

# A summary of dead, stranded bowhead whales reported in the Chukchi and Beaufort Seas over the last twenty-five years

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## ABSTRACT

Five dead, stranded bowhead whales were reported in the Chukchi and Beaufort Seas during the open water season of 2008. Prior to this, there had been a total of five bowhead whales reported stranded dead in this area over the past 25 years. This report summarizes these earlier reports, presents a 2008 case report and discusses the marine mammal stranding response plan developed by the North Slope Borough Department of Wildlife Management to deal with increasing detection and response ability to incidents such as these.

KEYWORDS: ARCTIC; *BALAENA MYSTICETUS*; BOWHEAD WHALE; CLIMATE CHANGE; OFFSHORE DEVELOPMENT; STRANDING RESPONSE; WHALING-ABORIGINAL

## INTRODUCTION

The bowhead whale (*Balaena mysticetus*) population of the Bering, Chukchi, and Beaufort Seas (BCBS), while endangered, has been recovering since the cessation of commercial whaling. Recently, their arctic habitat has been experiencing a rapid increase in industrial activities, decrease in sea ice extent and thickness, and variability in environmental parameters. Anthropogenic activities such as oil and gas development, commercial fishing, and shipping have the potential to create disturbance, noise, and chemical pollution, all of which have been shown to have detrimental effects on wildlife, including whales. This suite of human activities is becoming more prevalent as economic motivations dictate or as sea ice retreat opens access to previously closed locations. Of concern is the potential for increased ship strikes of bowhead whales. Here, I present information on reports of dead or stranded bowheads from the past 25 years.

## METHODS

The North Slope Borough Department of Wildlife Management (NSB-DWM) queried the National Marine Fisheries Service (NMFS) for bowhead whale-specific stranding reports filed over the past twenty-five years. In addition, I present unpublished data collected by the NSB-DWM from recent years.

## RESULTS AND DISCUSSION

The earliest reported stranding (1989) was a dead, floating bowhead whale seen in Peard Bay (northwest Alaska). No data, other than species, was collected from this animal due to an inability to access the carcass. The next report was in 1998, from near Kivalina (northwest Alaska), where industry workers and a researcher from the University of Alaska Fairbanks discovered a floating dead whale in an advanced state of decomposition. It was determined to be a bowhead, but no further data were collected. Finally, there was one whale reported each year in 2003, 2004 and 2005 near the Cinder River (southwest Alaska), near Point Barrow (northern Alaska) and at Port Moller (southwest Alaska), respectively. In each of these cases, species was determined, though little other data were collected. During this time period, there was no organized stranding detection/observation program on the North Slope, though carcass survey flights were flown on an irregular basis out of Barrow, Alaska (NSB-DWM). The NSB-DWM is also aware of a few additional cases of stranded bowheads that did not appear in the NMFS report. We will reassess these cases when this report is updated in the future.

In 2008, there was an increase in the number of dead, stranded bowhead whales reported. Five stranding reports were filed with NMFS, with two of these coming from marine mammal observers (MMOs) stationed aboard industry vessels. A third bowhead whale was reported stranded, dead and washed up on shore near Pt. Hope, Alaska and a fourth was reported dead and grounded in shallow waters near Kivalina, Alaska. The fifth was a partial head (maxilla/skull with mandible missing) that washed up on shore during a storm in Barrow, Alaska. This head was of interest, as industry had reported a young, dead bowhead whale (one of the two reports from MMOs) with a “gash” on its side floating in the vicinity of Point Franklin (~80 km southwest of Barrow) approximately one week prior to the discovery of the head near Barrow (Figure 1).

The stranded head was reported on October 20, 2008. Members of the NSB-DWM retrieved the head from the surf and brought it back to the Arctic Research Facility where it was thawed under a heated tent and a gross examination was conducted. The head had both baleen racks intact. The baleen measured approximately 90 cm, indicating that this whale was likely a yearling. The head was mildly decomposed and tear marks were noted around the base of the skull that were consistent with killer whale tooth rakes. There were also marks noted near the tip of the rostrum that were consistent with a propeller injury (Figure 2). These marks were not deep and did not penetrate the epidermis (the blubber was not affected) and were likely post-mortem, as there was no evidence of hemorrhage or inflammation that might be expected with an ante-mortem or healing wound. The blubber was flensed from the head and was remarkably fresh and light pink in color, though the area surrounding the base of the skull was moderately to severely decomposed. Samples were collected for a variety of purposes, including genetics, toxicology, histology, etc. It was not possible to link this head with the dead, injured whale reported earlier by industry, as no samples had been collected in the prior incident near Pt. Franklin. In the future, the NSB-DWM hopes to work cooperatively with industry groups and NMFS in cases such as this, in order to obtain more useful data.

The NSB-DWM has had a stranding agreement in place with NMFS since October, 2008. Our stranding response effort seeks to accomplish several goals: 1) to assess body condition and health of marine mammals that strand off the coast of the NSB; 2) to conduct screening for zoonoses and other diseases that could threaten marine mammal and subsistence consumer health; and 3) to examine stranded marine mammals for indications of impacts from anthropogenic activities (i.e., ship strike, line entanglement) or climate change. The third is particularly important to the development and evaluation of effective mitigation measures for industrial activity. We intend to report results to the residents of the North Slope Borough, NMFS/government agencies (including public health agencies), the scientific community and the International Whaling Commission (IWC) on a regular basis. The NSB-DWM plans to work with local aviation groups (as passive spotters), use industry carcass information (MMO reports), public observations and regular aerial coastal surveys as a basis for our response activities and as a means of increasing surveillance for stranded marine mammals along the coastline and (in some cases) in the deeper waters of Alaska's North Slope.

The general capabilities of the department include individuals trained and experienced in marine mammal necropsy procedures/tissue collections, watercraft sufficient for safe use in the local seas, the use of a Barrow-based helicopter and contract aerial monitoring capabilities. The NSB-DWM also has extensive necropsy equipment, collection materials and limited sample processing capability (histological processing, tooth sectioning, etc.).

The North Slope Borough is a large, sparsely populated area. Marine mammal strandings that are reported are often in areas inaccessible by typical transportation means. The NSB-DWM is located in Barrow (Figure 1) and our scope of response is for dead stranded animals only along the coastline of the North Slope, though our ability to respond will depend on local conditions, personnel availability and the priority of sample collection. We plan to respond to cetacean (bowhead, gray, fin, humpback, killer whales and harbor porpoise) and pinniped (bearded, ringed, ribbon and spotted seals) stranding events.

The NSB-DWM is interested in potential impacts to marine mammals from industrial activities and climate change. Generally, there are several operators working concurrently during the open water season in the Chukchi and Beaufort Seas. Industry carcass reports are received by the NSB-DWM and may serve as a good source of priority carcass information, depending upon carcass accessibility and the speed of notification. Stranding surveillance and response will allow for the detection and collection of samples from marine mammals stranded off the coast of the North Slope Borough. It is our hope that this short summary will serve as a useful source of baseline information for future bowhead whale stranding events. This information is of great importance to federal regulatory organizations and local subsistence users secondary to its potential use in determining impacts from climate change and industrial development to marine mammal resources.



Figure 1. Young, dead bowhead whale with a “gash” on its side floating in the vicinity of Point Franklin (~80 km southwest of Barrow), reported by industry on October 13, 2008.



Figure 2. Propeller injury noted near the tip of the rostrum of the bowhead head that washed up in Barrow, Alaska on October 20, 2008.



Figure 3. Map of the North Slope Borough. Barrow is the main site of response for the marine mammal stranding response effort.