

Daily Monitoring of Fish Morbidity and Mortality

A. Summary

There are several times during the day when you may encounter a sick fish. If you notice an abnormal fish while you are feeding, cleaning, assembling tanks or equipment, or whenever you are present in the fish room, mark the location of the sick fish so that it can be removed as soon as possible. Removing sick fish from the population is our most effective means of detecting pathogens and adverse environmental conditions, preventing spread of disease, controlling morbidity, and ensuring a high level of fish welfare.

B. Definitions

N/A

C. Materials

1. Red and white waterproof tank flags
2. Net
3. 1 gallon tank with fish water
4. Euthanasia of Fish for PCR or Fixation SOP
5. Fixing Zebrafish for Histopathology SOP
6. Materials for fish euthanasia (see appropriate SOP)
7. Materials for fixation (see appropriate SOP)

D. Procedures

1. Fish exhibiting the behavioral and physical signs below should be removed. If you have time to remove the fish, go to step 3 or 4. If you do not have time to remove the fish immediately, place a red flag on the front of the tank and write the number of affected fish and observed clinical signs on the flag (i.e. "1 skinny").

| Behavioral Abnormalities | Physical Abnormalities |
|-------------------------------------|---------------------------|
| Fish at surface or near water inlet | Color change |
| Rapid breathing/opercular movements | Weight loss |
| Sluggish movements/lethargy | Exophthalmia/pop-eyes |
| Flashing/rubbing on tank surfaces | Distended abdomen |
| Circling, twirling, spinning | Skeletal deformity |
| Loss of equilibrium | Mass/swelling |
| | Hemorrhage/redness |
| | Gas bubbles |
| | Protruding scales |
| | Fin erosion or lesion |
| | Skin ulceration or lesion |

2. Inform an animal technician or the veterinarian that you flagged a sick fish and give the tank location or proceed, as described below, to remove the fish when you have time.
3. Remove dead fish immediately or mark the tank with a white flag, note the location of the tank, and remove the fish as soon as possible. If you are not able to remove the fish, alert someone who is able to remove it immediately. Dead fish are quickly cannibalized by other fish and are a significant source of disease transmission. Dead fish may be added to the main room ice slurry chamber.
4. Use a new, clean, dry net to transfer the abnormal/sick fish from the tank into a new 1-gallon tank with fish water. The same net may be used for multiple fish from one tank but a new net must be used for each tank.
5. Label the 1-gallon tank with the stock number and source tank of the moribund fish.
6. Place a piece of the tape across the front of the tank and write on it, "sick fish" and the date.
7. Place the tank on row A06 if the moribund fish was from side A. Place the tank on row B06 if it was from side B.
8. Inform the veterinarian that you have isolated a sick fish by email or in person.
9. If neither the veterinarian nor the veterinary assistant is present, and the fish requires immediate attention (fish is at the surface or on the bottom of the tank, exhibiting rapid or minimal opercular movements, or advanced coelomic distention) follow SOP for Euthanasia of Fish for PCR or Fixation and SOP for Fixing Zebrafish for Histopathology.



E. Monitoring Requirements

N/A

F. Record Management

The history of all fish removed from each tank, along with reason for removal, is maintained in the database.

G. References

N/A

H. Other SOPs Cross-Referenced Here

1. Euthanasia of Fish for PCR or Fixation
2. Fixing Zebrafish for Histopathology

I. Supplementary Documents

N/A