

Teaching Plan:

**Module:** Ornamental/Tropical Fish - Section D

**Problem Area:** Identifying Ornamental/Tropical Fish Disease Prevention and Health Care

**Estimated Time:** 4-5 hours

**Goal:** The goal of this problem area is to gain experience in management techniques required to keep tropical fish healthy.

**Learning Objectives:** Upon completing this problem area, students will be able to:

- identify conditions that cause disease in tropical fish
- identify management practices that prevent disease in tropical fish
- identify symptoms of disease of tropical fish
- determine treatments for specific diseases of tropical fish

**Resources:** The following instructional resources are needed to complete this problem area:

Essential:

Transparencies.

**You and Your Aquarium**, by Dick Mills, Alfred A. Knopf, Inc., Random House, Inc., NY, 1986.

Additional:

Any tropical fish resources related to fish health.

Tropical fish exhibiting signs of distress or disease. Sick fish may be obtained from pet stores who receive a shipment with sick fish or from customer returns. These fish may be obtained if you have a good relationship with the store owner and the owner understands the nature of your aquaculture program.

## Content and Procedures

### Preparation (Interest Approach):

Show TM D1 and discuss learning objectives.

To develop student interest in this module, ask a student to explain why if one person in a class gets a cold or flu, then it is likely that others will get it also. (Organisms travel through air.) Ask another student to explain why if this situation occurs, some students will get sick and others will not. (Some people have higher resistance.) What makes for high resistance? (rest, good eating habits, being healthy to begin with, staying away from adverse environmental conditions) Have students discuss merits of prevention vs. treatment of colds and flus. Ask them to relate these ideas to a fish tank. If there is one sick fish in the tank, what is the chance of others getting sick also?

If a fish got sick because of low resistance, chances are good it was caused by poor conditions in the tank. All the other fish in the tank were subjected to the same conditions in the tank too. Who controls the conditions in the tank or aquarium? (The aquarist does.) Is it better to prevent or treat illnesses and diseases? (prevent)

### Presentation:

#### A. Why is prevention the best medicine?

Show TM D2 and start class discussion by having students identify situations that cause them stress and do not allow them to function normally. Also discuss consequences of prolonged stress. Have students imagine what it must be like to be a fish and have someone chase it with a net through its house.

1. Prevention through proper aquarium management practices. Health depends upon the environment in which the fish have to live. The environment is under the control of the aquarist.
  - a. Stress. Any type of stress may cause fish to succumb to disease or illness. Always be considerate of the fish when handling or netting. Hitting the tank, sudden or loud noises, constant moving of fish from tank to tank cause extreme stress.
  - b. Water quality. Because fish are surrounded by water, any detrimental change in the water will directly affect the fish. Keep water quality high by not overfeeding fish, controlling algae growth, maintaining the filtration and aeration systems, and regularly changing about 20% of the tank's water (every 3 to 4 weeks).
  - c. Water temperature. Maintain a constant water temperature. Use aquarium heaters. Insure the aquarium heater is adequate for the size aquarium. Two heaters in one large tank may be necessary. Determine what the optimum temperature range is for the specific fish species, then maintain it.
  - d. Food quality. Feed fish only high quality, nutritious food. Commercially prepared food usually causes no problems. Be very careful when feeding live food. Any illness or disease that the live food brings into the tank will attack fish.
  - e. Quarantine newcomers. New fish must be in a separate tank for a few weeks to insure they are healthy and disease free. After this period they can be added with the rest of the fish.
  - f. Daily tank inspections. Inspect fish every day. Get to know their habits and special behavior characteristics. A change in their behavior, such as eating and swimming habits, is an early sign that something is wrong.

B. What causes disorders in tropical fish?

Show TM D3. Mention that these organisms are usually always present in aquarium water waiting for a fish to become susceptible by being weakened from some type of stress.

1. Parasites.
  - a. Feed on skin and gills; may penetrate skin.
  - b. Easily treated by adding chemicals to water.
  - c. Examples: Ichthyophthirius (Ich), velvet disease, and skin flukes.
  
2. Bacteria and fungi.
  - a. Can be caused by poor tank.
  - b. Important to keep tank clean.
  - c. Treated with drugs.
  - d. Examples: dropsy, fin and tail rot.
  
3. Diseases.
  - a. Tuberculosis.
  - b. Cancer.

C. How can these diseases be diagnosed?

Refer to TM D4, Mardel Fish Disease Chart.

1. Most fish illnesses can be diagnosed and treated without consulting a veterinarian.
2. Companies manufacturing treatments for fish diseases often will have diagnostic charts to guide the aquarist in determining disease and treatment. If after referring to one of these charts the disease and or treatment cannot be confidently determined, then call in a specialist.

D. What treatment is available?

Show TM D5.

1. Heat therapy.
  - a. For treatment of external parasites (Ich, Oodinium).
  - b. Raise water temperature to 86°F for 10 days for Ich, 92°F for about 30 hours for Oodinium.
  - c. Raise temperature slowly (2°F per hour).
  - d. Discontinue treatment if fish exhibit undesirable side effects.
  
2. Salt bath.
  - a. For treatment of fungus, gill and skin flukes.
  - b. One-half oz table salt per quart of water.
  - c. Bathe fish for 20 minutes.
  - d. Repeat bath two times at 48-hour intervals.
  
3. Formalin bath.
  - a. For treatment of external parasites.
  - b. 3 ml of 35% formalin to 10 quarts of water.
  
  - c. Bathe fish for approximately 30 minutes.
  - d. Discontinue treatment if fish exhibits undesirable side effects.

4. Treatment with chemicals and drugs. Several companies manufacture and distribute chemicals and drugs for aquarium use that can be found at your local pet shop. As with all animals and the administration of chemicals or drugs, the correct diagnosis is important to selecting the right treatment.

### Review:

Review by having students demonstrate their knowledge and understanding of the objectives. This can be accomplished by having students respond to and discuss the following questions: What are major causes of stress for fish? Other than stress, what are additional factors that can weaken fish and make them susceptible to disease? What are the major causes of disease and illness in fish? How are heat treatments, salt baths, and formalin baths administered? What is essential before deciding on a particular treatment for a sick fish?

### Application Activities:

Have students correctly diagnose sick fish. If sick fish are not available, teacher can describe a set of symptoms, and students can diagnose the disease or illness described. Students can develop a data bank of medicines and treatments available in the community at local pet and specialty stores. They can treat sick fish using approved practices.

## Learning Objectives

- Identify conditions that cause disease and illness in tropical fish.
- Identify management practices that prevent disease and illness in tropical fish.
- Identify symptoms of diseases and illnesses of fish.
- Determine treatments for specific diseases and illnesses of tropical fish.

## Controlling Aquarium Environment to Prevent Health Problems

- Stress
- Water quality
- Water temperature
- Food quality
- Quarantine new fish
- Daily tank inspections

## Causes of Disorders in Tropical Fish

- Parasites: Internal and external
- Bacteria
- Fungi
- Diseases: tuberculosis and cancer

# Mardel Fish Disease Chart

## Treatments

- Heat Therapy for External Parasites:
  - Raise water temperature to 86°F for 10 days for treating Ich.
  - Raise to 92°F for 30 hours for Oodinium.
  - Discontinue treatments if fish exhibit undesirable side effects.
- Salt Bath for Fungus, Gill and Skin Flukes:
  - Add .5 oz of table salt per quart of water.
  - Bathe fish for 30 minutes. Repeat baths twice, 2-day intervals.
  - Discontinue if fish exhibits undesirable side effects.
- Formalin Bath for External Parasites:
  - Mix 3 ml of 35% formalin to 10 quarts of water.
  - Bathe fish for 30 minutes.
  - Discontinue treatment immediately if fish exhibits undesirable side effects.
- Chemical and Drugs

Quiz for Section D

Name:

Date:

Quiz on Identifying Ornamental/Tropical Fish Disease Prevention and Health Care

In the space provided, write the correct response to each question.

1. Explain why the aquarium manager is the best defense against disease for tropical fish.

2. Briefly explain how the following factors affect fish health:

Water quality:

Water temperature:

Food quality:

3. Fill in the blanks:

Heat therapy is good for treating \_\_\_\_\_. For treating Ich, aquarium water should be increased to \_\_\_\_\_°F for \_\_\_\_\_ days. When raising the water temperature, raise it \_\_\_\_\_°F per hour until the desired temperature is reached.

A salt bath is good for treating \_\_\_\_\_ and \_\_\_\_\_. Add table salt at the rate \_\_\_\_\_ oz per quart of water. Bathe fish for \_\_\_\_\_ minutes. The baths needs to be repeated \_\_\_\_\_ times at \_\_\_\_\_ hour intervals.

## Aquaculture Curriculum Guide

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### Key for Quiz - Section D

1. Explain why the aquarium manager is the best defense against disease for tropical fish.

Fish health is very dependent upon the environment in which the fish live. This environment is under the direct control of the aquarist. Good management practices by the aquarist will prevent diseases and keep the fish healthy and resistant to succumbing to illnesses.

2. Briefly explain how the following factors affect fish health:

Water quality: Fish are surrounded by water; any detrimental change to the water will directly affect the fish.

Water temperature: Fluctuations in water temperatures put stress on fish. This increases their susceptibility to disease and illness.

Food quality: Good nutrition keeps a fish healthy. A well-balanced diet is essential for keeping fish disease resistant. For live food, an undesirable organism on the live food will also try to infect aquarium fish.

3. Fill in the blanks.

Heat therapy is good for treating external parasites. For treating Ich aquarium water should be increased to 86°F for 10 days. When raising the water temperature, raise it 2°F per hour until the desired temperature is reached.

A salt bath is good for treating fungus and gill and skin flukes. Add table salt at the rate .5 oz per quart of water. Bathe fish for 20 minutes. The baths needs to be repeated 2 times at 48-hour intervals.