UNIT-II

TYPES OF FARMING:-

On the basis of intensity of input and stocking density aquaculture is categorised as follows.

* Extensive fish farming system
* Semi-intensive fish farming system
* Intensive fish farming system
* Integrated aquaculture system
* Induced Breeding

EXTENSIVE FISH FARMING SYSTEM

The extensive fish farming system is the least managed form of fish farming, in which little care is taken. This system involves large ponds measuring 1 to 5 ha in area with stocking density limited to only less than 5000 fishes/ha. No supplemental feeding or fertilisation is provided. Fish depends only on natural foods. Yield is poor (500 to 2 ton/ha) and survival is low. The labour and investment costs are low, and this system results in minimum income.

SEMI-INTENSIVE FISH FARMING SYSTEM:-

Semi-intensive fish culture system is more prevalent and involves rather small ponds (0.5 to

1 hectare in an area) with higher stocking density (10000 to 15000 fish/ha). In this system, care is taken to develop natural foods by fertilisation with or without supplemental feeding. However the major food source is natural food. Yield is moderate (3 to 10 ton/ha) and survival is high.

INTENSIVE FISH FARMING SYSTEM:

An intensive fish farming system is the well managed form of fish farming, in which all attempts are made to achieve maximum production of fish from a minimum quantity of water. This system involves small ponds/tanks/raceways with very high stocking density (10-50 fish/m^3 of water). Fish are fed wholly formulated feed. Proper management is undertaken to control water quality by use of aerators and nutrition by use of highly nutritious feed. The yield obtained ranges from 15 to 100 ton/ha or more.

INTEGRATED FISH FARMING SYSTEM:

*The principle of integrated fish farming involves farming of fish + lives stock + or agricultural crops.

*Efficient in resource utilization.

*Rising cost of protein rich fish food and chemical fertilizers.

*Integrated fish farming system refers to the production, integrated management and comprehensive

use of aquaculture, agriculture and livestock.

* India about 1500 years ago.

Types

Aquaculture - Agricultural integration

Aquaculture - Livestock integration

Aquaculture - Agricultural Integration

* Fish - Rice Integration
* Fish - Azolla Integration
* Fish - Horticulture Integration
* Fish - Seri Integration
* Fish - Mushroom Integration

Aquaculture - Livestock Integration

* Fish - Duck Integration
* Fish - Cattle Integration
* Fish - Poultry Integration
* Fish - Pig Integration
* Fish - Goat/ Sheep Integration
* Fish - Rabbit Integration

Some fishes used IFF

* Hypothalmichthys molitrix (Silver carp)
* Ctenopharyngodon idella (grass carp)
* Labeo rohita (rohu)
* cirrihinus mrigala (mrigal)
* Cyprinus carpio (common carp)
* Catla catla (catla)

INDUCED BREEDING

Induced breeding is a technique by which the economically important fish are bred through artificial stimulation. Induced breeding is a technique whereby ripe fish breeders are stimulated by pituitary hormone or any other synthetic hormone introduction to breed in captive condition. The stimulation promotes timely release of sperms and eggs.

Induced Breeding Technique

1. Removal of gland 2. Preservation of gland 3. preparation of gland extract 4. Breeders selection 5. Injection to the Breeders 6. Spawning 7. Factors influencing the spawning of fish.

CONSTRUCTION AND MANAGEMENT OF FISH FARM

*Construction and layout of fish farm and ponds.

*The number of fish ponds and selection of the type of fish culture.

*Selection of suitable fishes for culture

*Conditioning procedures of food

*Stocking densities, estimates of fish stocks, and methods for systematic control of their development.

*Availability of natural food resources, their utilization.

*Transportation, Preservation and processing facilities.

Topography :

Topography or the shape of land is the first important consideration in the selection of the site. It determines the number and kinds of ponds to be constructed.

Soil :

Soil plays an important role with regard to the fertility of fish ponds. Types, characteristics and chemical conditions of soil influence the pond produtivity.

Water supply :

Availability of adequate supply of water in sufficient quantity near the fish farm is a sine qua non in the selection of site. The quality and quantity of water required for fish culture.

Sources of water supply.

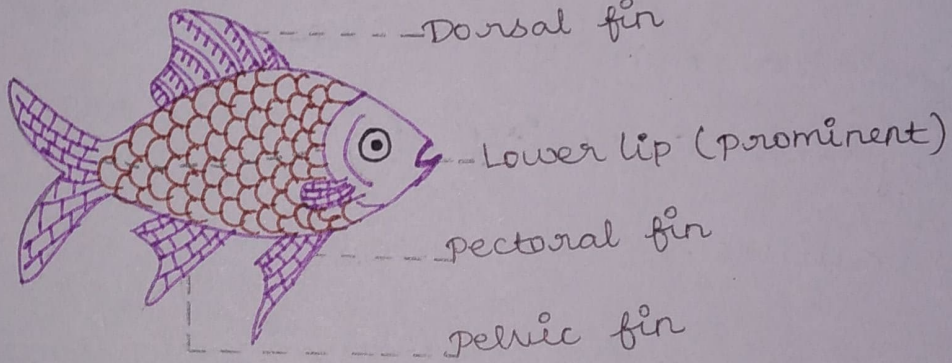
* Lakes and reservoirs
* Springs
* Rivers
* Canals
* Surface run off
* Wells.

UNIT-III

CULTURE OF COMMON CARP SPECIES

Catla catla (catla)

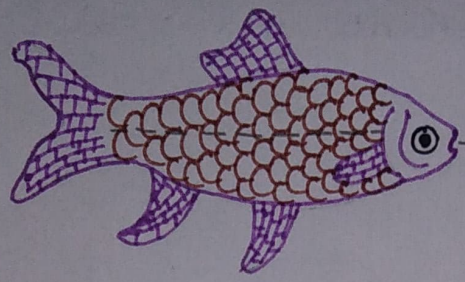
Catla has a deep body with prominent head, large upturned mouth, non-fringed lips, devoid of barbels and a broad dorsal fin with 14-16 branched rays are the identifying features. It feeds on zooplankton on the pond surface using large gill rakers. However youngones (15-20 mm) feed both zooplankton and phytoplankton. It grows to a maximum size of 1.8 m (45 kg). It is the fast growing species among the Indian major carps. First year growth 35-45 cm and about 1.5-2.0 kg. It matures in second year.



Labeo rohita (rohu)

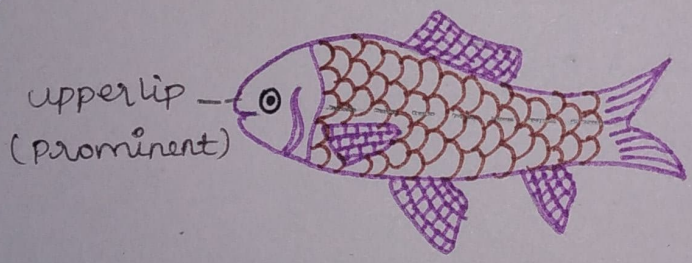
Of all the carps, this is considered as the tastiest fish. It has a small and pointed head terminal small mouth with fringed lower lip. A dorsal fin with 12-13 branched rays and full reddish scales are its identifying features. It is a common feeder on phytoplankton, plant debris or decaying debris of aquatic plants; However the young ones feed on zooplankton. The maximum size attained in 1 m.

It is fairly fast growing species and first year growth is 35-40 cm and 900g.



Cirrhinus mrigala (mrigal)

A linear body small head with blunt snout, subterminal mouth with thin non-fringed lips, dorsal fin with 12-13 branched rays and a bright silvery body having golden tinge are its identifying features. It is a bottom feeder on decaying organic and vegetable debris. However its young feed on zooplankton. The maximum size attains is 0.9m. Its growth in the first year is about 30 cm



FRESHWATER PRAWN CULTURE

Macrobranchium rosenbergii

* Giant fresh water (river, prawn).
* Native - Indo pacific and Australian regions
* Adult - Freshwater juvenices - Brackish water.
* Male 'S spermatophere releases sperms that fertilize eggs from female abdomen
* Fertilized eggs - brood chamber or Egg basket

released in sea.

* 1 spawning - Female - 80,000 - 100000 eggs.
* Hatching duration - 20 days at 28°C.
* They are contrantant and crawl over stones in shallow water.

ORNAMENTAL FISH CULTURE

GOLD FISH

* Scientific name carasher - carasher
* This fish is from China.
* Fish colours are basic colour Red and orange others black, yellow etc..
* Tod is present
* Shape are line head, cordal spine, trascopic type.

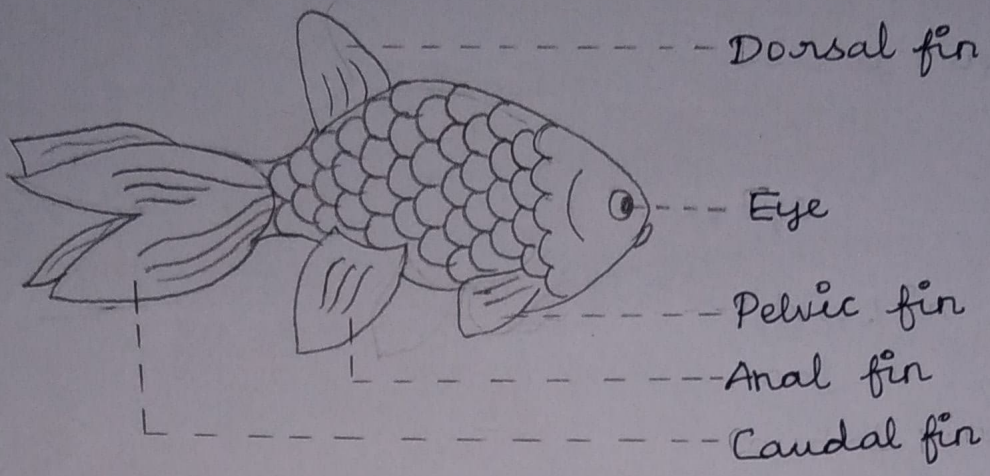
ANGEL FISH

* This fish are stable and immunity power is high.
* Multiple colour
* Gills are long and big
* Foods are insects and larvas
* Fish 15cm in growth.

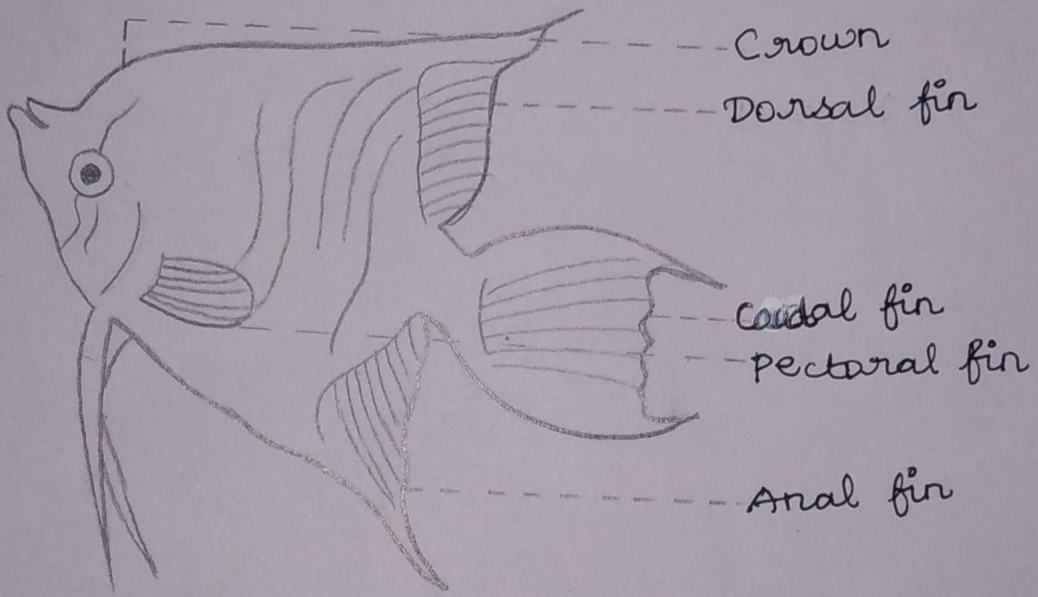
GUPPY FISH

* This fish are very small
* Mouth rounded and bilobed
* Its coming from America
* This fishes are multicoloured
* Red, orange, green, black are basic color.
* Female are big, male are small.

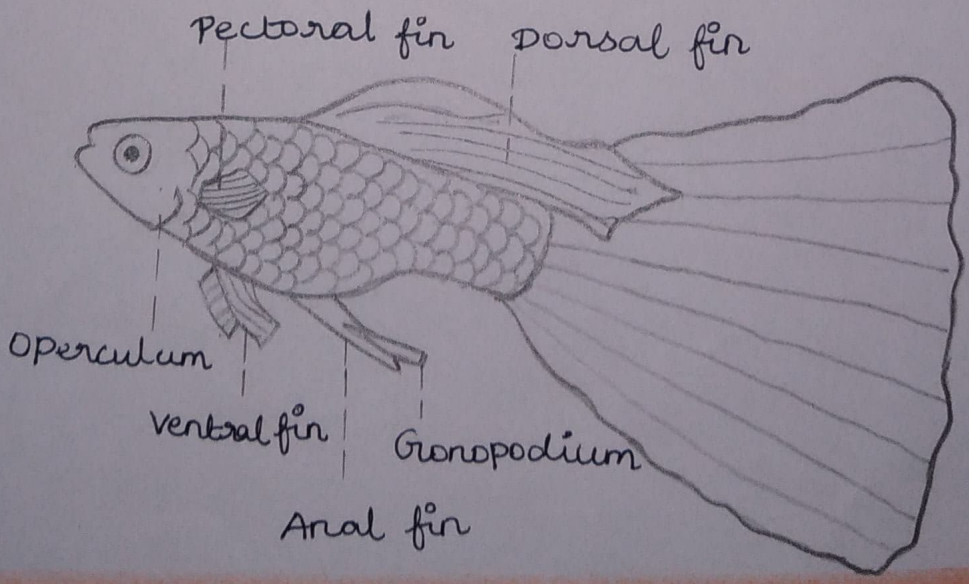
GOLD FISH



ANGEL FISH



GUPPY FISH



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