

## Fish & Students Gather in Schools

Looking for a practical hands-on aquaculture degree program with a respected reputation and ongoing success in training fisheries and fish culture technicians in the Ohio River Valley and beyond?

Hocking College continues to offer a unique two-year degree in Associates of Applied Science in Fish Management and Aquaculture through the School of Natural Resources in Nelsonville, Ohio, just an hour east of Columbus.

First created and implemented by Dr. Lloyd Wright in the mid-1990's, the curriculum offers students training in fish culture techniques at the campus-operated Lake Snowden Fish Hatchery; fish hatchery design, construction, and operation; fish pathology and disease control; and critical support coursework in ichthyology, aquatic ecology, environmental and water chemistry; aquatic plant and other pond nuisance identification and control, and watercraft operation as well.

Hocking College aquaculture degree program graduates can be found staffing multiple state hatchery facility teams throughout Ohio and neighboring states, and in private enterprise aquaculture facilities as far away as Alaska and the Caribbean. The breadth of training coursework in this exciting degree program also prepares graduates for positions with



county and state water management agencies, and with state and federal natural resource agencies that require a two-year degree.

Current program coordinator and instructor Mike Miltner brings a long and varied career in aquaculture to Hocking, including work in a state fish hatchery warm and cool-

water production facilities, aquaculture research and development, undergraduate teaching and advising, and commercial aquaculture best management practice review and oversight. In any given week, depending on the season and fish species on the academic "menu," Hocking fisheries/aquaculture students can be found backpack shocking a local creek for fresh ichthyology specimens; pulling a seine harvesting, grading, and transporting yellow perch, bluegill, channel catfish, or fathead minnows at the Lake Snowden hatchery; feeding, checking water quality, and sampling the freshwater shrimp crop destined for sale at the local farmers' market; visiting nearby state hatchery facilities to learn the spawning techniques for walleye, rainbow trout, or musky; and practicing deploying hoop nets, trap nets, or gill nets for capture of broodstock for spring spawning season. Hocking students get wet and get wet often, and after two years in this program have the passion, skills, sensibilities, and the requisite "slimy thumb" to do aquaculture elbow to elbow with seasoned fish growers in either state, federal, or private facilities.

For more information on Hocking College's Fish Management and Aquaculture program, call 740-753-3591, ext. 6291, 2301, 2180, or email: [naturalresources@hocking.edu](mailto:naturalresources@hocking.edu) You may also visit us on the web at: [www.hocking.edu](http://www.hocking.edu)

— Mike Miltner, Instructor



## Sea Grant

The Sea Grant College Program has a mission parallel to that of the well-known Land Grant program. Just as Land Grant (the Morrill Acts) directs university research and outreach toward developing agricultural and community resources, Sea Grant directs similar efforts toward developing marine resources. The Ohio State University Sea Grant College Program focuses primarily on Lake Erie development, but aquaculture has a growing presence.

When Ohio's extensive Lake Erie sport fishery suffered an acute shortage of bait minnows in the 1990s, Sea Grant Extension began testing culture methods for minnow species that would be acceptable to the Lake Erie fishery. Poor public acceptance of traditional species like fathead minnows and golden shiners led to experimentation with a species not previously cultured – spotfin shiners. Today, spotfin shiners are being grown on Ohio farms and finding strong popularity in the market.

Fish farmers are well aware that fertility in pond water is a controlling factor in fish production. But nutrients applied at the wrong time can have little effect,

and over-fertilization can lead to serious water quality problems. Sea Grant researchers at Ohio State University developed a precise fertilization program in which ponds are analyzed weekly for ammonia, nitrate, and phosphate concentrations, and fertilized sufficiently to raise nutrients to specifically targeted levels. This method is now employed by many hatcheries and fish farms to minimize costs and maximize production.

One of Sea Grant's strengths lies in partnering with other Ohio universities and programs to provide funding and collaboration for problem-solving and developmental research. Ohio Sea Grant currently is partnering with the University of Toledo's Lake Erie Center to develop a rapid and accurate detection method for Viral Hemorrhagic Septicemia virus (VHSV) in fish. VHS testing and certification is required for transportation of many fish species across state boundaries, and development of this test procedure could significantly reduce the incidence of false positive results and the time required for farmers and transporters to accomplish testing.

Ohio's Lake Erie steelhead

stocking program has been shown to have a strong economic impact on coastal communities, but these salmonids don't reproduce successfully in Ohio's tributaries. Stocking 450,000 steelhead smolts per year costs the Ohio Department of Natural Resources' hatchery program about \$600,000 annually, so it's important to know if Ohio-stocked fish reliably return to local streams and offer maximum angler access. Sea Grant-funded researchers at Bowling Green State University have developed methods to identify the specific hatcheries in which steelhead were produced by the chemical element "signature" which individual water sources leave in the fish's otoliths, or ear bones. Fisheries managers are now using this technique to select the very best stocking sites to maximize returns.

Yellow perch producers are benefitting from the Sea Grant program as researchers now have a line of tasty, high-value yellow perch that grow 28% to 54% faster. The faster growth rates help growers reduce feed costs, increase annual production and better regulate production schedules.

Sea Grant funding also assisted researchers in developing freshwater shrimp culture techniques suitable for Ohio's climate. Today, growers across the state are culturing freshwater shrimp, often combining them with baitfish species in polyculture ponds.

Aquaculture can help Ohio answer increasing demands for high-quality protein sources and the needs of an extensive sport fishery, but growth industries depend upon research and outreach. The Ohio Sea Grant College Program continues to partner in these efforts.

— Fred L Snyder

## Eat Fish, Live Longer

Older adults who have higher levels of blood omega-3 — fatty acids found almost exclusively in fatty fish and seafood — may be able to lower their overall mortality risk by as much as 27% and their mortality risk from heart disease by about 35%, according to a study from Harvard School of Public Health (HSPH) and the University of Washington. Researchers found older adults who had the highest blood levels of the fatty acids found in fish lived, on average, 2.2 years longer than those with lower levels.

