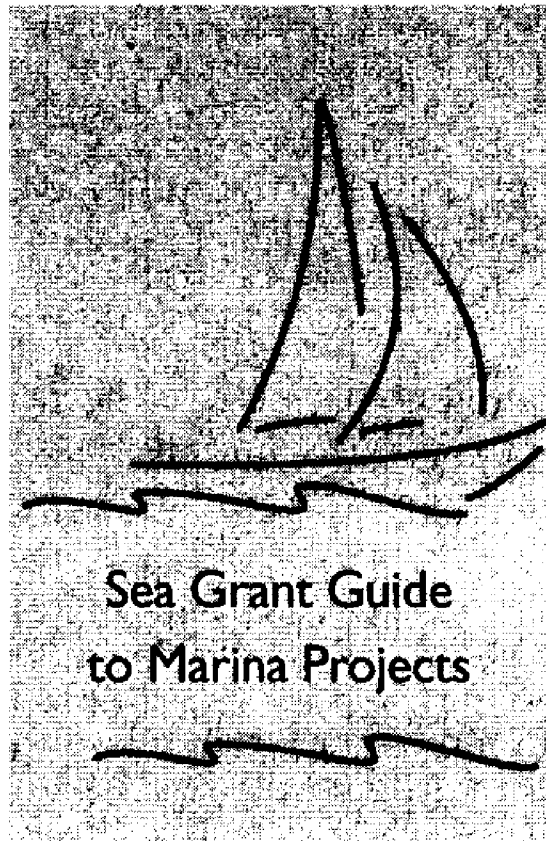


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Sea Grant Guide to Marina Projects



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INTRODUCTION

A national network of marinas and marine-related trades, MarinaNet was established in 1995 through the National Sea Grant College Program. The two-year project works to facilitate the interaction among academia, the marina industry, regulatory agencies, and other marina-related organizations. The goals of the project are to:

- Link individual Sea Grant programs with marina-related projects into a national network to facilitate access to research, outreach, and education activities, and to make the network available to the marina industry, Sea Grant programs, and regulatory agencies.
- Encourage a proactive and economically sustainable approach to the aquatic environment by marina personnel and their clients.
- Serve as a conduit of research information between academia and the marine trades to encourage the use of best management and marketing practices, and to respond to continuing demographic changes along the nation's coastline in a way that balances public and private access to coastal resources.

This guide indexes recent and ongoing Sea Grant projects—research, outreach, and education—related to marinas and recreational boating. The projects listed address issues ranging from pollution control to boating access. The guide was designed to be used by Sea Grant staff and marina industry members by providing a centralized location where the results of Sea Grant-sponsored work can be found.

Entries are organized alphabetically by state and contain a project title, contact information, and project description. For more detailed information about the project, contact the Sea Grant program listed. This information is also available on the World Wide Web at the Coastal Recreation and Tourism home page (<http://seagrants.orst.edu/crt>), home of the Sea Grant MarinaNet home page. The information was originally collected by Oregon Sea Grant for the Coastal Recreation and Tourism Guide and was updated by Rhode Island Sea Grant in 1996 through a national survey of Sea Grant programs.

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TYPE OF PROJECT

Education and Outreach

ADA Impact on Boat Harbors, Marinas, and Passenger Vessels

Protection from discrimination on the basis of disability was extended to the private sector with passage of the Americans with Disabilities Act of 1990 (ADA). In Alaska, where the majority of the boat harbors are owned and operated by state and local governments, there is concern about how the ADA will impact their operations. Many charter boat operators who would like to provide services to people with disabilities are unsure of what is required.

The goals of this project are to provide ideas and information through the University of Alaska at Fairbanks Marine Advisory Program about how harbors, marinas, and small passenger vessels can comply with proposed new provisions of the ADA. Information will be gathered through visits to eight recreational and charter boat areas around the United States to learn and document how other marinas and charter operators are providing services to persons with disabilities. There will be meetings with U.S. Coast Guard officials who will be setting ADA compliance standards for passenger vessels, and participation in programs at the National Center on Accessibility to receive the latest information, research, and training on making programs and facilities accessible to people with disabilities. The type and cost of equipment, facilities, and retrofits that are required to meet ADA guidelines will also be investigated. People with disabilities will be interviewed for this project to get their insight into the type and level of service they need. The information from this project will be published in a report and/or brochure suggesting measures that harbor and charter boat operators can take to comply with the ADA. A series of workshops will be conducted to disseminate the information gained from this project.

CALIFORNIA

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TYPE OF PROJECT

Education

Pollution Prevention for Marinas and Recreational Boating

A three-year educational program is being conducted that focuses on pollution prevention for marinas and recreational boaters. During the first year, a consensus-building educational program was conducted that dealt with boating-related pollution. Participants included over 100 boaters and representatives from boating businesses, government agencies, and environmental groups. Further research into marina and recreational boating pollution was carried out during the second year. Information regarding pollution prevention for marinas, boaters, and boat maintenance services and educators was published in a manual, six brochures, and an annotated bibliography. In cooperation with other California marine advisors, information was also disseminated through seminars conducted for 97 marina and boatyard operators throughout California. Pollution prevention educational materials were distributed to about 350 people in California, to Sea Grant Extension colleagues in six states, and to the National Sea Grant Depository.

In the third year, seminar participants were surveyed to determine if there were changes in pollution prevention practices. The survey found that there were significant increases in the use of 28 best management practices for preventing pollution. To further publicize boater pollution prevention, two articles have been published in *The Log* waterfront newspaper. Currently, seminars are being organized for San Diego boaters, articles are being developed for yacht club newsletters, and a survey of existing data and research needs is being conducted on boating pollution economic issues.

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TYPE OF PROJECT

Research, Outreach, and
Education

Zebra Mussel Education Program for Boaters: A Proactive Strategy for Preventing Transport of an Exotic Pest Species to California

Transport by recreational boats is the most likely vector for introducing the zebra mussel to the West. Sea Grant Extension programs throughout the Great Lakes and eastern United States have produced a significant amount of educational materials to educate boaters about the zebra mussel and reduce the risk of spread between water bodies. In this project, we propose to utilize Sea Grant Extension program materials—adapted to focus on the threat of introduction to the West—to develop a pilot educational program for recreational boaters in the 12-county Bay-Delta area. The project will include an evaluation of the current level of awareness among boaters, distribution of a brochure, a series of workshops for individuals involved in boater education and boating facility management, and a reevaluation of boater awareness upon completion of the project. We expect to provide educational materials and program development information to other regions of California and the West via other western state Sea Grant programs and the Western Zebra Mussel Task Force.

DELAWARE**CONTACT(S)**

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TYPE OF PROJECT

Research and Education

Clean Vessel Act Clean Marina Program

Delaware, like many coastal states, is beginning to address the impact of recreational boating on water quality in its state waters. The state agency—Department of Natural Resources and Environmental Control (DNREC), Division of Fish and Wildlife—responsible for overseeing boating activity in the state received funding from the U.S. Fish and Wildlife Service to address the issue. The University of Delaware Sea Grant Marine Advisory Service (UDSGMAS) was invited by DNREC to assist them in identifying problems caused by boaters, developing a plan to address the problems, and preparing educational materials targeted to the recreational boating sector. Currently, Sea Grant continues to assist the state in developing educational materials for this program. In addition, Delaware Sea Grant has recently been contracted to draft the statewide Clean Vessel Act Program Plan to address the need for dump stations and pumpouts throughout the state. The federally supported program is a five-year effort, and the UDSGMAS will assist DNREC in all phases of the program.

CONTACT(S)

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TYPE OF PROJECT

Research

Water-Use Planning

An important recreational resource in the state is Delaware’s inland bays—a series of three connecting bays: Rehoboth, Indian River, and Little Assawoman. The bays have been designated a national estuary by the Environmental Protection Agency, and considerable planning has taken place to improve water quality and other environmental conditions. Planning for recreational use of the bays is also an important consideration. The UDSGMAS program conducted a vital study of recreational boating activity on the bays during the summer of 1992 and prepared a report titled “Recreational Boating on Delaware’s Inland Bays: Implications for Social and Environmental Carrying Capacity.” The report is being used to help in the development of a water-use plan for the bays. UDSGMAS continues to be an active participant on the committee appointed to formulate the plan. A water-use plan subcommittee was formed during 1995 to address key issues of water-use planning. Delaware Sea Grant has submitted a proposal to the Delaware Center for the Inland Bays for funding consideration to develop an Inland Bays Water-Use Plan. Work will begin in June 1996 and be completed by June 1997.

CONTACT(S)

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TYPE OF PROJECT

Research and Outreach

Delaware Recreational Boating Study

During the summer of 1995, more than 1,000 Delaware-registered boaters were sent mail surveys to solicit information on attitudes, perceptions, and opinions on a number of activities related to recreational boating in Delaware waters. The results provide information for boating officials, boating facility planners, educators, and enforcement personnel to better meet the needs of the boating public. In addition, specific questions were also directed at the high percentage of boat fishermen to obtain opinions on important sportfishing-related issues. A final report has been delivered to the contracting agency, however, additional information will continue to be culled from the database for various uses.

CONTACT(S)

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TYPE OF PROJECT

Research

Charter and Headboat Fishing Study

During the fall of 1995, more than 130 Delaware charter and headboat captains were sent mail surveys to begin to characterize this segment of the fishing industry. The work was supported by a grant from the Delaware Division of Fish and Wildlife. The responses from captains provide insight into their opinions on management, the targeted species for which they fish, and fishing activity and patterns during the 1995 fishing season. The final report is currently being reviewed by the contracting agency.

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TYPE OF PROJECT

Research

Assessing Recreational Boating Use Conflicts on the Nanticoke River

A local community group, the Nanticoke Watershed Alliance, has voiced concerns that boating activity on this relatively pristine river has increased in the last few years. Much of the activity is in the form of jet-skiers who also interfere with the commercial barge traffic on the river. The river flows from Delaware into Chesapeake Bay and both state resource agencies have been contacted regarding the perceived problems. Delaware Sea Grant was also contacted to provide technical advice and assistance. At the present time, it was agreed by all parties that an assessment of the boating impacts should be undertaken to accurately describe the conditions on the river. Delaware Sea Grant will provide a leadership role in this effort. Once that is completed, outreach methods or other regulatory approaches can be employed to alleviate any problems that are identified. The assessment will begin during the summer of 1996.

FLORIDA**CONTACT(S)**

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TYPE OF PROJECT

Outreach and Education

Low Power Radio in the Florida Keys

The poor condition of Florida Bay has caused widespread concern throughout South Florida, and has received major media attention, including a lengthy article in a recent issue of *Sports Illustrated*. To help address this problem, Florida Sea Grant has established a low power radio station that provides motorists and boaters with information about the Bay. Updated monthly, each broadcast highlights several of the more than 70 research projects dedicated to solving a wide range of environmental problems afflicting the Bay. The broadcasts also provide listeners with information on what they can do to help protect the Bay. In addition, the broadcasts include a message from singing-star Jimmy Buffet and the latest NOAA weather forecast for the area. Later in the year, a number of surveys will be completed and analyzed to determine the effectiveness of the low power radio approach for communicating with large audiences.

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TYPE OF PROJECT

Outreach and Education

Anchorage Management

The Florida Sea Grant Extension Program has taken a leadership role to address a nonregulatory approach to anchorage management in Florida. Anchorage of vessels in Florida's coastal zone has been a complicated and controversial problem for state and local governments throughout the state. Environmental, social, and aesthetic concerns of the public, shoreside land owners, and government officials have led to an uncoordinated, unpredictable, and many times over-restrictive disarray of local rules and regulations that irritate boaters seeking an anchorage for their vessels. State agencies did not know how to address the problems created by this dilemma without invoking strict regulations that would create some consistency among anchorage laws in Florida.

This project is designed to test the feasibility of a nonregulatory approach to anchorage management. Florida Sea Grant has entered into a cooperative

agreement with the Florida Department of Environmental Regulation to develop components of an educational program that would serve to encourage peer pressure and educational programs to realize self-regulated anchorage management among boaters. This pilot program is based on the premise, supported by prior research, that instruments of friendly persuasion—a detailed map and guide materials—can influence boater behavior and provide an effective nonregulatory management approach.

CONTACT(S)

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TYPE OF PROJECT

Education

Florida Boaters and Anglers Pledge Program

To help clean up Florida Bay, boaters are being encouraged to make a personal commitment to keep the Bay clean. In return for taking the Boaters and Anglers Pledge, boaters receive a colorful decal from Florida Sea Grant to display and to designate their boat as one whose owners care about the quality of the state's waters. Over 40,000 pledges have been made by boaters and anglers as of this report. A booklet was produced that offers a wide array of suggestions on environmentally safe boating, and stresses the need for using pumpout stations, choosing nontoxic cleaning products, and recycling batteries, plastics, solvents, and other materials familiar to boaters. This educational program has been further publicized through an inaugural event at Florida Sea World and distribution of brochures, T-shirts, coupons to Sea World, posters, and *Fishing Lines*, a publication of the Florida Department of Environmental Protection. The sponsors of this program include the Gulf of Mexico Program, U.S. Environmental Protection Agency, Florida Sea Grant Extension Program, University of Florida, IFAS Cooperative Extension Service, the Florida Coastal Management Program, the Center for Marine Conservation, Florida Department of Environmental Protection, and Keep Florida Beautiful, Inc.

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TYPE OF PROJECT

Outreach and Education

Marine Services Guide to Coastal Georgia

This guide was first created and published in 1992, and quickly became popular with boating tourists and recreational anglers. The Georgia coastal area was redefined during the formation of the Coastal Zone Management Program, resulting in the addition of four counties to the existing coastal zone. The guide will now be further expanded to include those new counties. The guide will also be updated to include the new facilities that have been built, expanded, or modernized as coastal Georgia experiences a burst of rapid expansion in the marine businesses, recreation, and tourism sectors.

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TYPE OF PROJECT

Education

Coastal County Fishing Maps

Coastal county fishing maps were first printed in 1981. Since that time, thousands have been distributed to recreational anglers and boaters. With the growth of coastal tourism and increasing recreational boating and angling, the maps will now be updated to include the new facilities that have been built or are currently under construction. The maps include tables indicating seasonal locations and availability of fish species that can be caught in Georgia's coastal waters. On the reverse side of the maps are educational materials that address the flora and fauna to be found in these waters and wetlands. These maps have become popular with boaters and recreational fishermen, as well as with marinas that use them to promote their facilities.

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TYPE OF PROJECT

Outreach

Marina Sewage Pumpout Facilities

With the assistance of the Georgia Marine Advisory Service, federal funding for pumpout units at coastal marinas was received in time for the Olympic sailing events in Savannah, Ga. Under a program administered by the U.S. Fish and Wildlife Service, the Georgia Department of Natural Resources (DNR) applied for the funds a year ago, but substantial preliminary work was necessary before their application was approved. Working as a subcontractor under DNR, the Georgia Marine Advisory Service conducted a boat-density survey and devised a generic application for marina owners. The efforts paid off for coastal marine visitors. Four pumpout units were installed and on-line in time for the Olympics.

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TYPE OF PROJECT

Outreach

Formation of the Georgia Marine Business Association

Georgia Sea Grant played an instrumental role in the formation of the Georgia Marine Business Association. One of the association's primary functions is to monitor legislative and regulatory activities in an attempt to determine their effects on marine business activity. It also works to enhance the expansion of the recreational boating industry in the state. The association helped organize marinas, boat yards, boat and motor dealers, and marine service companies into an alliance to promote the marine industry and to assist legislators at both state and federal levels in formulating or modifying laws and regulations.

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TYPE OF PROJECT

Outreach

Educational Workshops and Field Trips

Georgia Sea Grant has sponsored educational workshops and field trips to examine dry-stack storage options, boat washing and service areas that meet nonpoint source requirements, underground fuel storage tank regulations, and the insurance requirements of marine-related businesses. A workshop on corrosion in the marine environment is held regularly for boat owners and marina maintenance staff. Satellite video conference equipment is used to keep the Georgia marine business community abreast of developments at the national level through a University of Wisconsin satellite video broadcast.

HAWAII

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TYPE OF PROJECT

Outreach

Statewide Day-Use Moorings

In December 1992, Sea Grant, The Hawaii Department of Business, Economic Development, and Tourism (DBEDT) Ocean Resources Branch, The Ocean Recreation Council for Hawaii (TORCH), and Malama Kai Foundation cosponsored a statewide workshop on day-use moorings to provide current information on day-use mooring technology and applications, as well as to identify environmental and other concerns. In 1993, an environmental assessment was prepared for the statewide day-use mooring system with assistance from the state DBEDT Ocean Resources Branch and TORCH. The environmental assessment was required to meet federal and state requirements relating to environmental impact statements and various necessary permits. Permits for installation of mooring buoys at Molokini Shoals Marine Life Conservation District were issued by the state Division of Boating and Ocean Recreation (DOBOR). During the summer of 1994, in cooperation with DBEDT, TORCH, and volunteers, 19 buoys were installed. The state DOBOR has also proceeded with an application for a U.S. Army Corps of Engineers Section 10 permit and Coastal Zone Management federal consistency review. Once all requirements are met, probably in 1994, Sea Grant and DBEDT will work with TORCH to begin installation of the moorings. A database has been designed for the 50 existing moorings in western Hawaii. The database includes location, description, maintenance schedule, and use. A database users' guide, data input forms, and boaters' guide have been drafted.

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TYPE OF PROJECT

Education

Statewide Boating Safety Education Program

The purpose of this program is to encourage students, the boating public, and commercial boat operators to become aware of basic water and boating safety practices, and to assist both residents and visitors in adopting safe boating practices.

The Hawaii Sea Grant Extension Service has been assisting the state with a Coast Guard-funded boating safety education project since 1990. The first phase, which ended in early 1992, focused on background research, overall planning, and development of materials for grades 4 to 6. A resource file of boating safety educational materials from other states was also completed. A steering committee, including representatives from the state Department of the Environment, City and County of Honolulu, and U.S. Coast Guard, was formed to coordinate water and boating safety education projects. Boating safety videos aimed at seventh- and eighth-graders have been produced. They combine action-packed footage and interviews with locally well-known ocean sports personalities. Activities, such as skimboarding, surfing, and bodysurfing, are also featured. Phase III has expanded to include hazard and disaster preparation for boaters.

LOUISIANA

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TYPE OF PROJECT

Outreach and Education

Marinas

Louisiana Sea Grant became involved with nonpoint sources of pollution relative to marinas, participating early on in the organization of the Clean Marina Program and its successor foundation. An outreach project to educate marina clients about nonpoint source pollution and the aquatic environment, piloted with three marinas on Lake Pontchartrain in the spring of 1994, was improved and continued with four marinas in 1995 and 1996. In the latter two years, the participating marinas provided outreach to about 1,000 recreational boaters using the lake. In these projects, each marina constructed an outdoor bulletin board that displays environmental information for recreational boaters. The displays are maintained by Louisiana Sea Grant, and changed monthly. Education materials on related nonpoint source pollution topics—published by Sea Grant, the Louisiana Department of Wildlife and Fisheries, the Louisiana Department of Natural Resources, and the New Orleans Nature and Science Center—are also provided. The topics focus on sewage and pumpout facilities, proper disposal of trash and litter generated on board, disposal of used engine oil and other operations wastes, and general conservation of the aquatic environment.

The Marina and Boatyard Association of Louisiana was organized in the fall of 1994 and held its second annual meeting in conjunction with the Marina Environmental Management Workshop in Biloxi, Miss., in November 1995. The first meeting took place in Covington. Owners and operators have been encouraged to join this trade association to help each other, learn from each other, and work together to secure government attention and assistance.

Lastly, the Louisiana Marina Directory was updated in the summer of 1995. Over 150 marinas were surveyed and information was obtained on services and facilities available at the marinas that are included in the directory.

CONTACT(S)

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TYPE OF PROJECT

Outreach

"Dockside"

"Dockside" is a quarterly newsletter for marina managers and owners in Louisiana. Feature stories cover topics from business to safety, emphasizing best management practices. Published in conjunction with the Marina and Boatyard Association of Louisiana, it is designed to assist those associated with Louisiana's recreational marina industry in understanding and responding to pending legislation or new regulations.

CONTACT(S)

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TYPE OF PROJECT

Research

Zebra Mussel Survey and Awareness Campaign: Report of Toledo Bend Boaters' Survey

In the summer of 1995, a survey of recreational boaters who use Toledo Bend Reservoir was completed to determine their boating patterns and level of zebra mussel awareness. Toledo Bend, a 186,000-square-mile lake on the Texas-Louisiana border, is a popular spot for recreational boaters and anglers from both states. Because many boaters are known to come to Toledo Bend from other water bodies like the Atchafalaya Basin in Louisiana and even from the Great Lakes—already infested with zebra mussels—the researchers sought a clear picture of boater habits. Recreational boaters are considered a possible dispersal vector for this nonindigenous nuisance species.

The report focuses on the results—frequencies of boat use, frequencies of use between infested and noninfested waters, habits that may inadvertently allow dispersal of zebra mussels—and the educational benefits from social interaction of the boaters with the researchers during the survey process.

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TYPE OF PROJECT

Education

Marina Bulletin Boards

Sea Grant has provided the informational materials for bulletin boards on-site at marinas to promote a clean marine environment. Topics include recycling galley waste and boat maintenance waste, pumpouts, controlling transport of nonindigenous nuisance species, and boater safety. Marinas build and maintain the boards and distribute brochures and pamphlets supporting the points on the boards. This project has been conducted for three years in the Lake Pontchartrain area of the state.

MARYLAND**CONTACT(S)**

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TYPE OF PROJECT

Research

Economic Impact of Recreational Boating in Maryland

In 1994, an extensive economic survey and analysis of recreational boaters was carried out in Maryland. The study queried a sample of 1,159 owners of Maryland-registered boats, which were representative of the 190,000 boats registered in the state. The economic impact of boating was found to be significant. Every 10.5 registered or documented boats in Maryland were shown to be equivalent to one full-time job. The total annual spending (trip plus boat-related expenses plus new and used boat purchases) by each boater averaged \$5,311. Researchers placed an additional economic output value of \$5,136 for the average \$5,311 spent for each boat registered in Maryland. The study also found that sailboaters outspend powerboaters in average annual boat-related expenditures. This study resulted in the publication, *Recreational Boating in Maryland—An Economic Impact Study*.

MASSACHUSETTS— WOODS HOLE OCEANOGRAPHIC INSTITUTION

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TYPE OF PROJECT

Outreach

Marinas

The Woods Hole Oceanographic Institution Sea Grant Program has put together a mailing list of marinas on Cape Cod and the surrounding islands and maintains contact with them through periodic mailings and by responding to requests for information. Recent mailings include industry conference and teleconference announcements, boater pumpout information, sample copies of the tax guides for commercial fishermen, seasickness brochures, brochures on lightning and sailboats, marine distress call stickers, and updates on MarinaNet activities.

MICHIGAN

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TYPE OF PROJECT

Research

Transient Boaters Affect Upper Peninsula Coastal Communities

Every summer, hundreds of transient boaters flock from their home ports to Michigan's Upper Peninsula marinas where they stay overnight. Research began in 1988 in an attempt to better characterize this group of boaters and their role in local economies. These studies, the latest completed in 1994, outline travel patterns, common sources of information, average party sizes, average ages of skippers and crew members, amount of money spent by transient boaters at marinas and in nearby communities, and more. A number of participating communities have considered this information when creating waterfront development and revitalization plans. These reports help predict the behavior of transient boaters in the Upper Peninsula and aid in developing strategies to attract more boaters to particular areas by meeting their needs. Two recently completed transient boater studies, "Upper Peninsula of Michigan Lake Superior 1992 Transient Boater Marketing and Economics Survey" and "A Comparison of the Escanaba 1988 and 1992 Transient Boater Marketing and Economics Surveys" were published.

MINNESOTA

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TYPE OF PROJECT

Outreach

Public Boating Access

Sea Grant has been a working partner with the Minnesota Department of Natural Resources, City of Duluth, and three other local governments to find an acceptable way to satisfy boater access needs to Lake Superior in the Duluth area, and also to satisfy residents and others with environmental concerns about development of the Lake Superior shoreline. Over a 10-year period, public boat launch sites have been rejected, sometimes under great controversy. The current effort is organized differently and is meeting success. A committee formed by Duluth's mayor brings together citizens, government representatives, and technical experts with all points of view. Sea Grant is a technical advisor on this committee. Operating by consensus rather than by majority rule, the group has slowly come to agreement on all of the issues for a public boating access site. The project is an excellent demonstration of using an alternative approach to meeting development and protection needs to the satisfaction of all interested parties. While the process is slow—currently two-and-a-half years—there has been virtually no controversy and only minor objection. The project is currently funded by the state legislature for land purchase and final design. An abstract of the project will be published in The Coastal Society 15th International Conference Proceedings (July 1996).

NEW YORK

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TYPE OF PROJECT

Outreach

Marina Economic Impacts

A survey was conducted of physical and economic characteristics of the marina industry in the New York City/Long Island metropolitan area. The results are stored in a computerized database and disseminated, as needed, in a regionally tailored format. Information from the survey has been used by a variety of audiences, including industry groups, community organizations, and state and local officials. Local groups used the survey results in the successful petition to have the Peconic Bay System included in the National Estuary Program and, more recently, the Peconic Estuary Program incorporated the survey into their economic evaluation of the estuary that will be used to guide development of a comprehensive management plan for the area. The survey data are also being used by the state-funded South Shore Estuary Program to identify key economic sectors of the marina industry along the south shore of Long Island.

Marina Best Management Practice Demonstration Project

A marina pollution control best management practice (BMP) demonstration project is being initiated at a commercial marina on Long Island. Some 20 BMPs will be implemented and documented with the marina serving as a "living classroom" for workshops and tours. Other educational materials, such as fact sheets, slide sets, and video footage, will also be provided.

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TYPE OF PROJECT

Outreach

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TYPE OF PROJECT

Outreach

Boater Pollution Issues

Data and information on boat sewage disposal issues and solutions are being collected, synthesized, and disseminated. Directories, usage reports, and a satellite conference on disposal options have been provided. New York Sea Grant has been actively involved with boat pollution and waste discharges for many years. Initial efforts involved surveys of pumpout usage, costs, and operational problems that were used by industry, environmental groups, and local officials to develop sound management plans. With support from the U.S. Environmental Protection Agency, Sea Grant produced and distributed 60,000 copies of an educational pamphlet and directory of pumpout facilities in New York and Connecticut to boaters in the two states. The survey results are currently being used to develop regional pumpout plans and to design facilities. A satellite conference focusing on the proper handling and disposal of boat waste was produced. Videos of this conference are available.

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TYPE OF PROJECT

Outreach

Clean Vessel Act Education and Information Program

This program provides the education and information component of the state's Clean Vessel Act Program. It uses displays, print and radio public service announcements, and written materials.

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TYPE OF PROJECT

Research

Recreational Boating Safety

With recreational river cruising on the Columbia River escalating at an unprecedented pace, boater-use days increased 67 percent in the past 10 years, and it is estimated that this increase will continue over the next 10 years. The Columbia and Willamette river systems dominate the boating picture and account for one-half of all boating.

The Oregon State Marine Board and Oregon Sea Grant collaboratively undertook a pilot study to identify potential transient moorage sites along two coastal rivers: the Columbia and the Willamette. A network of public transient tie-up facilities disperse activity and benefit the boating and river communities by providing additional recreational opportunities. Studies along four stretches of the river were completed in 1994. The study included site appraisal of potential locations, a recreational boater survey, and direct consultation with agencies knowledgeable of, and directly involved in, the resources of these rivers. To date more than \$1 million in new facilities have been built using these study results.

During the spring of 1996, a bistate workshop jointly sponsored with Washington Sea Grant was held to set system-wide priorities for boating access located within the two states.

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TYPE OF PROJECT

Outreach and Education

Low Power Radio

In a cooperative effort with the U.S. Coast Guard, local government, the Oregon Department of Fish and Wildlife, and the Columbia River Bar Pilots, Oregon Sea Grant is addressing traveler safety on the air waves. The Oregon State Marine Board is using low power AM radio along the Columbia River to provide boaters with information on boating hazards, commercial ship traffic conflicts, weather, and fishing information. Signs along the highway and at launch ramps direct boaters to tune in for this information, which is updated daily using normal voice-mail technology.

Sea Grant programs in New York and Florida are now deploying this technology for outreach education along roads and waterways. Marine enterprises are testing small low power radio units to evaluate the technology's usefulness for marketing purposes.

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TYPE OF PROJECT

Research

Recreational Boating Impact

An Oregon State University study conducted in 1986 indicated the presence of over 1,800 firms providing water-based recreation goods and services. This information, combined with trip expenditure projections of boating-related activities, revealed this industry's contribution of more than \$50 million per annum to the Oregon economy.

Since that time, tremendous increases in recreational boating activity have taken place within Oregon waters. For instance, between 1982 and 1992, the total number of boat-use days increased in Oregon by about 67 percent. To document the significance of Oregon's recreational boating industry, Oregon Sea Grant is collaborating with the Oregon State Marine Board in conducting a systematic study. This project will portray the scope and magnitude of Oregon's recreational boating industry, including key trends and future implications of these trends for achieving a sustainable industry. A full report and executive summary of this study will be available for distribution in February 1997.

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TYPE OF PROJECT

Education

Boater Safety Computing Project

During the last decade, recreational boating participation in Oregon has increased by almost 67 percent, contributing over \$400 million to the state's economy. However, to sustain this natural resource-based industry, 200,000 boaters must learn appropriate responses to life- and vessel-threatening situations occurring in increasingly crowded waterways.

Oregon State University College of Business faculty developed an interactive computer simulation program that enables participants to experience virtual boating catastrophes at kiosks prior to such events occurring in waterways. Sponsored by the Oregon State Marine Board and Oregon Sea Grant, this pioneering Extended Education project enhances boaters' split-second decision-making ability in crisis management. It is being tested and refined through use at regional, national, and international boat shows.

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TYPE OF PROJECT
Outreach

Boating Safety Publication Evaluation

For more than two decades, the Oregon Sea Grant Program and the Oregon State Marine Board have jointly published a boating safety guide to the state's coastal inlets. While informal feedback from various mariners has been positive, a formal survey of those requesting the guide is now being conducted. The survey will provide insights on the guide's use and value to mariners, while highlighting ways this boating safety publication can be improved in the future.

PUERTO RICO

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TYPE OF PROJECT
Outreach and Education

Development and Implementation of the Puerto Rico Clean Vessel Program: An Education and Outreach Approach

The University of Puerto Rico Sea Grant Marine Advisory Service (MAS) is charged with the development of the education and outreach component of the Puerto Rico Clean Vessel Program. The program will employ the technical guidelines provided by the U.S. Fish and Wildlife Service to develop a statewide plan to reduce sewage pollution from recreational vessels, and to develop an education/information plan designed to educate a variety of targeted marine user groups.

The clean vessel program will be conducted as a partnership among the U.S. Fish and Wildlife Service, the Commonwealth of Puerto Rico Department of Natural and Environmental Resources (DNER), and the MAS. The MAS objectives under the program are to: 1) Collaborate with federal and state agencies in the establishment and implementation of the program; 2) Help and advise the DNER in the delivery of the proposed activities; 3) Develop a statewide plan to reduce sewage pollution from recreational vessels; and 4) Coordinate with the DNER to develop an education and information plan to address the problem of boat waste disposal.

The following benefits are anticipated: 1) Improvement of Puerto Rico's coastal water quality through coordination among marina owners, boat users, and MAS agents; 2) A change in behavior of recreational boaters who contribute to coastal water pollution, by offering them an alternative for sewage disposal; 3) Improvements benefiting tourism, marine recreation, and island economy by providing proper infrastructure and services related to pollution abatement; and 4) A better-educated public and boating community, sensitive to the problems created by untreated vessel-generated sewage in the coastal waters of Puerto Rico. The first pumpout in service is now available in Marina Puerto del Rey, Fajardo, on the eastern coast of Puerto Rico. The service is free-of-charge and another two pumpouts are now in service at the marina.

RHODE ISLAND

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TYPE OF PROJECT

Outreach and Education

Marina Outreach and Best Management Practice Implementation Project

The Rhode Island Sea Grant Marine Advisory Service is conducting a project to demonstrate and evaluate the ease of pollution control as prescribed in the state's new *Environmental Guide for Marinas* and accompanying regulation. The guide was written by Rhode Island Sea Grant in concert with the state regulatory agencies and the marine trades association to meet the requirements of Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA). It provides a revised regulatory framework that reduces the regulatory burden on marinas while achieving existing and new resource management goals and policies. The project also works to educate boaters on the nature of the problem and the common-sense solutions that can be applied, and it shares the lessons learned with the marina industry and regulatory community at the state and national level. By the end of the project, boaters, the marina industry, and relevant regulatory agencies will have a better understanding of the need for, and proper implementation of, economically achievable nonpoint source pollution controls.

The project addresses sources of coastal nonpoint pollution from recreational boating facilities, including marinas, yacht clubs, and boatyards, within the Greenwich Bay study area. Greenwich Bay is ranked as a priority water body for protection by Rhode Island's Nonpoint Source Management Plan. This will be achieved by providing technical support and funding for the development of operation and maintenance plans (OMPs) and implementation of innovative best management practices (BMPs) at five selected marinas. Technical assistance includes direct interaction between the marina managers and Sea Grant staff during the development of the OMPs and implementation of BMPs that are cost-effective, practical in the marina environment, and represent new solutions. When the demonstration component of the project is complete, the results will be shared with the entire Rhode Island marina industry through a series of statewide workshops. During this phase, the implementation and use of BMPs will also be monitored and evaluated for their overall cost-effectiveness and environmental compatibility. This information will then be incorporated into a final written report that summarizes the knowledge gained during the BMP implementation aspect of the project.

This project is funded jointly by the participating marina facilities and the R.I. Department of Environmental Management (RIDEM), Office of Environmental Coordination, and RIDEM Narragansett Bay Estuary Program. Both RIDEM sources originate from U.S. Environmental Protection Agency-approved grants written under Sections 319 and 320 of the Clean Water Act.

CONTACT(S)

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TYPE OF PROJECT

Outreach

Hazard Mitigation for Rhode Island Recreational Harbor Communities

Severe coastal storms, especially hurricanes, have significant effects on coastal harbor areas. The impetus for developing a model harbor hazard mitigation plan came from a report issued by the Federal Emergency Management Agency and written by an interagency hazard mitigation team formed in response to Hurricane Bob in 1991. One of the recommendations of the report states that planning for severe storms should be integrated into existing harbor management plans in New England harbors.

The threat of storm-created hazards to small harbors can be minimized through proper planning and management. Much of the damage occurs because there is a lack of planning and storm preparedness on the part of the boaters, facility operators, harbormasters, and emergency management personnel. The main elements of this report include a R.I. Coastal Resources Management Council regulatory framework for incorporating hazard mitigation into local harbor management plans, as well as model harbor preparedness and hazard mitigation plans for communities, marinas, and boaters. The models include easily adaptable checklists useful to harbormasters, marina operators, and boaters.

SOUTH CAROLINA**CONTACT(S)**

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TYPE OF PROJECT

Outreach

Statewide Marina Association

The South Carolina Sea Grant Extension Program is working with Schilling's Boathouse on Hilton Head Island to establish a statewide marina association. Current efforts are geared toward the creation of a network of local associations both on the coast and on interior lakes. A survey was distributed in the fall of 1996 to assess interest in an organization. Currently, only one active local organization exists in the state. South Carolina Sea Grant Extension wishes to establish an association for better distribution of information on all aspects of marina operation, with an emphasis on environmental matters.

CONTACT(S)

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TYPE OF PROJECT

Outreach

Marina Newsletter

South Carolina Sea Grant maintains a current database of all coastal marinas, and will be publishing and mailing the first in a series of semiannual newsletters in November. The newsletters will combine information from the "MarinaNet" newsletter and from local marina owners or others, such as regulatory agents, who wish to write on issues that are more specific to marinas in South Carolina.

TEXAS

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TYPE OF PROJECT

Research

Texas Marina Survey 1986–1995

A survey of public marinas in Texas was conducted to detect the many changes that have occurred over the past 10 years. The survey found that the number of coastal marinas declined from 125 in 1986 to 96 today. The number of freshwater or inland marinas rose from 184 to 214. The study showed that marinas are growing in size. In 1986, 125 coastal marinas contained 13,026 wet slips, an average of 104 per marina. Now, 96 coastal marinas contain 12,340 slips, an average of 129 slips per marina. Researchers found that Texas marinas offer more luxury services today, but fewer basic services than in 1986. Boat rentals and charters are big business at Texas marinas, with 179 facilities offering them, up from 120 in 1986.

CONTACT(S)

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TYPE OF PROJECT

Education

Clean Vessel Act

An in-depth survey of pumpout facilities in all Texas marinas was carried out to assist in development of a statewide plan for an education and demonstration program for Clear Lake area boaters that included “potti training” for boat operators, a demonstration of pumpout facilities, and free pumpouts. A “Potti Training Manual for Boats” was published, including information on pumpout locations on Clear Lake and U.S. Coast Guard regulations on the use of marine sanitation devices (MSDs), and the types of MSDs used on vessels. A section of the manual describes how vessel sewage discharges impact water quality, public health, and the marine environment. An additional educational project on pumpout use is planned for 1996–1997 on a statewide basis, utilizing Clean Vessel Act funds.

CONTACT(S)

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TYPE OF PROJECT

Outreach

Marina Association of Texas

Texas Sea Grant assisted the Marina Association of Texas (MAT) in developing a program for their annual conference and trades show, and in making presentations about the state of the Texas marina industry and other topics as requested by the MAT board. Texas Sea Grant has also assisted the MAT Environmental Committee in developing *Best Management Practices for Texas Marinas*, a 100-plus page manual that provides a set of best management practices for Texas marinas to minimize adverse environmental effects from their operations.

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TYPE OF PROJECT

Research and Outreach

Gulf of Mexico MARPOL Annex V Disposal Facilities: Inventory and Recycling Manual for Ports and Marinas

An inventory was conducted of MARPOL Annex V waste reception facilities in Gulf of Mexico ports, private terminals, and over 1,500 Gulf of Mexico marinas. Waste handling practices, costs, adequacy of the facilities, and extent of recycling programs at these facilities were also documented. From this inventory, a recycling manual for ports and marinas, *Recycling for a Cleaner Marina Environment: A Guide for Marinas, Ports, and Terminals*, was written. Six regional workshops on waste management were conducted in five states in the Gulf of Mexico region.

CONTACT(S)

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TYPE OF PROJECT

Research and Outreach

Texas Sewage Pumpout Facilities Inventory

Texas Sea Grant conducted a statewide survey of all Texas marinas to determine the adequacy and availability of pumpout stations and dump stations by boating areas. Data from the inventory were used to determine where pumpout stations and dump stations were needed, and to assist the Texas Parks and Wildlife Department in applying for Clean Vessel Act grant funds from the U.S. Fish and Wildlife Service.

CONTACT(S)

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TYPE OF PROJECT

Education

Annual Hurricane Preparation and Protection Workshop for Sail and Power Boaters in Clear Lake and Galveston Bay

This annual workshop is conducted in May and/or June by Texas Sea Grant to provide professional advice on how to prepare and protect your boat from damage due to severe weather. The emphasis is on defining both boatowners' and marinas' responsibilities in preparation of the boat. Information is presented on both severe weather systems and hurricanes; emergency management and evacuation procedures for the Galveston Bay area; boat insurance coverage, processing claims, and salvaging boats; methods of securing boats at docks, anchorages, and on land; and defining the marina's and boatowner's responsibilities in preparing the boat for severe weather. The Sea Grant publication, *Protecting Your Boat Against Severe Weather*, is used in the four-hour workshop held at local marinas in Clear Lake. The Clear Lake Marina Association cosponsors the workshop.

U.S. VIRGIN ISLANDS

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TYPE OF PROJECT

Outreach and Education

Coastal Zone Act Reauthorization Amendments (CZARA) and Clean Water Act S.319 Nonpoint Source Pollution Program, and the Clean Vessel Act

The Virgin Islands Marine Advisory Service (VIMAS) is the University of Puerto Rico Sea Grant Marine Advisory Service serving the Virgin Islands. VIMAS is also the territory's Clean Vessel Act Program administrator and the coordinator for marina and recreational boating nonpoint source pollution programs under both CZARA and the Clean Water Act S.319. Through these programs, VIMAS has assisted marinas with understanding various environmental regulations that affect marinas, implementing nonpoint source practices into their operations, and assisting with the purchase and installation of pumpout facilities. VIMAS continues to assist marinas through the development of educational materials for boaters, including signage and instructions on appropriate boating, maintenance, and repair practices.

In May, VIMAS organized and conducted an educational workshop for marina owners and operators titled "Environmental Regulations That Affect Virgin Island Marinas." Marina owners and managers, regulatory agency representatives, enforcement officers (local and federal), a marina consultant, and a maritime lawyer discussed regulations and programs that affect marinas, the costs of compliance and noncompliance, and how to come into compliance.

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TYPE OF PROJECT

Outreach and Education

Disaster Preparedness for Marinas and Recreational Boaters

VIMAS has been involved in marinas' hurricane recovery from Hurricane Marilyn, and in developing storm preparedness programs for marinas and boaters. VIMAS served as a liaison between marinas and recovery agencies immediately after the storm, attempting to identify and mitigate deficiencies in the recovery agencies' policies that prevented assistance from reaching boaters.

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TYPE OF PROJECT

Outreach and Education

Association of Marina Operators of the Virgin Islands

VIMAS helped Virgin Island marinas to organize and form the Association of Marina Operators of the Virgin Islands (AMOV), a nonprofit organization that allows marinas to share expertise, experience, and some of their operating costs through group-negotiated contracts, facility-sharing, and other means. VIMAS serves on the board of directors of AMOV.

VIRGINIA

CONTACT(S)

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TYPE OF PROJECT

Outreach and Education

Coastal Workshops and Seminars

Virginia Sea Grant is conducting Cold Water Survival-Hypothermia Workshops for recreational and commercial vessel owners/operators, and is also a cosponsor for the semiannual Safety At Sea Seminar (Copyright 1992) in the Hampton Roads Harbor area. Virginia Sea Grant also provides advisory assistance to marine trades, and cosponsors the annual Virginia Association of Marine Industries Educational Seminar. Periodically, workshops are conducted for the marina industry and marina/yacht club-based vessel owners regarding topics such as hurricane preparedness and appropriate actions for responding to a pending hurricane, stormwater runoff permit requirements, and procedures for reducing environmental impacts of marinas and boatyards.

WASHINGTON

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TYPE OF PROJECT

Research

Columbia River Boater Access Study

During 1995-96 two groups of Pacific Northwest boaters who use the Columbia River were surveyed to better understand how, where, and when they use the river, and what unmet needs for access they have. The first group were motor boaters, the second were paddlers (canoeists and kayakers). Motor boaters were intercepted at boat launch ramps and transient moorage facilities during Memorial Day weekend and again at mid-week, and a following off-peak weekend. Recreational fishermen near the mouth of the river were surveyed during the fall salmon seasons. Paddlers received a survey through the mail during January and February 1996. Results of the motorboat access study, funded by the Washington State Interagency Committee for Outdoor Recreation and the Washington Sea Grant Program, was used at an invitational bistate workshop in May 1996 to make recommendations for access improvements on the Columbia River between Tri-Cities and the river mouth. Three similar access studies, funded by the Oregon State Marine Board, have been conducted on the Oregon shore of the river under the auspices of Oregon State University Extension/Sea Grant.

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(see Mississippi)

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