

Blue Whales Off California Endangered By Shipping Lanes

Posted by James Fenner on July 25, 2014 in Science

According to a 15-year-long analysis of satellite-tagged blue whales, situated off the West Coast of the United States, the creatures' feeding regions are frequently crossed by deadly shipping lanes. The research group responsible for the study claim these shipping lanes represent a considerable danger to blue whales, increasing their chances of sustaining injury or being killed.

The study, entitled *Spatial and Temporal Occurrence of Blue Whales off the U.S. West Coast, with Implications for Management*, was published in the latest issue of the journal *PLOS ONE*.

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0102959>

Led by a team of scientists operating at Oregon State University's Marine Mammal Institute, the study followed the movements of blue whales to find habitats that were critical to their survival, as well as their proximity to major shipping ports and traffic.

The team affixed a series of transmitters to over 170 blue whales off the coast of California. These transmitters were employed to follow the mammals' movements, from 1993 to 2008, via satellite imagery.



Blue whale killed during a ship collision - Image showing a blue whale killed during a ship collision. Image credit: Craig Hayslip, OSU Marine Mammal Institute.

The group established that the blue whale population honed in on strong upwelling zones, where large numbers of krill amassed. Researcher Ladd Irvine, of OSU's Marine Mammal Institute, said blue whales almost exclusively consume krill. Irvine added, "The whales have to maximize their food intake during the summer before they migrate south for the winter, typically starting in mid-October to mid-November."

Two of the primary foraging grounds for the blue whale populations happened to be bisected by shipping lanes. The areas where blue whales were found to feed coincided with ship traffic to and from L.A. and San Francisco-based ports.

Of the 10,000 blue whales known to exist, around a quarter of them spend time in the waters off the West Coast of America. Much of the population, known as the North Pacific Population, swim in the waters of Santa Barbara and San Francisco, placing them in grave danger of being wounded by ships.

While filming a National Geographic documentary, entitled *Kingdom of the Blue Whale*, Bruce Mate observed a number of blue whale injuries that stemmed from ship collisions. Mate, who coordinates the Marine Mammal Institute at OSU's Hatfield Marine Science Center in Newport, Ore, said his crew was aware of five strikes in just seven weeks of filming the 2009 documentary.

In looking for solutions to the issue, the team argues that moving existing Los Angeles and San Francisco-based shipping lanes could lessen the odds of passing vessels hitting blue whales. The researchers explained that an estimated 80 percent reduction in the number of endangered whales struck by ships was seen when shipping lanes in Canada's Bay of Fundy were relocated.

It is expected the National Oceanic and Atmospheric Administration (NOAA) will use the data from the latest study when reviewing shipping lane activity.

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Additional Links:

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0102959>

Spatial and Temporal Occurrence of Blue Whales off the U.S. West Coast, with Implications for Management

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Abstract

Mortality and injuries caused by ship strikes in U.S. waters are a cause of concern for the endangered population of blue whales (*Balaenoptera musculus*) occupying the eastern North Pacific. We sought to determine which areas along the U.S. West Coast are most important to blue whales and whether those areas change inter-annually.

Argos-monitored satellite tags were attached to 171 blue whales off California during summer/early fall from 1993 to 2008. We analyzed portions of the tracks that occurred within U.S. Exclusive Economic Zone waters and defined the 'home range' (HR) and 'core areas' (CAU) as the 90% and 50% fixed kernel density distributions, respectively, for each whale. We used the number of overlapping individual HRs and CAUs to identify areas of highest use. Individual HR and CAU sizes varied dramatically, but without significant inter-annual variation despite covering years with El Niño and La Niña conditions.

Observed within-year differences in HR size may represent different foraging strategies for individuals. The main areas of HR and CAU overlap among whales were near highly productive, strong upwelling centers that were crossed by commercial shipping lanes. Tagged whales generally departed U.S. Exclusive Economic Zone waters from mid-October to mid-November, with high variability among individuals.

One 504-d track allowed HR and CAU comparisons for the same individual across two years, showing similar seasonal timing, and strong site fidelity. Our analysis showed how satellite-tagged blue whales seasonally used waters off the U.S. West Coast, including high-risk areas. We suggest possible modifications to existing shipping lanes to reduce the likelihood of collisions with vessels.

See [Link Above](#) for More Information.