

UCSC Biosafety - Information on Zoonotic Diseases

Species Specific Guide - Pinnipeds: Seals, Sea Lions & Walruses



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 pinnipeds.

Potential Injury and Zoonotic Diseases

Pinnipeds are large marine mammals that can be tamed in a controlled environment but are very dangerous in the wild due to their size, playful nature, and because they are territorial. Individuals should receive training on how to handle and approach any wild animal. The overall incidence of transmission of disease-producing agents from pinnipeds 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 pinniped zoonoses.

Erysipelothrix rhusiopathiae: This is a pathogenic micro-organism that 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 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, which is most common and presents as 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).

Seal Finger: The term “seal finger” is used to describe a painful infection of the fingers following the handling of seals or seal skins. This condition is also known as “Sealer’s Finger” and “blubber-finger”. The cause is thought to be a mycoplasma. Infection is thought to enter the finger through a break in the surface of the skin, such as a small cut. The signs of seal finger are an extremely painful cellulitis involving the finger, which occurs within a few days of handling seals or seal skins. The finger swells, becomes taut and shiny in appearance, and the tissue becomes soft. Severe disability of the affected digit may result. The infection may be reoccurring. Diagnosis is based upon the clinical signs and history. Isolation of mycoplasma from infected tissues may be possible. Antibiotic treatment is usually successful.

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How to Protect Yourself

- **Wash your hands.** The single most effective preventative measure that can be taken is thorough, regular hand washing. Wash hands and arms after handling pinnipeds and aquarium water. Never smoke, drink or eat before 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). For more serious injuries or emergencies, report to Dominican Hospital.
- **Tell your physician you work with pinnipeds.** 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 pinnipeds. 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.