



U.S. Fish & Wildlife Service

Sea Otters in Alaska

An Unusual Mortality Event

Alaska Marine Mammal Stranding Network

Over the last 4 years the U.S. Fish & Wildlife Service, National Marine Fisheries Service, and the Alaska SeaLife Center have been working to develop a volunteer marine mammal stranding network in Alaska to recover dead marine mammals and aid sick ones. There have been workshops in several communities to raise awareness of the importance and value of stranded marine mammals, both alive and dead. These animals can help us develop a better understanding of what is happening in the marine ecosystem.

Why sea otters are dying

Since the development of this community-based network, people have been reporting an unusually high number of northern sea otters dying in Southcentral Alaska. Since 2002, the number of dead sea otters has exceeded the numbers recorded for the previous 20 years for this area. Although sea otters strand for a variety of reasons (including disease, boat strikes, starvation, predation), this mortality event has an unusually high number of cases that have been diagnosed as having died from valvular endocarditis and/or septicemia. Valvular endocarditis is inflammation in the innermost layer of tissue that lines the heart valves; septicemia is the presence of bacteria in the blood. Septicemia is most likely the earliest stage of the process leading to the infectious valvular endocarditis. A bacteria called *Streptococcus infantarius ss coli* has been found in most of these otters. This bacteria belongs to the *Streptococcus bovis* group. Having a large proportion of animals die of a single infectious disease suggests some change in the equilibrium of the marine environment.

We are not sure of the specific factors that may be causing this outbreak. The high incidence of this disease may be due to increased exposure to the bacteria, increased virulence of this bacteria, or predisposing factors affecting individual sea otters that allow the bacteria to infect the heart valves.



Location of sea otter strandings identified in the unusual mortality event. The blue box indicates overall range of cases; red box indicates Kachemak Bay, where the majority of cases have occurred. The green line indicates a sea otter population boundary.

Possible predisposing factors could include: 1) immunosuppression due to a viral infection, contaminants, or genetic predisposition/reduced variability; 2) viral or other pathogen infection which causes damage to tissue cells; 3) pre-existing valvular abnormality due to congenital defect (i.e., genetic) or other factors; or 4) something in the diet that causes damage to the digestive tract and release of the bacteria into the bloodstream.

Location of diseased otters

Sea otter carcasses with this disease have been found between Umnak Island in the eastern Aleutian Archipelago to Kachemak Bay on the Kenai Peninsula (see map). Although most of this area is within the range of the southwest Alaska population stock of northern sea otters, the majority of cases have occurred in Kachemak Bay within the southcentral population stock. The southwest Alaska population was listed as threatened under the Endangered Species Act (ESA) in August 2005. Although not listed under the ESA,

the southcentral Alaska population is immediately adjacent to the southwest Alaska population in Kamishak Bay, separated by a distance of approximately 120km across Cook Inlet.

How we respond to dead/sick otters

We are currently responding to all live and dead stranded sea otters reported. Every carcass obtained is being examined by veterinarians familiar with marine mammal necropsy techniques. Samples from these cases undergo further analysis by specialized pathologists. All animals found alive but sick are being evaluated by the Alaska SeaLife Center for care and treatment. Many sea otters that have been observed alive prior to their death appear to be paralyzed in their hindquarters. Many more have been observed (but not recovered and examined) hauled out in Kachemak Bay with apparently limited or no use of their hindquarters, suggesting this disease may be more common in the population than the carcass recovery rate would indicate.

How you can help

If you see a sick or dead sea otter call the U.S. Fish and Wildlife toll-free number (1-800-362-5148) during regular business hours, or the Alaska SeaLife Center's toll-free number (1-888-774-7325) out of business hours. The SeaLife Center's message machine is checked regularly, and you will be instructed what to do next.

If you would like to volunteer to walk beaches in your local area to look for sea otter carcasses or be a carcass 'responder' as part of the marine mammal stranding network please call The U.S. Fish & Wildlife Service at 1-800-362-5148.

If you would like to know more about the specifics of this disease and the sea otter mortality event in general go to the U.S. Fish & Wildlife Service's web site.

An Unusual Mortality Event declared

In response to a large die-off of bottlenose dolphins in the Atlantic in 1987, the National Marine Fisheries Service established a system for the review of information to determine when Unusual Mortality Events (UME) are occurring. As part of this system, a national Working Group was formed and is periodically called upon to lend expertise and provide guidance. In August 2006, the Working Group recommended that the current sea otter die-off be declared a UME for this species in Alaska. Since declaration of the UME, an Investigative Team (including Working Group members and other sea otter experts) has met to discuss current research needs.



Research planned

One avenue of research will require capturing live sea otters in Kachemak and Kamishak Bays, in Lower Cook Inlet, Alaska. Each otter that is captured will undergo a series of tests for health assessment and disease occurrence. We will then radio-track some of these animals to monitor their survival. We will also conduct aerial surveys of sea otter distribution and abundance to determine if there has been an overall impact on the sea otter population. This detailed study of the health, survival, and population status will greatly improve our understanding of this mortality event.

For more information please contact:
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Visit the Marine Mammals Management
home page at:
<http://alaska.fws.gov/fisheries/mmm/index.htm>

Photo courtesy of Dr. Randall Davis,
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