The Occupational Health and Safety Program is designed to inform individuals who work with animals about potential zoonosis (disease 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 laboratory aquatic species.

**Potential Zoonotic Diseases**

Aside from food poisonings, the overall incidence of transmission of disease-producing agents from fish to humans is low. There are, however, a number of agents that are found in fish and aquarium water that have the potential to be transmitted to humans. In general, humans contract fishborne disease through ingestion of infected fish tissues or by contaminated aquarium water contacting non-intact skin. An important feature of many bacterial and protozoal organisms 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 (e.g., diabetes, pregnancy) or are taking medications that impair your immune system (steroids, immunosuppressive drugs, or chemotherapy) you are at risk for contracting a fishborne disease and should discuss this with your physician. The following is a list of known and potential fishborne zoonoses.

**Mycobacterium**

Organisms in the genus Mycobacterium are nonmotile, acidfast rods. Six species, *M. fortuitum*, *M. marinum*, *M. chelonae*, *M. haemophilum*, *M. abscessus* and *M. peregrinum* are pathogens of fish. Humans are typically infected via lacerated or abraded skin with aquarium water or fish 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. More disseminated forms of the disease are likely in immunocompromised individuals. It is possible for these species of mycobacterium to cause some degree of positive reaction to the tuberculin skin test.

**Other Bacteria and Protozoa**

Below is a list of additional zoonotic organisms that have been documented in fish or aquarium water, according to the corresponding symptom of infection in humans.

**GI Upset:** Aeromonas hydrophilia, Clostridium, Cryptosporidium, E. coli, Edwardsiella tarda, Giardia species, *Klebsiella* spp, Salmonella spp., Plesiomonas shigelloides, Pseudomonas fluorescens, Vibrio species, Yersinia enterocolitica

**Fever:** Clostridium, Edwardsiella tarda, Nocardia, Pasteurella multocida, Staphylococcus, Yersinia enterocolitica

**Skin Lesions:** Listeria monocytogenes, Mycobacterium marinum, Vibrio species

**Cellulitis:** Aeromonas hydrophila, Erysipelothrix rhusiopathiae, Plesiomonas shigelloides, Staphylococcus, Streptococcus iniae, Vibrio vulnificus

**Spontaneous Abortion:** Listeria monocytogenes
Allergic Reactions to Fish
Human sensitivity to fish proteins in the laboratory setting is rare. It remains possible, however, to become sensitized to fish proteins through inhalation or skin contact.

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 fish and aquarium water. Never smoke, drink or eat in the animal rooms or 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, you should wear sturdy, impervious gloves. If you have any cuts or abrasions on your hands or arms, notify your PI, as he or she may temporarily reassign you to non-aquarium tasks until healed.

☐ **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 to fish and aquarium water. For more serious injuries or if there is any question, you should report to an occupational health physician or your physician for evaluation.

☐ **Tell your physician you work with fish.** 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 fish. 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.

☐ **Be your own best advocate.** If your health status changes, such as developing an illness that compromises your immune system, taking new medications which impact your immune system, developing a chronic illness, or being advised by your physician that you are at high risk of developing infection, or should not be exposed to carcinogenic, toxic, or other potentially hazardous compounds (for example during a pregnancy), tell your physician that you work with animals and ask for their advice.

Please sign and date to verify you have read the above information then return this form to EHS.

Name (Print) ______________________________ Signature ______________________________

Name of PI/Supervisor: __________________________

Trainer (Print) ______________________ Signature ______________________ Date: ____________