site (Guidelines and Criteria Section C/V).

One of the primary mandates of the Florida Keys National Marine Sanctuary and Protection Act (FKNMSPA) is to educate the public about the marine environment surrounding the Keys. The diverse habitats, resources, and unique setting of the Keys offer opportunities for the interpretation of marine subtropical and temperate environments. Education and outreach strategies in the action plan fall into two general categories: community involvement/community program strategies and product development strategies.

The first group includes education and outreach strategies designed as interactive programs for user groups (e.g., exhibit production, training programs, workshops, school programs, public-involvement forums, and special events). Strategies that result in the development of specific products (i.e., printed materials, audio-visual materials, signs and displays in high-use areas of the Keys, public service announcements, visitor booths/displays etc.) providing a mechanism for public education and outreach are included in the second group. The education and outreach strategies were developed based on input from environmental educators, Sanctuary education staff, user groups, environmental activists, concerned citizens, and thorough public comment received on the draft management plan.

Chapter 7. MONITORING AND EVALUATION

In general, describe how the nominated site addresses monitoring and evaluation

Two laws require that a research and monitoring program be implemented within the Sanctuary. Section 309 of the NMSA mandates that the "Secretary of Commerce shall take such action as is necessary and reasonable to promote and coordinate the use of national marine sanctuaries for research, monitoring, and education purposes." The 1992 amendments to the FKNMSPA (Section 7(a)(4)) are much more specific, calling on the Secretary of Commerce to:
• identify priority needs for research and amounts needed to improve management of the Sanctuary, and in particular, the coral reef ecosystem within the Sanctuary;
• identify clearly the cause-and-effect relationships between factors threatening the health of the coral reef ecosystem in the Sanctuary; and
• establish a long-term ecological monitoring program and database, including methods to disseminate information on the management of the coral reef ecosystem.

What indicators are used to evaluate management effectiveness and conservation success, and the impact of the management plan on the local communities

Indicators by category	Comments
Evaluation of management effectiveness	
Management effectiveness	Very Satisfactory. The management plan has now proven its value, with increasing numbers of critical fish and invertebrate species within designated no-take reserves and replenishing surrounding fish areas.
Evaluation of conservation measures on the status of species populations within and around protected area	
Species	No new groundings of large vessels have occurred, which were common before sanctuary regulations restricted their navigation away from sensitive reef areas. The deployment and maintenance of mooring buoys, coupled with education and enforcement activities have reduced many of the user impacts to the ecosystem.
Evaluation of conservation measures on the status of habitats within and around the protected area	
Habitats	Same than below
Evaluation of conservation measures on the status of ecological processes within and around the protected area	
Ecological processes	No data
Evaluation of the impact of the management plan on the local communities	
Local communities	Very Satisfactory. Through the Sanctuary Advisory Council and public participation in all aspects of the management plan development, the sanctuary is a model for engaging stakeholders in planning for the protection and use of marine resources. Of particular importance is the now wide acceptance that the sanctuary has successfully addressed user conflict issues and provided much needed protection of the Keys marine ecosystem.

Chapter 8. STAKEHOLDERS

Describe how the nominated site involves stakeholders and local communities in designation and management, and specify specific coordination measures or mechanisms currently in place

Stackeholders involvement	Involvement	Description of involvement	Specific coordination measures	Comments (if any)
Institutions	no			National Marine Fisheries Service Gulf of Mexico Fishery Management Council South Atlantic Fishery Management Council Florida Fish and Wildlife Conservation Commission, Division of Marine Fisheries
Public	yes	The Sanctuary Advisory Council: Members include representatives of commercial and recreational user groups (i.e. commercial and recreational fishermen, the dive industry, and the boating industry), conservation and other public interest organizations, scientific and educational organizations, and members of the public interested in the protection and multiple use management of sanctuary resources. The Council advises and assists in the development and implementation of management strategies for the sanctuary.		
Decision-makers	no			
Economic-sectors	no			
Local communities	yes	The sanctuary has successfully addressed user conflict issues and provided much needed protection of the Keys marine ecosystem.		
Others	no			

Chapter 9. IMPLEMENTATION MECHANISM

Describe the mechanisms and programmes that are in place in regard to each of the following management tools in the nominated site (fill only the fields that are relevant for your site)

Management tools	Existing	Mechanisms and programmes in place	Comments (if any)
Public awareness, education, and information dissemination programmes	yes	Education and outreach have been used as a tool in resource protection from the beginning of the Sanctuary Program in the Keys. A number of educational programs are implemented in the sanctuary. Examples of these programs include instruction to teachers and students about the Sanctuary environment, onsite interpretive tours, the Florida Keys Eco-Discovery Center in Key West, subject-specific lectures, interpretive law enforcement, interpretive exhibits at trade shows and festivals, training seminars, and volunteer programs.	
Capacity building of staff and management	no		
Research, data storage, and analysis	yes	Research and monitoring are critical to achieving the Sanctuary's primary goal of resource protection. The Keys' ecosystem is diverse and complex, and many of its processes and their interrelationships are not well known. Also, while many resource impacts are obvious and severe, they are often not documented or quantified, and their causes may be even less clear or completely unknown. The purpose of research and monitoring is to establish a baseline of information on the resource and the various components of the ecosystem, and how they interact. In this way, research and monitoring ensures the effective implementation of management strategies using the best available scientific information. Research and monitoring activities focus on fundamental processes and specific management-driven topics. Information generated from such activities is used to: • provide the public with a means to evaluate the effectiveness of the Sanctuary; • provide a means to distinguish between the effects of human activities and natural variability; • develop hypotheses about causal relationships which can then be investigated; • evaluate management actions; and • verify and validate quantitative predictive models used to evaluate and select management actions.	
Surveillance and enforcement	no		
Participation of exterior users	no		

Alternative and sustainable livelihoods	no		
Adaptative management	no		

Chapter 10. OTHER RELEVANT INFORMATION

Contact addresses

	Name	Position	Contact adress	Email adress
who is submitting the proposal (national focal point)	MORRISON Steve	National Ocean Service, International Programs Office		steve.morrison@noaa.gov
who prepared the report (manager)	E. Kiene, Ph.D. William	Regional Science Coordinator	Regional Science Coordinator NOAA's National Marine Sanctuaries Southeast, Gulf of Mexico and Caribbean Region 4700 Avenue U, Building 216 Galveston, Texas 77551 Tel: (409) 621-5151 x109	W.Kiene@noaa.gov

Date when making the proposal

: 10/05/2010

List of annexed documents

Name	Description	Category	
Management Plan	Management plan: http://floridakeys.noaa.gov/mgmtplans/2007_man_plan.pdf	Management plan	View