

Lecture 3a

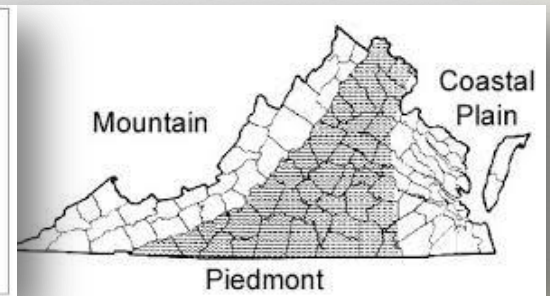
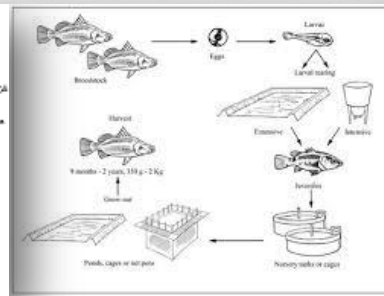
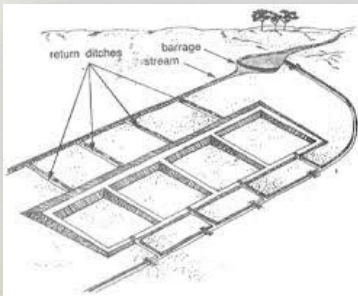


Species Selection

Species Selection



- ❧ The Selection of a species is going to depend on a number of factors
 - ❧ Environment, Climate, Biology, etc...
- ❧ BUT, before a species can be chosen you need a site
 - ❧ The type of farm you build and the type of fish you farm are going to be linked to the site
 - ❧ Choosing a good site is the first step to a successful fish farming operation



Species Selection



☞ Site Selection

- ☞ Proximity to services
- ☞ Lay of the land
- ☞ Soil types
- ☞ Water availability and quality

☞ Distance to Market

- ☞ Transporting fish is expensive!
- ☞ The closer the market to the farm the better
- ☞ If the distance to market is far, the additional cost of production will need to be mitigated through scale and/or value.



Species Selection



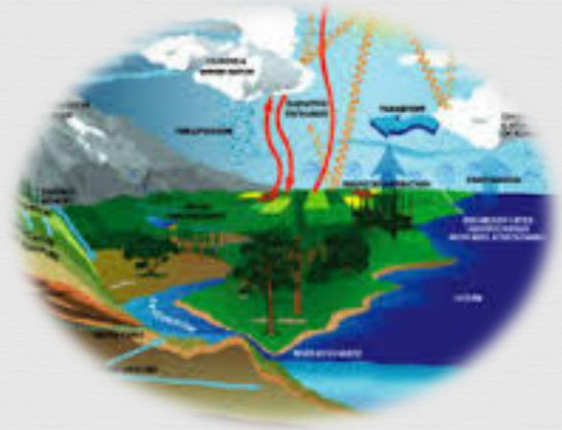
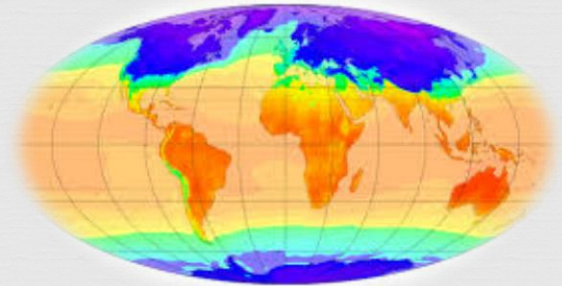
Species Selection



Now that a site has been selected we still need to consider:

Climate

- Min, Max, and Average Temperature
- Altitude (Effects Temperature and Pressure)
 - Less oxygen in the water
- Rainfall, when and how much



Species Selection



❧ Environmental Considerations

❧ Many farmed fish are exotic to South Africa

❧ Carp, Trout and Bass

❧ Often exotic fish are more desirable

❧ Hybrid Vigour

❧ Growth faster

❧ Resistant to disease

❧ Adapted to culture conditions

❧ Greater market demand

❧ Higher Price



Species Selection



- ❧ How to mitigate potential environmental issues?
 - ❧ Farm local and indigenous species
 - ❧ Closed Loop Systems - RAS
 - ❧ Farming outside of temperature range
 - ❧ Sterile fish

| FISHY AFFAIR IN THE RIVER | | |
|---|--|--|
| LOCAL FISH <ul style="list-style-type: none">■ <i>Catla catla</i>■ <i>Labeo rohita</i>■ <i>Cirrhinus mrigala</i> CATFISHES <ul style="list-style-type: none">■ <i>Wallago attu</i>■ <i>Sperata</i> spp.■ <i>Clupeosoma garua</i>■ <i>Rita rita</i> |  | ALIEN INVASIVE FISH SPECIES <ul style="list-style-type: none">■ <i>Cyprinus carpio</i> Var. <i>communis</i>■ <i>C. carpio</i> Var. <i>specularis</i>■ <i>Carassius auratus</i>■ <i>Oreochromis niloticus</i>■ <i>O. mossambicus</i>■ <i>Clarias gariepinus</i>■ <i>Aristichthys nobilis</i>■ <i>Hypophthalmichthys molitrix</i>■ <i>Ctenopharyngodon idella</i>■ <i>Gambusia affinis</i> |

Species Selection



❧ Biology of the species

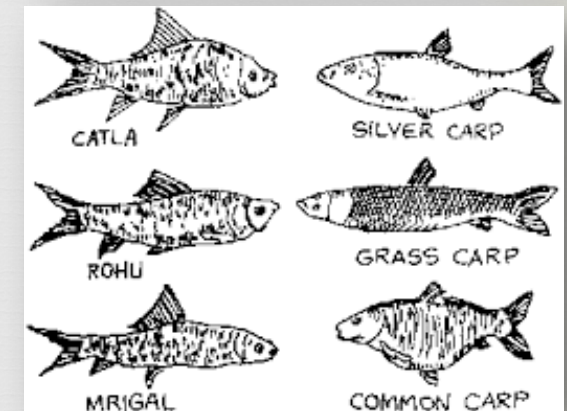
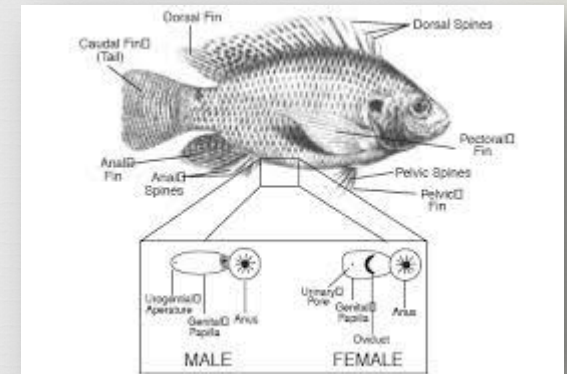
❧ Growth rates

- ❧ The faster a fish can reach market size the sooner the can be sold
- ❧ But a slower growing fish may fetch a higher price

❧ Very important to understand the market!

❧ Feeding habits

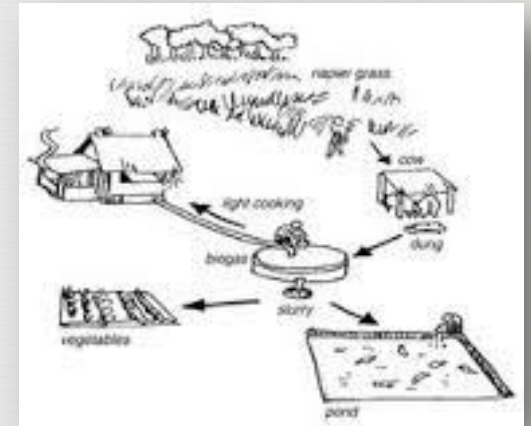
- ❧ What are the nutritional requirements of the chosen species
 - ❧ What is the natural productivity of the waters?
 - ❧ Are feeds readily available?



Species Selection



- ❧ Hardiness
- ❧ How well suited to aquaculture is the chosen species?
 - ❧ Many of the more commonly farmed fish are hardy and able to tolerate fluctuating culture conditions
 - ❧ Oxygen depletion is a major cause of mortalities in fish farming
 - ❧ Fish that can tolerate low or depleted oxygen levels are easier to farm than those that require high oxygen saturation
 - ❧ EG: Catfish VS Trout



Species Selection



❧ Reproductive Biology

- ❧ Can the fish be breed easily in captivity?
- ❧ How many eggs to they produce?
- ❧ Are there reliable sources of fingerlings for the chosen species?



Species Selection



❧ In South Africa suitable aquaculture species for freshwater include:

❧ Tilapia

❧ Catfish

❧ Carp

❧ Trout

❧ Ornamental fishes

❧ Let take a closer look at each of these

