A balanced pond fishery can be established with the initial stocking. **Maintaining** that balance requires the pond owner to manage the harvest.
Successful Pond Management

- Stocking Strategy
- Environmental Conditions
- Fish Harvest and Growth
- Successful Fish Reproduction
- Elimination of Unwanted Fish Species
Sources of fish

- Agencies
- Private fish farmers
  - IL – [www.dnr.state.il.us/fish/PrivateDealers03.htm](http://www.dnr.state.il.us/fish/PrivateDealers03.htm)
Typical Stocking Strategy

- **Bluegill**
  - Fall (700+ 1–2”/acre)

- **Largemouth Bass**
  - Following spring (70+ 1–2”/acre)

- **Channel Catfish**
  - 150/acre
Other Game Fishes

- **Northern Pike**
  - vulnerability to anglers
  - will not reproduce
  - possible predation on bass
  - Do not stock if BG and YP fishery is desired
Walleye

- Escapement
- Will not reproduce
Crapplie

Added Variety
Hybrid Sunfish
Other Game Fishes

- Yellow Perch
  - often become stunted
- SMB
  - Need cooler water temperatures
- Wipers
  - Possible control of sunfish
  - Effect on LMB condition
Prey Species

- FHM
- Golden shiners
- Bluntnose minnows
- Shad
- Black crappie
- Black bullhead
- Yellow perch
- Various *Lepomis* spp.
  - Redear, pumpkinseed, longear
  - Hybrids
  - Coppernose BG
Why Does Fishing Decline?

- Natural Progression: increased plant growth is detrimental for large predatory bass because:
  - makes capturing prey more difficult
  - increases the chances of fish kills due to plant die-offs

- Selective Fishing
Questions to ask yourself?

- Is the average size of bluegill declining?
- Is the largest size bluegill you catch getting smaller?
- Do you catch fewer big fish?
- Are bass being caught less frequently?
- Are crappie, carp, or other non-stocked fish being caught?
The pond is built and stocked with fish

Fishing begins one or two years later

3–5 years after construction, fishing is excellent

Fishing declines after 6/7 years and remains poor
Correcting Poor Fishing

- Eradication of all fish species is recommended if your pond contains a poor mix of fish species or is dominated by over-crowed, slow-growing fishes.

- choices:
  - Drain pond
  - Chemically treat
    - use of rotenone
  - Selective stocking and management of predator fishes
Balanced Pond

- Bluegill
- Largemouth Bass
A Few Large Bluegill

Many Small Largemouth Bass
Pond Fishery Out of Balance

- Many Small Bluegill
- Few Large Largemouth Bass
What if my pond is out of balance?

Management Options

- Stock predators
- Stock adult bluegill if not already present
- Harvest overabundant small bass
- RENOVATION
Managing Largemouth Bass

- Do not harvest bass for 2 years after initial stocking
- Minimum size limit of 15 inches
- Remove no more than 15 bass per surface acre each year (after the first 4 years)
- Be conservative
Bluegill Growth in Iowa Farm Ponds

Length (inches)

Age (years after stocking)
Largemouth Bass Growth in Iowa Farm Ponds

Age (years after stocking)

Length (inches)
Channel Catfish Growth in Iowa Farm Ponds

![Graph showing the growth of Channel Catfish in Iowa Farm Ponds over age (years after stocking)]
Problem Species

Bullhead
Common Carp
Successful Pond Management

- Stocking Strategy
- Environmental Conditions
- Fish Harvest and Growth
- Successful Fish Reproduction
- Elimination of Unwanted Fish Species
Predation is the key to pond fish balance

For example

- Largemouth bass decrease bluegill density
- Leads to increased growth rates for remaining bluegill
- Yields higher quality bluegill angling
Want Big Bass?

- Size or slot limit
- Decreased number of Largemouth bass
Want big Bluegill?

- Minimal bass harvest. Fewer but large bluegill
- Bluegill will have relatively fast growth rates
- Harvest what you want
Want big Catfish?

- Be patient:
Additional notes – BG & CC

- BG – allow harvest at will within reason
- CC – harvest at will and restock with initial numbers harvest by 50%
  - Use 8+” CC for restocking
Management Options

Coldwater ponds
Trouts

- Species
  - RBT – most adaptable
  - BT – need cooler water temperatures
  - BrT – hard to catch

- Suitable waters
  - Cool waters w/ abundant oxygen

- Fish and restock
- Keep minnows out
- Ponds deeper than 15’
Trout stocking

- Spring fingerlings – 200–300/acre of 2–3” fish (April–May)
- Fall fingerlings –> 50–150/acre of 5–6” fish (Sept–October)
- Infertile ponds –> 20–25 lbs/acre
- Fertile ponds –> 150 lbs/acre
- Algae control?
- Feeding?
Long-term pond mgt needs
The Fate of Lakes

- Aging
- Trophic levels
- Lake classification
- Eutrophication
Littoral zone in relation to the size of the pelagic zone

Over time
- relatively large littoral zones,
- plants that occupy that region may regulate the metabolism of the entire lake ecosystem.
Lake succession

Mesotrophic $\rightarrow$ Eutrophic

- shallow and warm
- high in nutrients
- dissolved oxygen depleted at times
- warm water biota
- high percentage of surface and volume in littoral zone
Eutrophication – Natural Cultural

- Possible loss of plants (via light limitation by algae)
- Low dissolved oxygen
- Excessive organic matter production (smothering eggs and bugs)
- Blue-green algae inedible by some zooplankton (reduced food chain efficiency)
- "Toxic" gases (ammonia, H2S) in bottom water (more loss of fish habitat)
- Possible toxins from some species of blue-green algae
Can a pond die of old age?

Yes

- Preventative measures
  - Control watershed
  - Plant buffer strips
    - Nutrients
    - Grass clippings
  - Dredge/create quiescent zones (calm areas)
http://aquaplant.tamu.edu/
Welcome to the ISU Fisheries and Aquaculture Extension

List View | Map View