

Environmental Studies Program: Studies Development Plan | FY 2026–2027

Field	Study Information
Title	Distribution and Movements of Sea Turtles in the Pacific (PC-26-05)
Administered by	Pacific OCS Region
BOEM Contact(s)	Chiharu Mori (Chiharu.Mori@boem.gov); Ingrid Biedron (Ingrid.Biedron@boem.gov)
Procurement Type(s)	Interagency Agreement or Cooperative Agreement
Conducting Organization(s)	NOAA NMFS Pacific Islands Fisheries Science Center (PIFSC)
Total BOEM Cost	TBD
Performance Period	FY 2026-2027
Final Report Due	TBD
Date Revised	August 2025
Problem	Seabed mining will occur offshore of American Samoa, but baseline data of sea turtles and marine mammals are lacking. The lack of baseline information about endangered/threatened marine mammals and sea turtles leads to an inability to understand the impacts of these species, inaccurate abundance estimates, density information, and availability bias calculations, which underlay all the modeling efforts used for impact assessment.
Intervention	Conduct tagging of three species of sea turtles listed under ESA using GPS Fastloc tags. Tagging the reproductive females would allow us to understand their migration corridors, foraging areas and the depth at which they are conducting these behaviors in and around American Samoa.
Comparison	Compare information with prior collected data to improve efficiency for time and cost of tagging as well as revised distribution/density and habitat use data based on accurate availability bias calculations.
Outcome	Confirmation of migration of reproductive females through American Samoa and at what depth would improve our ability to conduct impact analyses that we will be required to comply with NEPA and ESA. Additionally, this information would provide BOEM with essential information to develop mitigation measures that most effectively minimize serious injury and mortality to sea turtles as a result of seabed mineral resource mining. Lastly, a previous study documented a leatherback turtle migrating through Commonwealth of the Northern Mariana Islands (CNMI), so this tagging data would not only provide habitat use around American Samoa but also turtles migrating through CNMI, which is another area of interest for BOEM.
Context	Pacific (American Samoa, Solomon Islands/Indonesia (West Papua and Buru), and Tahiti/Cook Islands)

BOEM Information Need(s): Regulatory drivers such as the Endangered Species Act (ESA) require BOEM to consider the impacts of regulated activities on protected species. BOEM is required to design and implement mitigation measures to reduce or eliminate impacts from regulated activities on protected

species, such as leatherback sea turtles (*Dermochelys coriacea*) and sperm whales (*Physeter macrocephalus*). However, nearly no information exists about their migration behaviors in offshore waters. BOEM requires robust, current data to (1) fully analyze and disclose the potential for significant impact from outer continent shelf (OCS) activities at the programmatic and site-specific level pursuant to NEPA, (2) to enable us with the ability to ensure that a species is not jeopardized by an activity or that critical habitat is not adversely modified by that activity pursuant to the ESA, and (3) to fulfill impact assessment and consultation requirements with other federal agencies.

This study is an opportunity to collaborate with the Pacific Islands Fisheries Science Center (PIFSC - National Marine Fisheries Service) and to build on their ongoing efforts to understand biology of the sea turtles in the Pacific. Specifically, this study will help identify the scarce data we currently have on sea turtles in and around American Samoa, and through CNMI. The tagging being proposed will provide the best available science and maximize return on the considerable investment BOEM can make.

Background: EO 14156 Declaring a National Energy Emergency: Critical Mineral Development and RFI for commercial leasing for OCS seabed critical minerals offshore American Samoa, BOEM will be writing environmental documents (e.g., EAs, BAs, EIS) and conducting interagency consultations where Subject-Matter Experts (SMEs) will conduct impact analyses of sea turtles and marine mammals in and around American Samoa. However, baseline information regarding sea turtles that may migrate through American Samoa is lacking. Without baseline information, SMEs will be forced to make assumptions regarding impacts to sea turtles by the seabed mining that will soon occur in American Samoa and our assumptions could result in over or under estimation of effects. By tagging nesting females at three locations known to use as nesting beaches, we will be able to understand whether these reproductively active females will be in the vicinity of the RFI. Moreover, we will specifically use GPS Fastloc Tags with pressure sensors to collect diving depth of these turtles corresponding to accurate locations. This will allow us to understand whether the proposed action occurring in American Samoa overlaps with the habitat that the sea turtles could be using (spatially and in depth).

There are several ESA-listed species in and around American Samoa which includes the following five sea turtle species: Central South Pacific Green Turtle, Hawksbill turtle, leatherback turtle, South Pacific loggerhead turtle, and olive ridley turtle. Although two of the five species, olive ridley and loggerheads, could be found around the American Samoa area, loggerheads are not likely to be encountered in the RFI area and olive ridleys are logistically challenging to tag due to uncertainty of their nesting sites; thus, the proposal will focus on the leatherback, hawksbill and green turtles.

Green turtles have been studied at Rose Atoll between 2017-2019 (Murakawa et al., 2024), but the data needs to be updated and diving depth information is unavailable. West Pacific leatherbacks are highly endangered and are continuing to decline in numbers due to bycatch and entanglement. Little is known about Hawksbill and since they are extremely endangered and cryptic when nesting, we need to collect information to understand about their migration of the breeding females.

Objective(s): Baseline information of sea turtles in and around American Samoa is lacking. Thus, the objective of this study is to tag nesting sea turtles to understand whether they migrate through the RFI and if so, what depth of the water column are they going through. Collecting this data would allow us to answer whether breeding sea turtles could get impacted by the seabed mining activity that will soon be occurring in American Samoa. Depth information would also help identify the extent of impact to sea turtles if the depth that the sea turtles use overlaps with the proposed activity of seabed mining in American Samoa.

Although this proposal includes cost estimate for one year on three species of sea turtles, depending on the findings of this study, we will consider additional funding for tagging more sea turtles in subsequent years. We will also consider further developing this study to include marine mammals as well as include Guam and CNMI as study locations since these areas are location of interest, and the endangered Central West Pacific DPS of green turtles, as well as endangered hawksbills, are known to nest and forage there, and leatherbacks have also recently been documented in the area.

Methods: Green turtles are known to nest in French Polynesia (Tahiti) and Cook Islands and will likely migrate to foraging grounds west of that area. Thus, we propose that we fund an ongoing nesting/tagging research project in either Tahiti or Cook Islands. We will tag 15 green nesting females and track where they migrate, including location and depth, specifically in and around American Samoa area.

West Pacific leatherbacks are known to nest Indonesia (West Papua and Buru Island) and the Solomon Islands. Thus, we propose that we fund ongoing nesting/tagging research projects in one of these locations. We will tag 15 leatherback nesting females and track where they migrate, including location and depth, specifically in and around American Samoa area. Previous leatherback turtle study has demonstrated a migration route through CNMI, so we will also assess sea turtle habitat use around CNMI.

Hawksbills have been found in and around American Samoa (Becker et al., 2019). Thus, we propose that we fund expansion of American Samoa Department of Marine and Wildlife Resource (DMWR) field research to tag nesting of Hawksbill in American Samoa. We will tag 15 hawksbills to track where they migrate, including location and depth, specifically in and around American Samoa area.

Specific Research Question(s):

- Where do the reproductively active female sea turtles migrate through American Samoa?
- How long do the reproductively active female sea turtles stay in and around the American Samoa area?
- At what depth do the sea turtles go through in and around the American Samoa area?

Current Status: N/A

Publications Completed: N/A

Affiliated WWW Sites: N/A

References:

Murakawa et al., 2024. Abundance, production, and migrations of nesting green turtles at Rose Atoll, American Samoa, a regionally important rookery in the Central South Pacific. *Front. Mar.Sci.* 11:1403240. doi: 10.3389/fmars.2024.1403240

Becker et al., 2019. Densities and drivers of sea turtle populations across Pacific coral reef ecosystems. *PLoS ONE* 14(4): e0214972. <https://doi.org/10.1371/journal.pone.0214972>