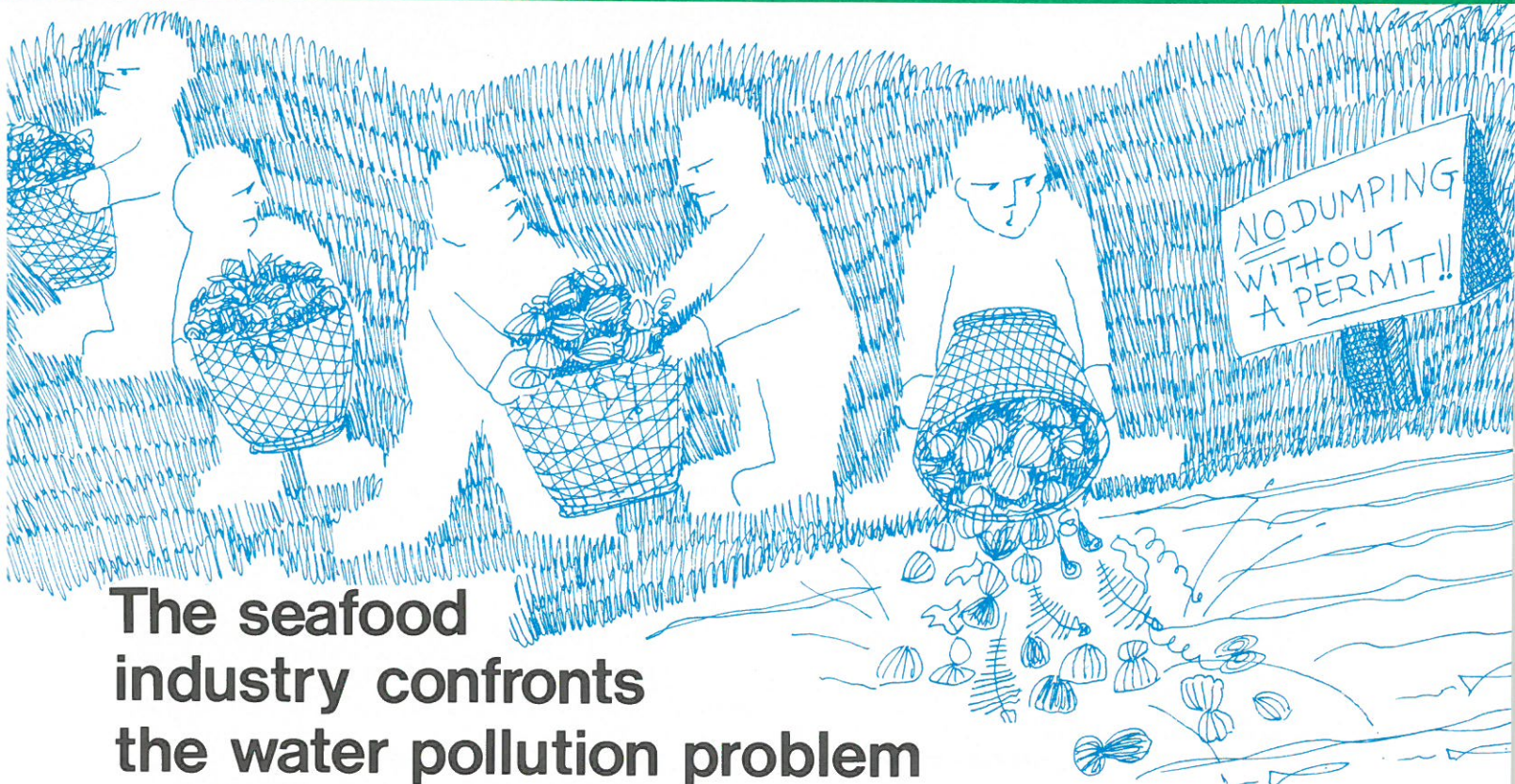




UNIVERSITY OF NORTH CAROLINA SEA GRANT PROGRAM NEWSLETTER

JANUARY, 1976

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



The seafood industry confronts the water pollution problem

Victor Salter's office isn't what you might expect, considering that he presides over the books of a million dollar business. Where you might expect dark walnut paneling are lime green cinderblocks. And where you'd expect to plant your foot on lush shag carpet, you find cold tile.

But then, the business that Salter manages doesn't live up to some other expectations either. It doesn't produce socks or sofas, like you might guess a North Carolina industry would. And if you guessed that this million dollar enterprise, which in 1975 grossed some \$2.5 million, had been decades in the making, you'd be wrong.

It's been a brief five years now since Bill Lambert, retired from the lumber business with almost no knowledge of the fishing industry, bought a small trawler on the North Carolina coast. That trawler was the seed that blossomed into Southern

Seafood Co., today the nation's largest scallop processing company, located in the Carteret County countryside.

Beyond the pastel walls of Salter's office is an operation that makes you want to kick yourself and ask, "Why didn't I think of that?" With a lot of ingenuity and a knack for improving on what's been done before—and a patent to show for some of the equipment he's designed—Lambert has made the job of shucking scallops look easy and fast-moving.

In fact, the maze of conveyors, washers, rollers, screens and the plant's 25 employees can process up to 1,000 gallons, that's 8,000 pounds of ready-to-cook scallops in one day. By hand, shucking that many would require 300 workers. When you hear that scallops have recently sold for up to \$18 per

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A service for big and small seafood processors

Seafood processors:

If you've got a problem understanding or complying with regulations on effluent discharge, contact the following people. They will provide assistance or help you contact someone who can.

Clark Callaway
or
Ted Miller
P.O. Box 51
Morehead City, N.C.
28557
(919) 726-7341

Maybe you never thought of yourself as a "seafood processor." Sure, you head a few shrimp and sell them to your neighbors during season, but you'd never call yourself a "seafood processor."

But in the government's eye, you are just that, especially if you get rid of shrimp heads or other wastes by tossing them back into the water.

The same rules that make it illegal for big processors to put tons of shrimp heads and other wastes into the water apply to you no matter how small. Like the big boys, you've got to get a permit that tells you just how much waste you can dispose in the river, sound or ocean.

The government also says that whether you're big or small, you've got to treat or "clean-up" wastes before they're released into any body of navigable water. Treating simply means removing organisms or chemicals from wastes that might be harmful to the environment.

You've got until July, 1977 to be using the best practical means of treating wastes, the government says. By 1983, you should have the best methods available to remove pollutants from wastes.

If you're like a lot of other folks, you're probably not sure what all that means. But whatever, you figure it rings of money. And because you're only a part-time processor, you reckon it's probably going to cost more than you can afford.

But don't despair.

There are folks around who want to help you understand what the new regulations mean and how you can comply. Their assistance is for all processors, big and small.

Clark Callaway and Ted Miller at the Sea Grant Seafood Laboratory in Morehead City and Frank Thomas, seafood advisory services specialist at N.C. State University in Raleigh, are the folks to know if you need assistance in understanding or complying with the regulations. Roy Carawan, an NCSU food engineering extension specialist, is assisting them.

None of them claim to have all the answers. But by working with the industry, they hope to learn. Since their work, supported by the Coastal Plains Regional Commission and UNC Sea Grant, began in September, they've focused on scallop processing. Other kinds of seafood processing—finfish, blue crab, clams, oysters, shrimp, and fish and crab meal—will get their attention during the next two years.

By giving Callaway, Miller and Thomas your opinions and showing them your problems, you could have a voice in shaping government guidelines for treating plant discharge. Through Sea Grant and agriculture extension agents, seafood trade associations and state agencies involved in the seafood industry, your voice may be heard during hearings on the guidelines as they undergo revision.

Callaway, Miller and Thomas will continue working with Tarheel processing plants to collect data needed to assist in complying with the new discharge controls. In studies at the plants, they'll collect samples to take to the lab for analysis of the kinds and quantities of pollutants the samples contain. And they'll look at how seafood processing plants are laid out to determine if some small change, or the addition of a small piece of equipment, could reduce the amount of water used and the amount of discharge produced.

With this information, they will meet individually or in groups with processors to suggest helpful changes. Through these meetings and through informational materials, Callaway, Thomas and Miller will be seeing that all processors—big and small—get the assistance they need to live up to the spirit of the new law.

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Processors...

(Continued from page 1)

gallon, you'll really want to give yourself a kick.

But building a plant such as this hasn't been without obstacles. Elmer Willis of Williston worked out a large portion of scallop processing's problems in the late 60s with his invention of the mechanical shucker. But maintaining steady supplies of raw scallops, mechanizing and marketing are ongoing hassles. Still others loom ahead for Lambert and other seafood processors.

Complying with what seems an ever-increasing list of government regulations has become a major stumper. Heavy on some processors' minds are regulations which place strict limits on how much waste processors dump in the nation's waters. These regulations, growing out of the Water Pollution Control Act Amendments of 1972, are aimed at eliminating discharge of harmful wastes and pollutants into the nation's waters by 1985. They will affect all seafood processors who use rivers, sounds, creeks or the ocean as dumping grounds for their wastes.

Under regulations established by the 1972 Amendments, seafood processors (and all other industries or individuals) who discharge pollutants into the nation's navigable waters must get a permit. The permit tells its holder how much waste he or she can put into waters per day or week and how concentrated in harmful pollutants it may be. It may also spell out a schedule of monitoring, or measuring, discharged wastes which the permit-holder must carry out. In North Carolina, the Department of Natural and Economic Resources' Division of Environmental Management issues permits.



Shells are only part of the waste at a scallop plant. Humans eat only about half of a scallop's flesh. The baffle is how to get rid of the other half without polluting water supplies.

Realizing that old methods can't be changed overnight, authors of the regulations allowed time for adjustment. Guidelines for treating effluents, or wastes, say that processors must be using the best practical treatment technology by July, 1977 and the best available technology by July, 1983.

More specific guidelines on treatment of effluents are undergoing continual revision. According to Frank B. Thomas, UNC Sea Grant seafood advisory services specialist, processors can have input into revised guidelines.

Sea Grant seafood advisory agents, agricultural extension agents, seafood-related trade associations and state agencies working closely with the seafood industry have and will continue to participate in hearings on the guidelines, Thomas said. Processors can have input into the final regulations by passing their thoughts and needs on to these people and organizations.

Regulations controlling waste disposal have caused fears that the expense of new equipment

Guidelines for treating effluents, or wastes, require that seafood processors be using the best practical means of treatment by July, 1977 and the best available treatment technology by July, 1983.

and revamping old ways could put a large number of North Carolina's 610 processing establishments out of business. Since many are small, family-owned ventures that operate only part of the year, the cost of meeting the requirements could financially wipe them out, some fear.

Joey Hill, environmental engineer in NER's Wilmington office, says his agency, the one charged with seeing that seafood processors live up to the law's requirements, isn't trying to put processors out of business. "We're trying to help by showing them what needs to be done under the law," he said. "We're glad to meet with them to discuss how to comply."

Some processors apparently don't intend to let government regulations interfere with business. A few are already taking the bull by the horns.

"I think they (the new regulations) are good," Salter said, adding that he was pleased with the assistance his plant had gotten from Sea Grant advisory agents Clark Callaway and Ted Miller. With their advisory help, Southern Seafood has tried disposing of wastes in a landfill near the plant. While all the kinks aren't yet worked out, Salter pointed to one benefit of on-land disposal. "Corn we planted (on a landfill area) burst out of its husks," he said. "And we had a 17 foot high sunflower."

Who knows, with more experiments, industry and researchers may hit on ways to put seafood wastes to good use.

Food scientists looking at good and bad effects of processing seafoods

When it comes to seafood processors, government agencies aren't just interested in what goes out the drain pipe. They're also concerned about what goes into the final seafood product, especially if it's shellfish, a product which seems especially prone to contamination.

Heavy metals, like copper, cadmium and mercury, are thought to be a major shellfish contaminant. But to date, it hasn't been determined exactly how much heavy metal blue crabs, oysters, clams and scallops contain, either before or after they are processed. No one has yet determined how much these contaminants increase or decrease during processing.

Likewise, little is known about how the number of disease-producing bacteria and viruses and the nutritional values of shellfish are affected by processing.

Dr. George Giddings and Dr. Marvin L. Speck, N.C. State University food scientists, are seeking to fill the gaps.

With UNC Sea Grant support beginning this month, Giddings will build on data he collected in scallop plants last year under a UNC Marine Science Council grant. He plans to survey clam, oyster and blue crab plants in the coming year.

Specifically he is looking to see what effect different aspects of processing have on levels of heavy metals and nutrients in shellfish.

Speck is concentrating on finding methods for detecting disease-producing bacteria and viruses in raw and processed seafoods. Part of his work is aimed at finding how harmful microbes find their way into seafoods, where they come from and what alterations might be made in processing to reduce them.

With this information, Giddings and Speck will be able to make recommendations on how processors might make changes in their operations to

reduce heavy metals and harmful microorganisms and to conserve nutrients. In addition, their data will be useful to agencies such as the federal Food and Drug Administration which is intent on safeguarding consumers from hazardous substances in fish and shellfish.

Books and movies

Following is a list of publications recently produced by UNC Sea Grant. Order yours by writing: UNC Sea Grant, 1235 Burlington Labs, N.C. State University, Raleigh, N.C. 27607.

The Case of the Slippery Eel or How to Harvest, Handle and Market Wild Eels. Berg, D. R., W. R. Jones and G. L. Crow. UNC-SG-75-20.

Coastal Development and Areas of Environmental Concern. Baker, S. UNC-SG-75-18.

Flow Dynamics of the Neuse River Estuary. Knowles, C. E. UNC-SG-75-16.

Hydrology and Circulation Patterns in the Vicinity of Oregon Inlet and Roanoke Island, N.C. Singer, J. J. and C. E. Knowles. UNC-SG-75-15.

Development of Seafood Patties Utilizing Mechanically Separated Fish Tissue. Webb, N. B. and F. B. Thomas. UNC-SG-75-03.

Wood-Boat Maintenance: Decay and Its Prevention. Produced by Oregon State University Extension Service and Sea Grant Marine Advisory Program. Available from UNC Sea Grant.

The Currituck Film. 16 mm color film, 23 minutes. Describes Currituck County's plan for controlling growth.

Waterbound: Our Changing Outer Banks. 16 mm color film, 21 minutes. Concerns erosion and other coastal geologic forces and how man deals with them.

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