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Comprehensive Harbor Seal Survey Underway off New England Coast
Live-Capture Tagging, Aerial Surveys Focus on Cape Cod, Mid-Coast Maine Populations

The first comprehensive study of harbor seals in a decade gets underway this month off the coast of Cape Cod and mid-coast Maine to determine the distribution and abundance of harbor seals (*Phoca vitulina*) off the New England coast.

In the first phase of the study, researchers will live capture adult harbor seals, attach radio and flipper tags to these animals, and take biological samples. Aerial surveys along the Maine coast will be conducted in late May to relocate tagged seals and estimate the abundance of pups and non-pups.

Gordon Waring, who heads the seal research program at the Woods Hole Laboratory of NOAA's Northeast Fisheries Science Center (NEFSC), says the harbor seal survey is different from the Center's annual aerial photographic surveys since it will be conducted during the harbor seal's peak pupping period, which occurs from late May into June.

"It is much more intense, both in terms of the number and types of aerial surveys, the live-capture of harbor seals, the increased biological sampling efforts, and because we can tag up to 60 animals, which is the total number of radio tags we have available," said Waring. "Harbor seals are small and fairly easy to handle during live-capture efforts, are generally not aggressive, and they will shed the small radio tags when they molt in a few months."

Information from the radio-tagged seals will be used to adjust the photographic aerial counts to account for the fraction of animals not hauled-out on the ledges – and hence not available to be counted - during each flight. While harbor seals are the focus of this survey, researchers will also count any gray seals (*Halichoerus grypus*) that are observed. The two species are the most common seals in New England.

The live capture work began on April 7 off Chatham Harbor and Jeremy Point in Wellfleet, Mass. and will continue through late April off the coast of Rockland, Maine in western Penobscot Bay. Both areas are traditional haul-out sites for harbor seals. Fourteen seals have already been radio tagged at Chatham. In accomplishing its work, the scientific team has a marine mammal scientific research permit issued by NOAA, and a special research permit issued by the National Park Service.

Waring is leading the team of a dozen experienced marine mammal researchers from NEFSC's Protected Species Branch at the Woods Hole Laboratory, the Riverhead Institute for Marine Research and Preservation on Long Island, N.Y., the Provincetown Center for Coastal Studies, the University of Connecticut, Storrs, Woods Hole Oceanographic Institution, and the University of Maine, Orono.

The National Park Service —and the International Fund for Animal Welfare (IFAW) that coordinates the Cape Cod Stranding Network under a marine mammal research permit from NOAA’s Fisheries Service —will provide small boat assistance to the field team as needed.

Once live captured, each seal will be measured and weighed, have biological samples (including blood, fur and fluids for genetic testing) collected for stock identification and other health assessments, and be outfitted with both a flipper tag for identification and a small radio tag before being released.

A pre-abundance survey aerial flight along the entire Maine coast will begin during the third week of May (around May 21 or 22) to give the team a sense of where the radio-tagged harbor seals are at that time. Antennas mounted on the struts of the survey airplane can detect the radio signal from tagged seals within a five -10 mile area when the radio-tagged animals are on the surface.

One or two days later, on or about May 23, the aerial abundance surveys will begin and track the seals tagged in April. Aerial teams will fly in bay sectors in four-hour intervals and the observing team will comprise three designated positions (which will rotate): a photographer, a data recorder, and an individual tracking the seal’s radio tag to determine the location of the animal. At the completion of the abundance survey (four to six days), a single flight will be conducted to relocate any radio-tagged seals missed in the earlier flights.

"We don’t know how many harbor seals there are in New England because most seal surveys focus on one specific area or location, but we do know that local populations have grown in size during the last few decades, and have changed in many ways, especially in southern New England and Nantucket Sound," Waring said. "While the overall geographic range of harbor seals has varied little in the last century, our ability as scientists to learn more about the behavior of the seals, their seasonal migration patterns and habitat uses, and their interactions with other species (including humans) has changed considerably."

The Protected Species Branch at the NEFSC’s Woods Hole Laboratory is responsible for assessing the status of marine mammal populations off the northeast U.S. coast. The 2011 seal survey is part of a larger, multi-year survey of marine mammals, sea turtles and seabirds along the entire U.S. East Coast which the NEFSC is leading on behalf of four federal agencies.

Waring noted that the comprehensive 2011 seal study is an example of collaboration among many different organizations to maximize available funds, effort and experience so that everyone involved gains as much as possible. "My goal is to successfully conduct the 2011 capture/tagging and aerial abundance survey," Waring said, "and to continue developing the regional network of seal researchers and cooperative research programs."

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Related Links:

NEFSC’s Protected Species Branch: <http://www.nefsc.noaa.gov/psb/>
Surveys Show Increasing Populations of Gray and Harbor Seals in New England (2009 news release): http://www.nefsc.noaa.gov/press_release/2009/SciSpot/SS0901/
Atlantic Marine Assessment Program for Protected Species (AMAPPS): <http://www.nefsc.noaa.gov/psb/AMAPPS/index.html>