



NOAA 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 National Marine Fisheries Service 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 Whales and Dolphins



What causes 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 and sea lions and whales and dolphins that appear healthy and are showing no signs of disease. The following negative health outcomes have been found in cetaceans with *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 hoofstock, carnivores, rodents and fish.

Which cetacean species are affected by *Brucella*?

Brucella has been detected in the following cetacean species: Atlantic white-sided dolphin (*Lagenorhynchus acutus*), Bottlenose dolphin (*Tursiops truncatus*), Common dolphin (*Delphinus Delphi*), Harbor porpoise (*Phocoena phocoena*), Fin whale (*Balaenoptera physalus*), Killer whale (*Orcinus orca*), Minke whale (*Balaenoptera acutorostrata*), Pilot whale (*Globicephala spp.*), Sei whale (*Balaenoptera borealis*), Striped dolphin (*Stenella coeruleoalba*).

Did Brucella cause this Unusual Mortality Event?

We are still investigating the possible cause(s) for this Unusual Mortality Event. At this time, scientists are investigating more samples to see if *Brucella* played a role in the Unusual Mortality Event. They also continue to investigate the role of the Deepwater Horizon oil spill in the Unusual Mortality Event.

Where can I find more information on this Unusual Mortality Event?

Visit NOAA's webpage:
http://www.nmfs.noaa.gov/pr/health/mmume/cetacean_gulfofmexico2010.htm

What should I do if I see a dolphin on the beach?

Do not approach or touch the dolphin. Keep your pets away from the dolphin as well. Remember these are wild creatures, for both your safety and theirs please keep a safe distance. Only trained marine mammal responders should handle the dolphin. If you see a dolphin on the beach in the Southeast, call the NOAA Fisheries Southeast Marine Mammal Stranding hotline 877- WHALE HELP (1-877-942-5343) to report it.

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>

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, ingestion, contact with a wound, and during nursing and breeding. We do not know how it is spread in whales and dolphins.

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 dolphins 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.

Has this been found in any fish?

There is little in the scientific literature showing the presence of *Brucella* in fish. In Nile catfish, *Brucella* was found on the skin of the catfish and the concern was with humans handling the fish and coming in contact with the bacteria. There was no indication of the *Brucella* infecting the fish and causing disease symptoms.

How can I find out more information on Brucellosis?

Visit the following online resources:

Brucellosis in general:

Centers for Disease Control and Prevention

(CDC): http://www.cdc.gov/ncidod/dbmd/diseaseinfo/brucellosis_g.htm

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/>

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