

Lecture 3c



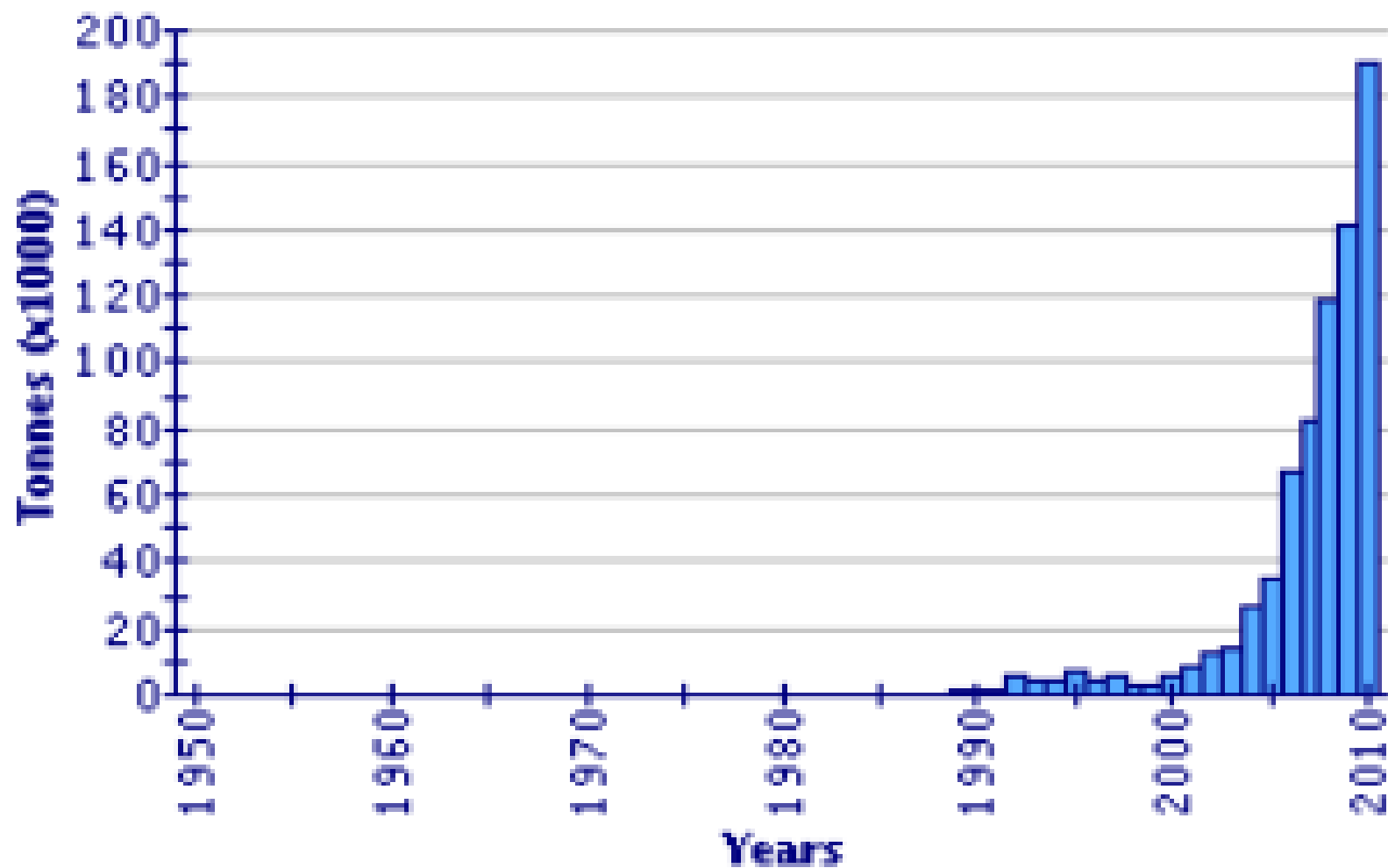
Catfish

Catfish



- ❧ Although catfish have been caught and eaten for thousands it is only in the last 25 years that they have become a common aquaculture species
 - ❧ Today more than 200 000 tons of catfish are farmed every year.
 - ❧ Like tilapia catfish can tolerate a wide range of environmental conditions
- ❧ Catfish are air breathers
 - ❧ This means catfish can tolerate deoxygenated water
 - ❧ In tern this allows for very high stocking densities and therefore increased production per unit of space and water.
- ❧ It is possible that for these simple reasons catfish may become the most economically important fish in the world.

Catfish



Catfish



- ❧ The best temperature to farm catfish is 28°C, but they will grow when temperatures go above 22°C and up to 32°C
- ❧ Although catfish can grow in a wide temperature range, growth is very slow below 26°C
- ❧ If water temperatures go below 20°C growth will almost stop.



Catfish



- ❧ Catfish are generalist feeders
 - ❧ They will eat a wide range of food
 - ❧ Hunt fish, frogs and even birds
 - ❧ Insects and worms
 - ❧ Scavenge dead fish or animals
 - ❧ Catfish readily accept commercial feeds
 - ❧ Currently there are no commercial diets specifically formulated for catfish, however they will grow well on a combination of trout and tilapia feeds which are available
 - ❧ During the larval stage it is important to use live feed
 - ❧ Create your own cultures
 - ❧ Brine Shrimp



Catfish



❧ Reproduction

- ❧ Catfish are fairly easy to breed in captivity
 - ❧ Although it is necessary to sacrifice the male fish in order to fertilise the eggs.
- ❧ In the wild catfish spawn summer
 - ❧ They spawn in large aggregations after heavy rains
 - ❧ The eggs are laid in the submerged grass and vegetation on the river banks
 - ❧ Catfish eggs develop and hatch in as little as 24 hours, this is so that by the time the waters recede the eggs have already hatched
 - ❧ Survival of the eggs and fingerlings is very low, so a single female catfish can produce over 100 000 eggs per spawning
- ❧ In aquaculture conditions the survival can be much higher and very few broodfish are needed to produce large numbers of fingerlings

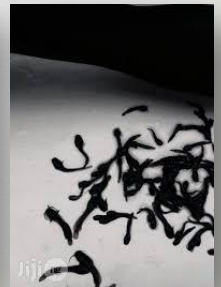
Catfish



Catfish



- ❧ One of the biggest challenges to breeding catfish is cannibalism
 - ❧ Like their parents juvenile catfish are aggressive feeds and will eat anything that moves, as long as it can fit in its mouth.
 - ❧ It is common for some fish to grow much faster than others and these “shoots” can very quickly eat all the smaller fish.
 - ❧ Once the fish are larger than 50-100g cannibalism is no longer a problem.





Catfish



- ❧ There are ways in which a farmer can reduce cannibalism in the nursery tanks
 - ❧ Live feed is the best way to reduce cannibalism
 - ❧ Brine shrimp can be bought and hatched daily as a live feed
 - ❧ Although these are quite expensive, the fish will not only eat each other less, but will also grow faster
 - ❧ Creating zooplankton cultures using veld grass
 - ❧ Simply putting grass into clean water and leaving it for 5-7 days will produce large amounts of zooplankton
 - ❧ These micro-organisms live on the grass, placing the grass into the nursery tanks not only provides live food, but also provides shelter and further reduces cannibalism
 - ❧ Make sure the fish are fed frequently so they do not get hungry and start hunting each other.

Catfish



- ❧ Because catfish breathe air oxygen depletion will not harm the fish.
 - ❧ Much higher stocking densities can be achieved
 - ❧ However care should be taken to monitor the build up of ammonia
- ❧ In extensive systems where there is no water exchange or aeration
 - ❧ Max density is approximately 4kg/m^2
 - ❧ Initial stocking is done at a rate of 5 fish/m^2
 - ❧ This means in a pond of $10\text{m} \times 10\text{m}$ roughly 400kg of fish can be produced per year.



Catfish



- ❧ The stocking density can be increased with water exchange and aeration .
- ❧ In intensive fish farms catfish have been stocked at densities up to $400\text{kg}/\text{m}^3$
- ❧ This means in the same $10\text{m} \times 10\text{m}$ space you could produce $40\,000\text{kg}$ of fish per year.



Catfish



- ❧ Catfish should be kept in the nursery until they are 50-100g
 - ❧ Depending on temperature and diet fingerling can reach 50g in about 3 months
 - ❧ Once they have reached 50g they can be stocked into the grow-out ponds or tanks
 - ❧ If temperatures are high and feed is readily available the fish can grow to 1kg in 10 months, at which point they are ready for market.



Catfish

☞ Catfish are fast becoming one the most important aquaculture species

