



# Selecting a System to Grow Fish

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Bringing Knowledge to Life



# System Selection



# Fish Farming Methods: What do they farm?





# Ponds

Freshwater fish ponds differ according to:

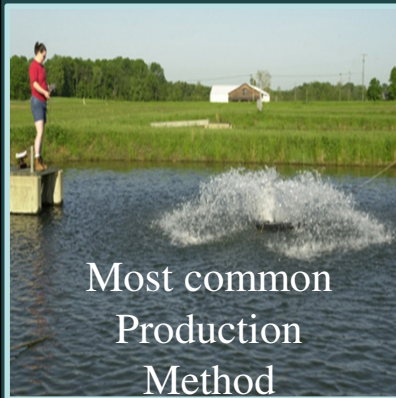
Source of  
Water

Drainage

Fish farming  
method

Material and  
Construction  
method

- ✓ Spawning
- ✓ Fingerling
- ✓ Finishing





# Ponds in numbers...

- ✓ Construction Cost: Approx. \$15,000.00/acre
- ✓ Most popular size: ½ to 1 acre
- ✓ Sizes: .25- 10 acres
- ✓ Pond production: 3000-5000 pounds fish/acre



# Levee Ponds

Levee ponds are the most common fish production method



## *Common food species*

- ✓ Catfish
- ✓ Trout
- ✓ Largemouth bass
- ✓ Yellow perch
- ✓ Fresh water prawn

## *Source of water:*

- ✓ Spring : check adequate flow, nitrogen gas
- ✓ Well: check dissolved oxygen, pollution

## *Soil:*

- ✓ Slow infiltration rate
- ✓ High runoff rate
- ✓ At least 20% of clay





# Basic Site Requirements for Levee Ponds

- ✓ Adequate supply of clean water
- ✓ Soil that holds water
- ✓ Suitable terrain for pond construction



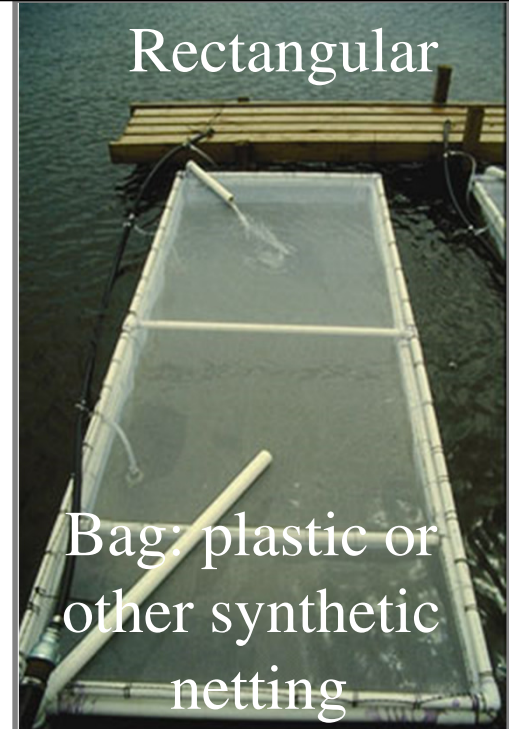
# Cages

## *Considerations:*

- ✓ Insure water quality
- ✓ Natural movement of new water through the cage since fish cannot move
- ✓ Having water deep enough for the waste matter to move well below the cage
  - ✓ Water depth: 6 feet
  - ✓ Cage depth: 4 feet
  - ✓ Placed 10 feet from other cages



Rectangular



Bag: plastic or other synthetic netting



Round



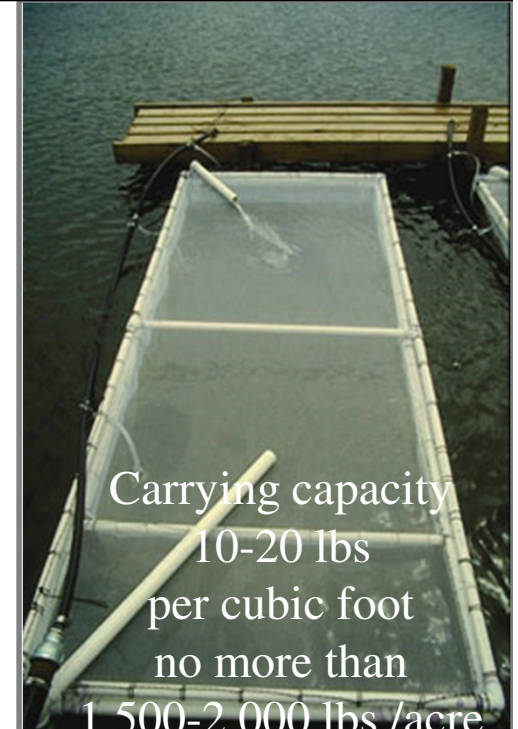
# Cages

## *Advantages*

- ✓ Adaptable on existing water sources
- ✓ Good for pilot projects
- ✓ Inexpensive to build

## *Disadvantages*

- ✓ Hard to get to commercial size
- ✓ Tend to have more disease problems
- ✓ Slower growth than in ponds
- ✓ Biosecurity is an issue



# Raceways

## *Water supply*

Required large quantities of water

Gravity springs are most economical

## *Location*

Near water supply

## *Topography*

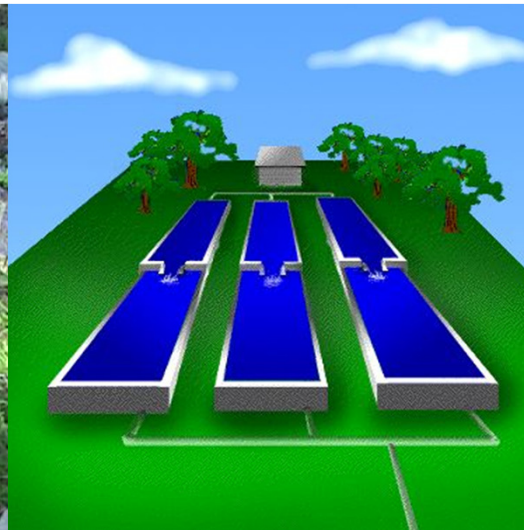
8-10 percent slope

18-24 inch water drop

## *Construction*

earthen

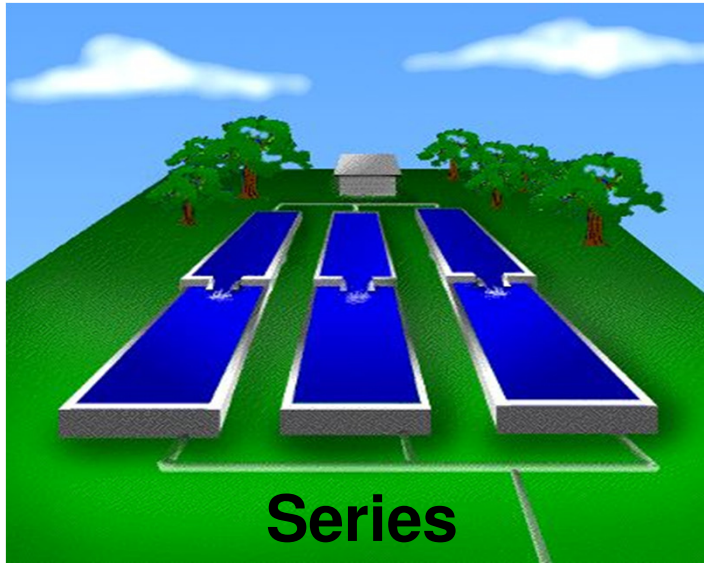
concrete



trout culture



# Types of Raceways



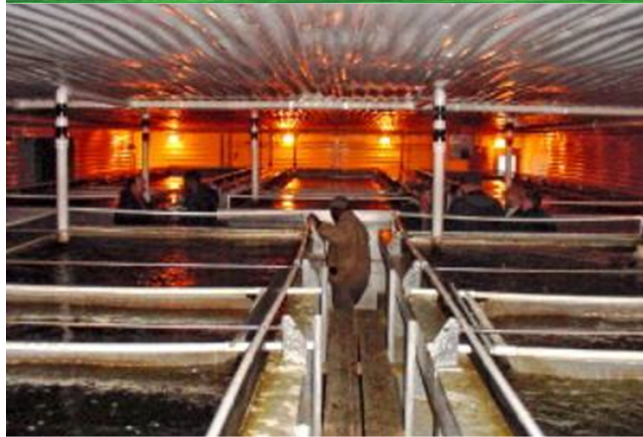
flow through  
multiple races



flow through  
one race

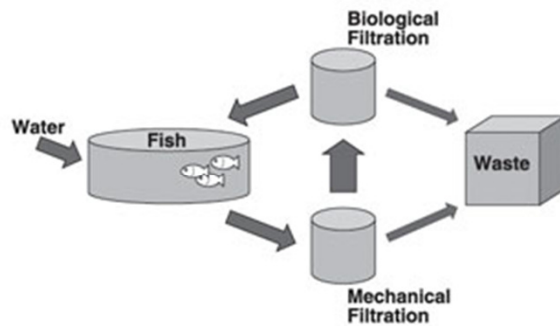
*Production:* Assumption based on 20,000 to 45,000 pounds per year per cubic foot /sec. (449 gals/min) water flow rate.





# Recirculating Aquaculture Systems (RAS)

## *Main Features*

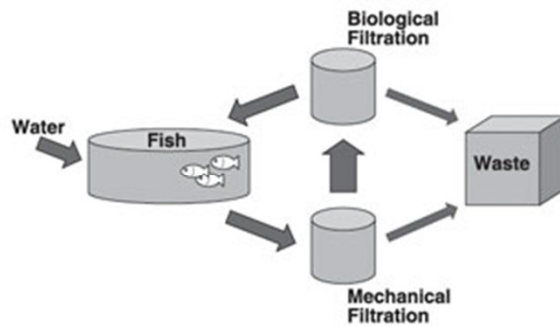
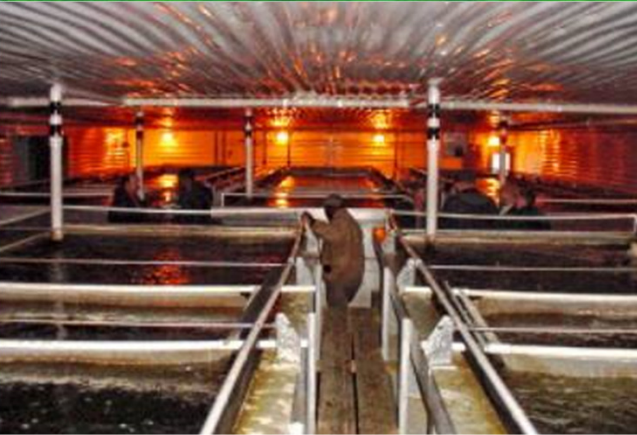


- ✓ High-Technology required
- ✓ Expensive Capital Costs
- ✓ Controlled temperature environment
- ✓ Adaptable on refurbished barns
- ✓ Conserves water
- ✓ Year-round production
- ✓ Future of production



*Production* rates range between 0.25 to 1.0 pounds per gallon depending on filter efficiency and water exchange rate.

# Recirculating Aquaculture Systems (RAS)



## *Site components*

- ✓ pump house
- ✓ emergency generator
- ✓ 3 phase electricity
- ✓ bulk feed storage
- ✓ oxygen supply
- ✓ building



# Recirculating Aquaculture Systems (RAS)

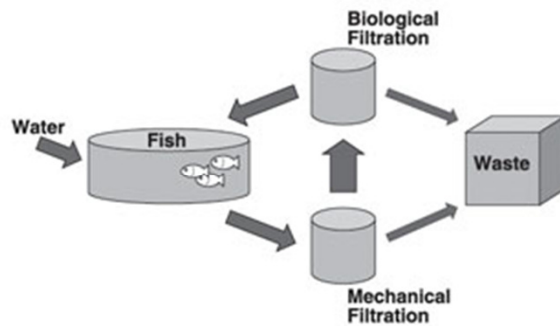
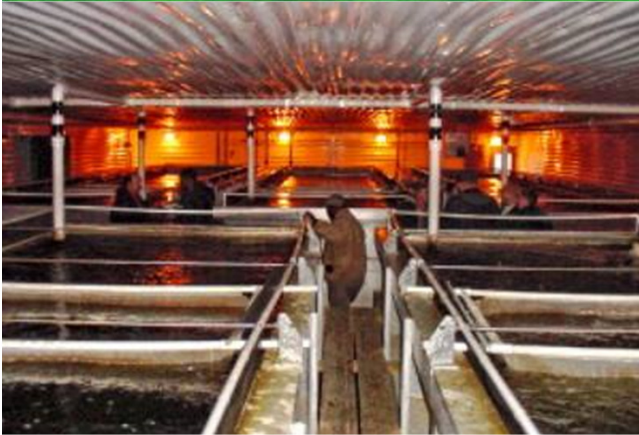
## *System Components*

### *Primary*

- ✓ biofilter
- ✓ solids filter
- ✓ tanks
- ✓ pump
- ✓ buffering system

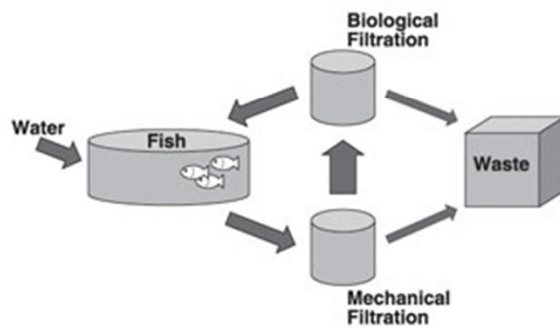
### *Secondary*

- ✓ oxygen
- ✓ pumps
- ✓ heaters/chillers
- ✓ lighting





# Recirculating Aquaculture Systems (RAS)



*Why do we need biological filters?*

- ✓ It helps maintain water quality in recirculating or closed loop systems.
- ✓ It improves water quality before water is discharged from a facility.



# Fish Farming Methods: What are the issues?





# Contact Information

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