“Farming the Waters”

An Introduction to Aquaculture
Aquaculture vs. Agriculture

• Fish farm is similar to cattle feedlot
  – Ponds are closely packed and fish are fed heavily
• Fish farms raise fish for market, sport fishing, etc.
• Variety of levels in the aquaculture industry as in livestock industry
  – Hatcheries
  – Fingerling production
  – Food fish production
• Variable body temperature
  – Warm water vs. cold water
• Better converters of foodstuffs
  – 1 ½ lb of feed = 1 lb of fish
• Requires less energy for body support
What is Aquaculture?

• “Aquaculture is the farming of aquatic organisms, including fish, mollusks, crustaceans and aquatic plants.”

• Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc.

• Farming also implies individual or corporate ownership of the stock being cultivated.
History of Aquaculture

- **3500 B.C.** – **China** was the first country to farm fish. They cultivated **carp** with freshwater ponds and rice paddies.
- **1733** – Fish farming in its modern form begins when a German farmer successfully gathers **trout eggs**, fertilizes them, and then grows the hatched fish to maturity.
- **1853** – An **Ohio trout farm** becomes the first in the U.S. to artificially fertilize its fish eggs.
- **1909** – The **first commercial trout farm** in the U.S. established in Idaho.
- **1930s** – **President Franklin D. Roosevelt’s Farm Pond Program** encourages the growth of the U.S. aquaculture industry by providing federal subsidies for building and stocking fishponds on farms.
History Cont’d

• **1910** – State and federal hatcheries in the U.S. develop channel catfish farming techniques.

• **1970s** – U.S. catfish farm acreage grows from 400 acres in 1960 to 40,000 in 1970.

• **1980s** – The National Aquaculture Act of 1980 is passed in the U.S. to provide for the development of the aquaculture industry.
Species Selection

- Producer’s expertise
- Water supply and climate
- Species biology
- Marketability
- Production methods
- Production economics
Biological Characteristics

- Saltwater vs. Freshwater
- Water temperature
- Climate
What to grow?

- Catfish
- Crawfish
- Baitfish
- Largemouth bass, bluegill, and other sport fish fingerlings
- Rainbow trout
- Striped bass, hybrid striped bass, and red drum
- Tropical aquarium fish
- And the list goes on…
Economic Significance

- Alabama commercially produces approximately 20 aquatic species.
- There are over 25,000 water acres of fish farms in AL and approximately 250 producers, with 200 considered as “large-scale”.
- Over 131 million pounds of catfish produced in 2006.
- Alabama catfish production is second only to Mississippi with Hale county ranked 6th nationally.
- Alabama aquaculture is worth $115 million to producers.
- Approximately 2,700 AL jobs are directly engaged in catfish production/processing.
Economic Significance

- Farm Gate Value: $978 Million
- Total Value: $5.6 Billion
- 181,000 Full-time Jobs
- Fastest Growing Sector of U.S. Agriculture

<table>
<thead>
<tr>
<th>Top 10 States</th>
<th>Value of Aquaculture Products Sold ($1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mississippi</td>
<td>$290,382</td>
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<tr>
<td>Arkansas</td>
<td>$84,120</td>
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<td>Florida</td>
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<td>Maine</td>
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<td>Alabama</td>
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<td>California</td>
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<td>Idaho</td>
<td>$35,919</td>
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<tr>
<td>Virginia</td>
<td>$24,629</td>
</tr>
</tbody>
</table>

Source: 1998 Census of Aquaculture, USDA-AMS
Economic Significance

Favorite U.S. Seafoods in 2004, lb/person

1. Shrimp – 4.2
2. Canned tuna – 3.3
3. Salmon – 2.2
4. Pollock - 1.3
5. Catfish - 1.1
6. Tilapia - 0.7
7. Crab - 0.63
8. Cod – 0.60
9. Clams - 0.47
10. Flatfish - 0.33
Economic Significance
Careers in Aquaculture

- Feed Research
- Extension Agent
- Farm Owner & Laborer
- Teacher
- Aquatic Hardware Design
- Wholesaler
- State Hatchery
- College Professor
- Aquatic Veterinarian
- Marketing
- Mission Work
- Scientific Research
- Retailer
- Chemical Research
- Geneticist/Biotechnology
- Processing Facility
- Medical Research
- State Inspector