

**How many industrial activities do individual bowhead whales from the Western Arctic stock encounter annually?**

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The Western Arctic stock of bowhead whales (*Balaena mysticetus*) are exposed to increasing numbers and sources of industrial activities during their migrations, yet the cumulative effects of these exposures have not been evaluated. A recent satellite tagging study tracked bowhead whales (2006–2010) to determine their minimum annual encounter rate with these activities. Most tagged whales made a >6,000 km annual circuit, from the Bering Sea (winter grounds) through the Chukchi and Beaufort seas to the Canadian Beaufort Sea (summer grounds) and back. Their path takes them through industrial activities conducted by Russia, the U.S., and Canada. Bowhead whales winter near fisheries that may be a source of line entanglements and they pass twice through the narrow Bering Strait where international shipping is concentrated and increasing. Whales pass through oil and gas activities underway in U.S. waters of the Chukchi Sea, and some spend up to 3 months feeding within active oil and gas exploration areas in the Canadian Beaufort Sea. On their return, they pass near or through active oil and gas exploration and development areas in the Alaskan Beaufort Sea. All whales passed through at least two active industrial areas (one in the U.S. and one in Canada) and one whale encountered three seismic surveys. Whale movements relative to fisheries and shipping show that as these activities increase the potential effects to whales could increase as well. This population has been growing, therefore the current level of activities and their cumulative effects has not prevented population growth; however, all industrial activities are expected to increase, which will increase the frequency of encounters by bowheads and the probability of potential consequences. In addition, other effects such as altered movement patterns are of concern to subsistence hunters. These data demonstrate that individual bowhead whales encounter multiple industrial activities annually.



# 19TH BIENNIAL CONFERENCE

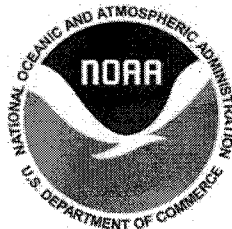
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