



Marine
Resource

Bulletin

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*In this Issue -- sea turtle studies • modeling for marinas • Sea Grant interns
• oyster recipes • incredible edibles*

Virginia Sea Grant at VIMS/College of William & Mary



VIMS graduate students Sarah Bellmund and Richard Byles are old hands at tagging and transporting sea turtles, such as the 90-pound loggerhead shown here.

Chesapeake Bay and Virginia's ocean waters constitute an important feeding area for a marine animal considered "Threatened" by the Federal government and "Endangered" by the State of Virginia.

According to Dr. John A. Musick, a senior marine scientist at VIMS and principal investigator on a current sea turtle research project, there are thousands of sub-adult loggerhead turtles in the Chesapeake during summer and early fall. Musick added that a few hundred Atlantic Ridley sea turtles, an even rarer species, also are summer visitors each year. "We suspect that our loggerhead turtles originate mainly on ocean beaches from Florida, Georgia and South Carolina," Musick said, "with a few coming from North Carolina. A very productive area is Cape Romain, South Carolina.

"The Atlantic Ridley, on the other hand, nests only in one place, as far as we know: a single stretch of beach on the Gulf of Mexico. A prominent scientist in the field working in the area last year estimated only 400 nesting females left out of the tens of thousands that were there in the 60's."

The current research is an effort to shed some badly needed light on turtle abundance and movement in Chesapeake Bay. Sponsors have included the National Marine Fisheries Service (NMFS), the

Logging in the Loggerheads

this sea turtle monitoring program is a co-op venture between scientists and pound netters

State of Virginia and the City of Danville (through grant monies allocated by the Environmental Protection Agency (EPA).

All tagged turtles used in the current VIMS study were turned over to the scientists by pound net fishermen. Over the last three summers, says Musick, more than 100 sea turtles have been tagged and released. Monel tags, made available to fishermen, are clipped into both front flippers of captured turtles before they are released.

Some tags have been returned from in and around the Bay, but none as yet from states to the south. Sea turtles must leave the Bay before the water temperature drops to 10 degrees C. or they will die. They go either offshore to the warm waters of the Gulf Stream, or south, or perhaps both.

The VIMS sea turtle studies were initiated because the sea turtles, especially the Ridley, became listed as Endangered. In the early 1970's VIMS scientists began making note of every reported sea turtle coming ashore in Virginia. An organized monitoring program in cooperation with NMFS began in 1979. Since that year, says Musick, between 100 and 225 dead loggerheads per year have been noted.

Causes of mortality have been attributed to collision with boat propellers, natural disease, malicious maiming and incidental entanglement in pound net leaders.

In early November of 1980, VIMS scientists used radio tracking devices to some extent for monitoring released turtles. A transmitter was attached to a Ridley by graduate student Richard Byles, who's work toward a PhD involves radio and sonar tracking of sea turtles. More tracking was conducted in the fall of 1982, using loggerheads released at the mouth of the York River.

A second graduate student, Sarah Bellmund, is assisting in the program by verifying reports of dead turtle strandings, helping collect both turtles and tag information, and performing autopsies on dead turtles to determine the cause of death. Sarah's job requires a great deal of dedication to duty, especially in hot weather. She explained:

"Because of the advanced stage of decomposition of many of the turtle carcasses, it often is impossible to pinpoint the cause of death. Out of every 200 turtles, maybe 30 are determinable. Of the 30, we can usually attribute about ten to death by pound net leaders or propellers.

"Unlike the mortality caused by shrimp trawling off the southeastern states, however, not all pound nets appear to kill turtles, and individual pound nets may catch turtles at one stage of the tide and not other stages. Also, individual turtles may be more prone to entanglement because of disease or exhaustion."

Musick, in describing the cooperation afforded the researchers by Virginia pound netters, was expansive.

"Pound net fishermen have been very helpful in trying to alleviate the problem of turtle mortalities in the Bay," he said. "Not only have they tagged and released captured turtles over the past few years, but right now they are supplying all the turtles Byles is using in his turtle behavioral studies."

The turtles, carrying radio and sonar devices, are released in and around pound nets during various tidal stages. Among the commercial fishermen who have been fundamentally important in the VIMS sea turtle research effort, according to Sarah Bellmund, are Richard Erdt of Williamsburg, Talmadge and Fred Jett of Jett Seafood in Ophelia and Ed Boyd of Boyd Seafood in Hampton.

Richard Erdt was instrumental in acquainting VIMS researchers with interested fishermen in Gloucester and Mathews counties. Furthermore, he has donated considerable time and effort to the program by tagging, bringing turtles in to VIMS

and taking researchers along when checking his nets in the York River. The Jett's have been equally cooperative on the Potomac and upper Chesapeake Bay waters.

Ed Boyd of Boyd Seafood in Hampton has also been instrumental in the turtle study, tagging and releasing 25 loggerheads this season, alone.

"One day we got six out of my pound off Grandview Beach," Boyd said. "That's where we get most of them. We could have tagged more, but ran out of tags." Boyd expressed the hope that an increasing number of pound netters would get involved in tagging turtles.

Boyd and his pound net crew routinely boat the turtles from pound nets, flip them on their backs and insert tags in the front flippers. Later the turtles are taken away from the immediate area and released. If released close to the pound, a turtle will sometimes be back in the net the next day, Boyd reports. He added that he's found three dead loggerheads in his nets this past season.

"They get their heads through the leader mesh on low tide, then when the tide comes in, they'll drown if you don't get to them in time."

In addition to supplying turtles for the study, some pound netters are volunteering advice on various ways (through minor changes in mesh size and the way pound net leaders are staked out) to lessen the chances of turtle entanglement.

The commercial fishermen who are accustomed to handling the sea turtles say that loggerheads present little danger where biting is concerned. They are slow to react, and fishermen handle them easily, taking precautions not to keep a hand or foot near their heads for very long. The more agile Ridley requires a bit more care in handling, but still is not dangerous to handle, according to the VIMS researchers.

Most recently, project personnel were elated to discover that their work is eligible for funding support through the Virginia Game and Inland Fisheries Nongame Species Restoration Program. The money for this new program comes directly from contributions from taxpayer refunds allocated through the annual state tax return forms.

Virginians are reminded that all sea turtles are protected under state and federal laws. This includes dead turtles which wash up on beaches. Heavy fines are levied for dismembering such turtles. "Don't take the shells or skins," says Musick. Report all finds to VIMS at (804) 642-2111 Extension 269. You'll be doing your part in helping to amass much needed information about some of our most interesting and threatened sea creatures. --*Dick Cook*

Modeling for Marinas

--Dick Cook

U.S. Army Corps of Engineers



This is only a part of the U.S. Army Corps of Engineers Chesapeake Bay hydraulic model, housed under one 14-acre roof at Stevensville, Maryland. Drs Blair and Hecker hope it can aid efforts to update marina buffer zones in Virginia.

What does the Chesapeake Bay hydraulic model in Stevensville, Maryland have to do with more than 200 tidal marinas in Virginia? That is a question two marine scientists at Old Dominion University in Norfolk are attempting to answer. Drs. Carvel Blair and George Hecker, ODU Department of Oceanography, are concluding the field work on a 3-year Sea Grant project, the purpose of which is to determine the feasibility of using the model, housed in a 14-acre building at Stevensville, for setting more realistic marina "buffer zones" in Virginia.

The buffer zone concept, that of prohibiting shellfish harvesting from waters near marinas, has been applied in its present form in Virginia since 1972. At that time the State Health Department, responding to a U.S. Food and Drug Administration Shellfish Sanitation Program review, imposed seasonal (and in some cases year-round) "no harvest" zones near marinas.

During the closed season, the radius of a buffer zone for a particular marina is determined solely by the number of boat slips at the facility. A marina with 1-50 slips has a 1/8 mile radius buffer zone; 51-100 slips calls for a 1/4 mile radius zone; and any marina containing more than 100 slips must have a zone whose radius is 1/2 mile.

The arbitrary designation of buffer zone size was a stop-gap measure in 1972, with the expecta-

tion that subsequent scientifically-based criteria would be developed in the near future. Due to lack of funds, the criteria were never forthcoming, according to Blair, principal investigator on the hydraulic model project. The existing procedure has proven to be safe, but may turn out to be overly conservative, in that unpolluted shellfish are included within the buffer zone.

"The present criterion doesn't take into consideration such things as water depth and velocity, salinity, boat type and marina usage patterns," Blair said. "These factors, pretty much unique to every tidal marina, can affect the amount of pollution and the rate at which it flushes out from a point source to surrounding areas."

The type of pollution that Blair refers to centers around fecal coliforms, bacteria associated with animal (including human) wastes, and the subject of a second Sea Grant project headed by Dr. Howard Kator, VIMS Department of Microbiology-Pathology. Kator is attempting to determine the bacteriological impact of selected Chesapeake Bay marinas on surrounding waters.

chesapeake hydraulic miniature may help update buffer zones

Associate investigator on the fecal coliforms project is Dr. Paul V. Hyer, VIMS Department of Physical Oceanography and Hydraulics. Hyer is actually working toward the same goal as Blair and Hecker, but is utilizing a numerical model. Hyer has made dye releases in the area of several tidal estuary marinas, and the results of his experiments have been used not only in calibrating his numerical model, but also the Chesapeake Bay model being used by Blair and Hecker.

Previous research has established that a dye tracer such as Rhodamine WT, which Hyer used, when released in a properly adjusted hydraulic model, will spread nearly the same in space and time as would the same tracer (or under similar conditions, a pollutant) released at the same relative location in the real world.

Such prototype information as water velocity, depth and salinity are needed to be sure that the model correctly imitates the real water body. Model results then are compared to observed field results for degree of similitude or likeness of tracer spreading.

In addition to using information arising from Hyer's field work, Blair and Hecker have conducted dye releases in the Lafayette River in Norfolk in order to further calibrate the Chesapeake Bay hydraulic model.

"Rather than go to each tidal marina site in Virginia and test individually," Hecker said, "we hope to show that a carefully adjusted hydraulic model can give similar results at considerable savings in time and money. Preliminary indications are that the model can work for us in this area, but we have to establish the limits within which we can get distortion-free results.

"There are some cases where it won't work, such as where there is a dry stack storage marina operating on a relatively shallow river shoreline. It just wouldn't show up on the model, which has a horizontal scale of 1'=1000', and a vertical scale of 1'=100'. Still, with many of Virginia's marinas

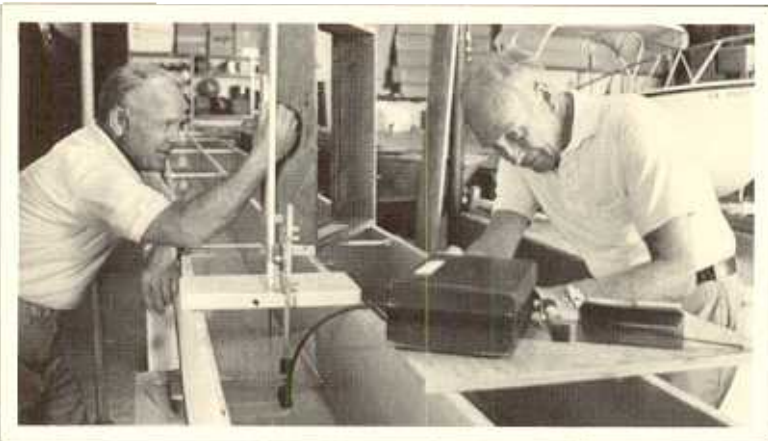
situated in tidal estuaries which are suitable for modeling, we feel that the hydraulic model, properly adjusted, is a feasible tool."

While precise similitude has not been achieved in all situations thus far analyzed, Blair and Hecker are optimistic that, with the aid of a tidal simulation water flume recently constructed at ODU, the limits to which the Bay model can deliver distortion-free results can be determined. In a shallow model, unlike field conditions, friction and surface tension can distort the distribution of a dye tracer. The flume — a narrow, doubled trough with screen friction devices interspersed along its length — will further aid in calibration of the larger model, Blair says.

"By next summer," Hecker added, "our analysis of model and field data should be completed. We will know by then the extent to which the Bay model is indeed practical for marina modeling. Where it does prove successful, we will be able to come up with a standard procedure the State can use to set buffer zones for most of its tidal marina sites."

Both ODU scientists agree that, even if the hydraulic model in Stevensville does not prove useful, the study will have given the scientific community considerably more knowledge about water movement in tidal estuaries than was the case before. If it does prove successful, and next summer should tell, the model will help answer the questions: (1) How much marina effluent can surrounding waters accept without exceeding concentrations specified as being within safe limits? and (2) How many additional boats can a marina safely handle within its existing buffer zone?

The challenge for scientists working on Virginia's marina buffer zone problem is not only to come up with a more accurate method of determining shellfish contamination zones, but to design a procedure which State health employees can use to quickly and easily make assessments.



Hecker, left, and Blair have constructed a tidal simulation water flume at ODU to further calibrate the Chesapeake Bay model.

Surveys indicate that Virginia is more famous for oysters than any other seafood. These bivalve molluscs are of great economic importance and are found along temperate and tropical coastlines. Oyster meats are an excellent source of high-quality protein, minerals and vitamins, and they are easily digested. They have a low fat content, making them a healthy dining treat. Virginia oysters are marketed live in the shell, fresh shucked, frozen, frozen breaded and canned. To retain their delicate flavor, oysters should never be overcooked. These superb Virginia shellfish may be prepared in a variety of ways. Here are a few recipes to enjoy.

Oyster



OYSTERS CREOLE STYLE

- 1 Pint oysters
- 3½ T. onion, chopped
- 2 T. butter
- 3 T. flour
- 1 C. tomato juice
- 2½ T. parsley, chopped
- ¼ tsp. hot pepper sauce
- ¾ tsp. salt
- Buttered toast



Drain oysters. Cook onion in butter until tender. Blend in flour, add tomato juice and cook until thick, stirring constantly. Add oysters and seasonings and simmer about five minutes, or until edges begin to curl. Serve on toast. Yield: 6 servings.

OYSTER SOUFFLE'

- 1 Pint oysters
- 3 T. butter
- 3 T. flour
- 1 C. milk
- 1 tsp. salt
- Freshly ground pepper to taste
- Dash nutmeg
- 3 eggs, separated

Drain and chop oysters. Melt butter, blend in flour, add milk, and bring to boiling point, stirring constantly. Cook for three minutes. Add oysters, seasonings and beaten egg yolks. Beat egg whites until stiff but not dry. Fold into oyster mixture. Pour into buttered casserole and bake in moderate oven, 350 degrees, for about 30 minutes or until brown. Serves 6.

OYSTER LOAF

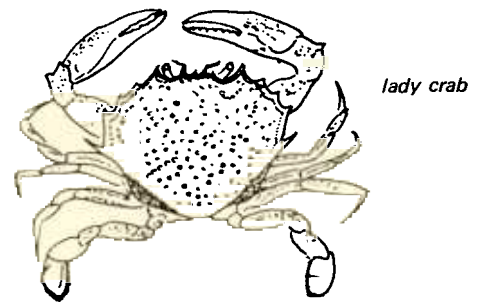
- 1 Pint oysters, standards, fresh or frozen
- ½ tsp. salt
- ¼ tsp. freshly ground pepper
- 2 eggs, beaten
- ¼ C. milk
- ¾ C. all-purpose flour
- 2 C. soft bread crumbs
- 4 slices bacon
- ½ C. melted margarine or butter
- 2 loaves French bread, 15 inches long and 3 inches wide
- Fat for deep frying
- ½ C. tartar sauce
- 1½ C. shredded lettuce
- Thin tomato slices to cover

Thaw oysters if frozen. Drain oysters; dry between paper toweling. Sprinkle with salt and pepper. Combine eggs and milk. Roll oysters in flour, dip into egg mixture, then roll in bread crumbs to coat evenly. Refrigerate 45 minutes to firm the coating. Fry bacon, drain and crumble. Slice bread loaves in half horizontally. Pull out the inside soft crumb from bottom and top halves of bread. Brush the bread shells inside with melted butter. Place bread shells on baking sheet and bake in a moderate oven, 350 degrees, 3-5 minutes to warm and crisp. Place oysters in a single layer in a fry basket. Fry in deep fat, 350 degrees for 2-3 minutes. Drain on absorbent paper. Spread inside of bread shells with tartar sauce. Place shredded lettuce in the bottom halves of the loaves. Arrange tomato slices on lettuce, and fried oysters on top of the tomatoes. Sprinkle with crumbled bacon. Cover with top halves of the loaves of bread. Cut each loaf into three portions. Serves 6.

Incredible Edibles from the Sea

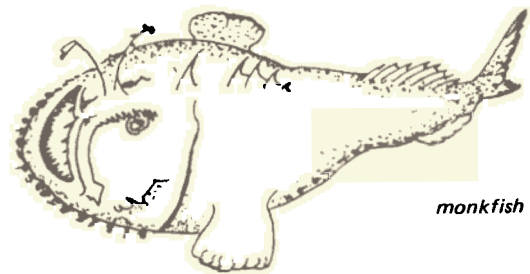
(Part 2)

One cannot say that Americans do not have a history of utilizing seaweed and unusual seafoods in their diets. Precolonial Indians in Tidewater Virginia appear to have been very closely tied to their marine environment in terms of food, building materials and culture.



lady crab

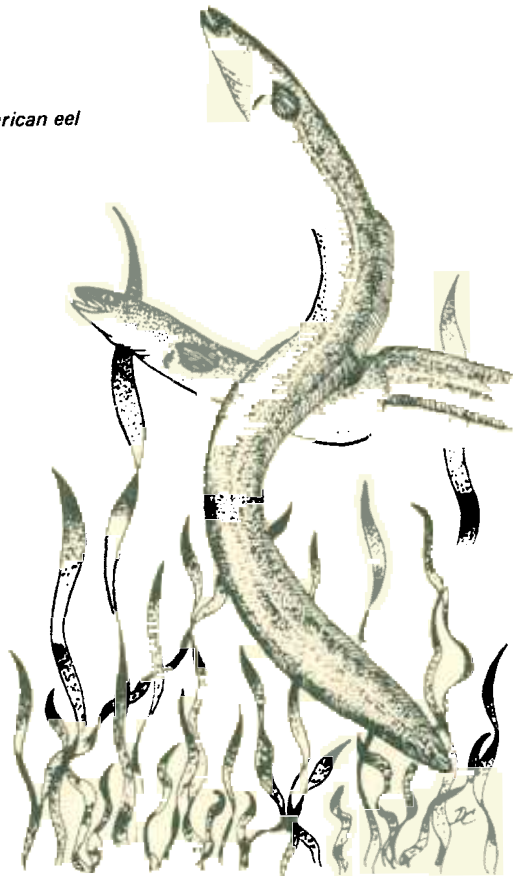
They utilized seaweed as a vegetable, as a seasoning and to aid in the preservation process. They ate all sorts of marsh plants (such as the cattails of Ewell Gibbon fame), finfishes and shellfish. They ate clams and oysters, then used the shells to scale and fillet fish. Like contemporary Eastern cultures and unlike contemporary Americans, Indians, (Native Americans) ate every part of the fish, not just the muscular flesh (filets).

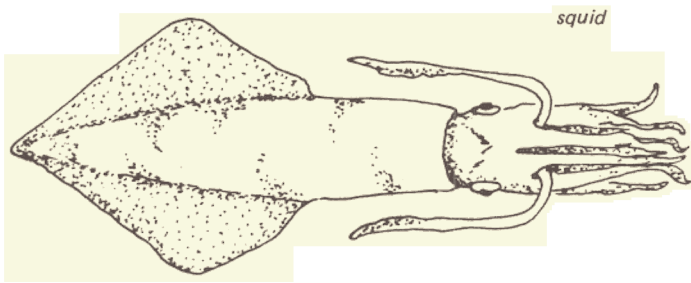


monkfish

They ate animals on a regular basis which we do not eat, and prepared fishes in ways we might consider unusual. For example, they sometimes allowed fishes and their juices to ferment to create a sauce for seasoning. (See *Wavelets, Marine Schoolhouse Series, No. 8.*)

American eel





If you were to visit the Far East or visit a Far Eastern grocery store locally, you might see such exotic foods as fermented fish sauces, dried fish (whole, filets or heads in snack mixes), shrimp and squid sauces, powdered fish sauce mixes, pickled gourami, prawn chips (similar to our potato chips but made with dried and powdered shrimp), mud fish, skate, octopus, squid, sea slugs, pickled pollock entrails, jellyfish, bai-top shells, sea urchin eggs, abalone, all sorts of seaweed snacks and dried seaweeds.

Hawaiians, as an example, eat raw or sauteed sea slugs. They have several methods of preparing raw fish for consumption, not to mention raw octopus. Even jellyfish, several species of which are found in Chesapeake Bay and Virginia's coastal waters, are dried, powdered and used as food seasoning by some cultures!



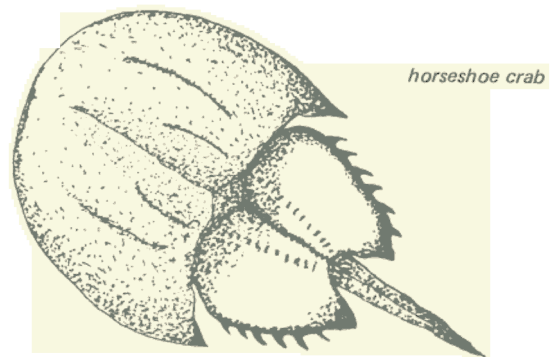
Many species which we do not eat and which we might consider inedible, are both edible and tasty. According to Donald Zinn*, zoology professor emeritus at the University of Rhode Island, all sorts of local marine animals make delicious eating. Zinn suggests eating boat shell snails, squid eggs and urchin gonads *raw*.

He recommends cooking moonshell snails, razor clams, chitons, cockles, mussels, whelks, periwinkles, limpets, sea hare, horseshoe crabs, rock crabs, Jonah crabs, lady crabs, spider crabs, green crabs, mantis or ghost shrimp, prawn, squid, urchins, nudibranchs, and squid-in-its-ink-soup!

*Zinn, Donald J. 1975. *The Beach Strollers Handbook from Maine to Cape Hatteras*. The Pequot Press, Chester, Connecticut. 128 pp.

These seafoods seem strange to us simply because it is not our custom to eat them. Yet there is a growing seafood industry in Tidewater Virginia for unusual fishes. Watermen are now attempting to harvest underutilized species for export to other countries. Skates, rays, sharks and eels are considered delicacies in Asia, Africa and Europe, especially so in France, Denmark and Japan.

Although crabs, oysters, clams and scallops are favorite foods of many Virginians, tasty alternatives to these traditional favorites are squid, skate, ray, shark and eel.



The monkfish or goosefish, a repulsive looking creature taken as a bycatch in scallop dredging, is actually a tasty, popular and expensive seafood in Europe. The monkfish is just now gaining popularity as a seafood in the United States, where it is relatively inexpensive to buy. Diners often refer to it as the "poor man's lobster."

You can have some fun searching for and discovering incredible edibles from the sea, even if you live far from the ocean or Chesapeake Bay. Many of the less common fishes can now be found in neighborhood supermarkets, and definitely are available in ethnic grocery stores.

You may want to throw an incredible seafoods tasting party! Invite your friends well ahead of time. Explain that each person must find: (1) a recipe for preparing unusual, uncommonly-eaten seafood, or (2) an unusual recipe for preparing commonly-eaten seafoods. Each guest prepares a dish for the party and makes a copy of the recipe for each person at the party. Remember, each guest should practice cooking the dish and make sure it is tasty before the day of the party!

Some suggestions are: crabburgers, squid rings, desserts made with agar-agar (derived from seaweed), pate' of monkfish, seaweed tempura, foods prepared with homemade sea lettuce seasoning salt, carrot cake baked with Nori flakes (a kind of seaweed), algae cookies and zucchini spaghetti with seafood sauce. Bon appetit!

Neptune's Ambassadors to Government

--Dick Cook



Former VIMS graduate student Thor Lassen was a Sea Grant intern in 1980. Lassen, now with the Atlantic States Marine Fisheries Commission, interned in Congressman Paul Trible's office.

1979 marked the first year of the National Sea Grant Intern Program, an exercise in cooperation between government and academia which has benefited both sides and drawn favorable reviews from all who have participated.

Basically, the Program is designed to provide bright young graduate students and junior faculty members a one-year internship within senior staff offices of the Department of Commerce or on Capitol Hill. To date, five graduate students from the Virginia Institute of Marine Science and one from Old Dominion University have been selected from a nationwide list.

Only 10 or 12 interns are chosen annually, from backgrounds in law, sociology, economics and science. There is a stipulation that their background and career have a marine orientation.

In order to better assess the benefits of the Sea Grant Intern Program, plus others available to marine-oriented graduate students in the state, each was contacted recently and asked to give his or her impressions of the work experience.

In 1979, Virginia had two Sea Grant interns: Carroll Curtis from ODU and Douglas Lipton from VIMS.

Carroll worked in the Office of Coastal Zone Management (OCZM). As a research assistant assigned to the Sanctuary Program Office, she performed technical research of the literature on marine sanctuary management in Hawaii, with the purpose of establishing a humpback whale sanctuary off Maui.

Curtis also initiated the planning for a hard bottom reef sanctuary program off Georgia, in an area known as Gray's Reef. Again, she had the responsibility of a staffer.

sea grant interns
from virginia
help marinate
decision-making
process

SEA GRANT PUBLICATIONS

The publications listed in this section are results of projects sponsored by the VIMS Sea Grant Marine Advisory Service. Order publications from Sea Grant Marine Advisory Service, Publications Office, Virginia Institute of Marine Science, Gloucester Point, VA 23062. Make checks payable to: VIMS Sea Grant.

TIDE GRAPHS FOR HAMPTON ROADS, VIRGINIA and TIDE GRAPHS FOR WACHAPREAGUE, VIRGINIA - Published quarterly. Free subscription obtained by written request.

COMMERCIAL FISHING NEWSLETTER - Published quarterly. Free subscription obtained by written request.

"FISH " LEAFLETS (shad, black sea bass, croaker, spot, clam, oyster, soft crab, blue crab, flounder, tuna, sea trout, monkfish and bluefish) - Life history, recreational and commercial importance information, plus tempting recipes for each! Free.

THE PRESENT AND POTENTIAL PRODUCTIVITY OF THE BAYLOR GROUNDS IN VIRGINIA (Vols. I and II) - Dexter S. Haven, James P. Whitcomb and Paul C. Kendall, SRAMSOE No. 243. Vol. I, 167 pages. Vol. II, 154 pages plus 64 charts. \$10.00 for both volumes.

AUDIOVISUAL AIDS AND PUBLICATIONS AVAILABLE FROM THE VIMS SEA GRANT MARINE EDUCATION CENTER - 40 pages. \$1.00.

FISHY ACTIVITIES FOR YOUR SMALL FRY - Mary E. Sparrow, Frances L. Lawrence and Ronald N. Giese. Educational Series No. 28. 36 pages. \$2.00.

MANUAL FOR GROWING THE HARD CLAM *Mercenaria* - Michael Castagna, John N. Kraeuter. SRAMSOE No. 249. 110 pages. \$3.00.

NONTRADITIONAL MARINE EDUCATION ACTIVITIES: a planning guide - Elizabeth A. Cornell. Educational Series No. 32. 11 pages of text, plus 9 MSM (Marine Science Methods) insert lesson plans. \$1.50 per issue inclusive.

THE MARINE TURTLES OF VIRGINIA: with notes on identification and natural history - John A. Musick. A field guide. 24 pages. \$1.00.

HANDLE WITH CARE: SOME MID-ATLANTIC MARINE ANIMALS THAT DEMAND YOUR RESPECT - Jon Lucy. Educational Series No. 25. 22 pages. \$1.00.

RECREATIONAL BOATING IN VIRGINIA: a preliminary analysis - Tom Murray and Jon Lucy. SRAMSOE No. 251. 31 pages. \$1.00.

THE CHESAPEAKE: A BOATING GUIDE TO WEATHER - Jon Lucy, Terry Ritter and Jerry La Rue. Educational Series No. 25. 22 pages. \$1.00.

Carroll's efforts paid off in January 1981, when Gray's Reef, a 16-nautical-square mile area, was officially declared a marine sanctuary. Her internship was extended into 1980.

Now at George Washington University where she is working on a doctoral degree, Carroll's field of study is examining selected coral reefs in the light of competition between sponges and hard coral.

When asked how she evaluated the intern program, Curtis replied:

"I found the program to be very beneficial in that it exposed me to staff assignments early in my career. It gave me the opportunity to expand my horizons both professionally and academically. Although I was then and am now a student, I was treated as a full staff member in OCZM. That was important."

OCZM, for its part, received the benefit of a fresh approach to matters within Carroll's scope, and office contacts with people in the field and in academia were enhanced, she says.

Douglas Lipton, a VIMS graduate student, interned with the National Marine Fisheries Service (NMFS) in 1979, in the Office of Science and Environment. Lipton worked in the Marine Resources Monitoring, Assessment and Prediction Program (MARMAP). His day-to-day work included development of a national operational plan for MARMAP, essentially a central plan for resource assessment.

"I also worked with a stock assessment task force, which provided an evaluation of the stock assessment techniques presently being conducted by NMFS.

"Personally, I feel the intern program advanced my career about 10 years. It thrust me directly into the mainstream of fishery research."

Lipton is still an NMFS employee but is also on the faculty at the University of Maryland conducting research and working on a doctoral degree in resource economics. He'd like to return to NMFS in the future, ideally in some marine resource economics position.

Thor Lassen, a VIMS graduate student in marine resource management when selected as an intern in 1980, worked a year in Congressman Paul Trible's Office, with the House Merchant Marine and Fisheries Committee. Lassen was in charge of handling any environmental and fisheries matters which came up before the Committee and in Trible's district in Virginia.

"Much of my time was taken up with day-to-day constituent concerns in environmental or fisheries-related issues. I would get in touch with the proper federal agency and try to resolve the constituent's concern."

"I think one of the strongest points in favor of the program is that it gets people with scientific backgrounds in Washington. Hopefully, they can eventually generate a group which will be able to communicate with both congressmen and scientists in the field in exchange of needed information."

Lassen now works for the Atlantic States Marine Fisheries Commission in Washington. He



Kimberly Grane, a VIMS graduate student in marine resource management, was one of 15 interns chosen to take part in the Governor's Fellows Program this year.

represents the Commission at regional management council meetings, where he is the designee for the Commission Executive Director.

Michael DeLuca, another marine resource management student at VIMS, was a Sea Grant intern during 1981. Mike worked with the National Advisory Committee on Oceans and Atmosphere, (NACOA) with primary responsibility in the area of marine minerals ocean mining.

He was given the challenging job of organizing and directing a NACOA panel whose mission was to develop goals and objectives over 15 years for the emerging marine mining industry. Mike also was involved in producing a fisheries management report and the assessment of the federal oceanic science budget.

"The internship at NACOA provided me with excellent insight into the federal policy-making and decision-making processes," Mike enthused, "and it showed me marine resource management at the top level.

"I guess I was most impressed with the effectiveness NACOA has in dealing with Congress. The Committee does provide a valuable and much appreciated service, and I was delighted to be associated with the expertise provided on the NACOA panel."

DeLuca presently is working with the National Sea Grant Program in developing the National Oceanic and Atmospheric Administration (NOAA) 5-year resource plan for polymetallic sulfides, a recently discovered ocean mineral resource. Polymetallic sulfides, says Mike, generally are associated with oceanic spreading centers, submarine cracks in the Earth's crust. In his present position, Mike is working for Dr. David B. Duane, associate director within Sea Grant for nonliving resources.

Since February 1, 1982, VIMS graduate student Glenn Delaney has been working as a Sea Grant intern for the House Subcommittee on Fisheries and Wildlife, Conservation and the Environment, chaired by Louisiana Congressman John Breaux (D).

Glenn says he is being given a great deal of responsibility on issues dealing with fisheries. Lately the emphasis has been on international relations, in which Delaney has consulted with representatives of such fishing nations as Japan, Spain, Korea and, to a limited extent, the Soviet Union. These nations, of course, are very much interested in fishing in U. S. waters.

"Another area demanding much of my time is the Fisheries Conservation and Management Act, several amendments to which will be dropped this fall, I think.

"A new bill coming up this fall will establish US sovereignty over fisheries within our 200-mile limit. There also are some provisions in the new bill which will deal with undersea mining in the same zone."

Even in a short conversation with Delaney, it becomes apparent that this marine resource management student is totally into his work, and is appreciative of the opportunity he has been given. A former commercial trawler and offshore lobster fisherman, Delaney labels his internship "a phenomenal educational experience."

Although not a Sea Grant intern, former VIMS graduate student Eileen Shea also gained valuable experience in Washington. Under another type of

agreement, Eileen interned in the NOAA Office of Congressional Affairs (OCA) from January 1979 to December 1980.

Eileen worked for the Director of the Office of Congressional Affairs "as a generalist assistant." Among her activities she worked on the enactment of the Deep Seabed Hard Mining Restoration Act by providing technical assistance to congressmen and their staff members. She also was responsible for publishing a weekly newsletter, *NOAA Congressional Activities*.

Another aspect of Eileen's internship was briefing the NOAA leadership on the status of pending legislation prior to their meetings with members of Congress. Furthermore, Eileen organized and participated in legislative briefings on NOAA programs.

Today, Eileen works full time for NOAA, where she is a congressional affairs specialist and a director of a field unit office for OCA. As such, she is responsible for expertise in such subjects as ocean thermal energy, coastal zone management, the Estuarine and Marine Sanctuary Program, the Office of Ocean Mining and Law of the Sea. She also is the NOAA contact for members of Congress and their staffs on these particular issues.

Most recently and on the state level, VIMS placed a marine science graduate student in the executive branch for two months this summer.

Kimberly Grane was one of the 15 interns chosen from a field of 150 applicants to take part in the new Governor's Fellows Program for Virginia, whereby selected interns are assigned to work under various head staffers.

Kim, since she is pursuing a marine science-oriented career, was assigned staff duties under Secretary of the Department of Commerce and Resources Dr. Betty Jane Diener.

According to Kim, she was responsible for drafting response letters concerning environmental issues for both Secretary Diener and Governor Charles Robb. In addition, Kim worked up briefing reports — mostly fishing related — for the Governor and Secretary.

EDITOR'S NOTE: Just as the Marine Resource Bulletin was going to press, we received word from the National Office of Sea Grant that Kimberly Grane, along with nine other applicants, has been selected to participate in the Sea Grant Intern Program for 1983. Kim hopes to land an internship on Capitol Hill, working with one of the congressional committees. We wish her well.

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A Sea Grant Advisory Service

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Dick Cook Editor

Cover Note

Heading for freedom, a loggerhead sea turtle is about to be released in lower Chesapeake Bay. An attached radio transmitter will allow graduate student Richard Byles to track its movements, part of a continuing VIMS sea turtle study. Photo by Dick Cook.

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