MARINE MAMMAL & TURTLE DIVISION, SWFSC BIWEEKLY REPORT ON FIELDWORK, PUBLICATIONS, RESEARCH RESULTS, AND EVENTS

8 May 2026

I. Fieldwork:

Green turtle biological surveys in Southern California, Week of 27 April 2026 – The MMTD marine turtle research team launched its 2026 San Diego Bay Green Turtle Abundance Survey. The goals of this survey are to 1) collect data on green turtle habitat use and demography to better understand the biology of this population, and 2) to develop accurate population size and trend estimates for green turtles in San Diego Bay via capture-mark-recapture analysis. During the first week of the survey, the team conducted two field days: On 28 April two green turtles were captured; one was fitted with a GPS-satellite transmitter, and the other with a turtle-borne video camera (see photo). The camera popped off after 4 days on the turtle, and was recovered while floating in the extreme southern area of San Diego Bay (see photo). On 30 April, four green turtles were captured including one individual that had a significant boat strike injury that was in the early stages of healing (see photo). The team inspected the wound and deemed it to be healed enough to allow for normal release back into the bay. As usual, our field team was joined by its Navy partners as well as a collection of students, volunteers, and other visitors. Looking ahead, the 2026 Spring Survey will continue each Tuesday and Thursday through 9 June 2026. Contact Jeff Seminoff for additional information.

Photo Captions: [top left] An 82.9-cm (straight carapace length; SCL) green turtle with significant (but healing) boat strike injury; [top right] Anna Cahill with a 75.7-cm SCL green turtle fitted with a video camera; [bottom] Jeff Seminoff and Anna Cahill jubilant after recovering the camera via its on-board VHF transmitter.

Eastern North Pacific Gray Whale Calf Production Survey, Piedras Blancas Light Station, California 30 March-29 May 2026 – The fifth week of MMTD's annual survey to estimate calf production of eastern North Pacific gray whales concluded on 1 May with a cumulative total of 23 mother-calf pairs counted over 301 hours of effort. Other cetacean sightings over the past two weeks included humpback, blue and fin whales and coastal bottlenose, Pacific white-sided, and Risso's dolphins. During week 4, Brittany Hanser talked with the California Conservation Corps about our gray whale work. The observer team during the fourth and fifth weeks included Amy Frey, Brittany Hanser, Diana Dishman (WCR), Grace Ferrara (WCR), Jessica Ruth, Peter Dutton, Robin LeRoux, and Trevor Joyce. Contact Aimée Lang for more information and see: https://www.fisheries.noaa.gov/west-coast/sciencedata/ gray-whales-eastern-north-pacific

MMTD observer Trevor Joyce looking for gray whales through the "Big Eye" binoculars.

Sea Turtle Uncrewed Aerial System (UAS) Survey, San Gabriel River, CA, 23 April 2026, – The UAS team from MMTD (LT Ariane Huddleston, Keiko Sherman, and Tomo Eguchi) conducted aerial surveys of green turtles at the San Gabriel River. Three transect lines and multiple focal follows were completed using the DJI Mavic 3 Pro. Analysis of the video footage revealed the presence of at least two, and possibly three, non-target freshwater turtle species in addition to green turtles (see photo below). The species identified included a red-eared slider (*Trachemys scripta*) and a spiny softshell (*Apalone spinifera*). The video footage from transect surveys will be used to estimate the abundance of green turtles in this section of the river complex. Focal follow video footage will be used for behavioral analysis. For further information, please contact Tomo Eguchi.

Aerial image highlighting the unique biodiversity of the San Gabriel River: a green sea turtle (*Chelonia mydas*) circled in red, a red-eared slider (*Trachemys scripta*) circled in blue, and a spiny softshell turtle (*Apalone spinifera*) circled in yellow.

II. Manuscripts accepted for publication:

Hill, M. C., Mahaffy, S. D., McCullough, J. L. K, **Harmon, A.**, & Baird, R.W. (*In press*). Killer whales in the central tropical Pacific: occurrence, resightings, morphology, and acoustics. Marine Mammal Science. https://doi.org/10.1111/mms.70197

Abstract – Compared to their well-studied coastal temperate counterparts, killer whales (Orcinus orca) in tropical-subtropical and oceanic areas are under-documented. We used sighting, photo-identification, and acoustic data of killer whales in the central tropical Pacific (CTP), collected from multiple platforms between 2002 and 2023, to assess their temporal and spatial distribution, group dynamics and behavior, movements, pigmentation and dorsal fin morphology, and vocalizations. Killer whales were rarely encountered but occur year-round in the CTP, primarily in waters deeper than 1,000 m. Photo-identification of 113 individuals included multi-year resightings of individuals off the main Hawaiian Islands but found no matches to eastern tropical Pacific catalogs. CTP killer whales share characteristics with other tropical-subtropical killer whale populations including pigmentation and morphology, small group sizes (range 1–12, Mdn = 5), and diverse prey choices (e.g., other cetaceans, bony fishes, and sharks). Acoustic recordings, collected during shipboard sightings, were dominated by echolocation clicks and high-frequency modulated whistles and provide the first detailed characterization of CTP killer whale vocalizations. This is the most expansive study of CTP killer whales to date, and it underscores the importance of continued collaboration between research groups and the local community in order to better understand rarely sighted species.

Restrepo, J., Nisthar, D., Wei-Khang Heng, H., Bentley, L.K., Curtice, C., DeLand, S., Fujioka, E., Halpin, P.N., Poulin, S.K., Richardson, A.J., **Seminoff, J.A.**, Valverde, R.A., **&** Dunn, D.C. (*In press*). Ecological insights and management implications of the global migratory connectivity of green turtles. Diversity & Distributions.

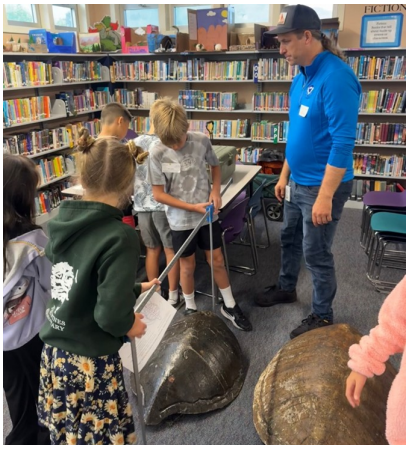
Abstract – Migratory connectivity describes the seasonal movement of animals between breeding and non-breeding habitats. Telemetry technologies have greatly improved our ability to observe animal movement and assess migratory connectivity for marine megavertebrates. Green turtles are widely distributed, highly migratory, with distinct long-term fidelity to foraging and nesting habitats. Despite extensive data, there is no global synthesis describing green turtles' movement, limiting a holistic understanding of their behaviour and management. Based on three decades of published literature, we present the first global model of migratory connectivity for green turtles. Research on the subject has increased rapidly between 1990 and 2022. This review explores 113 studies. From these, we extracted 474 unique sites where green turtles were observed and identified migratory connections from nesting sites to dispersed sites, some over 5,000 km apart. This long-distance connectivity exposes populations to threats across disparate locations. The model provides ecological insights into regional differences in life histories, identifies geographic and demographic gaps in sampling, and provides baseline information on connectivity to support transboundary management of green turtle populations. The study highlights the need for larger collaborative efforts to aggregate knowledge on green turtle spatial use to inform effective management measures to protect this threatened species.

III. Papers published:

IV. Research findings:

V. Press:

VI. Local events - meetings or events hosted in-person or virtually:



Trevor Joyce assisting students measuring green turtle (*Chelonia mydas*) carapace lengths.

Science Discovery Day, Torrey Pines Elementary School, La Jolla, CA, 15 April 2026 – Trevor Joyce (CHLHP) and Anna Cahill (MTEAP) led an outreach activity titled "Measuring Green Sea Turtles using Drones" for three groups of 3rd grade elementary school students during Torrey Pines Elementary School's Science Discovery Day. The presentation included information on sea turtle biology and an activity using drone aerial video and some easy calculations to photogrammetrically measure sea turtles and compare those measurements with turtle carapace specimens from SWFSC's teaching collection.

VII. Travel - meetings attended in-person or virtually:

VIII. Awards, grants, and recognition:

IX. Other of note:

Stranding summary for the weeks of 21 April - 04 May 2026

Cetaceans: 2

- 25 April - a whale carcass in an advanced state of decomposition was reported on Del Mar Beach at Camp Pendleton. LTJG Rachel Backman responded to the site to conduct an initial examination. Due to the significant degradation of the carcass, the species could not be determined in the field. The incomplete carcass was measured at 30 feet in length and tissue samples were collected for genetic analysis to resolve species identification.

- 27 April - a large whale was reported floating just offshore of San Elijo State Beach in Cardiff. Keiko Sherman and Brittany Hanser responded to the scene to coordinate in person with local officials. A decision was made to tow the carcass offshore to prevent it from landing on shore and facilitate final disposal. Keiko Sherman, Nick Kellar, and LTJG Rachel Backman deployed on the R/V Alexa K to perform an external examination and collect biological samples. While the team successfully obtained a genetics sample and both surface and sub-surface imagery, the presence of a large white shark prevented the safe attachment of a satellite tracking buoy (used for informing carcass drift models). Aerial images provided by the Encinitas Fire Department confirmed the dead animal as a male fin whale with an estimated length of 60 feet. These images also revealed an extensive area of hemorrhage suggesting blunt force trauma.

Photos: (Top) Aerial image provided by the Encinitas Fire Department illustrates the relative scale of the 60-foot fin whale carcass and the scavenging white shark. (Bottom) GoPro footage obtained by MMTD provides a dorsal perspective of the fin whale while documenting a white shark nearby.

Pinnipeds: 7 (no response)
Turtles: 1

- On 22 April, SWFSC received a report of a deceased green turtle found during a beach cleanup in the San Diego Bay National Wildlife Refuge near the Living Coast Discovery Center in Chula Vista, CA. MMTD team members Anna Cahill and Erin LaCasella responded to the stranding. Due to the level of decomposition, only measurements, photos, and samples for genetic, stable isotope and skeletochronology analyses were collected.

SWFSC Seabird Observer Milestone Attained – On 17 April 2026, Michael Force recorded his 5,000th day (13.7 years) at-sea as a seabird observer during the Spring CalCOFI project. The vast majority of his time, 3975 days to be exact, was spent working on 70 different projects for the SWFSC. His first survey was as a seabird observer for the 1990 Monitoring of Porpoise Stocks Survey. His work with SWFSC crossed divisions: Antarctic Marine Living Resource (Roger Hewitt, Rennie Holt); Fisheries Resources Division/Ecosystem Sciences Division for Rockfish Recruitment and Ecosystem Assessment Surveys (John Field, Keith Sakuma) and CalCOFI surveys (Dave Griffith, Noelle Bowlin); and almost every Marine Mammal and Turtle Division survey since he first sailed in 1990. His seabird observer skills have also been utilized by other science centers: the Pacific Islands and Northeast Fisheries Science Centers. Michael doubts his career would be as remarkable without the support of his mentor, Lisa T. Ballance. She had a huge impact on his life, and he is so grateful to Lisa for making it possible for him to pursue his passion and live the dream. *Congratulations Michael!*

Michael Force aboard NOAA Ship Bell M. Shimada on 17 April 2026, his 5,000th day at-sea, 35.573 N, 121.403 W.

X. Where-about of Division Director:

La Jolla