# Update: UGA and Georgia Aquaculture

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#### UGA-Tifton Aquaculture Programs

- ▶ Bluegill Research
- Catfish and Sportfish Feed Ingredient Alternatives
- Suwannee Bass Re-Stocking in Ochlockonee River
- Aquatic weed and Algae Control



#### Stocking Bluegill



GOAL: grow a 100+ gram fish in 32 weeks

At least 3 months old

20 grams or larger

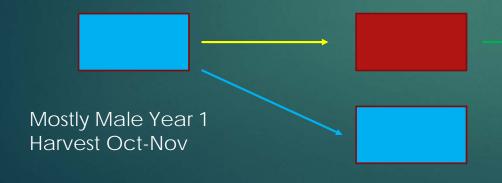
Grade out bottom 75%. Or, hand-sex

Stock: 3-5,000/Acre with/without catfish fingerlings

Bluegill Yield: 1,600 to 2,000 lb/A

## Next Phase of Bluegill Work - Continuous pond culture

- Use the reproduction from ponds with mixed sex (10 to 20% female)
- Same stocking schedule, but harvest after first season
  - Split stock to finishing pond and a new fingerling pond with graded bluegill
  - ▶ Re-grade larger bluegill for fast growth and male sex

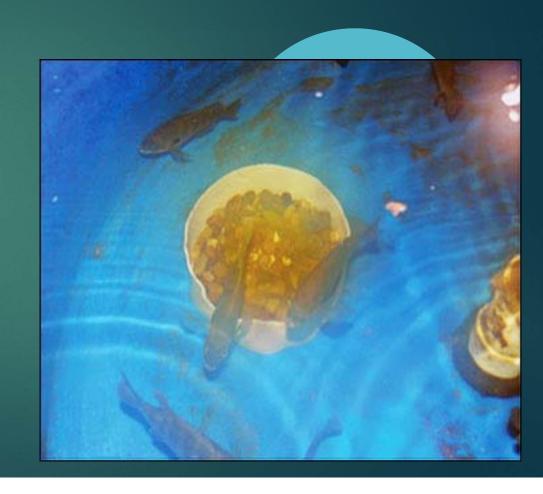


Harvest in Sept-Oct Year 2

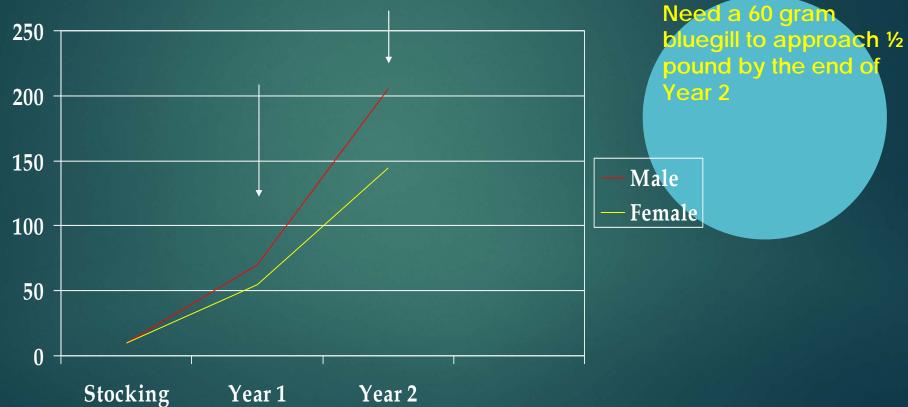
Graded Reproduction from Year 1 moved to a new pond

#### Where to get the stockers?

- ▶ Your own breeding pond
  - ▶ 30 to 40 pairs per acre
  - ► Expect 2-3" fingerlings
  - ▶ 300,000/Acre
- ▶ Your own breeding tanks
  - ► Artificial nests
  - ▶ Remove spawn
- ▶ Hatcheries



#### Bluegill growth in grams/fish 1 pound = 454 grams



#### Fish Nutrition Work at UGA Tifton

- ► Alternative Ingredients
  - ► Brewers Grains, Wheat Middlings/Bran, Peanut Meal
  - ► Ingredients produced in Georgia
- Insect Protein to Replace Fish Meal/Soybean Meal

#### Alternative Ingredients

- The best alternatives are in use by other animal industries
  - Poultry byproducts, meat and bone meal, blood meal
- Most alternatives have a lot of fiber that is not digestible for fish
  - ▶ Brewers grains, wheat middlings or bran
- ▶ **Peanut meal** has aflatoxin dangers for fish and anyone who handles it. So dilution to a level of acceptance for fish is not the answer.
  - Check aflatoxin levels in peanuts before feeding. Do not exceed 300 parts per billion of aflatoxin in finishing cattle diets, 100 parts per billion in breeding cattle, aquaculture, chicken, pig diets, or 20 parts per billion in dairy or immature cattle diets.

## Insect Protein as an Alternative Protein Source



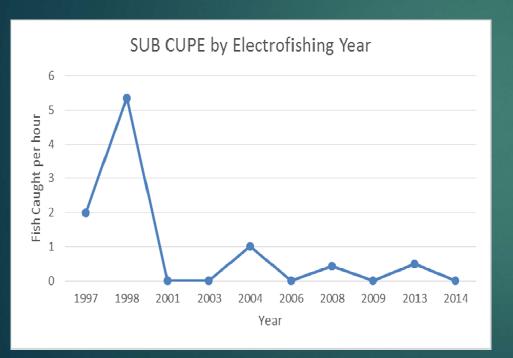
- ► Has 30 to 50% protein analysis
- Converts the digestible part of fibrous or waste materials
- Research at Tifton recommends 7 to 15% of catfish diet as solder fly larvae meal.
- More work is needed to commercialize this material.

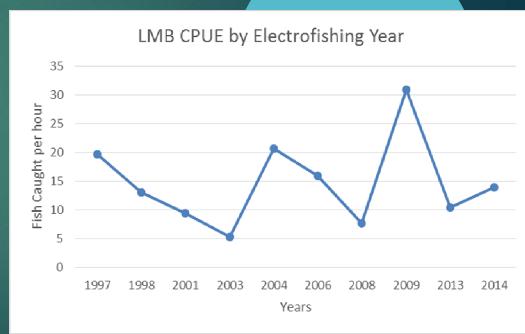
#### Habitat of Suwannee Bass

- Prefers rapidly flowing water
- Rocky shoals, spring heads, and spring runs
- Thought to prefer river areas with hard bottoms
- Ochlockonee between Cairo and a point 1.5 miles into Florida



## Suwannee Bass Decline as Largemouth Bass Increase





#### Aquatic Weed and Algae Control

- ▶ Blue green algae (Cyanobacteria) Control
  - Offer Microcystin toxin testing
  - Tested low level copper and peroxide as a control
    - ▶ 0.25 ppm Copper + 8 to 10 ppm peroxide (as sodium percarbonate)
- Salvinia (water fern) Control
  - Beginning a Salvinia weevil colony for stocking in early spring
  - ► Salvinia weevil starts in south Georgia, but does not move north fast enough
  - Need a seeding source than can be shipped to middle and north Georgia

#### Industry Developments

Fish Feed Costs and Effect on Georgia Fish Farming

Aquaponics and Local Grown

Cormorant and Fish-Eating-Bird Control on Fish Farms

Catfish Inspection by USDA

Medicated Feed Regulation

Clean Water Act

#### Aquaponics and Local Grown

- Increased interest in technical information
- Programs in Atlanta, Rossville, Savannah, and Ft. Valley areas
- ► Examples:
  - Georgia Aquaponic Produce, LLC Calhoun
  - ▶ Plantonics- Savannah
  - ► HatPonics- Rossville
  - ▶ Bioponica- Atlanta
  - ▶ Hidden Lake Aquaponics-Wilkes County
  - ► Castoponics-Atlanta

#### Tilapia and Basil – Wilkes County Georgia



Lettuce and Basil are the plant cash crops.
Tilapia are fed organic feed that includes alfalfa sprouts, wheat germ, clover, and greens.

## Local Seafood and Produce Resources

- ► <a href="http://marex.uga.edu">http://marex.uga.edu</a>
- ► <a href="http://georgiaseagrant.uga.edu">http://georgiaseagrant.uga.edu</a>
- ► <a href="https://northeastgeorgia.locallygrown.net/">https://northeastgeorgia.locallygrown.net/</a>
- http://georgiaorganics.org/
- http://www.caes.uga.edu/topics/sustainag/program. hereandHowtoSellLocally.html
- http://www.caes.uga.edu/topics/sustainag/programs/R esearchonLocalMarkets.html

## Tilapia Regulations

- ▶ Interest in Nile tilapia and its hybrids for ponds and tanks
  - ▶ Food fish
  - ► Forage fish in Sport fish ponds
- Currently must have Wild Animal License for most tilapia systems



## From Georgia DNR Reservoir Fishing 2016 for Lake Seminole...

Expect average catches (BASS) to weigh around 2 pounds with good numbers of 5-6 pounders available. Lake Seminole has improved over the last 10 years in its largemouth fishery, with both more and larger fish weighed in during its many tournaments. Visit the lake January through May for the best largemouth fishing. USACE

What is the true story and potential danger? Georgia has had over 50 years of tilapia exposure already, would easy access cause more established populations?

#### Catfish Inspection by USDA

- No longer FDA inspected, now USDA is charged with all catfish inspection when catfish products are put in a Package
- Estimated to affect 1,300 producers and 23 processors of catfish
- Estimated 185 wholesalers, importers and brokers affected
- Provide place for inspector, inspector must be present during processing and packaging of catfish (domestic or imported)
- Must fix facilities and operations to USDA requirements
- Dead catfish may be condemned

#### Medicated Feed No Longer Overthe-Counter

- After December 2016, need a veterinarian to order medicated feed
  - ▶ Terramycin
  - ▶ Romet
  - ► Fluorfenicol already needs vet involvement
- Current Medicated Feed suppliers are stopping (FRM, Purina)
- ▶ New orders from Cargill, Alabama and Mississippi processors???
- ► Ziegler moving to probiotics???

#### Clean Water Act and Aquaculture

- Wetland definitions are changing
- Pond construction permits are already hard to get
- Aquatic chemical application will be changed
- But, recent court case says a land owner can challenge Clean Water Act before being cited for violations
  - ▶ US Army Corps of Engineers vs Hawkes Company
- ▶ WOTUS (Waters of the United States) will be affected
  - ▶ Ditches that are not constructed in streams and that flow only when it rains are not covered.

## Waters Covered by EPA chemical rule

- All other waters that affect interstate or foreign commerce: intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds
- All impoundments of or tributaries of waters otherwise defined as waters of the U.S.
- "Wetlands" adjacent to waters (other than waters that are themselves wetlands) that are identified in this definition.
- ▶ Its complicated so see:
  - ► https://www.epa.gov/npdes/pesticide-applications

#### When the EPA permit starts...

- Submit a Notice of Intent (NOI)
- ► For treatment of aquatic plants, algae, and fish removal
  - ▶ Treat more than 80 acres of water
  - ▶ Treat more than 20 miles of shoreline/stream distance

#### Fish-Eating Bird Regulations

- ► A lawsuit stopped the Nationwide Permit for Cormorants
- Aquaculture Farmers Act is proposed this winter
  - Senator Tom Cotton and Representative Rick Crawford (Arkansas)
  - ► Senate Bill S 3007, HB HR 6425
  - Will reinstate the 2014 Aquaculure Depredation Order
- ► See National Aquaculture Association at: <u>naa@thenaa.net</u> or call 850-216-2400 for more information

# Georgia Aquaculture - \$30 million/year sales

- ► Sportfish \$10 15 million per year
- ► Catfish \$3 5 million
- ► Grass carp and Bait fish \$3 5 million
- ► Alligators \$1 3 million
- ▶ Tilapia \$0.7 1.2 million
- ► Hard clams and oysters \$0.5 1.0 million
- ▶ Other \$0.5 1.0 million
  - ► Rainbow trout, sturgeon, prawns, crawfish, eel, shrimp

