Great Lakes Environmental Finance Center

Cleveland State University

Coastal Training Market Analysis

Final Report

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The Urban University Program is a unique network linking the resources of Ohio's urban universities with the communities and students they serve, in a cooperative effort to improve the state's urban regions.

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- Ohio Department of Natural Resources, Division of Real Estate and Land Management
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- Ohio Department of Natural Resources, Division of Wildlife
- Ohio Lake Erie Commission
- Ohio Sea Grant College Program
- Ohio State University Extension
- Old Woman Creek National Estuarine Research Reserve
- The Countryside Program

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EXECUTIVE SUMMARY

A market is emerging for policy makers in the area of coastal resources management. Individuals, as professionals or private citizens, are frequently called upon to make decisions regarding coastal environmental issues. The context in which they do so varies considerably; thus education and training in this topic area serves to heighten and expand the knowledge base of the coastal decision-maker.

A limited number of providers in the Ohio Lake Erie basin offer training for decision-makers in the area of coastal resources management. A number of training courses and workshops are available for teachers and students, but there are few courses offered for practitioners in the field of coastal resources management by nonprofit organizations, state and federal agencies, and private companies.

Nationally, a significant number of private companies and consultants, universities, federal agencies, and nonprofit groups and organizations offer training for practitioners on coastal resources management-related topics. The training courses vary in length, content, costs, instructors, format, location, and attendance.

Providers of coastal resources management training programs within the Ohio Lake Erie basin were surveyed for their input on the content, techniques, and implementation of this type of training. The majority of the survey responses were received from public agencies. Public agencies were also the primary providers of coastal resources management training in the Ohio Lake Erie basin, while private companies and firms infrequently offered training on this topic area. The respondents (including training providers) typically employed 50 or fewer full-time and part-time/seasonal workers.

Coastal resources management training was not the sole focus of training offered by these organizations; rather it was one of many topic areas for which training was provided. The topic areas most frequently included in coastal resources management training focused on surface water quality and non-point source pollution, water quantity and quality, conservation and preservation, riparian corridors, invasive species and biodiversity, and habitat restoration.

Many of the training providers indicate in their mission statements that training and/or education is part of their services. Also, a number of *non-training providers* list training within their mission statements.

A total of 104 coastal resources management courses were offered in the past year in the Ohio Lake Erie basin, with the majority of these courses offered only once within the past three years. The courses were chiefly conducted for an eight-hour day, with one training session held per course. Typical attendance for the training courses ranged from 11 to 50 individuals. A majority of the courses were taught using a lecture method by staff members and employees of the organization. A large portion of the course instructors hold bachelor's and master's degrees.

The training providers primarily offered coastal resources management training courses at no cost to participants and provided educational and training materials to participants upon completion of the course(s). The majority of the training providers funded the courses through general operating budgets, with salaries for staff and speakers cited as their major expense.

The training providers primarily marketed their training courses to elected officials/candidates (including county commissioners and legislators). These providers chiefly used direct mail campaigns as the vehicle to attract course participants.

Public sector training providers, as well as nonprofit organizations, marketed courses to elected officials/candidates (including county commissioners and legislators). Direct mail campaigns and organizational newsletters were utilized by the public sector to market training information, while nonprofit organizations most often conveyed training information through press releases and the assistance of co-sponsors and partners.

The private sector training providers largely sought consultants and consultant groups, corporations and firms, and elected officials/candidates (including county commissioners and legislators) as audiences for their courses. These training providers mostly utilized direct mail campaigns in addition to email lists and co-sponsors or partners to market course information.

Public universities primarily targeted elected officials, nonprofit organizations, and the science community. Public universities primarily utilized direct mail campaigns, email lists, organizational newsletters, and websites to convey training information to these audiences.

The training providers identified issues relevant to instructional quality and the nature of training as what they perceived to be "gaps" or disparities in existing Ohio coastal resources management training programs. The providers also stated that their

training programs could benefit from some type of fiscal support from ODNR and its partners.

The disparities named by training providers reveal opportunities in the Ohio coastal resources management training arena. Possibilities exist for establishing partnerships and collaborative networks, for re-examining and developing course content and locations, and for the development of strategies to disseminate training information and opportunities to participants, policymakers, and providers. These opportunities define a need for a statewide coordinator, a role that could be filled by ODNR and its coastal training program partners.

INTRODUCTION

The Great Lakes Environmental Finance Center (GLEFC) was engaged by the Ohio Department of Natural Resources (ODNR) to conduct a market analysis to identify the providers of and analyze the volume of activity in the coastal resources management training market within the Ohio Lake Erie basin. Partnering with ODNR is the Old Woman Creek National Estuarine Research Reserve and the Ohio Sea Grant College Program.

The Coastal Training Market Analysis identifies and catalogs the suppliers of Ohio's coastal resources management training and education market; identifies the "gaps" or disparities currently existing in this market; and discusses recommendations on how to address the gaps identified in the current training market. Professionals in the coastal resources management field are expected to formulate effective strategies and apply interdisciplinary approaches to solving problems and policy issues that affect the environments of coastal regions. Individuals undertaking these tasks include those employed within the field, such as conservationists, planning professionals, and coastal regulatory officials, and individuals not directly employed within this field, such as city officials, state and federal agency staff, project managers, and staff from non-governmental, economic, and community development organizations.

ODNR intends to develop a training program for coastal decision-makers that would focus on providing comprehensive, science-based training on managing coastal environmental and policy issues. The coastal training program would add value rather than replicate existing programs. ODNR seeks to develop a training curricula that builds upon existing capacity. The coastal training program is also designed to help participants develop the skills needed to apply new technologies and environmental methodologies.

In the following report, the GLEFC has researched background information on coastal resources management training within the Ohio Lake Erie basin and nationwide best practices within this field. The GLEFC identified the providers of Ohio's coastal resources management training programs and surveyed these providers for their perceptions on the administration and implementation of coastal resources management training. The opportunities and challenges for conducting this type of training in Ohio are also discussed.

The report is organized into nine sections, which are described below:

1. **Executive Summary** – The Executive Summary consolidates the overall findings of the project and relates these findings in summary format. This section reveals state and national research data and survey findings and recommendations.
2. **Background on Coastal Resources Management Training** – This section details the findings of research conducted through a review of the literature on course work and instruction available in the Ohio Lake Erie basin.
3. **Best Practices in Coastal Resources Management Training** – The findings of best practices throughout the Great Lakes states and marine coastal states are discussed in this section. Common themes and practices are also noted.
4. **Survey Methodology** – The Survey Methodology section describes the approaches and processes applied toward developing and implementing the survey of training providers for this project, as well as an explanation on the design of the survey instruments.
5. **Results of the Survey** – The Results of the Survey section relates the findings of the survey conducted among coastal resources management training providers in detail. Charts and tables provide visual depictions of the data.
6. **Opportunities in Coastal Resources Management Training** – The Opportunities in Coastal Resources Management Training section discusses the disparities in coastal resources management training programs identified by survey respondents. Discussions focus on partnerships, course topics, geographic course distribution, and training opportunities.
7. **Sources** – The Sources section is a bibliography of resources used to develop this report, in addition to the survey of training providers and annotated bibliography of the literature review and best practices scan.
8. **Appendices** – The report contains 14 appendices that detail the survey methodology, Ohio Lake Erie basin training providers and course information, data on audiences targeted for course participation and methods of marketing course information to these audiences, and “gaps” identified by training providers in the field of coastal resources management. This section of the report also contains maps that geographically depict the volume of coastal resources management courses offered in the Ohio Lake Erie basin and an annotated bibliography of literature researched for the study.

This study defines certain terms as a basis for the survey process, literature review, scan of best practices, and analyses. These terms are:

1. **Coastal Resources Management** – The practice of making informed decisions that affect the use, function, and health of coastal resources and ecosystems.
2. **Coastal Decision-Maker** – Includes city, town, or state officials, planners, volunteer board members, state and federal agency employees, legislators, and some "not-so-obvious" individuals such as landscapers, realtors, non-governmental officials, community and economic development volunteers and employees, and others.
3. **Training** – Instructional courses, events, and learning experiences that expand the knowledge of coastal decision-makers and allow them to better understand the context of coastal resources management. Training enhances the base of knowledge of coastal decision-makers by allowing them to interact with experts in the field while networking with other professionals well versed on coastal management issues.
4. **Course** – A program that meets regularly over a period of time, including special information days for elected officials and one-day workshops.

A training market is emerging for individuals involved – whether directly or indirectly – in the field of coastal resources management. The occupations of these individuals are diverse, as are the various situations in which they are expected to make coastal environmental decisions. ODNR's concept of training in this field is one of integrated coastal resources management, with a multi-disciplinary knowledge base and coordination among professionals at all decision-making levels. Training and educating coastal professionals in a multi-disciplinary manner, emphasizing inter-relationships among multiple human activities, and natural and physical processes in the coastal zone is an important concept of building capacity for integrated coastal management (Cicin-Sain, et. Al, 293-294). The Coastal Training Market Analysis will serve as a resource and guide to ODNR in establishing an integrated coastal resources management initiative across the Ohio Lake Erie basin and throughout the state.

BACKGROUND ON COASTAL RESOURCES MANAGEMENT TRAINING

The GLEFC project team reviewed available literature for coastal resources management topics to determine the extent of course work and instructors available within the Ohio Lake Erie basin in the coastal resources management market. Pertinent directories, news and periodical publications, professional academic journals, and other relevant documents were reviewed, as were Internet-based research, telephone discussions, and electronic mail inquiries. The scan was designed to identify the following information:

- The existence of training and/or education programs in the field of coastal resources management;
- The identification of current providers of coastal resources management training and their locations;
- The characteristics of these training providers;
- The types of training programs provided within the area of coastal resources management;
- Information regarding the instructors/teachers of these programs;
- Information regarding the characteristics of these programs, such as scope, approaches to training, and topics addressed; and
- The characteristics of the training curricula, such as consistency, organization, participation, and costs.

Public sector and nonprofit organizations and private sector firms were identified through this scan as potential providers of coastal resources management training programs. The literature scan focused on training providers that offer courses for practitioners as coastal resources management decision-makers rather than student course work offered by academic institutions or educational programs for K-12 teachers and students. Searches included the defined geographic scope of the study (the Ohio Lake Erie basin), namely the following 34 counties:

- Allen County
- Ashland County
- Ashtabula County
- Auglaize County
- Crawford County
- Cuyahoga County
- Defiance County
- Erie County
- Franklin County
- Fulton County
- Geauga County
- Hancock County

- Hardin County
- Henry County
- Huron County
- Lake County
- Lorain County
- Lucas County
- Marion County
- Medina County
- Mercer County
- Ottawa County
- Paulding County
- Portage County
- Putnam County
- Richland County
- Sandusky County
- Seneca County
- Summit County
- Trumbull County
- Van Wert County
- Williams County
- Wood County
- Wyandot County

The findings of the literature review served as the basis for the coastal training survey and market analysis, the results of which are discussed in this report. An annotated bibliography of the courses identified through the literature review is included as Appendix N of this report.

The literature scan disclosed that a limited number of providers within the Ohio Lake Erie basin offer courses or programs for practitioners in this topic area (the market analysis identified 50 providers). Several providers – public colleges and universities, community colleges, and soil and water conservation districts – offer coastal resources management education programs for teachers and primary, secondary, and post-secondary students. Excluding the 50 training providers identified in this market analysis, there were few findings from nonprofit, state or federal agencies and organizations, or private companies that indicated this cohort sponsored training for volunteer and professional decision-makers in this field.

A scan of the literature revealed that the types of courses offered across the Ohio Lake Erie basin vary – workshops, seminars, conferences, classroom instruction, and certified training. Informational seminars and workshops are irregularly conducted on environmental topics by several public and nonprofit organizations. These workshops tend to be informational rather than instructional in nature and are usually organized as “one-time” events. Some of these workshops and seminars focus on planning and developing strategies for dealing with coastal issues, while other workshop sessions reflect certain “themes” (e.g., waterways, regulatory issues, federal compliance, or conservation and preservation issues). Organizations also host workshops in conjunction with special events, such as the debut of new publications or the enactment of new policies. The Cleveland Museum of Natural History, for example, sponsored a workshop discussing the various species of Lake Erie birds in celebration of the recent book published by author Carolyn V. Platt and photographer Gary Meszaros.

The literature review revealed that the types of audiences encouraged to attend these workshops and events vary. The majority of the courses target the general

public as well as coastal decision-makers. Other events target students, educators, government officials and employees, or coastal decision-makers.

Research of the literature indicates that courses offered on coastal resources management by colleges and universities are generally part of academic degree programs and not geared toward practitioners, unless the practitioner is enrolled as a student working toward an academic degree. The National Center of Excellence for Environmental Management at the University of Findlay (Findlay, OH) and the Water Resources Institute at Kent State University (Kent, OH) are two universities in the Ohio Lake Erie basin that do offer practitioner training. The Water Resources Institute is one of the 50 training providers included in this market analysis. The Center of Excellence for Environmental Management at Findlay provides practical training with hands-on experience to private industries, state and federal regulators, and students in the areas of emergency response, environmental management, environmental safety and health, federal compliance, hazardous waste, and the Clean Air Act. Training fees range from $195 to $695.

Additionally, the academic courses offered by colleges and universities on the topic of coastal resources management are not specifically geared to the geography of the Ohio Lake Erie basin or the Great Lakes and surrounding areas. The majority of these academic courses generally focus on a variety of coastal issues. Colleges and universities offering such courses include Cleveland State University; The Ohio State University at Columbus, Marion, Wooster, and Newark; Ohio University; Muskingum College; Muskingum Area Technical College; Heidelberg College; Central State University; and Ohio Technical College. The Ohio State University‘s School of Natural Resources Environmental Science Graduate and Ecological Engineering programs, for example, offers both bachelor’s and master’s degrees in science and a doctorate degree in the areas of Environmental Science and Fish and Wildlife Management.

Many of the private companies and consultants identified through the literature review that provide training for coastal decision-makers are primarily hired to instruct on a specific topic for a workshop, course, seminar, or conference. These instructors infrequently provide a scheduled program or course of training (i.e., monthly, biennial, annual). Companies such as URS Corporation, CT Consultants, and Ecosphere Associates are examples of companies contracted to provide instruction on certain topics in the field of coastal resources management. These private consulting companies offer fee-based instruction as requested on a variety of topics to groups, organizations, and other private companies.

The literature review disclosed that a number of certification programs are offered by public, state, and federal agencies and/or organizations for boating, boating safety, sailing, and sailing safety. These are structured, fee-based courses that culminate in certification and licensing in one of the aforementioned areas. Programs

offered through the Great Lakes Sailing Academy, the North Coast Sailing School, and the U.S. Coast Guard provide such training and certification.

BEST PRACTICES IN COASTAL RESOURCES MANAGEMENT

A national scan of the marine coastal states and the Great Lakes states for coastal management training and education "best practices" was conducted among agencies, organizations, universities, and consultants. Marine coastal states, for purposes of this study, are identified as Alabama, Alaska, California, Connecticut, Delaware, Florida, Georgia, Hawaii, Louisiana, Maine, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Oregon, Rhode Island, South Carolina, Texas, Virginia, and Washington. The Great Lakes states, for purposes of this study, are identified as Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin.

While coastal training opportunities were limited within the Ohio Lake Erie basin, a large volume of programs exist nationally (and internationally) for practitioners. Universities, state and federal agencies, organizations, associations, and private entities offer a variety of training in the topic area. The training providers identified through the best practices scan are listed in Table 1, and are discussed in the following sections.

Table 1

TRAINING PROVIDERS IDENTIFIED THROUGH BEST PRACTICES SCAN		
Training Provider	**Housed Within or Part Of**	**Location**
Universities		
Center for Coastal Management	Virginia Institute for Marine Sciences, College of William & Mary	Gloucester Point, Virginia
Center for Environmental Education	Duke University	Durham, North Carolina
Center for Environmental Studies	Virginia Commonwealth University	Richmond, Virginia
Center for Oceans Law & Policy	University of Virginia School of Law	Charlottesville, Virginia
Center for Streamside Studies	University of Washington	Seattle, Washington
Center for Urban Water Resources Management	University of Washington	Seattle, Washington
Coastal Resources Center	University of Rhode Island	Narragansett, Rhode Island
Cook College Office of Continuing Professional Education & Earth Management	Rutgers University	New Brunswick, New Jersey
Department of Engineering Professional Development	University of Wisconsin	Madison, Wisconsin
Department of Forest Resources	Clemson University	Georgetown, South Carolina
New England Consortium	University of Massachusetts	Lowell, Massachusetts
Urban Harbors Institute	University of Massachusetts	Boston, Massachusetts

Federal Agencies		
Bureau of Land Management National Training Center	Bureau of Land Management, US Department of the Interior	Phoenix, Arizona
Coastal Services Center	National Oceanic Atmospheric Administration (NOAA)	Charleston, South Carolina
Emergency Management Training Center	Federal Emergency Management Association (FEMA)	Emmitsburg, Maryland
Institute for Water Resources	US Army Corps of Engineers	Washington, D.C.
National Conservation Training Center	US Fish & Wildlife Service	Shepherdstown, West Virginia
National Estuarine Reserve Reserves (NERR)	National Oceanic Atmospheric Administration (NOAA)	Washington, D.C.
National Sea Grant College Program	National Oceanic Atmospheric Administration (NOAA)	Silver Spring, Maryland
US Geological Survey National Training Center	US Geological Survey	Reston, Virginia & Denver, Colorado
Watershed Academy	Office of Wetlands, Oceans & Watersheds, US Environmental Protection Agency (US EPA)	Washington, D.C.
Nonprofit Agencies and Organizations		
American Association of Port Authorities	N/A	Alexandria, Virginia
American Backflow Prevention Association	N/A	Bryan, Texas
American Society of Civil Engineers (ASCE)	N/A	Reston, Virginia
American Water Works Association	N/A	Denver, Colorado
Center for Watershed Protection	N/A	Ellicott City, Maryland
Ecosystem Recovery Institute	N/A	Freeland, Maryland
Water Environment Federation	N/A	Alexandria, Virginia
Private Companies and Consultants		
Engitech, Inc.	N/A	Bryan, Texas
Environmental Resource Center, Inc.	N/A	Cary, North Carolina
Environmental Training Management	Technical & Field Engineering, Inc.	Aiken, South Carolina
FABL Environmental Regulatory Specialists, Inc.	N/A	Greenville, South Carolina
Government Institutes	ABS Consulting	Rockville, Maryland
NST/Engineers, Inc.	N/A	Hockessin, Delaware
Richard Chinn Environmental Training, Inc.	N/A	Brandon, Florida

The best practices scan disclosed a number of variances among coastal resources management training providers nationally with regard to the duration, content, instructors, costs, attendees, and location of courses. The duration of training sessions varies. Training providers offer short sessions from two to eight hours in length, as well as longer sessions ranging from two to three days and/or up to 12 weeks. Many of these providers also customize training sessions to suit the needs of a particular audience (e.g., highlights of a three-day session can be condensed into a shorter session for an audience that isn't in need of more intense training).

Several techniques are used to instruct course participants, including in-person instruction, web-based courses, distance learning, self-study courses, CD-ROM and video, site tours, and hands-on field training. Some of the more innovative methods of instruction include educational walks, a "teaching marsh," and a week-long voyage aboard a schooner along the coast.

The content and curriculum of these courses emphasize different aspects of coastal resources management training. Some courses focus on environmental sciences, some on legislation and regulatory policies, and some on the management aspects of the profession. The field of coastal resources management encompasses a number of topic areas, such as watersheds, conservation and preservation, commercial fishing, oil and gas drilling, and toxic organisms. There is also a diverse cohort of professionals who provide training in this field with expertise in different topic areas; thus the concepts and frameworks in coastal resources management differ by provider.

The credentials of the individuals teaching or instructing courses on coastal resources management differ considerably. Training courses – whether certified or noncertified – are instructed by individuals with practical experience in the topic area, professional certification, and/or with bachelor's, master's, and/or doctorate degrees.

The costs to attend these training sessions differ based upon the length, location, number of attendees, and content of the courses. Costs range from no charge to thousands of dollars per course.

Individuals from a number of professions attend coastal resources management training courses. Training sessions are open to coastal management professionals, municipal and government employees, nongovernmental organization employees, planners, engineers, attorneys, and elected officials, as well as volunteers, students, and the general public.

The majority of the training providers award professional training credits to course participants. Continuing education units or credits, professional development hours, and certification in a particular topic area are awarded by the training providers for the completion of most courses.

The providers conduct these training courses in a variety of locations throughout the United States – at colleges and universities, private and public training centers, and private businesses. Many of these providers will conduct training courses at a site convenient to the participating audiences. A number of training providers also offer courses online and self-study correspondence courses for the convenience of their audiences.

Universities

Courses for Practitioners

Several universities offer training for coastal decision-makers in the topic area of coastal resources management through continuing education and other college departments and special centers and institutes. The courses vary in duration, location, consistency, and price. These programs of study are designed for coastal decision-makers working as practitioners in the field of coastal resources management, rather than students pursuing academic degrees in the coastal environmental sciences field. A sampling of those universities conducting training in the topic area is discussed below.

Duke University (Durham, NC), through its **Center for Environmental Education** (housed at the Nicholas School of the Environment and Earth Services), offers a series of executive education courses for both practicing professionals and graduate students pursuing careers in national resource management and policy. These courses are organized into two- and five-day sessions and are held throughout the year.

Clemson University (Georgetown, SC), through its **Department of Forest Resources**, annually offers a course on managing forested ecosystems. The course defines ecosystem management and provides concepts and operational techniques that will enable a resource manager to apply ecosystem management principles. The two-week session is offered at the Litchfield Beach, SC campus at a cost of $2,500, which includes tuition, food, lodging, local transportation, and supplies. The course is open to natural resources managers, regulators and scientists (especially biologists), silviculturists, and other natural resource professionals.

Cook College, Rutgers University (New Brunswick, NJ) offers a seminar series on management and construction phasing, sequence, and methods for an earth-moving activity. The Cook College Office of Continuing Professional Education and Earth Management offers the course each spring and fall. The series focuses on providing a full understanding of earth-moving activity, from management, clearing, stripping, excavation, drainage, utilities, grading, soil erosion and sediment control(s), and wetlands mitigation/dewatering. Both the spring and fall sessions consist of three six-hour courses at a cost of $195 for course. The seminar series is open to owners of record, mortgage lenders, attorneys, regulatory agencies, resource managers, design professionals, developers, contractors, and utility employees.

Several training courses are offered by the **University of Wisconsin** (Madison, WI) through its **Department of Engineering Professional Development** at various locations and times throughout the year. Courses are two- to four-day sessions, and range from $795 to $995 per person. Courses are offered on dam removal or rehabilitation, storm sewer system design, and the use of the Hydrological Engineering Center-River Analysis System (HEC-RAS) to compute water surface profiles for flood plains, bridge underwater management, and culvert hydraulics. These courses are open to engineers, technicians, project manners, planners, owners, and public sector professionals.

The **University of Washington's Center for Streamside Studies** and **Center for Urban Water Resources Management** (Seattle, WA) offers a course on basic principles of watershed management for entry-level and technical staff, managers, and citizens. The one-week course is offered in the late summer or early fall in the Seattle area at a cost of $200-$250 per person.

Environmental training opportunities are offered at **Virginia Commonwealth University** (Richmond, VA) through its **Center for Environmental Studies**. Courses are offered in asbestos, lead-based paint, industrial hygiene, wetlands, environmental technology, and environmental law. The courses are conducted at the Center at various times throughout the year, and costs differ for each course.

The **New England Consortium,** located at the **University of Massachusetts Lowell** (Lowell, MA), sponsors a variety of courses on hazardous waste site operations and emergency response training. The courses are conducted at the New England Consortium's training center at UMASS Lowell or at a company's site anywhere in New England. Training is conducted for health and safety officers, materials handlers, municipal and public works employees, hazardous waste employees, utility employees, food/dairy/refrigeration employees, chemical manufacturing employees, police, and firefighters. The fees for courses are negotiated based on several factors, including the number of participants, location, materials, and type of industry.

The **Center for Coastal Resources Management** (Gloucester Point, VA) offers training in support of governmental agencies and non-governmental organizations involved in resource management through the **Virginia Institute for Marine Sciences** at the **College of William and Mary**. The courses are designed to inform the public and decision-makers about functions, values, and environmentally sensitive management of coastal resources. The Center provides training in the form of formal lesson plans, self-study programs, public workshops, lectures, and tours. The tidal wetlands curriculum is a series of formal lesson plans for wetland board members and local government officials covering shoreline management options and guidance on Virginia's tidal

wetlands management program. The public workshops are held four to six times per year for wetlands boards and the general public, varying from one to three days in length, on wetlands identification, winter botany, and wetlands mitigation. A "teaching marsh" and educational walk are part of the Center's lectures and tours, designed to aid in teaching wetlands and coastal botany courses, shoreline management techniques, and wetlands ecology. Course fees range from $20 to $400.

The **Center for Oceans Law and Policy** (Charlottesville, VA), housed within the **University of Virginia School of Law**, sponsors a regular program of conferences, publications, and lectures on legal and public policy issues relating to the oceans. The Center sponsors an annual conference that was held in Hamburg, Germany, in 2001 and in Rome, Italy in 2000. The Center also sponsors a Washington, D.C., lecture series and an oceans forum each year. Training is open to all audiences.

The **Coastal Resources Center** (Narragansett, RI)**,** located at the **University of Rhode Island**, offers coastal resource management training for both American and international participants. The Center's Summer Institute in Coastal Management is a month-long course held biennially at the University of Rhode Island's Narragansett Bay campus. Coastal management practitioners, policymakers, scientists, members of non-governmental organizations, university faculty, and students from throughout the world attend the Institute. Short-term courses designed by the Coastal Resources Center include field training and capacity-building activities.

Housed at the **University of Massachusetts**, the **Urban Harbors Institute** (Boston, MA) sponsors courses in the areas of coastal and harbor planning, natural resource management, marine industrial planning, water transportation, geographic information systems, and urban marine and watershed issues. The Institute offers a summer program in oceanography and coastal zone management that incorporates a three-week study program at the University of Massachusetts and a one-week voyage aboard a schooner along the New England coast. The program is open to college students, high school seniors, teachers, and individuals and professionals interested in the marine environment. The fee is $1,845 and includes instruction, course materials (not books), and passage, meals, and activities aboard the vessel.

Federal Agencies

There are a number of federal agencies and organizations that offer courses, workshops, and training in the field of coastal resources management. Some of the agencies conduct the majority of their courses off-site at training centers, while others host training sessions on-site or at other locations. The training sessions vary in length from a few hours to two weeks. Courses are offered in a variety of formats, such as self-study correspondence courses, hands-on field courses, web-based courses, and in-person instruction. The courses are generally open to non-federal agency employees, but some courses are restricted to federal and government employees.

The costs for training vary. Some courses are offered free of charge or at a discounted rate to agency or governmental employees, while others are offered at little or no cost to any participant. Continuing education units, professional development hours, and certificates within a particular topic area are offered in some instances upon completion of the course.

Many of the agencies also partner with local, state, and national nonprofit organizations to sponsor training sessions or workshops in this topic area. A sample of the federal agencies conducting training courses in this field is discussed below.

The **National Oceanic Atmospheric Administration (NOAA)** (Washington, D.C.), a division of the U.S. Department of Commerce, provides training in the field of coastal resources management through its **Coastal Services Center** located in Charleston, SC. The Coastal Services Center is comprised of four divisions – Coastal Information Services, Resource Management Services, Coastal Technology Services, and Coastal Management Services. The Center provides state programs, such as the **National Estuarine Research Reserves**, with information, services, and training opportunities for the coastal resource management community. The Center provides training requested by coastal resource managers in the areas of geospatial technology, coastal management, and building process skills. Training is primarily conducted at the Center in Charleston, but some courses can be provided at the customer's location. The courses vary in length from a few hours to multiple days, and vary in price from no cost to registration fees of up to $200 (depending upon the type of course). Audiences targeted for training include coastal resource managers, emergency management professionals, and environmental resource professionals. Some of the courses are also available online.

A large portion of coastal resources management training is conducted through the network of the **National Estuarine Research Reserve (NERR)** (Washington, D.C.) system, a network of 25 protected areas representing different geographic regions of the U.S. and one region in Puerto Rico. The NERR protects estuarine habitat, conducts research, and provides educational opportunities, particularly in the area of coastal resources management. Local and regional needs are handled by the individual reserves, but the NERR does maintain three system-wide programs: (1) monitoring program to monitor the health of the estuary; (2) graduate research fellowship program supporting scientific activities and providing graduate students with hands-on field experience; and (3) coastal decision-maker workshops providing local communities with resources to make informed management decisions regarding the coastal environment. These workshops are offered to individuals working in fields both related and unrelated to coastal management, such as elected officials, land use planners, regulatory officials and professionals, natural resource managers, and private citizens. The individual Research Reserves develop programs in a variety of formats, such as seminars, hands-on skills training, workshops, lectures, technology demonstrations, conferences, and course work. Topics include coastal habitat

conservation and restoration, biodiversity, water quality, and sustainable resource management.

The **National Sea Grant College Program** (Silver Spring, MD), a partnership between the nation's universities and the National Oceanic and Atmospheric Administration (NOAA), began in 1966 with the passage of the National Sea Grant College Program Act. The Sea Grant Program conducts educational and scientific marine research activities and provides information on marine topics. There are currently 30 Sea Grant programs headquartered at universities in coastal and Great Lakes states, including Hawaii and Puerto Rico. The Sea Grant Program offers graduate and undergraduate education, teacher training, K-12 curriculum development, marine policy fellowships in Washington, fellowships in cooperation with private industry, informal education for the general public, special training programs for industry, and training in the field of coastal resources management for professionals and non-professionals. Non-academic training in the field of coastal resources management is offered throughout the year, at little or no cost to participants.

The **U.S. Environmental Protection Agency (US EPA)** (Washington, D.C.) offers training through its **Watershed Academy**, sponsored by the **Office of Wetlands, Oceans and Watersheds**. Training is provided to federal, state, tribal, and local officials, as well as private practitioners of watershed management. Several of the courses are offered free of charge, but fees may apply for some courses. The courses vary in length from two hours to two weeks. The Watershed Academy also offers 43 web-based training modules where individuals can work at their own pace to secure a watershed management training certificate. Course topics include The Clean Water Act, Smart Growth, drinking water, the National Estuary Program, permit procedures, nonpoint education, funding, wetlands conservation, stream corridor and floodplain restoration, monitoring, and watershed protection and management.

The **US EPA** partners with a variety of agencies, nonprofits, universities, and consultants when conducting these training courses. Some of the partners the US EPA has partnered with to offer this training include the Center for Marine Conservation (Virginia Beach, VA), The Council of State Governments (Lexington, KY), the U.S. Army Engineer Waterways Experiment Station (Vicksburg, MS), the Ecosystem Recovery Institute (Freeland, MD), the American Water Works Association (Denver, CO), the University of Montana Flathead Lake Biological Station (Polson, MT), The Groundwater Federation (Lincoln, NE), and the Water Environment Federation (Alexandria, VA).

Training courses are offered through the **U.S. Army Corps of Engineers (USACE) Institute for Water Resources** (Washington, D.C.) in various cities throughout the U.S. on a variety of topics. Courses are offered in groundwater hydrology, and wetlands evaluation procedures, mitigation, management, development, restoration, and ecology. Professional certification such as continuing education units, learning units, or professional development hours is offered upon completion of select

courses. The courses are conducted for up to five days at costs ranging from $1,470 to $2,810 per person. Target audiences include engineers, scientists, technicians, biologists, economists, natural resource managers, regulatory officials, hydrologists, government employees, ecologists, geologists, and environmentalists.

The **U.S. Fish and Wildlife Service** (Shepherdstown, WV) sponsors a variety of training courses at its **National Conservation Training Center** in Shepherdstown, WV and other U.S. locations. Training is offered in the areas of electrofishing, basic fisheries biology and techniques, biotelemetry techniques for aquatic systems, biodiversity, state and water rights, endangered species, wetlands restoration and enhancement, fish kills, ecosystems, and water quality monitoring. Courses are also offered to coordinate volunteer programs, such as volunteer recruitment and management, public outreach and education, program planning, negotiation strategies and techniques, partnerships, sampling techniques, Geographic Information System (GIS) mapping, and sampling design for field studies. The training is provided free of charge to employees of the U.S. Fish and Wildlife Service, while all other participants are charged a tuition fee. Course participants include biologists, managers, technicians, project leaders, agency staff, conservationists, engineers, planners, policy makers, landowners, and persons involved in fisheries projects. The courses range in duration from two- to five-day sessions. Some courses require that pre-requisite classes be completed beforehand.

The **Bureau of Land Management (BLM)** (Phoenix, AZ), an agency within the U.S. Department of the Interior, administers several training courses on a variety of topics. Course topics include groundwater hydrology, aquatic habitat restoration and enhancement, environmental site assessment, erosion, fluid minerals, stream dynamics, channel design, land use planning, water rights, ecosystems, and watershed rehabilitation. The BLM conducts its courses at its **National Training Center** located in Phoenix, AZ, and at various sites throughout the U.S. Courses vary in length from three days to two weeks. Self-study and web-based courses are also available. Tuition is usually assessed to non-BLM employees, with the fee dependent upon the type of course being offered. Target audiences for these courses include hazmat coordinators, realty specialists, scientists, GIS specialists, engineers, geologists, adjudicators, oil and gas inspectors, planners, resource specialists, government and non-government employees, and private citizens.

The **U.S. Geological Survey (USGS)** (Reston, VA) offers courses in the areas of ground water and surface hydrology and water quality primarily for its personnel, but some courses are open to other federal and governmental employees. The courses are usually conducted at its **National Training Center** in Denver, CO, but some are taught at various locations throughout the U.S. The courses range in length from two days to 12 weeks, and range in cost from $200 to $1,250 for USGS personnel and from $500 to $1,464 for non-USGS personnel. The USGS also offers a variety of correspondence courses for its personnel. Some prerequisites may apply.

The **Federal Emergency Management Agency (FEMA)** (Emmitsburg, MD) conducts training sessions at its **Emergency Management Training Center** located in Emmitsburg, Maryland. Training is geared toward enhancing the capabilities of federal, state, and local government officials, volunteer organizations, and the public and private sectors to minimize the impact of disasters on the American public. FEMA courses relative to coastal resources management include residential coastal construction, a public officials conference, public policy in emergency management, debris management, and managing floodplain development. The duration of courses ranges from independent study courses and field courses, to courses that last from eight to 34 hours. Some of the courses offer continuing education units.

Nonprofit Agencies and Organizations

Seminars, conferences, courses, and workshops are offered to professionals and citizens by national and international nonprofit agencies and organizations in different U.S. locations. Attendance costs vary, but most of the nonprofits offer training at discounted rates to their members. A number of agencies also award continuing education units, professional development hours, and/or certification upon completion. Some of the nonprofit agencies and organizations offering coastal resources management training opportunities are discussed here.

The **American Water Works Association** (Denver, CO), an international scientific and educational society intent upon improving the quality and supply of drinking water, offers training seminars throughout the U.S. Topics include water treatment and distribution, drought management, water quality and assessment, and distribution system operations. The courses vary from two to five days in length, and fees are dependent upon the content and location of the course. Participants in these training seminars include water treatment operators, distribution operators, public officials and commissioners, utility company personnel, water rate attorneys, water resources professionals, capital budget planners, conservation officers, scientists, engineers, and health and natural resources department personnel.

Training is offered by the **American Society of Civil Engineers (ASCE)** (Reston, VA), a 150-year old not-for-profit national engineering society with a membership of 125,000 individuals in the civil engineering profession. The ASCE conducts continuing education seminars each year throughout the U.S. on a variety of technical, managerial, and regulatory topics such as wastewater collection and treatment, storm water management, the National Flood Insurance Program, groundwater and soil remediation, water resource management, and permit compliance. The seminars are targeted to contractors, planners, consultants, lawmakers, utility managers, environmental managers, engineers, and scientists. The courses vary from two to three days in length and range from $700 to $1,200 in registration and participation costs. Discount rates are offered to ASCE members. The ASCE additionally offers customized on-site training and self-study distance learning

programs, including online courses and courses on CD-ROM. The organization sponsors a number of informational conferences conducted nationally and internationally for members and non-members of ASCE. Continuing education units and professional development hours are awarded upon the completion of certain courses.

The **Center for Watershed Protection (CWP)** (Ellicott City, MD) is a nonprofit agency providing technical tools for protecting streams, lakes, and rivers to local governments, activists, and watershed organizations. With the assistance of watershed groups, federal and local governments, and national professions, the CWP offers training on watersheds, riparian and wetland stewardship, storm water treatment, and water quality issues. The courses vary in length from one-day workshops to multi-day conferences and seminars. Registration costs are dependent upon the administrative and operational costs to sponsor the sessions. The courses are held in various locations throughout the U.S., and certain courses are awarded continuing education units.

The **Ecosystem Recovery Institute (ERI)** (Freeland, MD) is a nonprofit educational organization focused on natural resource management and restoration initiatives. ERI sponsors workshops for professionals, educators, students, citizen groups, private landowners, resource managers, and local, regional, and state governmental officials on topic areas such as stream management, construction management, and environmental regulations. The training sessions vary in length from one to five days and are conducted in a variety of formats, including lecture, field exercises, and case studies. Costs were unavailable.

Established in 1928, the **Water Environment Federation (WEF)** (Alexandria, VA) is a not-for-profit technical and educational organization with a membership in excess of 100,000 water quality professionals. The WEF offers a series of conferences, workshops, seminars, and special events throughout the world on a number of topics. These topics focus on industrial waste, waste collection systems management, and regulatory issues. The WEF encourages industrial water and waste professionals, scientists, researchers, consultants, engineers, environmental professionals, municipal treatment plan personnel, equipment manufacturers, regulatory officials, farmers, and community planners attend their training sessions. Training costs are dependent upon the type of training offered (workshop, seminar, conference, special event) and the costs associated with sponsoring the event.

The **American Backflow Prevention Association (ABPA)** (Bryan, TX), a nonprofit organization providing water quality education and technical assistance, conducts training courses throughout the United States and in Canada. Training is conducted several times throughout the year on such topics as water quality assurance, backflow prevention, and cross-connection control. The costs for these training courses are dependent upon the type, duration, location, and attendance of the course.

The **American Association of Port Authorities (AAPA)** (Alexandria, VA) is a nonprofit organization governed by a 10-member Executive Committee and a 66-member Board of Directors. AAPA's annual budget is approximately $1.7 million, with more than 29 percent of the annual budget derived from non-corporate sustaining/associate dues revenues, education and training program revenues, convention/exhibition revenues, the publication of an annual directory, and other miscellaneous sources. Training is provided to AAPA members and anyone with an interest in the seaports of the western hemisphere. AAPA members receive discounted registration fees for education and training programs. The training programs generally include panel discussions, question and answer sessions, interactive participant activities, technical tours of port facilities, and meals. Training topics include planning for growth, port financing, legal issues, property management, harbors and navigation, security, and training for port directors and commissioners. The training courses are held throughout the US and in Canada, with registration fees estimated at $485 for members and $540 for non-members.

Private Companies

There are a significant number of private companies and consultants – both national and international – offering training in the topic area of coastal resources management. These private entities conduct courses at various locations – on-site training centers, company headquarters, off-site locations, and different cities and countries. The client can customize the length of the training sessions, and costs vary by provider. Several of the private entities offering coastal resources management training are discussed herewith.

NST/Engineers, Inc. (Hockessin, DE) conducts training courses for practitioners in the fields of engineering, hazards communication, brownfields remediation, safety and health training, emergency response, hazardous waste operations, environmental and pollution control, and similar topic areas. Courses are conducted at the site requested by the client, and training costs vary based upon the length, attendance, type, and location of the training. Courses can be conducted from four hours to five days, with tuition fees ranging from $65 to $545.

The private consulting company of **Richard Chinn Environmental Training, Inc.** (Brandon, FL) offers in-person and online training in wetland delineation and management, hazardous waste management and emergency response, and hazards communications. The courses are held in several states – Wisconsin, Colorado, Alaska, North Carolina, Florida, California, Illinois, Oregon, and Georgia – and are customized to the client's training needs. Course fees vary for participants and are based upon the duration, location, attendance, and type of training. Fees range from $125 to $950.

Founded in 1994, **FABL (For A Better Life) Environmental Regulatory Specialists, Inc.** (Greenville, SC) is a women-owned company and part of the Small

Business Administration's 8(a) program. FABL offers web-based training for environmental professionals focusing on learning environmental regulations and the application of environmental regulations. Course topics include waste and wastewater management, solid and hazardous waste, and emergency planning/community right-to-know. Upon course completion, continuing education credits and continuing education units are awarded to interested participants. The courses are arranged by level of experience – beginner, intermediate, advanced – and range from one to four hours to 12 to 20 hours in length. Course costs vary from $49 to $69 for one- to four-hour courses; $49 to $99 for five- to 11-hour courses; and $179 for 12- to 20-hour courses.

Government Institutes/ABS Consulting (Rockville, MD), an independent subsidiary of the **American Bureau of Shipping Group of Companies**, offers public, self-study, and online courses, training videos, audio conferences, and onsite training and consultation for environmental professionals. Training and professional certification classes cover such topics as environmental laws and regulations, environmental management systems, environmental compliance, risk analysis, clean air, and clean water. The courses are taught in a variety of locations throughout the United States, and course fees differ based upon location, duration, attendance, and type of course.

The **Environmental Resource Center, Inc.** (Cary, NC), a private consulting firm, offers training in the areas of hazardous waste management, air emissions, water effluents, toxic substances, pesticides, impact assessment, and compliance auditing. Training can be customized for the client's facility and is conducted throughout the United States. Upon completion of the courses, participants receive a certificate of course completion, professional development hours, and continuing education units. The instructors of these courses are professionals with numerous years of experience in the topic area and are certified through federal agencies such as the Occupational Safety and Health Administration (OSHA), U.S. Department of Transportation (US DOT), and the U.S. Environmental Protection Agency (US EPA). Training fees vary based upon location, attendance, duration, and type of course.

Engitech, Inc. (Bryan, TX) is a private environmental training company providing water and wastewater training courses to water personnel for professional development, certification, and license renewal. The Texas Natural Resource Conservation Commission or the Texas Department of Health certifies the courses and instructors. Courses are offered on basic water, ground and surface water production, water laboratory, water conditioning, basic wastewater, wastewater treatment and collection, activated sludge, and bottled water. Training costs are arranged on a course fee basis or a student fee basis. The student fee for 20-hour contact hour, Texas-designated courses is $90 per student. The course fee for a 20-hour designated course is $1,600 plus the travel expenses of the instructor(s).

Environmental Training Management (Aiken, SC), a division of **Technical and Field Engineering (TFE), Inc.**, offers environmental management courses on a number

of topics. Topic areas include environmental and restoration courses, decontamination and decommissioning courses, environmental compliance courses, and waste management courses. Training fees are dependent upon the length, type, and location of the course. Continuing education credits are offered through the University of South Carolina for some courses. Course instructors are certified and have several years of experience on the topic area.

SURVEY METHODOLOGY

The objective guiding the data collection process was to generate the highest level of participation for the survey. The methodology for the project was structured to answer the following research questions:

1) Who are the providers of coastal resources management training in the Ohio Lake Erie basin?
2) What factors are relevant in assessing the current coastal resources management training environment?

The literature review and best practices scan identified a limited amount of coastal resources management training activities in Ohio. While a significant number of coastal resources management training programs exist nationally, Ohio has a meager supply. Because of this, the project approach would need to be driven by the necessity for collecting primary data from which generalizations can be drawn.

Approach to Data Collection

The GLEFC utilized a phone survey as the data collection instrument for this study. We expected to identify a pool of actual providers of coastal resources management training from a larger population group consisting of coastal resources management professionals. To ensure the accuracy of the results, the response rate of the sample needed to approximate the actual number of training providers as closely as possible to offset the potential for error that is inherent when assessing small sample data sets. The questionnaire was designed to factor out non-training providers (after collecting the essential background information on location, mission, etc.) to generate an analysis of the training environment exclusive of practitioners in the field. Also, we assumed that the information being measured is not time sensitive and would remain relatively constant over a period of time. For instance, significant changes to the organizational location, mission, course offerings, and so forth most likely would not occur in the short-term and are instead a product of procedural and policy decisions made internally, with some exogenous influences over the long run.

A cover letter from the GLEFC was designed to accompany the survey questionnaire to summarize the project, discuss the importance of the study, and outline the survey process. It also clarified several terms utilized in the survey that could have potentially resulted in misinterpretation. A copy of the cover letter utilized for the three groups of the survey is contained in Appendix A.

The survey was conducted in three separate waves:

- First wave – State and federal agencies
- Second wave – Soil and Water Conservation District and National Resources Conservation Service agencies
- Candidates from private sector companies, public sector and nonprofit agencies and organizations

The response rates for each wave are provided in the Survey Results section of this report. All respondents were initially contacted by telephone for each wave. A brief verbal introduction on the purpose of the project was provided, and their willingness to participate was confirmed. Respondents were informed that the cover letter and survey questionnaire would be sent via facsimile or electronic mail (their preference) to their attention.

The first wave of survey respondents was contacted and the telephone survey time was scheduled. The GLEFC project team conducted the telephone interviews. All interviewers were provided with survey training for administering the telephone interview. Several "practice sessions" were simulated, and a pre-test was conducted before initiating the telephone interviews to maintain instrument reliability and validity. An example of the telephone interview questionnaire is included in Appendix B.

For the subsequent two waves, the same questionnaire was administered to respondents, with the request that they enter the information manually and return it to us by a specified date via facsimile or electronic mail. These waves included the remainder of the sample.

Overview of the Survey Questionnaire Design

The survey questionnaire was constructed upon two broad objectives:

1) To gather factual information on each training provider from which we could build a reliable database that contains input on the location, size, primary contact, and mission of the organization; and
2) To identify a series of factors that were instrumental in measuring the scope of coastal resources management training and methodically marshal information together that analyzes the nature, topics, content, target audiences, etc., of the courses.

A reproduction of the survey questionnaire is contained in Appendix C.

The questionnaire utilized a combination of open- and closed-ended questions. This allowed the respondents the opportunity to elaborate on their responses and add relevant information at designated points in the process as well as provide brief answers.

The questionnaire was partitioned into a series of sections. Section One was designed to gather organization-specific information pertaining to the provider location, number of employees, and mission. This section satisfied objective number one outlined above. The remaining sections satisfied objective number two above - identifying and measuring discrete aspects of coastal resources management training within the sample organization. Section Two asked respondents to specify which topics, from a list of 47 choices blanketing the spectrum, are covered at their organization. We provided one choice titled "other" for respondents to add a potential topic not supplied in the list. Section Three was designed to gather micro-level data on the three most well-attended coastal resources management training courses offered by the respondent's organization in the last year. For each of the three courses, we asked respondents questions on course duration, time of offering, location, training methods, background of instructors, and cost(s) for enrollment. This generated specific case study data for a cross-section of the training courses offered at each organization. Section Four questioned providers about funding sources for training opportunities offered at their organization. Section Five measured target audience segments upon which the respondent's organization when generating potential enrollees in the training courses, and the method in which information on the offerings is relayed to a potential audience. Section Six asked respondents about the training environment with an open-ended question that canvassed their perceptions of the major “gaps” in coastal resources management training in Ohio. An accompanying question listed for consideration six types of assistance that would be most beneficial to the respondent's organization and asked them to rank the categories in order of importance.

We concluded the survey by requesting that respondents mail any coastal resources management training and course descriptions to the GLEFC at Cleveland State University. We also provided instructions for returning the completed survey questionnaire to us via facsimile to quickly expedite the process. A complete database of survey candidates is included in Appendix D of this report.

Framing the Results

The survey questionnaire was designed to produce primary and original data on the coastal resources management training environment. The data generated from this effort were analyzed using descriptive statistical techniques and frequency distributions and are displayed in the next section of this report through a series of matrices, Geographic Informations (GIS) maps, graphs, and tables. The descriptive statistics provided the most appropriate answer to our research questions by introducing percentages of occurrence. The results were framed to reflect those respondents identifying themselves as training providers as the primary data considered in the analysis.

Development of Course Categories

The courses were sorted into seven categories according to their curriculum focus – Ecological/Natural Resources, Economic Development, Land Use/Infrastructure, Public Health/Safety, Regulatory, Cultural Resources, and "Other." The categories and the content comprising each is outlined below:

- **Category #1: Ecological/Natural Resources** – This category contains courses that focus on methods for reporting scientific research related to ecological systems, wildlife or invasive species management or control, biological resources, chemical conditions, and other such similar content.
- **Category #2: Economic Development** – Courses that focus on meeting economic needs through resource development or management, including ecotourism or nature tourism, were grouped into this category.
- **Category #3: Land Use/Infrastructure** – The courses grouped into this category focus on non-regulatory land use management practices (including watershed management) or infrastructure systems.
- **Category #4: Public Health/Safety** – This category includes courses that focus on education or safety issues, including boater safety.
- **Category #5: Regulatory** – Courses that focus on legal or administrative aspects of coastal management, including courses on zoning, easements, and environmental impact assessment, were grouped into this category.
- **Category #6: Cultural Resources** – The courses grouped into this category focus on cultural heritage, including archeological resources.
- **Category #7: Other** – This category contains courses that focus on topics that did not fit into categories one through six above, including tours for elected officials and GIS training.

GIS Methodology for Geographic Distribution of Courses

The GIS maps are presented in Appendix M. The maps assist in visualizing the spatial coastal resources management activity among providers. One map is presented for each of the seven categories of course topics. The maps, generated using Geographic Information Systems (GIS) software, document the geographic location of the courses described in survey question 15. A spreadsheet of the responses was generated using the matrix developed for questions 10 and 15 (presented in Appendix H).

Each record represented a separate class. The fields for each record used to map the course were "category" (meaning the substantive focus of the curriculum as it was sorted in the Appendix H matrix), and "location" (meaning the city where each course session was offered). For responses where only the county in which the class was taught was provided, the county seat was used as the location for the class.

A pivot table, with location cross-tabulated against the category of classes, indicated the number of classes taught in each category by location. In Arcview, using TIGER data available from the U.S. Bureau of the Census, each location was mapped and connected to a database. The size of the dot representing the location was proportional so that the larger dots represent the places where more classes were taught (refer to legend on appropriate map).

RESULTS OF THE SURVEY

The survey questionnaire was sent to each of the 190 total respondents identified as the population group. Of this number surveyed, 142 answered the questionnaire for a 75 percent response rate. Table 2 below summarizes this frequency distribution.

Table 2

BREAKDOWN OF SURVEY RESPONSES		
Group	**Number**	**Percentage**
Total number surveyed	190	100%
Number of responses	142	75%*

**As a percentage of responses*

Summary of Findings

The majority of the survey respondents were public agencies that provide coastal resources management training in the Ohio Lake Erie basin. The respondents (including training providers) typically employ 50 or fewer full-time and part-time/seasonal workers.

Coastal resources management training is not the primary focus of training offered by these organizations; rather, it is one of many topic areas for which training is provided. The topic areas most frequently included in coastal resources management training focus on surface water quality and non-point source pollution, water quantity and quality, conservation and preservation, riparian corridors, invasive species and biodiversity, and habitat restoration. Many of the training providers indicated in their mission statements that training and/or education is part of their services. Also, a number of *non-training providers* listed training within their mission statements.

In 2001, more than 100 coastal resources management courses were offered in the Ohio Lake Erie basin, with the majority of these courses being offered only once within the past three years. These courses were primarily conducted for an eight-hour day, with one training session being held per course. Typical attendance for the training courses ranged from 11 to 50 individuals. The majority of the courses were taught using a lecture method by staff members and employees of the organization. A large portion of the course instructors have earned bachelor's and master's degrees.

For the most part, training providers offer coastal resources management training courses at no cost to participants, who receive educational and training materials upon the course completion. The majority of the training providers fund the courses through general operating budgets, with salaries for staff and speakers being cited as their major expense.

The providers responding to the survey primarily market their training courses to elected officials and candidates (including county commissioners and legislators). These providers chiefly use direct mail campaigns as the vehicle to attract course participants.

Public sector training providers market courses to elected officials and candidates (including county commissioners and legislators). Direct mail campaigns and organizational newsletters are utilized by the public sector to market training information.

Nonprofit organizations primarily target elected officials and candidates (including county commissioners and legislators) to attend their courses. These organizations most often convey training information through press releases and with the assistance of co-sponsors and partners.

Private sector training providers seek audiences consisting of consultants and consultant groups, corporations and firms, elected officials and candidates (including county commissioners and legislators), land use planners, local and state government employees, and nonprofit organizations for their courses. These training providers mostly utilize direct mail campaigns in addition to email lists and co-sponsors or partners to market course information.

The majority of the audiences targeted by public universities are elected officials, nonprofit organizations, and the science community. Public universities primarily utilize direct mail campaigns, email lists, organizational newsletters, and websites to convey training information to these audiences.

The training providers identified issues relevant to instructional quality and the nature of training as what they perceived to be “gaps” or disparities in existing Ohio coastal resources management training programs. The providers stated that their training programs could benefit from some type of fiscal support from ODNR and its partners.

The Survey Process

The results of the survey process are a product of three separate waves of surveys conducted by the GLEFC project team. Telephone interviews to 35 individuals, representing fundamental state and federal agencies, comprised the first wave of the survey process. The GLEFC project team identified the respondents for this first wave with the assistance of ODNR and its partners. Telephone interviews were conducted between December 10, 2001 and January 11, 2002. To prepare for the telephone interview, respondents were faxed the survey questionnaire prior to the interview. All 35 survey candidates responded to the telephone interviews for a 100 percent response

rate. Of the 35 candidates interviewed, 89 percent identified themselves as providers of coastal management training programs.

The second wave of surveys was conducted by facsimile and electronic mail to 64 Soil and Water Conservation District and National Resources Conservation Service agencies identified through an exhaustive review of the literature. Surveys for this second wave were conducted from January 14-31, 2002. Of the 64 candidates surveyed, 67 percent responded. Analysis of this cohort indicated that only 14 percent of the sample offered coastal resources management training.

The third wave of surveys was likewise conducted by facsimile and electronic mail. This wave consisted of 91 candidates from private sector companies and public sector and not-for-profit agencies and organizations. The respondents from this wave were identified from a review of the literature and from referrals generated by question number 27 answered by respondents on the survey questionnaire. Recommendations by other professionals and organizations were also examined. These surveys were conducted from February 1-22, 2002. Of the 91 candidates surveyed, 70 percent responded, with 20 percent identifying themselves as providers of coastal resources management training. Table 3 below summarizes the response rates and percentages of those providing training for each wave.

Table 3

RESULTS OF SURVEY PROCESS			
Group	**# Interviewed**	**Response Rate**	**% Providing Training**
First	35	100%	89%
Second	64	67%	14%
Third	91	70%	20%

The Survey Questionnaire

Section 1: Your Organization

The survey candidates were asked to supply the following information in questions 1 through 4 of the questionnaire:

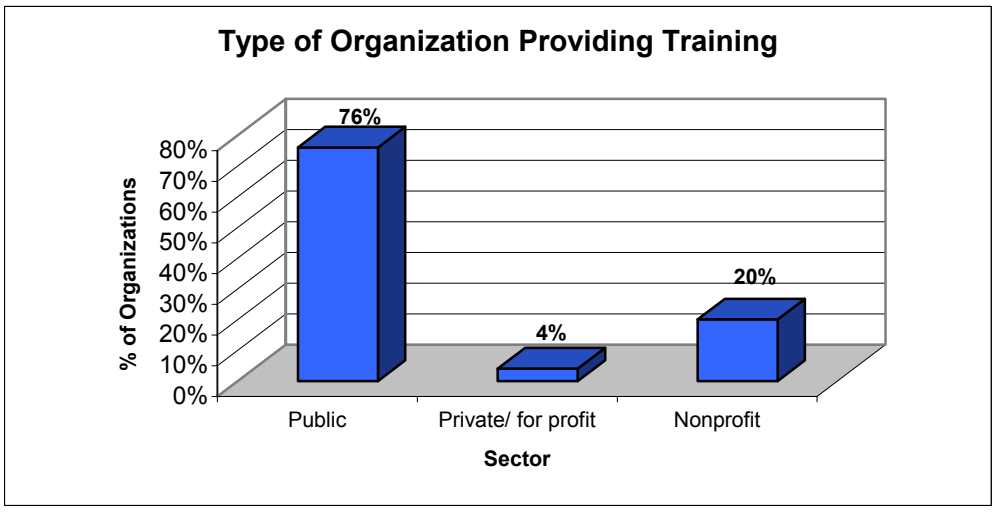
- Name of the organization
- Official address, telephone number, website address, email address
- Name, title, telephone number of person responsible for overseeing training offered for coastal resources management courses
- Name, title, telephone number of individual being interviewed or completing the survey

Structure of the Organization

Survey candidates were asked if their organization was a public, private or not-for-profit organization. The majority of the candidates responding to the survey were from public agencies, and these public agencies were also the primary training providers of coastal resources management in the Ohio Lake Erie basin. Private companies in the Ohio Lake Erie basin infrequently provide coastal resources management training opportunities.

Figure 1 below shows that of the 142 respondents, 50 offered training in the field of coastal resources management. Seventy-six percent of the 50 training providers were public entities, 20 percent were not-for-profit organizations, and four percent were private companies.

Figure 1

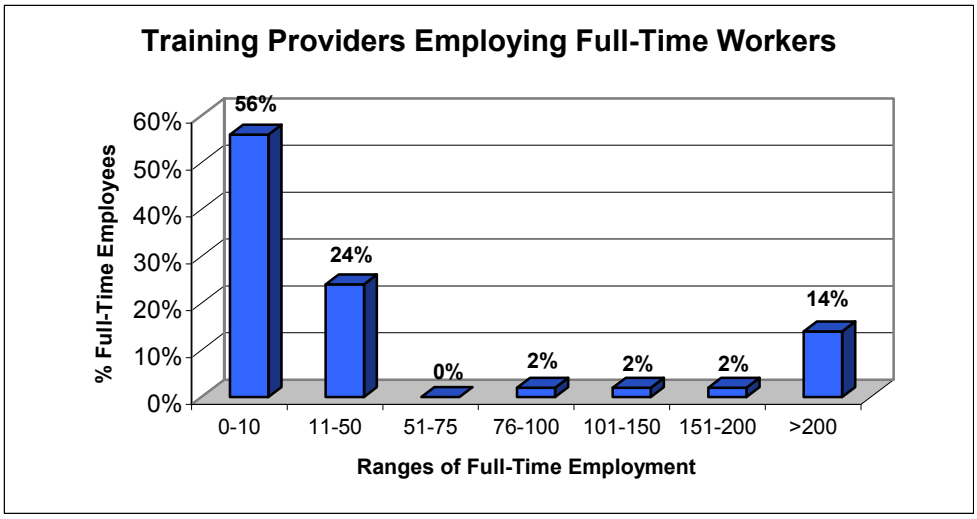


Employment Structure of the Organization

The survey candidates were asked to provide the total number of individuals employed by their organization, both full-time and part-time/seasonal workers. Organizations responding to the survey primarily employed 50 or fewer full-time and part-time/seasonal workers.

Figure 2 shows that the majority of the 50 training providers employed 50 or fewer full-time workers. Eighty percent of those providing training employed 50 or fewer full-time workers, while 56 percent employed 10 or fewer individuals on a full-time basis. A total of 24 percent of the training providers employed 10 or fewer workers on a part-time/seasonal basis.

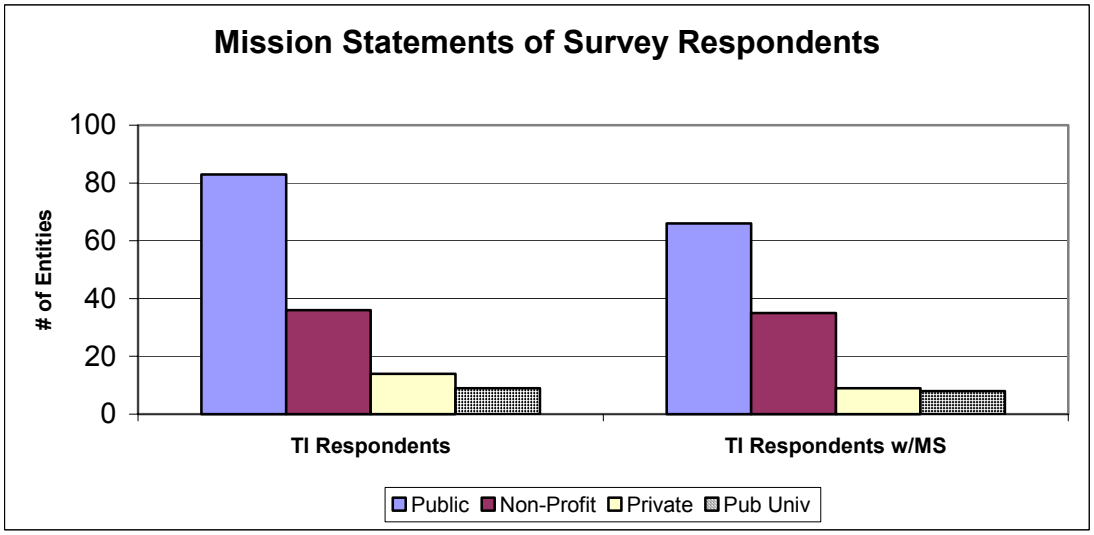
Figure 2



The Organization's Mission

The survey candidates were asked to provide the mission statements of their organizations. Of the 142 survey respondents, 83 percent submitted their mission statements. Forty-two percent of the organizations listing their mission statements were providers of coastal resources management training. Of the training providers listing their mission statements, 39 percent cited in their mission statements that training and/or education services were offered by their organizations. It is interesting to note that, of the *non-training* providers submitting their mission statements, 35 percent stated in their mission statements that training and/or education services were offered by their organizations. Figure 3 below graphically depicts the mission statements submitted by the survey respondents. Appendix E contains the mission statements of the survey respondents, while Appendix F provides a detailed breakdown by sector.

Figure 3

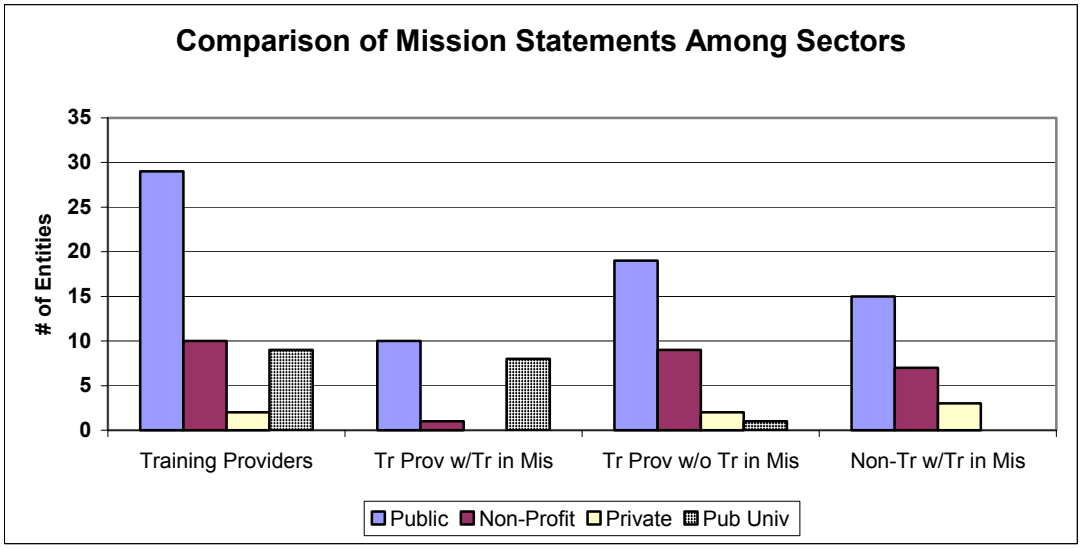


The responses varied when segmented by sectors – public, nonprofit, private, and public university. Thirty-four percent of public training providers indicated in their mission statements that training and/or education services were offered by their organizations, while 28 percent of public *non-training* providers noted in their mission statements that the same opportunities were offered.

Non-profit training providers citing training opportunities in their mission statements totaled 10 percent, while nonprofit *non-training* providers citing the same training and/or educational opportunities in their mission statements totaled 27 percent.

Of the private entities providing training, none cited training and/or education in their company mission statements; yet 25 percent of the private *non-training* providers listed training and/or educational opportunities in their mission statements. All public university survey respondents provided training, with the majority of the public university training providers – 66 percent – listing training and/or education opportunities in their mission statements. Figure 4 displays the mission statements received by sector, while Appendix F provides detailed information.

Figure 4



Training as a Component of the Organization's Mission

Training providers responding to the survey were asked to indicate whether:

- Coastal resources management training is the only training provided and the sole purpose of the organization;
- Is one area out of a series of topics for which training opportunities are provided;
- Is not the focus of training, but a few courses are offered on the topic of coastal resources management; or
- Fits into some other element of their organization.

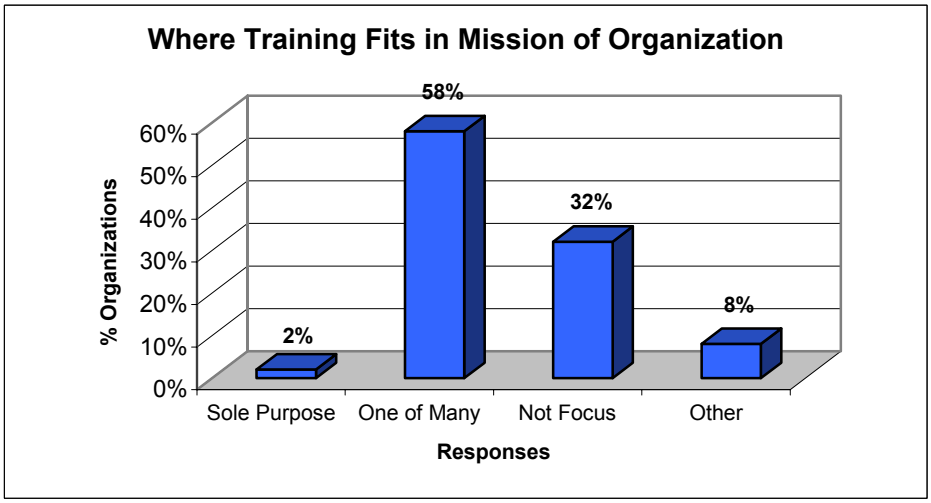
The majority of the 50 training providers indicated that coastal resources management training is one area out of a series of topics for which training opportunities are provided by the organization. Fifty-eight percent stated that coastal resources management training is one area out of a series of topics, 32 percent indicated that coastal resources management training is not the focus of training but offer a few courses on this topic, and two percent cited coastal resources management training as the only training provided and the sole purpose of the organization.

Eight percent of the training providers listed other instances where coastal resources management training is included in the mission of their organization:

- When presentations are made to various groups or clients
- The protection of watersheds
- Responsible economic growth
- Economic training, spreadsheets, financial, market development

Figure 5 below depicts the responses of the training providers as to where coastal resources management training fits into the mission of their organization. Appendix E lists the mission statements of the survey respondents.

Figure 5



Section 2: Coastal Resources Management Training Information

Training Topics

The 50 training providers were asked to identify which topics, from a list of 47 choices, are covered in the coastal resources management training courses conducted at their organizations. The six topics covered *most frequently* by training providers are outlined in Table 4 below.

Table 4

TRAINING TOPICS MOST FREQUENTLY COVERED BY PROVIDERS	
Topic	**# Providers**
Surface water quality/non-point source pollution	32
Water quantity/quality	29
Conservation/preservation areas	27
Riparian corridors	22
Invasive species and biodiversity	22
Habitat restoration	21

The six topics identified by training providers as those *infrequently* covered in the coastal resources management training courses at their organizations are outlined in Table 5 below.

Table 5

TRAINING TOPICS INFREQUENTLY COVERED BY PROVIDERS	
Topic	**# Providers**
Beach health	6
Boating pump out	5
Clean Vessel Act and issues	6
Commercial fishing	6
Maritime/science museums	5
Oil and gas drilling/mineral extraction	5

The training providers listed several "other" topic areas covered in coastal resources management training at their organizations:

- Agricultural and urban erosion control
- Artificial reef development
- Board development
- Buying recycled products
- Capacity building
- Coastal consistency
- Conservation/development practices
- Cultural resources management
- Dam removal
- Disaster issues
- Enforcement – illegal dumping
- Fundraising
- General Lake Erie ecology
- Hunting/hunter safety
- Ice breaking
- Inland wetlands
- Land protection
- Litter prevention
- Natural landscapes
- Navigation
- Oil and chemical spills
- Operation and maintenance of treatment facilities
- Public ownership of lake waters and streams
- Recycling
- Refuge management
- Research briefings
- Scuba diving
- Search and rescue security
- Sports fish and game consumption advisories
- Strategic planning
- Stream flow restoration
- Toxic pollutants
- Underwater preserves and submerged land issues
- Waterfowl/marshes
- Watershed group development

Appendix G contains a matrix of topics covered by providers of coastal resources management training.

Section 3: Course Information

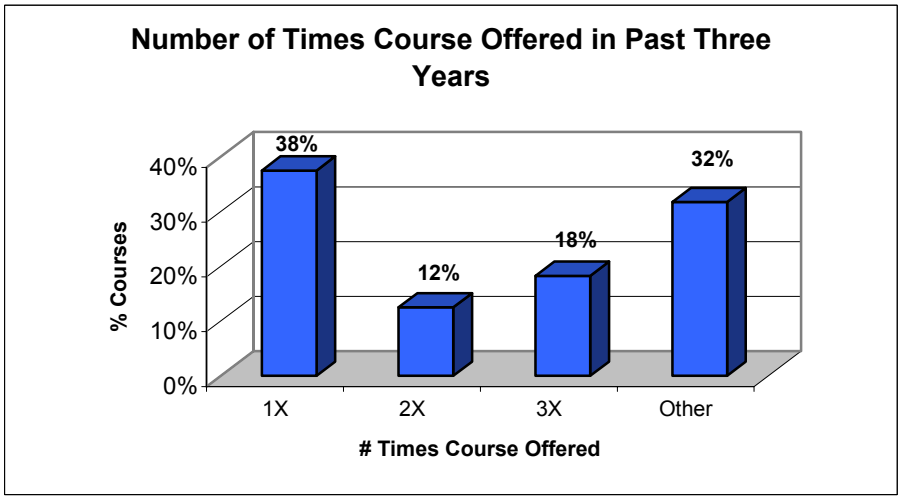
Training Courses and Locations

The training providers responding to the survey were asked to list the name, description, and primary location of the three most well-attended coastal resources management training courses offered last year by their organization. The 50 respondents who provide training cited a total of 104 courses conducted within the last year in the area of coastal resources management training, held in 41 of Ohio's 88 counties. The matrix in Appendix H provides a detailed listing of courses offered.

Frequency of Course Offerings

Survey respondents who provide training were asked to indicate whether they offered the course(s) once, twice, three, or other times in the past three years. The majority of the respondents only offered the course once in the past three years. Thirty-eight percent of the 104 courses offered were only conducted once in a three-year period, while 32 percent were offered more than three times ("other") in three years. Eighteen percent of the courses were offered three times in a three-year period, and 12 percent of the courses were offered twice. Other times noted were 5, 6, 7, 10, 12, 15, 20, 25, 36, 40, and 443 times within the past three years. Figure 6 displays the number of times that training providers offered courses within the past three years.

Figure 6

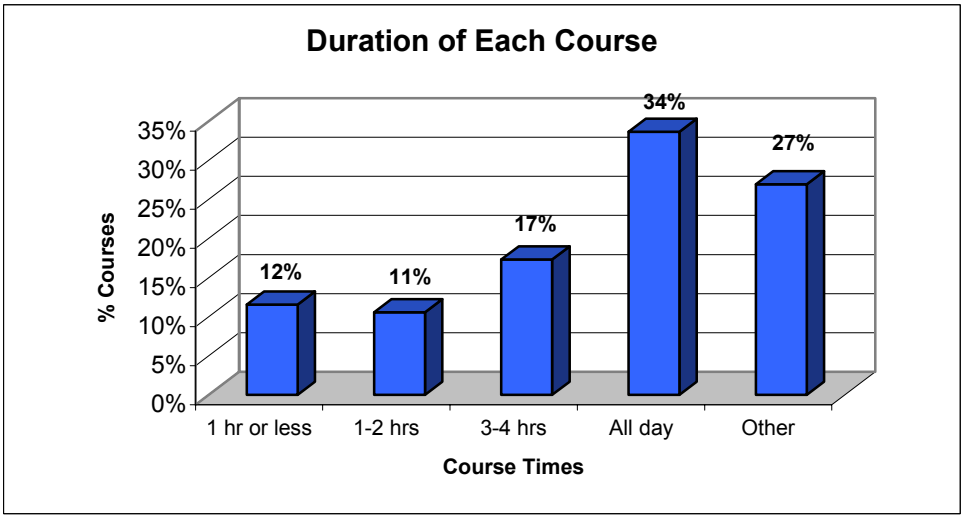


Duration of Course Offerings

The respondents who provide training were asked about the duration of individual courses. The survey results indicated that the majority of the respondents conducted courses lasting one full day (eight hours).

Of the 104 courses, 34 percent were offered for the duration of eight hours (all day), while 27 percent of the courses were conducted for time periods other than the choices offered. Seventeen percent of the 104 courses were offered for three to four hours, 12 percent were offered for one hour or less, and 11 percent were conducted for one to two hours. Other time periods listed were 1½, 2, 3, 4, and 5 days. These results are shown in Figure 7 below.

Figure 7



Number of Training Sessions

Training providers responding to the survey were asked to list how many training sessions were conducted in the training course(s) offered by their organizations. The majority of the respondents providing training conducted one training session per course. The average number of training sessions conducted among the 104 courses was two, while the most frequent number of training sessions conducted was one. Table 6 below reflects the frequencies of the training sessions offered per course.

Table 6

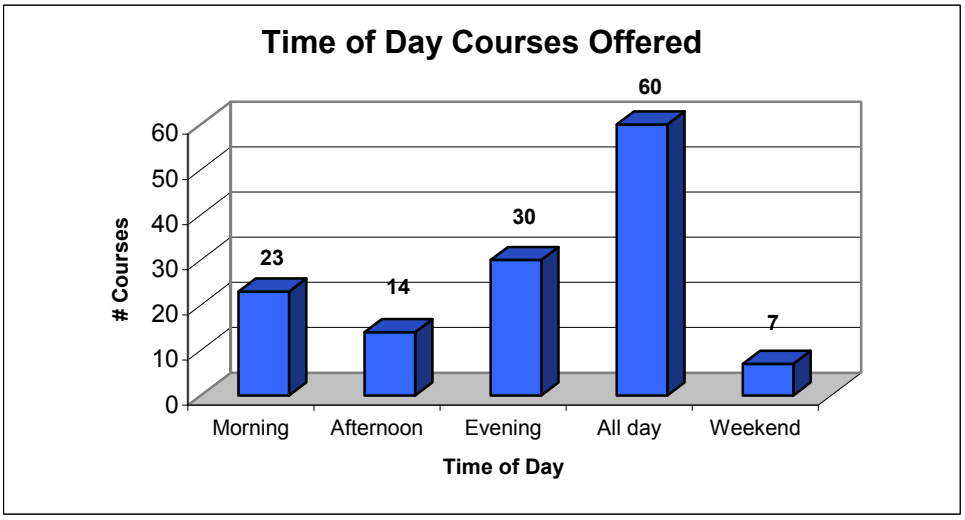
TRAINING SESSIONS OFFERED PER COURSE	
#Courses	**#Sessions**
1	0
82	1
4	2
2	3
3	4
3	5
1	6
1	8
1	9
3	10
2	12
1	16

Time Courses Offered

Training providers were asked to indicate the time of day the course(s) is most frequently offered. Choices were mornings (until noon), afternoons (noon to 5 p.m.), evenings (5 p.m. or later), all day (8 hours), or weekends. The survey results indicated that the majority of the 104 courses offered by the training providers were eight-hour courses (all day).

Training providers also conducted evening (5 p.m. or later) and morning (until noon) courses. Few training providers conducted afternoon (noon to 5 p.m.) or weekend courses. Figure 8 below depicts the times of day the courses were most frequently conducted by the training providers responding to the survey.

Figure 8

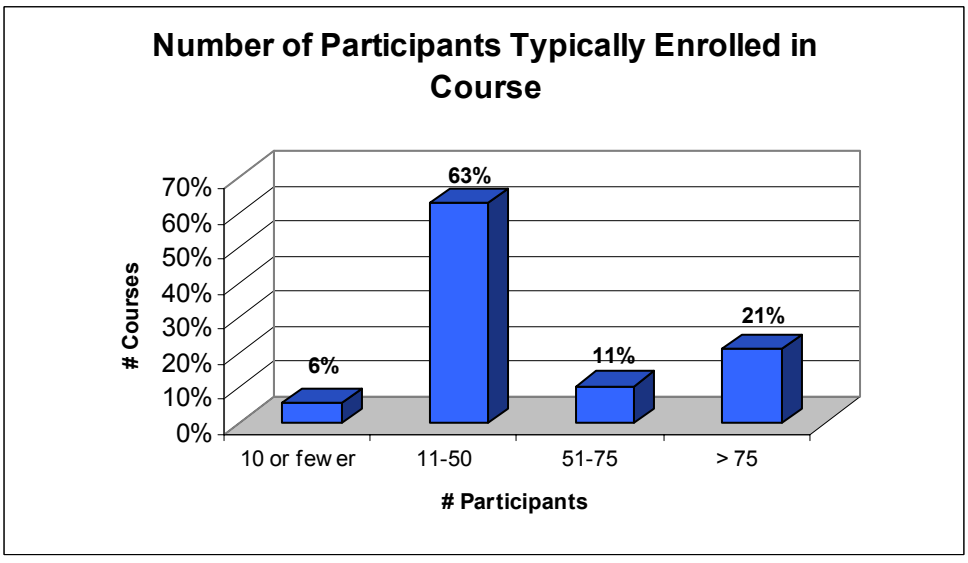


Course Participation

The respondents who provide training were asked to indicate whether 10 or fewer, 11 to 50, 51 to 75, or more than 75 participants typically enroll in their course(s). The survey results indicated that the typical number of participants who attend coastal resources management training courses offered by the training providers responding to the survey is 11 to 50 individuals.

Of the 104 courses conducted, the majority of individuals attending these courses typically number between 11 and 50 participants. Sixty-three percent of the courses were attended by audiences numbering 11 to 50 individuals, six percent of the courses were attended by audiences numbering 10 or fewer individuals, 11 percent were attended by audiences comprised of 51 to 75 individuals, and 21 percent were attended by audiences with more than 75 individuals. Figure 9 below depicts the number of participants typically enrolled in a course.

Figure 9

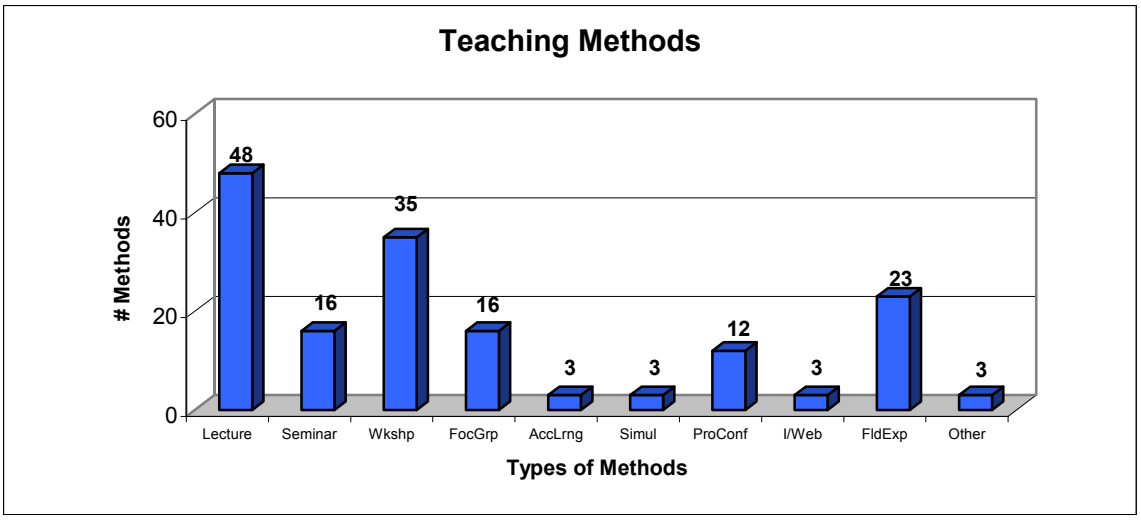


Course Instruction Methods

Training providers responding to the survey were asked to list the methods used by the instructors when conducting a course. The selection of methods included lecture format, seminars, workshops, interactive/focus group approaches, accelerated learning, simulations, professional conferences, Internet/web-based approaches, and field experience. Respondents could also list another method not included on the questionnaire.

The majority of the training providers indicated that the instructors of the 104 courses primarily used a lecture method. A workshop format and field experience was also frequently used by instructors. Methods seldom used by instructors of training programs were accelerated learning, simulation, and Internet/web-based approaches. Other teaching methods listed by training providers included video conferencing, PowerPoint presentations, exhibits, demonstrations, case studies, and hands-on experience. Figure 10 below displays the teaching methods utilized by instructors.

Figure 10

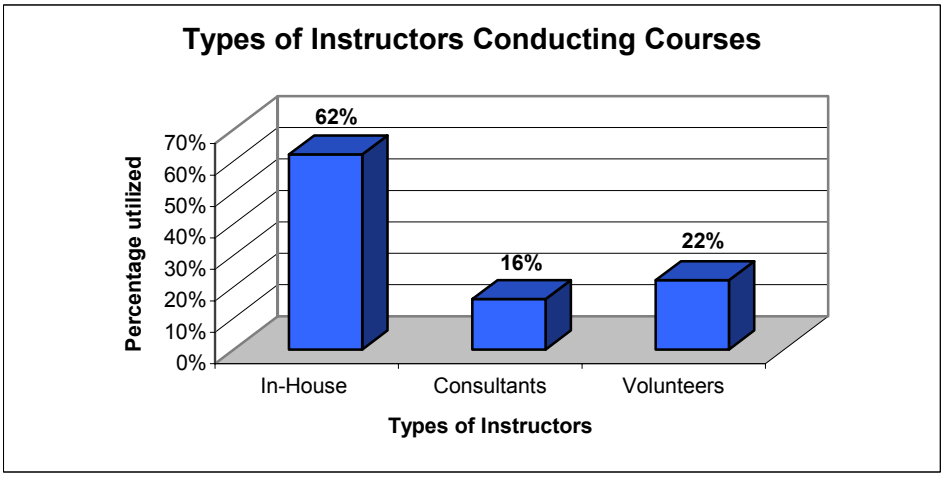


Types of Instructors

The survey respondents who provide training were asked to identify the types of instructors conducting the courses and the percentage that these instructors are utilized. The selections were in-house staff, hired consultants and volunteers. According to the survey results, the majority of the coastal resources management training courses were conducted by staff members and employees from within the agency or organization.

The average percentage of the 104 courses taught by in-house staff was 62 percent, while 22 percent of the courses (on average) were taught by volunteers and 16 percent by hired consultants. Figure 11 below displays the percentages of the types of instructors conducting courses.

Figure 11

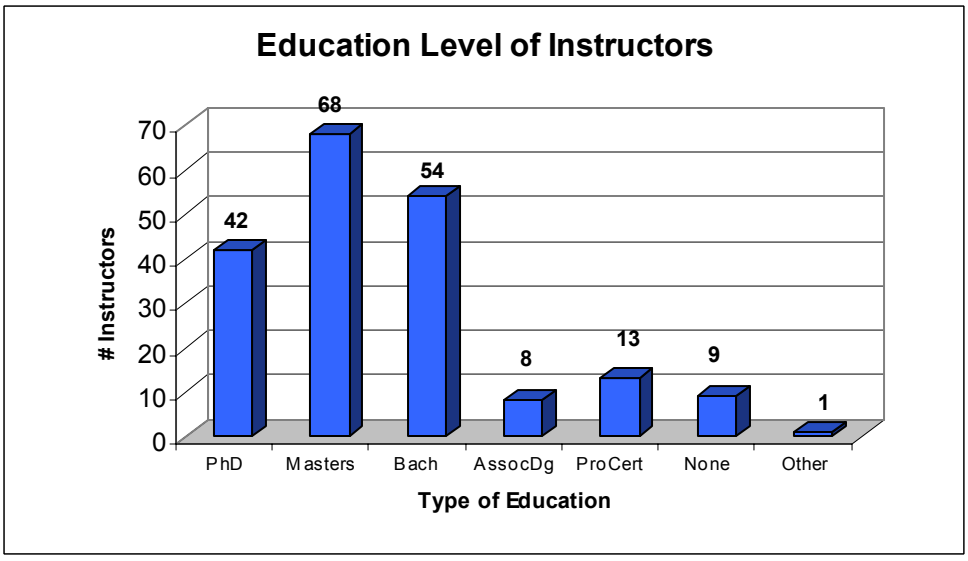


Education Level of Course Instructor(s)

The training providers responding to the survey were asked to specify the level of education possessed by the instructors teaching the courses offered by their organizations. Selections included doctorate/professional degree, master's degree or equivalent, bachelor's degree, associate degree, professional certification, no college degree, or other. The instructors teaching the 104 coastal resources management courses offered by the training providers responding to the survey primarily possessed college degrees at the masters and bachelors levels.

A large number of training providers also indicated that their instructors possess doctorate/professional degrees. A small number of instructors were professionally certified, while a few had associate degrees or no college degree. The training providers indicated they also utilized practitioners, directors, and CEOs to instruct courses. Figure 12 below depicts the education levels of instructors.

Figure 12

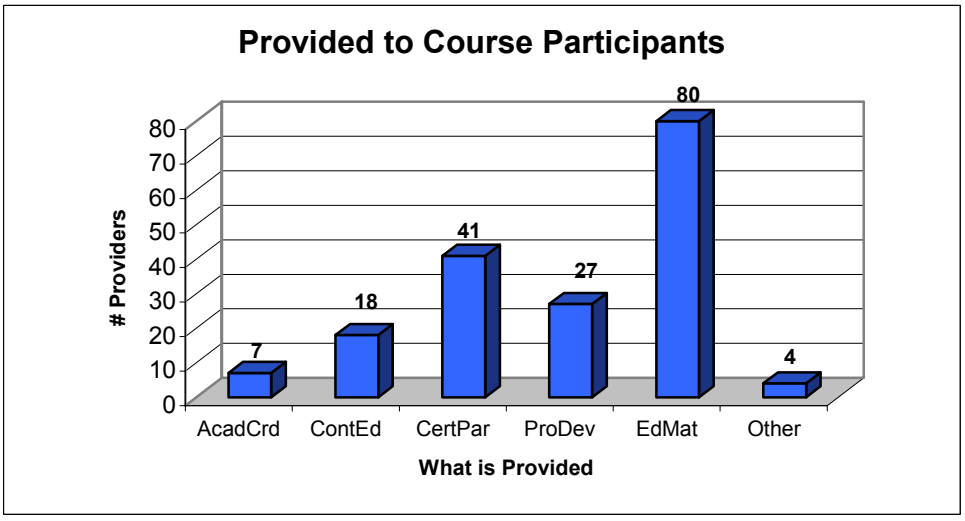


Course Completion

The survey respondents were asked to specify what is provided to participants who successfully completed their courses. Choices were academic credits, credits for continuing education, certificates of participation, professional development, educational/training materials, or other. Training providers who responded to the survey indicated that their participants primarily received educational/training materials upon successful completion of the 104 identified courses.

Participants also received certificates of participation, professional development, and credits for continuing education when successfully completing courses offered by training providers. Few training providers offered academic credits for individuals successfully completing the courses. Training providers cited other offerings upon course completion as course summaries, equipment, and further consultation. The results of the responses are depicted below in Figure 13.

Figure 13



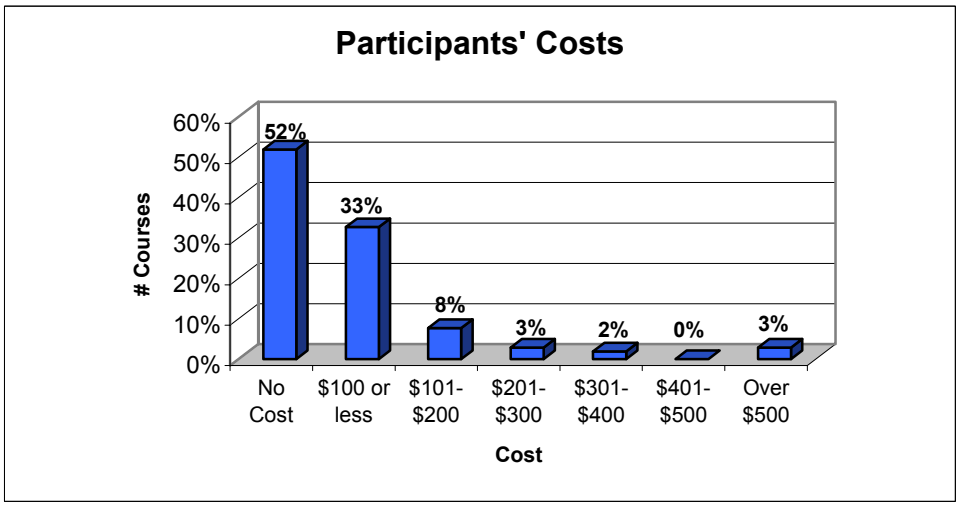
Course Cost(s) to Participants

Survey respondents providing training were asked to estimate the fees and/or costs incurred by participants who enrolled in the 104 identified courses. Choices of estimates were designated as no cost, $100 or less, $101-$200, $201-$300, $301-$400, $401-$500, or over $500. The survey results indicated that the majority of the training providers offered courses free to participants.

Of the 104 courses offered by the training providers, 52 percent of the courses were offered at no cost to participants. Thirty-three percent of the courses were offered at a cost of $100 or less. One provider indicated that the course was offered at no cost because the community pays an honorarium of $100 per workshop.

Eight percent of the courses were offered for a fee of $101-$200, three percent were offered for a fee of $201-$300, two percent were offered at a cost of $301-$400, and three percent were offered at a cost of more than $500 to participants. A breakdown of costs to participants is displayed in Figure 14 below.

Figure 14



Course Cost(s) to Training Providers

The survey respondents who provide training were asked to identify the largest item and cost associated with providing the 104 coastal resources management training courses offered last year by their organizations. The majority of the training providers listed salaries as the single highest cost item associated with providing training in coastal resources management. Ranking second were costs related to transportation and travel expenses incurred by the consultants, speakers, trainers, or attendees and tour buses for participants.

The third highest expense cited by training providers to conduct the 104 identified courses was meals and refreshments, the fourth highest was materials for participants, and the fifth highest was advertising and marketing costs to publicize the course. Ranking sixth were costs for rental, cleanup, and setup of facilities, and seventh was academic scholarships for participants subsidized by the provider. Table 7 below summarizes the results, and Appendix I details the survey results.

Table 7

HIGHEST COST ITEMS INCURRED BY TRAINING PROVIDERS	
Description	**Ranking**
Salaries	1st
Transportation/Travel	2nd
Meals/Refreshments	3rd
Materials	4th
Advertising/Marketing	5th
Facilities	6th
Scholarships	7th

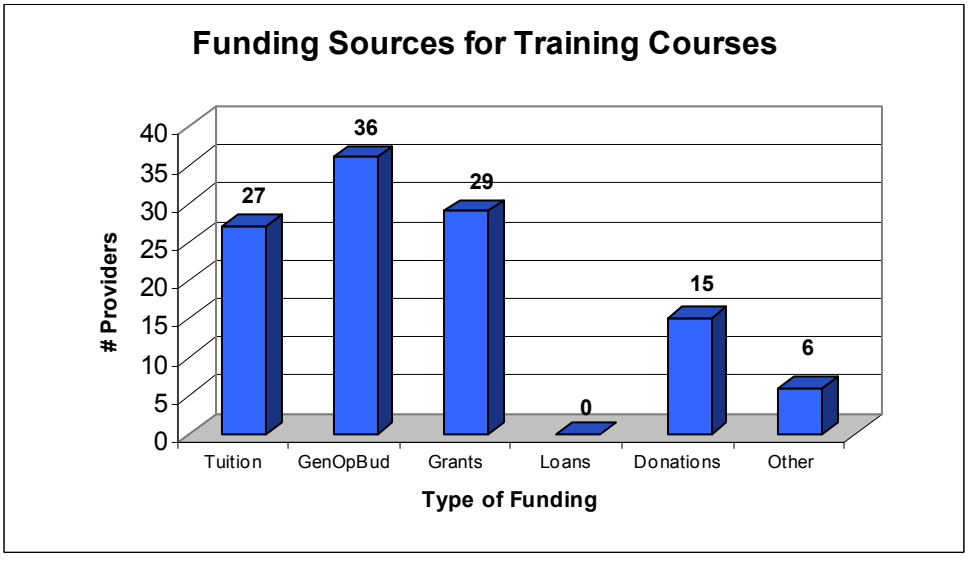
Section 4: Funding

Funding Sources to Conduct Training

The training providers responding to the survey were asked to specify how coastal resources management training opportunities are funded at their organizations, whether through tuition or fees, general operating budgets, grants from public or private institutions, loans from outside sources, philanthropy/donations, or some other venue.

The majority of the training providers responding to the survey indicated that their primary source of revenue for expenses incurred was derived from their general operating budgets. Training providers also utilized grants from public or private institutions and tuition or fees from participants to defer course costs. Charitable contributions and/or donations and other sources such as community partners, county appropriations, gas tax revenues generated from boating use, and municipal contracts were infrequent revenue sources applied to defer training costs. The training providers indicated that loans were seldom used to aid in funding training courses. The funding sources are shown graphically in Figure 15 below.

Figure 15



Section 5: Target Audiences

Types of Audiences Targeted by Training Providers

The training providers responding to the survey were asked to specify the types of audiences targeted by their organizations when providing coastal resources management training. Selections included the academic community, consultants/consultant groups, contractors, corporations/firms, county commissioners, elected officials/candidates, federal government employees, health department employees, land use planners, legislators, local government employees, not-for-profit organizations, port authorities/commissioners, the science community, state government employees, or other. When tabulating the results, county commissioners and legislators were counted as elected officials.

The results of the survey indicated that elected officials and candidates (including county commissioners and legislators) were the audiences primarily targeted by training providers responding to the survey. A large number of respondents also marketed to local and state government employees. Audiences infrequently targeted by respondents were health department employees and port authorities/commissioners.

The training providers responding to the survey also listed a number of other audiences targeted to participate in coastal resources management courses. These audiences include:

- Boaters
- Citizen environmental groups
- Citizens
- Developers
- Environmental educators
- Farmers
- Grant funded communities
- In-house staff
- Labor unions
- Landowners
- Lawyers
- Local community
- Media
- Neighborhoods/households
- Real estate officials
- Recreational divers
- Regional and international commissions
- Resource users
- Solid waste districts
- Students
- Tourism officials
- Watershed landowners
- Zoning officials

The table below (Table 8) displays the rankings of the types of audiences targeted, while the matrix contained in Appendix J details the information.

Table 8

TYPES OF AUDIENCES TARGETED (BY TRAINING PROVIDERS)	
Audience Targeted	**Ranking**
Elected officials/candidates	1
Local government employees	2
State government employees	3
Not-for-profit organizations	4
Consultants/consultant groups	5
Land use planners	5
Other	6
Federal government employees	7
Academic community	8
Science Community	9
Contractors	10
Corporations/Firms	10
Health department employees	11
Port authorities/commissioners	12

When segmented by sector – public, nonprofit, private, and public universities – the target audiences were similar. Public entities that provide training indicated that elected officials and candidates (including county commissioners and legislators) were the primary target audiences, while corporations/firms, health department employees and port authorities/commissioners were infrequently targeted. Other audiences cited by public entities as potential course participants were members of the local community, citizens, lawyers, grant-funded communities, solid waste districts, boaters, tourism officials, farmers, watershed landowners, real estate officials, landowners, developers, zoning officials, labor unions, general public, and citizen environmental groups.

Nonprofit organizations that provide training specified their primary target audiences as elected officials and candidates (includes county commissioners and legislators). Other potential audiences targeted by nonprofit groups were neighborhoods/households, recreational divers, landowners, and citizens. Audiences infrequently targeted by nonprofit respondents were port authorities/ commissioners.

Private sector companies responding to the survey indicated that their target audiences were consultants/consultant groups, corporations/firms, elected officials and candidates (includes county commissioners and legislators), land use planners, local and state government employees, and not-for-profit organizations. Audiences infrequently targeted by private entities were the academic and science communities, health department employees, and port authorities/

commissioners. The private sector training providers additionally listed other audiences as potential participants for training courses – environmental educators and the media.

The target audiences specified by public university training providers responding to the survey were elected officials and candidates (includes county commissioners and legislators). The public universities that provide training also cited the science community and not-for-profit organizations as potential audiences for coastal resources management training courses. Audiences infrequently targeted by the university training providers were contractors and port authorities/commissioners. Additional audiences listed by public university training providers as other audiences to target were regional and international commissions, resource users, students, the general public, and in-house staff. Table 9 below summarizes the survey results by sector.

Table 9

TYPES OF AUDIENCES TARGETED (BY SECTOR)		
Sector	**Audience**	**Ranking**
Public	Elected officials/candidates	1
	Local government employees	2
	State government employees	3
	Consultants/consultant groups, Land use planners	4
	Federal government employees, Not-for-profit organizations	5
	Other	6
	Academic community	7
	Contractors	8
	Science community	9
	Corporations/firms, Health department employees	10
	Port authorities/commissioners	11
Nonprofit	Elected officials/candidates	1
	Local government employees	2
	Consultants/consultant groups, Land use planners, Other	3
	Academic community, Science community, State government employees	4
	Contractors, Not-for-profit organizations	5
	Corporations/firms, Federal government employees, Health department employees	6
	Port authorities/commissioners	7
Private	Consultants/consulting groups, Corporations/firms, Elected officials/candidates, Land use planners, Local government employees, Not-for-profit organizations, State government employees	1
	Contractors, Federal government employees, Other	2
	Academic community, Health department employees, Port authorities/commissioners, Science community	3
Universities	Elected officials/candidates	1
	Not-for-profit organizations, Science community	2
	Academic community, Local government employees, State government employees, Other	3
	Federal government employees, Land use planners	4
	Corporations/firms	5
	Consultants/consultant groups, Health department employees	6
	Contractors, Port authorities/commissioners	7

Marketing Methods

The survey respondents were asked to indicate how they let potential participants know about the training opportunities offered by their organizations. The selections listed on the questionnaire were direct mail campaigns, email lists, marketing done by co-sponsors/partners, newspaper advertisements, organizational newspapers, organizational website, press releases, telephone solicitations, television/public service announcements, or other.

The direct mail campaign was the marketing technique cited as most utilized by training providers that responded to the survey most often used to convey information on training opportunities offered by their organizations. Other popular methods used by training providers to market information to potential audiences were organizational newsletters, press releases, and email lists. Fewer training providers utilized telephone solicitations and television/public service announcements to convey training opportunities to potential audiences.

Those responding to the survey also listed a number of additional techniques used to market coastal resources management training opportunities. These techniques include:

- Boat shows
- Brochures with perforated mailings
- Diving instructors and equipment dealers
- Door-to-door neighbor introduction
- In-house training programs
- Organizational mailings
- Posters at colleges
- Presentations at meetings
- Radio advertisements
- Radio public service announcements
- Word-of-mouth

The table below (Table 10) summarizes the survey findings, while a detailed matrix is included in Appendix K.

Table 10

MARKETING TECHNIQUES	
Technique	**Ranking**
Direct mail campaign	1
Organizational newsletters	2
Press releases	3
Email lists	4
Marketing done by cosponsors/partners	5
Organizational website	5
Other	6
Newspaper advertisements	7
Telephone solicitations	8
Television/public service announcements	9

The public, nonprofit, private, and public university sectors each utilize different techniques to market coastal resources management training courses to potential audiences. Public agencies primarily used organizational newsletters and direct mail campaigns and infrequently utilized telephone solicitations or television/public service announcements. Other marketing techniques (in addition to the survey selections) were organizational mailings, in-house training programs, boat shows, word-of-mouth, and radio public service announcements and advertisements.

Nonprofit organizations most often utilized press releases and co-sponsors or partners to market to potential course participants, but infrequently utilized newspaper advertisements and television/public service announcements as vehicles to market information. The nonprofit organizations cited, in addition to the survey selections, other methods for marketing to potential audiences, such as door-to-door neighbor introduction, diving instructors and equipment dealers, and brochures with perforated mailings.

The private companies responding to the survey utilized direct mail campaigns, email lists, and co-sponsors or partners to market training opportunities, but didn't cite newspaper advertisements, telephone solicitations, or television/public service announcements as techniques to attract potential audiences. The private sector training providers additionally listed word-of-mouth as a technique used to market courses.

The public university population that responded to the survey marketed to potential participants through direct mail campaigns, email lists, organizational newsletters, and websites. The public universities responding to the survey infrequently used newspaper advertisements, telephone solicitations, and television/public service announcements to market their training. The public university training providers additionally cited word-of-mouth, presentations at meetings, posters at colleges, and radio public service announcements as methods for encouraging course participation. Table 11 below summarizes the survey responses.

Table 11

MARKETING TECHNIQUES BY SECTOR		
Sector	**Technique**	**Ranking**
Public	Direct mail campaigns	1
	Organizational newsletters	2
	Press releases	3
	Email lists	4
	Marketing done by co-sponsors/partners, Organizational website	5
	Newspaper advertisements	6
	Other	7
	Telephone solicitations	8
	Television/public service announcements	9
Nonprofit	Marketing done by co-sponsors/partners & Press releases	1
	Direct mail campaigns, Email lists, Organizational website	2
	Organizational newsletters, Other	3
	Telephone solicitations	4
	Newspaper advertisements	5
	Television/public service announcements	6
Private	Direct mail campaigns, Email lists, Marketing done by co-sponsors/partners	1
	Organizational newsletters, Organizational website, Press releases, Other	2
	Newspaper advertisements, Telephone solicitations, Television/public service announcements	3
Universities	Direct mail campaigns, Email lists, Organizational newsletters, Organizational website	1
	Press releases	2
	Marketing done by co-sponsors/partners, Other	3
	Newspaper advertisements, Telephone solicitations, Television/public service announcements	4

Section 6: The Training Environment and Other Organizations

Training Disparities

The survey respondents were asked if they could identify any gaps in coastal resources management training in Ohio, such as unmet training needs, audiences, timing, and length of training. The survey respondents listed what they perceived to be the disparities in Ohio's coastal resources management training programs. These disparities or "gaps" are divided into seven thematic categories:

- Coordination
- Equipment/Logistical Factors
- External/Internal Marketing and Promotional Assistance
- Funding
- Instructional Quality/Nature of Training
- Personnel/Staff Assistance
- Regulatory/Safety/Security

The survey results indicated that issues relevant to instructional quality and the nature of training are noted as the primary "gaps" in coastal resources management training. Other disparities identified by training providers responding to the survey were issues of external/internal marketing and promotional assistance, coordination, equipment and logistical factors, funding, personnel and staff assistance, and regulatory/safety/security concerns. Appendix L of this report details the responses of the training providers.

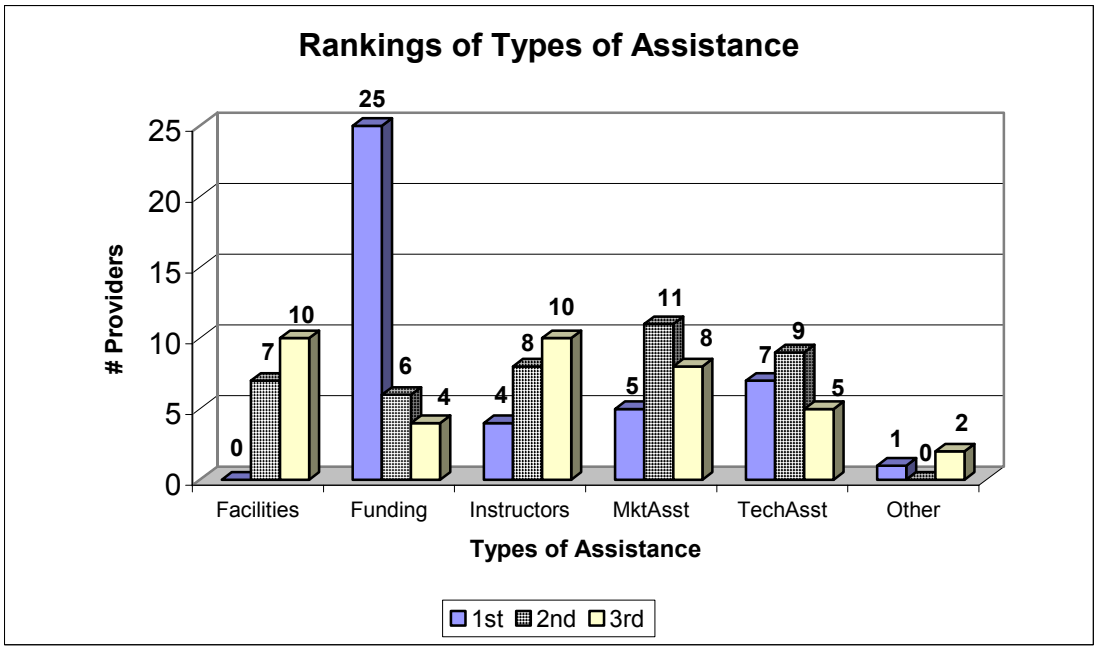
Assistance to Benefit Training Providers

The Ohio Department of Natural Resources (ODNR) and its partners are interested in forming partnerships with a variety of coastal resources management training providers. The survey respondents were asked to rank on a scale from one to six the types of assistance from ODNR and its partners that would be most beneficial to them, with one being the most beneficial, two the second most beneficial, and so forth. The types of assistance listed as choices are facilities and operational support, funding support, instructor/trainers, marketing assistance, professional expertise/technical assistance, and other. The top three rankings are being reported because many respondents ranked only their top three choices. Also, responses for 46 of the 50 training providers are being reported. Since ODNR and its CTI partners would be offering the assistance, they were excluded from the results.

The survey results indicated that the majority of the survey respondents ranked funding support as the type of assistance that would be most beneficial, marketing

assistance as the type of assistance that would be second most beneficial, with both instructor/trainers and facilities and operational support being as the type of assistance that
would be third most beneficial. The figure below (Figure 16) graphically depicts the survey results.

Figure 16



OPPORTUNITIES IN COASTAL RESOURCES MANAGEMENT TRAINING

Training Opportunities

Providers were asked how they informed potential trainees about provider opportunities (Question 25). We observed a relatively even distribution of methods across ten categories. However, the four methods used most often, in order, were direct mail campaigns, organizational newsletters, email lists, and press releases. We also observed a difference in the methods preferred by providers depending on their status as public, nonprofit, private, or public universities.

When taken as a whole, the variety of methods used and the dissimilar emphases among types of providers might indicate uneven coverage of the pool of potential trainees. It is likely that gaps in information dissemination occur among these providers, and anecdotal evidence from the telephone interview process supports this view. We do not know the extent to which these different types of organizations share mailing or contact lists, but it is unlikely this practice is extensive, particularly among private and nonprofit entities that often perceive these contact lists as proprietary.

It is likely that a need for information dissemination could be met by the CTP. At this point in the study, we envision an easily accessible “information clearinghouse” as a service that the CTP could provide. This clearinghouse could become a significant resource throughout the Ohio Lake Erie basin if properly structured and supported. We suggest that during the needs assessment phase of the project, focus group participants are asked about their unmet needs for information, their perceptions of a “clearinghouse” function, and in particular, the appropriate mechanisms for access to the clearinghouse information (email, web, or other methods).

Course Topics

Appendix G of this report provides information on the topics covered in coastal resources management training courses identified in our survey. Topic categories such as water quality, conservation, natural areas, invasive species, and habitat restoration top the list while others, such as museums, the clean vessel act, boating, and port facilities, are infrequently presented. When all of the course topics were organized into seven categories, the following pattern emerged in terms of a topic - frequency distribution (the number of times these topics were covered in various courses are listed parenthetically): Land Use / Infrastructure (124), Public Health / Safety (108), Ecological / Natural Resources (85), Regulatory (41), Economic Development (19), Cultural Resources (12), and “Other” (17).

These frequency distributions point to factors that possibly generated them and also to opportunities for future offerings. Because ODNR and Ohio Sea Grant offer many courses, it is possible that these distributions are driven by matching the expertise of the providers with the training topics they perceive as needed for the Lake Erie watershed. The topics of the most frequently offered courses also seem to suggest this. An implication of this is that a more even distribution of topic offerings (if this is considered desirable) may be facilitated through the creation of partnerships with providers having both different and complementary expertise, as suggested elsewhere in this section.

Finally, it is clear from the topic frequency distribution that the topic areas of "Economic Development" and "Cultural Resources" are relatively infrequently represented. These topic areas, then, represent potential opportunities, particularly as the economic infrastructure of the watershed continues its pattern of change from manufacturing and agriculture to servicebbased industries, and in particular toward the region's increasing emphasis on tourism and recreation. Again, the partnering of state agencies with universities and private sector providers may help to create courses appropriate to these areas and contribute to the funding, facilities, and expertise for offering them.

Geographic Distribution of Courses

Those courses that focus on Land Use/Infrastructure constitute the largest single type of course offered throughout the Ohio Lake Erie basin. This is a result of the activities of several providers who offered training across numerous counties on watershed planning, conservation development, and non-point source pollution.

The Public Health/Safety courses are by and large focused on boater safety and water recreation uses; the majority are given by the Division of Watercraft of the Ohio Department of Natural Resources. Three courses (boating safety, the role of the U.S. Coast Guard, and training for boating instructors) are offered in most of the counties of the Ohio Lake Erie basin. Courses on fish advisories and fish contaminants and litter education constitute the other topics for training, but are single-time offerings in a few locations.

The courses focused on Ecological/Natural Resources were substantial in number, with the largest single concentration in Cuyahoga County, followed by a second tier in Summit, Lake, Huron, Franklin, and Ottawa counties. Courses were offered by a surprising range of types of providers, including nonprofit, county conservation, state agencies, Sea Grant, and National Marine Estuary Reserve at Old Woman Creek.

The geographic distribution of the courses suggests several opportunities. More courses are taught in the eastern half of the Lake Erie basin, which is not surprising

given the higher population and perhaps because of greater land use change that has stimulated heightened interest in water and coastal resource issues. However, we cannot assume that a lower demand for training exists in the western part of the basin from these results. This should be determined through the needs assessment phase of the project. Expansion of training into the western basin would meet this need if it were established. The CTP partners should consider partnerships with organizations that are providing training across the basin, piggy-backing on their network to deliver a broader array of training curricula if it is determined that an unmet need exists.

We also see from Appendix M and the mapping exercise that fewer courses are offered in the categories of economic development and cultural resources. The needs assessment phase of the project should determine whether this low number is due to actual low need by potential trainees, a perception of low need by providers, or gaps in provisions of services that could be met through the CTP.

Partnerships

A recurrent gap identified by interviewees was the need for an information clearinghouse that would provide a "one-stop shopping environment" for organizations and individuals that would benefit from courses pertaining to coastal resources management training. One of the major benefits of such a clearinghouse to providers is to enable them to create efficiencies in terms of the management of their own resources. Public, nonprofit, and private agencies, along with universities, are the major providers of coastal resources management training in the Ohio Lake Erie basin. Nevertheless, anecdotal comments received in the course of our interviews suggests that communication among these provider groups is not very well established. A clearinghouse would enable communication among the groups of providers. This could help eliminate duplication of efforts, ensure more even geographic coverage, and encourage a diversification of course offerings where gaps are identified.

An additional desirable step would be the formation of partnerships among the providers that could result in collaborative fundraising, sharing of information and expertise that would enhance the quality of information provided, and the sharing of training facilities. Such partnerships would help ensure that the best quality information is disseminated to the broadest interested audience. In addition, partnerships could be an important step in breaking apart the "silos" that often separate these different organizations with common interests.

Coordination

The variances and inconsistencies of coastal resources management training courses offered across the Ohio Lake Erie basin, and as evidenced nationally, provide a number of opportunities for ODNR and its coastal training program partners. The inconsistent geographic spread of courses, course content and format, costs to

participants and providers, marketing methods, and methods of disseminating information define a need for coordination.

An opportunity exists for ODNR and its coastal training partners to function in the role of coordinator for coastal resources management training programs statewide. In their role as coordinator, the coastal training partners can facilitate coordination in three basic areas:

1. **Coordination among providers**
   - Work with training providers to examine and better define course content and curriculum in an effort to develop more consistent topic areas and areas of concentration for training.
   - Work with training providers to develop well-defined program goals and objectives, including action plan development and steps to completion.
2. **Coordination of the training market**
   - Develop a process to tie interested students, policymakers, and instructors to training providers that will ensure a pool of eligible instructors and a pool of eligible students.
   - Work with training providers and participants to curtail training costs by offering and sharing resources.
   - Develop a certification process recognized among coastal resource management practitioners that will enhance the knowledge level and stature of the training participant.
3. **Coordination of training across Ohio's geography**
   - Work with providers to balance the location of courses across the state, thus increasing opportunities for course participation.
   - Develop advertising and marketing processes that will consistently channel training opportunities to students across geographies, as well as channel course opportunities to providers.
   - Develop marketing and information dissemination processes that will consistently channel training opportunities to policymakers that will create and reinforce an awareness of coastal environmental issues.

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APPENDICES

Appendix A: Cover Letter, First Group; Cover Letter, Second and Third Groups

Appendix B: Telephone Interview Questionnaire (First Group)

Appendix C: Survey Questionnaire (Second and Third Groups)

Appendix D: Database of Survey Candidates

Appendix E: Mission Statements of Survey Respondents

Appendix F: Mission Statements by Sector

Appendix G: Topics Covered by Providers of Coastal Resources Management Training

Appendix H: Name/Description/Location of Coastal Resources Management Courses

Appendix I: Largest Item and Cost Incurred by Providers of Coastal Resources Management Training

Appendix J: Types of Audiences Targeted by Providers of Coastal Resources Management Training

Appendix K: Methods of Marketing Coastal Resources Management Training Opportunities

Appendix L: Disparities in Coastal Resources Management Training Programs, as Identified by Training Providers

Appendix M: Coastal Resources Management Training Courses in the Lake Erie Watershed (by category)
Category #1: Ecological/Natural Resources
Category #2: Economic Development
Category #3: Land Use/Infrastructure
Category #4: Public Health/Safety
Category #5: Regulatory
Category #6: Cultural Resources
Category #7: Other

Appendix N: Annotated Bibliography