Coastlines
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Oil Spills: Plan Ahead to Protect Your Property

by Mark Wiley, Sea Grant Specialist in Potsdam

Nearly five years have passed since the NEPCO 140 barge spilled over 300,000 gallons of heavy oil in the St. Lawrence River, but residents of the area still remember.

"Our cove was hit with a very thick coating of oil. Our boats, dock, and beach never recovered — the scars are still there."

"The boat was covered with oil. All the boat bumpers were ruined and the dock had to be scrubbed. Our shoes tracked oil wherever we went."

With that spill, many of those waterfront residents suffered from what one person called "a severe personal disaster." The cleanup took months and cost millions of dollars. Even so the physical reminders of the accident still exist. How can these damages be avoided in the future? Is there any way for waterfront property owners in New York to protect themselves?

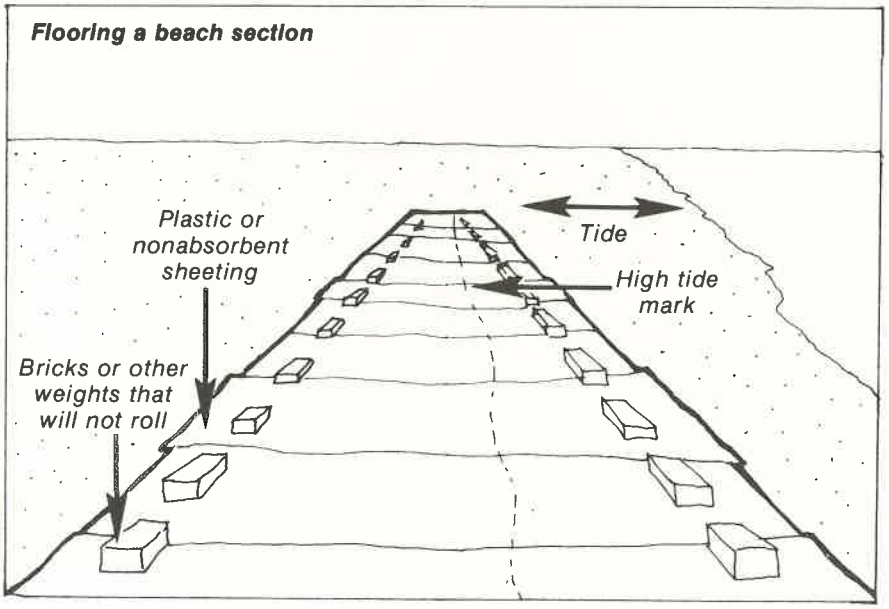
There are, in fact, many inexpensive ways for waterfront owners to protect docks, boats, and beaches, but they all require planning and preparation. Oil spills that occur in a fast moving river like the St. Lawrence or along Long Island's ocean beaches can foul shorelines very quickly. Too often there is very little time to get protective materials prepared and set up before the spill hits. Therefore, it's critical that time be spent preparing the materials **before the spill** so that no time will be lost when the spill actually occurs. There are several other tips to remember to lessen the damage that can occur during a spill.

Before the spill: Information is critical in any oil spill situation. As a property owner, your first step in preparing for a possible spill should be to determine where to get accurate, up-to-date information on the spill. In the case of a large spill, the Coast Guard or another responsible agency will set up an information center. Find out the telephone number pre-assigned to that center and keep it handy. For the next step, prepare a list of tasks to be done immediately after notification of a spill. If the spill is hazardous or flammable (like gasoline), you should evacuate the area immediately. If the spill is oil or a less flammable petroleum product, you should take the following steps: first, restrain pets who might venture in or near the contaminated area and make overnight arrangements for them during the duration of the cleanup; secondly, shut off any water intakes from the contaminated water body to avoid fouling pumps and piping; next, if possible, pull out boats, docks, buoys, and lines to avoid fouling.

Once the movable property is safe, protective materials should be installed on or around permanent structures. The first type of protection that most waterfront owners think of is an oil spill boom. A boom is a floating line barrier that extends above and below the waterline to restrict oil movement. Unfortunately, an oil spill boom is very expensive — $10-20 per foot or more — and is not within the budget of the average waterfront owner. A second, less expensive, type of protection uses polyethylene sheets to skirt or cover structures. These plastic sheets can be tacked directly onto the structure

continued on page 8

Flooring a beach section



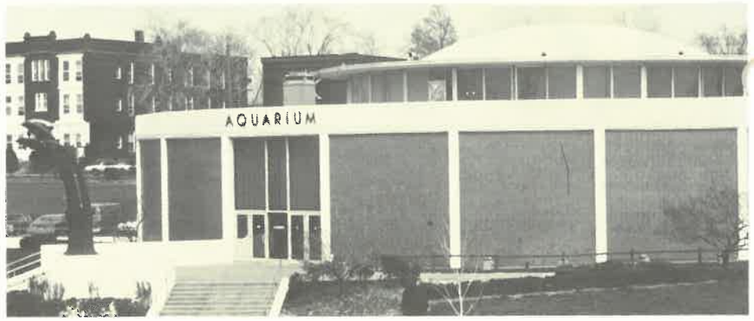
See
Sea Grant and Reagan's 1982 Budget
and
Testimony Before the House of Representatives
Turn to pages 4 and 5

Keeping Tourists Longer: Lessons from a Niagara Falls Study

by Tommy L. Brown, Senior Research Associate at Cornell in Ithaca

Most everyone involved with tourism knows that there are two ways of increasing business — attract more tourists, and keep them longer. Both are valid strategies, but too often nearly all of the promotion budget goes for attracting tourists, and very little effort goes into extending their length of stay.

The author examined the feasibility of extending tourists' length of stay in a Sea Grant sponsored study of Niagara Falls visitors during August, 1980. Within a few minutes driving time of the falls, there are many natural, cultural, and educational attractions of high quality, but of low visibility to the tourist — at least in comparison to the falls. The Niagara Falls area is heavily promoted both by Chambers of Commerce and other travel organizations in the Niagara Falls-Buffalo area, and by the state's "I Love New York" program. If there is strong potential for extending tourists' length of stay in the Niagara Falls area, there would likely be strong potential in other areas.



Niagara Falls' Aquarium and Buffalo's Naval Park are examples of secondary tourist attractions.

Study participants were obtained for a mail survey by requesting visitors at an information booth on the American side of the falls to sign a guest register. This produced a sample of visitors who were largely on vacation. Only 19% were from New York. The average trip length was 9.4 days, and the average stay in the Niagara Falls area was 2.1 days.

Only 29% of respondents were aware before leaving home of the availability of tourism information on the Niagara Falls area (53% of those who were aware requested information.) About 45% of respondents planned their trip before leaving home to the degree that once they arrived in the falls area, they did not have the flexibility to stay an extra day.

The most visible secondary attraction in Niagara Falls was Old Fort Niagara. About 25% indicated they had sufficient information on this attraction before they left home to decide whether it was of potential interest. An additional 28% obtained such information after arriving in Niagara Falls. Thus, nearly half (47%) left the area without information on this attraction. About 21% visited Old Fort Niagara; 37% of the others indicated they would have considered visiting the fort had they obtained information about it. Between 27% and 35% of those who did not visit five other attractions in Niagara Falls indicated that they were of potential interest, but that information was lacking. Another measure of the potential of the area to keep tourists longer is that 55% of study participants had the flexibility to spend an additional day in the area. Only 15% actually stayed an extra day.

The Buffalo attractions indicated in the study were even less visible. The Buffalo Zoo was the best known attraction in the city; only 12% knew of the zoo before leaving home, while an additional 14% learned of it while in the area. Only 3% visited the zoo; 39% of the remainder indicated they would have considered visiting the zoo had they obtained information about it.

Only 7% of the study respondents visited an attraction in Buffalo. Of those who had the flexibility to spend an extra day in the area (55% of the total), reasons given for not visiting Buffalo were: not aware of attractions (62%), not aware of location of attractions (35%), did not want to drive in Buffalo (31%). It seems apparent that the potential for Buffalo to increase its share of Niagara Falls vacationists is very good. Many people have sufficient time and interest. Their image of the city is not a major problem. They do need information on the attractions, including how to reach them by automobile.

It is highly likely that the following results of this study may apply to other coastal areas:

1. Travelers have considerable interest in secondary natural and cultural attractions of the region they are visiting. These attractions apparently are not publicized effectively.
2. A sizeable portion of travellers have the flexibility to stay longer at a particular vacation spot if material on the nature and location of those attractions can be effectively communicated while travelers are in the area. Another sizeable portion must receive this material at home when they plan their trip if they are to plan a longer length of stay.
3. A sizeable portion of travelers who are attracted to natural features are also interested in science museums, botanical gardens, zoos, and the cultural attractions of urban areas. Urban centers which do not promote these attractions to travelers who are interested in nearby natural attractions are probably missing an audience of high potential interest.

Stopping the Sands of Time: Stabilizing Sand Dunes

by Robert B. Buerger, Sea Grant Specialist in Oswego

What do the saltwater beaches along the south shore of Long Island and the freshwater beaches of southeastern Lake Ontario have in common?

Extensive sand dune systems!

Sand dunes in both these regions are formed from sand transported in nearshore currents. Wave action deposits the sand in the form of beaches and the winds blowing perpendicular to the shore carry the sand until it is deposited due to wind velocity reduction or an obstruction is met. Over an extended period of time, the interaction of wind, sand and beach obstructions result in dunes.

Sand dunes are an important coastal feature in any beach involvement. Dune systems serve as a buffer zone during storms, protecting natural and man-made resources located behind the dunes. Visually, they contribute esthetic relief to the shoreline. In the natural environment, sand dune systems are fairly stable features although individual dunes constantly change. Sand dunes become stable as beach vegetation becomes established on them. Stabilized dunes are capable of withstanding the natural pressures of the beach environment. However, sand dunes are easily disturbed by human activity. Foot and off-road vehicular traffic are especially destructive to vegetation stabilized sand dunes.

Once the vegetation is disturbed, the sand forming the dunes becomes unstable. Wind erosion on the dunes quickly follows. The erosion of sand dunes not only affects the visual quality of the beach areas, but also the homes once protected by buffering sand dunes become susceptible to storm damage; valuable wetlands once protected by barrier dunes become open to flooding and sand accumulation; and the shoreline associated with dune systems experience accelerated rates of erosion.

Once sand dunes have been disturbed, an active program of stabilization must be undertaken if the dunes and their associated benefits are to be saved. This can be done by constructing man-made structures such as snow fences or planting new vegetation. Where natural conditions are appropriate, dune building and stabilization with vegetation have many advantages: vegetation is usually less expensive; as the vegetation grows, the dunes are stabilized; vegetation is aesthetically more pleasing than unnatural man-made structures; and dunes stabilized with vegetation are easier to maintain.

American beachgrass is one of the most common plants used for vegetation stabilization of sand dunes. Beachgrass grows naturally along all of New York's marine and Great Lakes coast. This plant is easily propogated, will multiply rapidly and is relatively free of pest problems. For sand dune stabilization projects, beachgrass can be transplanted from nearby natural stands or purchased from commercial nurseries.

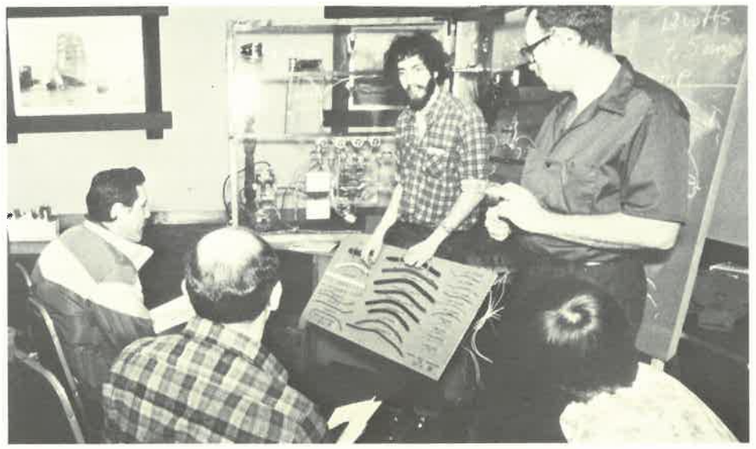
Beachgrass grows by rhizomes or underground stems. New shoots occur at the parent stem, or off-nodes or joint. Rhizomes often grow to several feet. Beachgrass reproduces very quickly: In the course of a year, one plant may yield 15 to 20 or more new plants. As more plants grow in an area, the intertwinning of the underground root system works as a net to hold or trap sand on the dune. Once established, beachgrass not only stabilizes the sand surface, but also creates a region of low wind velocity which causes wind transported sand to be deposited and accumulated. In this way, dunes actually grow as the beachgrass grows.

When the decision has been made to use beachgrass, a choice between buying commercial stock or transplanting from local stands must be made. If commercial stock is to be used, the address of nurseries that carry beachgrass can be obtained from the local soil conservation or Sea Grant office. If the cost of commercial beachgrass is prohibitive, an alternate cost-saving method using native beachgrass harvested from natural local stands can be considered. State laws should be checked before harvesting because in some areas of New York, it is illegal to remove beach plants. Commercial stock beachgrass, usually a higher quality strain, grows faster and larger than native plants. If native stock is to be used, care must be taken to assure that natural stands are not overharvested. Overharvesting reduces the number of plants protecting a dune. This can result in erosion of dunes where plants have been removed.

For many large stabilization projects, cost of commercial plants or the availability of native stock becomes a limiting factor. In this situation, beachgrass nurseries are both technically and economically feasible. Only one year is required to produce a crop of beachgrass. In one growing season, a one-acre nursery planted with 10,000 single stem transplants should yield from 25,000 to 50,000 three stem beachgrass plants.

Information on using beachgrass is available from your local Soil Conservation or Sea Grant office.

Specialist Robert Buerger (right) oversees the planting of beachgrass along a Lake Ontario beach.



Sea Grant and Reagan's 1982 Budget

In his 1982 federal budget, President Reagan has recommended that the National Sea Grant College Program be cut from $39 million in 1981 to just under $2 million in 1982. If passed by Congress, this cut will, in effect, end the federal role in the Sea Grant federal-state-university partnership which began in 1966.

Members of the Senate and House of Representatives, and their committees must review, and can alter, the proposed Sea Grant budget. If not altered, this publication and most other university research and extension efforts on applied coastal problems in New York will end.

Currently in New York and in most of the 30 cooperating states and territories, local, state and university funds provide over one-third of all Sea Grant costs. Removing the federal share would obviously have a catacylsmic effect on Sea Grant programs in this and other states.

The following article is the formal testimony of Joseph Swift before the Sub-Committee on Oceanography of the U.S. House of Representatives Committee on Merchant Marine and Fisheries. As a resident of Wayne County along Lake Ontario, Swift has sought information and assistance from Sea Grant on numerous occasions. He serves as chairman of Wayne County's Fishing Advisory Committee among his numerous other interests regarding New York's Great Lakes. Swift was one of five individuals requested to testify before the Sub-Committee on March 30, 1981 in Washington D.C.

FORMAL TESTIMONY
of
Mr. Joseph Swift
Before the
Sub-Committee on Oceanography
of the U.S. House of Representatives
Committee on Merchant Marine &
Fisheries

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March 30, 1981
Washington, D.C.

Mr. Chairman, Honorable Congressmen.

My name is Joseph Swift and I reside in the Town of Ontario, New York within the Congressional District represented by Congressman Frank Horton. I am employed as a United States Coast Guard licensed commercial charter fishing boat captain on Lake Ontario; and as coowner of a fishing tackle manufacturing business, Clearwater Tackle. I am also a member of the Rochester Trout and Salmon Anglers Club, the Sodus Deep Trollers Club, the Eastern Lake Ontario Trout and Salmon Anglers Association, and New York Sea Grant's Coastal Recreation Extension Program Advisory Committee. Moreover, I serve as chairman of the Wayne County, New York Fishery Advisory Committee, as established by the Wayne County Board of Supervisors. Lastly, I am employed as a chemist with the Xerox Corporation, but do not represent that corporation in this testimony.

I come before you today in wholehearted support for the Sea Grant Program. In my dealings with Sea Grant over the last 5 years, I have found the program to be a unique, invaluable program and I feel it must not be shortchanged in your ultimate budget decision.

In lieu of simply offering a litany of praise about Sea Grant, I thought I would explain and describe the positive experiences I've had or seen as a user of, and advisor to Sea Grant. These anecdotes will only scratch the surface of illustrating the economic and social impact of this program in my locality, my state and in other states across the nation.

Example #1

Five years ago, promoted by a developing sportfishing and tourism industry on Lake Ontario, I was seriously debating the decision to plunge into the charter fishing business. Fortunately, I was able to identify and talk with a New York Sea Grant extension specialist. The specialist was able to discuss my decision, lay out options and provide insurance tips. But, perhaps, most importantly, he was able to provide a research report on the charter fishing business of Lake Michigan funded and conducted through the Wisconsin Sea Grant Program. Having this up-to-date, objective and pertinent information available allowed for an easier, wiser decision to go into business and to avoid some early pitfalls. Today, I run a successful, heavily-booked chartered business on the lake, and as I run it, I do not forget or belittle the assistance and information rendered by Sea Grant in New York and Wisconsin.

Example #2

Four months ago, a few of the 40 or so charter fishing operators that have sprung up on Lake Ontario over the last five years wanted to consider the formation of a professional trade association so as to benefit from group insurance discounts and cooperative advertising. Our first turn was to Sea Grant, through its local extension specialist. Sea Grant arranged and walked us through our first meetings and was able to provide extremely useful materials on the constitution and organization of charter fishing associations in the Upper Great Lakes, again by linking with Sea Grant folk in Michigan. Today, the Lake Ontario Charter Boat Association is established and will soon offer its 36 members reduced insurance savings and regional joint advertising advantages.

Example #3

Boat access to Lake Ontario is severely limited. Sea Grant, through its research and extension effort, has been able to facilitate local and state government in addressing this problem. Economic research on the value of the fishery, access supply and demand, and thorough knowledge of successful community efforts elsewhere have made it easier for communities to decide on resolving this access problem. In fact, information provided by Sea Grant on boat launch design helped save Wayne County some $45,000 in developing its newest launch facility and helped Monroe County save approximately $10,000 in engineering costs on its own planned boat ramp.

Example #4

Toxic chemical contamination problems on the Great Lakes can impose and **have** imposed economic hardship on the tourism and commercial fishing economy. For the last six years, perhaps the best sources of information on toxic chemical contamination of our fishery resources have been Sea Grant researchers and extension specialists in New York, Wisconsin and other coastal states. This information has been critical in making intelligent health and economic decisions under risk situations.

Example #5

Difficulty in locating salmon during summer months annually supresses sportfishing activity and its economic spin-offs on Lake Ontario. I had the very positive experience of suggesting a research study to Sea Grant researchers in New York that would track the movements of salmon and trout via electronic gear. This project has just recently been funded and started, and the impact of the information it will provide could benefit innumerable fishing-related businesses in New York and probably even other Great Lakes states.

Example #6

A number of groups, businesses, communities and agencies on Lake Ontario are becoming interested in developing artificial fishing reefs in the lake to attract anglers and develop tourism. Once again, Sea Grant, through its extension and research role, has information available or underway that will aid in making reef-related decisions. In New York, we've been able to benefit from information generated by Sea Grant in Michigan, Wisconsin, Florida and Virginia. And some day we hope to repay the compliment.

Time and time again, Sea Grant has proven to be the best source of objective coastal resource use information. Whether it involves businesses, clubs, individuals, or communities, the coastal resource user has come to know that Sea Grant provides good, solid information. The information may have been developed locally or anywhere across the continent, but it seems to always prove useful, understandable and relevant.

As a lay person, I won't pretend to understand the federal budget process, but I'd like to leave the subcommittee with these thoughts, if I may:

1. My sentiments, and I believe the sentiments of all coastal resource users familiar with Sea Grant across the country, are that one of the most effective, efficient, economically-stimulating cooperative programs around — Sea Grant — should not be crippled by inadequate federal support, or support that is withdrawn too severely, too quickly, or too impetuously.

2. There must be continuance of the national commitment to Sea Grant as a cooperative state/federal partnership in the same way that the national commitment to **Land Grant** has been continued since 1862. Federal involvement insures national guidance, highlights national priorities and encourages state and interstate cooperation.

3. Sea Grant is real — it's human, responsive, helpful and accepted within coastal states and communities. Why gut the only responsive, cooperative, popular decentralized program within NOAA? It just doesn't make sense!

4. Sea Grant is obviously an economically attractive investment. Senator Weicker's own computations indicated at least a 7 to 1 return on the federal investment in over 13 years.

5. Sea Grant has **national** impact and benefits. Whether it's through education of graduate scientists, through research conducted in one state yet applicable to all, or extension people putting out the call for information across the country, it's still rightfully called the **National** Sea Grant College Program.

And lastly, I'd ask that Congress not be involved in destroying or even obstructing the open, proven linkage between the coastal resource user — be they boater, fisherman, marine contractor, homeowner — and the university system across the country. Our great **natural** resource — that is, the coasts, oceans and Great Lakes — critically needs our great **national** resource — that is, reliable, unbiased information.

Thank you very much.

Mini-grants Augment Marine Curriculum for 19 Teachers

by Linda O'Dierno, Sea Grant Specialist in New York City

Are you tired of the same old routine in your classroom? Do you wish you had enough money to set up a salt-water aquarium or even better a tank room?

Two teachers in Brooklyn, Karen Dilemani and Vivian Tricarico, decided to stop wishing and to really do something. Now they have a marine resource room with tanks and exhibits about the beach. Their students learn both basic skills and fine arts through a marine focus. Students and teachers alike find that school is a more exciting place.

Not only have they brought the marine world into their school, but they have the funds to take their classes to nearby shorefront sites. Because of their high interest, both teachers received scholarships to attend the marine studies program conducted by Cornell University and the University of New Hampshire at the Isles of Shoals off the coast of Maine last summer. The program provided a wealth of information and materials to bring back to their classrooms.

How did all of these miracles take place? Karen and Vivian decided to write a mini-grant proposal. At first they felt their competition was more qualified, but after attending two seminars on grant writing sponsored by Sea Grant in New York City, they decided to try their luck. Their principal, Margaret Flanaghan, provided them with the assistance and time that they needed. And now their perserverance is paying off.

Karen teaches sixth grade and Vivian teaches fifth grade at P.S. 105 in Brooklyn which serves a typical New York City melting pot neighborhood. Only six of their students speak English as their native language but all of them relate to the wonders of the natural world. Both teachers were looking for a new direction. They felt they needed something to get the kids "turned on" to learning. With marine education they found "the kids were like sponges absorbing information. They were responsive, excited about learning, and they were developing a thirst for new knowledge." Their excitement was contagious and suddenly other students were coming to ask questions. A common statement was, "I wish I were in your class, you're always doing things." As the children learned their self images improved and parents were amazed to see the changes in their youngsters.

Students from P.S. 105 in Brooklyn, N.Y. benefit from mini-grants, too.

Karen and Vivian were lucky enough to get two mini-grants: Title IVC pays for their field trips and Impact II supplies them with materials for their classroom sessions. As a portion of their work, they presented their program to a group of teachers involved in Sea Grant workshop. Two participants were so excited by the program that they, too, wrote proposals and received mini-grants. This brings the total to 19 teachers in New York City who have received mini-grants during the last two years as a result of attending Sea Grant seminars.

Not only are the children learning, but adults are learning as well. On one bleak rainy day when the classes visited the beach, their guide kept commenting on how unpleasant the weather was. Finally, one youngster chirped, "Well, I'd much rather be here in the rain than not here at all." The comment certainly put some perspective on the situation.

Perhaps the best way to illustrate the importance of the program is through some poems written by the students as an outgrowth of an observation activity.

A Feeling of Death
by Kim Lau, age 10

Because there was nothing but garbage people threw in
Because there were bunches of Phragmites surrounding the bay
I had a feeling of death
On the path to the shore

On the Walk
by Allen Moy, age 10

Mark told us there was gold up ahead
Then we ran as fast as we could
But it was fool's gold that sparkled
The boys ran ahead of everyone through the Phragmites
I didn't go cause I didn't know which way to go
So I waited for the rest
We saw a boat
So we all jumped in
Mark said there were rats
So we all jumped out

For more information on writing mini-grant proposals, see **I Want More.**

Four Publications Available for Coastlines' Subscribers

• **Angling for Smallmouth Bass in Lake Ontario.** While Lake Ontario's trout and salmon have garnered most of the publicity in recent years, a small number of anglers have discovered another gamey critter — the smallmouth bass. For 25¢, this booklet offers practical advice on locating and catching smallmouth in "The Big Lake" and reviews information on releasing, preparing and consuming bass. Write to our Oswego or Brockport offices for a copy.

• **Guide to Freshwater Fishes of New York.** Another popular seller is this guide by Department of Natural Resources' staff for Cornell Cooperative Extension. The 140-page, easy-to-use, illustrated, non-technical guide is available at $2.50 per copy from: Distribution Center, 7 Research Park, Cornell University, Ithaca, New York 14850.

• **Boat and Marine Equipment Theft.** The theft of boats and marine equipment has become an increasingly serious problem with estimates of the dollar value stolen at approximately 60 million dollars per year nationwide. To build a strategy against future thefts, write for your $2.00 copy of this publication from: University of Rhode Island, Marine Advisory Service, Publications Unit, Bay Campus, Narragansett, RI 02882.

• **Cornell Home Study Program.** This publication catalogs correspondence courses available for people employed in the food industry and related fields offered by Cornell University. Courses available are: accounting, business law and math, consumer relations, communications, food merchandising and distribution, to name a few. For your copy, write to: Home Study Program, 247 Warren Hall, Cornell University, Ithaca, NY 14853.

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I Want More!

Additional information is available from New York Sea Grant. Please check the publications which interest you and send to your nearest Sea Grant Extension Office. Single copies of the following publication are free:

_____ **Collecting Trip: Sea Grant in New York,** 1978-1979 Biannual Report, free.

For the following publications, make checks payable to Cornell University:

_____ **Shoreline Protection Permits: Long Island North to the Tappan Zee Bridge,** E. Matthews, 1978, 4 pp., $.15.
_____ **Guidelines for Selecting a Marine Contractor,** B. Doyle, 1980, 4 pp., $.15.
_____ **Controlling Bluff Groundwater Along the Great Lakes,** B. DeYoung and L. Brown, 1979, 6 pp., $.15.
_____ **Troubled Waters: The New York Bight,** D. Edgar, 1980, 4 pp., $.15.
_____ **Expanding Tourism with CBs,** J. Kinnear, 1978, 3 pp., $.15.
_____ **Promoting Tourism with Information Plazas,** J. Kinnear, 1978, 3 pp., $.15.
_____ **Scuba Information for New York and Great Lakes Divers,** E. Matthews, 1978, 4 pp., $.15.
_____ **Recreational Access and Landowner Liability,** T. Brown, 1979, 4 pp., $.15.
_____ **Angling for Underutilized Fish in New York's Great Lakes Waters,** R. Buerger, 1980, 6 pp., single copy free; $.25 each additional copy.
_____ **Preparing Those "Forgotten Fish" for Your Dinner Table,** M. Voiland, 1978, 4 pp., $.15.
_____ **Fish Contaminants and Human Health,** M. Duttweiler, 1978, 4 pp., $.15.
_____ **Beginning Hints for Funding Marine Education Programs,** 1978, 4 pp., $.15.

If you would like to be notified of additional publications by New York Sea Grant, please check the appropriate category and send to the Albany Sea Grant office. Be sure to include your name and address.

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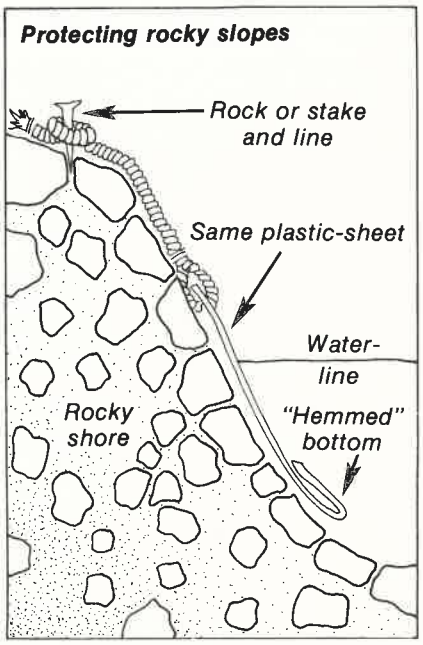
_____ General information on Sea Grant
_____ Oceanography, Limnology, Geology
_____ Aquaculture, Fisheries, Seafood
_____ Using Our Coastal Zone

Oil Spills, *continued from page 1*

or fashioned into a skirt. Care should be taken to extend the plastic well above and below the waterline to fully protect the structure from wave and tidal action. Polyethylene can also be used to protect beaches. In tidal areas, a large proportion of the oil and debris will be deposited at the high tide mark so the plastic should be concentrated there. Finally, polyethylene can be used with logs, hay bales, or bricks to create protective barriers for other waterfront areas. All these materials will have to be prepared before the spill and carefully stored in order to deploy them as quickly as possible. Remember that the spill may occur at night in stormy weather so your plan should be prepared accordingly.



During spill cleanup: After you have responded to the oil spill by deploying your protective materials, other steps should be taken to further minimize damage. Travel areas and changing areas should be designated to avoid tracking oil from work areas. Clean up crews may have to work on your property so make sure to rope off restricted areas after consultation with the foreman. Because strangers will be moving through the area during the cleanup process, all valuable property should be locked and extra security precautions taken. Finally, accurate records should be kept throughout the spill cleanup in order to collect insurance for damages, or tax relief. A detailed chronicle or diary with photographs of damaged property forms a strong basis for later litigation.

Local organization: Pre-planning by individual waterfront owners is important for adequate protection in case of an oil spill, but an even better approach is to organize fellow waterfront owners into associations or contingency groups. These groups can prepare community plans for the response to a spill as well as set up a local warning system or "grapevine" to distribute information. Protective material can be purchased cooperatively at reduced cost and protective devices can be coordinated. Most importantly, a waterfront association can work as a group with local and regional officials to plan for the most efficient and effective response to a spill.

The cleanup ideas suggested in this article are described in a Sea Grant publication entitled, **Oil Spills: A Coastal Resident's Handbook.** For your copy send $1.00 to the Sea Grant office nearest you. And remember pre-planning is the key to reducing oil spill damage.

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