

Culture Overview



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2013 Census of Aquaculture

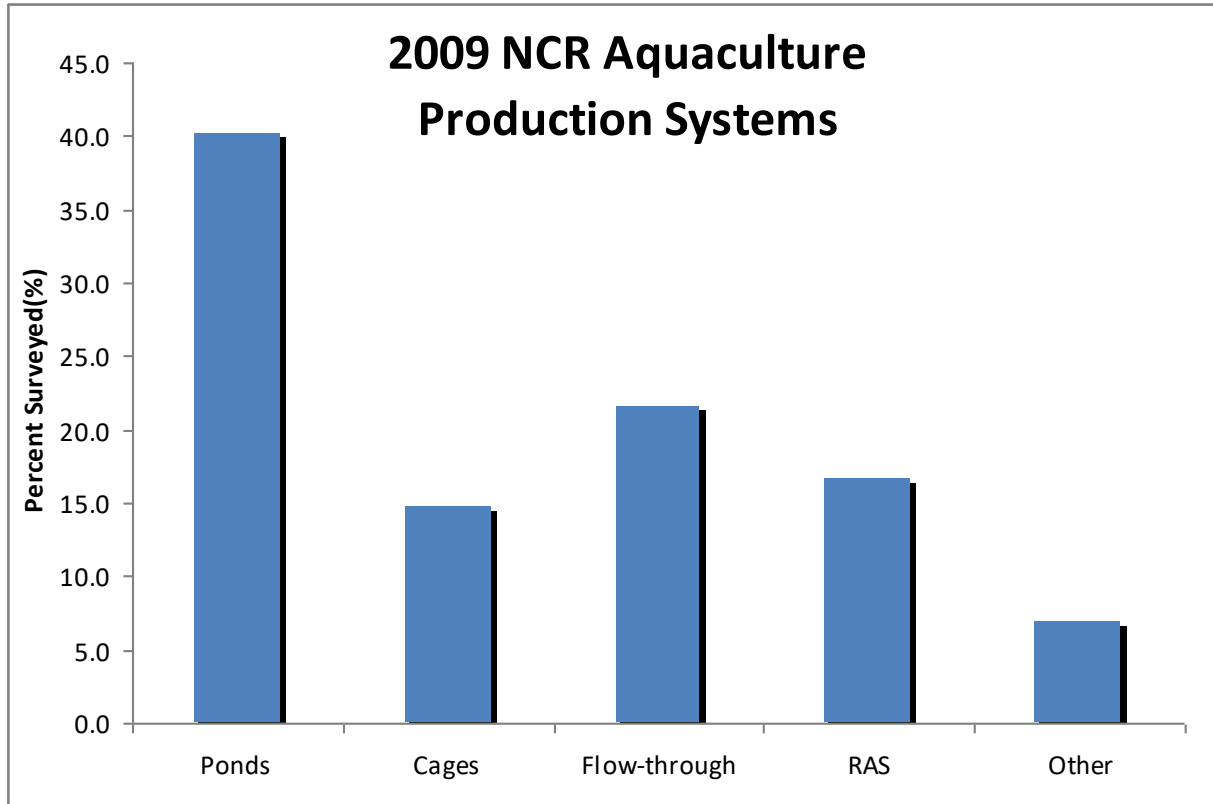
- 3,000+ farms
 - 1,296 raised food fish (\$732 million)
 - Catfish, trout, hybrid striped bass, tilapia, salmon
 - 756 raised mollusks (\$329 million)
 - Oysters & clams
 - 556 raised crustaceans (\$85 million)
 - Crawfish & shrimp
 - 282 raised sportfish (\$23 million)
 - Largemouth bass, sunfish, crappie, walleye
 - 166 raised baitfish (\$29 million)
 - 285 raised ornamental fish (\$41 million)
 - 10 - sea vegetables, 18 – microalgae, 78 - turtles, 33 – alligators, 18 – snails, 12 – frogs



Favorite U.S. Seafood lb/person (2015)

| | | | |
|-----|------------------|------|---------|
| 1. | Shrimp | 4.00 | -5.26% |
| 2. | Salmon | 2.30 | +33.76% |
| 3. | Canned tuna | 2.30 | -4.17% |
| 4. | Tilapia | 1.40 | -3.12% |
| 5. | Pollock | 0.98 | -1.11% |
| 6. | Basa (pangasius) | 0.69 | +6.20% |
| 7. | Cod | 0.65 | +16.12% |
| 8. | Crab | 0.52 | +13.20% |
| 9. | Catfish | 0.51 | +4.78% |
| 10. | Clams | 0.34 | +1.44% |

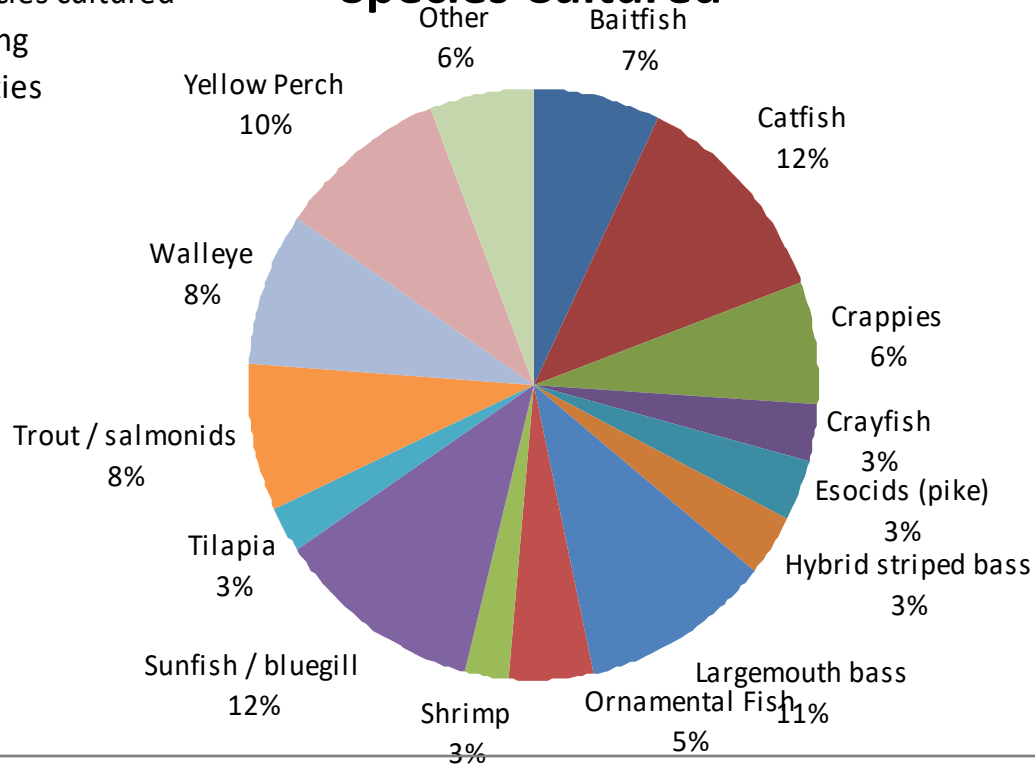




2009 NCR Aquaculture Survey

Percent species cultured
by responding
farms/facilities

Species Cultured



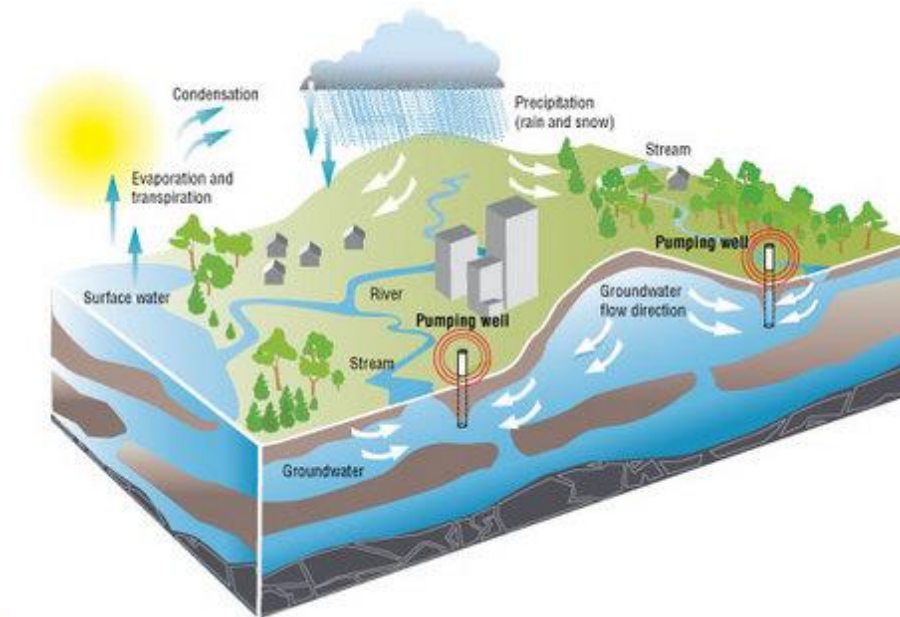
Aquaculture's Future Role

- Diversify products
 - Surimi, value-added
- Diversify reputation
 - High-quality, luxury food
- Break competitive disadvantage
 - High labor cost & property
 - Technology advances and grain-based diet



Water Sources

- Groundwater: springs, wells, artesian well
- Surface water: river or lake
- Domestic water: treated city water (municipal)



Temperature

| Category | Optimum temperature (°F) | DO requirement | Ammonia tolerance | Protein requirement | Type |
|-----------------|---------------------------------|-----------------------|--------------------------|----------------------------|-----------------------------|
| Coldwater | <60 | >5 mg/L | Low | High | Trout, salmon |
| Coolwater | 60 – 75 | >5 mg/L | Low | Moderate | Yellow perch, walleye, pike |
| Warmwater | >75 | >2 mg/L | Moderate | Moderate | Sunfish, bass, minnows |
| Tropical | >86 | >1 mg/L | High | Low | Cichlid, tetra |
| Marine | | Higher | | Higher | |
| Freshwater | | Lower | | Lower | |



Isotherms

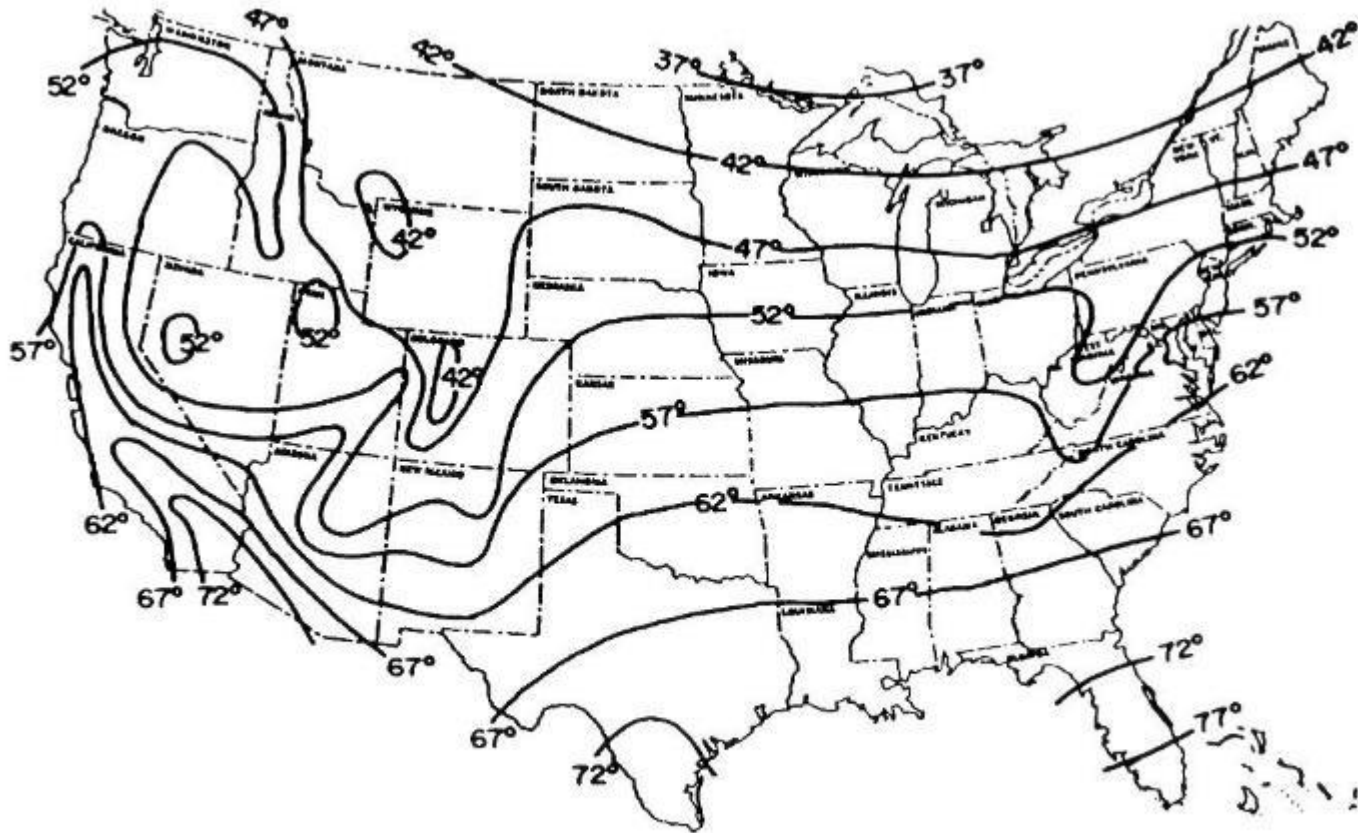


Figure 3.1. Groundwater isotherms for the U.S. (From Anon., *Ground Water and Wells*, Edward E. Johnson, Inc., St. Paul, MN. With permission.)



Siting Tools

- WI aquaculture suitability models
 - <https://www.uwsp.edu/cols-ap/nadf/Pages/GIS-based-analysis.aspx>
- Pond
 - [Suitability model](#)
- Flow-through
 - [Suitability model](#)

