



# 2016 QUARTERLY ISSUE #3

## Acoustic monitoring data show 80% decline in vaquita acoustic activity

The vaquita, the world's most endangered marine mammal (with < 60 individuals remaining), is difficult to monitor by visual surveys. However, its echolocation clicks can be identified using acoustic detectors.



Between 2011 and 2015, these detectors indicated that vaquita acoustic activity decreased by 34% per year. In light of these data, the Mexican government announced an emergency 2-year ban of gillnets throughout the species' range. Acoustic detection continues to be used to monitor this and other species for effective management. This research by Jaramillo-Legorreta et al. will be published in the journals *Conservation Biology* and *Conservation Letters* in December.

Photo by NOAA (Barb Taylor)

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## Recent Publications

### Behavior

**Burke et al.**

Estimating behavior in a black box: how coastal oceanographic dynamics influence yearling Chinook salmon marine growth and migration behaviors.

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**Miller et al.**

Genet-specific spawning patterns in *Acropora palmata*.

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### Environment, Climate, & Ecosystem Effects

**Ylitalo et al.**

Determining oil and dispersant exposure in Sea Turtles from the northern Gulf of Mexico resulting from the Deepwater Horizon oil spill.

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**Harding et al.**

Wastewater treatment plant effluent alters pituitary gland gonadotropic mRNA levels in juvenile coho salmon (*Oncorhynchus kisutch*).

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## Bayesian population models help define risks to ESA-listed species



Boyd et al. developed a risk assessment framework to enable more consistent, predictable, and transparent Endangered Species Act (ESA) status assessments. The researchers used a



Bayesian population modeling approach to estimate levels of risk for 14 ESA-listed marine species. Those species that had a high risk of declining to a population of < 250 mature individuals after 5 generations were also listed as endangered. The number of populations was useful in differentiating among threatened and "not warranted" species.

Photo by NOAA (Sarah Mesnick)

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## Timing of Pacific Leatherback Conservation Area closure is optimal for leatherback conservation

NMFS established a time-area closure to reduce bycatch of leatherback sea turtles in the California large-mesh gillnet fishery. Eguchi et al. used species distribution



models to determine that the timing of this closure was optimal for leatherback turtle conservation. The researchers also used these models with fishery logbook data, leatherback telemetry data, and environmental variables to predict sea turtle foraging habitat and fishing effort. Identifying turtle-fishery overlap hotspots can form the basis for dynamic management approaches.

Photo by National Geographic (Jeffrey Berman) NOAA-ESA Permit #15634

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## Population Studies

### Piacenza et al.

Trends and variability in demographic indicators of a recovering population of green sea turtles (*Chelonia mydas*).

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### Segura-Garcia et al.

Post-glacial habitat release and incipient speciation in the genus *Delphinus*.

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## Technology

### Heenehan et al.

Passive acoustic monitoring of coastally-associated Hawaiian spinner dolphins, *Stenella longirostris*, ground-truthed through visual surveys.

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## Conservation

### Nichols et al.

Genomic signatures among *Oncorhynchus nerka* ecotypes to inform conservation and management of endangered populations.

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### Bouwes et al.

Ecosystem experiment reveals benefits of beaver assisted restoration to a population of ESA listed steelhead (*Oncorhynchus mykiss*).

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## Complete List of Publications

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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.

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