



A Portrait of the Tourist

by Stephen D. Brown, Sea Grant Specialist in Potsdam

Competition for the tourist dollar is keen. Nations, states and regions alike are wooing the tourist through intensive promotional campaigns, and the St. Lawrence Seaway Region is no exception.

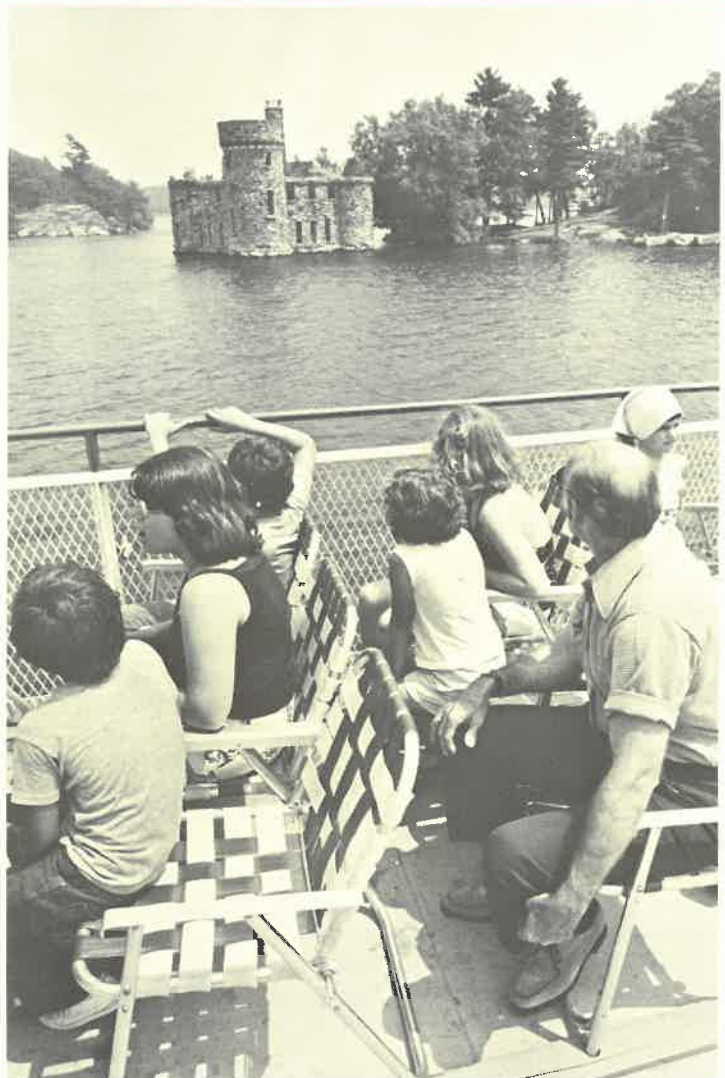
But to attract new visitors, the organizations promoting the region need to know all they can about those who already vacation there. To collect this kind of data, Sea Grant initiated a survey of the St. Lawrence Seaway tourist. It was hoped the survey, conducted in the summer of 1977, would answer several questions:

- Who are the tourists?
- Where do they come from and where do they go?
- Why do they come to the area?
- What do they do there?
- How long do they stay?
- How much money do they spend?
- What are their demographic characteristics? and
- What tourist information sources do they use?

Before the St. Lawrence Seaway Tourist Survey, little was known about the thousands of tourists who flock to the St. Lawrence Seaway region to recreate except that they spend money—lots of it. In fact, tourist spending is very important to the economy of the region. In 1974, tourists spent \$23.7 million in Jefferson County and \$20.6 million in St. Lawrence County, according to the New York State Department of Commerce.

The Survey Itself

The St. Lawrence Seaway Tourist Survey was designed and written by Alladi Venkatesh and Charles Gearing from the School of Management at the State University of New York at Binghamton. Field work was



Photographs courtesy of Thousand Islands International Council
Tourists aboard the Island Wanderer explore the Thousand Islands.

conducted by members of the Massena Chamber of Commerce, the Ogdensburg Bridge and Port Authority, the Sea Grant Extension Program, the Thousand Islands Bridge Authority, the Thousand Islands International Council, and the Thousand Islands State Park and Recreation Commission. These groups also sponsored the survey, which was coordinated by the St. Lawrence River Sea Grant office.

Information was collected from approximately 900 people via personal interviews and mailback questionnaires. The survey was conducted in Clayton, Alexandria Bay, Massena, Ogdensburg, and Sacketts Harbor.

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Southold groin field being worked on by Thompson Marine Construction (insert) and completed.

Erosion Threatens

Long Islanders Fight Back

by Peter Sanko, Sea Grant Specialist in Stony Brook

"Faced with the prospect of losing their homes to erosion, 10 residents of Leeton Drive, Southold, Long Island, have joined together to combat the destructive forces of Long Island Sound."

Since the time the above quote appeared in the May-June 1977 issue of **Coastlines**, the Leeton Drive residents have come a long way in the fight to save their homes. Not only did they manage to stick together for the almost two years it took to obtain the necessary permits and construct a low-profile groin; they gained additional support along the way.

Five property owners less immediately affected by the erosion contributed financially to the project. Although the homes of these contributors are across the road from the waterfront, they are at elevations lower than those directly on the water. If erosion were allowed to continue, they would eventually be in the water, rather than just near it.

Eight groins, each of which is 48 feet long, were put in place during the late summer and early fall of 1978. They are much lower than conventional groins, starting at about two feet above the original beach level on the shore end and sloping downward

to an elevation of 6 inches above the beach at mean low water, where they terminate.

Originally, the groins were to be of wood, but the property owners eventually decided on aluminum. Although aluminum is a relatively recent material for shore protection structures and has seen very little use on Long Island, the owners chose it because of the way it looks and the costs dictated by their particular site conditions. To protect the downdrift shoreline from accelerated erosion, the groin compartments were filled with gravel from an upland source.

The most critical part of the 1,000 feet of shoreline to be stabilized by the groin field was 665 feet of bulkhead that was in danger of being undercut. During the two winters before the groin was constructed, the beach in front of the bulkhead had fallen to within a foot of its toe. Since the beach hadn't built up to its normal elevation during the summer of 1978, it was doubtful that the bulkhead would survive another winter storm season.

Soon after completion of the groins, it became apparent that they were going to work. There was some loss of gravel during the first few storms

which brought head-on waves, but the compartments between the groins filled within 24 hours after the storms. After several months, even head-on storm waves failed to lower the beach within the compartments. Apparently, the offshore profile had adjusted, and the waves are breaking farther offshore now than they did in the past.

The major drawback of groins, the acceleration of downdrift erosion, has thus far not been a problem with this groin field. The groins are so short and low that natural by-passing seems to be automatic. Their only noticeable effect has been to maintain the beach elevation in front of the bulkhead.

As for the Leeton Drive residents, Ed Ferguson summed it up when he said, "For the first time in three years, we feel more secure in the belief that we are not going to lose our properties." But Ed and the others are well aware that their efforts and money have only bought them some time. Erosion will continue on either side of the groins, and eventually the property owners will have to put in more structures or give up their land and homes. They would like to see a more permanent solution to the problem before their neighbors on the other side of the road behind them become waterfront property owners, followed by the ones behind them, and behind them. . . .

The Great Lakes: Access for Anglers

by Tommy L. Brown,
Research Associate in Ithaca

As the program of stocking trout and salmon in lakes Erie and Ontario has progressed, access has become a major concern. Communities are concerned because of the close relationship between good fishing access and the positive impacts of tourism. Some riparian (shoreline) owners have voiced concern that their property may be overrun with anglers, if sufficient access is not provided. And, of course, anglers are concerned when lack of access prevents them from fishing.

Several types of access are needed to insure a successful sport fishery. Anglers fishing from shore need access to the lakes and tributaries. In areas where water depths are very shallow offshore and fishing pressure is great, piers enhance shore access. Anglers using boats, on the other hand, need places to launch and store them and an adequate number of safe harbors. A Sea Grant research project which examines these access problems and potential solutions has recently been completed.

The vast majority of New York's Great Lakes shoreline is privately owned. The Department of Environmental Conservation (DEC) has an active program of purchasing fishing easements at key access points from private landowners. Often, however, landowners have been unwilling to sell easements. As part of the Sea Grant research project, members of



the DEC were asked to identify the areas in each Great Lakes region where access was most needed. One hundred and fifty-one owners in these areas were then personally interviewed to determine their attitudes and concerns about granting fishing access.

The majority of riparian owners along the key streams and access points identified own less than 500 feet of frontage. The property of most landowners is currently used for fishing; 39 percent indicated it receives considerable use for fishing, and an additional 44 percent indicated

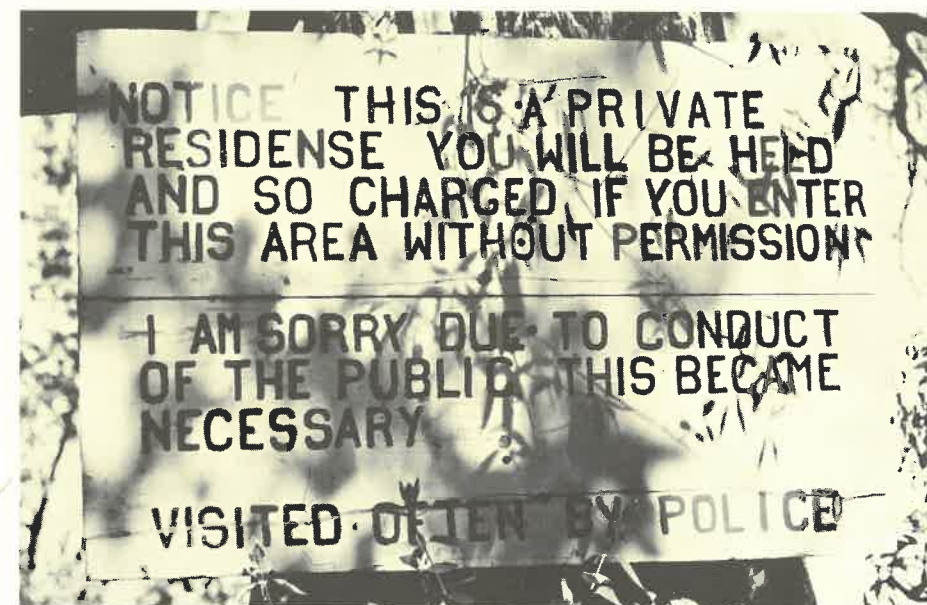
the property receives some fishing use. Just under half of the owners are anglers themselves; about two-thirds of those who fish do so for salmon and trout.

In all, about 43 percent of these landowners post their land, but this figure ranged from 31 percent along Lake Erie to 50 percent along the eastern shore of Lake Ontario. It seems that posting is not done to block all access, however, since 85 percent of those surveyed said they would grant permission to fish if anglers requested it.

Although current landowners are often willing to grant fishing access, state officials are reluctant to depend very heavily on the future generosity of landowners. As fishing pressure increases, the number of problems landowners have with anglers is likely to increase, resulting in the closure of some properties to anglers. Other landowners will in time sell their property, sometimes to new owners who may be less sympathetic to the needs of anglers. As a result, other access arrangements were investigated in the study.

Only 14 percent of the landowners expressed an interest in selling fishing easements. Landowners along central and eastern portions of Lake Ontario showed virtually no interest, but willingness to sell was higher in Niagara County and along Lake Erie.

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Draining Groundwater, a Hidden Culprit

For years, people who own property along the Great Lakes have watched while erosion ravaged their coastal bluffs and threatened to leave their houses teetering over the water. In this decade alone, erosion has caused millions of dollars worth of property damage. Until recently, most property owners believed that this land loss was caused solely by waves and currents.

Many hadn't considered groundwater, according to Sea Grant Specialist Bruce DeYoung. Although waves can undermine bluffs very fast, DeYoung says that water in and on the ground causes a more insidious type of erosion because it is hard for most people to recognize.

"Because of the slower nature of erosion by groundwater, property owners don't recognize its presence until it's too late—that is, after a landslide or major catastrophe," DeYoung says. "Then, misinformation leads many owners to protect their land by adding new structures."

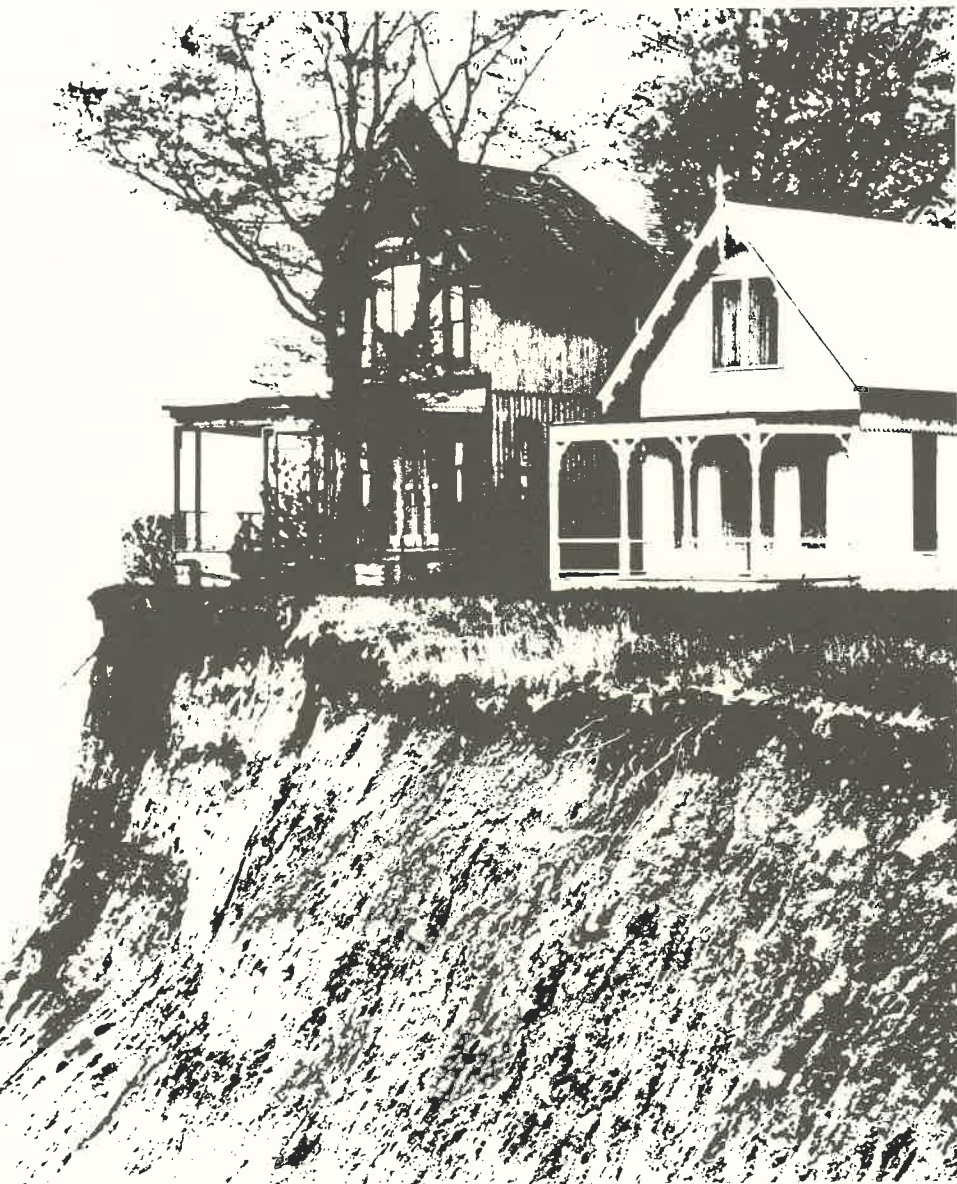
The Real Problem

But this approach doesn't get at the real problem, which begins when rainwater and runoff from streets, driveways and roofs seep into the ground. Sometimes, especially along the Great Lakes coast, the water runs into a heavy layer of clay or rock. This impenetrable layer stops the water's downward flow, forcing it to trickle out sideways through the bluff itself. In the process, rills and gullies are created, and when large amounts of water are involved, chunks of bluff fall into the lake.

Ironically, the problem of excessive groundwater along the Great Lakes is most acute in early spring, when the lakes are still frozen. Ice and frost that build up over the fall and winter act as a dam to keep water in the bluffs. When the ice melts, this water is released, taking with it massive amounts of soil.

What To Do About It

To improve drainage within a bluff, it is necessary to intercept the water before it seeps out. Often, this means installing an underground drain or conduit tile and refilling the resulting trench with sand and gravel. The



water collected in the drain is then directed to an area where its release will not cause erosion. Because of their knowledge of slopes, grades, construction materials and equipment, professional land improvement contractors are usually hired to do much of the installation work.

According to DeYoung, the current price of installing a drainage system varies from \$1.50 to \$3.00 per linear foot, for a 6-foot-deep trench and drain, to \$15 per linear foot, for a 15-foot-deep system. But the cost can be higher, he notes, since price depends

on property size.

Because impenetrable layers can extend for miles under land belonging to several people, and the water collected from one piece of property may actually originate from another, DeYoung suggests that neighbors investigate underground water problems together. If a subsurface drain is recommended, the cost of hiring a contractor can be shared, and the chances of the project's succeeding are better.

Once a drainage system is installed,

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COPING WITH EROSION



With the toe of this Lake Ontario bluff now protected by a rock revetment, the slope has been regraded in preparation for vegetative ground cover, which can help stop erosion.

Defending Property with Vegetation

by Brian E. Doyle, Sea Grant Specialist in Brockport

When confronted by erosion, those living on high, steep bluffs are often forced to defend their property against the rainfall, surface runoff, groundwater, ice and wind which threaten it.

Although these forces operate above the area of direct wave attack, they can produce the same damaging results—slumping, erosion and bluff recession. They become especially significant in steep, bare or exposed bluff areas composed of unconsolidated sediments or glacial till.

Excessive groundwater can often be controlled with an underground drain (see page 4), but an increasing number of shoreline owners are planting vegetation to control rainwater, runoff, ice and wind as well.

Why Vegetation?

Vegetation has proved effective for several reasons. Its root systems reinforce and bind the soil. In addition,

excess moisture within the soil is taken up by plants and given off to the atmosphere. Vegetation also intercepts surface runoff and rainfall, preventing unwanted gullies and drainage channels from forming.

If vegetation is to be successful in limiting bluff erosion, the site to be planted must be carefully prepared. Of primary importance is the slope angle. Generally, the less steep a slope is, the more stable, and the more likely it is that vegetation will take hold. As a rule of thumb, any slope of less than 45° should provide a suitable grade.

In situations where it's not possible to regrade the slope because of physical limitations, stabilization can be achieved through terracing, or digging a series of horizontal steps in which vegetation can be planted.

Choosing the Right Plants

In most coastal areas, a wide range

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Researchers Use Tires to Protect Shoreline

Want a place to put those snow tires now that you're not using them? Maybe you should try the nearest piece of eroding shoreline, considering some recent successes with tire revetments.

Over a year ago, researchers Richard D. Svensson and Robert A. Sweeney, from the Great Lakes Laboratory of the State University College at Buffalo, began experimenting with mats of tires bolted together and secured to the shore with stakes. Under a federal grant from the Erie (N.Y.) County Consortium under the Comprehensive Employment and Training Act, Svensson and Sweeney directed the installation of tire revetments at eight erosion sites in western New York. It was hoped that the tires would prevent damage by waves, drainage and/or near-shore currents.

A crew of 12 constructed the revetments at sites along the Black Rock Channel, Ellicott Creek, and Cayuga Creek in Cheektowaga and at Wendt Beach, on the Lake Erie shore at Angola. In each case, the revetment design was determined by the nature and severity of wave activity, the soil composition, the slope of the existing bank and the amount of pressure exerted by water in the bank.

The shoreline of the Black Rock Channel, for example, is subjected to waves from vessels as long as 460 feet. To absorb and dissipate the impact of waves, Svensson and Sweeney used four layers of tires.

According to Svensson, one advantage of a tire revetment over conventional methods of shoreline protection is cost. While sheet piling may cost \$1,000 per linear foot, a tire revetment can be installed for as little as \$50 per foot. Used automobile tires are easily obtained and can often be delivered to the construction site free of charge. Thus, the major costs are fasteners (used to connect tires), stakes and labor.

As Svensson and Sweeney are demonstrating, effectiveness is fast becoming another reason to protect land with tires—to date, the success rate of the eight revetments is 100%!

Editor's note: often, a permit is needed before putting a tire revetment in place. Consult the Department of Environmental Conservation or the Army Corps of Engineers.

A **hospitality training program** for coastal communities and industries tied to coastal tourism and recreation is being field tested in the Thousand Islands region. The program is being developed for Sea Grant by Vince Dee, Director of the Retail Merchandising, Hospitality and Tourism Program at Jefferson Community College. In essence, hospitality training identifies ways to make tourists' visits to a community more enjoyable and their return more likely.

The training package will be available for statewide distribution in the fall of 1979. Included in the package will be training manuals, 10 different handouts, and a slide program. Those interested in receiving information on the training program package should contact: Stephen Brown, Sea Grant Extension Specialist, 129 Merritt Hall, SUNY at Potsdam, Potsdam, N.Y. 13676.

UPDATE

Buffalo's Urban Waterfront Advisory Committee, the Erie County Industrial Development Agency, the City of Buffalo and Erie County are co-sponsoring "**Waterfront, 1990 II**," a conference to be held in Buffalo on May 24, 1979.

A follow-up to the "Waterfront 1990" conference held in February 1978, the May 24 conference will focus on current and proposed projects affecting the Buffalo area waterfront. For additional information, contact James E. Carr, Executive Director, Urban Waterfront Advisory Committee, Room 313, City Hall, Buffalo, N.Y. 14202, 716-856-2849.

An award of \$72,000 to the **New York Sea Grant Institute** is being used to strengthen marine science capabilities in Chile. The two-year project, carried out with the University of Concepcion, concentrates primarily on training faculty members of the Department of Marine Biology and Oceanography in coastal zone management techniques.

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Groundwater, *continued from page 4*

the time is right for adding plants to the bluff's surface (see page 5). Vegetation will not only reduce erosion due to rainfall; it will also help bind the soil. Better-looking bluffs are an additional benefit of vegetation, says DeYoung, and some plants keep people away from bluffs' dangerous, steep slopes.

Fact Sheet Published

To help those who have watched their coastal bluffs disappear, Sea Grant is publishing a six-page fact sheet by DeYoung and Larry Brown of the Soil Conservation Service entitled, "Controlling Great Lakes Bluff Groundwater."

In addition to giving names and addresses of organizations in New York State which can help Great Lakes property owners make decisions on bluff protection, the fact sheet provides illustrations and diagrams on drainage systems. It will be available in early summer. (See **I WANT MORE.**)

Access, *continued from page 3*

Landowners felt there were two disadvantages to the sale (in perpetuity) of easements as now sought by the DEC: (1) an easement would seriously reduce landowner options for use of the land, and (2) an easement would hinder sale of the property. The average price paid to landowners for easements was not a major factor influencing the owner's position.

Several other options seem to offer possibilities for increasing access. As many as half of the landowners contacted had potential interest in some type of leasing arrangement for fishing, provided that it would be negotiable as often as every three years. Sixty percent said they would be willing to post "Fishing By Permission Only" signs, at no charge to anglers or to the State, if the signs were made available.

Finally, 26 percent indicated a willingness to have their property used for fishing under the landowner-state cooperative status of New York's Fish and Wildlife Management Act. Under this act, in return for land-

owners' agreements to let the public hunt and fish on their property and to adopt approved management practices, the State will provide such benefits as law enforcement patrol.

This study suggests that if increased fishing access is required to serve angler needs adequately, many landowners are ready to negotiate. However, some new options may be needed, and programs offering other options may need to be expanded (especially along the Lake Ontario shore) before significant headway can be made.

Vegetation, *continued from page 5*

of plants can be expected to succeed. These include seed mixtures of grasses and legumes and a number of shrub and tree species. The soil type, moisture content, pH and fertilizer requirements should be determined prior to the selection of any plants. Suitable species can then be matched up with specific requirements. Soil Conservation Service members, County Cooperative Extension agents

or Sea Grant specialists normally can provide assistance in obtaining this information.

Areas with sand dunes present special problems. The soil in these spots is extremely dry, and wind erosion becomes a major factor. Spectacular success has been achieved in stabilizing dune areas with certain beachgrass species, in particular the "Cape" variety. As in other areas, proper site preparation, planting techniques and maintenance will help to ensure vigorous growth.

It would be misleading to suggest that vegetation is a panacea for shoreline erosion. In most situations, the toe of the bluff must first be protected from wave attack. If not, wave action will certainly undermine and wash away anything planted, just as surely as a poorly constructed seawall or revetment will be undermined and destroyed in time. On the other hand, once the causes of the erosion problem have been fully identified, vegetation deserves careful consideration and can play a significant role in a complete coastal defense system. (See **I WANT MORE.**)



Tips on Thiefproofing Your Boat

by Nancy R. Youngs, Sea Grant Program Assistant in Brockport

With summer rapidly approaching, boaters will be coming out in force. And so will the looters. They'll steal everything from navigation equipment, life jackets and fishing tackle to trailers, motors and the whole boat.

With the increase in value of marine equipment in the past few years, there is good reason for a few tips on securing boats and gear:

- Batten down every means of entry into your boat, not just the hatches. On all doors, replace or supplement spring locks with dead-bolt locks. Latch ports snugly from the inside. Sliding windows should have solid inside bolts or a length of metal or wood rod laid in the tracks.

- Marine engines are susceptible to hot-wiring or jump-starting just as cars are. Prevent your boat from being stolen by draining the motor, removing the gas tank, and taking out a spark plug.

- Small craft are more likely to be stolen than larger craft, because they

can be taken more quickly and hidden in a garage or under a tarp. To prevent theft, use hardened steel chains, instead of rope, for mooring or dock lines. Make sure that what you chain your boat to is as secure as what you chain it with.

- Boats, especially those on trailers, are most vulnerable when out of the water. They aren't safe just because they are parked in your driveway. If possible, keep the boat in your garage or behind your house, where it won't be seen easily. To increase your protection, chain down the boat and remove or lock the motor and prop.

- As another protective measure, permanently inscribe all communicating equipment and electronic instruments with your driver's license number and state. This permits quick identification by law enforcement networks.

Taking these few steps may keep your boating season from ending before it has begun.

I WANT MORE

The following publications are available from New York Sea Grant. Please check those which interest you and send to the nearest Sea Grant Extension office.

Single copies of the following publications are free:

- _____ **Discover Seafood**, 1978, folded pamphlet.
- _____ **Earthbeats: Great Lakes** (articles about the lakes and activities for children), Institute for Environmental Studies and the Sea Grant Program at the University of Wisconsin, 1978, 10 pp. (Five cents each for an order of 25 or more.)
- _____ **Getting a Boat Onto Lake Ontario**, 1978, folded pamphlet.
- _____ **The Role of Vegetation in Shoreline Management**, Great Lakes Basin Commission, 1978, 32 pp.
- _____ **Squid—An Underutilized Species**, VPI Food Science and Technology Notes, S. R. Turner and C. E. Hebard, 8 pp.
- _____ **Salting Fish**, VPI Food Science and Technology Notes, S. R. Turner, 8 pp.
- _____ **Smoking Fish at Home — A Step by Step Guide**, VPI Food Science and Technology Notes, C. L. Kassem, 6 pp.

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

- _____ **Controlling Great Lakes Bluff Groundwater** (available in early summer), B. DeYoung and L. Brown, contact Sea Grant's Ithaca office for price.
- _____ **Environmental Effects of Sand Mining in the Lower Bay of New York Harbor, Phase I**, K. A. Kastens, C. T. Fray, and J. R. Schubel, 1978, 139 pp., \$4.00.
- _____ **Recreational Access and Owner Liability**, T. L. Brown, 1979, 4 pp., 15 cents.
- _____ **Superior Advisory Notes: Superior Boating Safety**, K. Elverum, 1978, 4 pp., 10 cents.
- _____ **Shoreline Protection Permits: For Long Island North to the Tappan Zee Bridge**, E. Matthews, 1978, 4 pp., 15 cents.

Who Are the Tourists?

The results of the survey showed that the St. Lawrence Seaway area is a regional vacation spot rather than a national one. The region definitely has not caught the attention of the international visitor. Although 16 percent of the tourists came from Ontario, a majority (54 percent) traveled to the region from other parts of New York. Other states contributing significant numbers of tourists were New Jersey (seven percent) and Pennsylvania (six percent). Most vacationers traveled by car and stayed at least seven days. A majority of those surveyed believed vacations are educational and wanted to vacation in a natural setting.

It was found that the area usually draws families interested in outdoor recreation. Sightseeing, camping, swimming, visiting historical sights and museums, shopping and boating were the most popular activities. The majority of tourists surveyed were married, and more than half visited with children. Tourists were generally middle-class and spent between \$60 and \$70 per day.

Using Data for Marketing

With the data received, an analysis was done to help the Seaway region develop a sound marketing strategy.

Tourists who planned their vacations were segmented into campers and non-campers. It was found that the campers surveyed were family-oriented, economy-minded people who traveled with their children and engaged in a variety of physical activities while vacationing. They spent much less money on food and lodging per day than the non-campers but stayed twice as long. The non-campers generally traveled in twos and were less likely to take their children along than campers. While vacationing, they spent their time sightseeing, visiting museums and historical sites, and taking care of business and personal matters.

The survey results can be used to plan promotional campaigns, design facilities and vacation packages, and develop tourist destination areas and hospitality training programs. For example, according to the survey, 54 percent of the non-Canadians had visited or would like to visit Canada. This suggests that joint United States/Canadian vacations could be stressed in promotional campaigns and in package tour offerings. Ultimately, the survey will help Chambers of Commerce, tourist businesses, and planners attract and accommodate visitors more effectively. It is hoped the results will also let those who use the survey know just how valuable tourists—and tourist data—are.

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