

UNITED
NATIONS

EP



United
Nations
Environment
Program



Original: ENGLISH

Proposed areas for inclusion in the SPAW list
ANNOTATED FORMAT FOR PRESENTATION REPORT FOR:

**Dry Tortugas National Park (DTNP)
USA**

Date when making the proposal : *August 29th, 2012*

CRITERIA SATISFIED :

Ecological criteria

Representativeness
Conservation value
Rarity
Naturalness
Critical habitats
Diversity
Connectivity/coherence
Resilience

Cultural and socio-economic criteria

Productivity
Cultural and traditional use
Socio-economic benefits

Area name: Dry Tortugas National Park (DTNP)

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: Cliff
First name: McCreedy
Position: National Marine Protected Areas Center
Email: lauren.wenzel@noaa.gov
Phone: 202-513-7164

SUMMARY

Chapter 1 - IDENTIFICATION

Chapter 2 - EXECUTIVE SUMMARY

Chapter 3 - SITE DESCRIPTION

Chapter 4 - ECOLOGICAL CRITERIA

Chapter 5 - CULTURAL AND SOCIO-ECONOMIC CRITERIA

Chapter 6 - MANAGEMENT

Chapter 7 - MONITORING AND EVALUATION

Chapter 8 - STAKEHOLDERS

Chapter 9 - IMPLEMENTATION MECHANISM

Chapter 10 - OTHER RELEVANT INFORMATION

ANNEXED DOCUMENTS

Corals

Vertebrates and Vascular Plants

Chapter 1. IDENTIFICATION

a - Country:

USA

b - Name of the area:

Dry Tortugas National Park (DTNP)

c - Administrative region:

Southeast United States

d - Date of establishment:

10/26/92

e - If different, date of legal declaration:

not specified

f - Geographic location

Longitude X: -82.872813

Latitude Y: 24.627874

g - Size:

265 sq. km

h - Contacts

Contact adress: P.O. Box 6208 Key West, FL 33041

Website: www.nps.gov/drto

Email address: lauren.wenzel@noaa.gov

i - Marine ecoregion

70. Floridian

Comment, optional

The Dry Tortugas National Park (DTNP) protects a 265 sq. km. area of coral reefs, sandy shoals, seagrass beds and seven small islands or keys. The marine area includes reefs with high densities of live coral cover and massive coral heads that are unique to the Tortugas region and rare in the Florida Keys. Rare migratory seabirds utilize the keys for rookeries and sea turtles nest on the sand beaches. DTNP was established by the U.S. Congress: "to preserve and protect for the education, inspiration, and enjoyment of present and future generations nationally significant natural, historic, scenic, marine, and scientific values in South Florida." U.S. law also directs that DTNP be managed "to protect and interpret a pristine subtropical marine ecosystem, including an

intact coral reef community,” and among other purposes, “to protect populations of fish and wildlife, including (but not limited to) loggerhead and green sea turtles, sooty terns, frigate birds, and numerous migratory bird species.” The Park has four management zones to achieve desired resource conditions and provide a range of compatible visitor uses, including a Research Natural Area where fishing and anchoring are prohibited to protect and restore coral and fish species and to scientifically evaluate their condition.

Chapter 2. EXECUTIVE SUMMARY

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

The Dry Tortugas National Park (DTNP) protects a 265 sq. km. area of coral reefs, sandy shoals, seagrass beds and seven small islands or keys. The marine area includes reefs with high densities of live coral cover and massive coral heads that are unique to the Tortugas region and rare in the Florida Keys. Rare migratory seabirds utilize the keys for rookeries and sea turtles nest on the sand beaches. DTNP was established by the U.S. Congress: “to preserve and protect for the education, inspiration, and enjoyment of present and future generations nationally significant natural, historic, scenic, marine, and scientific values in South Florida.” U.S. law also directs that DTNP be managed “to protect and interpret a pristine subtropical marine ecosystem, including an intact coral reef community,” and among other purposes, “to protect populations of fish and wildlife, including (but not limited to) loggerhead and green sea turtles, sooty terns, frigate birds, and numerous migratory bird species.” The Park has four management zones to achieve desired resource conditions and provide a range of compatible visitor uses, including a Research Natural Area where fishing and anchoring are prohibited to protect and restore coral and fish species and to scientifically evaluate their condition.

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

The DTNP protects coral reefs, islands and seagrass beds that contribute to regional reproduction and recruitment of marine and terrestrial flora and fauna of great ecological importance to South Florida and the Wider Caribbean, various of which are listed on the SPAW Protocol Annex I, II and III the U.S. Endangered Species Act. The 119 km² (46 mi²) Research Natural Area (RNA) of DTNP is one of three no-take marine reserve zones comprising the Tortugas Ecological Reserve. The goal of the Reserve is to protect large contiguous and diverse habitats for their superlative biological diversity and resource quality. Fish species spawning in the adjacent Florida Keys National Marine Sanctuary, the first U.S. site listed under the Protocol, migrate to DTNP and are protected in the RNA. These spawning aggregations contribute to regional recruitment of commercially and ecologically important species throughout the Florida Keys and Southeast Florida reef tract, the third largest barrier reef ecosystem on the globe. DTNP also protects the only known rookeries in the continental U.S. of the magnificent frigate bird, brown noddly and masked booby. Green and loggerhead sea turtles also nest on the islands. Together, these attributes of DTNP fulfill the criteria for listing on the SPAW Protocol.

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

Representativeness
Conservation value
Rarity
Naturalness
Critical habitats
Diversity
Connectivity/coherence
Resilience

Cultural and socio-economic criteria

Productivity
Cultural and traditional use
Socio-economic benefits

Chapter 3. SITE DESCRIPTION

a - General features of the site

Terrestrial surface under sovereignty, excluding wetlands:

42 sq. km

Wetland surface:

0 ha

Marine surface:

265 sq. km

Global comment for the 3 previous fields (optional):

Submerged carbonate banks with coral reefs, sandy shoals and seven islands located in the Straits of Florida on the southwest margin of the Florida Continental Shelf, 113 kilometers west of the town of Key West.

b - Physical features

Brief description of the main physical characteristics in the area:

DTNP contains a highly diverse coral reef ecosystem with complex benthic features. The carbonate banks are interspersed with sandy islands, shoals and seagrass beds, and form an ellipsoid with a south-west to north-east axis. Atoll-like in structure, the rim of the banks consists of 14 m (46 ft) thick Holocene coral reefs (<10,000 years old) that lie above 135,000-year-old rock known as Key Largo Limestone.

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):

Coral reef and hardbottom substrates within the park cover 9,104 ha and are comprised of nine different habitat types based on bathymetric and geomorphologic features (See Table 2), resulting in highly complex and productive habitats for fish and invertebrates.

Seagrass meadows also are spatially extensive and account for over 3,723 ha of mapped areas.

Island habitats include dunes and sand beaches and various coastal plant communities. Of the seven islands, only Garden Key and Loggerhead Key are developed. Total island habitat is 39.4 ha.

Detail for each habitat/ecosystem the area it covers:

| | | | |
|--|-----------------|--------------|--------------------------|
| <i>Marine / coastal ecosystem categories</i> Detail for each habitat / ecosystem the area covers | Size (estimate) | | Description and comments |
| | unit | Area covered | |
| Terrestrial ecosystems | Size (estimate) | | |
| | unit | Area covered | |

Flora

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

Plant assemblages are mapped in following vegetation classes as woodlands (3), shrublands (8), scrub (5), dune (20), and sparse (3). The vegetation communities on these islands differ in distribution and commonality. Dune associative communities are the main classes that provide significant cover on four of the seven islands. Complete plant species lists and land cover can be found at http://science.nature.nps.gov/im/units/sfcn/inventories/DryTortugasVegMap/Project_Report/drtortp.pdf

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 |
|------------------------------------|-----------------------------|-----------------|
| Combretaceae: Conocarpus erectus | not given | Buttonwood |
| Compositae : Laguncularia racemosa | not given | white mangrove |
| Rhizophoraceae: Rhizophora mangle | not given | Red mangrove |
| Verbenaceae: Avicennia germinans | not given | Black mangrove |

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 |
|--|-------------|-----------------------------|--------------------------|
| Conocarpus: erectus | Unknown | not given | Silver-leaved Buttonwood |
| Avicennia : germinans | Unknown | not given | Black Mangrove |
| Laguncularia : racemosa | Unknown | not given | White Mangrove |
| Rhizophora : mangle | Unknown | not given | Red Mangrove |

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

Coral Reefs: The coral reef formations of DTNP include bank reefs, high relief and low relief spur and groove, patch reefs, pinnacles, and other morphologies, which taken together provide an ecological suite of highly complex and productive habitats for fish and invertebrates. Various reefs within DTNP contain high densities of live coral cover and massive star coral heads (*Montastrea spp.*) that are unique to the Dry Tortugas region. Other common coral species include starlet coral (*Siderastrea spp.*), brain coral (*Copophyllia natans*, *Diploria spp.*) fire coral (*Millepora alcicornis*), finger coral (*Porites spp.*), and lettuce coral (*Agaricia agaracites*). Additional species occurring in DTNP are listed in the Appendix (Annex II species list to be added).

Seagrass and Algal Communities: Shallow seagrass and algal communities are important components of DTNP and the wider coral reef ecosystem of the Tortugas. *Thalassia testudinum* and *Syringodium filiforme* typically abound in shallower waters <10 m (33 ft). Algal communities in the Dry Tortugas tend to be ephemeral and occur on a variety of bottom types. Conspicuous genera include *Laurencia*, *Dictyota*, *Sargassum*, *Cladophora*, and *Padina*. Seagrass beds provide habitat and food for important coral reef fishery species, threatened and endangered species, and many other organisms.

Sea Turtles: The shores of the DTNP islands are important nesting habitat and the coral reefs and seagrass beds forage areas for sea turtles. Loggerhead (*Caretta caretta*) and green sea turtles (*Chelonia mydas*) are the most common species known to nest and forage in DTNP. Hawksbill sea turtles (*Eretmochelys imbricata*) are less common. Sightings of Leatherback sea turtle (*Dermochelys coriacea*) are very rare, with three nests observed in 2004. (Kemp's ridley (*Lepidochelys kempii*) sea turtles are seldom observed in the Tortugas region.) All species are protected under Florida statutes and the United States Endangered Species Act (ESA), and have had their conservation status elevated by inclusion on the International Union for Conservation of Nature (IUCN) Red List of Species (www.iucnredlist.org).

The DTNP islands provide critical nesting habitats for five rare seabird species: the Sooty Tern (*Sterna fuscata*), Brown Noddy (*Anous stolidus*), Masked Booby (*Sula dactylatra*), Magnificent Frigatebird (*Fregata magnificens*), and Roseate Tern (*Sterna dougallii*). DTNP contains the only known rookeries for Brown Noddies, Magnificent Frigate Birds, and Masked Boobies in the continental U.S. Sooty Tern sightings at DRT0 have been recorded since 1903 and over 500,000 individuals have been banded there since the early 1950s. The Brown Pelican (*Pelecanus occidentalis*) and Least Tern (*Sternula antillarum*) also nest in DTNP. The National Audubon Society lists DTNP as one of the Important Birding Areas in Florida.

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 |
|---|-----------------------------|------------------------|
| Reptiles: <i>Caretta caretta</i> | not given | Loggerhead |
| Reptiles: <i>Chelonia mydas</i> | not given | Green Sea Turtles |
| Reptiles: <i>Eretmochelys imbricata</i> | not given | Hawksbill Sea Turtles |
| Reptiles: <i>Lepidochelys kempii</i> | not given | Kemp's Ridley |
| Reptiles: <i>Dermochelys coriacea</i> | not given | Leatherback Sea Turtle |

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 |
|--|----------------------------|-----------------------------|--------------------------------|
| Siderastrea : siderea | Unknown | not given | Lesser Starlet Coral |
| Millepora : alcicornis | Unknown | not given | Fire Coral |
| Acropora : humilis | Unknown | not given | Finger Coral |
| Syringodium : filiforme | Unknown | not given | Manatee Grass, Species code Sf |
| Caretta : caretta | EN - Endangered | not given | loggerhead |
| Chelonia : mydas | EN - Endangered | not given | Green Turtle |
| Eretmochelys : imbricata | CR - Critically endangered | not given | Hawksbill Turtle |
| Dermochelys : coriacea | CR - Critically endangered | not given | Leatherback |
| Lepidochelys : kempii | CR - Critically endangered | not given | Kemp's Ridle |
| Sterna : fuscata | Unknown | not given | Sooty Tern |
| Anous: stolidus | Unknown | not given | Brown Noddy |
| Sula : dactylatra | Unknown | not given | Masked Booby |
| Fregata : magnificens | Unknown | not given | Magnificent Frigatebird |
| Sterna : dougallii | Unknown | not given | Roseate Tern |
| Pelecanus : occidentalis | Unknown | not given | Brown Pelican |
| Acropora : cervicornis | CR - Critically endangered | not given | Staghorn Coral |
| Acropora : palmata | CR - Critically endangered | not given | Elkhorn Coral |
| Charadrius : melodus | Unknown | not given | Piping Plover |
| Pristis : pectinata | CR - Critically endangered | not given | Smalltooth Sawfish |

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 |
|---|-----------------------------|--------------------|
| Sterna : dougallii | not given | Roseate Tern |
| Caretta: caretta | not given | Loggerhead |
| Chelonia: mydas | not given | Green Turtle |
| Acropora : cervicornis | not given | Staghorn Coral |
| Acropora : palmata | not given | Elkhorn Coral |
| Charadrius: melodus | not given | Piping Plover |
| Pristis: pectinata | not given | Smalltooth Sawfish |

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 | not given | not given | not given | not given |

Comments about the previous table:

No human development or inhabitants other than park facilities, staff, volunteers and visitors.

Description of population, current human uses and development:

DTNP received 53,890 visitors in 2010. Day use in and around Fort Jefferson on Garden Key is the most frequent use. Most visitors access the Park by the commercial passenger ferry service from Key West, Florida. Other visitors access the DTNP in private boats or by commercial seaplane. Private boats using the Park must obtain a permit. Visitors enjoy boating, scuba diving, snorkeling, fishing, birdwatching, photography, camping and tours of the fort.

| Activities | Current human uses | Possible development | Description / comments, if any |
|-------------|--------------------|----------------------|--|
| Tourism | significant | unknown | DTNP received 53,890 visitors in 2010. |
| Fishing | significant | unknown | |
| Agriculture | absent | unknown | |
| Industry | absent | unknown | |
| Forestry | absent | unknown | |
| Others | significant | unknown | Visitors enjoy boating, scuba diving, snorkeling, fishing, birdwatching, photography, camping and tours of the fort. |

e - Other relevant features

The Dry Tortugas were discovered by the Spanish explorer Ponce de Leon in 1513 and were so named to indicate they lacked fresh water. Loggerhead Key was the location of the Carnegie Institute's Laboratory for Marine Biology from 1905 to 1939, where researchers first described, photographed and illustrated many species of marine invertebrates, fish, and algae common to the Caribbean and South Florida. Built between 1846 and 1875, Fort Jefferson is the largest, all-masonry military fort in the United States, and is listed on the U.S. National Register of Historic Places. Significant preservation and restoration programs conserve and interpret the fort, cannons, lighthouse and other historic structures and artifacts. Because of its location on shipping routes to the Gulf of Mexico and navigational hazards posed by reefs, DTNP also protects numerous significant shipwrecks and submerged cultural resources representing centuries of maritime commerce and history.

f - Impacts and threats affecting the area

Impacts and threats *within* 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 resources: Fishing | very important | unknown | unknown | Drastic declines in reef fish landings during the 1980s and 1990s lead to efforts to reduce extraction and to restore reef fish populations in the Tortugas region. Several regulations were enacted to limit the species targeted, gear types used, and daily catches landed from the region (http://www.nps.gov ; http://floridakeys.noaa.gov/regs/welcome.html). In 1935, commercial extraction was prohibited within the original Fort Jefferson National Monument and later in DTNP. In 2001, commercial extraction also was prohibited within the wider Tortugas Ecological Reserve outside the Park. More recently (2007), the implementation of the RNA zone further prohibited recreational fishing in 46% of the Park while allowing scuba diving, snorkeling and other nonextractive activities. | | Reef fish assemblages in the Dry Tortugas have suffered significant declines in the abundance and size of desirable species because of historical overfishing. Although full recovery is expected to take decades, the establishment of no-take reserves coupled with a suite of management actions that reduced fishing mortality already are having a net positive effect on previously exploited reef fish populations. Several studies have characterized population abundance and size of exploited species and are tracking their temporal trends to evaluate the effectiveness of no-take reserves, including the newly established RNA within DTNP. Other anthropogenic stressors including ocean |

| | | | | | | |
|--|----------------|---------|---------|---|--|---|
| | | | | | | warming and sea level rise are more difficult to quantify for their precise ecological impact. Monitoring of corals will yield information on trends in coral health. |
| Exploitation of natural resources: Agriculture | limited | unknown | unknown | | | N/A |
| Exploitation of natural resources: Tourism | limited | unknown | unknown | | | N/A |
| Exploitation of natural resources: Industry | limited | unknown | unknown | | | N/A |
| Exploitation of natural resources: Forest products | limited | unknown | unknown | | | N/A |
| Increased population | limited | unknown | unknown | | | N/A |
| Invasive alien species | very important | unknown | unknown | Lionfish have been observed in DTNP since 2010 and may cause direct impacts on reef fish and invertebrates by predation, including ecologically and recreationally important species. | | DTNP and National Park Service adopted a Lionfish Response Plan to evaluate and mitigate the impacts of lionfish on DTNP resources. |
| Pollution | limited | unknown | unknown | | | N/A |
| Other | significant | unknown | unknown | - turtles - colonizing seabirds | | Sea level rise and increased storm intensity is likely to inundate and erode the low-lying Tortugas islands over time thereby reducing the availability of nesting beaches for sea turtles and colonizing seabirds. |

| | | | | | | |
|--|--|--|--|--|--|---|
| | | | | | | <p>Anchoring can damage corals and is addressed by the RNA zone where anchoring is restricted. Unpredictable disturbances, including hurricanes, disease outbreaks, and coldwater and warm-water events, and other extreme events have resulted in atypical oceanographic conditions that have negatively affected reef-building corals and seagrass communities. Coral bleaching and disease outbreaks have dramatically reduced populations of staghorn and elkhorn corals.</p> |
|--|--|--|--|--|--|---|

Impacts and threats *around* 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 resources: Fishing | limited | unknown | unknown | | | N/A |
| Exploitation of natural resources: Agriculture | limited | unknown | unknown | | | N/A |
| Exploitation of natural resources: Tourism | limited | unknown | unknown | | | N/A |
| Exploitation of natural resources: Industry | limited | unknown | unknown | | | N/A |
| Exploitation of natural resources: Forest products | limited | unknown | unknown | | | N/A |
| Increased population | limited | unknown | unknown | | | N/A |
| Invasive alien species | limited | unknown | unknown | | | N/A |
| Pollution | limited | unknown | unknown | | | N/A |

| | | | | | | |
|-------|---------|---------|---------|--|--|-----|
| Other | limited | unknown | unknown | | | N/A |
|-------|---------|---------|---------|--|--|-----|

h - Information and knowledge

Information and knowledge available

N/A

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.)

Representativeness:

As stated above, DTNP protects productive coral reef, seagrass and island habitats with highly diverse assemblages of marine fish, invertebrates, sea turtles and seabird species that are representative or migratory in South Florida and the Wider Caribbean region.

Conservation value:

DTNP provides great value to conservation of fauna for its size due to its relatively intact marine and terrestrial habitats and location. Recent studies conclude that protection offered by the RNA has been important to the recovery of a major mutton snapper spawning aggregation at nearby Riley's Hump. DTNP also contains one-third to one-half of the adult spawning population for mutton snapper, red grouper, yellowtail snapper, and hogfish, and this proportion has generally increased from 1999 to 2010. Larvae of these fish are transported by the Florida Current throughout the Florida Keys and southeast Florida reef tract.

Rarity:

DTNP contains the only known rookeries for Brown Noddies, Magnificent Frigate Birds, and Masked Boobies in the continental U.S.

Naturalness:

Due to their remoteness, DTNP and the wider Tortugas region have enjoyed some relief from human-caused impacts, especially from urban and agricultural development in South Florida that consume land and water and cause impacts to water quality and quantity. Historical overfishing was a prevalent ecological stressor. Recent management actions to protect spawning, nursery and adult habitats are showing positive results and bode well for further restoring size and abundances of marine fish.

Critical habitats:

DTNP is important to the recovery of several species listed under the U.S. Endangered Species Act including the roseate tern, loggerhead and green sea turtles, staghorn and elkhorn corals, piping plover, and smalltooth sawfish. The Nature Conservancy has established a nursery site at DTNP for propagating elkhorn and staghorn corals as part of a long-term strategy for reestablishing these species in the region. A complete list of species is attached.

Diversity:

U.S. National Park Service has identified 843 species in its inventory of terrestrial and marine vertebrates, vascular plants and stony corals at DTNP. Coral reefs and seagrass beds at DTNP also provide habitat for many additional marine species.

Connectivity/coherence:

The Caribbean Current transports surface waters from the Caribbean Sea through the Yucatan Channel (between the island of Cuba and the Yucatan Peninsula) into the Gulf of Mexico where it joins the Florida current. DTNP is connected to the Wider Caribbean via oceanographic transport of marine species and bird migration. Reproduction in DTNP and the Tortugas region contributes significantly to food supply when the Tortugas Gyre retains and transports locally spawned larvae of conch and lobster and fishes eastward along the Florida Keys.

Resilience:

Various reefs within DTNP contain high densities of live coral cover and massive star coral heads and brain coral heads that are unique to the Dry Tortugas region. Larvae of these corals are transported by the Florida Current throughout the Florida Keys and southeast Florida reef tract. In-situ research is underway on calcification and growth rates of stony corals in DTNP. This research may indicate coral adaptability to lower seawater pH and higher sea surface temperatures.

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:

DTNP attracted 53,890 visitors and generated \$3.147 million U.S. in economic benefits from visitor spending and nature-dependent tourism in 2010.

Cultural and traditional use:

Fishing is a valued tradition for Floridians and forms strong cultural connections to the waters and living resources of the Florida Keys. DTNP provides protection for regionally important species of fish and lobsters, which benefits fishing activities throughout the South Florida reef tract. DTNP also preserves maritime historical resources that provide an important historical context to present day life in the region.

Socio-economic benefits:

Setting aside the RNA marine reserve within DTNP as a place of refuge for juveniles and adults of exploited reef fish to live, grow, and reproduce with minimal human impacts benefits the future sustainability of economically and ecologically important fishery resources in Florida, particularly in light of the ever-increasing human population, environmental changes, and accompanying increases in recreational boaters and anglers using the Florida coastal marine ecosystem.

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 Park Service Organic Act of 1916 (16 USC 1 as amended and supplemented); Public Law 102-525, Title II; federal regulations at 36 CFR 1-7; National Park Service Management Policies.

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

unknown

b - Management structure, authority

DTNP is co-managed with Everglades National Park. The Superintendent of DTNP and Everglades NP reports to the National Park Service Regional Director, Southeast Region.

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

Description of the management authority

Unit of the National Park System with staff, equipment and facilities authorized to regulate and manage site under statutory and regulatory authorities above.

Means to implement the framework

See above.

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

| Objective | Top priority | Comment |
|---|--------------|--|
| Conserve resources and values of the National Parks | Yes | National Park Service statutory mandate is to conserve resources and values of the National Parks, and provide for their enjoyment such as to leave them unimpaired for the enjoyment of future generations. When there is a conflict between conserving resources and providing for their enjoyment, conservation is to be predominant. |

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

General Management Plan Amendment (GMPa) adopted in 2001 establishes desired conditions for natural and cultural resources and an appropriate range of visitor experiences. The GMPa guides decision-making and direction of park management for 10-15 years. Four management zones are established to achieve these goals (see subsection h. below).

Management plan - date of publication

: 1/1/01

Management plan duration

: 15

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 | no | no | no | |
| 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 |
|--|---------------------|---------------------|-------------------|----------------------------------|
| Combretaceae: Conocarpus erectus | no | no | no | |
| Compositae : Laguncularia racemosa | no | no | no | |
| Rhizophoraceae: Rhizophora mangle | no | no | no | |
| Verbenaceae: Avicennia germinans | no | no | no | |

Fauna

| Species from SPAW Annex 2 present in your area | Management measures | Protection measures | Recovery measures | Comments/description of measures |
|--|---------------------|---------------------|-------------------|---|
| Reptiles: Caretta caretta | yes | yes | no | listed under U.S. Endangered Species Act in consultation with U.S. Fish and Wildlife Service (FWS) and National Oceanic and Atmospheric Administration (NOAA) |
| Reptiles: Chelonia mydas | yes | yes | no | listed under U.S. Endangered Species Act in consultation with U.S. Fish and Wildlife Service (FWS) and National Oceanic and Atmospheric Administration (NOAA) |
| Reptiles: Eretmochelys imbricata | no | no | no | |
| Reptiles: | no | no | no | |

| | | | | |
|-----------------------------------|----|----|----|--|
| Lepidochelys kempii | | | | |
| Reptiles: Dermochelys coriacea | no | no | no | |

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

DTNP is a member site of the National System of Marine Protected Areas under the Framework established by U.S. Department of the Interior and NOAA and Executive Order 13158 on Marine Protected Areas.

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 |
|--|---|
| Historic Preservation and Adaptive Use (HAU) | This zone preserves and interprets the rich cultural and architectural history of Fort Jefferson, and provides necessary facilities to support a wide range of visitor activities. |
| Natural/Cultural | Management actions are devoted to protecting resources, minimizing or preventing impacts from visitor use and ensuring visitor safety, and restoring disturbed or damaged areas. Most marine recreational uses are allowed with regulations governing these activities. Recreational fishing regulations are generally consistent with State of Florida fisheries management regulations for species bag and size limits. |
| Research Natural Area (RNA) | This zone protects and restores physical structure and ecological integrity of habitats of outstanding value, including coral reefs, seagrass beds, and island habitats with marine and terrestrial species described in III c. Fishing and anchoring are prohibited. Nonconsumptive recreational uses are allowed and regulated. The area is set aside and managed for non-manipulative research to evaluate the response of resources to protection under an adaptive management framework. In 2007, the National Park Service (NPS) and the Florida Fish and Wildlife Conservation Commission (FWC) developed a science plan, Assessing the Conservation Efficacy of the Dry Tortugas National Park Research Natural Area, specifically to assess the effectiveness of the 46 sq. mi zone. See Implementing the Dry Tortugas National Park Research Natural Area Science Plan: The 5-Year Report 2012 http://www.nps.gov/ever/naturescience/upload/DRTORNA5YrFINALComplete04092012LoRes.pdf |
| Special Protection Zones | Within the HAU are two areas of increased protection that are closed to the public: the Nurse Shark Special Protection Zone (SPZ) and the Coral Special Protection Zone (SPZ). The Nurse Shark SPZ is a shark-mating site and contains a high number of pregnant females during mating season. The Coral SPZ is an area that contains a large portion of the park's rare and threatened corals, including elkhorn coral (<i>Acropora palmata</i>), staghorn coral (<i>Acropora cervicornis</i>), and the elkhorn-staghorn hybrid (<i>Acropora prolifera</i>). |

Comments, if necessary

Four management zones prescribe specific resource conditions, protections, and appropriate

visitor experiences to be achieved in each particular area of DTNP. Each zone specifies physical, biological, and social conditions, types and levels of visitor use, and management actions deemed appropriate to support these conditions and uses. The zones are:

- 1) Historic Preservation and Adaptive Use (HAU)– This zone preserves and interprets the rich cultural and architectural history of Fort Jefferson, and provides necessary facilities to support a wide range of visitor activities.
- 2) Natural/Cultural – Management actions are devoted to protecting resources, minimizing or preventing impacts from visitor use and ensuring visitor safety, and restoring disturbed or damaged areas. Most marine recreational uses are allowed with regulations governing these activities. Recreational fishing regulations are generally consistent with State of Florida fisheries management regulations for species bag and size limits.
- 3) Research Natural Area (RNA) – This zone protects and restores physical structure and ecological integrity of habitats of outstanding value, including coral reefs, seagrass beds, and island habitats with marine and terrestrial species described in III c. Fishing and anchoring are prohibited. Nonconsumptive recreational uses are allowed and regulated. The area is set aside and managed for non-manipulative research to evaluate the response of resources to protection under an adaptive management framework. In 2007, the National Park Service (NPS) and the Florida Fish and Wildlife Conservation Commission (FWC) developed a science plan, Assessing the Conservation Efficacy of the Dry Tortugas National Park Research Natural Area, specifically to assess the effectiveness of the 46 sq. mi zone. See Implementing the Dry Tortugas National Park Research Natural Area Science Plan: The 5-Year Report 2012 <http://www.nps.gov/ever/naturescience/upload/DRTORNA5YrFINALCompl ete04092012LoRes.pdf>
- 4) Special Protection Zones – Within the HAU are two areas of increased protection that are closed to the public: the Nurse Shark Special Protection Zone (SPZ) and the Coral Special Protection Zone (SPZ). The Nurse Shark SPZ is a shark-mating site and contains a high number of pregnant females during mating season. The Coral SPZ is an area that contains a large portion of the park’s rare and threatened corals, including elkhorn coral (*Acropora palmata*), staghorn coral (*Acropora cervicornis*), and the elkhorn-staghorn hybrid (*Acropora prolifera*).

i - Enforcement measures and policies

Special regulation to implement provisions and management zones under the GMP, including the RNA, were published in Code of Federal Regulations in 2007 at 36 CFR Part 7. Park Rangers are commissioned law enforcement officers empowered to enforce laws and regulations governing DTNP.

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

DTNP is a separate MPA located entirely within the boundary of NOAA Florida Keys National Marine Sanctuary. The Tortugas Ecological Reserve in the Sanctuary is a 518-km² (200 mi²) no-take marine area consisting of two non-contiguous sections: Tortugas North Ecological Reserve (TNER) and Tortugas South Ecological Reserve (TSER). The TNER is adjacent to DTNP and the TSER is southwest of DTNP. The goal of the reserve is to protect large contiguous and diverse habitats to preserve biological diversity, maintain resource quality, and to replenish surrounding areas. The DTNP RNA adds 119 km² (46 mi²) no-take area of shallow coral reef and seagrass habitats with high levels of biological connectivity with both the TSER and TNER. NPS collaborates with NOAA and other state, federal and academic partners with management roles and scholarly interests in scientific study of the region

l - Available management resources for the area

| Ressources | | How many/how much | Comments/description |
|-------------------------|--------------------------------|--|---|
| Human ressources | Permanent staff | 12 | Staff consists of a site manager and 12 permanent employees who perform various functions and duties including natural and cultural resource management, education and interpretation, facilities maintenance, and enforcement. Seasonal employees and volunteers also assist park staff with these functions. |
| | Volunteers | | |
| | Partners | | |
| Physical ressources | Equipments | Boats, fuel storage, and water and waste treatment plants. A 110-foot vessel. | Fort Jefferson occupies Garden Key along with facilities and infrastructure including lighthouses and other historic structures, campgrounds, residential housing, offices, visitor center, docks, boats, fuel storage, and water and waste treatment plants. A 110-foot vessel supplies the park and provides a platform for marine research and maintenance activities. |
| | Infrastructures | Lighthouses and other historic structures, campgrounds, residential housing, offices, visitor center, docks. | |
| Financial ressources | Present sources of funding | 2012 budget: \$1.764 million U.S. | The Park operational budget is subject to annual appropriations by U.S. Congress as part of the Operations of the National Park System under the U.S. Department of the Interior. 2012 budget: \$1.764 million U.S. |
| | Sources expected in the future | NA | |
| | Annual budget (USD) | 1764000 | |

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).

The management and operations of DTNP are aligned to achieve NPS Management Policies and park level mandates to:

- Prevent impairment of park resources and values;
- Provide best available scientific information for making decisions and for exercising key authorities;
- Emphasize consultation and cooperation with local/state/tribal/federal entities;
- Utilize best contemporary business practices and sustainability;
- Provide for appropriate use and enjoyment of park resources, including education and interpretation
- Pass on to future generations natural, cultural, and physical resources that meet desired conditions better than they do today, along with improved opportunities for enjoyment.

Chapter 7. MONITORING AND EVALUATION

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

The NPS South Florida/Caribbean Network (SFCN) Vital Signs Monitoring Plan measures selected ecological indicators for trends in resource condition at DTNP. NPS defines a vital sign as a “subset of physical, chemical, and biological elements and processes of park ecosystems that are selected to represent the overall health or condition of park resources, known or hypothesized effects of stressors, or elements that have important human values.” See <http://science.nature.nps.gov/im/units/sfcn/monitoring.cfm>

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 |
|--|--|
| <i>Evaluation of management effectiveness</i> | |
| N/A | N/A |
| <i>Evaluation of conservation measures on the status of species populations within and around protected area</i> | |
| Seabird Monitoring | Ongoing seabird projects within DTNP include monitoring of Brown Noddy and Sooty Tern colonies with point-count methods, monitoring of Neotropical migrants by private parties, and direct counting of Brown Pelican, Masked Booby, and Magnificent Frigatebird colonies. A conceptual ecological model and draft monitoring plan have been developed for monitoring seabirds at DTNP and three other parks in the network to include: (1) monitoring colonies and nesting status of birds at historic long-term sites and (2) monitoring populations and distributions of wading birds at a regional scale. |
| Sea Turtle Monitoring | Annual monitoring surveys of sea turtle nests were conducted between 1979-2003 by the Florida Fish and Wildlife Conservation Commission (FWC). Annual nesting surveys by DTNP have recorded activity since 2009. |
| Quantify changes | Quantify changes in the abundance and size-structure of exploited species within the Research Natural Area (RNA) relative to adjacent areas. |
| Monitor | Monitor the immigration and emigration of targeted species in the Research Natural Area (RNA) |

| | |
|---|---|
| Monitor changes | Monitor changes in species composition and catch rates of exploited species throughout the surrounding region. |
| Assess reproductive potential | Assess reproductive potential of exploited species by evaluating egg production and larval dispersal. |
| <i>Evaluation of conservation measures on the status of habitats within and around the protected area</i> | |
| Coral Monitoring | The SFCN is monitoring coral reef communities within DTNP to evaluate trends in key benthic community indicators. Randomly selected coral reef sites are monitored with a high-definition video camera to quantify trends in living coral by species, macroalgae, turf algae, crustose coralline algae, octocorals, and sponges. Additional field data are collected on coral disease, abundance of longspined sea urchins (an important algal grazer), stony coral species diversity, rugosity, and reef-depth water temperature. A wide range of coral monitoring activities is conducted by State of Florida, federal agencies and universities. These are described in Table 1. |
| Evaluate the effects | Evaluate the effects of Research Natural Area (RNA) implementation on marine benthic biological Communities. |
| <i>Evaluation of conservation measures on the status of ecological processes within and around the protected area</i> | |
| N/A | N/A |
| <i>Evaluation of the impact of the management plan on the local communities</i> | |
| Incorporate social sciences | Incorporate social sciences into the RNA science program. |

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

| Stakeholders involvement | Involvement | Description of involvement | Specific coordination measures | Comments (if any) |
|--------------------------|-------------|--|--------------------------------|--|
| Institutions | yes | DTNP works with state, local governments and constituencies. | | DTNP works with state and local governments, nongovernmental organizations, the academic community, and visitors and constituencies to expand organizational capacity to manage DTNP and further public support and involvement in park stewardship. |
| Public | yes | DTNP works with visitors. | | |
| Decision-makers | no | | | |
| Economic-sectors | no | | | |

| | | | | |
|-------------------|-----|--|--|--|
| Local communities | no | | | |
| Others | yes | DTNP works with nongovernmental organizations, the academic community, | | |

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 | The DTNP has a web page at www.nps.gov/drto with background on natural and cultural resources and information on visiting the Park. DTNP adopted a Long Range Interpretive Plan in 2003 to communicate and interpret the cultural and natural resources of the Park to visitors and the public at large. DTNP provides presentations, tours and activities led by Park Rangers, visitor center exhibits and displays, and print and electronic media. DTNP and Everglades NP also co-sponsor exhibits with NOAA at the Florida Keys Eco-Discovery Center in Key West, Florida. | |
| Capacity building of staff and management | yes | The Fundamentals training program introduces employees to the NPS' universal competencies, identified by the NPS leadership as critical in job success and in helping fulfill the National Park Service mission. The Natural Resource Career Academy, along with six others in the National Park Service, is currently being developed to provide a developmental pathway for employees to reach levels of proficiency within their career track based on the competencies of their positions. | |
| Research, data storage, and analysis | yes | DTNP and South Florida Natural Resource Center staff compile and analyze scientific information from NPS and external sources. See http://www.nps.gov/ever/naturescience/sfnrc.htm The NPS South Florida/Caribbean Network (SFCN) obtains, maintains and analyzes inventories, maps and cartographic information, and monitoring data for DTNP and other National Park System Units in region, under standards of the NPS Inventory and Monitoring Program. Any entity conducting research activities in DTNP must first obtain a research permit from the Park. See http://www.nps.gov/ever/naturescience/sfnrc_permits.htm | |
| Surveillance and enforcement | yes | DTNP works closely with the U.S. Coast Guard on surveillance and enforcement of U.S. maritime and immigration laws, and with NOAA Florida Keys National | |

| | | | |
|---|-----|---|--|
| | | Marine Sanctuary and state of Florida on matters of concurrent jurisdiction. | |
| Participation of exterior users | yes | DTNP works closely with the great number of government and non-government organizations and academic institutions with management roles or scholarly interest in studying DTNP and the wider Tortugas region. | |
| Alternative and sustainable livelihoods | yes | Because of scarcity of resources at the remote island location, facilities and infrastructure at DTNP are designed to operate with minimal water and energy use. | |
| Adaptative management | yes | See above descriptions of General Management Plan and Monitoring. | |

Chapter 10. OTHER RELEVANT INFORMATION

Contact addresses

| | Name | Position | Contact address | Email address |
|---|----------------|---|----------------------------------|-------------------------|
| 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) | Cliff McCreedy | National Marine Protected Areas Center | P.O. Box 6208 Key West, FL 33041 | lauren.wenzel@noaa.gov |

Date when making the proposal

: 08/29/12

List of annexed documents

| Name | Description | Category |
|---------------------------------|---|----------|
| Corals | Dry Tortugas Coral spp: http://www.car-spawrac.org/IMG/xls/DRY_TORTUGAS_CORALspp.xls | Others |
| Vertebrates and Vascular Plants | DRY_TORTUGAS_SpeciesList_VertebratesandVascularPlants : http://www.car-spawrac.org/IMG/xls/DRY_TORTUGAS_SpeciesList_VertebratesandVascularPlants.xls | Others |