

Bowhead Whales: Ice Retreat, and Millenia of Traditional Ecological Knowledge

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Bowhead whales have been sustainably harvested by the Iñupiat people for at least a millennium. They understand the whales intimately, and they have a deep knowledge of their biology and behavior. Because of my ongoing studies on the biology and human impact issues of the North Atlantic right whale, I was invited to participate in a workshop focused on integrating right whale and bowhead whale research. Out of this workshop has grown an important set of collaborative and comparative approaches to the study of large marine mammals.

Bowhead and right whales are closely related evolutionarily, and they have many similarities in morphology and behavior. One goal of my research is to compare and contrast right whale conservation issues with the likelihood of increased problems for bowhead whales as ice retreat opens up the North Slope region of Alaska to fishing and shipping interests. In discussing the issues of vessel collision and fishing gear entanglement facing right whales, as well as the potential for comparable bowhead issues in the future, I found the Iñupiat very cognizant of the need to proactively learn about the risks, consequences and potential mitigation strategies.

I learned several techniques from the Iñupiaq whalers for large whale dissection that do not require heavy machinery. On the U.S. east coast, we often handle large whales for forensic examination, often with no machinery. The Iñupiat use a mechanical technique that involves many people pulling independently on the same piece of an animal – like a dog team pulling a sled (Figure 1). A few days after returning from Alaska, I found myself working with Patagonian biologists examining a mass mortality of southern right whales on a very remote coast in Peninsular Valdés. Teaching local Argentinean biologists useful Iñupiat whale disassembly techniques was a special privilege.



Figure 1: Whalers in Barrow, Alaska removing blubber from a bowhead whale during their fall hunt. Unlike the spring hunt which takes place with small skin boats on the sea ice, the fall hunt is an open water hunt in which harvested whales are hauled ashore for butchering – and easily accessible to biologists.

While visiting the North Slope we were able to examine recently-killed bowhead whales. From these observations we learned that shoulder lesions observed in many museum specimens may be acquired from the severe stresses that muscles and tendons exert on flipper bones, as large whales swim and steer. Originally we had thought that these lesions, like others elsewhere in the skeleton, were damage caused by the pressure changes that whales experience during deep diving. That these lesions may be stress-related is a new, important line of inquiry for our studies of large marine mammals.

As a result of this work and with additional support from the Arctic Research Initiative, a workshop on shipping and fishing activity in the Arctic will be held in Anchorage, in July of 2009. This workshop will bring key local, industry, state and federal representatives together with researchers to discuss the potential for increased impacts on marine mammals in the Bering, Chukchi and Beaufort Seas from intensifying fishing and shipping activities as Arctic ice recedes.

