Barefoot's and Bey's efforts ensure future fish populations

Aquaculture class, Fish For Tomorrow rear fish and conservationists

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and the willingness of all of these kids that are really interested," said Barefoot, whose group hosts two fishing tournaments to raise funds for research in addition to sponsoring a growing reef-building program. "They can see the fruits from their labor in the form of money and/or progress."

The realization that caused Barefoot to launch the campaign in 2003 is as simple as its name – Fish for Tomorrow.

"I really, really liked to flounder fish. I was aggressive at it and was trying to catch the biggest one repeatedly. Then I started to notice my catches of the bigger fish really dwindling," said Barefoot. "They say everything happens for a reason. I met some folks who had the ability to grow fish, and I'm just a good old country boy but I can do math and I realized if we can grow more of them we can catch more of them. So the stock enhancement was my vision to be able to reboot dwindling populations."

Barefoot was introduced to Bey through former State Rep. Bonner Stiller in 2004, and immediately they set about planning a fish farm at South Brunswick. Bey had already been hard at work attempting to do just that with a program that started in 1987. But with a first-grader's allowance for a budget, Bey resorted to rearing fish in an irrigation ditch.

Twenty-two years later, Bey's program has morphed dramatically from the drainage ditch days. Actually, the aquaculture lab at South Brunswick would put many similar college facilities to shame.

Bey's lab impressively boasts six, 500-gallon tanks and one 1,400-gallon tank indoors, and another four outdoor ponds measuring 50 feet long and 70 feet wide. His program currently is raising 200 bluegills, 65 largemouth bass, 500 hybrid striped bass, 2,000 Southern flounder, 125 tilapia, 150 catfish, 200 rainbow trout, 200 yellow perch and 200 koi carp. If South's aquaculture program sounds impressive, seeing it is even more so – it's like visiting a Willy Wonka Chocolate Factory for any fishing or biology enthusiast.

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> **Fish For Tomorrow founder Tim Barefoot**

Seeing the lab in person convinced Barefoot he'd found the right group with whom to collaborate.

"I was more than impressed," said Barefoot. "Whenever I first walked in I saw huge potential and not only in the facility that they had but all the faces of all those kids and Barry Bey. I knew there was plenty of fuel and air lying around, all it needed was a spark."

Bey was initially tentative about getting involved with Barefoot's group for one small reason: funding.

"I thought it was a great idea but I was hesitant about doing the saltwater because of the expense. But they've shown support and gave us money, and I wouldn't be in it if it wasn't for Tim," said Bey.

Bey's relationship with Barefoot has brought about some of the massive improvements, but equally as important has been Bey's endless, and increasingly fruitful, quest for grant monies from government and conservation sources. The aquaculture program also receives considerable academic support from North Carolina State University as well as the University of North Carolina at Wilmington.

Shortly after Rep. Stiller introduced Barefoot and Bey, South Brunswick was awarded an $18,000 grant to build its fish hatchery. UNCW's Dr. Wade Watanabe gave Bey's students a tour of his lab as they learned how to use the beautiful facility newly at their disposal.

With N.C. State flounder scholar Harry Daniels, the South Brunswick aquaculture program has participated in numerous studies including conducting research on flounder pigmentation, and most recently attempting to raise flounder in freshwater.

In 2008, the program received a SEA Grant for $19,000 to raise Southern flounder in the freshwater ponds, an interesting challenge considering flounder is traditionally a saltwater species. The research for that study wraps up at the end of October, when the findings of Bey's class will be sent to N.C. State to be compiled into a published report.

Increasingly, the program has received attention and awards for its efforts. In 2000, the program garnered an Excellence in Education Award from Gov. Mike Easley, and for the past 19 years the aquaculture program has been named Best in Show at the Cape Fear Fair and Expo.

The aquaculture class is a visible member of the local community as well. As part of a Future Farmers of America service project, Bey's students help with the U.S. Open King Mackerel Tournament, and they also aid the Boiling Spring Lakes Police Department with its annual Small Fry Fishing Tournament.

Bey himself has been nominated for numerous teaching awards, including 2001 and 2004 South Brunswick High School Teacher of the Year. He also was a finalist for the Time Warner Cable Crystal Apple National Teacher Award in 2006. He also received the Razor Walker Award from UNCW for impacting the lives of young people. Though Bey would shirk from any egotism, his aquaculture program is a favorite among South's students.

"This is my favorite class of the day because I have it right at the end of the day, and it's relaxing," said Hux. "You can go outside and work at the fish farm. I don't mind doing that and learning stuff about other fish."

And though many of the students enjoy Bey's class, school isn't necessarily where they want to be.

"I know a lot of kids that come just for the class," said Bey. "They'd lose interest in school if they didn't have something they enjoyed."

The money and cooperation has enabled Bey and his students to accomplish things that simply wouldn't have been possible on a normal aquaculture program budget. One shining example of the benefits from grant money are the motion-sensor cameras that now surround the outdoor ponds.

It's hard enough to raise fish outdoors. It's even harder when local wildlife began turning South Brunswick's ponds into an all-you-can-eat seafood buffet. But a grant from N.C. State included the motion-sensor cameras that, since they've been installed, have nabbed numerous predators red-handed.

Predator prevention is just as imperative to the program's success as is the science of raising the fish. Deer, blue herons, foxes and a pesky otter have all been caught on tape, enhancing Bey and students' knowledge of exactly what they're up against.

Besides the cameras, the ponds are protected by an electric fence and mesh nets that prevent birds from picking off the fish in the middle of the pond. Bey's class maintains all of these valuable defense mechanisms, in addition to cutting the grass around the ponds.

Though it's challenging to keep the fingerling flounder from becoming an otter's next snack, the odds of farmed flounder surviving are astronomically better than a wild fish. Bey and Barefoot surmised that releasing fingerlings significantly farther along in their development would increase the success rate of the fish stockings.

"This is the gamut of obstacles that a flounder has. When a mother spawns she might have 200,000 eggs at a time and out of those only about three to five percent last longer than five to seven days," said Barefoot.

Flounder hatchlings are born with a yolk sac under their throat that contains nutrients. It's their sack lunch but it doesn't last very long. Usually when the sack is emptied, the tiny fish dies if it can't find sustenance on its own. Ninety-five percent of all natural-born flounder die in the first week of their life.

But releasing fingerlings massively increases the odds of survival because the hardest part of a flounder's life has already been completed in the friendlier confines of a tank –with a caring student like Hux to feed them like clockwork.

Knowing how to protect the fish is as important as being able to raise them. Aquaculture research is rapidly emerging, especially in North Carolina, as traditional crop farmers seek a future source of revenue outside of tobacco and other crops offering diminishing returns.

Additionally, the main importance of aquaculture is instilling a sense of environmental stewardship in young people, such as those at N.C. State, UNCW and Bey's class. Teaching younger generations how and why to take care of their environmental resources will help them to do just that. Plus, raising fish and releasing them into the wild boosts dwindling wild stocks that have been ruthlessly harvested by those less informed or lacking foresight.

Such is the success of South's aquaculture program that not only is Bey's class spawning fish, but they're also producing new programs to mirror their own. Southside High School in Chocowinity has recently started an aquaculture program in the hopes of one day succeeding like Bey's brainchild. Southside school officials and teachers are among the many that have toured South Brunswick's aquaculture lab.

As constructive as such a development is to South and Bey's reputation, the growth of further high school aquaculture programs really has only one true benefactor: aquatic conservation.

And although the fish being raised at South are imperative to the futures of those respective species, Bey's class is grooming something more important – future conservationists more concerned with science than bureaucracy.

"My students have a vast knowledge of conservation and stock enhancement," said Bey. "Right now, fisheries are controlled by regulations. But in the future you'll see, especially with these kids learning about stock enhancement, it's got to be done the right way. It can't be cowboyed in. It's got to be in an area that needs the fish, and you want to do it the right way."

It's ironic that the South aquaculture program has been working on predator prevention for their flounder. Just by having the class they're helping reduce a fish predator greater than any stilted heron or slinky otter: wasteful humans.

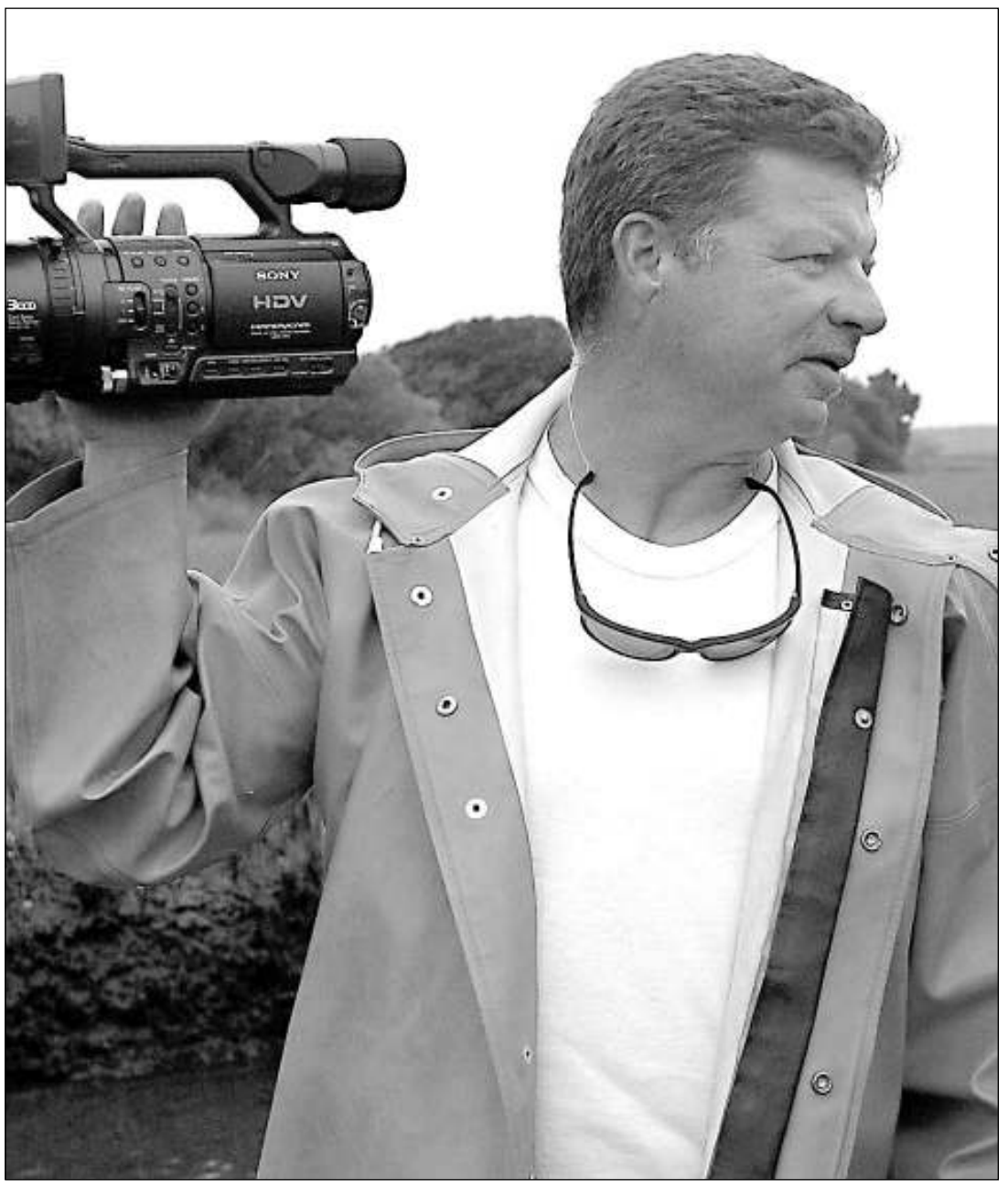

Photo by Bret McCormick

Fish For Tomorrow's Tim Barefoot realized he needed to do something about replenishing fish populations when his flounder catches began to dwindle. He formed Fish For Tomorrow, a group that works primarily with young people and teaches them how to raise fish as well as construct needed inshore habitat for when the fish are released. Last week he was filming Barry Bey's class releasing their flounder fingerlings for his website.

Photo by Bret McCormick

Barry Bey's aquaculture class is a popular one among students because it's relaxing and enjoyable. Few classes at South Brunswick have the hands-on feel of the aquaculture class, and few colleges in the area have a lab that can match what numerous grants have obtained for Bey and his program. An $18,000 grant in 2004 got the program really kickstarted in the right direction and funding continues to come in.

Photo by Bret McCormick

Students keep up the South Brunswick fish ponds, feeding the fish, performing maintenance on nets and the electric fence, downloading motion sensor camera cards and even cutting the grass. Barry Bey's aquaculture is fostering sustainability in the oceans, but the South teacher has already succeeded in his own class, where students perform their assigned duties gladly.