



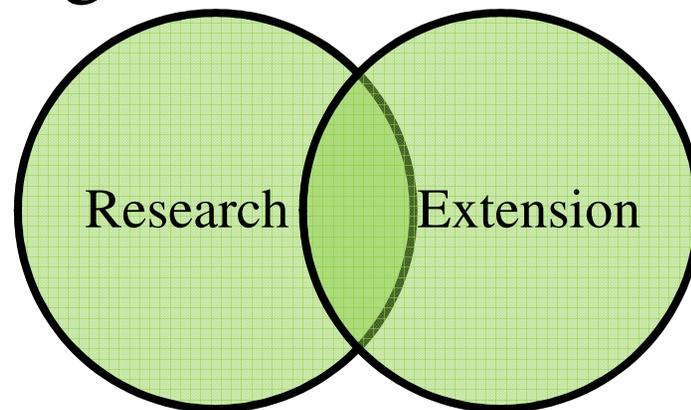
Ohio Center for Aquaculture Research and Development (OCARD) Update

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Mission

- The mission of the OCARD is to increase the productivity, innovation and profitability of Ohio and US aquaculture operations, while respecting sustainability and good stewardship, by engaging in innovative Research and Extension programs.





OARDC
EXTENSION

THE OHIO STATE UNIVERSITY

South Centers



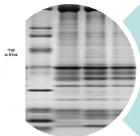
Four sub-programs and one lab



O’GIFT (Ohio Genetic Improvement of Farmed-fish Traits) Program - Piketon



Developing Applied Techniques for Aquaculture (DATA) Program - Piketon



Fish muscle growth and nutrition program – Animal Science



Aquaculture Technology Transfer (AT2) – Piketon



New Aquaculture Genetics and Breeding Lab (AGBL) at Piketon

* Closed our Bowling Green Aquaculture Center in 2012

Summary of Achievements 2012

- Collaborators
 - OARDC & OSUE
 - OSU Departments of Animal Science & Food Science
 - OSU South Centers Business Development Network
 - Ohio Soybean Council
 - NCRAC
 - Ohio Sea Grant
 - USDA – NIFA

- Outputs
 - 24 presentations
 - 8 research studies and projects
 - 6 proceedings papers
 - 6 new grant proposals
 - 5 Extension workshops
 - 4 journal articles
 - 4 graduate students, fellows and scholars
 - 3 grants for \$900,000
 - 2 on-farm research projects
 - 1 state-wide bus tour



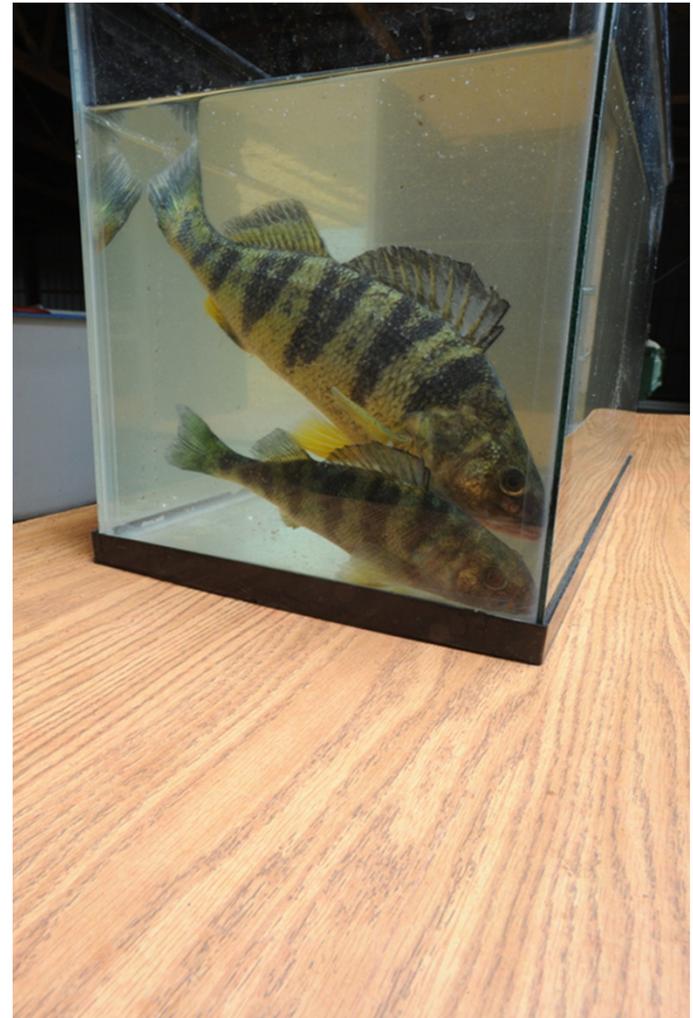
O'GIFT (Ohio Genetic Improvement of Farmed-fish Traits) Program

- Improve aquaculture production of perch, bluegill and largemouth bass by 35-50% through the development of genetically improved broodstocks



Yellow Perch

- Multiple improved lines of yellow perch
- Third generation of improved fish was created through the crossing of more than 100 families
- Work has begun on creating fast-growing all-female populations for the aquaculture industry.



Yellow Perch

- On-station and on-farm tests of improved fish
 - Year-2 of the on-station and on-farm tests of genetically improved perch was conducted on three sites in two states
 - This is an important step for commercialization of genetically improved strains.
 - The testing results showed improved fish
 - 42.1% – 59.4% higher production
 - 25.5% - 32.0% higher growth rate
 - 12.3% - 27.8% higher survival than local strains.



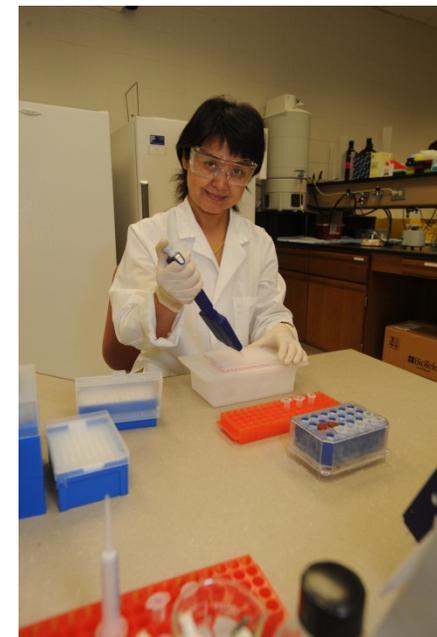
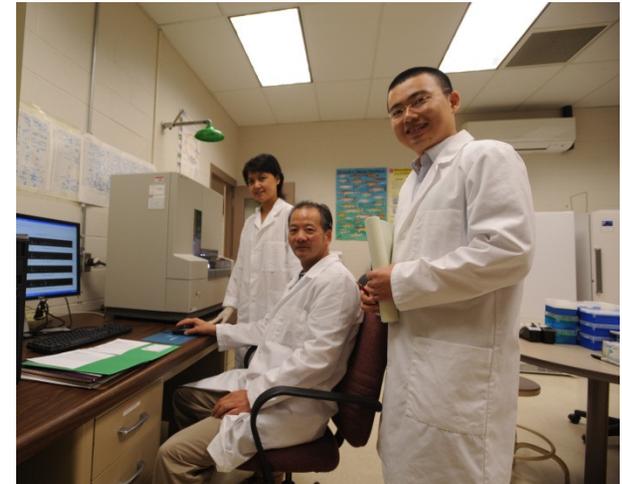
Bluegill

- Nineteen families of all-male populations, which would grow 40-50% faster than a mixed-gender population, have been successfully created through selective breeding.
- Three experiments related to sex-control and genotype by environment interaction in were completed.
- The results from these experiments provide a valuable base for developing all-male broodstock for bluegill.



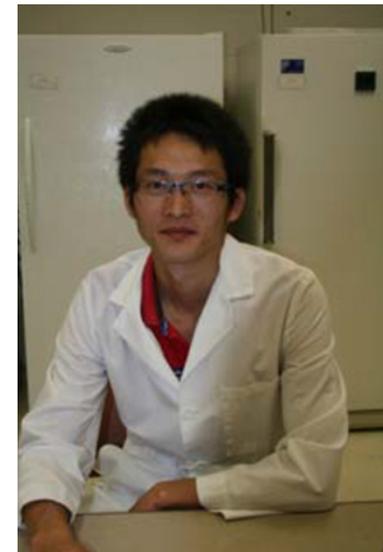
Aquaculture Genetics and Breeding Lab (AGBL)

- First lab of its type in the Midwest
- Genetic relatedness charts and genetic pedigrees of selected broodfish have been constructed
- Family identification technology using DNA for selective breeding in yellow perch and bluegill has been established.
- A first genetic linkage mapping of bluegill has been completed for selective breeding
- Genotyping for 800 yellow perch from the testing sites was finished for performance evaluation.
- The data from the lab has generated ten papers in prestigious international journals and proceedings in 2012.



International training program

- OARDIP's reputation as a scientific leader in aquaculture genetics and breeding has attracted more than twenty scientists and international scholars to work in the Aquaculture Research Center and Genetics Lab at Piketon.
- In 2012, OARDIP trained four visiting Ph.D. students and scholars. Two of them received Ph.D. in 2012. They also significantly contributed to OARDIP's success.



Aquaculture Technology Transfer (AT²)

- Toured over 200 clients
- 15 presentations
- Five intensive workshops:
 - Introduction to Aquaculture
 - Perch Day
 - Pond Management
 - Business Success
 - eXtension Annual Aquaculture Virtual Workshop
- Ohio Fish Farm Bus tour
- Individual business assistance



On-farm Demonstration Projects

- Freshwater Prawn
 - Traditional sinking catfish pellet vs. Enviroflight pellet
 - No production differences
- Aquaponics
 - Design and install a sustainable aquaponics system that can be cost effective for use by family farms
 - Tanks have been installed



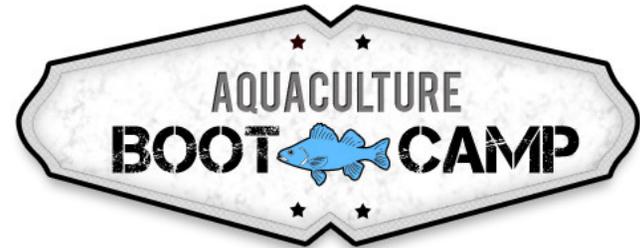
Aquaculture Boot Camp (ABC)

Award from the USDA National Institute of Food and Agriculture

- A multi-faceted approach, including classroom and hands-on training, paired with industry mentoring, to improve the success rate of new and beginning aquaculture farmers in the State of Ohio and adjacent states.
 - Provide tools for new and beginning farmers to enhance their aquaculture production success by developing and delivering production curriculum and hands-on practices.
 - Enhance the financial viability and business success of beginning aquaculture farmers by delivering business management and marketing strategies.
 - Strengthen the success of new and beginning aquaculture farmers through the ABC mentorship and partnership with the industry via the Ohio Aquaculture Association and other partners.



ABC



- The ABC will offer integrated training in aquaculture production and business management strategies with “3-I” levels
 - Introductory: a general level where sharing of information is the goal
 - Intermediate: a mid-level involving participation in a variety of learning activities
 - Intensive: an in-depth level involving immersion in a year-long hands-on training and mentoring program.
- The ABC project will serve the following target audience
 - Beginning and new aquaculture farmers with less than 10 years of any farming experience
 - Other new farmers attempting to diversify their existing farming enterprise
 - Potential future aquaculture farmers: students and those without a family farming history
 - Educators and others who influence the farming decisions made by potential fish farmers

New Ohio Initiatives

- Ohio produced fish feeds
- Ohio produced fish meal replacement
- Indoor culture of marine shrimp
- Increase in tilapia production and processing
- Increase in urban aquaculture and aquaponics
- Increase awareness and collaboration in financial industry

