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Female walrus resting beside a yearling walrus. The coastal walrus haul outs that form during periods of sea-ice scarcity in the Chukchi Sea are composed primarily of adult female walrus and young, as well as some adult male walrus. Photograph credit: Ryan Kingsbery, USGS

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Walrus Sea-Ice Habitats Melting Away

By Paul C. Laustsen

Habitat for the Pacific walrus in the Chukchi Sea is disappearing from beneath them as the warming climate melts away Arctic sea ice in the spring, forcing the large mammals to “haul out” of the ocean and temporarily live on land.

While onshore, walrus are far from the ocean organisms they feed on. This dislocation increases the distance the walrus must travel and the calories they expend to feed. Also, walrus and their calves gather in large numbers onshore, creating the potential for deadly trampling events and exposure to diseases.

Difficulties arise for walrus and other ice-reliant animals in ice-free environments. Adaptation takes time, and it took these species at least several hundred thousand years to adapt to their environmental conditions. Current environmental changes are happening far faster than these species can naturally adapt.

Main Threats and Concerns

The greatest threat to the walrus’s Chukchi Sea habitat is global warming, which is primarily caused by the burning of fossil fuels and leads to the melting of their sea-ice habitat. These fossil fuels happen to be found in deposits deep under walrus feeding grounds and are extracted in great quantities from adjacent Arctic lands.

Walrus face other risks from the loss of sea ice, including noise and visual disturbances from oceangoing vessels and airplanes. Adding to local marine-vessel traffic is the advent of transoceanic shipping, an industry that creates the same hazards, along with the potential for invasive marine organisms. The potential also exists for oil spills associated with shipping and oil production on both the U.S. and Russian sides of the Pacific walrus’s summer range.

“The U.S. Geological Survey’s [USGS] work in identifying important walrus foraging and resting areas helps us de-conflict the uses of the Chukchi Sea by designing additional mitigations or excluding those areas from future oil and gas leasing, as appropriate,” said Mary Cody, a marine biologist with the Bureau of Ocean Energy Management. “For example, the Presidential withdrawal of the

Hanna Shoal area is designed to protect walrus and other marine mammals and to ensure their continued availability for subsistence users.”

In the summer of 2015, based on the best available science, President Barack Obama designated 9.8 million acres of the Hanna Shoal, an oil-rich and biologically productive area of the Chukchi Sea, as off-limits for oil and gas leasing.



More than 1,500 walrus resting on shore at Cape Grieg in southeastern Bristol Bay. Photograph credit: Sarah Schoen, USGS

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Tracking Walrus Movement in Real Time

“The USGS Walrus Program saw the need for coordination amongst the Federal agencies in prioritizing research needs, then stepped up and filled that need,” said Cody, referring to the role that the USGS played in providing walrus tracking and behavioral information. The provided information is useful to Department of the Interior agencies in deciding the best way to balance the protection of marine mammals with the increased human use of the Arctic.

“The USGS has been at the forefront of developing a way to track walrus,” said Cody. “They developed a tagging technique that allows us to have a tremendous amount of information about where walrus are resting and where they are foraging in real time, and how that changes as the sea ice changes.”

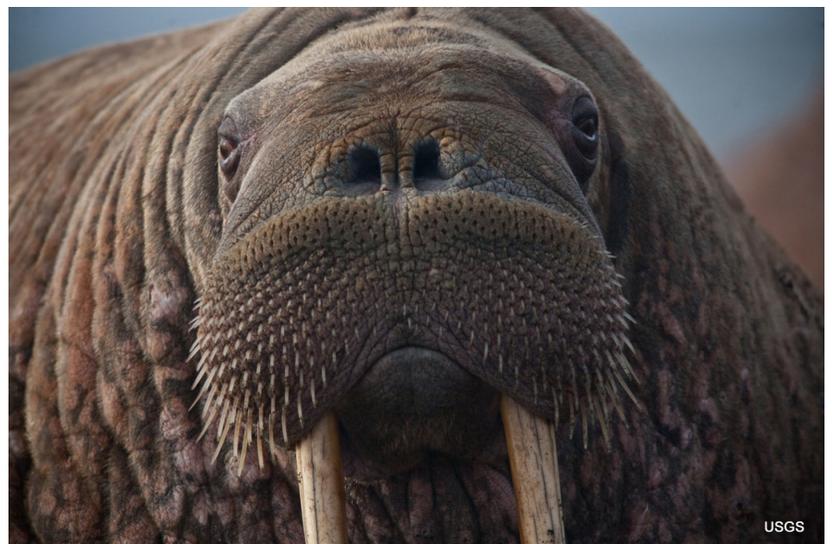
Until the USGS began tracking walrus, useful information about the animal’s foraging

and resting behavior was minimal. Because walrus rest close to water, it is challenging and risky to handle walrus with tranquilizers. The USGS’s innovative satellite tagging technique, coupled with their tracking and analysis capabilities, provide invaluable information.

“Innovative and high-quality research undertaken by and with the USGS has been tremendously helpful to our understanding of how Pacific walrus may respond to the rapid environmental changes facing the species,” said Patrick Lemons, chief of the U.S. Fish and Wildlife Service’s Marine Mammals Management Division in Alaska. “Going forward, these walrus studies will inform our numerous management challenges, like whether to propose adding Pacific walrus to the list of threatened and endangered species; how to best work with local communities engaged in subsistence harvest; and potential challenges and opportunities associated with coastal walrus haul outs.”



A transmitter tag is being deployed (see arrow on the left) by a USGS wildlife biologist (see bottom right). Transmitter tags are deployed on the back of walrus where their skin is thickest and where their data transmissions may be received from passing satellites. Tag deployment happens in the blink of an eye with the use of a crossbow and specialized arrow. Photograph credit: Ryan Kingsbery, USGS



Walrus on the outskirts of the haul out. Photograph credit: Ryan Kingsbery, USGS

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