

The Bering Sea Right Whales (R0307)

Dr. John Hildebrand (Scripps Institution of Oceanography)

The Acoustic Monitoring of Bering Sea Right Whales

The eastern North Pacific right whale is one of the most endangered populations of large cetaceans in the world. This species belongs to the group known as baleen whales, which are characterized by the presence of two blow holes, and baleen plates (instead of teeth) used to filter the zooplankton prey from the water.

In recent years a small population of right whales, estimated in the tens, has been observed during summer in the southeastern Bering Sea. Very little is known about this population's seasonal location and movements or how factors such as climate change and human impacts may affect the North Pacific right whale's chances for survival and growth.



Baleen whales are characterized by two blow holes

To understand where the whales are spending time, and their movements, scientists have analyzed acoustic (sound) recordings and used visual observation to locate whales in the Bering Sea. Acoustic monitoring is a valuable tool for locating the whales: it can provide long-term, continuous monitoring of many whale species, including right whales, over a large area and in locations where scientists may have difficulty reaching. Acoustic recording instruments capture whale vocalizations during rough weather and low light conditions that would prohibit visual observation.

In 2000 and 2001, through NMFS/NMML ships, six acoustic recording packages (ARPs) were placed in an area where right whales had been sighted in the Bering Sea. The focus of the research was to analyze and interpret the acoustic data recorded on right, fin, and humpback whales. In addition other data sets such as sighting and oceanographic data were included in the analyses.

Visual observations (and genetic samples when applicable) were necessary to verify locations of animals, group size, group composition (gender and age of animals), and behavioral context (e.g. feeding). Part of this study included comparing this important information to the acoustic recordings.

Calls identified as right whale calls were found in the recordings throughout October 2000 and into early November 2000. The presence of right whales was much later in autumn than previously thought based on visual observations alone. To date, the earliest calls of the year were detected in late May 2002. The latest calls of the year were detected in early November of 2000 and 2001.

The acoustic monitoring in the Bering Sea has revealed new information on the seasonal locations of right whales as well as information on the fall and winter song patterns of humpback whales. In the future, acoustic monitoring may be applied to explore historical right whale habitats and whaling grounds to monitor for the return of the whales to these regions, as well as to continue monitoring regions where right whales are recently known to occur.

The North Pacific Research Board seeks to build a clear understanding of the North Pacific, Bering Sea, and Arctic Ocean ecosystems to enable effective fisheries management and the sustainable use of marine resources. www.nprb.org