

Hunter Based Observations of Bowhead and Gray Whales Near Barrow, Alaska

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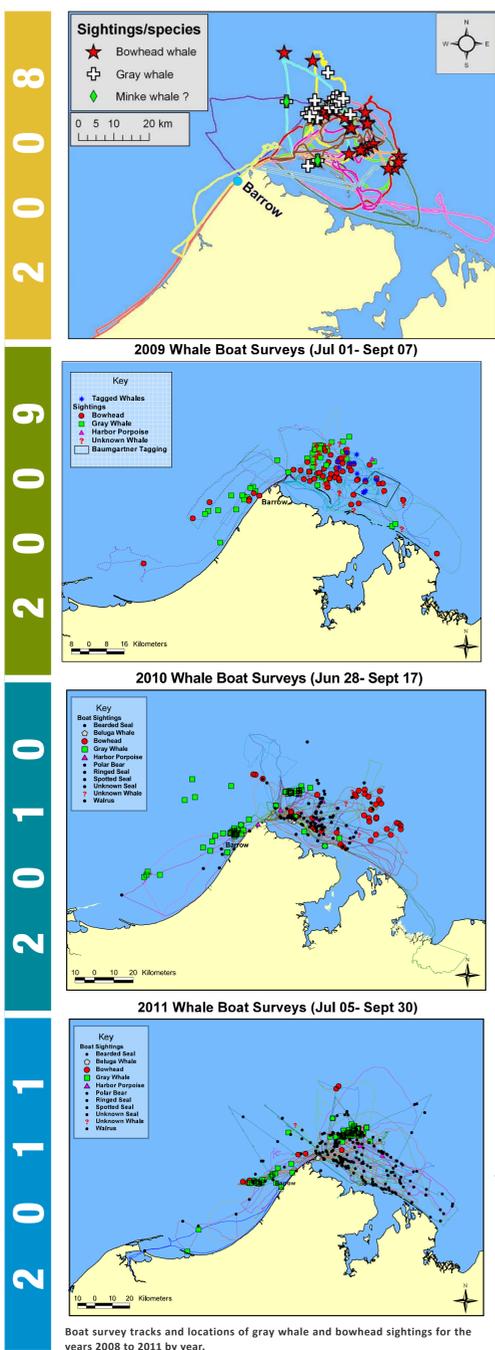


Photograph of a feeding whale offshore of Barrow on 24 July 2009. Several whales appeared to be feeding with mud plumes associated with them. Local whalers did not ever recall seeing feeding whales during July. Note the whales were fluke-up diving in only 5.5 to 6 m water depth. Photo: Dave Thoreson.

ABSTRACT

The North Slope Borough has been conducting hunter-led small boat surveys near Barrow, Alaska for the past five summers as part of the BOEM-funded Bowhead Whale Feeding Ecology Study (BOWFEST). Information from this study will be used by BOEM for pre- and post-lease analysis and documentation under the National Environmental Policy Act (NEPA) for Beaufort Sea and Chukchi Sea Lease Sales. The study will also add to the general body of knowledge regarding the feeding ecology of large cetaceans. As a broad pattern, bowhead whales of the Bering-Chukchi-Beaufort Seas Stock (BCBS) typically winter in the Bering Sea and migrate to the Canadian Beaufort Sea in summer to feed, returning again to the Chukchi and Bering Seas in autumn/winter. Gray whales generally migrate from far more southern latitudes to the Bering and Chukchi Seas to feed in summer. Feeding and relative abundance patterns of these two species were studied using local hunters to record positions and behaviors of whales in the Barrow region during summer and early autumn. In some years bowhead whales occur near Barrow, Alaska in low numbers with abundance varying considerably by year. Gray whales consistently occur and feed near Barrow, however abundance varies but much less so than bowheads. Bowheads and gray whales show spatial segregation within the study area with gray whales aggregating west of 156°W longitude and bowheads mainly occurring east of that line. In 2008, 2009 and 2012 bowheads were more frequent near Barrow in July to early September, than in 2010 and 2011. Very few bowheads were seen in August and September in 2011 despite the highest sighting effort of any survey year. We speculate on why this may have occurred. Locally operated boat surveys are an effective, relatively low-cost means to support various scientific studies including whale distribution and abundance surveys. The strengths and limitations of this research approach are discussed.

Annual Sightings & Effort

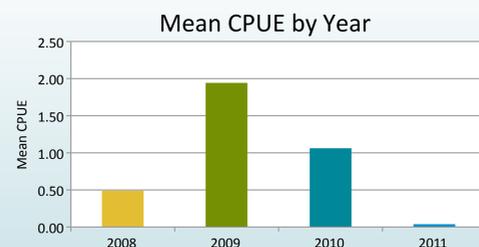


METHODS

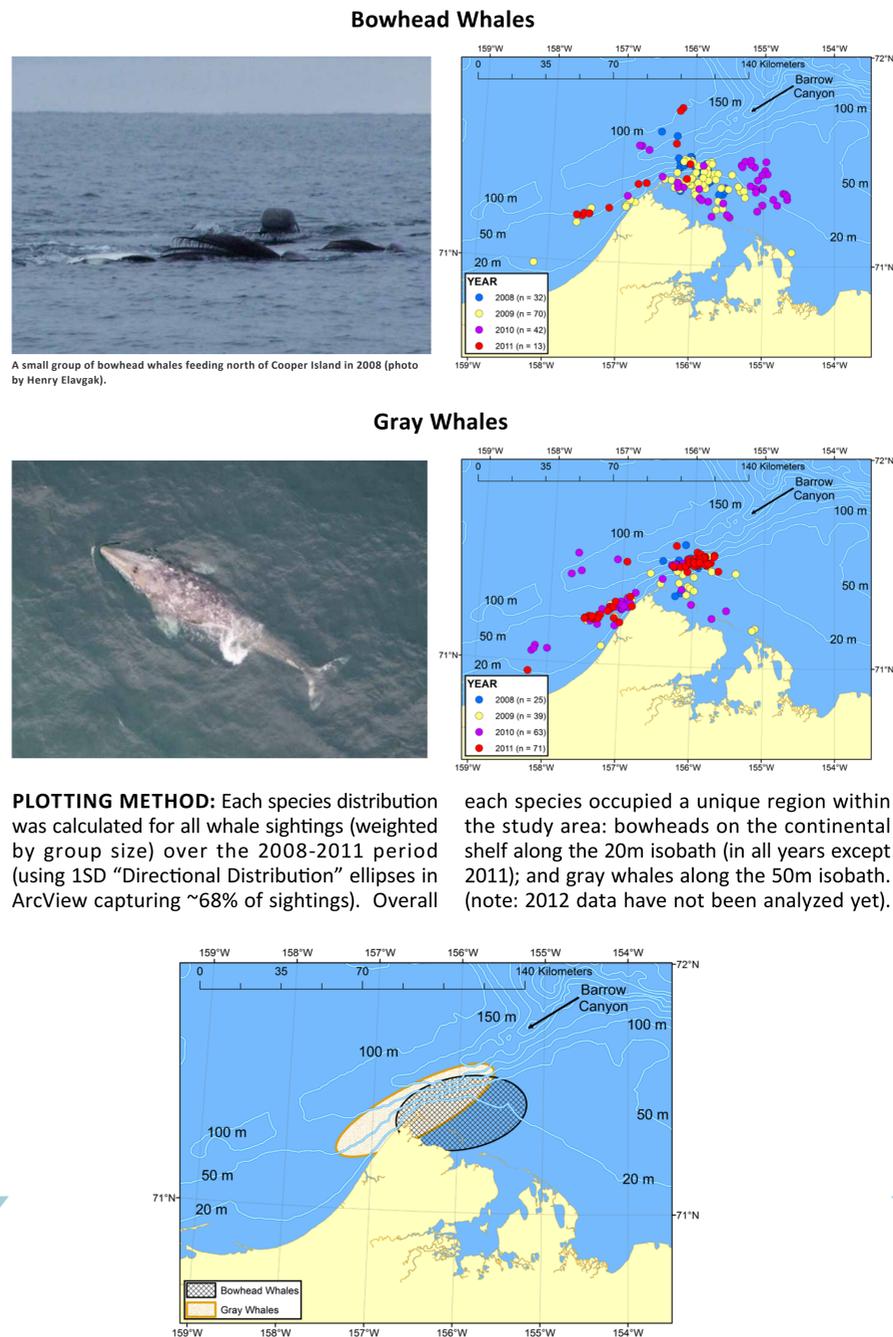
Local whale hunters were hired to locate bowhead whales in the BOWFEST study area, determine their behavior, assist with deploying acoustic oceanographic instruments, and other projects.

The following figure shows catch or sighting rates (sightings/hr) of bowhead whales (CPUE) by year after correcting for effort. Note the strong variation in CPUE of bowheads between years. Whale sighting rates were lowest in 2011 during the study period despite the highest effort of any season, and highest in 2009.

Bowheads arrived very late in the BOWFEST study area in 2011. Whalers reported bowheads were scarce even into October which is very uncommon.



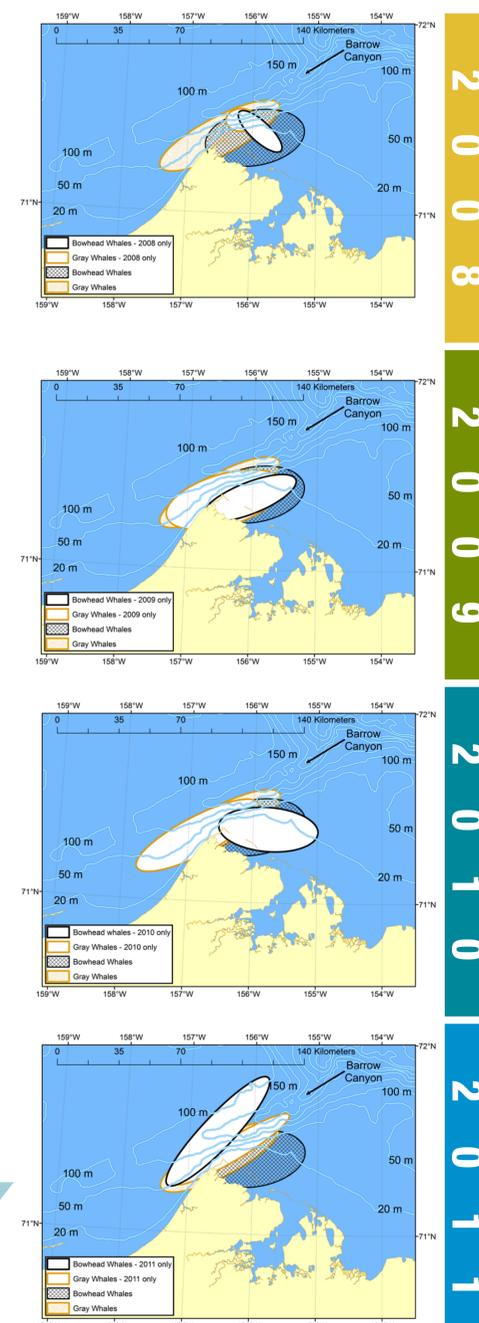
Distribution of Each Cetacean Species



RESULTS AND SUMMARY

- Bowheads summer near Barrow in low but variable numbers. Local knowledge suggests that bowheads, particularly very large bowheads, have always been present near Barrow in summer but may have increased over the last 30 years.
- In at least the last decade, gray whales have consistently engaged in summer feeding in the Barrow area primarily in the Chukchi Sea. Gray whale relative abundance varied by year but were higher and more consistent than bowheads.
- Bowheads and grays show spatial segregation within the BOWFEST study area (see distribution plots above).

Distribution (Annual v. All Years)



- In 2008 and 2009 bowheads were more frequent (near Barrow) in July to early September, than in 2010 and 2011.
- Very few bowheads were seen in August and September of 2011 despite the highest sighting effort of any year. We speculate that the eastward migration from Canada was delayed in 2011.
- Hunter-based small boat surveys are an effective, relatively low-cost method to conduct whale surveys and support various scientific studies in Arctic near-shore waters.