



Species Recovery Grants: FY25 Southeast Region Priorities

RAYS, SHARKS, AND FISH

Smalltooth sawfish (*Pristis pectinata*)

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- Continue monitoring the population of juvenile smalltooth sawfish through in-water surveys within the core area (Charlotte Harbor, Ten Thousand Islands and Everglades)
- Expand in-water surveys for large juvenile/adult smalltooth sawfish and use acoustic tagging/telemetry to learn more about the ecology of these larger individuals, especially the areas/habitats they use for feeding, mating, and parturition.
- Use contemporary genetic techniques (e.g., close-kin mark recapture) and survey data to develop a population estimate of smalltooth sawfish in Florida.
- Expand in-water surveys to areas outside of the core area where smalltooth sawfish were historically distributed (e.g., Tampa Bay, Indian River Lagoon, etc.)
- Develop and maintain regional acoustic receiver networks.
- Reduce bycatch mortality in state and federal fisheries.
- Increase enforcement of Endangered Species Act (ESA) violations specifically as it relates to lethal takes of sawfish and poor reporting from federal fisheries.
- Continue outreach efforts to inform boaters, divers, and anglers about the species, safe viewing guidance, safe handling and release guidance, and reporting information.

Giant manta ray (*Mobula birostris*)

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- Evaluate post release mortality in Southeast fisheries (e.g., shrimp and pelagic longline) using pop-off satellite tags, blood chemistry analyses, and acoustic tags and receivers.
- Evaluate bycatch and investigate best methods for safe release of giant manta rays caught in Southeast fisheries (e.g., shrimp and pelagic longline). Research should focus on assessing bycatch risks, mitigation efforts, and impacts on the population. Research should inform future management strategies to reduce fishery interactions and associated mortality.
- Investigate effective observer methods to collect information about interactions of giant manta rays in the Gulf of Mexico menhaden purse seine fishery and identify opportunities to avoid and reduce interactions, if necessary. The time and location of the fishery overlaps with the high occurrence of giant manta rays, resulting in the potential

for interactions. However, there is currently no effective observer methodology to determine the nature of and extent of interactions.

- Conduct age, maturity, and fecundity research that focuses on improving understanding of age, size at maturity, and reproductive status. Research can focus on external physiological markers, steroid levels, photogrammetry, ultrasonography, and endocrinology.
- Identify breeding, aggregation sites, and nursery grounds; evaluate physical and environmental features driving site fidelity and/or repeated use.
- Expand in-water tagging and surveys to increase understanding of distribution, abundance, and trends.
- Evaluate movement patterns and site fidelity in the context of likelihood and duration of exposure to anthropogenic stressors.
- Investigate lesser known threats (e.g., foul hooking, vessel strikes, entanglement, climate change, pollution) to determine their frequency and severity (e.g., photographic mark-recapture, necropsy, plastic bioaccumulation) and possible mitigation measures.
- Investigate environmental and prey patterns (e.g., prey species, composition, biomass, size spectra) that can aid predicting spatiotemporal distribution and movement.
- Conduct genetic studies to increase our understanding of taxonomy and population structure.

Scalloped hammerhead shark (*Sphyrna lewini*) - Central and Southwest Atlantic Distinct Population Segment

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- Conduct genetic and tagging research to understand the mixing of listed and non-listed Distinct Population Segments (particularly in Southeast Florida along the geographic boundary).
- Evaluate nursery use and pupping grounds within the listed Distinct Population Segment.
- Monitor the breeding population within the listed Distinct Population Segment.
- Monitor the population of the listed population segment through in-water research surveys.
- Work with federal fisheries to receive better reporting of interactions with scalloped hammerhead sharks (both lethal and non-lethal).
- Reduce bycatch mortality in state and federal fisheries.

Oceanic whitetip shark (*Carcharhinus longimanus*)

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- Conduct research that will improve our understanding of population distribution, abundance, trends, and structure through research, monitoring, and modeling.
- Increase understanding of bycatch and associated mortality rates (including at-vessel and post-release mortality) in key fisheries, including impacts of various factors such as gear

type, hook type and depth, temperature, temporal and spatial fishing effort, interactions with fish aggregating devices, etc.

- Conduct investigations into best methods for handling, gear removal, and safe release of oceanic whitetip sharks in longline fisheries to reduce primary threats (e.g., bycatch-related mortality in commercial fisheries).
- Identify and protect key habitat areas, including breeding and nursery grounds through in-water surveys and tagging studies.
- Conduct studies that improve our understanding of reproductive periodicity and seasonality to inform future management measures for minimizing impacts to the species during key life history functions.

Nassau grouper (*Epinephelus striatus*)

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- Identify and assess the status of spawning aggregations across the region using standardized method.
- Assess genetic connectivity of individual populations throughout the range of the species.
- Continue to monitor known spawning aggregations to evaluate the status of the breeding population.
- Investigate larval and adult connectivity.
- Monitor juvenile abundance, distribution, and habitat use to identify and assess ontogenetic migrations throughout the range of the species and evaluate how habitat use differs among locations.
- Develop and implement conservation and management plans that also address enforcement issues.
- Build awareness and a constituency for conservation of Nassau grouper spawning aggregations through outreach and education highlighting the importance of preserving reproductive output for future fishery.
- Gather trade information regarding import of Nassau grouper for consumption.
- Investigate distribution and abundance of Nassau grouper by size class across habitat types.
- Identify critical nursery habitat and link recruitment trends to adult populations.
- Assessment of larval recruitment: distribution and abundance by geographic area(s).
- Investigate mechanisms regarding site fidelity and homing to both reefs and spawning aggregation sites.

Shortnose Sturgeon (*Acipenser brevirostrum*)

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- Research relationship between environmental factors (e.g., water flow, water temperature) and recruitment. Research which life stage(s) are most likely to benefit recovery with targeted conservation actions
- Estimate juvenile and adult indices of abundance for riverine populations.

- Determine the effective population size and average number of spawners per year by river.
- Develop genetic markers to determine natal river of origin.
- Identify likely locations and/or frequency of shortnose sturgeon spawning.
- Address data gaps, including estimates of the number of vessel struck sturgeon, identify critical areas where vessel strikes occur, identify sturgeon behavior in proximity to vessels (all vessel sizes), assess the effectiveness of reduced vessel speeds for reducing sturgeon interactions with vessels, design and carry-out studies to better enumerate sturgeon vessel strikes, and the reporting rates of vessel struck sturgeon.
- Identify movement patterns and/or synthesize existing data on movement patterns of shortnose sturgeon.
- Research impacts of dredging on water quality, foraging resources, habitat use.
- Determine the impact of naturally occurring and introduced toxins to all shortnose sturgeon life stages.

Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)

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- Research which life stage(s) are most likely to benefit recovery with targeted conservation actions.
- Estimate juvenile and adult indices of abundance for riverine populations.
- Determine effective population size and/or effective number of breeders and the average number of spawners per year by river and DPS.
- Research ways to improve the accuracy of aging all life stages of Atlantic sturgeon.
- Identify movement patterns of Atlantic sturgeon that originate from U.S rivers across all life stages and both sexes.
- Identify preferential habitat characteristics in the marine environment.
- Identify important features and likely locations of Atlantic sturgeon spawning, nursery, foraging, and overwintering habitats.
- Research relationship between environmental factors (e.g., water flow, water temperature) and recruitment.
- Address data gaps, including estimates of the number of vessel struck sturgeon, identify critical areas where vessel strikes occur, identify sturgeon behavior in proximity to vessels (all vessel sizes), assess the effectiveness of reduced vessel speeds for reducing sturgeon interactions with vessels, design and carry-out studies to better enumerate Atlantic sturgeon vessel strikes, and the reporting rates of vessel struck sturgeon
- Determine the impact of naturally occurring and introduced toxins to all Atlantic sturgeon life stages.

Gulf Sturgeon (*Acipenser oxyrinchus desotoi*)

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- Support freshwater adult abundance estimation with standardized Gulf-wide sampling method. U.S. Fish and Wildlife Service has been monitoring over-summering abundance

of adult Gulf sturgeon with side-scan sonar for the past several years in Florida Rivers. Efforts are underway to develop a standardized sampling design that can be implemented throughout currently occupied rivers.

- Investigate the effects of off-bottom shellfish aquaculture on Gulf sturgeon habitat. Off-bottom shellfish aquaculture is a developing technology across the Gulf of Mexico and overlaps with multiple Gulf sturgeon critical habitat units. The effect of off-bottom aquaculture on Gulf sturgeon habitat (both positive and negative) is poorly understood.
- Investigate the effects of marsh creation and associated larger-scale dredging on Gulf sturgeon habitat. Marsh creation is a major component of the DWH NRDA restoration in the western Gulf of Mexico. Projects are planned to evaluate impacts of specific dredging activities (NRDA Lake Borgne Monitoring and Adaptive Management) but the general effects of dredging and marsh creation on Gulf sturgeon critical habitat (both positive and negative) is poorly understood.
- Investigate future changes in freshwater spawning habitat temperature and stream flow. Gulf sturgeon are currently the southernmost acipenserid species. Gulf sturgeon spawning success could be susceptible to changes in spawning habitat temperature and flows associated with climate change.
- Investigate passage and spawning habitat in the Mobile River Basin (Alabama). Gulf sturgeon passage and spawning habitat restoration are currently being assessed in the Pearl and Pascagoula rivers. The Mobile River Basin historically supported a population of Gulf sturgeon but passage and spawning restoration has not been formally assessed.
- Support analysis of estuarine and marine movements. Over 250 Gulf sturgeon were implanted with acoustic transmitters as part of the Deep Water Horizon (DMH) damages assessment. Marine and estuarine detection data associated with this tagging effort has not been analyzed and organized into a formal report or publication.
- Support analysis of spawn timing. Fall spawning in Gulf sturgeon has been inferred in the Suwannee and Yellow rivers but egg sampling and associated genetic analysis is still needed in multiple spawning rivers to understand this behavior.

SEA TURTLES

Loggerhead, Green, Kemp's ridley, and Leatherback sea turtles

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- Research on fishery bycatch reduction measures.
- Research on fishery bycatch impacts, especially for lesser studied fisheries, or when aimed at identifying impacts to specific stocks/populations/recovery units.
- Conduct habitat quality surveys and mapping studies (specifically tied in to species' foraging or other habitat needs, not just a general survey of available habitat).
- Research (hardshell species) on lethal and especially, sub-lethal (reduced fecundity, reduced growth behavioral changes, etc.) effects of harmful algal blooms, such as red tide to allow for a better understanding of the long-term population effects, vs. just the estimated mortality of such events.

- Conduct water quality/toxicology studies to better understand sub-lethal impacts of pollutants and reductions in water quality. Currently most toxicology studies categorize pollutant load levels in the turtles, eggs, hatchlings, etc. but provide little insight into how it impacts the individuals or populations.
- Conduct research to reduce uncertainty and increase our understanding of reproductive demographic parameters such as remigration intervals (how many years between nesting attempts) and clutch frequency (average nests/year for individuals).
- Determination of population-specific demographic parameters such as age/size at first reproduction, remigration intervals (how many years between nesting attempts), and clutch frequency (average nests/year for individuals) to allow for better adult female population estimates and trends for specific populations compared to using a generic number for all populations, as different populations may have significant differences in those parameters.
- Research to develop and/or expand the use of stable isotope, genomics, eDNA, and other emerging technologies to increase our knowledge of habitat use, population connectivity, ontogenetic habitat shifts, and foraging strategies.

Kemp's ridley turtle (*Lepidochelys kempii*)

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- Continued research into the population trends for the species and the drivers behind the recent large nesting declines.

Leatherback turtle (*Dermochelys coriacea*)

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- Conduct research into the recent nesting declines seen at many of the key North Atlantic leatherback nesting beaches to better understand the causes (true population decline? environmental factors? resource limitations reducing fecundity?).

INVERTEBRATES

Caribbean Corals (*Acropora palmata*, *Acropora cervicornis*, *Orbicella annularis*, *Orbicella faveolata*, *Orbicella franksi*, *Dendrogyra cylindrus*, *Mycetophyllia ferox*)

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- Support genebanking, cryopreservation, and swapping of ESA-listed coral genotypes in nurseries both within and across U.S. states/territories to support maintenance of genetic diversity and ensure against future loss from periodic events like storms.
- Support collection and analysis of samples of both wild and nursery-raised colonies of ESA-listed coral species for genotype identity and tracking.
- Support research and testing of interventions to increase resilience of ESA-listed coral species to climate change.
- Support development of coral genetic management plans.

- Support facilitation of sexual reproduction of ESA-listed species through gamete collection, cryopreservation, fertilization, and restoration to maintain/increase genetic diversity.
- Support for studies to test the effects of contaminants, sediment, and turbidity on ESA-listed coral species and to identify thresholds.
- Support demographic monitoring of *Acropora palmata*, *Dendrogyra cylindrus*, and *Mycetophyllia ferox*.
- Support synoptic surveys of *Acropora* species, *Dendrogyra cylindrus*, and *Mycetophyllia ferox* in Florida, Puerto Rico, and the U.S. Virgin Islands using stratified random sample allocation.
- Support for testing the effectiveness of disease treatment options for *Acropora* species.
- Support for Stony Coral Tissue Loss Disease tracking, research, treatment, and interventions to reduce mortality.
- Support identification and monitoring of robust reference *Acropora* populations.
- Support efforts to improve benthic habitat condition and water quality for ESA-listed coral species.
- Support efforts to reduce predation on ESA-listed coral species.

Queen Conch (*Aliger gigas*)

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- Conduct sediment studies to investigate potential behavioral changes, shifts in distribution, reduced foraging, survivorship and recruitment resulting from increased sedimentation.
- Research relationship between environmental factors (e.g., water flow, sedimentation, water temperature) and survivorship and recruitment.
- Support for studies to test the effects of contaminants, sediment, and turbidity on queen conch and identify thresholds.
- Improve knowledge of queen conch habitat, behavior, reproduction and ecology through research and monitoring.
- Use acoustic tagging/telemetry to learn more about queen conch ecology, behavior, habitat use, and seasonal movement patterns, particularly in areas of high density.
- Investigate life history parameters including age, growth, and reproduction.
- Identify and assess the status of spawning aggregations across the species range using standardized methods.
- Continue to monitor known spawning aggregations to evaluate the status of the populations.
- Investigate reproductive seasons and spawning durations including frequency, duration, and peak of spawning activity.
- Support collection and analysis of samples of queen conch for genotype identity and tracking.

WHALES

North Atlantic Right whale (*Eubalaena glacialis*)

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- Raise awareness about the recovery needs of right whales through the use of conservation marketing, behavior change strategies, community engagement, and similar methods.
- Support efforts to reduce vessel strikes with right whales.
- Improve knowledge of right whales through research and monitoring (e.g., distribution, reproduction, seasonality).

Rice's whale (*Balaenoptera ricei*)

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- Improve knowledge of Rice's whale through research and monitoring (e.g., distribution, reproduction, seasonality, causes of mortality, prey).
- Improve knowledge of threats (i.e., vessel strike, noise, and entanglement) to Rice's whale.
- Raise awareness about the recovery needs of Rice's whales through the use of conservation marketing, behavior change strategies, community engagement, and similar methods.
- Enhance reporting of Rice's whale sightings through outreach and development of online reporting and data storage system.
- Support efforts to reduce vessel strikes with Rice's whales.