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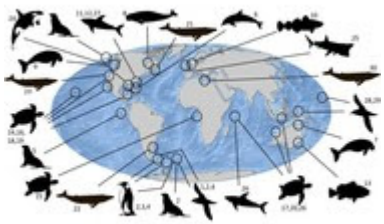
NOAA FISHERIES SCIENCECONNECT

2019 ISSUE 2

Translating marine animal tracking data into conservation policy and management, Hays et al.



Distribution and movement data can impact the management and conservation of a variety of marine species throughout the world. Although tracking studies are commonplace today, there is often a breakdown in data reaching management officials in part due to the complex pathways involved in the transfer of data. The authors highlight successful instances of location data impacting policy decisions (See included Figure 1. from publication) and note that these instances most often include early engagement, direct communication, and data sharing between researchers and stakeholders. Published in the journal *Trends in Ecology & Evolution*

Animal cultures matter for conservation, Brakes et al.

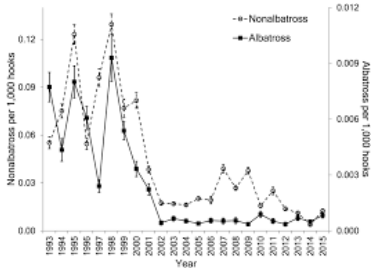
A growing body of evidence suggests that decision-makers should also consider aspects of animal sociality and culture to determine conservation priorities. Socially transmitted knowledge can impact the survivorship of individuals within a population, create subpopulations with differing behaviors, influence phenotypic diversity and adaptability, and identify individuals that are key repositories of knowledge. Moreover, social learning is prevalent across a wide range of taxa. International

authorities are moving to include cultural variation when identifying and enacting conservation policies. *Photo of learned sperm whale depredation behavior, courtesy of S. Mesnick, NMFS Permit 774-1714.* Published in the journal *Science*

Skeletal records of bleaching reveal different thermal thresholds of Pacific coral reef assemblages, Mollica et al.

The scientists used a novel coral bleaching proxy, skeletal stress bands, to assess the relative thermal thresholds of coral communities. They reconstructed bleaching histories for multiple coral reefs in the central equatorial Pacific from 1982-2015. Within each population, the stress response of massive corals indicated community level bleaching and different levels of community bleaching resulted despite similar stress conditions at different reefs. These reef to reef differences are a measure of thermal tolerance. This study illustrates that we can reconstruct past bleaching events using proxy data from the skeletons of massive corals, and concurrently assess the thermal tolerances of coral reef communities. *Photo courtesy of NOAA Fisheries*. Published in the journal *Coral Reefs*

Lessons from seabird conservation in Alaskan longline fisheries, Melvin et al.



This study assessed seabird bycatch rates from Alaska fisheries observer data between 1993 and 2015. Bycatch rates varied by species assemblage and fishery and the adoption of streamer lines and night setting efforts reduced most of the seabird bycatch four targeted fisheries. The observed decrease in the annual weighted mean bycatch rate of albatrosses and non-albatross species from 1993-2015 in all Alaskan longline fisheries is depicted in the figure above from the publication. Best practices to prevent seabird mortality require a variety of methods including gear modifications, industry support, robust observer data, and outreach to vessel operators. Published in the journal *Conservation Biology*

Other Recent Publications

Environment, Climate, and Ecosystem Effects

Barraza et al. Trace metals in green sea turtle (*Chelonia mydas*) inhabiting two southern California coastal estuaries. *Science Direct*

Population Studies

Piovano et al. Mixed stock analysis of juvenile green turtles aggregating at two foraging grounds in Fiji reveals major contribution from the American Samoa Management Unit. *Scientific Reports*

Van Cise et al. Oceanographic barriers, divergence, and admixture: Phylogeography and taxonomy of two putative subspecies of short-finned pilot whale. *Molecular Ecology*

Conservation

Sharp et al. Gross and histopathologic diagnoses from North Atlantic right whale (*Eubalena glacialis*) mortalities between 2003 and 2018. *Diseases of Aquatic Organisms*

Methods

Chabot et al. Characterizing stable isotope relationships between green turtle (*Chelonia mydas*) skin and unhatched eggs. *Rapid Communications in Mass Spectrometry*

Levi et al. Environmental DNA for the enumeration and management of Pacific salmon. *Molecular Ecology Resources*

Rust et al. Accuracy and precision of age determination using growth layer groups for California sea lions (*Zalophus californianus*) with known ages. *Marine Mammal Science*

Williams et al. Leveraging automated image analysis tools to transform our capacity to assess status and trends on coral reefs. *Frontiers in Marine Science*

Zollett and Swimmer. Safe handling practices to increase post-capture survival of cetaceans, sea turtles, seabirds, sharks, and billfish in tuna fisheries. *Endangered Species Research*

Habitat Use

Becker et al. Densities and drivers of sea turtle populations across Pacific coral reef ecosystems. *PLoS ONE*

Frouin-Mouy et al. Acoustic occurrence and behavior of ribbon seals (*Histriophoca fasciata*) in the Bering, Chukchi, and Beaufort seas. *Polar Biology*

About *Science Connect*

This newsletter highlights the latest research on protected species from scientific publications that include one or more NOAA Fisheries authors. It is distributed quarterly with alternating issues covering research from U.S. East and West Coast centers and offices.

About the Protected Species Science Branch

As part of NOAA Fisheries Office of Science and Technology we advocate for the use of peer-reviewed science to promote protected species conservation and recovery. We are dedicated to advancing research and development efforts and fostering coordination and communication across NOAA headquarters, regional offices and centers, and other internal and external partners.

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