

Stocking and Harvesting Fish Ponds



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Goals of Stocking and Harvesting

1. Create and maintain productive relationship between predator fish and prey fish
 1. Or grow big bass/catfish
 2. Or grow big bream
2. Sustainable fish production, quantity and quality
3. Maximize fish health and growth rates
4. Control nuisance weeds and animals

Controlling Introductions

- Ponds typically closed systems, dammed runs may have native fishes
- Need to balance predators and prey
- Need to exclude nuisance species

Sand Filter
Inlet Control

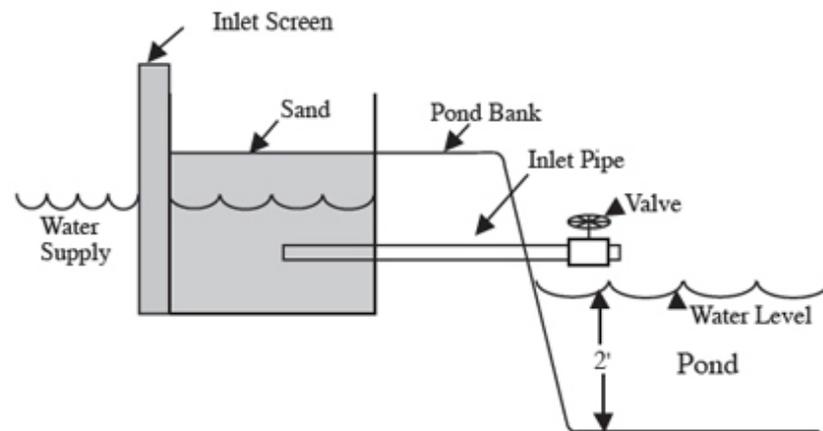


Figure 3

Preparing to Stock

- Rehabilitating a pond may be best done by starting from scratch
- ROTENONE – a restricted use pesticide used for removing fish from ponds (Fish Tox, Nox-Fish, Prentox, Chem Fish, & others)
 - selective vs. complete removal
 - fish species respond to rotenone differently
 - Grass carp, shad, bream, bass very susceptible to rotenone
 - Common carp & bullhead catfish very tolerant
 - Big fish more susceptible than small fish

Applying Rotenone

ROTENONE APPLICATION TABLE

Treatment	Quantity Rotenone Required			
	5% Formulation (ppm)	Active Rotenone (ppm)	5% Liquid (gal/ac ft)	5% Powder (lb/ac ft)
Normal Pond*	0.5 – 1.0	0.025 – 0.050	0.17 – 0.33	1.4 – 2.7
Bullheads or Carp Present	1.0 – 2.0	0.050 – 0.100	0.33 – 0.66	2.7 – 5.4
Bullheads or Carp - organic pond	2.0 – 4.0	0.100 – 0.200	0.66 – 1.3	5.4 – 10.8
Selective Treatment	0.10 – 0.13	0.005 – 0.007	0.03 – 0.05	0.27 – 0.38

*Unless it is certain that bullhead, catfish, carp or other rough fish are not present in the pond, it may be prudent to apply rotenone at the higher application rate.

****Special notes**** (see HGIC Fact Sheet #1713)

- Draw-down water to be more effective and save money
- Wettable powder needs to be pre-mixed with water
- Rotenone toxicity dependent on temperature and organic content of water
 - Low temperature = longer activity
 - Darker water (stained), turbid water (cloudy) = need higher application rate
- Best time to apply is August – September
- Use fish in a basket to test if rotenone is still active
- Potassium permanganate can detoxify rotenone
- Fish dispatched this way may not be eaten according to EPA

Fish Species

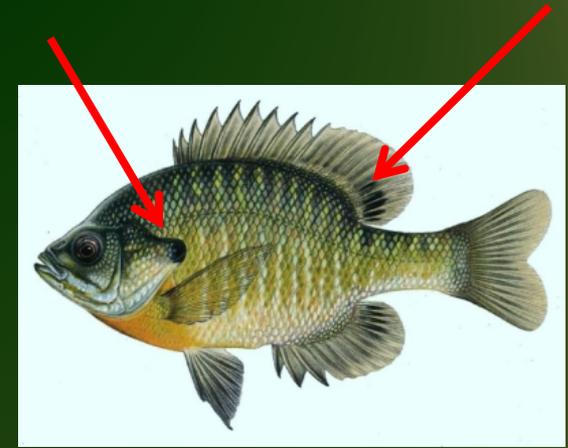
Classical methods



Bluegill Bream

Lepomis macrochilus

- 1° forage for largemouth bass
- Eat invertebrates and small fish
- Important for controlling biting flies
- Stock in fall, early winter
 - 500 per acre unfertilized
 - 1000 per acre fertilized
- May be stocked alone or with Redear Sunfish in 3:1 ratio
 - 3 bluegill for each redear
- State record: 3 lbs. 4 oz.

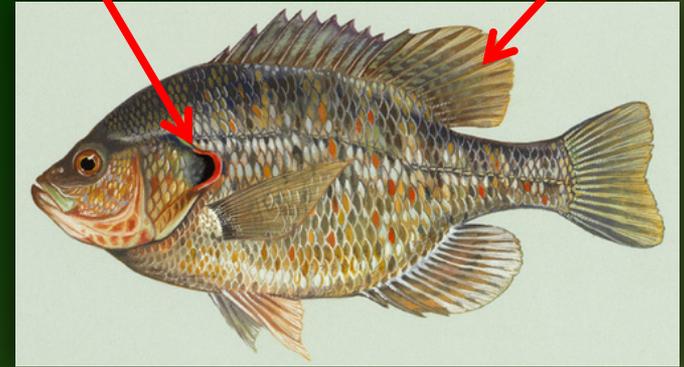


Redear Sunfish

“Shellcracker”

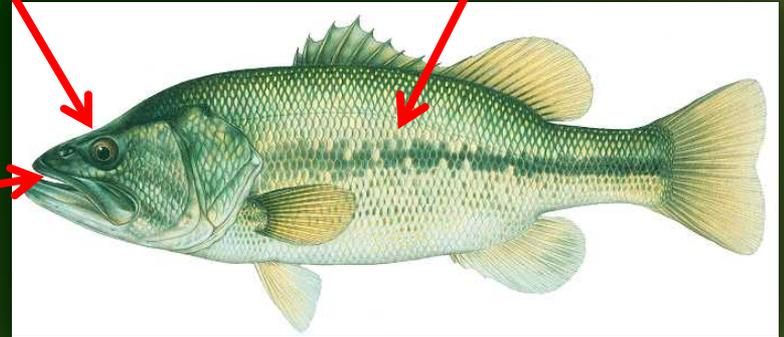
Lepomis microlophus

- Another good forage for bass
- Eat mostly invertebrates & fish
- Larger more aggressive than bluegill, less likely to stunt
- Never stock alone, only stock with bluegill, 3:1 ratio
- Stock in late fall/winter
 - Max. 125 per acre unfertilized
 - Max. 250 per acre fertilized
- State Record: 5 lbs. 7.5 oz.



Largemouth Bass

Micropterus salmoides



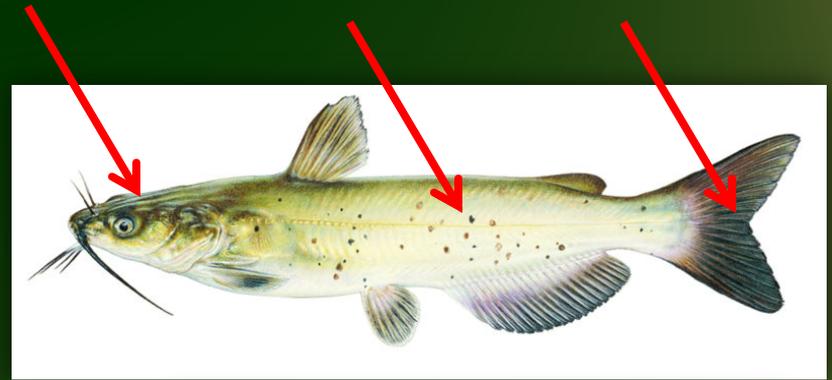
- Top predator that feeds on smaller fishes (bream) frogs, snakes, and invertebrates
- Excellent recreational resource
- Stock in spring, early summer
 - 50 per acre unfertilized
 - 100 per acre fertilized
 - Should be at least 4 inches in length
- State Record: 16 lbs. 2 oz.



Channel Catfish

Ictalurus punctatus

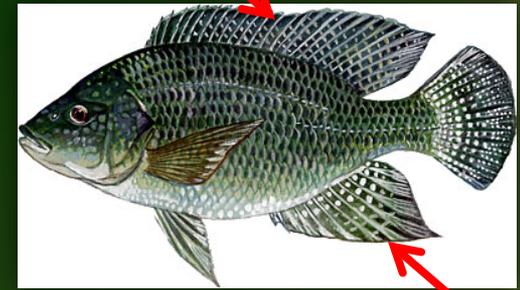
- Mainly a scavenger, some predation
- At low density they do not affect bream and bass
 - May compete for food
- Usually require supplemental feeding to maximize growth
- Do not reproduce well in ponds
- Stock in late fall/winter
 - Max. 100 per acre
- State & World Record: 58 lbs.



Tilapia (Blue & Nile)

Oreochromis aureus & *O. niloticus*

- Herbivores/omnivores
 - Blue eats filamentous algae
 - Nile eats other submerged plants
- Effective weed control
- Rapid reproduction
- Aggressive sport fish
- High quality forage for bass
- Tropical – need to restock every spring
 - Die at 55° F
- Stock in April/May, 200 to 400 per acre
- Free SC DNR permit required
- State Record: ?, World Record: 9 lbs 6 oz FL

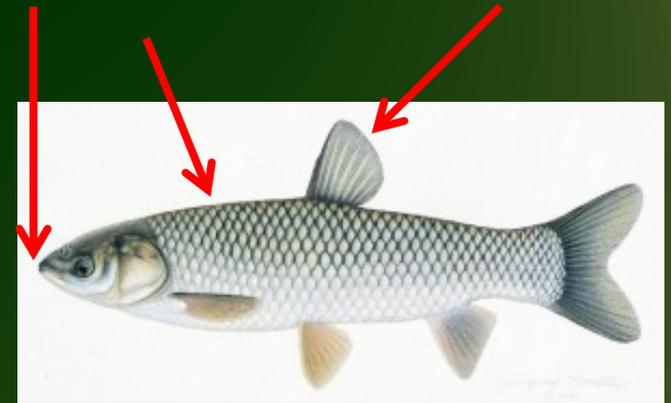


Triploid Grass Carp

“White Amur”

Ctenopharyngodon idella

- Strict herbivore
- Excellent weed control, 5-8 yrs.
- Good for submersed weeds, not shoreline or floating weeds
- Live up to 12 years (or more?)
- Grow to over 100 lbs
- Will take corn and fruit
- Stock in late fall/winter
 - 20 per acre vegetation or...
 - 5 per pond acre (maintenance)



Nuisance Fish

- Blue or Flathead Catfish
- Common/ Israei Carp
- Shiners or Shad
- Crappie (?)



Harvesting

Classical Approach

OBJECTIVE: Maintain a 10:1 ration of bream to bass

Unfertilized ponds

- 20 bass/acre/year
 - mixed age classes, at least 1 over 5 lbs
- 200 bream/acre/year
 - Medium and large fish

Fertilized ponds

- 40 bass/acre/year
 - Mixed age classes, at least 3 over 5 lbs.
- 400 bream/acre/year
 - Medium and large fish

**These are rough estimates to be altered according to harvest data

Harvest Data

Let the fish tell you what to do

- Seigning
 - In July
 - Looking for “young of year”
 - Should collect 2 or three age classes of bream
 - Should collect young bass

Harvest Data

Let the fish tell you what to do

- Catch Data
 - Looking for mixed age classes
 - Check fish dimensions (length vs. circumference)\
 - Relative weights
 - Size of eye/head



Largemouth Bass Standard Weights

Length (in.) Standard Weight (lbs)

10	0.5
10.5	0.6
11	0.7
11.5	0.8
12	0.9
12.5	1
13	1.1
13.5	1.3
14	1.5
14.5	1.6
15	1.8
15.5	2
16	2.2
16.5	2.5
17	2.7
17.5	3
18	3.2
18.5	3.5
19	3.9
19.5	4.2
20	4.5
20.5	4.9
21	5.3
21.5	5.7
22	6.2
22.5	6.6
23	7.1
23.5	7.6
24	8.1
24.5	8.7

Bass Relative Weights

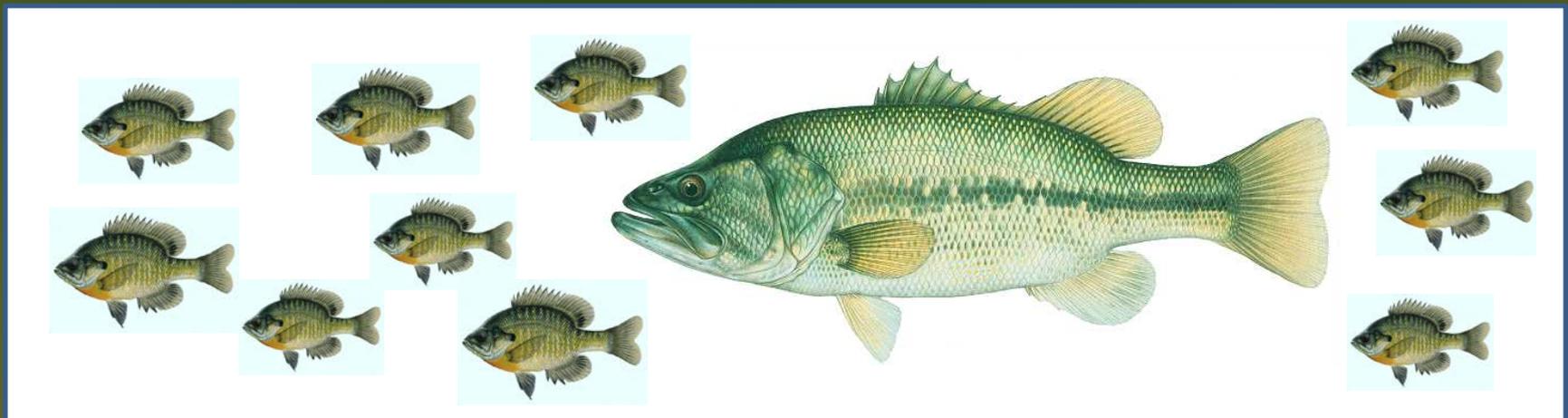


Consistently harvesting bass below standard weight indicates predator:prey imbalance or other water quality issues

Predator:Prey Imbalances

- Lots of medium and small bluegill with low length/weight ratios
- A few large bass with good length/weight ratios
- Very few medium and small bass

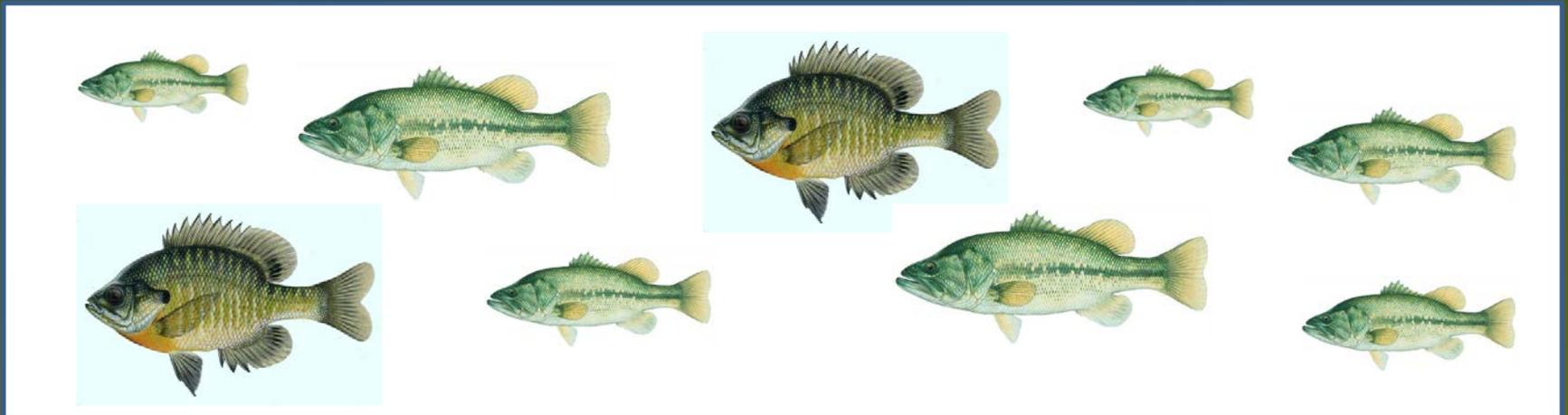
BLUEGILL CROWDED/STUNTED



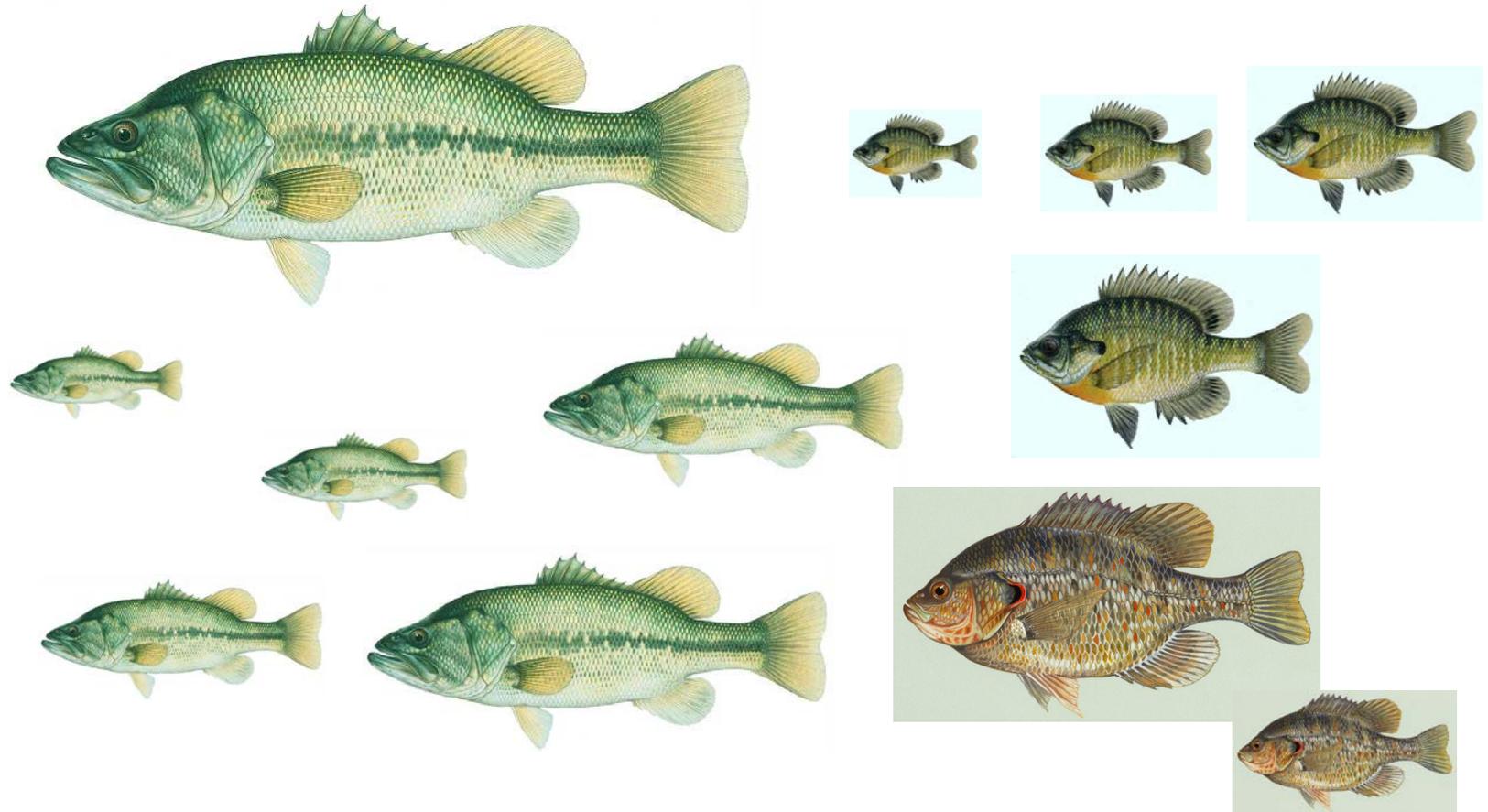
Predator:Prey Imbalances

- Only large bluegill with good length weight ratios
- no redear, very few mid-size bream, may have lots of very young bream depending on proximity to spawn
- Lots of medium and small bass with low length to weight ratios

BASS CROWDED



All Purpose Fishery



Trophy Bass Management

- Strategies to maximize largemouth bass growth rates
- Involves altering predator:prey ratios and providing additional forages
- Requires strict adherence to harvesting

Trophy Bass Management

The New Recipe

OBJECTIVE: Maintain bream to bass ratio between 15:1 to 30:1

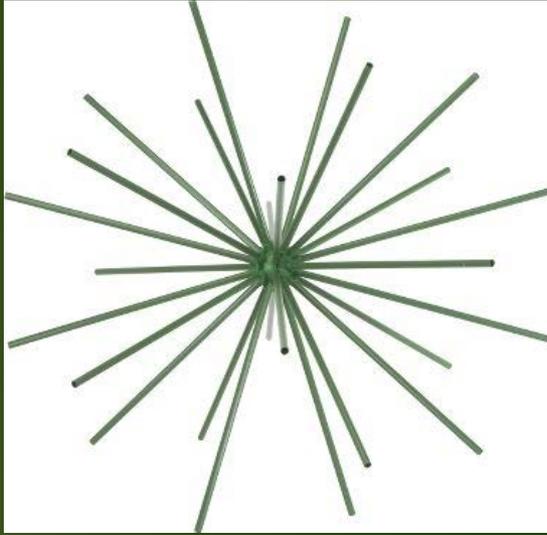
- Superstock bream - 1,500 per acre, avoid redear
- Understock bass – 50 per acre (seek pure Florida strains)
- Fertilize
- Stock supplemental forage
 - Tilapia: 200 per acre
 - Threadfin Shad: 1,000 per acre
- Harvest rates
 - 20 bass/acre/year
 - 40 bream/acre/year (focus on largest bluegill)

Trophy Bream Management

- Limited harvest of bass, harvest only large bass (> 18 inches)
- Supplemental feeding
- Rear bream in cages for later release



Fish Attractors



Training Fish with Feed



QUESTIONS?

