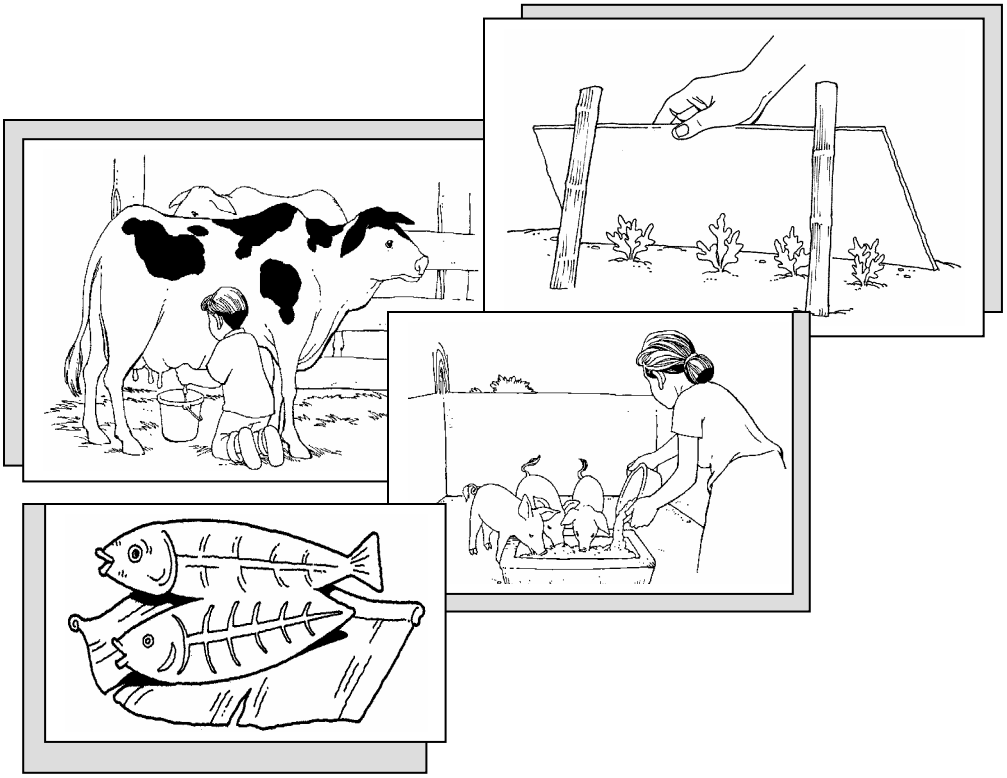
# PROJECT EASE

## Effective and Affordable Secondary Education

## TECHNOLOGY AND LIVELIHOOD EDUCATION

Agriculture and Fishery Arts



MODULE 13

BUREAU OF SECONDARY EDUCATION

Department of Education
DepEd Complex, Meralco Avenue
Pasig City

# Fish Production
# Fist Year

# Module 13
# Fish on Parade

## What this module is all about

Welcome! It's nice to see you again. Do you still remember what you have done in the previous module? You learned fish capture and the classification and use of fishing gears. You were also able to make a fishing gear, the simple hand line. It is a wonderful accomplishment ,isn't it?

This time, your learning experiences will familiarize you with fish culture and the place where fish are being cultured. Are you ready for another learning experience? Join the fish on parade to the water and learn more on fish culture.

## What to learn from this module

After working on this module, you are expected to do the following:

1. explain the fundamental principles and concepts and the importance of fish culture;
2. explain the phases of fish culture; and
3. differentiate the characteristics of the bodies of water near the place where fish is cultured.

PRETEST

Directions: Place the letter of the correct answer on the blank before the number.

_____1. Which of the following is not a phase of fish culture?
- a. fish propagation
- b. fish capture
- c. fish cultivation
- d. fish conservation

_____2. Which is an artificial source of freshwater?
- a. swamps
- b. rivers
- c. deep-well
- d. lakes

_____3. This term applies to the release of fry or fingerlings in growing and rearing areas.
- a. draining
- b. harvesting
- c. stocking
- d. fertilization

_____4. These are bodies of water along or near the mouth of rivers.
- a. marine water
- b. freshwater
- c. brackish water
- d. sea water

_____5. Which of the following is an advantage of fish culture?
- a. prevents soil erosion
- b. beautifies the surroundings
- c. provides employment
- d. aggravates poverty

_____6. Which of the following is an activity in fish cultivation?
- a. fertilization
- b. cleaning the pond
- c. breeding
- d. harvesting

_____7. The following are activities in fish propagation except one.
- a. nursing the larvae
- b. spawning breeders
- c. stocking
- d. hatching

_____8. It is the phase of fish culture that includes the draining of the pond.
a. fish capture
b. fish cultivation
c. fish propagation
d. fish conservation

_____9. It is one of the natural resources of freshwater.
a. dam
b. aquarium
c. lake
d. deep-well

_____10. It is the right time to start a fish project.
a. year around
b. early months of the year
c. any month of the year
d. end of the year

# Lesson 1

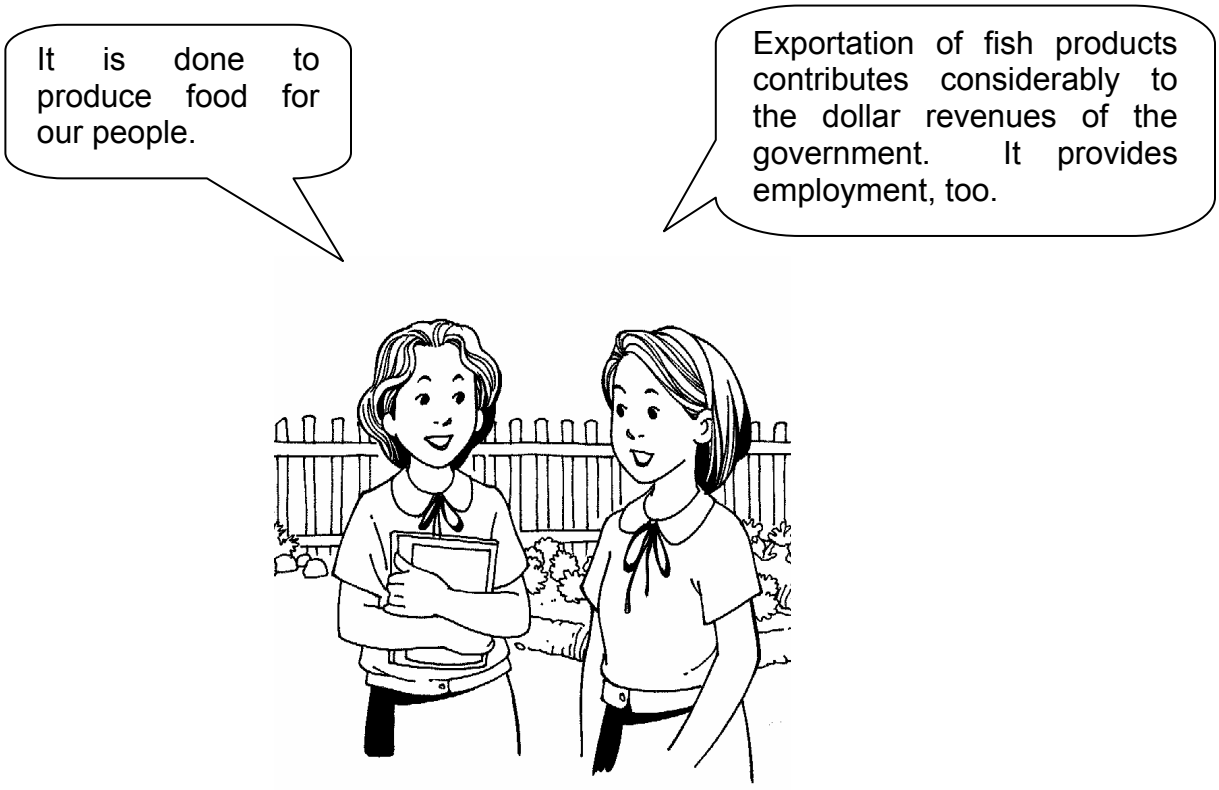
## Principles and Concepts and Importance of Fish Culture

*"Knowing the right thing is doing the right thing."* Knowing more information about fish culture leads you to depth of understanding.

Do you know what fish culture is? How important is it? Read the following and find out.

Fish culture is the rearing of fish and other aquatic products from their early stage of growth to their marketable or consumable stage. Fish culture is done at the proper time or early enough for harvest during the month of the year when the prices of fish at the market are good. This is particularly true with bangus and tilapia.

Why is fish culture important? Of what value is it to our people?




Below is the story of Mang Edring. Let's read it and answer the questions that follow.

Mang Edring has a fish farm. He cultures tilapia and bangus. He also raises ornamental fish for aquarium purposes. These tasks give him enough income to support his family needs such as food and education of his children, among others. It also provides employment for some of his children and neighbors.

As to the activities on his fish farm, Mang Edring usually starts operations during the early months of the year. He does this to harvest the fish during the time when its price is high.

Today, Mang Edring is starting to export some ornamental fish he bred to Thailand and other nearby countries. This helps the government earn dollars, too.

Now, answer the following questions:

1. Why is the job important to Mang Edring?
2. Why does Mang Edring start operating his fish farm during the early months of the year?

Does this make you more interested in the subject of fish culture? Good. You can now move on to the next lesson.

# Lesson 2

## Phases of Fish Culture

You have just learned basic information on fish culture in the previous lesson. Fish culture has three major phases, namely: fish propagation, fish cultivation, and fish conservation.

1. Fish Propagation

Fish propagation is the natural or artificial method of promoting or enhancing the reproduction and survival of fish and other aquatic products. Fish propagation can be done in bodies of water such as rivers, lakes, seas or oceans or in artificial or man-made areas like fishponds. It involves the keeping, maintenance, and spawning of breeders in tanks or ponds; hatching the eggs in hatchery facilities; and nursing the delicate larvae up to a size suitable for stocking (process of releasing fry or fingerlings) purposes in rearing areas like fishponds or lakes.

2. Fish Cultivation

This is the rearing of fish from a very young stage like fry and fingerlings up to a marketable size. Cultivation may be done in fresh, brackish and marine waters in any of the rearing structures such as fishponds, fish pens or aquariums.

The use of fishponds in fish cultivation includes the selection of a suitable site, construction of fishpond, cleaning the pond, filling the pond with water up to 15-20 centimetres deep, fertilization to replenish the nutrients at the bottom of the pond, stocking, controlling the weeds, eradicating the enemies of fish and diseases, and feeding and harvesting through draining.

3. Fish Conservation

This is the public control and maintenance of the various fisheries or areas where fish and other fishery products are conserved. This is designed to ensure maximum sustainable yield of fish. An example is the implementation of Presidential Decree No. 1058, which is an amendment of Presidential Decree No. 704, which increases the penalties for illegal fishing, sale of illegally caught fish or fishery/aquatic products for other purposes.

How well did you understand the lesson? Let us now work on the following activity to find out.

**Activity 1**

Collect sample pictures of the three phases of fish culture. Label each picture and provide a written explanation for each. Present your work to your teacher.

 Self-check:

Write T on the blank before each number if the given statement is true, and F, if false.

_____1. As a student, you can help conserve fish areas in your locality.
_____2. Fish propagation can also be done in salty water.
_____3. Fertilization is done to replenish the nutrients at the bottom of the pond.
_____4. The process of releasing fry and fingerlings in the fishpond or any rearing areas is known as draining.
_____5. Draining the fishpond to gather the fish is harvesting.

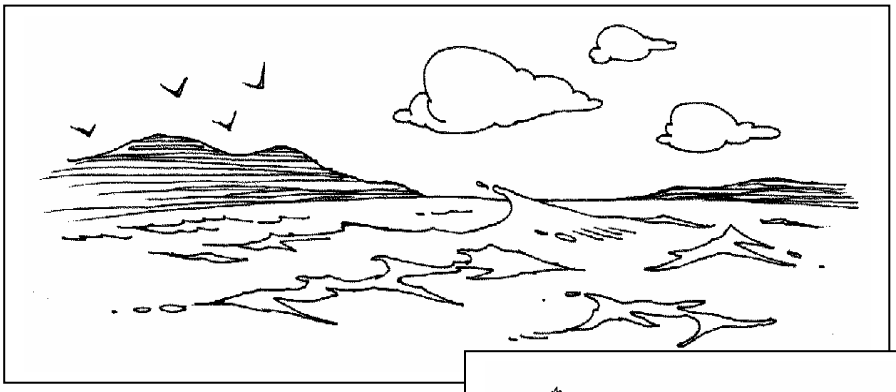
Have you got all the answers correct? If yes, you're truly a fast learner. Congratulations!

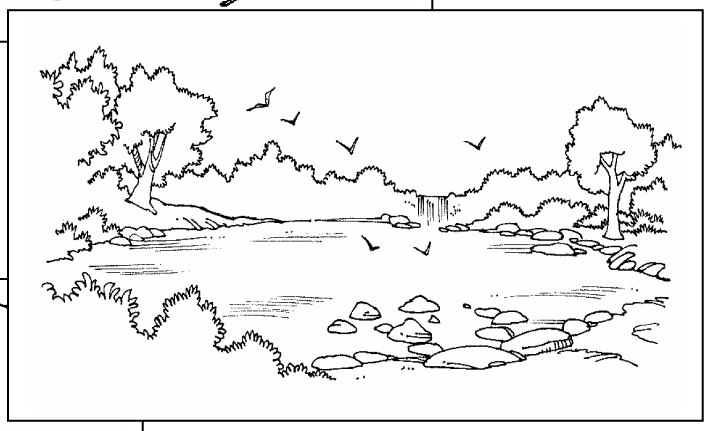
# Lesson 3

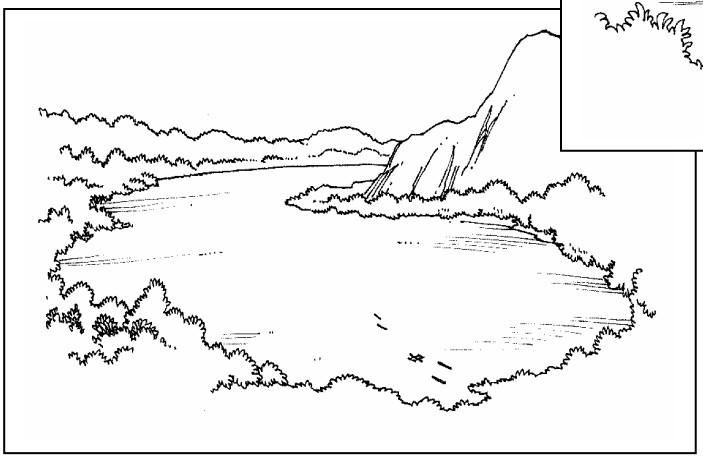
## Bodies of Water where Fish is Cultured

Hello again! After knowing the three phases of fish culture, you'll now describe the characteristics of existing bodies of water in the locality where fish is being cultured.

Can you identify what bodies of water are shown in the following pictures? Have you gone to any of these or seen similar to these? If so, you can easily identify them, can't you? Look at the pictures below.







Which of the pictures above shows freshwater? brackish water? marine water?

To differentiate the characteristics of each body of water, refer to the table below.

| Freshwater | Brackish Water | Marine Water |
|---|---|---|
| • Clean fresh water from natural sources such as lakes, ponds, rivers, and swamps.<br>• Artificial sources such as dams or reservoirs, irrigation and man-made ponds. | • Pond-converted mangrove areas along or near river mouths.<br>• Salinity of water ranges from slightly greater than fresh water to lower than seawater. | • Seawater<br>• Water along coastal areas |

The Philippines is endowed with these bodies of water where different kinds of fish are cultured, applying the appropriate method of fish propagation and cultivation.

Can you now differentiate freshwater from brackish water and marine water? Let me see.

 Self-check:

Write whether the given bodies of water are considered as sources of freshwater, brackish water or marine water.

_____1. Rice paddies
_____2. Ocean
_____3. Along the river mouths
_____4. Lakes
_____5. Fishponds

Was your score perfect? If perfect, congratulations! This means that you understood what you read.

 LET'S SUMMARIZE

- ❖ Fish culture is the rearing of fish from an early stage of growth to a marketable or consumable stage.
- ❖ Fish culture consists of the three phases namely; fish propagation, fish cultivation, and fish conservation.
  - Fish propagation refers to the method of enhancing the reproduction and survival of fish.
  - Fish cultivation is the rearing of fish from fry to fingerlings up to the marketing size.

- Fish conservation is the public control and maintenance of fish sources.

❖ Bodies of water where fish is cultured are freshwater, brackish water, or marine water.

How do you feel now that you're through with this module? If you think there are aspects you need to go over, do so. But, if you think you've learned enough that remains to be seen. Answer the posttest to find out.

POSTTEST

Directions: Choose the correct answer.

1. It is the term applied to the rearing of fry and fingerlings until they reach marketable size.
    a. fish capture
    b. fish conservation
    c. fish propagation
    d. fish culture

2. Which is an artificial source of freshwater?
    a. dam
    b. river
    c. lake
    d. swamp

3. Phase of fish culture which refers to public control and maintenance of fisheries.
    a. fish culture
    b. fish conservation
    c. fish propagation
    d. fish cultivation

4. Body of water where salinity ranges from slightly greater than freshwater to lower than sea water.
    a. marine water
    b. natural freshwater
    c. brackish water
    d. artificial water

5. Which of the following is not an advantage of fish culture?
    a. it provides food
    b. it helps the government through its revenues
    c. it provides employment
    d. it makes people busy

6. Which of the following activities is not involved in fish propagation?
    a. draining
    b. spawning

c. stocking
d. hatching eggs

7. The following are activities in fish cultivation except
    a. selection of site
    b. nursing larvae
    c. harvesting
    d. fertilization

8. When is fish culture started?
    a. any month of the year
    b. end of the year
    c. year round
    d. early months of the year

9. Phase of fish culture, which involves the release of fry and fingerlings in the rearing areas.
    a. fish capture
    b. fish cultivation
    c. fish propagation
    d. fish conservation

10. Which of the following is a source of marine water?
    a. lakes
    b. rivers
    c. sea
    d. dam

What is your score? If it is 10, excellent! You're pace of learning is amazing! Congratulations! See you again in the next module. Relax and take it easy for the meanwhile.

ANSWER KEY

Pretest

1. b
2. c
3. c
4. c
5. c
6. c
7. c
8. b
9. c
10. b

Lesson 2: Self-check

1. T
2. T
3. T
4. F
5. T

Lesson 3: Self-check

1. freshwater
2. marine water
3. brackish water
4. freshwater
5. freshwater

Posttest

1. d
2. a
3. b
4. c
5. d
6. a
7. b
8. d
9. b
10. c