

**NOAA**  
**FISHERIES**

Pacific Islands  
Regional Office

Protected  
Resources Division

# Information Needs for the Conservation & Management of Protected Resources

## SEA TURTLES

PIFSC Protected Species Program Review

Honolulu, HI

July 2015

## Sea Turtles

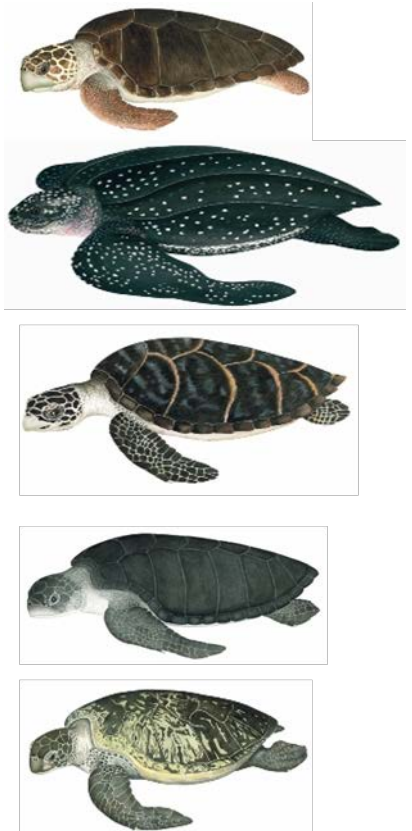
# Overview

- Identify sea turtle management drivers & top 10 management priorities
- Identify the science (information) needed to support management
  - Priority emerging issues or unfunded needs

## Sea Turtles

# Science Needs & Management Drivers

- Sec. 4 – Listing and updates; critical habitat, recovery planning and implementation; bycatch reduction
- Sec. 7 – Mandate for federal agencies to avoid/minimize increasing risk of extinction
- Typical information needs:
  - Biology – reproduction, health, disease, behaviors, genetics
    - Population status – abundance, trends, viability
  - Ecology – optimal habitat requirements, predators, symbionts, competitors
  - Stressor identification & risk estimation
    - Aggregation risks, weight of evidence
  - Threat abatement
    - Estimating consequences & adaptive management
  - Uncertainty characterization & communication
  - Bycatch reduction



## Sea Turtles

# Top Ten Management Priorities

1. Map and understand hotspots of turtle/fishery interactions pertaining to increased interactions in Hawaii-based and American Samoa longline fisheries (e.g., leatherbacks).
2. Understand and address factors limiting recovery in Hawaii and the territories to prioritize conservation efforts (green and hawksbill sea turtles)
3. Understand status, condition, dynamics, and future trends of population life stages.
4. Understand the environmental conditions in foraging habitats. Understand hatchling, juvenile and adult survival and recovery management needs.
5. Support Endangered Species Act listing, critical habitat designations
6. Understand climate change issues as they may relate to sea turtle recovery needs or management obligations.
7. Continue to provide technical support for turtle research programs in Hawaii, CNMI, Guam, Am. Samoa, and PRIAs, including capacity building.
8. Understand stressor effects on exposed individual animals and populations, assist with risk characterization.
9. Maintain or establish monitoring of key index nesting sites for western Pacific leatherbacks & green sea turtles in territories, continue to quantify (environmental/anthropogenic) factors impacting nesting success and hatchling production.
10. Better understanding of connectivity between foraging populations of the North Pacific loggerhead turtle DPS and those foraging along Baja California.

## Sea Turtles

**Map and understand hotspots of turtle/fishery interactions pertaining to increased interactions in Hawaii and American Samoa longline fisheries (e.g., leatherbacks).**

### Management Concern

- All species listed under the Endangered Species Act, interactions can potentially negatively impact recovery efforts and complicate section 7 consultations.

### Information Needs

- Fisheries currently observed (varying % depending on fishery).
- Need for oceanographic and foraging ecology research. Need for investigation of migratory habits and ocean use as they relate to fisheries.
- Pacific leatherbacks are a "species in the spotlight".



## Sea Turtles

# Understand and address factors limiting recovery in Hawaii and territories to prioritize conservation efforts (green & hawksbill sea turtles)

### Management Concern

- Need to prioritize recovery efforts in PIR to optimize use of limited resources
- Identify areas and threats of highest concern

### Information Needs

- Recovery plan updates and refinement; revisit regional implementation plan
- Continue support for stranding, evaluate efficiency of stranding response program
- Conduct spatial analysis of stranding data and necropsy data to help focus management efforts.
- Proposed listing of three green sea turtle DPSs, two as endangered in territories, one (Hawaii) as threatened



## Sea Turtles

# Understand status, condition, dynamics, and future trends of population life stages.

### Management Concern

- Insufficient marine data and information on life stages other than nesting females.

### Information Needs

- Green sea turtle nesting monitored in the NWHI. Some marine research has been conducted.
- Additional need for identification of key (e.g., index) marine sites (e.g., foraging, resting, migratory), and monitoring of them, including threats assessment. HI and Territories (greens and hawksbills), and internationally (e.g., leatherbacks & loggerheads).
- Need for confirmation of identification of key nesting index sites (other than FFS).

## Sea Turtles

# Understand the environmental conditions in foraging habitats. Understand hatchling, juvenile and adult survival and recovery management needs.

### Management Concern

- Incomplete understanding of environmental conditions in foraging habitats may negatively influence recovery prioritization and management needs.

### Information Needs

- Some foraging research has been conducted.
- Additional research needed on degradation, contamination, invasive algae, resource availability.
- Undertake research to identify and assess the impact of commercial, artisanal or recreational fishery bycatch and incidental mortality (in domestic and international fisheries) and assist to build institutional-capacity for technology transfer/uptake.
- Seek bycatch reduction solutions.



## Sea Turtles

# ESA and critical habitat support.

### Management Concern

- Agency regularly reviews species status and is currently reviewing applicability of DPS policy.
- Green sea turtle proposed rule recently issued, other status reviews may follow.
- Green sea turtle critical habitat being considered, similar analysis may be needed for other species at some point.

### Information Needs

- PIFSC helped with loggerhead and green sea turtle status reviews.
- PIFSC helped with loggerhead and is helping with green sea turtle critical habitat information needs.
- PIFSC assistance may be needed for additional status reviews.
- Additional PIFSC assistance will be needed for green sea turtle critical habitat and possibly for critical habitat analysis for other species.

## Sea Turtles

# Understanding climate change issues as they may relate to sea turtle recovery needs or management obligations.

### Management Concern

- The agency faces challenges interpreting and applying climate change threats to sea turtle recovery and management.

### Information Needs

- Some research and modeling has been conducted.
- Needs for monitoring and assessing climate change as it relates to sea turtles to assist in development of management strategies, as well as application to ESA section 7 analyses.

## Sea Turtles

Continue to provide technical support to PIR supported turtle research programs in Hawaii, CNMI, Guam, Am. Samoa, and PRIAs including capacity building.

### Management Concern

- Need for strong collaboration between PIRO and PIFSC sea turtle programs to support projects and build research capacity in region.

### Information Needs

- Collaboration and teamwork currently exists.
- Need for further collaboration and “one NOAA” efforts between PIRO and PIFSC with our constituent partners.
- Need to assist PIRO funded projects in optimizing research efforts (e.g., fine tuning research designs).
- Need to work together to prioritize research and optimize research results and use of limited funds.

## Sea Turtles

Understanding of effects of various proposed constituent actions or other anthropogenic activities on individual animals and populations.

### Management Concern

- Need to determine effects of a variety of activities at the individual, population, and species level.
- Understanding of location and densities of sea turtle species (inwater) to better advise constituents and analyze effects during section 7 consultations.
- Anthropogenic runoff and contamination can negatively impact the health of both animals and their habitat.

### Information Needs

- Better understanding or analysis of effects of runoff and contamination on sea turtles and their habitats in our region.
- ESA section 7 individual and population effects analysis assistance.
- Acoustic modeling for nearshore propagation and attenuation for typical project related noises and military.
- Quick reference tech-memos to provide density estimates for sea turtles in our 3 main archipelagos.

## Sea Turtles

Maintain or establish monitoring of key index nesting sites for western Pacific leatherbacks, continue to quantify (environmental/anthropogenic) factors impacting nesting success and hatchling production.

### Management Concern

- Pacific leatherbacks are a priority species.
- Need to address information gaps and threats.

### Information Needs

- Coordinate with the SWFSC to bolster locally-based capacity for monitoring/research.
- Environmental/anthropogenic factors completely assessed?

## Sea Turtles

Better understanding of connectivity between foraging populations of the North Pacific loggerhead turtle DPS and those specifically foraging along Baja California.

### Management Concern

- DPS is listed as endangered.
- PIR fisheries interact with DPS.

### Information Needs

- Determine proportion of DPS occurring in Baja and route/mechanism of connectivity to rest of DPS.

# Sea Turtles

## Species Research and Recovery

### Management Desire

- Increase PIRO-PIFSC communication and coordination
  - Develop collaborative annual work plans to optimize program efficiency and recovery potential of sea turtles
  - Evaluate optimal strategies for resource allocation





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# Questions?

