University of North Carolina Sea Grant Program

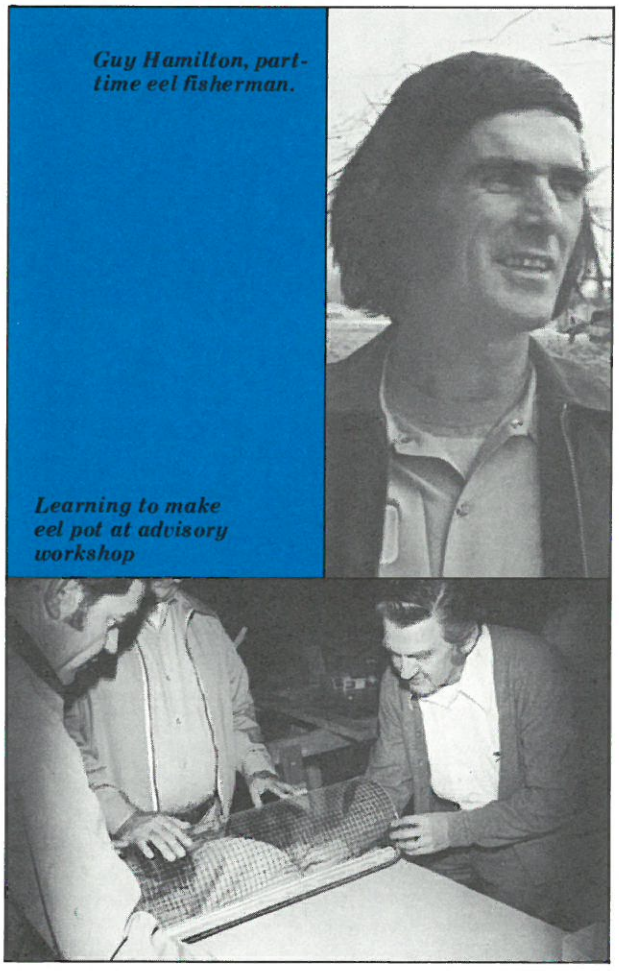
NEWSLETTER

June, 1975

1235 Burlington Laboratories
NCSU, Raleigh, N. C. 27607 Tel: (919) 737-2454

Fishing for eels:

Part-time work that is paying off



Guy Hamilton, part-time eel fisherman.

Learning to make eel pot at advisory workshop

Guy Hamilton is one of those Americans who earns his living knocking dents out of bashed-in cars. The red paint spattered across the belly of his gray workshirt and a tag on his windbreaker proclaiming that he's an employee at "Dealers Auto Service" testify to that.

It's not that the work or the money at his dad's body and fender shop in New Bern is bad. But like alot of folks trying to hold the reins on today's galloping prices, Hamilton wanted to pick up some extra cash in his spare time. Last spring, he hit on an idea that, put into action, has beefed up his bank account—with a small investment in time and money.

That idea: fishing for eels.

Hamilton came across the idea from contacts with University of North Carolina Sea Grant advisory agents. With their help, he built his first eel traps and learned about good baits and fishing locations. He opened his business a year ago with eight traps. This spring Hamilton has more than 30 in the rivers new New Bern.

For work that rarely takes more than three hours a day, eel fishing can be well worth the time, Hamilton found. During one week in the height of the season last fall, 12 of Hamilton's traps caught 600 pounds of eels. At 50 cents per pound, Hamilton could see his part-time work beginning to pay off.

Most of the eels that Hamilton and other Tarheel eel fishermen land wind up in Europe. Dealers travel the coastal area collecting and transferring eels from holding tanks to live-haul tank trucks. The trucks take the eels to processing plants where they are frozen alive, a requirement for selling them abroad.

Hamilton is just one of hundreds of North Carolinians who have taken up eel fishing under the direction of UNC Sea Grant advisory agents. Five eel harvesting and handling workshops held in coastal areas of North and South Carolina and Georgia, numerous television appearances and hundreds of informal contacts have provided facts needed to launch many individual eel operations. Advisory agents began working on eel harvesting and handling technqiues in 1972.

It is estimated that one-half million pounds of

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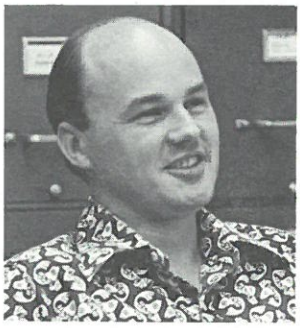
seascope



Dr. William L. Rickards

Dr. Rickards, assistant director of the UNC Sea Grant Program, is a principal investigator of the eel culture project.

Eel project offers research and help

At least two factors contributed to the initiation of North Carolina's first eel farming unit, located near New Bern. Channels for exporting full-grown, wild eels from North Carolina to European markets have been firmly established. And several Japanese eel culture organizations have sought new sources of elvers in the eastern part of the state.

A project to investigate the feasibility of farming the American eel using techniques developed by the Japanese for other eel species was started in North Carolina in 1973. The initial limited project efforts appeared promising and the program is being expanded and improved. The eel farming demonstration facility now has the capacity to grow from 48,000-60,000 eels in four outdoor ponds, as well as a series of indoor elver holding and feeding tanks.

This demonstration facility is not a new concept. The Cooperative Extension Service has operated demonstration farming units for many years, but the existence of such a fish farming unit in North Carolina is new to the state. It has been set up to provide potential eel farmers with a source of up-to-date technical information as well as testing ground for innovations and new ideas which might be beneficial to eel farmers.

Through the personnel based at the New Bern facility, anyone interested can obtain information concerning eel farming techniques. This includes elver harvesting and handling, feeding and stocking rates and details of pond construction. Information is also available on the present market potential for cultured eels.

In addition to continuing work on techniques for growing eels, future plans include a study to determine projected production costs, market values and profit capabilities of eel farming. Such an economic analysis should provide project personnel with knowledge needed to modify culture operations to reduce costs.

An ongoing activity of the project is to get information gained from the study into the hands of individuals who may be interested in farming eels. Assistance is available from project investigators on problems or questions concerning eel culture. The names, addresses and phone numbers of those who can supply you with information are found in the next column.

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Eel info

For information on harvesting wild eels contact:

Skipper Crow
NCSU Seafood Laboratory
P. O. Box 51
Morehead City, N. C.
(919) 726-7341

To learn more about eel farming and Sea Grant's work with eels contact the following:

Walt Jones or John Foster
NCSU Eel Culture Project
P. O. Box 2494
New Bern, N. C. 28560
(919) 633-0414
or
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Eel exports up

(Continued from p. 1)

eels were exported from North Carolina in 1973 and again in 1974. These amounts are up some 400,000 pounds from 1972's eel export estimates.

As the number of eels shipped out of the state has gone up, so has the amount that eel fishermen have been paid for their catch. Prices have more than doubled from 23 cents per pound in 1972 to 50 cents per pound in 1974.

UNC Sea Grant agents have also lent a hand to eel dealers and exporters. In 1974, the exporting end of the eel business got a shot in the arm when East Carolina Industries, a rural cooperative for migrant laborers in Fairfield, opened a freezing plant. Sea Grant agents have provided technical assistance to the cooperative on all aspects of the eel-centered enterprise, including the manufacture of eel traps, operation of a live-haul truck, freezing and marketing.

A farm for growing eels

Ever thought of eel farming? UNC Sea Grant researchers have. They've set up a demonstration eel farm three miles up the Neuse River from New Bern to capture baby eels, or elvers, and raise them to marketable size.

Europeans and Japanese regard the eel as a delicacy. The fish is so popular in Japan that demand for the food exceeds supply. While Europeans eat mature eels weighing three-quarters to one pound —which are already being exported from North Carolina—, the Japanese prefer smaller eels weighing one-quarter to one-half pound. The six to eight inch long elver is also popular as bait.

The eel farming project got underway in 1973 with a grant from the Coastal Plains Regional Commission to UNC Sea Grant engineering advisory agents through the North Carolina State University Industrial Extension Service. The grant supported a pilot study on the feasibility of eel farming in North Carolina. Study results showed a potential for eel culture in the state and UNC Sea Grant took over funding for the project in January.

Many of the techniques being put to use at the New Bern eel farm have been adopted from the Japanese who in the past several years have developed successful eel harvesting and farming methods.

A visit in March, 1973 from Dr. Kazutami Nishio of the eel research and development section of a Japanese eel farming cooperative provided UNC Sea Grant investigators with valuable basic information on when, where and how to catch and care for the elvers. While Japanese techniques were developed for farming a Japanese eel, Sea Grant investigators have found many of their methods useful in raising the American eel, common in eastern North Carolina.

The first step in eel farming is capturing tiny elvers. In the late winter and early spring, when they begin heading upstream, elvers are easily caught with dip nets around dams, in streams and in other areas where their inland movement is restricted and they tend to bunch up, according to Sea Grant researchers William Rickards and Walt Jones.

Jones, Rickards and John Foster, an assistant on the project, captured thousands of tiny elvers one day in mid February as they were fighting to make their way over a small dam near Newport. Indoor holding tanks at the eel culture laboratory located on Weyerhaeuser land were home for the elvers until early May when they were transferred to an outdoor holding pond.

When caught, elvers must be handled with care

Walt Jones, Bill Rickards and John Foster capture elvers in creek near New Bern.

to avoid damaging the skin. Damaged skin weakens the young eels, leaving them vulnerable to disease, according to Rickards and Jones. A further safeguard against disease is a two-day chemical "bath" given the elvers just after they are caught.

It is in the indoor tanks that elvers must acquire a taste for a specially prepared diet—a critical step in their successful growth. Elvers that have been accustomed to feeding on live food must learn to eat a mixture of minced deboned fish, starch, vitamins and salt.

By early spring, when they are transferred to an outdoor pond the elvers are entering a stage of rapid growth which is given an extra boost by the warm temperatures of the spring and summer months. According to Rickards, if the fall is mild, elvers caught in February should be ready for the bait market before winter.

In some Japanese eel farming operations, nearly half of the elvers held in indoor tanks for the first two months after capture have died, largely because of disease. So far this year Sea Grant researchers have lost less than two percent of those elvers captured in February. Rickards attributes this low mortality rate largely to the use of well water in the tanks this year. Last year Neuse River water was used and mortality rates were significantly higher. Naturally occurring disease organisms in the river water could have been contaminating the water, Rickards thinks.

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Tips on killing, cleaning and cooking eel

Here are some directions for killing, cleaning and cooking eel. Next time you catch one, you might try eating it instead of throwing it away.

Killing and Cleaning

The simplest way to kill eels is to put them in a deep container, sprinkle them with salt (don't bury them in it!) and add enough water to cover them. Let them soak in the solution two to four hours.

This method of killing helps remove the slime layer. Newly-killed eels should be thoroughly washed in clean water to remove the salt and slime. Soak them for a half hour in cold water and then scrape or scrub the eels. A steel bristle brush works best to remove the last traces of the salt and slime.

After washing, the eels must be gutted. If you recipe calls for skinned eel, it's easier to skin the fish before gutting. To skin it, put a nail through the eel's head and drive the nail in a wooden post or something similar.

Using a sharp knife, cut through the eel skin three inches behind the head all the way around. Be careful not to cut into the gall bladder which lies behind the head. Turn the skin back and peel it off, using pliers if necessary.

When gutting an eel, sawdust, salt, a rough cloth or hands dipped in dry salt will help you get a firm grip on it. Insert a knife or sharp-pointed scissors into the vent and cut along the belly line toward the head. Cut up to the gills.

Cut toward the tail two inches past the vent to expose the kidney. Remove the kidney and pull out the large vein along the backbone if possible. Scrub and wash out the gut cavity to remove all traces of blood from the backbone. Rinse the eel in clean water.

Gutted and cleaned eels may be quick frozen and stored at −20° F. Since eels have a high fat content, they should be packaged to protect against rank odors and flavors and drying out.

Fried Eels

Skin the eels. Split them down the middle and clean. Cut in three inch lengths and wipe dry. Roll in crumbs, dip in slightly beaten egg diluted with two tablespoons of water, and roll again in crumbs. Fry in deep hot fat (375° F) three to five minutes. Garnish with parsley and slices of lemon.

—Gayle Morton

Eels as food and bait

(Continued from p. 3)

Should eel farming prove successful in North Carolina, where could eels be sold? The primary target is the Japanese food market. A Japanese-backed food processor had opened a plant in Swansboro to package eel for export to his country. Currently, the plant has closed, apparently because of an insufficient and inconsistent eel supply. Eel farming could answer those problems.

Eels are also a popular bait used by sport fishermen. In the past, eight inch elvers have sold for as much as 50 cents apiece. Sea Grant researchers aren't sure at this time how eel farming would affect the market price of eel as bait. At this time, the bait market appears to have promise as an alternate outlet for eel, at least on a limited basis, said Rickards.

—Gayle Morton

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