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FISHERIES**



Marine Mammal Health and Stranding Response Program

The Marine Mammal Health and Stranding Response program was formalized by the 1992 Amendments to the Marine Mammal Protection Act, with NOAA's Fisheries as the lead agency to coordinate related activities.

The program has the following components: stranding networks, responses to and investigations of mortality events, biomonitoring, tissue and serum banking, and analytical quality assurance.

<http://www.nmfs.noaa.gov/pr/health/>

Brucella Infection in Marine Mammals

What is brucellosis?

Brucella spp. refers to a genus of bacteria that infect many terrestrial and aquatic vertebrates around the world. The disease, called brucellosis, is best known for its role in causing abortion in domestic livestock and undulant fever in people. The presence of *Brucella* in marine mammals was first recognized in the 1990's, and appears to be endemic in many marine mammal populations globally. The population level significance of *Brucella* in marine mammals is still unknown.

How are marine mammals affected by *Brucella* infection?

Brucella spp. has been isolated from seals, sea lions, whales, porpoises, and dolphins that appear healthy and are showing no signs of disease. In some cases, whales, dolphins, and porpoises have been known to develop these health related issues due to *Brucella* infection:

- Abortion
- Meningoencephalitis (brain infection)
- Pneumonia
- Skin infection (blubber abscesses)
- Bone infection

What types of *Brucella* are found in marine mammals?

Both *Brucella ceti* and *Brucella pinnipedialis* have been found in whales, dolphins, seals and sea lions. Currently the genetic typing and identification of marine *Brucella* species is evolving and these species designations may change in the future and we learn more about the pathogens in marine organisms. Other species of *Brucella* have been detected in wild and domestic hoofed animals, carnivores, rodents and fish.

How does brucellosis spread among animals?

The primary method of spread between animals is through consumption of tissue and fluids left after delivery of a fetus. It can also be spread through inhalation, contact with a wound, and during nursing and breeding. We do not know how it is spread in marine mammals.

What should I do if I see a marine mammal on the beach?

Since dolphins can have secondary infections that can be passed to people, do not approach or touch the animal. Keep your pets away from the animal as well. Remember these are wild animals, so for both your safety and theirs please keep a safe distance. Only trained marine mammal responders should handle the animal. If you think the animal may be in trouble, contact your local Marine Mammal Stranding Network. To find the contact information for your local network, visit: <http://www.nmfs.noaa.gov/pr/health/networks.htm>



Photo provided by: the International Fund for Animal Welfare

Brucellosis in general:
Centers for Disease Control and Prevention (CDC):
<http://www.cdc.gov/brucellosis/>

World Organization for Animal Health (OIE):
http://www.oie.int/fileadmin/Home/eng/Media_Center/docs/pdf/Disease_cards/BCLS-EN.pdf

Marine Mammal Brucellosis:
American Association of Zoo Veterinarians (AAZV):
<http://www.aazv.org/associations/6442/files/marine%20mammal%20Brucella.pdf>

Centers for Disease Control and Prevention (CDC):
<http://www.cdc.gov/brucellosis/>

Can I catch Brucellosis from swimming?

There are no reported cases where *Brucella* infection was associated with swimming. As a caution, people should not swim with open wounds or in the immediate area where a stranded animal is found. For more information on *Brucella* and how it can be contracted by humans, please see the Center For Disease Control's website <http://www.cdc.gov/brucellosis/>.

What guidance has been provided to the marine mammal stranding response teams regarding handling marine mammals and potential human health impacts?

The Network normally follows safety precautions for handling stranded marine mammals as provided in each organization's safety plans and NOAA Fisheries' "Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release". In addition, we are working with the Centers for Disease Control and Prevention (CDC) to develop additional guidance for our network responders.

Have strains of marine mammal *Brucella* ever infected a human?

Brucella has never been documented in humans after direct exposure to marine mammals, though there has been a single case of occupational exposure in a laboratory worker that was obtained after working with isolates from an infected dolphin (Brew et al. 1999). Therefore, there is likely a low but possible risk of transmission of *Brucella* bacteria to animal care workers from infected animals at necropsy or from working with live animals.

What is the risk of contracting *Brucella* from eating seafood?

There have been only 3 cases globally linking *Brucella* infection to consumption of raw seafood, and none were in the U.S.; so there is little to no risk of exposure to humans through the consumption of raw fish or other raw seafood. Cooking seafood kills the *Brucella* bacterium. For more information on seafood cooking recommendations, visit the FDA website:
<http://www.fda.gov/food/resourcesforyou/consumers/ucm077331.htm#eating>

Which marine mammal species are affected by *Brucella*?

Morbillivirus antibodies have been detected in the following species of marine mammals:

Atlantic white-sided dolphin (<i>Lagenorhynchus acutus</i>)	Killer whale (<i>Orcinus orca</i>)
Bottlenose dolphin (<i>Tursiops truncatus</i>)	Minke whale (<i>Balaenoptera acutorostrata</i>)
Common dolphin (<i>Delphinus Delphi</i>)	Pilot whale (<i>Globicephala spp.</i>)
Harbor porpoise (<i>Phocoena phocoena</i>)	Sei whale (<i>Balaenoptera borealis</i>)
Fin whale (<i>Balaenoptera physalus</i>)	Striped dolphin (<i>Stenella coeruleoalba</i>)
California sea lion (<i>Zalophus californianus</i>)	Harp seal (<i>Pagophilus groenlandicus</i>)
Grey seal (<i>Halichoerus grypus</i>)	Hooded seal (<i>Cystophora cristata</i>)
Harbor seal (<i>Phoca vitulina</i>)	Ringed seal (<i>Pusa hispida</i>)

Updated August 20, 2013