

## The North Carolina State University Fish Barn

The North Carolina Fish Barn project at North Carolina State University (NCSU) has been active in the evaluation and development of recirculating technology for the intensive production of fish since 1989. In 1993, with funding from AGA Gas, Inc. (Cleveland, OH, USA), AGA AB (Stockholm, Sweden), AquaOptima AS (Trondheim, Norway), and the Energy Division of the North Carolina Department of Commerce (Raleigh, NC, USA), a “third generation” Fish Barn recirculating system was designed and tested. The Fish Barn system incorporates a tank and particle trap technology referred to as ECO-TANK and ECO-TRAP, respectively. The ECO-TANK and ECO-TRAP technology are products of AquaOptima AS ([www.aquaoptima.com](http://www.aquaoptima.com)). The North Carolina Fish Barn system consists of a tank with a circular flow pattern, a particle trap, a sludge collector, a drum screen filter, a trickling biofilter (gravity fed, referred to as a BioSump), a down-flow oxygen contactor, and a vertical manifold water inlet in the culture tank.

In 1994, Carolina Power and Light Company (CP&L) became a corporate sponsor of work ongoing at the NC Fish Barn. In 1996, NC State and CP&L proposed the development of the large-scale recirculating fish production demonstration system to be funded by the Electric Power Research Institute (Palo Alto, CA, USA). The facility was designed by NCSU and CP&L personnel based upon the ECOFISH<sup>TM</sup> / NCSU system. The overall layout of the facility is described in Losordo, Hobbs and Delong (Aquacultural Engineering Journal, Volume 22, 2000). The fish production system consists of a 5.1 m<sup>3</sup> quarantine tank, a 13.3 m<sup>3</sup> secondary quarantine or nursery tank, and

four 60 m<sup>3</sup> growout tanks. The tank systems are housed in a 39.5 m long x 9.75 m wide agricultural barn structure, with much of the treatment equipment contained in two 3 m x 6 m shed type “mechanical” rooms. Referred to as The NC State Fish Barn, the facility is designed to produce approximately 45 metric tonnes (mt) of tilapia fish annually based on 1 gram (g) fingerlings growing to market size of 600 g in approximately 210 days.

For more information on the NC State Fish Barn, please contact Dennis DeLong  
(Dennis\_DeLong@ncsu.edu).