

AFA 2008 Abstracts

Aquatic Plants and Water Quality Session

Floating Island *Southeast*: Introducing an Innovative Water Stewardship Tool

Ray Davis, Floating Island International, P.O. Box 98794, Raleigh, NC 27624.
Phone: 919-556-3925; email: rdavis3rd@nc.rr.com

Diann Hayes, Floating Island *Southeast*, 3601 Wyngate Lane, Birmingham, AL 35242.
Phone: 205-266-6119; email: diannhayes@charter.net

Abstract. Floating islands are examples of a new field called Biomimetics, in which nature is seen as the most efficient of models, and the least wasteful. Floating Island *Southeast* is a strategic partner of Floating Island International formed to provide proven, leading-edge environmental stewardship tools in the form of floating islands to water bodies throughout the world. Floating islands were invented eight years ago, have been successfully trialed for five years, and have been on the market since July 2005. Most notably, floating islands remove pollutants from a waterway, including nitrates, phosphates, ammonia and heavy metals; provide critical riparian edge habitat; sequester carbon and other greenhouse gases; provide wave mitigation and erosion control; beautify a waterscape. Made from layers of recycled plastic “matrix” which are bonded together with adhesive foam, floating islands are planted with sod, garden plants or wetland plants and launched onto a water body. There the plants are allowed to grow naturally, and, as they develop, their roots grow through the matrix and into the water below. Over time, a natural eco-system evolves. The model for this is nature. We are part of a new branch of science, Biomimicry, or Biomimetics.

Recent Findings on Pond Fertilization and Liming

Claude E. Boyd, Department of Fisheries and Allied Aquacultures
Auburn University, Alabama 36849

Chris Boyd, Mississippi State University, Coastal Resource and Extension Center
1815 Popps Ferry Road, Biloxi, Mississippi 39532

A new procedure for estimating the fineness rating of agricultural limestone was developed to account for the greater percentage of finer particles currently found in this product than in the past because of improved manufacturing technology. A project to remove sediment and renovate the small, research ponds at the Auburn University E. W. Shell Fisheries Center (SFC) is on-going. Newly-renovated pond bottoms have less organic matter, nitrogen, phosphorus and a lower pH than found in bottoms of un-

renovated ponds. Fertilization experiments based on regression analysis of a range of un-replicated, fertilizer application rates proved more efficient in establishing optimum fertilizer nutrient application rates than the traditional method of determining which rate was best based on a few, replicated application rates. The optimum phosphorus fertilization rate of 3 kg P₂O₅/ha established through previous research in un-renovated ponds at the SFC also was optimum for the renovated ponds. While older ponds from which sediment has not been removed usually do not require nitrogen fertilization, the optimum nitrogen fertilization rate was 6 kg N/ha in newly-renovated ponds. Nitrogen fertilization rates of 8 kg N/ha and above resulted in less sunfish production – apparently because of ammonia toxicity. These findings led to the following recommendation: the optimum fertilizer rate for new or recently-renovated ponds is 6 kg N and 3 kg P₂O₅/ha per application; phosphorus-only fertilization at 3 kg P₂O₅/ha per application is adequate for ponds with intact sediment and a fertilization history of 5 years or more. An experiment to evaluate potassium fertilization rate in ponds with newly-renovated bottoms is planned for 2008.

The use of probiotics in the culture of warmwater fishes

Mark Meade and Benjie Blair. Jacksonville State University.

Abstract: Aquaculture is typically conducted using clean-water systems without concern of microflora present other than those typically considered necessary for water purification (i.e., nitrifiers) or those that can cause disease. In most systems, the quantity and/or quality of bacteria present in the water either on or within the culture species itself are not monitored during the culture period. Over the past decade or so many researchers have been focusing on the positive role of bacteria in the life history of a species. Research suggests that certain bacteria play key roles in immune and digestive functions. Growth and survival of channel catfish, *Ictalurus punctatus*, and Nile tilapia, *Oreochromis niloticus*, were examined when the anaerobic probiont, *Eubacterium cellulosolvens*, was supplemented in the diet. Growth rates were nearly 50% greater in treated fishes although survival rates were not significantly different. Metabolic analyses suggest that these fish were utilizing nutrients more efficiently than untreated fishes. Molecular analyses further suggest that the gut microflora of a species is complex and changes with environmental conditions. Recent evidence has revealed other candidate bacterial species that may be useful as aquaculture probionts. In particular, *Pseudomonas* and *Vibrios* appear to be major species in normal gut microflora. In many culture systems, these bacteria are often not present.

An Innovative Approach for Establishing Fish Habitat on Lake Logan Martin

***Damon Abernethy**, Alabama Wildlife and Freshwater Fisheries, and Doug Powell, Alabama Power Company

Abstract. Lake Logan Martin has always been a popular destination for regional and national bass tournaments and was the site of an FLW Series Eastern Divisional Tournament in 2005. Following the tournament, the Division of Wildlife & Freshwater Fisheries was awarded a grant from FLW Outdoors to improve fish habitat on Logan Martin. The grant was used to purchase equipment and supplies to conduct experimental shoreline seeding with Elbon rye using a boat-mounted 150 gal. hydroseeder on 9 sites totaling 11.6 acres. The project is being conducted through a partnership between the Alabama Wildlife & Freshwater Fisheries Division and the Alabama Power Company. Total cost for materials and supplies was \$150.60 per acre treated. Application required a four-man crew, able to treat 3.87 acres per day. Each site was chosen with the primary intent of attracting adult bass; however, a fish community assessment will be conducted at each site following the spring 2008 inundation to assess its suitability as a nursery area for juvenile fish. During spring 2009, each site will be sampled to assess the fish communities in the absence of Elbon rye.