

NOAA/NMFS National Recovery Program Review

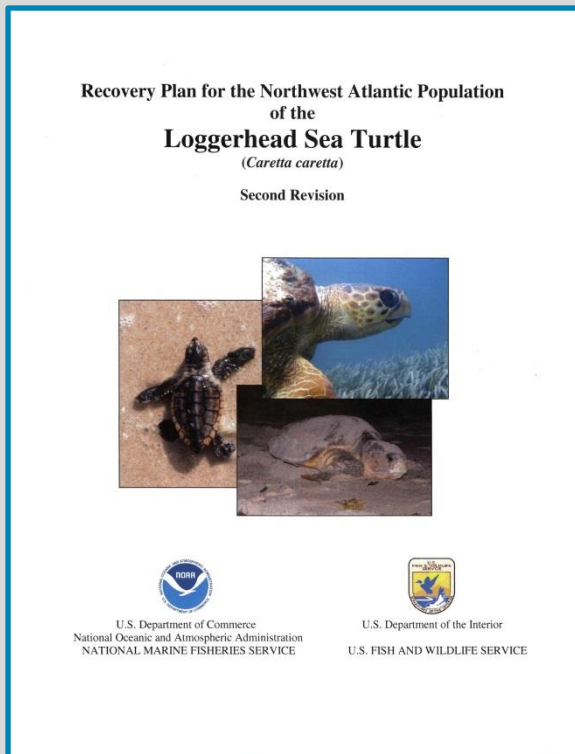
Question #3:
How effective are the final recovery plans?

Case Study #3:
Northwest Atlantic Loggerhead Sea Turtle

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Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*)



PLAN STATUS: Final, December 2008 (second revision, 1991; original multi-species plan, 1984)

HOW WAS THE PLAN DEVELOPED: Recovery Team (2 federal, 2 state, 3 academic members); Joint Plan with U.S. Fish and Wildlife Service

GEOGRAPHIC SCOPE OF PLAN: Focused on U.S. nesting beaches and U.S. waters; includes high seas where U.S. fisheries operate; identified 5 Recovery Units, including one outside of U.S. jurisdiction (plan completed before loggerhead global listing change)

SPECIES LISTING STATUS: Threatened

CURRENT STATUS: Stable

RECOVERY CRITERIA

DEMOGRAPHIC RECOVERY CRITERIA:

Number of Nests and Number of Nesting Females

Northern Recovery Unit:

There is statistical confidence (95%) that the annual rate of increase over a generation time of 50 years is 2% or greater resulting in a total annual number of nests of 14,000 or greater for this recovery unit (approximate distribution of nests is NC=14% [2,000], SC=66% [9,200], and GA=20% [2,800]).

This increase in number of nests must be a result of corresponding increases in number of nesting females (estimated from nests, clutch frequency, and remigration interval).

Are there recovery criteria?

Yes, both Demographic Criteria and Listing Factor Criteria

- Demographic Criteria cover multiple life stages, terrestrial and marine:
 - Trends in numbers of nests and nesting females (by Recovery Unit)
 - Trends in abundance on foraging grounds
 - Trends in strandings
- Listing Factor Criteria cover terrestrial and marine habitats and multiple life stages

RECOVERY CRITERIA

DEMOGRAPHIC RECOVERY CRITERIA:

Number of Nests and Number of Nesting Females Northern Recovery Unit

- *There is statistical confidence (95%) that the annual rate of increase over a generation time of 50 years is 2% or greater resulting in a total annual number of nests of 14,000 or greater for this recovery unit (approximate distribution of nests is NC=14% [2,000], SC=66% [9,200], and GA=20% [2,800]).*
- *This increase in number of nests must be a result of corresponding increases in number of nesting females (estimated from nests, clutch frequency, and remigration interval).*

Are the recovery criteria objective, measurable, and appropriate based on the species' biological needs and threats?

- Demographic criteria (nesting) are based on achievable rates of increase, and measured over a generation (~50 years)
- Demographic criteria (in-water) are contingent on appropriate and sufficient sampling regimes that do not yet exist
- Demographic criteria (strandings) rely on existing monitoring but are linked to in-water sampling
- Some listing factor criteria related to threat reduction are contingent on "to be developed" strategies

RECOVERY CRITERIA

LISTING FACTOR RECOVERY CRITERIA:

Disease/Predation

- *Ecologically sound predator control programs are implemented to ensure that rate of mammalian predation on nests is 10% or below w/in each recovery unit based on standardized surveys*

Other Natural or Manmade Factors Affecting Its Continued Existence

- *A peer-reviewed strategy is developed and fully implemented in cooperation with relevant nations to minimize fishery interactions and mortality of loggerheads in foreign EEZs and on the high seas.*
- *A peer-reviewed strategy is developed and fully implemented to quantify, monitor, and minimize effects of trophic changes on loggerheads (e.g., diet, growth rate, fecundity) from fishery harvests and habitat alterations.*

Are the recovery criteria objective, measurable, and appropriate based on the species' biological needs and threats?

- Listing factor recovery criteria are organized under each of the five listing factors (habitat, overuse, disease/predation, inadequate regulatory mechanisms, 'other')
- Some listing factor recovery criteria related to threat reduction are contingent on "to be developed" strategies or models, primarily under listing factor 5 (other natural or manmade factors)
- Listing factor recovery criteria are overall less specific than the demographic criteria.

SITE-SPECIFIC RECOVERY ACTIONS

Provide examples of site-specific management actions necessary for recovery and what information allowed for the level of site specificity in the plan. If no site-specific actions, why?

- The Plan identifies 208 actions needed to achieve recovery, 34 actions are identified as Priority 1 actions.
- These 208 actions are aimed at addressing 13 identified Recovery Objectives.
- Most actions are 'site specific' at the level of terrestrial vs in-water; most are not geographic specific.
- Most actions are 'specific' to a particular threat (e.g., bycatch in a particular fishery, reduce egg predation)
- Few actions are geographic specific, as most actions are needed range-wide, but some tiered priorities could be added
- Geographic specific actions are aimed primarily at land acquisition; some are related to reduction in fishery bycatch

SITE-SPECIFIC RECOVERY ACTIONS

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Terrestrial Recovery Actions:

- **Acquire additional beachfront and upland properties on Hutchinson Island, FL and develop a plan to ensure long-term protection.** *Nesting density and distribution data, along with knowledge of undeveloped properties allowed for site specificity in this particular case. For this and other Recovery Units, priority land acquisition "targets" have been identified in the years following Recovery Plan completion.*
- **Prohibit recreational equipment on nesting beaches at night.** *Not locally site specific, but applies to the full nesting range. Current approach is focused primarily at the local level and working on highest priority areas (this is a changing landscape)*
- **Prohibit nighttime driving on beaches during loggerhead nesting season.** *Beaches allowing nighttime driving are known, but not specifically listed in Plan; efforts focused at the local level.*

SITE-SPECIFIC RECOVERY ACTIONS

Provide examples of site-specific management actions necessary for recovery and what information allowed for the level of site specificity in the plan. If no site-specific actions, why?

In-water Recovery Actions:

- **Promulgate regulations to require TEDs in all trynets in the domestic commercial shrimp fishery.** *Site-specificity is implied where the shrimp fishery operates.*
- **Implement seasonal large-opening TED regulations for domestic commercial non-shrimp trawl fisheries operating from Cape Hatteras, NC to Cape Cod, MA.** *Knowledge of fishery distribution and gear types allows for site-specificity.*
- **Assess and minimize effects of commercial harvest of loggerhead prey species.** *Not site specific, not fishery specific – current knowledge sparse, but issue is of concern.*

SITE-SPECIFIC RECOVERY ACTIONS

Do the site-specific management actions address the recovery criteria? Why or why not?

- Yes, all of the management (recovery) actions address the recovery criteria either through providing information to measure progress (e.g., nesting trends, stranding trends) or developing and implementing strategies/approaches to reduce critical threats (e.g., fishery bycatch)
- Recovery actions include management activities (e.g., implement and enforce lighting ordinances on all lands under state and federal jurisdiction, promulgate regulations to require TEDs in domestic commercial flynet trawl fisheries)
- Recovery actions also include monitoring and research activities (e.g., continue to monitor trends in nesting and non-nesting emergences on index beaches; develop sampling protocols to estimate indices of abundance and determine trends at in-water index sites; determine age-specific survival rates)

RECOVERY PLAN EFFECTIVENESS

Describe how effective the plan format is (e.g., succinct, can the public quickly find the salient points and know what actions are needed to be taken and by whom).

- The Plan is 325 pages from cover to cover.
- Followed the most recent recovery planning guidance.
- Executive Summary (7 pages) provides a succinct, complete summary of recovery units, current status, key threats, recovery objectives, recovery criteria, and key recovery actions needed.
- The Plan contains a detailed Threats Assessment which assisted in prioritizing recovery actions and graphically shows the key threats at each life stage, allowing a clear contextual understanding of the relative importance of various threats.

RECOVERY PLAN EFFECTIVENESS

Is the recovery plan relied upon in implementing a recovery program? Why or why not?

- Many of the priority recovery actions comprise the 'day to day' work of OPR and NMFS Regional Offices, and to a lesser extent, Science Centers.
- Current staffing and current budgets does not leave much room for picking up recovery actions that are not currently being addressed/implemented.
- The Plan has been in place for 7 years; formally re-convening the Recovery Team could be helpful to review implementation status and to review recovery action priorities which could help to re-focus efforts, if necessary.

RECOVERY PLAN CURRENT?

➤ Is the plan up-to-date with the best available science? Why or why not?

- The population status and trends section is out of date since the plan was written. This section could be updated.
- New genetic analyses have been conducted at the nesting assemblage level, this information should be considered relative to defined Recovery Units and whether or not changes are necessary and conservation relevant.
- There is new information on certain in-water trends in abundance and this section could be updated.
- There is limited new information on life history parameters – this section could be updated but likely not significant in terms of recovery actions and planning.
- Bycatch levels and fisheries of importance should be re-evaluated to ensure recovery actions are focused appropriately.

SUMMARY, SUCCESSES AND CHALLENGES

CHALLENGES

- Species is widely distributed with multiple life stages across vast habitats.
- Shared species among nations and across entire oceans.
- Critical and significant portions of the species life are outside of U.S. jurisdiction.
- Jurisdiction shared with USFWS, presents challenges and opportunities.
- Threats are widespread across nesting and in-water habitat, from shallow bays/lagoons to open ocean.
- Solutions for many threats are currently (maybe permanently) non-existent or politically unlikely.
- Funding is limited and recovery costs are high.
- Staffing is limited and recovery actions/needs/urgent matters across all sea turtle species are overwhelming.

SUMMARY, SUCCESSES AND CHALLENGES

SUMMARY AND SUCCESSES

- NW Atlantic Loggerhead Recovery Plan is comprehensive and detailed
- Threats assessment is exhaustive and was focus of a stakeholder meeting
- Conservation status has improved since listing
- Some recovery actions have been completed, many are underway; others need attention
- More explicit detail of some recovery actions could help focus efforts



Table A2-1. Results of threats analyses for threat category FISHERIES BYCATCH.

LIFE STAGE	ECOSYSTEM	TRAWL (BOTTOM)	TRAWL (TOP/ MID- WATER)	DREDGE FISHERIES	LOGLINE (PELAGIC)	LOGLINE (DEMER-SAL)	GILLNET (DEMER-SAL, LG. MESH)	GILLNET (DEMER-SAL, SM. MESH)	GILLNET (DRIFT)	POUND NETS AND WEIRS	POT/TRAP FISHERIES	HAUL SEINES	CHANNEL NET	PURSE SEINE	HOOK & LINE (RECREA-TIONAL)	HOOK & LINE (COMM-ERCIAL)	SUM	RRV	TOTAL ESTIMATED ADJUSTED ANNUAL MORTALITY (# OF ADULT FEMALES)
Nesting female	Terrestrial Zone																0	1.000	0
Egg	Terrestrial Zone																0	0.004	0
Hatchling stage	Terrestrial Zone																0	0.004	0
Swim frenzy, transitional stage	Neritic Zone		1														1	0.004	0
Juvenile stage	Oceanic Zone				30,000	1			1								30,002	0.029	870
Adult stage	Oceanic Zone				1				1								2	0.789	2
Juvenile stage	Neritic Zone	30,000	1	300	1	3,000	3,000	300	30	30	30	1	1	1	30	30	36,755	0.235	8637
Adult stage	Neritic Zone	3,000	1	30	1	300	300	30	3	3	30	1	1	1	3	3	3,707	0.789	2925
TOTAL ESTIMATED ADJUSTED ANNUAL MORTALITY (# OF ADULT FEMALES)		9417	1	94	872	942	942	94	10	9	31	1	1	1	9	9			

THREATS ANALYSIS

KEY		
Estimated Annual Mortality	Color Code	Value
No evidence of mortality, based on best available information		
Sub-lethal effects occur at this stage and may result in reduced fitness (e.g., reduced somatic growth rates, reduced hatchling production, reduced prey abundance, reduced quality of nesting and/or foraging habitats)		
> 0 Mortality has been documented or is likely to occur; however, data are insufficient to estimate mortality		1
1-10		3
11-100		30
101-1000		300
1001-10,000		3,000
10,001-100,000		30,000
100,001-1,000,000		300,000