



# NOAA FISHERIES

## Northern Pinniped Unusual Mortality Event (UME) Update March/April 2013

### **What is the cause of the UME in affected ice seals and walrus?**

The cause of the sickness has not yet been identified. Although tissues from sick seals were tested for a wide array of known seal diseases, no infectious disease has been found as the primary cause. Of note, no transfer of illness from seals to humans (or dogs) has been reported. In their work on establishing a cause, the UME investigative team continues to rely on northern coastal communities to provide information and photos.

### **Have ice seals or walrus been affected by UME symptoms during 2013?**

No UME ice seal or walrus cases have been reported to date in 2013. Seals harvested near Point Lay and Barrow this winter appear to be robust, healthy, and without evidence of infection (Fig. 1). Although still early in the year, there have been no reports of UME seals from the Bering Strait region, and neither Russia nor Canada has reported sick seals.



Figure 1. Healthy male 4-5 year old ringed seal harvested in 2013 (Photo courtesy NSB).

### **What are the most recent leads/results in the continuing investigation to understand what made the ice seals sick?**

The UME investigative team continues to monitor for disease in Alaska and to communicate with investigative teams in Russia and Canada. Tissue samples from healthy subsistence harvested animals are being collected to better establish a baseline for what is normal in healthy animals. The UME investigative team is also working with specialists to provide more information and a better understanding of the findings listed below.

Some possible causes of the seal sickness that are being investigated include:

- **BACTERIA (Streptococcus phocae):** This bacterium has been associated with a variety of diseases in seals. The UME team is working with bacteria specialists from the University of Alaska Fairbanks and University of Georgia to better understand why this bacterium were identified within many of the UME seals.
- **BACTERIA (Mycoplasma):** These bacteria have also been associated with tissue samples collected from seals confirmed to have the UME symptoms. Further research is ongoing to understand the presence of these bacteria in both UME and healthy seals.
- **ALGAE (Cyanotoxins):** Large concentrations of algae that manufacture natural toxins (harmful algal bloom) were documented during ice free months in Kotzebue Sound during 2009 -2011. Initial tests for cyanotoxins in the liver tissue from four UME seals resulted in very low levels of microcystin detected in one seal. Testing is expanding to other toxin variants, more animal testing of cases as and controls, as well as sediment and water analysis to better understand the significance of the levels of cyanotoxin in the seals.
- **HORMONES (Endocrine):** Thyroid hormones are essential for the normal molting process in seals. Since affected seals have abnormal molting patterns, hormone levels in UME seals and healthy seals are being tested and compared.
- **RADIATION (Radionuclides):** Currently, preliminary results confirm cesium 137 levels in one healthy and four UME seals are similar to cesium 137 levels in Alaskan seals sampled during the mid – 1990’s. Testing of the remaining three seal samples for gamma analysis is ongoing. Muscle tissue sampling and analyses for UME and healthy seals will continue during 2013.
- **VITAMINS:** Vitamins are essential for healthy skin. Since skin sores were often on UME seals, the team is evaluating levels of vitamins (A, E, B) in tissues collected from sick seals and healthy seals.

Results of these investigations will be posted as they become available. There has recently been speculation in the media that UME skin sores were due to “sunburn” resulting from increased UV exposure due to the significant ozone depletion in 2011. It is unlikely that the UME symptoms were solely due to sun exposure, however, the team has been investigating the possibility of an algae-based toxin that may potentially induce photosensitivity.



*A sickened ringed seal found near Barrow, Alaska, in 2011. Photo courtesy of North Slope Borough Department of Wildlife Management.*

If you find a seal or walrus acting abnormally or showing signs of illness, note its location and contact your local wildlife authority as soon as possible.

In the Bering Strait region, please contact the **Eskimo Walrus Commission (1-877-277-4392)** or the **UAF Marine Advisory Program (1-855-443-2397)** in Nome. If you see a sick seal or walrus in the Northwest or North Slope Boroughs, please contact the **NSB Department of Wildlife Management (907) 852-0350** in Barrow.

**For more background on this event, updates, regional contacts, and how to help, see:**  
<http://alaskafisheries.noaa.gov/protectedresources/seals/ice/diseased/default.htm>  
[http://alaska.fws.gov/fisheries/mmm/walrus/disease\\_investigation.htm](http://alaska.fws.gov/fisheries/mmm/walrus/disease_investigation.htm)