



ORNAMENTAL
FISH
Culture

UNIVERSITI MALAYSIA TERENGGANU



BIOLOGY OF MALAYSIAN ORNAMENTAL FISH

AQU 4103
Kultur Ikan Hiasan

Ornamental Fish body profiles

- Normal shape
- Torpedo shape
- Club shape
- Hatchet shape
- Worm shape
- Disc shape
- Spindle shape
- Boat shape



Bubble-nest builder

Egg-scatterer

Egg-burier

Egg-depositor

Live-bearer

Mouth-brooder

General classification of Ornamental fish spawning behaviour

- Bubble-nest builder
- Egg-scatterer
- Egg-burier
- Egg-depositor
- Live-bearer
- Mouth-brooder

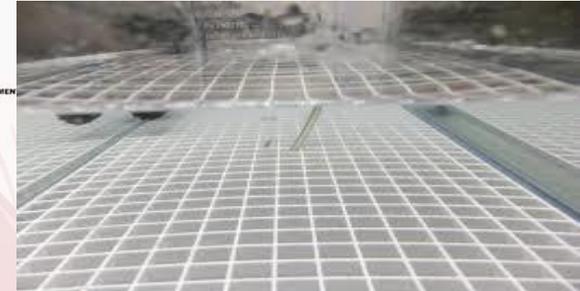
Bubble-nest builders

- Use fragments of plants to construct their bubble-nest in natural environment.
- Specimens
 - Betta sp., gourami sp.
- In aquarium/captivity
 - Plastic black netting
 - Artificial nylon line
 - All soft & floating fragments



Egg-scatterers

- Eating their own eggs during spawning
- Specimen
 - Danios sp., Rasbora sp., Barb sp., cyprinus sp., goldfish ...
- In aquarium/captivity
 - Place few layers of pebbles, marbles sheet or nylon net on the aquarium floor for eggs protection
 - Remove broodstok after spawning process completed



Egg-buriers

- Burying their eggs into a deep layer of peat/soft medium
- After spawning, the peat can be removed and stored almost dry for a few months
- Hatching process is activate by immersing the peat into water again
- Specimen
 - Pearlfish sp., some killifish sp.,
- In aquarium/captivity
 - Fiber sand



Egg-depositors

- Prefer privacy, safety and protected area
- Deposit their eggs on wood, shell, rock or aquatic plants materials
- Specimen
 - Angle sp., discus sp., clownfish sp., damsel fish sp.
- In aquarium/captivity
 - PVC pipe, rubber cone tower ...



Mouth-brooders

- Female collect the fertilized eggs into their mouth for incubation
- During incubation, female takes no nourishment and became thin
- Free-swimming larvae shelter in their parental mouth whenever danger threatens
- Specimen
 - Cichlid sp., Arowana
- In aquarium/captivity
 - No specific requirement
 - Privacy space



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Live-bearer

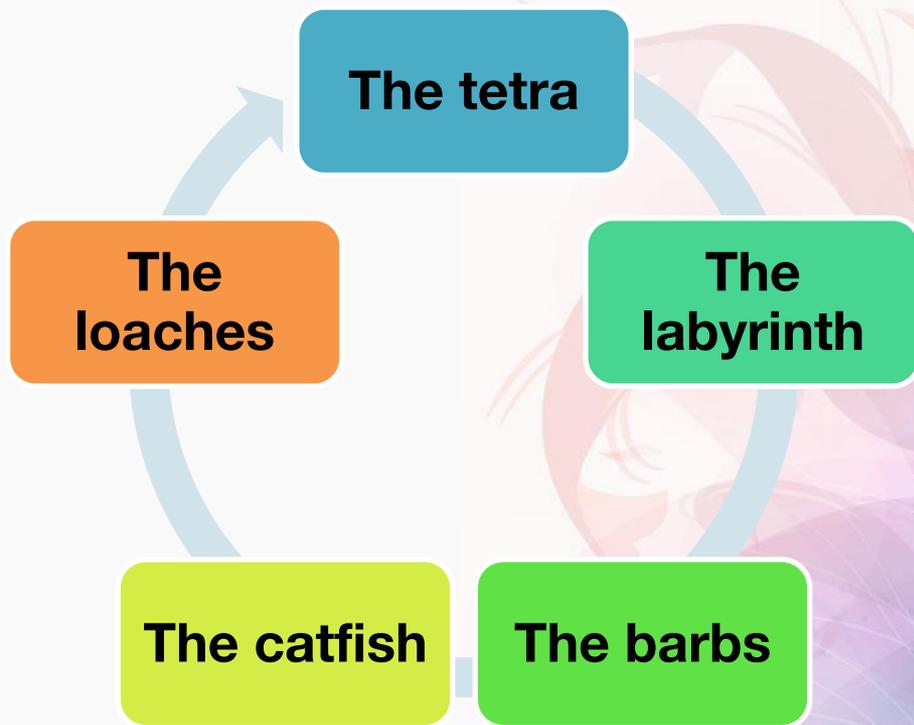
- Produce live juvenile-like fish.
- Male fish - anal fin is modified fully or partly (depend on genus) into reproductive organ – gonadopodium by inserting sperm into female body.
- Female fish – anal fin is like fan-shape.
- Specimen
 - Swordtail, molly, guppy, platy, four-eye, piketop fish
- In aquarium/captivity
 - No specific requirement
 - Aquatic plants
 - Breeding trap



The Tetra

- The tetras members of Characidae family – few hundred different species.
- From Southern America and tropical Africa.
- Size ranging from 1 - 2 inch. BL.
- With fairly bright colors - silver, black, neon blue and shades of red predominating.
- Active swimmer, schooling and mostly spend time in the upper half of the aquarium (>6 ind.)
- Easy to bred with proper water condition and dietary nutrition control.
- Live food + supplemental enrich diets.
- Exp.: Neon tetra, black tetra, lemon tetra, cardinal tetra.





The Barbs

- Sub-group from cyprinidae family.
- The predominant colors are silver and gold with some black and red highlights.
- Active swimmer and can be aggressive to subdominant individual in the same environment.
- With barbells without adipose fin as compared to tetra.
- Opportunistic feeder, easy maintain & breed.
- They are egg scatter – spawning substrate must be provided (nylon net, rocky, grassy or woody conditions).
- Exp.: cherry barb, rosy barb, tiger barb – green, albino, yellow, tinfoil barb.



The Catfish

- Compress of 32 families & >2000 species, inhabit every continent except Antarctica.
- In general, catfish are have no scale or with bony plates and barbells (e.g. Corydoras).
- Mouth structure either sub-terminal (non-predator) or terminal (predator), mostly bottom feeder.
- Some members are nocturnal.
- Size from inch to meters long.
- Colours are restricted to shades of brown, black, white or transparent.



The Loaches

- **Belong to the family Cobitidae.**
- **They are mostly from Southeast Asia and India.**
- **Loaches tend to be longer and more rounded than the catfish.**
- **Fast and active swimmer.**
- **Easy maintain and bottom feeder.**
- **They exhibit brightness and oranges (e.g.: clown loach).**



Live bearers

- Members of the family Poeciliidae.
- Origin from southern North America, Central America and the Caribbean Islands.
- May live near the coast or in **brackish or alkaline** environment.
- Size can be reach to few inches in **BL** according to species.
- Male often smaller and more colorful than the female.
- Hardy and easy to breed, planktivorous.



The Cichlids

- Aggressive – **dominancy + privacy**.
- The cichlids families are widely distributed from Central and South America to tropical Africa and Asia continent.
- Size from cm to inches long.
- Male are larger, colourful and aggressive than female.
- **Male have extended fin** – dorsal, anal and caudal.
- Sandy background with hard cave shape substrate suitable for breeding.
- **Mouth brooder** – protect eggs, embryo and larvae in their mouth.



The Labyrinth

- Labyrinth are atmospheric air breathing fish.
- The labyrinth fishes are members families:
 - Anabantidae
 - Belontiidae – major family
 - Helostomatidae
 - Osphronemidae
- Brightly colour – **male are more colourful and aggressive.**
- Surface (gourami, bette members) or bottom feeding (catfish members).
- Hardy, adapt well in alkaline water, easy to breed – prefer with soft vegetation, plastic, nylon lining on surface water as breeding background.
- Some species are **parental care**, some are **egg scatterer**, some are **bubble nest-builder**.



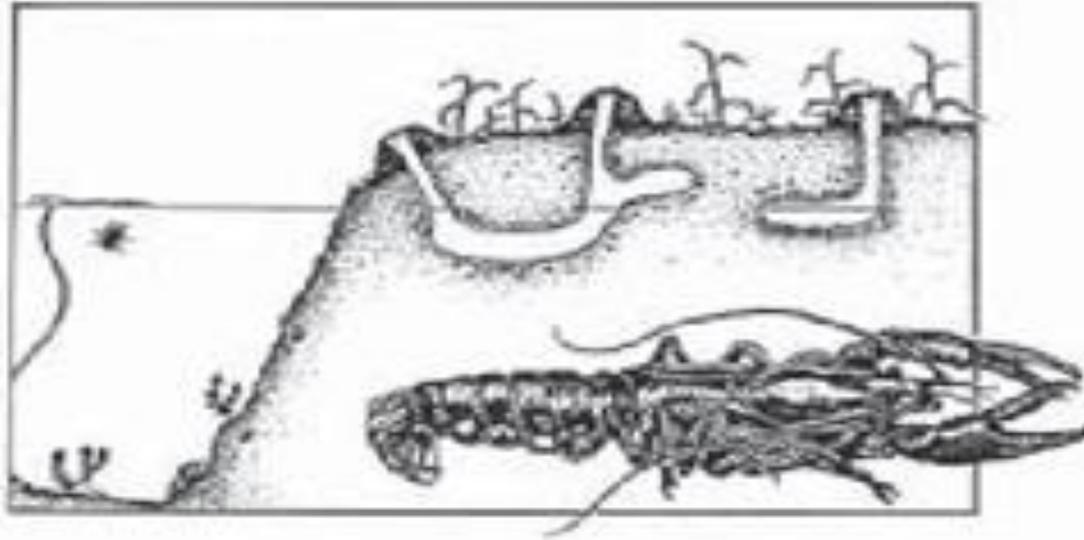
Crayfish

Freshwater shrimp

- **Opportunistic feeders**
 - Variety of aquatic plants
 - Benthic invertebrates (worms, snails clams, insect & crustaceans)
 - Detritus (bacteria & fungi)
 - Fish
- Max. size 40 cm
- Max. weight 3.6 – 6 kg
- Live 2 – 4 years, some may live over 10 years



Habitat



- flowing water (streams & river)
- standing water (pond, lake, aquarium)
- wetland
- spend more time lives underground and only come out to feed and mate
- mud, sand, rock or gravel and other debris as cover
- substrate to cover as protection

Primitive/Jurassic fishes as ornamental fish

- Arowana – *Scleropages formosus*
- Arapaima – *Arapaima gigas*
- Peter's Elephantnose – *Gnathonemus petersii*
- Butterfly fish – *Pantodon buchholzi*
- Knife fish – *Chitala ornata*



Primitive/Jurassic fishes as ornamental fish

- Gar – *Lepisosteus oculatus*
- Bichir – *Polyterus* sp.
- Sturgeon – *Acipenser* sp.
- Paddlefish – *Polyodon* sp.
- Lungfish – *Lepidosiren* sp.



Goldfish



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Goldfish sp.



Ryukin



Pearlscale



Ranchu



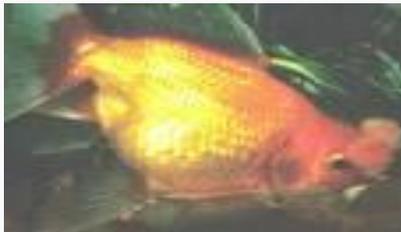
Liaohead



Oranda



Celestials



Pompon



Shubunkin



Bubble eye

Type of eye – Goldfish species



Spheroid



Segmented shpere



Ovoid



Celestial



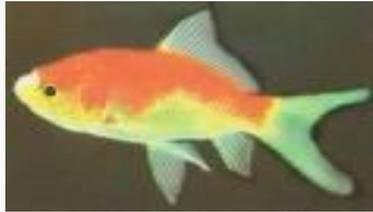
Normal



Truncated cone

Bubble-eye

The Quality Goldfish species – Type of caudal fins



Single tail



Tripod tail



Webtail



Webtail



Double tail



Double tail



Upturn tail



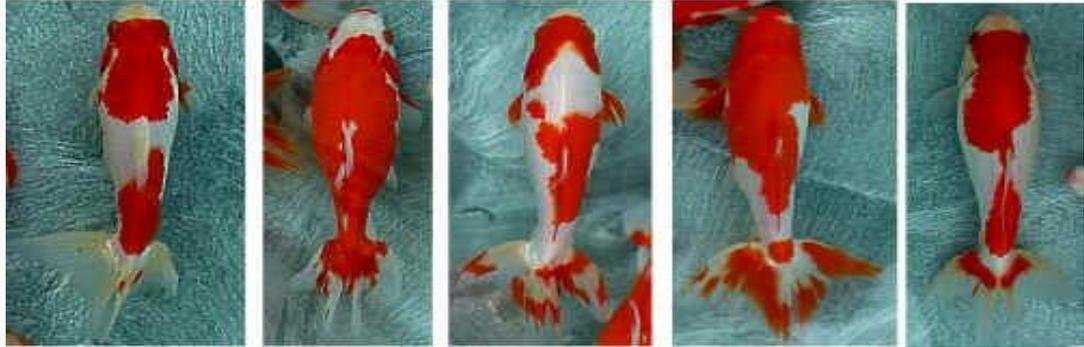
Butterfly tail



Butterfly tail

The Quality of Goldfish – point to consider

- **A** - Asymmetrical
- **B** - Shortened
- **C** - Wry or twisted
- **D** - Too narrow (profile)
- **E** - Too narrow (top view)
- **F** - Protruding anal fin
- **G** - Too open
- **H** - Acceptable types



C

E

D

G

A



B

F

H



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- **Personality feeding behavior – goldfish suck a food slurry from a bottle**