

U.S. Department of Agriculture Accomplishments Report AD-421 U.S. Dept. of Agriculture, State Agricultural Experiment Stations and Other Institutions			Date (Month, Day, Year) 03/22/2012
1. Accession 0214210	Agency Identification No. 2. CSREES 3. LA.B	5. Work Unit/Project No. LAB93904	6. Status Annual Report
7. Title Spawning, Germplasm, and Genetic Improvement in Aquatic Species			
12. Investigator Name(s) (Last Name and Initials) Tiersch, T. R.			
20. Termination Date 07/01/2013		40. Period Covered (mo/da/year): 01/01/2011 TO 12/31/2011	
Outputs: The outputs of this project have been presented at local, national, and international meetings and at workshops including invited presentations made in the United States and in other countries. Audiences have included federal and state government administrators and scientists, students, academic and private sector scientists, aquaculture producers, and other stakeholders in foodfish industries such as catfish and in shellfish industries such as oysters. This project has resulted in standardized methods and technology development that are being disseminated and applied in aquaculture. This included the editing and publication of the second edition of the comprehensive reference book "Cryopreservation in Aquatic Species", 9 peer-reviewed publications, 16 book chapters, and 13 presentations with abstracts.			
Outcomes/Impacts: Production aquaculture is facing numerous challenges with energy and fuel costs rising dramatically while global competition is depressing prices. To meet these challenges production efficiencies must be improved. In such an environment, aquaculture industries are more receptive to changes in production systems including breeding practices and genetic improvement. This project was designed to develop and apply proven techniques, such as cryopreservation, which has provided impressive genetic improvement in livestock commodities. Cryopreservation is a valuable technology which will facilitate development, maintenance, and distribution of genetic gains within aquaculture industries. This technology will gain widest application with consideration of quality assurance and biosecurity issues before problems can develop and coordinated development of improved methods for control of reproduction. We have addressed these issues for a wide variety of applications to ensure that they can be used with freshwater and marine species of fish and shellfish. In this way integrated genetic technologies can gain greatest advantage in combination with each other and in synergistic linkage with other aspects of commercial production such as improved nutrition and culture systems. Our integrated approach is gaining acceptance. For example, catfish fingerling producers have begun to use geothermal water to condition broodstock, ultrasound to evaluate female spawning condition, and cryopreserved sperm to produce hybrids. We have cooperated with the USDA National Animal Germplasm Program in developing protocols and repositories. This work also has application with endangered species and fishes used in biomedical research.			
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Participants:

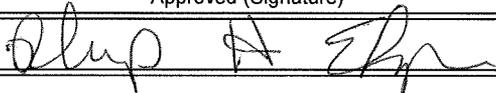
Tiersch, T.R. (PI), LSU AgCenter.

Target Audiences:

Our work is aimed at technology development and application; and as such our target audiences included other researchers at universities, federal and state government laboratories, and private sector facilities. We also focused on federal programs such as the USDA National Animal Germplasm Program, US Fish and Wildlife Service Technology Centers (endangered species), and the National Institutes of Health - National Center for Research Resources (biomedical models). Other target audiences included commercial aquaculture producers of trout and salmon (e.g., AquaBounty Technologies), catfish (Baxter Land Corp.), and Louisiana oysters.

Project Modifications:

Nothing significant to report during this reporting period.

Approved (Signature)	Title	Date
		3-23-12