

MARINE MAMMALS :: Other Human-Related Impacts

Ambient Noise in the Beaufort Sea

Project 827

OVER THE PAST FEW YEARS, THE USE OF SEISMIC AIR-guns to map subsurface hydrocarbon deposits has added new sources of acoustic noise to the marine environment, spurring concerns about the potential impact on the long-term viability of the regional marine mammal population, with a particular concern about potential impacts on bowhead whales during their fall migration across northern Alaska. In collaboration with the oil and gas industry,

researchers participating in Project 827 are examining and monitoring ambient noise in the Beaufort Sea near Deadhorse, Alaska. Using autonomous vertical arrays, they measure ambient noise levels, directionality, and spatial structure to distinguish between local and distant noise sources. Investigators track airgun signals, bowhead whale calls, and other discrete sound sources to understand how they are influenced by the physical environment.

Long-Term Climate Change

CLIMATE CHANGE HAS BECOME A MORE PROMINENT ISSUE IN THE WORLD ARENA THAN WHEN THE 2005 NPRB *SCIENCE PLAN* CALLED FOR FUTURE RESEARCH ON THE IMPACTS OF REDUCED SEA ICE OR OTHER CLIMATE-RELATED CHANGES ON POPULATIONS DYNAMICS AND PREY RESOURCES.

Wildlife managers even then expressed concern about the implications of a warming environment on marine mammals, particularly for species that depend on sea ice. The Board has recently directed \$176,000 to examine the effect of climate change on the Pacific walrus population in the Chukchi Sea.

MARINE MAMMALS :: Long-Term Climate Change

Impacts of Climate Change on Walrus

Project 818

WITH THE DECLINE IN SEA ICE OVER GOOD, SHALLOW-WATER FEEDING GROUNDS IN THE CHUKCHI SEA, WALRUS are feeding more in the nearshore habitat they can reach from land-based haul-outs. Project 818 looks at the effect of climate change on these marine mammals and compares the foraging range and efforts between walruses using land haul-outs and those using ice haul-outs over the continental shelf in the Chukchi Sea. Scientists are also comparing the nearshore and offshore benthic prey communities available to walruses using the differing haul-out platforms and examining changes in these benthic communities over time, based on retrospective analyses of archived benthic data.



Pacific walrus on ice floe.