Ways to Improve Sunfish/LMB Production and Sales

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Bigmouth Bass

http://wdfw.wa.gov/fishing/washington/Species/1738/

Largemouth Bass

http://wdfw.wa.gov/fishing/washington/Species/1738/

Bluegill

Sunfish

Green Sunfish

Pumpkinseed

Longear Sunfish

Rockbass

Warmouth

Black Crappie

http://www.crappie.com/crappie/main-crappie-fishing-forum/311019-fish-identification-2.html

Flier

http://www.crappie.com/crappie/main-crappie-fishing-forum/311019-fish-identification-2.html

White Crappie

Black Crappie

Practice the Following

- Know Actual Species in Hand and of Interest
- Use Proper Name for Intended Market
- Keep Species Separated
  - Avoid having to sort
    - Large numbers
    - Smaller fish

Sunfish Diversity

- Genera
  - ***Lepomis* spp. (Sunfishes)**
  - ***Micropterus* spp. (Black Basses)**
  - ***Pomoxis* spp. (Crappies)**
  - *Ambloplites* spp. (Goggle-eyes)
  - *Centrarchus* sp. (Flier)
  - *Archoplites* sp. (Sacremento Perch)
  - *Acantharchus* sp. (Mud Sunfish)
  - *Enneacanthus* spp. (Little Sunfishes)
- 39 Species
  - 13
  - 14
  - 2
  - 4
  - 1
  - 1
  - 1
  - 3

Species of Economic Importance to the Midwest

- Largemouth Bass
- Bluegill
- Hybrid Bluegill (Green Sunfish$_{female}$ x Bluegill$_{male}$)*
- Black Crappie
- Redear
- Pumpkinseed
- White Crappie
- Orange Spotted
- Etc.

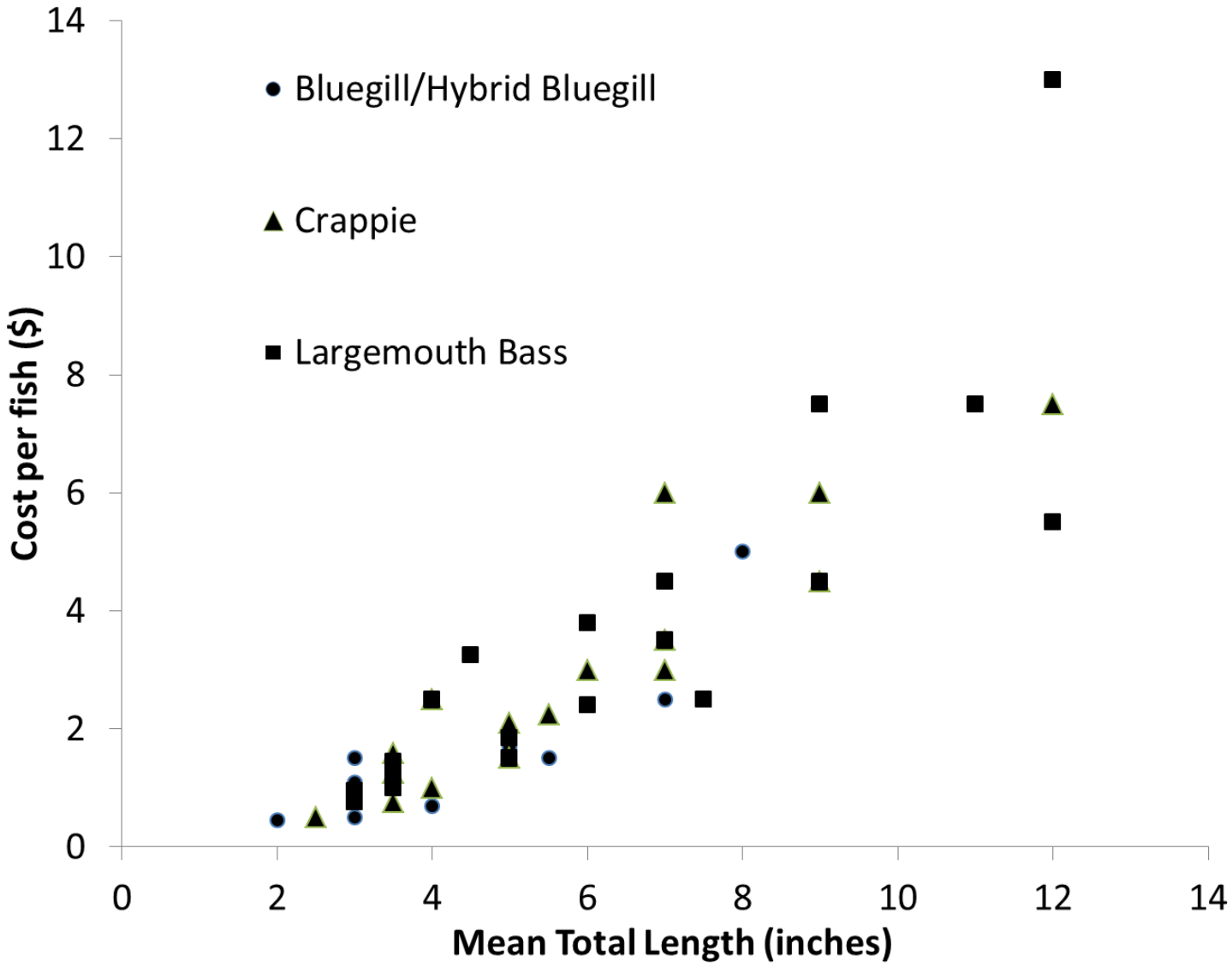
Markets

- **Stocking**
- **Food**
- Bait
- Forage
- Display
- Trophy*
- Ornamentals

Size Important

- Stocking (largest volume)
  - Fingerlings 1” to trophy size
  - $0.08 to $500 / fish
  - Least room for expansion
- Food Fish (greatest potential for expansion)
  - ½ to 2 lbs
  - $4 to >$6 / lb
  - Lowest Profit Margin
    - Most investment / fish
    - Middle men
    - Producer has all the risk

Size Verses Price



Improving Margins

- Control
  - Stocking Densities
  - Nutrition
    - Cost per unit gain
      - Feed cost / lb
      - Feed Conversion
  - Losses
    - Cannibalism
    - Size variation

Sunfishes Like to Breed

- Control it!
- All spawn as water warms
- Most done by summer solstice
  - Bluegill is the most important exception
- Some breed multiple times / season
  - Promotes size variation (can be very bad)

Quality Brood Fish

- **Nutrition!**
- Exposure to fall–winter–spring cycle (Bass/Crappie)
- Large enough to breed
  - Age not that important
- Uniform in size
- In good condition
  - Bellies
    - Rounded – female
    - Firm – male
  - Color
  - Large opercular tabs
  - No wounds

DO NOT BE AFRAID TO CULL

Know How to Sex Fish

The Breeding Sequence

Imagine…….

Nest Construction

- Tail Sweeping
- Diameter approximately 1.5X length of male

Gamete Deposition

Brood Care

• Embryos • Prolarvae	Sunfish / Crappie / Bass
• Larvae • Fry	Bass

Know What the Eat

Breeding in Ponds

- Pond Preparation
  - Dry out
    - Controls pest
    - Stages plankton emergence
  - Prep dry bottom
  - Fill with water
    - **Timing**
    - Do not allow other species to come in!!!!
  - Fertilization
    - Organic
    - Apply based on appearance of water
      - Check at least weekly

Carrying Capacity Constraints

- Forages for early life-stages
  - Strong plankton blooms
    - Zooplankton
  - Timing
    - Small larvae need to have abundant small / early blooms
- Forages for fingerlings
  - Difficult to rear reliably in pond with stock
  - Bring in forages (minnows)
    - Expensive
    - Risky

Black Crappie

- Ponds ready for brood fish as temperatures warm into upper 50's F
- Spawning starts in lower 60's F
- Nests typical deep in loose groups
- Larvae first feeding about 2 weeks after adults introduced
  - Smaller early zooplankton typical of two weeks post filling

Largemouth Bass

- Ponds ready for brood fish as temperatures warm into lower to mid 60's F
- Spawning starts in mid 60's F
- Nest spaced around perimeter of pond
- Larvae first feeding about 3 weeks after adults introduced
  - Larger later zooplankton typical of 3 to for weeks post-filling
- Extended parental care
  - Fry weaned when pushing 1"

Largemouth Bass (continued)

- Target larger prey as they grow
  - Insects do not last long
  - Get along well so long as schooled up
    - Schools breaking up means forage failing
      - Leads to size variation ➔ cannibalism
- Be ready to harvest quickly and grade
- Stock immediately into another pond
  - Lower density
  - Fresh forage base
    - Transition to minnows ($$$)

Or……

Feed Training

- Confine at High Densities
- High Exchange Rate
  - Remove waste frequently
- Nutrient Dense Feeds (lots of animal protein)
- THE FEEDING REGIMEN
  - Frequency
  - Do not startle
  - **Show Them Love**
- **Duration**
- **Repeat**

Bluegill

- Ponds ready for brood fish as temperatures warm into upper 60's F
- Spawning starts in lower 70's F
  - Continues into mid 80's
- Nests arranged in large tight groups
  - Unless stocking density low
- Larvae first feeding about 2 weeks after adults introduced
  - Medium sized zooplankton typical of two weeks post filling

Bluegill (continued)

- Most adaptable with respect to forages
- Feed train easily as fry on up
  - Even in ponds
- Extended breeding season makes for extremely variable size at harvest
  - Requires grading
- Difficult to stop breeding in ponds
  - 3” is big enough

Growout Using Formulated Feeds

- Size pellets to gape size of fish
- Diets used for trout work well ($$$)
  - Least-cost formulation for Bluegill
- Keep carbohydrates well
- Feeding Regimen
  - Hand vs Automatic
  - Bluegill – multiple feedings / day
  - Crappie – multiple feedings / day
  - Largemouth Bass – multiple to single feedings / day

Goals

- Larger in less time
  - More time means more risk
- Higher condition factor
  - Tolerates handling better
    - Remember most markets based on live
- Uniform size
  - Be setup to grade and rear sizes separately
- They need to look good

QUESTIONS?