PENANG SANGAM HIGH SCHOOL P.O.BOX 44, RAKIRAKI LESSON NOTES

School: Penang Sangam High School Subject: Agricultural Science Year/Level: 9

Week 26

Strand	STRAND AS 9.4 LIVESTOCK
Sub Strand	SUB-STRAND AS 9.4.1 FISHERIES

AS 9.4.1.4 Explore methods used to produce and sustain aquatic organisms.

LESSON ONE: AQUACULTURE

- Algaculture farming of algae mainly sea plants.
- **Wariculture** farming marine organisms in seawater.
- 4 Periculture farming pearls.
- **4** Submerged under the surface of the water.
- **4** Suspended hanging in the water

The aquatic organisms may be farmed on the seabed, in pens or cages and in ponds.

- 1. **Bottom culture** growing aquatic organisms on or close to the seabed e.g. seaweeds and clams.
- 2. **Suspended aquaculture** where the strings or cages of organisms are suspended in the water
- 3. **Ponds** are small bodies of water. Artificial ponds are constructed and aquatic organisms are farmed in them. Farmers give the organisms everything they need.
- 4. **Algaculture** sea plants are grown areas away from human activity. Fiji began experimenting with the growing of Eucheuma spp. in the 1970"s.
- 5. Coral aquaculture is also called coral gardening and coral farming.

AS 9.4.1.5 Explore and elaborate on the harvest, post-harvest treatment and use of aquatic products and by-products.

LESSON ONE: HARVESTING OF AQUATIC ANIMALS

Fish Aggregating Devices (FADs)- A FAD is a manmade floating object used to encourage fish to gather in particular areas.

Below are some methods used for the harvesting of aquatic organisms:

- 1. **Gleaning, collecting and gathering** a variety of aquatic organisms including plants, animals, shells and coral are collected from the reef and shallow intertidal area during low tide.
- 2. **Traps** structures or equipment are made and used so that some aquatic organisms like fish, crabs, eels and prawns can enter but cannot escape.
- 3. Spearing where pointed spears are thrown or thrust into organisms.
- 4. **Netting** netting material is sown into various types of nets. Eg scoop net, gill netting.
- 5. **Hook and line fishing** where a baited hook is attached to a line which is either dangled or pulled through the water to attract organisms.



Harvesting pearls –After allowing the pearls to grow for about 2 or 3 years, the clams and oysters are:

- i) pulled out of the water.
- ii) ii) carefully opened.
- iii) iii) checked for pearls in the mantle.
- iv) iv) cut to release the pearls

LESSON TWO: POST HARVEST TREATMENT OF AQUATIC ORGANISMS



The postharvest treatment methods used on aquatic organisms differ according to the organism.

- A) Some organisms are kept alive after harvesting and sold as live catch.
- B) Some organisms are killed and preserved soon after they are caught.

Below are some of the methods used to preserve fish.

1. Spiking or "ikejime" – immediately after landing the fish, a metal rod is hammered into the brain to paralyse and bleed the organism. This results in firm flesh.



- 2. Cleaning fish fish must be cleaned before it can be further processed.
 - i) Scaling where the scales are removed from the fish.
 - ii) Gutting the belly of the organism is slit open from the anus to the base of the gills. The innards and blood are removed.
 - iii) Removing gills the gill flap is opened and the gills are cut away from the attachments and removed.
 - iv) Washing the fish is thoroughly washed to remove all the scales, dirt and blood.

3. Controlling the temperature of fish

Fresh fish is an extremely perishable food and deteriorates very rapidly at normal temperatures.

- i) Chilling the process of cooling fish to a temperature approaching that of melting ice which is 0OC for short term storage.
- ii) Freezing the process of cooling fish to a temperature f -18OC for long term storage
- iii) Cooking increasing the temperature of the fish not only kills microorganisms but means the fish can be eaten or frozen for later use.
- **4.** Curing the preservation and flavouring of fish by removing water, adding salt and smoking.
- 5. Drying the salted organisms are dried in the sun
- 6. Canning cleaned organisms are cooked inside sealed cans. When jars are used instead of cans, the process is called bottling.
- **7. Pickling** This is a process by which fish are preserved by soaking in an acidic solution like salt water, vinegar or lemon juice.

LESSON THREE: USE OF AQUATIC ORGANISMS



Aquatic organisms are harvested for:





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3) Pets - like fish.



https://www.seaandsunset.blogspot

- Decoration like coral in an aquarium.
- 5) Cleaning materials like sponges.
- Seasoning like salt.





https://www.naturalbathbodu.com



http://www.steaduhealth.com

- 7) Mulch material like some seaweed.
- Ingredients for medicines and person hygiene products like body scrubs and shampoo.



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- 9) Cosmetics like sea weeds in moisturisers.
- 10) Building material like sand and limestone.

Limestone block

Limestone wall



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 Fertilizing material- like the blood and bones of fish, shells of shellfish and seaweeds.



STUDENT ACTIVITY

Paragraph Writing

Discuss five methods used for the harvesting of aquatic organisms.

THE END