**ATTACHMENT 1-14: Biological Information on Listed Species of Sea Turtles and Model Parameterization for Pesticide Effects Determinations**

1. **Introduction**

The purpose of this document is to summarize available information for currently listed, proposed and candidate Sea Turtles (primarily from the National Marine Fisheries Service and Fish and Wildlife Service). The focus of this effort is to capture information that may be used in ecological risk assessments of pesticides to make species-specific effects determinations. This report focuses on defining parameters which may be used to estimate pesticide exposures to listed sea turtles. This report also focuses on defining species characteristics that may be used to assess potential indirect effects to the species (*e.g.,* diet and habitat).

A formal quality assurance and quality control plan was implemented in the collection of species specific data. The instructions for extracting information for sea turtles are included in **SUPPLEMENTAL INFORMATION 1**. A template for the worksheet used to record relevant biological information for each species is provided in **SUPPLEMENTAL INFORMATION 2**. **SUPPLEMENTAL INFORMATION 3** contains the completed worksheets containing biological information on each listed species or DPS.

At this time, there are a total of 13 endangered and threatened (listed) species, subspecies or populations of sea turtles that are listed under the Endangered Species Act (ESA) and occur in the United States, its territories and its waters. These species will be considered in the national level risk assessments for chlorpyrifos, diazinon, and malathion (**Table A 1-14.1**). This assessment does not consider foreign species listed under the ESA, as they occur outside of the action area for pesticide registrations in the US. There are no proposed or candidate reptile species at this time.

**Table A 1-14.1. Number of listed sea turtles by status.**

|  |  |
| --- | --- |
| **Status** | **Number of listings** |
| Endangered | 7 |
| Threatened | 6 |
| Total | 13 |

1. **Species considered in National Level Effects Determinations**

The listed sea turtles include 5 genera, all of which fall within the Testudines order (tortoises and turtles). **Table A 1-14.2** lists the species that will be considered in these risk assessments. Nine of the species have designated critical habitats.

**Table A 1-14.2. Listed sea turtles.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Scientific Name*** | **Common Name** | **Listing Status\*** | **Critical Habitat?** | **FWS/NMFS Species ID (ENTITY\_ID)** |
| *Caretta caretta* | Loggerhead sea turtle (North Pacific Ocean DPS) | E | No | 9941 |
| *Caretta caretta* | Loggerhead sea turtle (Northwest Atlantic Ocean DPS) | T | Yes | 9707 |
| *Chelonia mydas* | Green sea turtle (Central North Pacific DPS) | T | Yes | 10485 |
| *Chelonia mydas* | Green sea turtle (Central South Pacific DPS) | E | Yes | 11175 |
| *Chelonia mydas* | Green sea turtle (Central West Pacific DPS) | E | Yes | 11176 |
| *Chelonia mydas* | Green sea turtle (East Pacific DPS) | T | Yes | 11191 |
| *Chelonia mydas* | Green sea turtle (North Atlantic DPS) | T | Yes | 11192 |
| *Chelonia mydas* | Green sea turtle (South Atlantic DPS) | T | Yes | 11193 |
| *Dermochelys coriacea* | Leatherback sea turtle | E | Yes | 154 |
| *Eretmochelys imbricata* | Hawksbill sea turtle | E | Yes | 153 |
| *Lepidochelys kempii* | Kemp's ridley sea turtle | E | No | 155 |
| *Lepidochelys olivacea* | Olive ridley sea turtle (Mexican nesting population) | E | No | 5989 |
| *Lepidochelys olivacea* | Olive ridley sea turtle | T | No | 160 |

\*E = endangered, T = threatened

1. **Diets**

All listed sea turtles eat invertebrates, including benthic species. In addition, the majority consume aquatic plants and fish (**Table A 1-14.3**).

 **Table A 1-14.3. Diets of listed sea turtles.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Scientific Name*** | **Common Name** | **Plants** | **Invertebrates** | **Fish** |
| *Caretta caretta* | Loggerhead sea turtle (North Pacific Ocean DPS) | Yes | Yes | Yes |
| *Caretta caretta* | Loggerhead sea turtle (Northwest Atlantic Ocean DPS) | Yes | Yes | Yes |
| *Chelonia mydas* | Green sea turtle (Central North Pacific DPS) | Yes | No | No |
| *Chelonia mydas* | Green sea turtle (Central South Pacific DPS) | Yes | No | No |
| *Chelonia mydas* | Green sea turtle (Central West Pacific DPS) | Yes | No | No |
| *Chelonia mydas* | Green sea turtle (East Pacific DPS) | Yes | No | No |
| *Chelonia mydas* | Green sea turtle (North Atlantic DPS) | Yes | No | No |
| *Chelonia mydas* | Green sea turtle (South Atlantic DPS) | Yes | No | No |
| *Dermochelys coriacea* | Leatherback sea turtle | No | Yes | No |
| *Eretmochelys imbricata* | Hawksbill sea turtle | Yes | Yes | No |
| *Lepidochelys kempii* | Kemp's ridley sea turtle | No | Yes | No |
| *Lepidochelys olivacea* | Olive ridley sea turtle (Mexican nesting population) | Yes | Yes | Yes |
| *Lepidochelys olivacea* | Olive ridley sea turtle | Yes | Yes | Yes |
| *Total* | 9 | 7 | 9 | 6 |

1. **Exposure models**

Since all of the listed sea turtles rely upon the oceans for their prey and habitat, the Kow (based) Aquatic BioAccumulation Model (KABAM) will be used to estimate dietary-based exposures. At this time, KABAM is designed to estimate concentrations in aquatic organisms and dose-based exposures to birds and mammals that consume prey from much smaller freshwater habitats (*i.e.,* ponds). Only the concentration-based values will be used to estimate exposures to sea turtles. Dose based values will not be used because of uncertainty in scaling from birds to reptiles and in scaling from birds with body weights (bobwhite quail = 178 g, mallard duck = 1580 g) that are several orders of magnitude lower than the body weights of adult sea turtles (25,000- 916,000 g).

Because of the difference in the model domain and the ocean habitat, there will be considerable uncertainty in estimating dietary exposures to sea turtles. For instance, KABAM assumes that the concentration of a chemical is at steady state and homogeneously distributed through the habitat. These assumptions are more reasonable at the smaller scale of pond and are unlikely at the scale of the ocean, especially given that chlorpyrifos, diazinon, and malathion are not particularly persistent in the environment.

Inhalation and dermal routes of pesticide exposure (due to spray drift) will be considered for the sea turtle adults, eggs and hatchlings when they are on land. These methods are described in the terrestrial exposure attachment.

1. **Habitat**

All of the sea turtles use the three marine habitats during the majority of their lives. They also utilize beaches to lay their eggs. The green sea turtle also utilizes freshwater streams and rivers. **ATTACHMENT 1-10** lists the bins and HUCs relevant to each listed sea turtle.

1. **Obligate Relationships**

When reviewing the life history information for listed sea turtles, there were no noted obligate relationships in available NMFS or USFWS documentation. Since there are no obvious obligate relationships related to diet or habitat, it will be assumed for risk assessment purposes that none of the listed sea turtles have obligate relationships with other species.

1. **Geographic Ranges of Listed Species**

Listed, proposed and candidate sea turtles occur in several different water bodies that include waters of the US. The waterbodies and relevant states where sea turtles occur are listed in **Tables A 1-14.5 and A 1-14.6**. Sea turtles occur on land as well.

**Table A 1-14.5. Waterbodies (that include waters of the US) where listed sea turtles occur.**

|  |  |
| --- | --- |
| **Water body** | **Number of species** |
| Bay of Fundy | 6 |
| Bering Sea | 1 |
| Caribbean Sea | 8 |
| Gulf of Alaska | 3 |
| Gulf of California | 8 |
| Gulf of Mexico | 9 |
| Gulf of St-Lawrence | 3 |
| North Atlantic Ocean | 9 |
| North Pacific Ocean | 8 |
| Philippine Sea | 8 |
| South Pacific Ocean | 8 |
| The Coastal Waters of Southeast Alaska and British Columbia | 5 |

**Table A 1-14.6. Number of sea turtles with ranges that overlap with waters of the specific states or sea turtles use shorelines of these states.**

|  |  |
| --- | --- |
| **State** | **Number of species** |
| California | 8 |
| Hawaii | 8 |
| United States Virgin Islands | 8 |
| Commonwealth of the Northern Mariana Islands | 8 |
| Guam | 8 |
| American Samoa | 8 |
| Puerto Rico | 8 |
| Florida | 7 |
| Maryland | 7 |
| Rhode Island | 7 |
| North Carolina | 7 |
| Connecticut | 7 |
| Delaware | 7 |
| New Jersey | 7 |
| Pennsylvania | 7 |
| Louisiana | 7 |
| Georgia | 7 |
| Alabama | 7 |
| Texas | 7 |
| South Carolina | 7 |
| New York | 7 |
| Mississippi | 7 |
| Massachusetts | 7 |
| Virginia | 7 |
| District of Columbia | 7 |
| New Hampshire | 6 |
| Maine | 6 |
| Oregon | 5 |
| Washington | 5 |
| Alaska | 3 |

1. **Strategy for grouping species**

In order to efficiently assess the risks of a pesticide to listed sea turtles, it is necessary to group them by their defining features that are relevant in the context of the risk assessment framework. There are two major factors that impact the risk of a pesticide to a species: exposure and effects. Two groups will be used for the sea turtles: 1) the green sea turtles and 2) all other sea turtles. The green sea turtles are separated from the other turtles because they have different bin assignments.

**SUPPLEMENTAL INFORMATION 1: Instructions for extracting biological information for listed sea turtles**

The purpose of this project is to compile biological information on federally listed endangered and threatened sea turtles. The following instructions should be followed when collecting information on a listed species.

**Instructions:**

Step 1. Copy the template (below) for the listed sea turtle species worksheet used to record biological information for individual species. Paste this into a new page at the end of this document. This worksheet will be used to record biological information for one of the listed reptile species listed in the table above.

Step 2. Go to the species profile for the species of interest.

Step 3. If available, acquire the most recent recovery plan available for the listed species of interest. Recovery plans can be located by clicking on the “recovery” quick link of the species profile for the species of interest. Save the pdf of the recovery plan.

Step 4. Extract information on body weight, habitat, diet and the other parameters listed in the attached sheet. When information is entered into the worksheet, note the source number in ( ). These data can generally be found in the life history portion of the recovery plan, so it is not necessary to review the entire recovery plan. When a data point is extracted, highlight the appropriate information in the PDF. When all data are extracted from the recovery plan, save the revised file. All information that appear in the species worksheet must have a source and must be highlighted in the original document. This is a critical component of the Quality Control (QC) for this project.

Step 5. If no body weight information is provided in the recovery plan, this value can be estimated using relationships between snout to vent length and body weights. In this approach, body weights for listed species should be predicted using regressions for the same genus (or family if genus is not possible). The mean of the weights estimated from these species regressions should be used. When a range of lengths is given, the corresponding range of weights should be calculated. The following sources have information that is useful for lizards and snakes:

Meiri, S. 2010. Length-weight allometries in lizards. Journal of Zoology, 281: 218-226.

Kaufman, G.A. and J.W. Gibbons. 1975. Weight-length relationships in thirteen species of snakes in the southeastern United States. Herpetologica, 31: 31-37.

Step 6. If data are not located in the recovery plan, other scientifically valid sources (*e.g.,* scientific literature, USFWS publications) may be used to acquire the necessary information. Please check with Kris Garber before extracting data from other sources.

Step 7. Enter “yes” in the second to last column for the species of interest when the worksheet for that species is complete. Save this file. Start back at step 1 with a new species.

Notes:

1. Many recovery plans include information on multiple listed species. If this is the case, data can be extracted at the same time for all of the species included in the recovery plan.
2. It is recommended that the data extractor do a search of the recovery plan for the term “obligate” to determine whether the listed species of interest has any obligate relationships with other species.
3. Kris Garber will complete the EFED model portion of the worksheet for all species.
4. For any questions, please see Kris Garber.

**SUPPLEMENTAL INFORMATION 2: Template for the listed reptile worksheet used to record biological information**

**Biological information on listed reptile species**

Species (common name):

Listed status: endangered threatened

Designated critical habitat? yes no

Map of range/occurrences in recovery plan? yes no

Population size (most current estimate):

Body weight (in g):

Locations known to occur:

Diet (enter as many as relevant):

insects small mammals fish

seeds birds aquatic invertebrates

grass reptiles aquatic plants

broadleaf plants terrestrial amphibians aquatic amphibians

Relevant EFED model(s): T-REX KABAM none

Habitat (enter as many as relevant):

 Forest

 Wetlands

 Fallow fields

 Agricultural areas

Elevation restriction:

Obligate relationships:

Comments:

Name of data extractor (date):

QC reviewer (date):

Sources:

Species specific recovery plan available on FWS website.

Other:

**SUPPLEMENTAL INFORMATION 3: Species (or Distinct Population Segment)-specific information for listed reptiles**

This Supplemental information contains a summary of the biological and geographical information available (primarily from the US Fish and Wildlife Services) for listed reptile species and Distinct Population Segments (DPS). These worksheets were completed by Elyssa Gelmann and QC review was completed by Kris Garber.

**Species (common name): *Caretta caretta* (Loggerhead Sea Turtle) Northwest Atlantic DPS**

Listed status: threatened (3, p 58950)

Designated critical habitat? Yes (5)

Primary Constituent Elements:

(1) Primary Constituent Element 1—Suitable nesting beach habitat that has (a) relatively unimpeded nearshore access from the ocean to the beach for nesting females and from the beach to the ocean for both post-nesting females and hatchlings and (b) is located above mean high water to avoid being inundated frequently by high tides.

(2) Primary Constituent Element 2—Sand that (a) allows for suitable nest construction, (b) is suitable for facilitating gas diffusion conducive to embryo development, and (c) is able to develop and maintain temperatures anda moisture content conducive to embryo development.

Show citation box

(3) Primary Constituent Element 3—Suitable nesting beach habitat with sufficient darkness to ensure nesting turtles are not deterred from emerging onto the beach and hatchlings and post-nesting females orient to the sea.

Map of range/occurrences in recovery plan? yes (1, p I-2, I-4)

Population size (most current estimate): 20 million (estimated using a population model), including 60,000 adults (3, p 58885)

Body weight (in g): mean in US 116,000 (1, p I-3)

Hatchlings: 20 (1, p I-3)

Locations known to occur:

US Atlantic: all coastal states, primarily FL, also LA, MS, AL, GA, SC, NC, VA, MD, DE, NJ, NY, CT, RI, MA, NH, ME; Puerto Rico, Virgin Islands (1, p I-4)

Nesting of this population occurs along the coasts of North America, Central America, northern South America, the Antilles, and The Bahamas, but is concentrated in the southeastern U.S. and on the Yucatan Peninsula in Mexico (3, p 58884)

This DPS includes loggerhead turtles in the Northwest Atlantic Ocean north of the equator, south of 60° N. Lat., and west of 40° W. Long. (3, p 58950, map on p 58879)

Federal lands or Indian reservations species is known to occur:

Tyndall Air Force Base (4)

Camp Lejeune Marine Corps Base (4)

Camp Lejeune Marine Corps Base – Open Water (4)

Cape Hatteras National Seashore (NPS) (4)

Cape Lookout National Seashore (NPS) (4)

Cumberland Island National Seashore (NPS) (4)

Cumberland Island National Seashore – Open Water (NPS) (4)

Cumberland Island Wilderness – Cumberland Island National Seashore (NPS) (4)

Marjory Stoneman Douglas Wilderness – Everglades State Park – Open Water (NPS) (4)

Gulf Islands National Seashore (NPS) (4)

Gulf Islands National Seashore – Open Water (NPS) (4)

Gulf Islands Wilderness – Gulf Islands National Seashore (NPS) (4)

Padre Island National Seashore (NPS) (4)

Padre Island National Seashore – Open Water (NPS) (4)

Canaveral National Seashore – Merritt Island National Wildlife Refuge – John F. Kennedy Space Center (NPS with FWS and NASA) (4)

Assateague Island National Seashore – Open Water (NPS) (4)Back Bay National Wildlife Refuge (FWS) (4)

Blackbeard Island National Wildlife Refuge (FWS) (4)

Blackbeard Island Wilderness – Blackbeard Island National Wildlife Refuge (FWS) (4)

Bon Secour National Wildlife Refuge (FWS) (4)

Breton National Wildlife Refuge – Open Water (FWS) (4)

Breton Wilderness – Breton National Wildlife Refuge (FWS) (4)

Cape Romain National Wildlife Refuge (FWS) (4)

Cape Romain National Wildlife Refuge – Open Water (FWS) (4)

Cape Romain Wilderness – Cape Romain National Wildlife Refuge (FWS) (4)

Chincoteague Island National Wildlife Refuge (FWS) (4)

Great White Heron National Wildlife Refuge – Open Water (FWS) (4)

Hobe Sound National Wildlife Refuge (FWS) (4)

Key West National Wildlife Refuge (FWS) (4)

Key West National Wildlife Refuge – Open Water (FWS) (4)

National Key Deer Refuge (FWS) (4)

Pea Island National Wildlife Refuge (FWS) (4)

Pea Island National Wildlife Refuge (FWS) – Open Water (4)

Saint Vincent National Wildlife Refuge (FWS) (4)

Wassaw National Wildlife Refuge (FWS) (4)

Wallops Island National Wildlife Refuge – Wallops Flight Center (FWS with NASA) (4)

Wolf Island Wilderness – Wolf Island National Wildlife Refuge (FWS) (4)

Dam Neck Naval Training Area (Navy) (4)

Dates of Breeding Period: in Atlantic, nesting April-Sept, hatching June-Nov (1, p I-18)

Diet: Primarily aquatic invertebrates (coelenterates, salps, pelagic snail, barnacles, mollusks, benthic crabs), but may also eat fish, and aquatic plants (1, p I-24, I-27)

Primarily carnivorous (1, p. I-24)

Relevant EFED model(s): KABAM

Habitat: Ocean, Beaches, nearshore Neritic zone (1, p I-20)

Habitat size (home range): Not specified but long migrations (1, p I-4)

Elevation restriction: None noted in available NMFS/USFWS documentation (1, 2)

Obligate relationships: None noted in available NMFS/USFWS documentation (1, 2). Reviewer believes that there are no obvious obligate relationships related to diet (species is opportunistic) or habitat.

Comments:

Critical habitat for the remaining DPSs will be determined in a future rulemaking (3, p 58868)

Since the habitat of this species includes oceans and beaches, it is assumed that it is limited to elevations that are near sea level.

Name of data extractor (date): Elyssa Gelmann, 2 March 2012

QC reviewer (date): Kris Garber (12/5/12)

Sources:

1. NMFS and USFWS. 2009. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle, Second Revision. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/090116.pdf
2. NMFS and USFWS. 2007. Loggerhead Sea Turtle 5-Year Review. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/five\_year\_review/doc1075.pdf
3. NMFS and USFWS. 2011. Endangered and Threatened Species; Determination of Nine Distinct Population Segments of Loggerhead Sea Turtles as Endangered or Threatened. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://www.gpo.gov/fdsys/pkg/FR-2011-09-22/pdf/2011-23960.pdf
4. FESTF. 2012. Coincidence of ESA-listed species with federal lands and proximity to outer boundary. FIFRA Endangered Species Task Force. Data submitted to EPA March 2012.
5. http://www.nmfs.noaa.gov/pr/species/turtles/criticalhabitat\_loggerhead.htm

**Species (common name): *Caretta caretta* (Loggerhead Sea Turtle) North Pacific DPS**

Listed status: endangered (3, p 58950)

Designated critical habitat? no (3, p 58868)

Primary Constituent Elements: Not applicable

Map of range/occurrences in recovery plan? yes (1, p 2-3)

Population size (most current estimate): 7,000-8,000 nests in 2009 (3, p 58883)

Body weight (in g): normal range 100,000-150,000 (1, p 4)

Hatchlings: mean 24.2 (1, p 5)

Locations known to occur:

US North Pacific: continental west coast (CA, OR, WA), Hawaii, Howland, Baker, Wake, Jarvis, Midway, Johnston Atoll, Palmyra Atoll, Kingman Reef, Guam, Northern Mariana Islands, Marshall Islands, Federated States of Micronesia, Palau (1, p 1)

This DPS includes loggerhead turtles in the North Pacific north of the equator and south of 60° N. Lat. (3, p 58950, map on p 58879)

Federal lands or Indian reservations species is known to occur: None (4)

Dates of Breeding Period: in Pacific, April-Aug (1, p 13)

Diet: benthic invertebrates (in hard bottom habitats), aquatic plants, fish (1, p 12)

Relevant EFED model(s): KABAM

Habitat: Ocean, Beaches, Neritic zone (1, p 11)

Habitat size (home range): Not specified but long migrations (1, p 1, 11)

Elevation restriction: None noted in available NMFS/USFWS documentation (1, 2)

Obligate relationships: None noted in available NMFS/USFWS documentation (1, 2). Reviewer believes that there are no obvious obligate relationships related to diet (species is opportunistic) or habitat.

Comments:

No nesting in the US Pacific population (1, p 5); Nesting is essentially restricted to Japan (3, p 58883)

Critical habitat will be determined in a future rulemaking (3, p 58868)

Since the habitat of this species includes oceans and beaches, it is assumed that it is limited to elevations that are near sea level.

Name of data extractor (date): Elyssa Gelmann, 2 March 2012

QC reviewer (date): Kris Garber (12/5/12)

Sources:

1. NMFS and USFWS. 1998. Recovery Plan for the U.S. Pacific Populations of the Loggerhead Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/981201b.pdf
2. NMFS and USFWS. 2007. Loggerhead Sea Turtle 5-Year Review. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/five\_year\_review/doc1075.pdf
3. NMFS and USFWS. 2011. Endangered and Threatened Species; Determination of Nine Distinct Population Segments of Loggerhead Sea Turtles as Endangered or Threatened. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://www.gpo.gov/fdsys/pkg/FR-2011-09-22/pdf/2011-23960.pdf
4. FESTF. 2012. Coincidence of ESA-listed species with federal lands and proximity to outer boundary. FIFRA Endangered Species Task Force. Data submitted to EPA March 2012.

**Species (common name): *Chelonia mydas* (Green Sea Turtle)**

Central North Pacific DPS, Central South Pacific DPS, Central West Pacific DPS, East Pacific DPS, North Atlantic DPS, and South Atlantic DPS

Listed status: endangered (1, p 1) (3, p vi)

Designated critical habitat? Yes

Primary Constituent Elements: No PCEs have been identified.

Map of range/occurrences in recovery plan? yes (3, p 2) (4, p 11)

Population size (most current estimate):

Florida: 5055 nests/yr 2001-2005 (4, p 13)

Mexico: 90 nests/yr in the Revillagigedos Islands 1999-2002 (4, p 14)

1,395 females/yr in Michoacan, 2000-2006 (4, p 14)

Body weight (in g): 65,000-150,000

Atlantic: 150,000 (average Female in FL is 136,100 g) (1, p 1)

East Pacific: smaller size; Females 65,000 to 125,000 (3, p 6)

Hatchling: 25 (1, p 1), range 22-31 (2, p 7)

Locations known to occur: circumglobal species in tropical and sub-tropical waters (1, p 1)

Florida and Pacific coast of Mexico (1, p 1)

Federal lands or Indian reservations species is known to occur (in FL):

Cape Canaveral Air Force Station (6)

Gulf Islands National Seashore (NPS) (6)

Canaveral National Seashore – Merritt Island National Wildlife Refuge – John F. Kennedy Space Center (NPS with FWS and NASA) (6)

Crystal River National Wildlife Refuge (FWS) (6)

Hobe Sound National Wildlife Refuge (FWS) (6)

Key West National Wildlife Refuge – Open Water (FWS) (6)

Dates of Breeding Period: warm months (2, p 18), season varies with location (3, p 11)

August-January on Pacific Coast of Mexico (3, p 11)

Diet:

Adults: aquatic plants (sea grasses and algae) (1, p 2) (2, p 16) (3, p 10)

Juveniles: aquatic invertebrates and fish eggs (2, p 16)

East Pacific: aquatic plants, aquatic invertebrates, fish (3, p 10)

Relevant EFED model(s): KABAM

Habitat: High energy oceanic beaches, Convergence zones in the pelagic habitat, and Benthic feeding grounds in relatively shallow, protected waters (1, p 2)

Habitat size (home range): Not specified; long migrations between nesting sites and foraging sites (2, p 14) but sea turtles always return to their natal beaches to reproduce (2, p 9)

Elevation restriction: None noted in available NMFS/USFWS documentation (1, 2, 3, 4)

Obligate relationships: None noted in available NMFS/USFWS documentation (1, 2, 3, 4). Reviewer believes that there are no obvious obligate relationships related to diet (species is opportunistic) or habitat.

Comments:

5-yr review does not recommend any change in listing classification but does recommend investigation into the determination of DPSs (4, p 66)

Mean of 100 egg/nest and 3 nests/female/season used for population estimates when detail is not available (4, p 11)

Since the habitat of this species includes oceans and beaches, it is assumed that it is limited to elevations that are near sea level.

Name of data extractor (date): Elyssa Gelmann, 24 February 2012

QC reviewer (date): Kris Garber (12/5/12)

Sources:

1. NMFS and USFWS. 1991. Recovery Plan for the Atlantic Green Sea Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/911126c.pdf
2. NMFS and USFWS. 1998. Recovery Plan for the Pacific Green Sea Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/981201e.pdf
3. NMFS and USFWS. 1998. Recovery Plan for the East Pacific Green Sea Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/981201f.pdf
4. NMFS and USFWS. 2007. Green Sea Turtle 5-Year Review. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/five\_year\_review/doc1078.pdf
5. NMFS and USFWS. 1998. Designated Critical Habitat; Green and Hawksbill Sea Turtles. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/federal\_register/fr3295.pdf.
6. FESTF. 2012. Coincidence of ESA-listed species with federal lands and proximity to outer boundary. FIFRA Endangered Species Task Force. Data submitted to EPA March 2012.

**Species (common name): *Chelonia mydas* (Green Sea Turtle)**

All except for breeding colony populations in FL and on Pacific coast of Mexico

Listed status: threatened (1, p 1)

Designated critical habitat? Yes (5)

Primary Constituent Elements: not defined in FR for designation of critical habitat (5)

Map of range/occurrences in recovery plan? yes (2, p 2-3) (4, p 11)

Population size (most current estimate): 108,761 – 150,521 nesting females (including ~3,000 in the endangered population), 2007 estimate (4, p 14, 1st line)

Body weight (in g): 97,000-181,000

Atlantic: 150,000 (average Female in FL is 136,100) (1, p 1)

Central Pacific: 100,000 (average Female 140,000, range 97,000-181,000) (2, p 7)

Hatchling: 25 (1, p 1), range 22-31 (2, p 7)

Locations known to occur: circumglobal species in tropical and sub-tropical waters (1, p 1)

US Atlantic waters: Virgin Islands, Puerto Rico, continental US coast of TX, LA, MS, AL, FL, GA, SC, NC, VA, MD, DE, NJ, NY, CT, RI, MA (1, p 1)

US East Pacific waters: continental US west coast of WA, OR, CA (2, p 1)

US Central Pacific waters: Hawaii, Howland, Baker, Wake, Jarvis, Midway, Johnston Atoll, Palmyra Atoll, Kingman Reef, Guam, Northern Mariana Islands, American Samoa, Marshall Islands, Federated States of Micronesia, Palau (2, p 1)

Federal lands or Indian reservations species is known to occur (not in FL):

Bon Secour National Wildlife Refuge (FWS) (6)

Cumberland Island National Seashore – Open Water (NPS) (6)

Kalaupapa National Historical Park (NPS) (6)

Kii National Wildlife Refuge (FWS) (6)

Pacific Missile Range Facility, Barking Sands (Navy) (6)

Gulf Islands National Seashore – Open Water (NPS) (6)

Gulf Islands Wilderness – Gulf Islands National Seashore (NPS) (6)

Military Ocean Terminal Sunny Point (Army) (6)

Camp Lejeune Marine Corps Base (6)

Camp Lejeune Marine Corps Base – Open Water (6)

Cape Hatteras National Seashore (NPS) (6)

Pea Island National Wildlife Refuge (FWS) (6)

Pea Island National Wildlife Refuge – Open Water (FWS) (6)

Dates of Breeding Period: warm months (2, p 18), season varies with location (3, p 11)

Diet:

Adults: aquatic plants (sea grasses and algae) (1, p 2) (2, p 16) (3, p 10)

Juveniles: aquatic invertebrates and fish eggs (2, p 16)

East Pacific: aquatic plants, aquatic invertebrates, fish (3, p 10)

Relevant EFED model(s): KABAM

Habitat: High energy oceanic beaches, Convergence zones in the pelagic habitat, and Benthic feeding grounds in relatively shallow, protected waters (1, p 2)

Habitat size (home range): Not specified; long migrations between nesting sites and foraging sites (2, p 14) but sea turtles always return to their natal beaches to reproduce (2, p 9)

Elevation restriction: None noted in available NMFS/USFWS documentation (1, 2, 3, 4)

Obligate relationships: None noted in available NMFS/USFWS documentation (1, 2, 3, 4). Reviewer believes that there are no obvious obligate relationships related to diet (species is opportunistic) or habitat.

Comments:

5-yr review does not recommend any change in listing classification but does recommend investigation into the determination of DPSs (4, p 66)

Mean of 100 egg/nest and 3 nests/female/season used for population estimates when detail is not available (4, p 11)

Since the habitat of this species includes oceans and beaches, it is assumed that it is limited to elevations that are near sea level.

Name of data extractor (date): Elyssa Gelmann, 24 February 2012

QC reviewer (date): Kris Garber (12/5/12)

Sources:

1. NMFS and USFWS. 1991. Recovery Plan for the Atlantic Green Sea Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/911126c.pdf
2. NMFS and USFWS. 1998. Recovery Plan for the Pacific Green Sea Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/981201e.pdf
3. NMFS and USFWS. 1998. Recovery Plan for the East Pacific Green Sea Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/981201f.pdf
4. NMFS and USFWS. 2007. Green Sea Turtle 5-Year Review. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/five\_year\_review/doc1078.pdf
5. NMFS and USFWS. 1998. Designated Critical Habitat; Green and Hawksbill Sea Turtles. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/federal\_register/fr3295.pdf.
6. FESTF. 2012. Coincidence of ESA-listed species with federal lands and proximity to outer boundary. FIFRA Endangered Species Task Force. Data submitted to EPA March 2012.

**Species (common name): *Dermochelys coriacea* (Leatherback Sea Turtle)**

Listed status: endangered (1, p iii)

Designated critical habitat? yes

Primary Constituent Elements: not defined in FR for designation of critical habitat (4, 5)

Map of range/occurrences in recovery plan? yes, Pacific only (2, p 2-3)

Population size (most current estimate): 34,000-94,000 adults, 2007 estimate (3, p 10, bottom of page)

Body weight (in g): 204,000-916,000 (1, p 1)

Hatchlings: mean 45.8 in Virgin Islands (1, p 1); 32.4-50, mean 41.2 in Mexico (2, p 15); 38.3-54.2, mean 46.86 in Australia (2, p 15)

Locations known to occur: circumglobal, approx. 40°N-35°S (1, p 2)

US Atlantic/Caribbean: Virgin Islands, Puerto Rico, Florida, Georgia, and up the entire east coast (GA, SC, NC, VA, MD, DE, NJ, NY, CT, RI, MA, ME) (1, p 2-5)

US Pacific: continental west coast (CA, OR, WA), Hawaii, Howland, Baker, Wake, Jarvis, Midway, Johnston Atoll, Palmyra Atoll, Kingman Reef, Guam, Northern Mariana Islands, American Samoa, Marshall Islands, Federated States of Micronesia, Palau (2, p 1)

Federal lands or Indian reservations species is known to occur:

Camp Lejeune Marine Corps Base (6)

Croatan National Forest (Forest Service) (6)

Cape Lookout National Seashore (NPS) (6)

Canaveral National Seashore – Merritt Island National Wildlife Refuge – John F. Kennedy Space Center (NPS) (6)

Canaveral National Seashore (NPS with FWS and NASA) (6)

Blackbeard Island National Wildlife Refuge (FWS) (6)

Blackbeard Island Wilderness – Blackbeard Island National Wildlife Refuge (FWS) (6)

Hanalei National Wildlife Refuge (FWS) (6)

Hobe Sound National Wildlife Refuge (FWS) (6)

Kealia Pond National Wildlife Refuge (FWS) (6)

Wassaw National Wildlife Refuge (FWS) (6)

Dates of Breeding Period: February – July in Atlantic/Gulf of Mexico/Caribbean (1, p 8)

Varies by location but no nesting in US Pacific territories (2, p vi, 15)

Diet: primarily jellyfish, other aquatic invertebrates, including siphonophores and salpae (1, p 6) (2, p 14)

Relevant EFED model(s): KABAM

Habitat: Ocean, high-energy beaches (1, p 6)

Habitat size (home range): Not specified. Species is highly migratory (1, p 6) and has been observed to travel 820 km in 3 weeks (1, p 9).

Elevation restriction: None noted in available NMFS/USFWS documentation (1, 2, 3)

Obligate relationships: None noted in available NMFS/USFWS documentation (1, 2, 3). Reviewer believes that there are no obvious obligate relationships related to diet (species is opportunistic) or habitat.

Comments:

Since the habitat of this species includes oceans and beaches, it is assumed that it is limited to elevations that are near sea level.

Name of data extractor (date): Elyssa Gelmann, 1 March 2012

QC reviewer (date): Kris Garber (4/10/12)

Sources:

1. NMFS and USFWS. 1992. Recovery Plan for the Leatherback Sea Turtle, Caribbean, Atlantic, and Gulf of Mexico Population. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/920406.pdf
2. NMFS and USFWS. 1998. Recovery Plan for the Leatherback Sea Turtle, Pacific Population. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/981201d.pdf
3. NMFS and USFWS. 2007. Leatherback Sea Turtle 5-Year Review. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/five\_year\_review/doc1076.pdf
4. NMFS and USFWS. 1979. Determination of Critical Habitat for the Leatherback Sea Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/federal\_register/fr271.pdf
5. NMFS and USFWS. 1978. Determination of Critical Habitat for the Leatherback Sea Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/federal\_register/fr246.pdf
6. FESTF. 2012. Coincidence of ESA-listed species with federal lands and proximity to outer boundary. FIFRA Endangered Species Task Force. Data submitted to EPA March 2012.

**Species (common name): *Eretmochelys imbricata* (Hawksbill Sea Turtle)**

Listed status: endangered (1, p iii)

Designated critical habitat? yes

Primary Constituent Elements: defined in FR for designation of critical habitat in Puerto Rico only (4, 5 p. 27297)

1. Presence of clean sand – The hawksbill sea turtle requires clean sand, free of pollutants such as oil, to have successful incubation of its eggs.

2. Obstructions – Tree roots, beach debris, steep banks, and offshore obstructions such as rocks or jetties may prohibit or hinder successful nesting. Beaches should be free from or have a minimum of such obstructions.

3. Depth of sand – There must be sufficient depth of sand to allow successful incubation and hatching without the eggs being drowned by sea water intrusion.

4. Lights on land – Areas behind and on the nesting beach should be free of lights. Lights may inhibit females from nesting and disorient hatchlings.

5. Beach disturbance – Beaches should receive a minimum of disturbance, especially after dark. Loud noise and even silhouettes may inhibit females from nesting. In addition, vehicles on a beach or even careless human walking may collapse nesting cavities.

Map of range/occurrences in recovery plan? yes (2, p 2-3) (3, p 12)

Population size (most current estimate): 2007 estimate 21,212-28,138 nesting population (3, p 20)

Body weight (in g):

Caribbean nesting females average: 80,000, max 127,000 (1, p 1-2)

Campbell Island nesting females average 51,550, range 38,500-68,000 (2, p 6)

Solomon Island nesting females average 66,400, range 41,800-77,300 (2, p 6)

Nestling weight range is 13.5-19.5 g (1, p 2)

Locations known to occur: Tropical and subtropical seas of the Atlantic, Pacific, and Indian oceans (1, p 2)

Atlantic: Puerto Rico, US Virgin Islands, continental US from the Gulf states along the eastern seaboard up to MA (rare north of FL) (1, p 2) – TX, LA, MS, AL, FL, GA, SC, NC,VA, MD, DE, NJ, NY, CT, RI, MA, Pacific: west coast of continental US – CA, OR WA, Hawaii, Howland, Baker, Wake, Jarvis, Midway, Johnston Atoll, Palmyra Atoll, Kingman Reef, Guam, Northern Mariana Islands, American Samoa, Marshall Islands, Federated States of Micronesia, Palau (2, p 1)

Federal lands or Indian reservations species is known to occur:

Kaloko-Honokohau National Historical Park (NPS) (6)

Hawaii Volcanoes National Park (NPS) (6)

Biscayne National Park – Open Water (NPS) (6)

Kealia Pond National Wildlife Refuge (FWS) (6)

Key West National Wildlife Refuge (FWS) (6)

Key West National Wildlife Refuge – Open Water (FWS) (6)

Hawaii Volcanoes Wilderness – Hawaii Volcanoes National Park (NPS) (6)

Dates of Breeding Period: Atlantic: 6-month nesting season, spring to October (1, p 5)

 Pacific: highly variable, year round in some locations (2, p 17)

Diet: sponges, aquatic plants (seaweed), fish eggs (1, p 4)

Relevant EFED model(s): KABAM

Habitat: Tropical ocean, Beaches – low and high energy, Coastal water, Coral reefs, Mangrove bays and estuaries (1, p 4)

Habitat size (home range): Long distance, complex migrations (1, p 6) (2, p 1)

Elevation restriction: None noted in available USFWS documentation (1, 2, 3).

Obligate relationships: None noted in available USFWS documentation (1, 2, 3). Reviewer believes that there are no obvious obligate relationships related to diet (species is opportunistic) or habitat.

Comments: 5-yr review does not recommend a change in listing status (3, p 62)

Sponges are the primary dietary item (1, p 4)

Since the habitat of this species includes oceans and beaches, it is assumed that it is limited to elevations that are near sea level.

Name of data extractor (date): Elyssa Gelmann, 24 February 2012

QC reviewer (date): Kris Garber (4/13/12)

Sources:

1. NMFS and USFWS. 1993. Recovery Plan for the Hawksbill Sea Turtle, Caribbean, Atlantic, and Gulf of Mexico. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/931110.pdf
2. NMFS and USFWS. 1998. Recovery Plan for the Hawksbill Sea Turtle, US Pacific. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/981201c.pdf
3. NMFS and USFWS. 2007. Hawksbill Sea Turtle 5-Year Review. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: <http://ecos.fws.gov/docs/five_year_review/doc1079.pdf>
4. NMFS and USFWS. 1998. Designated Critical Habitat; Green and Hawksbill Sea Turtles. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/federal\_register/fr3295.pdf
5. NMFS and USFWS. 1982. ETWP; Determination of Critical Habitat for Hawksbill Sea Turtle in Puerto Rico. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/federal\_register/fr599.pdf
6. FESTF. 2012. Coincidence of ESA-listed species with federal lands and proximity to outer boundary. FIFRA Endangered Species Task Force. Data submitted to EPA March 2012.

**Species (common name): *Lepidochelys kempii* (Kemp's Ridley Sea Turtle)**

Listed status: endangered (1, p I-1)

Designated critical habitat? no

Primary Constituent Elements: Not applicable

Map of range/occurrences in recovery plan? yes (1, p I-5)

Population size (most current estimate): 8,000 nesting females at 1 of 3 primary nesting beaches in 2009 (1, p vii, viii)

Body weight (in g): Adults 32,000-49,000 (1, p I-4)

Hatchling: 15-20 (1, p I-4)

Locations known to occur: Nesting primarily in TX and Mexico, also in FL, AL, SC, NC (1, p I-4 to I-5); Foraging areas along the eastern US from FL to New England (GA, SC, NC, VA, MD, DE, NJ, NY, CT, RI, MA, ME) (1, p I-14)

Federal lands or Indian reservations species is known to occur:

DeSoto National Forest (Forest Service) (3)

Cumberland Island National Seashore (NPS) (3)

Cumberland Island National Seashore – Open Water (NPS) (3)

Gulf Islands National Seashore (NPS) (3)

Gulf Islands National Seashore – Open Water (NPS) (3)

Gulf Islands Wilderness – Gulf Islands National Seashore (NPS) (3)

Padre Island National Seashore (NPS) (3)

Padre Island National Seashore – Open Water (NPS) (3)

Grand Bay National Wildlife Refuge (FWS) (3)

Laguna Atascosa National Wildlife Refuge (FWS) (3)

Mississippi Sandhill Crane National Wildlife Refuge (FWS) (3)

Wassaw National Wildlife Refuge (FWS) (3)

Dates of Breeding Period: April to July (1, p I-10)

Diet: primarily crabs; includes crustaceans, mollusks, sea horses, tunicates (1, p I-13, I-63)

Relevant EFED model(s): KABAM

Habitat: Beach, neritic zone (bays/sounds/estuaries), open ocean (1, p I-9)

Habitat size (home range): Not specified, long migrations (1, p I-14)

Elevation restriction: None noted in available USFWS documentation (1)

Obligate relationships: None noted in available USFWS documentation (1). Reviewer believes that there are no obvious obligate relationships related to diet (species is opportunistic) or habitat.

Comments:

Straight carapace length 60-65 cm (1, p I-4)

Population estimate of 8,000 females is for one nesting beach only and therefore an underestimate of the total population (1, p vii)

Critical habitat in FL was proposed in 1978 but no final rule was issued (2)

Since the habitat of this species includes oceans and beaches, it is assumed that it is limited to elevations that are near sea level.

Name of data extractor (date): 29 February 2012

QC reviewer (date): Kris Garber (4/13/12)

Sources:

1. NMFS and USFWS. 2010. Recovery Plan for the Kemp’s Ridley Sea Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/100316.pdf
2. NMFS and USFWS. 1978. Proposed Determination of Critical Habitat for Kemp’s Ridley and Loggerhead Sea Turtles. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/federal\_register/fr252.pdf
3. FESTF. 2012. Coincidence of ESA-listed species with federal lands and proximity to outer boundary. FIFRA Endangered Species Task Force. Data submitted to EPA March 2012.

**Species (common name): *Lepidochelys olivacea* (Olive Ridley Sea Turtle)**

Listed status: threatened (1, p vi)

Designated critical habitat? no

Primary Constituent Elements: Not applicable

Map of range/occurrences in recovery plan? yes (1, p 2-3)

Population size (most current estimate): 1,390,000 estimated based on 1992-2006 surveys - most abundant sea turtle in the world (2, p 7, sec A.2.3.1.2)

Body weight (in g): Adults 25,000-46,000 (1, p 6)

Males average 33,000 (1, p 6)

Females average 35,450 (1, p 5)

Hatchlings: 12-22.3 (1, p 6)

Locations known to occur: Worldwide in tropical and warm temperate ocean waters (1, p 8)

US Pacific: continental west coast (CA, OR, WA), Hawaii, Howland, Baker, Wake, Jarvis, Midway, Johnston Atoll, Palmyra Atoll, Kingman Reef, Guam, Northern Mariana Islands, American Samoa, Marshall Islands, Federated States of Micronesia, Palau (1, p 1)

Federal lands or Indian reservations species is known to occur: None (3)

Dates of Breeding Period: throughout the year, peak from Sept-Dec (1, p 11)

Diet: aquatic invertebrates, aquatic plants, fish (1, p 10)

Relevant EFED model(s): KABAM

Habitat: Ocean, Neritic zone (1, p 8), Beaches (1, p vi)

Habitat size (home range): Not specified, highly migratory (1, p 1)

Elevation restriction: None noted in available USFWS documentation (1, 2).

Obligate relationships: None noted in available USFWS documentation (1, 2). Reviewer believes that there are no obvious obligate relationships related to diet (species is opportunistic) or habitat.

Comments:

No nesting in the US or US territories (1, p 6)

Population that nests in Mexico is listed as endangered (1, p vi).

Benthic prey include: fish, crabs, oysters, sea urchins, snails, sessile tunicates, shrimp and algae (1 p 10)

Pelagic prey include: jellyfish medusa, salps, red crabs (*Pleuroncodes planipes*) (1, p 10)

Since the habitat of this species includes oceans and beaches, it is assumed that it is limited to elevations that are near sea level.

Name of data extractor (date): Elyssa Gelmann, 2 March 2012

QC reviewer (date): Kris Garber (4/13/12)

Sources:

1. NMFS and USFWS. 1998. Recovery Plan for the Olive Ridley Sea Turtle. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/recovery\_plan/981201a.pdf
2. NMFS and USFWS. 2007. Olive Ridley Sea Turtle 5-Year Review. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. Available online at: http://ecos.fws.gov/docs/five\_year\_review/doc1077.pdf
3. FESTF. 2012. Coincidence of ESA-listed species with federal lands and proximity to outer boundary. FIFRA Endangered Species Task Force. Data submitted to EPA March 2012.