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Coastal Resources Management Training Needs Assessment: Strategies and Opportunities

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**Coastal
Resources
Management
Training
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Assessment:
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and
Opportunities**



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**Coastal Resources Management
Training Needs Assessment**

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TABLE OF CONTENTS

Executive Summarypage 5
Introductionpage 9
Comparative Analysis of Project Phasespage 11
Strategies and Opportunitiespage 21

***Coastal Resources Management
Training Needs Assessment***

EXECUTIVE SUMMARY

The Old Woman Creek National Estuarine Research Reserve (OWC), Ohio Department of Natural Resources-Coastal Management Program (ODNR-CMP), and Ohio Sea Grant College Program engaged the Great Lakes Environmental Finance Center (GLEFC) to aid them in developing a coastal resources management training initiative for Ohio coastal decision-makers. Coastal decision-maker professionals are expected to formulate effective strategies and apply interdisciplinary approaches to solving problems and policy issues that affect the environments of coastal regions. There are a number of professionals in a variety of occupations who make decisions regarding coastal and environmental policy issues. These individuals include those within the coastal resources management field, such as conservationists, planning professionals, and coastal regulatory officials, as well as individuals not directly within the field, such as local officials, state and federal agency staff, project managers, and staff from non-governmental, economic, and community development organizations.

Coastal decision-makers attain knowledge that has profound effects on their actions concerning land use, the management of resources, and economic issues related to Lake Erie. The degree to which such knowledge is cross disciplinary and inter-organizational determines the extent to which integrated coastal resources management systems can be created and sustained. These decision-makers may or may not be aware of the existing programs that could be of assistance to them in their roles. Coordination in knowledge provision is needed across geographies and organizations to manage emerging issues for an integrated, effective coastal resources management system.

There is much interest in the environmental quality of Lake Erie and the Great Lakes. Over the past decade, several environmental challenges have affected the Lake Erie basin and the Great Lakes region, such as water quality, and coastal erosion and habitat. These challenges emerge as critical factors in decisions on the management of Lake Erie resources and highlight the importance of the flow of information.

The emergence and complexity of biological, environmental, and industrial challenges confronting the Lake Erie basin require a coordinated and well-communicated response – one that is focused at educating coastal decision-makers and policymakers at the state and local levels on these series of challenges. Although these challenges have long existed, they have become more frequent and more complex for coastal decision-makers and policymakers. Because these challenges span the Lake Erie basin, a single jurisdictional or

Coastal Resources Management Training Needs Assessment

multi-jurisdictional response in one sub-region of the basin would not be effective. The response to these challenges should be spatially communicated and coordinated across the geography of the Lake Erie basin. A well-coordinated and well-communicated coastal resources management training strategy will result in an accumulation of knowledge among coastal decision-makers and policymakers across the Lake Erie basin that will aid them in making decisions to address these and other challenges.

An analysis of the coastal resources management training market within the Lake Erie basin revealed some of the challenges faced by coastal decision-makers. The primary challenges identified were in instructional quality and in the types of training provided. Disparities were also indicated with coordination, equipment/logistical factors, external/internal marketing and promotional assistance, funding, personnel and staff assistance, and legislative and regulatory concerns.

Through an analysis on the needs of coastal decision-makers, coastal professionals considered topics relative to lake/water resources and land use/infrastructure as priorities for knowledge and training. These coastal decision-makers revealed a need for access to information regarding the environmental and economic impact of managing Ohio's coastal resources. They indicated the need for a coordinated network for the delivery of training programs – one that would integrate knowledge across topics and focus on regional resource issues and management problems. The decision-makers also stated a need to cultivate training programs that would increase the knowledge base of public officials and guide the development of coastal resources management public policy. The development of a coastal training strategy could be utilized to begin to address the challenges and needs identified by coastal decision-makers.

The GLEFC is engaged in this project to determine how information regarding these and other challenges is being communicated to decision-makers at the local, regional, and state levels across the Lake Erie basin; to determine the breadth of training opportunities; and to assess the quality and opportunities for coordination across the coastal training market. Our analysis of the coastal training market of the Lake Erie basin and an assessment of the training needs and skill requirements of coastal decision-makers revealed that, while coastal resources management training activities occur, there are critical needs for training and for coordination across the market. For example, inconsistency in the quality of instruction and the types of training provided were identified by coastal decision-makers in an analysis of the Lake Erie basin training market. In the needs assessment of coastal volunteers and professionals, topics relative to lake/water resources and land use/infrastructure were considered as priorities for knowledge and training development. In addition, coastal decision-makers across the Lake Erie basin identified the needs for access to information on the

Coastal Resources Management Training Needs Assessment

environmental and economic impact of the management of Ohio's coastal resources; for better organized and territorially targeted training programs that would integrate knowledge across topics and become more focused on regional resource issues and management problems; and for training opportunities that would increase the knowledge base of public officials and guide the development of coastal resources management policy.

These findings suggest that the Lake Erie basin coastal resources management training market is not currently performing efficiently. The inconsistency of training techniques, course content and curriculum, duration and timing of offerings, broadness and comprehensiveness of topical areas, and the spatial distribution, frequency and number of offerings suggests the need for a coordinated training service. The complexity within the market reflecting the diversity of participants highlights the need for a central coordinating function.

The call for consistency, coordination, curriculum, and quality by coastal decision-makers underlies a fledgling market that could be nurtured through a strategic coastal training initiative. The foundation for this market could be provided through the roles of state governments, educational institutions, and environmental entities. OWC, ODNR-CMP, and Ohio Sea Grant College Program are appropriately poised to accept the role of convener and coordinator in the development of this foundation for an integrated coastal training strategy in the Lake Erie basin.

A national network of comparable efforts is ongoing through the National Oceanic and Atmospheric Administration (NOAA), from which best practices for identifying and solving challenges within the Lake Erie basin can be determined. By linking to this national network, the national best practices can be communicated and developed into a management format that would assist Lake Erie basin coastal decision-makers and policymakers in addressing local environmental challenges.

With the examination of the market complete and the needs of coastal decision-makers assessed, the partners can create a foundation in Ohio for coordinated and integrated coastal resources management training programs. Therefore, we recommend the development of a strategic plan that will provide support for a comprehensive and quality based approach in facilitating information flow between coastal resources managers and policymakers.

***Coastal Resources Management
Training Needs Assessment***

INTRODUCTION

The Great Lakes Environmental Finance Center (GLEFC) was engaged in September 2001 to aid coastal training partners in developing a coastal resources management training initiative for Ohio coastal decision-makers. Agencies collaborating on this initiative are the Old Woman Creek National Estuarine Research Reserve, the Ohio Department of Natural Resources Coastal Management Program, and the Ohio Sea Grant College Program. The coastal training partners are part of a coastal training initiative being undertaken by the nation's National Estuarine Research Reserves, supported by the National Oceanic and Atmospheric Administration (NOAA).

The first phase of this project included a market analysis to examine Ohio's coastal training and education market and to demonstrate the partners' relationship to this market. The study analyzed the range, scope, and delivery systems of current coastal training programs and service providers throughout the state. Training providers in the Ohio Lake Erie basin were surveyed to generate information on the area's coastal training environment.

The second phase of the project was a needs assessment to evaluate the training needs and skill requirements of coastal decision-makers. Coastal decision-makers and training providers in the Ohio Lake Erie basin participated in seven focus groups to generate information on coastal resources knowledge and training needs. Six of the focus groups were comprised of a cross section of professionals who make decisions affecting watershed areas or Lake Erie coastal areas (non-providers); the seventh was comprised of training providers (providers). Discussions centered on core knowledge needs and training needs.

The coastal training partners have chosen to move forward to develop and implement a coordinated coastal resources management training initiative for the Lake Erie basin. The partners envision a comprehensive training and information network built upon the scientific knowledge to manage coastal environmental and policy issues for professionals engaged in decision-making activities regarding coastal resources in Ohio. This report is a synthesis and analysis of both phases of this process, and can be used by the partners as a strategy document to facilitate the development and implementation of an integrated coastal resources management training service.

The report is organized into four 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 also summarizes conclusions and recommendations of the analysis.

Coastal Resources Management Training Needs Assessment

2. **Introduction** – The Introduction provides background information on the project and outlines the contents of the report.
3. **Comparative Analysis of Project Phases** – This section of the report contrasts and summarizes the findings of phase one of the project (Coastal Resources Management Training Market Analysis) and phase two (Coastal Resources Management Training Needs Assessment).
4. **Strategies and Opportunities** – This section of the report discusses recommendations and strategies emerging from the comparative analysis for further development of a coastal resources management training program for the Lake Erie basin.

COMPARATIVE ANALYSIS OF PROJECT PHASES

Good coastal management practices can be encouraged through comprehensive training and educational programs for coastal resources decision-makers. This section analyzes the relationship between the status of the training program environment in the Ohio Lake Erie basin identified through the market analysis (Phase 1) and the needs of coastal decision-makers identified through the needs assessment (Phase 2). These results indicate ways to improve the training environment for coastal resources decision-makers.

The knowledge that coastal resources decision-makers possess will have an important impact on their actions concerning land use, resources management, and economic issues. The degree to which such information is cross disciplinary and inter-organizational determines the extent to which integrated coastal resource management systems can be created and sustained. Coastal resources decision-makers may or may not be cognizant of the range of scientific information or management programs that is available to assist them. An integrated coastal management framework requires an effective system by which knowledge is transferred to decision-makers.

Knowledge Base and Course Topics

Several areas of knowledge are both useful and important to coastal resources decision-makers. These include concepts useful for general management of the coastal area and practical skills for specific management situations that are more technical in nature. We classified the type of knowledge as either resource-oriented substantive or sectoral (for example, economics, ecology, health) and management-oriented knowledge (including planning, management, and regulatory compliance).

In the market analysis (Phase 1), training providers were asked to identify from a list of 47 choices which topics were covered in the training courses they conducted. The training providers most frequently focused on topics related to surface water, land preservation, and animal habitat. Appendix G of the market analysis report provided information on the topics covered in coastal resources management training courses offered over a one-year period (identified through the survey process). Topic categories such as water quality, conservation, natural areas, invasive species, and habitat restoration topped the list of frequently offered courses 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

Coastal Resources Management Training Needs Assessment

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). The current state of the training market can be described in terms of the priorities in core knowledge that training providers believe is critical for local decision-makers.

In the Phase 2 needs assessment, both the non-provider and provider focus groups communicated the need for enhanced information and knowledge about economic aspects of coastal resources management and protection, including knowledge on assigning economic value to various land uses, and defining benefits and costs to particular land/water management practices. The results revealed that the provider focus group was less interested in receiving formal training than in receiving information by indicating on a scale of one to five their interest about Land Use and Infrastructure (3.45) and Lake/Water Resources (3.27). These two topics received the highest agreement ratings, followed by Cultural Resources (3.09). Interest in formal training for Economic Development (2.82) and Public Health (2.73) was not as strong.

In contrast, non-provider groups gave the highest ratings to Land Use/Infrastructure (3.28) and Economic Development (3.26). From the focus group discussion as well, non-provider participants valued training and information regarding economic aspects of coastal resources management. Participants described the need to understand the economic impact and value of coastal and watershed protection, including sub-topics such as the value of protecting coastal vistas, zoning impacts, the use of effective zoning as a tool for protection, and the economic aspects of non-point source pollution. Respondents expressed a need for information on an economic value-oriented approach, either as a defense or justification for their policy decisions. This information, they believed, would allow them to pursue effective protection and management policies. This also would give them a “numbers-oriented” way to appeal to landowners, developers, and elected officials in addressing coastal protection issues.

In all, the non-provider groups communicated the need for more information about the economic aspects of coastal resources management and protection. The non-provider focus groups also indicated the need for knowledge on how to assign economic value to various land uses (including redeveloped, preserved, and restored areas), and define the benefits and costs to particular management practices at the land/water interface. Alternatively, the provider group had less of an interest in obtaining information about economic development and economic aspects of coastal management.

Coastal Resources Management Training Needs Assessment

This is a difference in priorities worth investigating. It suggests, for instance, the need for more sustained and targeted information sources regarding economic aspects of coastal and watershed management practices for training providers. It also suggests an opportunity to develop training curriculum and information regarding coastal resources protection and best management practices, as well as assessing the economic costs associated with adverse conditions and management practices. Economic development, cultural resources, and land use, for example are identified as needs, but ones for which few courses are offered. Because the economic infrastructure of the watershed continues its pattern of change from manufacturing and agriculture to service based industries, and in particular toward the region's increasing emphasis on tourism and recreation, the need to understand economic aspects of coastal and watershed management is likely to grow.

In contrast, the provider group identified most strongly the need for a basic understanding of the science of conservation among decision-makers. Important topics in this respect are wetlands function, coastal waterways, fisheries, and remediation. The discussion centered on an understanding of what community-based watershed management is – a practice of leveraging partnerships and community building. The training providers believed that scientific knowledge was needed as a foundation to enhance effective community participation in management efforts.

The non-provider participants desired a mix of both resource and management knowledge but emphasized their needs regarding management information. They highlighted the need for training and information about sources of funding to address resource problems, relevant laws and policies, classification of regulatory mandates and authority, and information on use of land planning and zoning techniques for coastal resources protection. Again, knowledge about Land Use/Infrastructure, Economic Development, Laws and Regulations, Best Management Practices, and Funding Sources ranked as high priorities in terms of the need for more information and the need for formal training.

The provider focus group also rated highly the need for information about Best Management Practices and Laws and Regulations, which converges with the stated needs of the decision-makers and strengthens the need for coastal training partner efforts. The partnering of state agencies with universities and private sector providers may help to create courses appropriate for these areas and contribute to the funding, facilities, and expertise for offering them.

In the focus group of training providers, the subcategory of Use of New Communication Technologies was the highest rated item in the “want training” category. The category of Partnership Opportunities was also highly rated by the providers. These findings should serve to encourage the coastal training partners in terms of efforts to consolidate or coordinate training programs and to adopt more efficient delivery mechanisms such as web-based programs. Because providers expressed needs for both “more information” and “formal training,” this suggests a role for the coastal training partners in “training the trainer” programs to provide them with information they can deliver to their trainees and improved techniques for its delivery.

Course Curriculum Quality

Of key importance is what information is actually delivered during a training session. Neither the market analysis phase nor the needs assessment phase evaluated the curriculum content of training sessions. However, provider respondents in the market analysis were asked for the titles of the three most well attended courses and to provide brochures and descriptions of these courses. The market analysis reveals that there is no consistency in topical definition across courses. That is, the curriculum content varies depending upon the type of organization that is providing the training. The survey results also indicated that issues relevant to instructional quality were considered a primary “gap” in coastal resources management. This situation may provide an opportunity for the coastal training partners in terms of setting curriculum standards and better defining the kinds of technical assistance that is needed.

In the focus group study conducted during the needs assessment, non-provider groups expressed a concern that trainers needed to have practical, current expertise and also needed to know how to deliver their information effectively. Any new training programs or programs to train trainers should strive to ensure that speakers/presenters are both engaging and have experience with their subject matter. There is a distinct perception against speakers who lack direct *practical* experience in the topic area.

These results suggest the creation of a consortium of training providers that could rationalize curriculum content, share knowledge and research results to improve curriculum, and organize regionally focused workshops with local ties in terms of content and presenters. The consortium could partner with university experts for research on science management. Additionally, this consortium could effectively and efficiently disseminate information through shared networks of video conferencing/distance learning facilities to allow for expanded access to centrally located expertise.

Coastal Resources Management Training Needs Assessment

Relatively few courses are offered in the Ohio Lake Erie basin in the categories of economic development and cultural resources. These few courses were concentrated in counties along the Lake Erie shoreline. When compared with the results of the needs assessment (described above), the low numbers of these types of courses appears to constitute a true “gap” in provision of services. The differences in the results between the market analysis and the focus group study can be thus explained: it might be that the focus groups captured a different type of respondent than did the market analysis. A solicitation for responses from “coastal” resources management training providers during the market analysis would not likely elicit a response from typical economic development practitioners. This group would have been more likely to respond to the request for focus group participants given the emphasis on local government decision-makers. They did not frame their efforts in terms of coastal resources management, even if the community lies on or near the Lake Erie shoreline. It is less likely that economic development planners and decision-makers would frame their practice in terms of coastal resources if the decision-maker operates on a tributary watershed. The decisions of practitioners, however, shape the introduction of new facilities that may increase the burden of pollutants into the Lake Erie basin, and encourage development in headwater areas or coastal areas that can increase land erosion, if not properly accomplished.

Both non-provider and provider groups suggested that the term “coastal” was problematic. Very few of the focus groups understood the rationale or relevance of the term as it applied to them, even though their decision-making roles could be expected to have an effect on Lake Erie water resources. They directly suggested removing the term “coastal” from literature regarding the Lake Erie basin and watershed areas. We suggest that terms such as “watershed,” “river basin,” “lake basin,” or “lakeshore” be added to “coastal” in future descriptions.

At issue is the conflict between the practice of geographically dispersing one course across the basin to improve the knowledge base of decision-makers versus the expressed need of focus group participants for locally oriented training experiences. The partners should identify curriculum and delivery methods that can address both needs. This would likely mean greater flexibility in curriculum (perhaps through modules) and increased flexibility in delivery location (perhaps distance learning delivery systems for workshops). At this time, a more even distribution of topic offerings can be facilitated through the creation of partnerships with providers having both different and complementary expertise.

Knowledge Transfer and Delivery

Effective education and training programs depend upon the availability of information, the existence of an infrastructure (instructors and institutions) for delivery of information and skill training, and the objectives and perceived needs of decision-makers. Understanding what kind of information local decision-makers possess or need, how they currently gain relevant information, and what mechanisms are the most effective in transferring relevant information is key to more effective dissemination of scientific and technical information.

As a group, non-provider focus group participants tended to rate information needs higher than training needs. It appears that for most of the core knowledge topics, the non-provider and provider groups felt they possessed sufficient scientific or technical knowledge, but needed an efficient way to update that knowledge outside of formal training environments. This is a key finding of the needs assessment. It strongly suggests that the coastal training partners consider a range of mechanisms through which to transfer knowledge and training information, including web-based mechanisms.

Both non-provider and provider focus groups perceived information sources concerning coastal and watershed resource and management issues to be disorganized, and expressed a desire for this relevant information to be organized in a more useful way. The non-providers and providers were consistent in expressing the need to access information more readily, and to find information specifically relevant to a particular situation or issue in their locality. These responses highlight a need to improve general access to information about watershed function and management, both as a way for providers to serve their constituents better and as a way to deliver their programs more efficiently and cost-effectively.

These findings also suggest a role for the coastal training partners in providing a web-based information clearinghouse and perhaps an “information czar” who could respond to decision-maker questions. A key aspect of these services, however, should be to organize and respond to the information needs of the decision-makers on a regional basis. This would allow provision of locally relevant information on resource and management topics. The non-providers and providers stated their need for information collected from multiple state and federal programs regarding a particular resource, management, or compliance issue so that they might ascertain the range of information available and get answers to their questions more readily. The web-based or personnel source could provide information on both regional-specific and basin-wide scientific, technical, and management training opportunities.

Both non-provider and provider groups expressed a concern that training sessions deliver what is advertised, and that there is a need to target or focus training topics and materials more carefully. Their experience often was that the topic was broadly cast so as to accommodate a wide audience, with the result that many attendees with more specific knowledge found the training to be a waste of time. This result is connected to the issue of curriculum quality as well. Both content and delivery need to be of high quality to effectively educate decision-makers.

Finally, the non-provider groups consistently stated the need for training delivery locations “close to home” to facilitate their attendance on a more frequent basis. This suggests a need for regionally located training centers or venues to make access to training easy to local decision-makers. Both non-provider and provider groups expressed concern over lengthy training sessions that would take time away from their routine responsibilities. The non-provider and provider groups acknowledged that there is a wealth of information and knowledge available through training opportunities, but felt overwhelmed by the lack of resources in their organizations to take advantage of these. Training in a coordinated manner can go a long way to help ease their burden while still allowing them the opportunity to meet their everyday coastal resources management objectives. This suggests a need for regionally located training centers or venues to make access easy to local decision-makers or regionally targeted distance learning opportunities. A web-based or distance learning training opportunity might provide an appropriate response by eliminating the need for travel. The market survey indicated that distance learning and Internet mechanisms were used in only three training opportunities for the most well attended courses among the respondents. Adoption and facilitation of these mechanisms might prove a key area of development for the coastal training partners. Clearly, if this mechanism were adopted, training providers would require training themselves in delivery techniques to maximize the effectiveness of the media.

Partnerships and Coordination

Direct Services to Training Providers

The coastal training partners are interested in forming partnerships with a variety of coastal resources management training providers. In the Phase 1 market analysis, the survey respondents ranked funding support, marketing assistance, assistance in securing instructors/trainers, better training facilities, and equipment for training as the types of assistance that would be most beneficial. The market analysis respondents also identified these aspects as key “gaps” in the current training environment. These are discussed briefly.

Marketing

Training providers identified assistance in marketing their programs more effectively and more widely as a key need. The providers targeted a range of audiences for their programs, but focused on local elected officials and candidates as their primary audience. For this audience, the providers currently use a variety of methods for such marketing, but direct mail strategies dominated. The providers consider this to be the best technique for reaching elected officials (as opposed to email or web pages), while considering the costs of direct mailing (which can be relatively expensive when compared to electronic techniques) as cost-effective. Marketing techniques of email and web pages were ranked significantly lower by the current providers as effective marketing techniques.

The results from the focus groups, which were attended by elected officials but did focus on local decision-makers, are somewhat contradictory. When asked how access to information about training could be improved, participants suggested use of the World Wide Web, along with newsletters and email list serves from professional associations as mechanisms that would improve information flow. Participants also noted the need for use of a variety of mechanisms for information dissemination, including use of the computer technologies.

Two issues emerge from this result. Given the diversity of professions whose decisions affect coastal and watershed conditions, it seems advisable that information about training opportunities should go to a wide range of potential participants (keeping in mind that the content of the training sessions need to be targeted accordingly). It also seems advisable that providers need to expand both their targeted audiences and the marketing techniques used for contact to increase the number of participants and deepen the knowledge base across the basin. The coastal training partners might help in two ways. It is likely that gaps in information dissemination occur among these providers and anecdotal evidence from the telephone interview process during the market analysis study 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 non-profit entities that often perceive these contact lists as proprietary. The coastal training partners might provide a coordinating function by offering access to a range of organizational contacts or, alternatively, might provide a “clearinghouse” through which providers could advertise their courses to audiences across the basin. As envisioned, this easily-accessible, web-based “information clearinghouse” could provide information to potential participants on training opportunities and serve as an additional marketing tool for providers. This clearinghouse would have the potential to become a significant resource throughout the Lake Erie basin.

Instructors/Trainers, Training Facilities, and Equipment for Training

The role of the coastal training partners here is key. Access to instructors, facilities, and equipment could be facilitated through coordination of information regarding instructor availability and expertise. A “bank” of experts could be established to assist local training organizations in finding instructors. The use of distance learning facilities, including television broadcasts of training sessions, could be used to improve provider access to this expertise as well. The coastal training providers could also broker arrangements for the use of private and public facilities through creation of a basin-wide training consortium, through which organizations could offer high quality facilities for use by other organizations and through co-sponsorship of training events. The coastal training partners could coordinate among providers to improve their efficiency through shared resources, instructors, marketing strategies, and information dissemination strategies, and identify geographically optimal course locations.

Training the Trainers for Improved Product Delivery

Two key areas of improvement to the current training market identified through both the market analysis and the needs assessment are to enhance the quality and delivery of current training sessions. The coastal training partners could be instrumental here through a coordinated effort to review curriculum across organizations to help ensure the highest scientific accuracy of the training courses (for both resource- and management-oriented curriculum). For delivery of training sessions, the issues identified were the length, organization, and level of information delivered by a given organization. The coastal training partners and other organizations with whom they contract could be enlisted to assist training providers in focusing the content of training sessions to be appropriate for a narrowed target audience. If distance learning as a delivery mechanism is pursued, the training providers would likely need training in the use of these technologies and the implications it has for course design. The coastal training partners could facilitate contacts for assistance with university faculty and others familiar with such technologies.

New Curriculum

The results of the market analysis and the focus groups indicated the desire for new types of training curriculum to more effectively address local decision-maker needs. The coastal training partners could be instrumental through a coordinated effort to fill gaps in training curriculum, particularly to address regionally specific issues. Current training providers could be encouraged to attend training sessions and to use informational resources to improve their product. They could also be encouraged to coordinate among

themselves and with the coastal training partners to update the information they deliver.

The coastal training partners could facilitate creation of curriculum in key areas, which includes economic aspects of coastal and watershed management and land use and other regulatory issues. The partners could also facilitate the creation of curriculum to address regionally based training on key problems and management strategies that incorporate both scientific information on watershed and coastal functions and practical methods for management. The latter may include information on the generation of grant proposals, development of watershed plans, programmatic responses to federal and state regulatory mandates, and capital budgeting and funding schemes for planning and management activities.

Institutional/Programmatic Development Across Lake Erie Basin

The results described above point to the creation of a mechanism to fill in gaps in curriculum and to create distance learning networks to expand training to a wider geography. The partners might consider the development of a consortium of resource and management specialists as a core training group that would be committed to providing more consistent training and information. This consortium or network of professionals could be identified via several agencies and be facilitated by an outside institution, such as a university or a recognized specialist organization. The coalition could operate on a regional basis, working with training providers from the public, non-profit, and private sectors to increase the overall quality of core knowledge provided through training and the efficiency of core knowledge delivery.

The variances and inconsistencies of coastal management training courses offered in the Ohio Lake Erie basin, and as evidenced nationally, provide a number of opportunities for the coastal training partners. Specifically, the following observations illuminate a potential need for coordination: the uneven geographic distributive spread of courses, in terms of content and format; costs to participants and providers; marketing methods; and methods of disseminating information.

STRATEGIES AND OPPORTUNITIES

The Old Woman Creek National Estuarine Research Reserve and its partners are undertaking the development of a coordinated coastal resources management training strategy for Ohio's coastal decision-makers. Although the partners currently offer a variety of training opportunities for volunteers and professionals who make decisions regarding Ohio's coastal environment, the partners seek to implement a comprehensive training and information network throughout the Lake Erie basin on managing coastal environmental and policy issues. The partners envision a coordinated and collaborative training strategy and information network that will serve as the framework for local, regional, state, and national coastal resources management training providers across Ohio.

An analysis of the Lake Erie basin coastal resources management training market indicates that opportunities exist within the coastal training arena for the partners. The primary gaps identified in coastal resources management training were in instructional quality and in the types of training provided. Training disparities were noted with coordination, equipment/logistical factors, external/internal marketing and promotional assistance, funding, personnel and staff assistance, and legislative and regulatory concerns. These disparities are indications of opportunities for the partners to establish partnerships and collaborative networks to facilitate coordinated training initiatives; to re-examine and develop course content and locations to better meet the needs and expectations of decision-makers more effectively; and to develop strategies for the dissemination of training information and opportunities effectively and efficiently to decision-makers, policymakers, and training providers. These opportunities define the need for a strategic plan and a coordinated strategy to benefit Ohio's coastal decision-makers.

An analysis of the needs of coastal professionals revealed that topics relative to lake/water resources and land use/infrastructure were considered as priorities for knowledge and training. Coastal decision-makers across the Lake Erie basin identified the need for access to information on the environmental and economic impact of the management of Ohio's coastal resources. The decision-makers expressed the need for better organized and territorially targeted training programs that would integrate knowledge across topics and become more focused on regional resource issues and management problems. They also pointed toward the need for training opportunities to increase the knowledge base of public officials and to guide the development of coastal resources management public policy. These needs, as well as training program design, could be met by coordinating information sources concerning coastal and watershed resource and management issues through an information clearinghouse.

Coastal Resources Management Training Needs Assessment

The findings from the market analysis and needs assessment indicate an overall lack of coordination, quality control (inconsistencies in course training techniques, content curriculum, duration, timing, frequency, and comprehensiveness of topics), and geographic dispersal of training opportunities across the Lake Erie basin. The issue of coordination across the coastal resources management training market in the Lake Erie basin is further emphasized with the need to ensure the proper mix and management of topical issues across the geography. This defines the need for the development of a strategy to focus the private and nonprofit public resources of education policymakers on coastal resources management issues across the Lake Erie basin.

The partners of this coastal training initiative (Old Women Creek, ODNR, Ohio Sea Grant College Program) are poised appropriately to serve as conveners and coordinators of a coastal training strategy for the Lake Erie basin. These partners are currently dispersed across the Lake Erie basin, are currently addressing these issues on a statewide basis, and are generating exposure to training opportunities in the statewide market. The call for consistency, coordination, curriculum, and quality by coastal decision-makers builds upon the current roles of the partners and identified market needs of the Lake Erie region. The partners' examination of the coastal resources management training market is timely. The fact that the partners currently serve as conveners and coordinators in other areas implies a natural progression for the partners to move into this arena.

A logical "next step" for the partners as a way to address the training gaps and needs of Ohio's coastal decision-makers would be the development of a coastal training strategic plan. A strategic plan for the state's coastal training initiative could provide a framework for implementing a coordinated and collaborative coastal resources management training service for the state of Ohio. The development of a coastal training strategy can be motivated by addressing the needs defined by coastal decision-makers throughout the market analysis and needs assessment phases of the coastal resources management training project. The coastal training strategy can also build upon the data, information, dialogue, and findings of the market analysis and needs assessment. Some of the steps in the coastal training strategic planning process might include (also see Figure 1, page 22):

1. Form a **Coastal Training Strategic Planning Committee** to oversee the development and implementation of the strategy. The committee membership could be assembled from Old Woman Creek, Ohio Department of Natural Resources, Ohio Sea Grant College Program, National Oceanic and Atmospheric Administration's Coastal Services Center, and other stakeholder federal, state, and regional agencies and/or

Coastal Resources Management Training Needs Assessment

- nonprofit organizations; and a sample of coastal decision-makers and training providers in the field of coastal resources management. The committee would be responsible for the development and implementation of the coastal training strategic plan, including the development of a schedule for the strategic planning process. The committee should identify any current and anticipated partners or stakeholders for involvement in the planning process. These partners may be found in the data and information accumulated through the market analysis and needs assessment. The committee should continuously build geographic, strategic, and issue-related representation, and support and consensus for implementation of the strategic plan. The committee should also continue to build support for the coastal training strategy through ongoing dialogue with federal, state, regional, and local agencies and organizations.
2. Develop a **strategic plan** to guide coastal resources management training in the Lake Erie basin. This would include the mission, goals, and objectives of the coastal training initiative; strategic actions to achieving these goals and objectives; assigned organizational responsibilities and a timeline for action; potential resources – funding and/or collaborative resources; recommended guidelines and procedures; and evaluation methodology and program impact analysis. The committee should conduct a **SWOT analysis**, examining Strengths, Weaknesses, Opportunities, and Threats to the coastal training initiative. The SWOT analysis, as a component of the strategic plan, would determine the key coastal issues to be addressed and would identify target audiences for marketing and participation.
 3. Develop realistic **goals and objectives** to be achieved over a defined time period. These goals and objectives would be incorporated into the strategic plan and utilized to outline a plan of action with tasks to be accomplished throughout the time period.
 4. Review the **data and information** on existing coastal training programs and needs identified by coastal decision-makers in the market analysis and needs assessment phases of the project. This information could be used as an initial point of reference to begin discussing training delivery systems and curriculum that might be employed.
 5. Adopt an **annual evaluation component** within the strategic plan, with measures of accountability, to ensure a mode of continuous improvement for all aspects of the training program. The evaluation process could include program monitoring, assessment, and impact analysis. The annual evaluation component should include an **annual report of progress** to

Coastal Resources Management Training Needs Assessment

communicate updates and progress to the committee, coastal decision-makers and providers, and the public. The report should detail the tasks accomplished within the action plan toward meeting the objectives and goals, and how the committee will address unmet tasks and objectives.

Figure 1

COASTAL TRAINING INITIATIVE STRATEGY

