

Acoustic Conditioning of Black Sea Bass and Summer Flounder for Cageless, Open-Ocean Ranching



Primary Objectives:

To test the feasibility of acoustically conditioning Black Sea Bass (BSB) and Summer Flounder as a means of sustainable, cost-effective aquaculture and/or as a means to enhancing wild fish stocks by:

1. Determining effective acoustic conditioning protocols for fish
2. Test the limits of memory and response of fish to acoustic conditioning
3. Test the adaptability of fish to switch between prepared and natural feeds
4. Acoustically condition fish and conduct field trials.

What is involved:

The first three objectives will be accomplished using classical Pavlovian and trace conditioning techniques in the laboratory. Fish are trained to move around a barrier into a “feeding zone” when a 280Hz tone is sounded. The BSB behavior is recorded using CCTV surveillance system and data is compiled and analyzed using video editing software.

We have demonstrated that fish can learn to reliably respond to acoustic cues with 3 to 4 weeks of training, AND they can remember that training up to 4 weeks. We have a series of experiments planned to test the limits of fish learning and memory, and the limits of their auditory threshold using this behavioral response as a measure.

Field trials may involve placing fish in large tanks or man-made ponds to simulate a natural environment and test fish response to “acoustic ranching”. Interns will aid in all aspects of this challenging project.

Skills required:

- Aptitude for aquatic animal husbandry, physiology, and behavior.
- Accurate record keeping skills.
- Ability to work independently with minimal supervision.
- Ability to think creatively and critically, often outside “the box”.
- Video editing and general computer skills are a plus.

Estimated time commitment:

For a full time intern, 20 to 40 hrs/week.

For more information:

You can Google “Pavlov’s fish” and see many press references to this project or go to:
http://www.usatoday.com/tech/science/2008-03-26-3237259928_x.htm.

Project Supervisor:

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