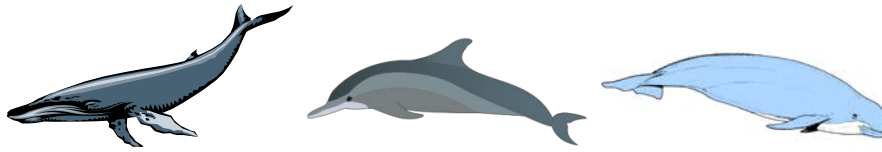


UCSC Biosafety - Information on Zoonotic Diseases

Species Specific Guide - Cetaceans: Whales, Dolphins & Porpoises



This guide is designed to inform individuals who work with animals about potential zoonoses (diseases of animals transmissible to humans), personal hygiene, and other potential hazards associated with animal exposure. This information sheet is directed toward those involved in the care and use of cetaceans.

Potential Injury and Zoonotic Diseases

Cetaceans are large marine mammals that can be tamed in a controlled environment, but very dangerous in the wild due to their size and sometimes playful nature. Employees should receive training on how to handle and approach these large mammals. The overall incidence of transmission of disease-producing agents from cetaceans to humans is low. There are, however, a number of agents that are found in aquarium water that have the potential to be transmitted to humans. In general, humans contract disease through ingestion of infected tissues or aquarium water, or by contamination of lacerated or abraded skin. An important feature of many of the disease causing agents is their opportunistic nature. The development of disease in the human host often requires a preexisting state that compromises the immune system. If you have an immune-compromising medical condition or you are taking medications that impair your immune system (steroids, immunosuppressive drugs, or chemotherapy), you are at greater risk of infection. The following is a list of some of the known and potential cetacean's zoonoses.

Erysipelothrix rhusiopathiae: This is a pathogenic micro-organism which can infect a wide variety (over 50 species) of animals including vertebrates and non-vertebrates, from house flies to wild bears. It is especially common in domesticated pigs, but other sources of infection are fish and marine animals. *Erysipelothrix rhusiopathiae* usually enters its host through scratches or puncture wounds on the surface of the skin. The organism is fairly resilient in the environment, and it is likely to be found in sewage and soil. In fish, this organism does not cause disease, BUT it grows and persists for long periods on the body surface, which puts those who handle fish at high risk of contracting this organism. Human infections are primarily found as a result of occupational exposure. There are three clinical categories for the disease caused by this organism: A localized cutaneous (skin) form (most common). Signs are usually a throbbing itching pain and swelling of the finger or part of the hand; a generalized cutaneous form; and a septicemic form (associated with the heart disease endocarditis).

Mycobacterium: *Mycobacterium marinum* is an organism that is commonly found in marine animals and water. The causative agent is an acid-fast mycobacterium similar to the organism that causes tuberculosis in humans. It causes tuberculosis in fish and can cause infection in humans and other species that come into contact with contaminated water or marine animals. Humans are typically infected by contamination of lacerated or abraded skin with aquarium water or by direct contact. A localized granulomatous nodule may form at the site of infection, most commonly on hands or fingers. The granulomas usually appear approximately 6-8 weeks after exposure to the organism. They initially appear as reddish bumps (papules) that slowly enlarge into purplish nodules. The infection can spread to nearby lymph nodes. It is possible for these species of mycobacterium to cause some degree of positive reaction to the tuberculin skin test.

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How to Protect Yourself

- **Wash your hands/shower.** The single most effective preventative measure that can be taken is thorough, regular hand washing. Wash hands and arms after handling cetaceans and aquarium water. Shower after being in any holding tank or having close body contact. Never smoke, drink or eat without washing your hands.
- **Wear gloves.** If you are in a situation in which you will spend a significant amount of time with your hands immersed in water or if you have any cuts or abrasions on your hands or arms, you should wear sturdy, impervious gloves.
- **Seek Medical Attention Promptly.** If you are injured on the job, promptly report the accident to your supervisor, even if it seems relatively minor. Minor cuts and abrasions should be immediately cleansed with antibacterial soap and then protected from exposure. For questions, contact EH&S Biosafety (biosafety@ucsc.edu). More serious injuries and emergencies should report to Dominican Hospital.
- **Tell your physician you work with cetaceans.** Whenever you are ill, even if you're not certain that the illness is work-related, always mention to your physician that you work with cetaceans. Many zoonotic diseases have flu-like symptoms and would not normally be suspected. Your physician needs this information to make an accurate diagnosis. Questions regarding personal human health should be answered by your physician.