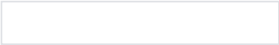


Research Technical Assistance Publications Events About



Striped Bass Saline Aquaculture in Illinois

Kishore Rajagopalan and his colleagues Brian Small (Southern Illinois University - Carbondale) and Kwamena Quagraine (Purdue University - West Lafayette) explored the feasibility of saline aquaculture in Illinois. This feasibility question arose from the fact that there is a considerable quantity of saline water available in Illinois from sources such as industrial effluents and isolated, deep rock aquifers (remnants of ancient seas that existed thousands of years ago). For example, if carbon sequestration occurred via deep well injection in the Ironton-Galesville aquifer (~1200 ft. deep spanning from northern Illinois to southern Wisconsin and from eastern Iowa to Michigan), the CO₂ would displace a large volume of saline water currently in the aquifer. If this saline water is discharged, it would then need to be treated as a hazardous waste due to its high salinity.

In order to look at uses for this and other saline water, they conducted a study in which they prepared synthetic saline water using the known concentrations of salts in the Ironton-Galesville aquifer formation (without trace minerals) and used it to rear striped bass. Growth indices measured over a 24-week period were compared to striped bass reared in commercial marine saline water and indicated no differences in any growth parameters and no effect on body composition.

The only observed differences were in fish behavior and water quality. Fish appeared more excitable in the aquifer treatment as opposed to the commercial water; however, measured stress hormone levels were not affected. Ammonia concentrations in the aquifer water system were found to be higher than in the commercial system throughout the study.

From these results, the scientists concluded that water displaced from the Ironton-Galesville formation may be suitable for growth of saline aquaculture species, assuming trace mineral and contaminant levels are found at acceptable levels for safe fish consumption. The researchers recommend that a complete analysis of the Ironton-Galesville formation water be completed prior to using the water for food-fish production. If the concentrations of trace minerals or contaminants were found to be undesirable, then some degree of pretreatment prior to use of the aquifer water for aquaculture may be required.

This research was funded by the Illinois Hazardous Waste Research Fund (HWR12228).

Energy

Pollutants

Waste Utilization

Water Use and Reuse

Striped Bass Saline Aquaculture in Illinois

Use of Treated Effluent Water in Cellulosic Ethanol Production

Aquapod

One Billion Gallon Water Challenge

Hazardous Waste Research Fund

Publications

On the Feasibility of Establishing a Saline Aquaculture Industry in Illinois (Technical Report TR-051)



An example of a striped bass.



Home of Illinois' State Scientific Surveys

- Illinois Natural History Survey
- Illinois State Archaeological Survey
- Illinois State Geological Survey
- Illinois State Water Survey
- Illinois Sustainable Technology Center



Email the **Web Administrator** with questions or comments. For permissions information, **contact the Illinois Sustainable Technology Center**.
©2020 University of Illinois Board of Trustees. All rights reserved.

[Privacy statement](#) | [Intranet](#) | [Admin](#)