



2018 ISSUE #2

Model recommendations meet management reality: implementation and evaluation of a network-informed vaccination effort for endangered Hawaiian monk seals, Robinson et al.

The endangered Hawaiian monk seal (*Neomonachus schauinslandi*) will likely be susceptible to morbillivirus. Morbillivirus is a measles-like pathogen that has decimated some

marine mammal populations around the globe. To combat this, NOAA has developed a vaccination program to proactively protect these endangered seals from potential outbreaks. The team used a novel application of network modeling to inform and evaluate a vaccination program for the seals on Oahu Island. The analysis combined one year of observer data of monk seal contact behavior and seal sightings to determine which seals would be pivotal to vaccinate to create herd immunity. Robinson et al. also addressed the limitations of following an idealized vaccination strategy with their experience in the field.

Photo courtesy of PIFSC



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Recent Publications

Environment, Climate, & Ecosystem Effects

Silber et al.

Projecting marine mammal distribution in a changing climate. 2018 *Frontiers in Marine Science: Global Change and the Future Ocean*.

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Population Studies

Tolimieri et al.

Oceanographic drivers of sablefish recruitment in the California Current.

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Archer et al.

Taxonomic Status of a "Finner Whale" (*Balaenoptera swinhoei* Gray, 1865) from Southern Taiwan.

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Mora et al.

Estimating the annual spawning run-size and population size of the

Abundance and population status of Ross Sea killer whales (*Orcinus orca*, type C) in McMurdo Sound, Antarctica: evidence for impact by commercial fishing? Pitman et al.

A purported decline in Ross Sea killer whales (*Orcinus orca*, Antarctic type C) in McMurdo Sound, Antarctica, has been linked to a commercial fishery that targets their presumed main prey - Antarctic toothfish (*Dissostichus mawsoni*). The status of this killer whale population was investigated using a Bayesian mark-recapture model and photo-identification images collected seven summers between 2001-2015. An estimated population of about 470 individuals appears to have been stable, and rather than a fisheries-driven decline, the authors hypothesize that a 10,000 sq km iceberg that grounded in the area for several years could have temporarily reduced killer whale access to McMurdo Sound and given an appearance of decline.

Photo courtesy of SWFSC



[Journal Article](#) | [Video](#)

Familial social structure and socially driven genetic differentiation in Hawaiian short-finned pilot whales, Van Cise et al.

The social structure of Hawaiian short-finned pilot whale (*Globicephala macrorhynchus*) was found to be driven by their genetic relatedness. Island preference may be a socially learned behavior. Using photograph ID data and mitochondrial control sequences it was determined that there are at least two populations: the main Hawaiian Islands (MHI) and the Northwestern Hawaiian Islands (NWHI)/Pelagic



Southern Distinct Population Segment of Green Sturgeon *Acipenser medirostris*.

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Ohlberger et al.

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Waters et al.

Genome-wide association analyses of fitness traits in captive reared Chinook salmon: Applications in evaluating conservation strategies.

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To feed or not to feed? Bioenergetic impacts of fear-driven behaviors in lactating dolphins.

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Foraging and Habitat Use

Farmer et al.

Resilience of the endangered sperm whale *Physeter macrocephalus* to foraging disturbance in the Gulf of Mexico, USA: a bioenergetic approach.

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Chittaro et al.

Variability in the performance of juvenile Chinook salmon is explained primarily by when and where they resided in estuarine habitats.

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population as well as an eastern MHI and western MHI community.

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Journal Article

Environmental warming and feminisation of one of the largest sea turtle populations in the world, Jensen et al.

Temperature dependent sex determination (TSD) in sea turtles makes them highly vulnerable to climate change. Warmer incubation temperatures increase the ratio



of female hatchlings and cause increased mortality of developing clutches. Jensen et al. used genetic markers and mixed-stock analysis in combination with laproscopy and endocrinology, a novel approach, to determine how sex ratios have changed in recent decades in two green sea turtle (*Chelonia mydas*) populations in the Great Barrier Reef. Both populations have become increasingly female biased in recent years as temperatures worldwide have increased. Though the more southern, cooler, population has seen a less mild shift, the more northern, warmer, population has likely been producing female-only clutches for nearly two decades.

Photo courtesy of SWFSC

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The **Protected Species Science Branch (PSSB)** within the NOAA Fisheries Office of Science and Technology supports and provides the science necessary to inform management decisions. We do this by coordinating closely with the six Fisheries Science Centers, the Office of Protected Resources, and other NOAA Headquarters Offices.

This newsletter is intended to summarize the latest research on protected species from scientific publications that include one or more NOAA Fisheries authors. It will be distributed quarterly with alternate issues highlighting research from the East and West Coasts centers and offices.

Methodology

Braun et al.

HMMoce: An R package for improved geolocation of archival-tagged fishes using a hidden Markov method. 2018 *Methods in Ecology and Evolution*.

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Haver et al.

Monitoring Long-Term Soundscape Trends in U.S. Waters: The NOAA/NPS Ocean Noise Reference Station Network.

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