PROJECT PROFILE

Lingering Oil: Harlequin Ducks and Sea Otters

WHY ARE WE SAMPLING?

Harlequin duck and sea otter populations in Prince William Sound (PWS) were injured as a result of the 1989 *Exxon Valdez* oil spill based on evidence that many animals died immediately and longer term injury occurred as a result of chronic exposure to oil after the spill. The purpose of this study is to evaluate how well harlequin ducks and sea otters in PWS have recovered from the spill and the potential health consequences of ongoing or previous exposure.

WHERE ARE WE SAMPLING?

We are sampling in oiled and un-oiled sites in Prince William Sound and taking our measurements concurrently with the lingering oil Polyaromatic Hydrocarbon (PAH) monitoring program. Areas sampled in PWS include: Bay of Isles, Herring Bay, Crafton Island, Lower Passage, and Green Island, as well as at nearby un-oiled northwestern Montague Island.

Crispin Middleton, NOAA Kasitsna Bay Laboratory

Sea otters feed on clams and crabs that live in nearshore sediments and many were injured during the 1989 oil spill and are just now showing signs of recovery.

USGS

Harlequin ducks captured in a mist net in Prince William Sound, as part of studies evaluating biomarker indication of continued exposure to lingering Exxon Valdez *oil.*

WHO WE ARE

Principal Investigators

Daniel Esler
USGS ASC
desler@usgs.gov

Brenda Ballachey
USGS ASC
bballachey@usgs.gov

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science for a changing world

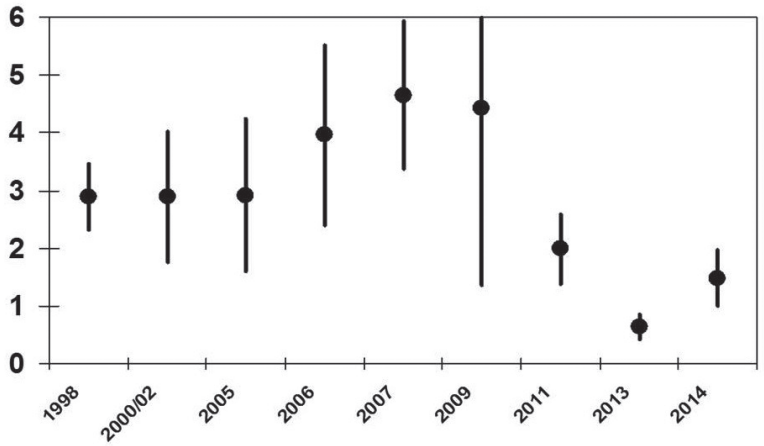
www.gulfwatchalaska.org
info@gulfwatchalaska.org

HOW ARE WE SAMPLING?

We capture ducks and otters in the oiled and un-oiled sites using a variety of sampling methods and collect tissue samples in a non-lethal manner and release the animals. The tissue samples are analyzed using assays of a biomarker (a measurable indicator of biological state or condition) to determine the degree of continued exposure to lingering oil.

WHAT ARE WE FINDING?

We interpret the data from March 2014 to indicate that harlequin ducks and sea otters are no longer being exposed to lingering oil in PWS, 24 years after the spill (see figure below).



Proportion (y-axis) of captured harlequin ducks with the biomarker of elevated hepatic7-ethoxyresorufin-O-deethylase (EROD) activity, defined as two times the average among birds from unoiled areas. Data include results from this study (March 2014) contrasted against findings from previous years.

Biologist Jeanine Bond removes a captured harlequin duck from a mist net in Prince William Sound, as part of studies evaluating biomarker indication of continued exposure to lingering Exxon Valdez *oil.*

Veterinarians Malcom McAdie and Jeff Proudfoot perform surgery to nonlethally remove a small liver biopsy from a harlequin duck in Prince William Sounds, as part of studies evaluating biomarker indication of continued exposure to lingering Exxon Valdez *oil.*

Findings from 2013 and 2014 suggested that indications of exposure to lingering oil are no longer present in harlequin ducks, 24 years after the spill.

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www.gulfwatchalaska.org
info@gulfwatchalaska.org