



REQUEST FOR PRE-PROPOSALS

Please Copy and Distribute to All Interested Parties

The USDA-NIFA Southern Regional Aquaculture Center solicits response from qualified multi-state teams interested in participating in the regional project:

INCREASING UNDERSTANDING OF AND DEVELOPING MANAGEMENT STRATEGIES FOR *Edwardsiella ictaluri* IN ORNAMENTAL FISH

SRAC's Board of Directors has authorized up to \$250,000 for a two-year project on increasing understanding of, and developing management strategies for *Edwardsiella ictaluri* in ornamental fish aquaculture. This project will be developed using the "competitive proposal method" where a team of multi-state scientists having demonstrated records of expertise in the subject complete a single pre-proposal that addresses all project objectives. One proposal will be selected for funding based on review by a committee of scientists not involved in any of the proposals that are submitted.

Background

Enteric septicemia of catfish (ESC), a bacterial disease caused by *Edwardsiella ictaluri*, is considered by some the most economically important infectious disease in the channel catfish industry. Recently, a different strain of *E. ictaluri* has emerged as an important pathogen in the ornamental fish industry, causing major losses on farms rearing zebrafish (*Danio rerio*) and several other ornamental fish species in the southeastern US. Zebrafish, in addition to production for the aquarium fish industry, are also aquacultured for use as major research animal models. Because of the complexities involved with management of *E. ictaluri* in channel catfish, there are similar concerns and management challenges in ornamental aquaculture industry as well as the zebrafish research community. There is an industry defined need to better understand similarities and differences between the bacterial strains affecting the channel catfish industry and the ornamental fish industry, and to develop effective preventative and management measures to reduce the economic losses currently experienced as a result of this disease. Various management options have been attempted based on strategies in the channel catfish industry, in efforts to prevent and manage ongoing disease outbreaks in the ornamental fish industry. These have included antibiotic therapy, some husbandry or procedural manipulations, as well as attempts to develop a vaccine. However, despite some mitigation, significant losses still occur. Targeted and collaborative research is needed to understand similarities between the different *E. ictaluri* strains in order to more effectively manage this disease.

Objectives

- 1) Compare the channel catfish and zebrafish strains of *E. ictaluri* at: a) the molecular level and b) the biological/serological level for differences and similarities.
- 2) Evaluate effectiveness of disease management strategies including one or more of the following: a) optimization of vaccine design and administration; b) antibiotic effectiveness; c) husbandry manipulation (system, handling or environmental factors); and d) potential use of other biologics, including probiotics and immunostimulants.

Experimental Approach

End users of the disease management strategies developed in this project may include producers, aquarium operators, fish health managers, and researchers. The results will be compiled, analyzed and shared by local Extension agents and specialists with industry members and zebrafish researchers. Emphasis will be given to approaches that include thorough, rigorous evaluation under laboratory and commercial production facility conditions for various stages of this project. Proposals will be evaluated on the basis of the project team's research experience, productivity, complementary expertise, as well as the availability of appropriate facilities and other resources required to implement the research. Data regarding effectiveness of management approaches for reduction of *E. ictaluri* disease incidence and production parameters should be gathered and used to compile a SOP. Proposals leveraging existing resources and infrastructure will be looked upon favorably.

How to Respond

Pre-proposals must address all objectives. Preference will be given to pre-proposals that show a high degree of collaboration and coordination among participants. To meet the criterion for a regional project, the pre-proposal must include collaboration from scientists in two or more states or territories in the Southern Region (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, Texas, U.S. Virgin Islands, and Virginia).

The pre-proposal must include a one page vita for each participant and a proposed budget for each participating institution or organization. Pre-proposals, vitae, and budgets that are not in the proper format will not be considered. (See "Format for Pre-Proposals" file attached or contact Kristen Thompson with the SRAC office at 662-686-3269.)

Send an electronic copy of the pre-proposal in Word format to Jimmy Avery, SRAC Director as an email attachment (jimmy.avery@msstate.edu) by **October 31, 2017**. Proposals received after that date will not be considered.