Coastal Training Market Analysis and Needs Assessment
Mission-Aransas National Estuarine Research Reserve

Final Report Submitted By:

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List of Acronyms

AES	Texas AgriLife Extension Service (formerly Texas Cooperative Extension)
ANWR	Aransas National Wildlife Refuge
APA	American Planning Association
CBBEP	Coastal Bend Bays and Estuaries Program
CBBF	Coastal Bend Bays Foundation
CBLT	Coastal Bend Land Trust
CCA	Coastal Conservation Association
CCPD	Coastal Community Planning and Development
CHARM	Community Health and Resource Management
CSC	Coastal Services Center (NOAA)
CTP	Coastal Training Program
GLO	Texas General Land Office
NERR	National Estuarine Research Reserve
NERRS	National Estuarine Research Reserve System
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
SWCD	Soil and Water Conservation District
TAMU	Texas A&M University
TAMUCC	Texas A&M University Corpus Christi
TCFF	Texas Community Futures Forum
TCEQ	Texas Commission on Environmental Quality (formerly Texas Natural Resource Conservation Commission)
TMDL	Total Maximum Daily Load Program
TNC	The Nature Conservancy
TPWD	Texas Parks and Wildlife Department
TSSWCB	Texas State Soil and Water Conservation Board
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
US	United States
USDA	United States Department of Agriculture
UTMSI	University of Texas Marine Science Institute

Executive Summary

The National Estuarine Research Reserve System (NERRS) was established in 1972 by the Coastal Zone Management Act (CZMA) to provide opportunities for long-term research, education, and interpretation of coastal and estuarine resources. Consistent with the intent of the CZMA, the NERRS formally established the Coastal Training Program (CTP) in 2001 to provide additional training opportunities to coastal decision-makers throughout the county. The NERRS is comprised of 27 reserves throughout the United States covering a variety of regions and estuarine types.

The Mission-Aransas NERR represents the newest addition to this Federal-state partnership. Located in the Mission-Aransas Estuary north of Corpus Christi, TX, the Mission-Aransas NERR is the sole representative of Texas' extensive estuarine system. Due to the variety of issues specific to each location, each NERR has significant autonomy to meet the needs dictated by their coastal environment (natural and social). As such, a planning process was essential to the establishment of a CTP for the Mission-Aransas NERR.

This planning process required two primary components – a market analysis and a needs assessment. The market analysis characterizes the existing coastal training opportunities in the area surrounding the Mission-Aransas Estuary, known as the Coastal Bend. This includes a description of the counties in the Mission-Aransas NERR, a review of entities identified as potential providers of training, and information about existing training events such as the format of the event, topics covered, target audience, and location. This information will help to avoid duplication of existing training efforts and identify partnership opportunities. The market analysis indicated that the two most common training types in the Coastal Bend are "forums or public meetings" and "technical conferences or seminars." Furthermore, the three predominate topic areas for existing training events are water issues, wildlife and ecosystem management issues, and land use and planning issues.

While the market analysis focuses on the current supply of training opportunities, the needs assessment characterizes the demand. An electronic survey was distributed and received 108 responses (over a 50% response rate). The survey characterized logistical training preferences, as well as levels of general knowledge, work-related experience, and perceived need for training. Results from the survey indicate that training events should occur predominately in the winter months and remain as short as possible. Results also indicate that the CTP should primarily focus training events on wetland protection and management, regulatory compliance, habitat restoration, and general land planning. Additional training efforts should consider issues such as coastal zone management, water resources, environmental education, coastal erosion and accretion, wastewater management, and erosion control. High ratings of perceived need for training demonstrate the need for additional training events in the Coastal Bend.

When combined, the findings of the market analysis and needs assessment define the niche needed for additional training opportunities. This document represents an important step in the establishment of a successful CTP for the Mission-Aransas NERR and the information will be used to meet the training needs of local coastal decision-makers.

1.0 Market Analysis Summary

The mission of the National Estuarine Research Reserve System (NERRS) is to establish and manage a national system of NERR sites that is representative of the various regions and estuarine types in the United States (US) through a Federal and State partnership. These NERR sites were established to provide opportunities for long-term research, education, and interpretation. The Mission-Aransas NERR in Texas strives to accomplish this through the development and facilitation of partnerships that enhance coastal decision-making through an integrated program of research, education, and stewardship. The vision of the Mission-Aransas NERR is to develop a center of excellence to create and disseminate knowledge necessary to maintain a healthy Texas coastal zone.

This vision is consistent with the development of a Coastal Training Program (CTP). As a component of the NERRS, the Mission-Aransas NERR is developing a CTP at its site. The CTP provides up-to-date scientific information and skill-building opportunities to individuals who make decisions that affect coastal resources. Through this program, the Mission-Aransas NERR can ensure that coastal decision-makers have the knowledge and the tools that they need to address critical resource management issues. The Mission-Aransas NERR recognizes local entities that provide training and seeks to coordinate efforts with these entities to increase the amount of training available and to avoid duplicate training events.

This market analysis describes entities providing coastal training events in the region surrounding the Mission-Aransas Estuary known as the Coastal Bend. This description includes a review of the entities and describes the types of training events, the use of post-training evaluation methods, training audiences, and training locations they utilize. Additionally, this analysis identifies topics for which some level of training already exists as well as topics where there is no known training effort.

Results from this document suggests that the Aransas County AgriLife Extension Service, Texas A&M University Corpus Christi, City of Rockport, Coastal Bend Bays Foundation, Coastal Bend Bays and Estuaries Program, Texas Parks and Wildlife Department, and Fennessey Ranch would each be potential members of the CTP advisory committee.

This assessment also determined that the two most common training types in the Coastal Bend are "forums or public meetings" and "technical conferences or seminars." This suggests that these training types meet the needs of local decision-makers, but the Mission-Aransas NERR should consider providing alternative types as well. Furthermore, this document finds three general topic areas for existing training events: water issues, wildlife and ecosystem management issues, and land use and planning issues. Identification of entities providing training in these topic areas will inform partnership decisions for the Mission-Aransas NERR CTP when planning training events. In general, the findings of this document suggest that the training market is not saturated and the Mission-Aransas NERR is well positioned to have a positive impact on coastal training through both staff dedicated to providing coastal training and by developing key partnerships with existing entities in the Coastal Bend.

1.1 Introduction

The National Estuarine Research Reserve System (NERRS) formally established the Coastal Training Program (CTP) in 2001 with the purpose to provide up-to-date scientific information and skill-building opportunities to individuals who make decisions that affect coastal resources. Through this program, NERR sites can ensure that coastal decision-makers possess the knowledge and tools they need to address critical resource management issues. For the purposes of this document, the term coastal decision-maker will include any individual who makes regular decisions that impact the coastal or estuarine environments, either directly or indirectly, through their professional or volunteer activities.

The Mission-Aransas NERR is developing a CTP and this market analysis will inform the program about the current training market. Specific demographic information regarding the surrounding areas are crucial components to the understanding of the current training market. This knowledge will ensure that efforts to develop a CTP at the Mission-Aransas NERR are consistent with the mission of the NERRS and identify future direction of CTP development. Program development recognizes local entities that provide training and seek to coordinate efforts with these entities in order to increase the amount of available training and to avoid duplicate training events.

1.2 Regional Community Characteristics

The Mission-Aransas NERR is developing a CTP to provide training events to individuals along the Texas coast. This document is the first step in characterizing the local market and defining the niche of the CTP. Aside from analyzing other agencies that are conducting training events, it is also important to recognize the local community characteristics of the region.

The Mission-Aransas NERR is the newest of the 27 sites in the United States (US) and is the only NERR in the Western Gulf of Mexico. The Mission-Aransas NERR is located 30 miles northeast of Corpus Christi, Texas in the Mission-Aransas Estuary. The Mission-Aransas NERR (185,708 acres/ 290 sq. mi./ 751.5 sq. km.) consists of a combination of approximately 115,138 acres of state-owned coastal habitat, including estuarine intertidal marsh, shallow open-water bottoms, and approximately 66,216 acres of estuarine marsh and non-tidal coastal plain habitat that is part of the Aransas National Wildlife Refuge (ANWR) (Figure 1). The site also encompasses Buccaneer Ranch Cove Preserve (728 acres), Fennessey Ranch (3,324 acres), and Goose Island State Park (271 acres). The Mission-Aransas NERR includes a diverse suite of estuarine and non-estuarine habitats that form major representative parts of a coastal watershed. The boundaries also include a number of archaeological sites (i.e., Indian middens) and significant faunal and floral components. The lands within the Mission-Aransas NERR are relatively rural with limited industrial and urban impacts. Portions of the Mission-Aransas NERR surround the rights-of-way of the Gulf Intracoastal Waterway and cabins leased by the Texas General Land Office (GLO) but these features are not included in the boundary.

The Mission-Aransas NERR spans five different counties: Aransas, Refugio, Calhoun, Nueces, and San Patricio. These counties represent a variety of different social characteristics, habitats, and environmental issues and concerns. An understanding of these differences is essential to the

development of a successful CTP for two reasons. First, this knowledge will allow for a more complete understanding of the motivations and needs of local coastal-decision makers. Secondly, this information will allow for the CTP to tailor events to meet the specific training needs in regard to both content and logistics, such as location.

Figure 1. Mission-Aransas NERR boundary and habitats.
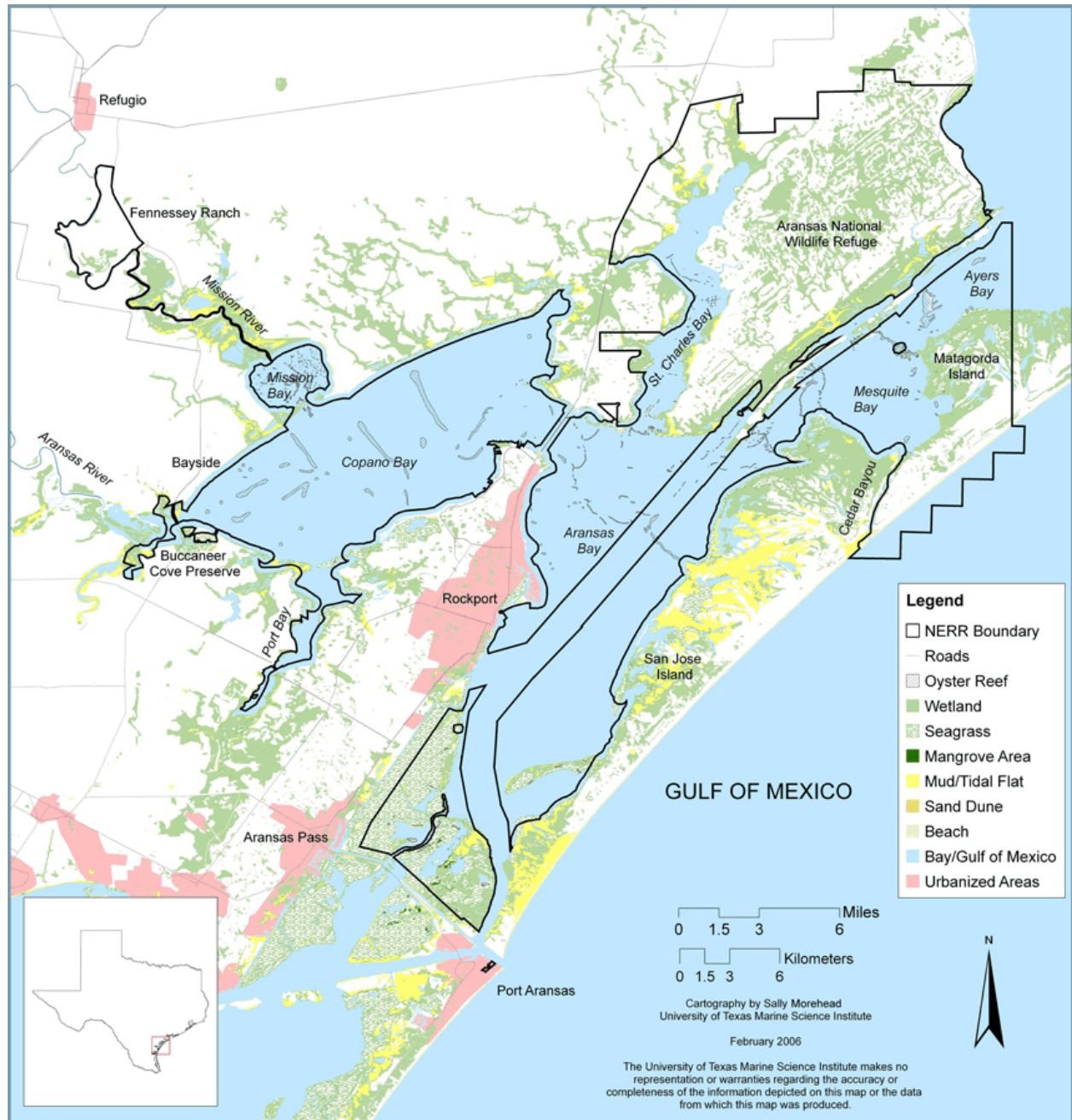
Aransas County

The majority of the Mission-Aransas NERR (139,311 acres, 75%) lies within Aransas County. With an estimated population of 24,721 in July 2007, Aransas County encompasses the City of Rockport, the biggest population center in the area, and the Town of Fulton. An important portion of the economy in Aransas County depends on tourism and future development is predicted to impact the area.

When compared with surrounding counties, Aransas County has the highest percentage of both bare lands and developed lands. Most bare lands in this area are delineated as bay shoreline beaches, facilitating the significant tourism focus in the county and extensive urban development. Aransas County and the City of Rockport also mutually agree upon a local governmental representative, who serves as part of the Reserve Advisory Board for the Mission-Aransas NERR, to ensure public input from the area in management efforts. Further information regarding Aransas County is available on the internet at http://www.aransascounty.org/ or www.census.gov.

Refugio County

With an estimated population of 7,358 in 2007, Refugio County has the second largest percentage of area in the Mission-Aransas NERR and includes the towns of Refugio, Woodsboro, Bayside, and Austwell. Interestingly, Refugio County is the only county in the Mission-Aransas NERR with a population that has declined since the last US Census; in 2000, the population was 7,828. The Mission-Aransas NERR holds a conservation easement on Fennessey Ranch in Refugio County. This location currently serves as a reference site for the study of surface water and groundwater interactions.

Refugio County has the most rural land use of the five counties in the Mission-Aransas NERR, with the majority of the land used for agriculture or ranching. Limited urban development in the county is centered around the towns mentioned above. Proposals for large groundwater exports pose a serious threat to Refugio County groundwater reserves and fragmentation by subdivision is an additional threat to Refugio and the Mission River watershed. Further information regarding Refugio County is available on the internet at http://www.co.refugio.tx.us or www.census.gov.

Calhoun County

Calhoun County represents the third largest percentage of area in the Mission-Aransas NERR with all of the included area occurring within the ANWR. The total estimated population in Calhoun County is 20,352 as of July 2007, and Calhoun County includes the town of Port Lavaca. Further information regarding Calhoun County is available on the internet at http://www.portlavacainfo.com/ or www.census.gov.

Nueces County

Nueces County contains an estimated population of 321,135 according to July 2007 estimates. The City of Corpus Christi, with a population of over 250,000, is the largest city in both this county and the area surrounding the Mission-Aransas NERR. As a result, the Nueces Estuary generally has more anthropogenic activities than the Mission-Aransas or Baffin Bay-Laguna Madre Estuary (Montagna *et al.* 1998). The Port of Corpus Christi is the sixth largest port in the US, making marine transportation a dominant industry in the area. The Port of Corpus Christi houses several facilities, including liquid bulk docks, cargo terminals, Rincon Industrial Park, Ortiz Center, and a cold storage terminal.

In addition to Corpus Christi, the City of Port Aransas lies in Nueces County. The University of Texas Marine Science Institute (UTMSI), which administers the Mission-Aransas NERR, is located in Port Aransas. All ship traffic headed toward the Port of Corpus Christi passes through the Aransas Pass ship channel, adjacent to the northern side of Port Aransas and UTMSI and just south of the designated boundaries for the Mission-Aransas NERR. Further information regarding Nueces County is available on the internet at http://www.co.nueces.tx.us/ or www.census.gov.

San Patricio County

San Patricio County encompasses a very small portion of the Mission-Aransas NERR including Buccaneer Cove Preserve and the southern tip of Port Bay. The US Census estimates the population of the county at approximately 68,520 as of July 2007. San Patricio County includes cities and towns such as Gregory, Ingleside on the Bay, Lake City, Lakeside, Mathis, Odem, Sinton, Taft and parts of Corpus Christi, Aransas Pass, Ingleside, Portland, and San Patricio.

Of the counties in the Mission-Aransas NERR, San Patricio has the highest percentage of cultivated lands. The Aransas River watershed includes Chiltipin Creek and other unnamed tributaries that drain approximately two-thirds of San Patricio County, including the cities of Sinton, Odem, and Taft. This drainage includes more than 250,000 acres of intensely managed cotton and grain sorghum row crop farms. Much of the Aransas River watershed lies within the land holdings of the Welder Wildlife Foundation (7,800 acres), whose primary purpose is wildlife management and conservation. Further information regarding San Patricio County is available on the internet at http://www.co.san-patricio.tx.us/ or www.census.gov.

Other Counties within Mission-Aransas NERR Watershed

In a broader sense, a total of nine different counties influence the Mission-Aransas NERR due to the extent of the watershed (Figure 2). Thus, in addition to the efforts devoted to coastal training for decision-makers within the boundaries of the Mission-Aransas NERR, additional effort must focus on the overall impacts of the watershed to achieve the maximum effect of any training effort dealing with water or water quality. While the primary focus of the training effort will involve local counties, efforts may be expanded to include other counties in the watershed. These counties include, Karnes County with an estimated population of 15,067 in July 2007, Goliad County with an estimated population of 7,154 in July 2007, Bee County with an estimated population of 32,689 in July 2007, and Live Oak County with an estimated population of 11,349 in July 2007. Further information regarding these counties is available on the internet through the US Census Bureau at www.census.gov or through their county website as follows:

Karnes County	http://www.co.karnes.tx.us/
Goliad County	http://co.goliad.tx.us/
Bee County	http://www.co.bee.tx.us/
Live Oak County	http://www.co.live-oak.tx.us/

Figure 2. County boundaries in the Mission-Aransas NERR and adjacent watersheds.
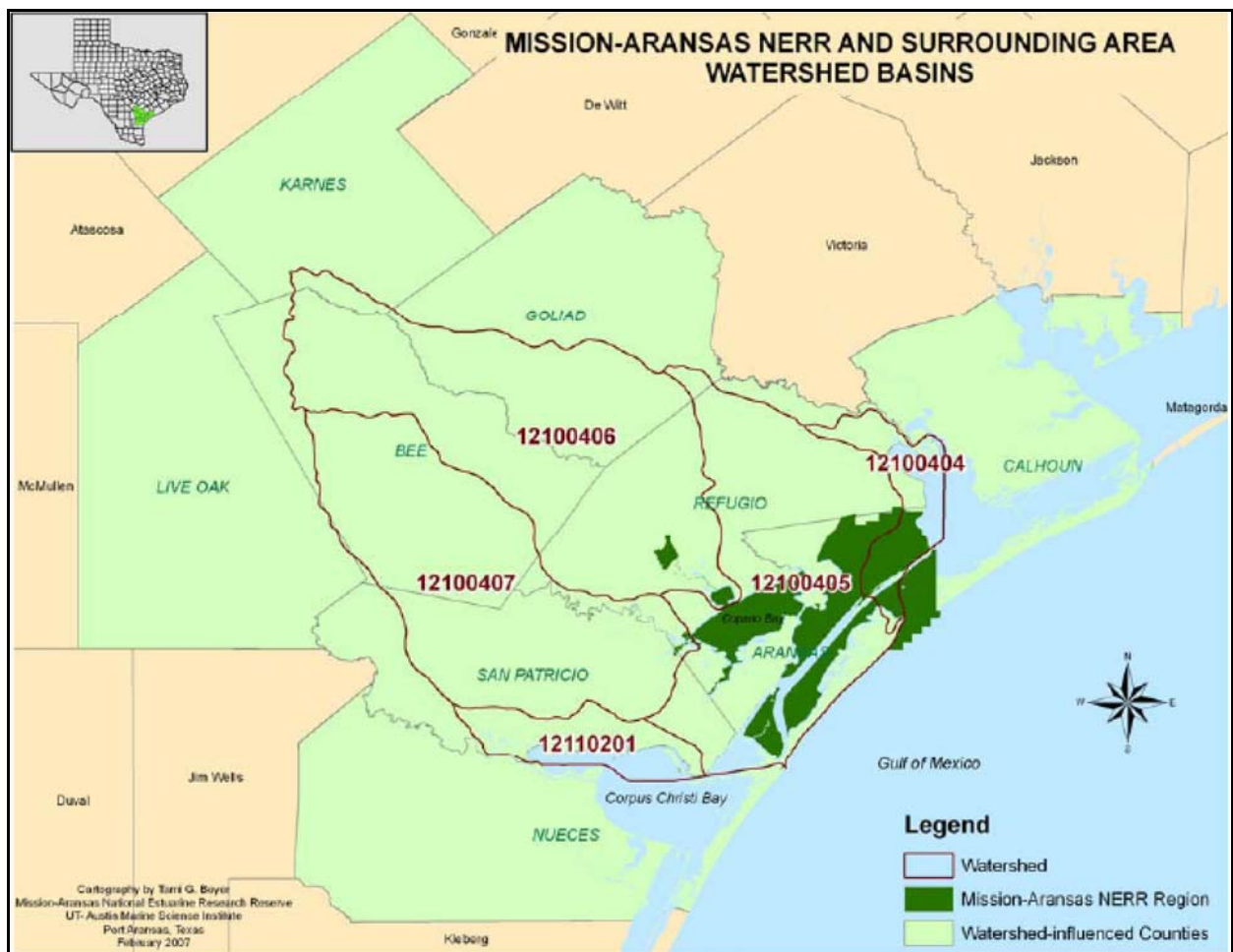
1.3 Methods

This document identifies agencies that provide training and characterizes the types of training events, audiences, evaluation methods, and training locations for those agencies identified. Preparation of this document implemented a variety of different techniques in order to identify and evaluate providers of coastal training in the areas surrounding the Mission-Aransas NERR. As a first step, CTP market analyses from other NERR sites were reviewed to provide a general framework of the types of entities that one might observe in any coastal community. This general knowledge was then used to help identify the specific entities involved in training in the Coastal Bend. Recipients of the Final Programmatic Environmental Impact Statement were also considered to help identify other providers of coastal training in the area (US Department of Commerce 2006).

The result of these combined efforts was an evaluation of numerous entities for existing training activities. After an entity was identified as a potential provider of coastal training, phone interviews and internet research were conducted to characterize their coastal training efforts. This information was used to identify topics for which some level of training already exists as well as topics where there is no known training effort. The document is also supplemented by responses to questions included within the Mission-Aransas NERR needs assessment survey that was distributed to coastal decision-makers in the Spring of 2008. These responses provided additional information regarding the types of services provided by coastal decision-makers and the frequency of events for those entities that reported providing training. Additionally, survey responses helped characterize the impacts of partnership on the training market in the Coastal Bend.

1.4 Coastal Training Provider Information

This report includes a synopsis of agencies that provide coastal training to local decision-makers. The entities identified provide a broad range of training events with several entities clearly providing resources that meet the description of coastal decision-maker training. Other entities provide some combination between training and education at various levels including a few entities that provide almost entirely educational or outreach events. In addition to identifying the coastal training capabilities of each entity, this section also reports brief descriptions of the training events offered, the use of performance measures or post-training evaluations, typical audiences, and training locations. This information will inform the program development of the Mission-Aransas NERR CTP and will also be used to help form a CTP advisory committee for the Mission-Aransas NERR.

Interaction with partners is a key for success and provides the Mission-Aransas NERR with access to a wider pool of information and resources. The Mission-Aransas NERR works with a variety of partners; nine entities make up a Reserve Advisory Board which provides advice to the management of the Mission-Aransas NERR. These partners include federal and state agencies as well as private land owners: US Fish and Wildlife Service, Texas General Land Office (GLO), Texas Parks and Wildlife Department (TPWD), Coastal Bend Land Trust (CBLT), the Coastal Bend Bays & Estuaries Program (CBBEP), The Nature Conservancy, the Fennessey Ranch, the Texas Department of Transportation (TxDOT), and a local representative

mutually agreed upon by the City of Rockport and Aransas County. The Mission-Aransas NERR CTP will not only work closely with the members of the Reserve Advisory Board but will also work with a wide variety of additional organizations.

Coastal Bend Bays & Estuaries Program

The Coastal Bend Bays & Estuaries Program is a local non-profit entity established in 1999 and is a member of the Reserve Advisory Board for the Mission-Aransas NERR. The CBBEP project area encompasses 12 counties of the Coastal Bend Council of Governments extending from the land-cut in the Laguna Madre, through the Corpus Christi Bay system, and north to the ANWR. The mission of the CBBEP is to protect and restore the health and productivity of the bays and estuaries while supporting the continued economic growth and public use of these environments.

The CBBEP operates as a non-regulatory, voluntary partnership effort with industry, environmental groups, bay users, local governments, and resource managers to improve the health of the local bay systems. A mix of local governments, private industry, state, and federal agencies provide program funding. CBBEP also seeks private grants and additional governmental funding.

The CBBEP now operates the CBLT which is also a member of the Reserve Advisory Board for the Mission-Aransas NERR. The CBLT preserves and enhances native wildlife habitat through ownership and management of private lands. It buys land outright at appraised value, buys it at a discounted value with a partial donation, accepts donations of land and buys or accepts donations of conservation easements. Funding for land acquisition and management is raised through a partial donation of the tax savings created by easement transactions, as well as through grants and gifts from individuals, businesses, charitable foundations, and governmental agencies. Further information regarding CBLT can be found on the internet at http://www.coastalbendlandtrust.org/.

The CBBEP provides outreach events in the Coastal Bend; however, these events are more directly related to educational outreach. Specifically, CBBEP hosts the "Learning on the Edge" teacher training that takes teachers into the Nueces Delta Preserve and teaches them field education skills. Additionally, the CBBEP assists in training in the Coastal Bend by providing resources and funding support for a variety of activities including training events. This support makes the CBBEP a good candidate for the Mission-Aransas NERR CTP advisory committee. The CBBEP has a 30-person conference room that is primarily used for interoffice meetings, but may be available for training events targeted at the CBBEP staff (Table 1). Further information regarding the CBBEP can be found on the internet at http://www.cbbep.org/index.html.

Coastal Bend Bays Foundation

The Coastal Bend Bays Foundation (CBBF) is a public interest organization dedicated to the conservation of freshwater and coastal natural resources through communication, advocacy, research, and education. Its membership is comprised of representatives of environmental groups, fishing organizations, port industries, government agencies, university scientists, and concerned citizens. This broad-based membership helps the CBBF to bring diverse interests

together in order to achieve community environmental and economic objectives. The CBBF hosts technical seminars in the Coastal Bend focusing on a variety of issues including healthy fisheries, heavy metals, and endangered species protection. The CBBF hosts monthly forums at Texas A&M University Corpus Christi and has hosted seminars on a variety of topics including water issues, Gulf of Mexico biodiversity, and mechanisms for seagrass growth which typically last for 1-2 hours (Tables 1, 2, and 3). In addition to these regular events, the CBBF advertises events for other entities such as the UTMSI Technical Seminars and Public Lecture Series, the Coastal Bend Audubon Society events, and the Surfrider Foundation events. The CBBF also sponsors events such as Earth Day-Bay Day that focus more on outreach and education rather than directly training coastal decision-makers. Nevertheless, the CBBF would be a good candidate for the Mission-Aransas NERR CTP advisory committee. Further information regarding the CBBF can be found on the internet at http://www.baysfoundation.org/.

Fennessey Ranch

The Fennessey Ranch is a member of the Reserve Advisory Board and is part of a 750,000 acre Texas land holding that has remained in the same family for 171 years. The ranch consists of 3,324 acres of abundant wetlands, meadows, natural lakes, riparian woods and brush land, and 14 artesian wells. The Mission-Aransas NERR and the University of Texas own a conservation easement on the Fennessey Ranch which restricts development and habitat fragmentation. Located in the heart of the migratory bird Central Flyway, Fennessey Ranch has nine miles of river front property, 500 acres of wetlands and natural lakes, and is located within the jurisdiction of the Refugio Groundwater Conservation District.

Fennessey Ranch operates a wide array of unique research and recreational programs. Fennessey Ranch is currently designed to be an environmentally sound as well as economically viable business. Its current economic base incorporates hunting, wildlife tours, photography tours, remnant oil and gas development, and cattle enterprises (Crofutt and Smith 1998). While Fennessey Ranch represents an important educational tool and venue for future training, the existing outreach efforts do not directly address coastal training, although some training of coastal decision-makers occurs indirectly (Table 2). Further information regarding Fennessy Ranch can be found on the internet at http://www.fennesseyranch.com/.

National Oceanographic and Atmospheric Administration Coastal Services Center

The National Oceanic and Atmospheric Administration Coastal Services Center (CSC) provides resources and expertise for coastal training workshops. The CSC partners with the NERRS throughout the US to provide a wide variety of workshops to coastal decision-makers. The partnership works well as the NERR provides the facilities, circulates invitations, and addresses logistical issues, while the CSC provides training, materials, and expertise to ensure that events will be locally relevant and as beneficial as possible to the target audience.

Training events cover a variety of subject matter including Coastal Community Planning and Development (CCPD), Coastal Innundation and Mapping, and a series of tools involving Geographic Information Systems (Table 2). Each training run by the CSC involves a different number of participants, depending on the topic. All training efforts incorporate a short

post-training survey that is usually distributed at the end of the training during a time allotted for attendees to respond. The Mission-Aransas NERR has worked with CSC to host coastal decision-maker workshops in the past and will continue to strengthen the partnership. Further information regarding the NOAA CSC is available on the internet at http://www.csc.noaa.gov/.

Natural Resources Conservation Service

The National Resources Conservation Service (NRCS) is an agency of the federal government, and is operated under the US Department of Agriculture (USDA). The primary task of this agency is to assist land owners such as farmers or ranchers on land conservation issues. While neither training nor coastal issues rank among the primary tasks of the NRCS, the group provides training for the local Copano Bay Soil and Water Conservation District Board. These training events typically occur over several days and primarily focus on issues directly related to agriculture, but also include informational training on riparian buffers, water quality, and conservation (Table 2).

The training events offered by the NRCS draw attendees from land owner groups, including farmers and ranchers. These training events are dominated by classroom activities such as lecture, discussion, and question/answer. The NRCS follows their training events with two methods of post-training evaluation. The first method is a quiz administered at the end of each day of a training. This quiz is intended to explore the level of retention and comprehension of the material presented in the training section. The second method of post-training evaluation is a questionnaire which asks attendees to comment more about what they liked or did not like about the form and function of the training session. Further information regarding the NRCS can be found on the internet at http://www.nrcs.usda.gov/.

Rockport Water Quality Committee

The Rockport Water Quality Committee is a recently formed committee in Rockport, Texas that organizes presentations by experts in various scientific fields such as water quality testing, seagrasses, and bird life. The purpose of the monthly workshops is to allow the members of the committee to increase their knowledge regarding water quality throughout the surrounding area and to inform recommendations they make to the Rockport City Council. Through this effort, the Rockport Water Quality Committee provides a form of coastal training that the Mission-Aransas NERR CTP can support and partner with to create more in-depth training events. This committee typically hosts monthly workshops at the Rockport City Hall with a capacity of 50 people (Table 1). The City of Rockport and Town of Fulton also have many other venues available for training events (Table 1). Further information regarding the Rockport Water Quality Committee can be found on the internet at http://www.cityofrockport.com/index.asp?NID=69.

Texas A&M University Corpus Christi

Texas A&M University Corpus Christi (TAMUCC) provides training events to decision-makers in the Coastal Bend. The TAMUCC Center for Coastal Studies is involved with training Texas Master Naturalists and hosts a semi-annual training, focused on riparian ecology, at Fennessey Ranch. This training typically draws approximately ten attendees who spend the morning in the

classroom, learning key concepts and definitions, and then spend the afternoon learning sampling techniques in the field and discussing possible scenarios they might adopt for the individual projects that are a required part of the program. The Master Naturalists then take this knowledge and return to their local communities where they often work with local conservation groups and governmental officials to apply their considerable knowledge.

Other training events provided by TAMUCC rely on grant funding and can vary widely in topic. These coastal training events typically attract about 25 people from relevant sectors such as experts on local water quality and elected officials. Presently, the TAMUCC Center for Coastal Studies has applied for a grant from the USDA to offer water quality training in the Coastal Bend. Specifically, this grant would be used to develop a conceptual model of water quality issues and explore how to develop potential management alternatives. The aim of this training is to bring national experts to the area to train local resource managers. This series of workshops will likely partner with the Mission-Aransas NERR and involve one event in Port Aransas at the UTMSI, one event in Rockport, and one event in either Refugio or Sinton. Further information regarding TAMUCC is available on the internet at http://www.sci.tamucc.edu/.

Texas AgriLife Extension Service

The Texas AgriLife Extension Service (AES) (previously known as the Texas Cooperative Extension) works with its Texas A&M System partners, the state legislature, and the communities it serves, to provide Texans with community-based education. The AES provides numerous training activities through a network of 250 county Extension offices, 616 Extension agents, and 343 subject-matter specialists. With locally based staff, the AES strives to provide unbiased, research-based information, educational programs, and technical assistance throughout the Coastal Bend in the local areas of expertise such as agriculture and natural resources, family and consumer sciences, 4-H and youth development, horticulture, integrated pest management, and marine resources.

The training efforts of the AES office in Aransas County include a variety of forums, events, or workshops intended to educate local leaders, elected officials, and citizens (Table 2). One of the more recent events that the AES has hosted was the Texas Community Futures Forum (TCFF). The TCFF elicited input from county residents on what they perceived to be the most important issues affecting the county. This input helped them to tailor programs to better assist local citizens. Population growth was one of the most prominent issues, with many of the comments centering around the need to keep Aransas County's unique "coastal charm." The Aransas County AES office offered a series of workshops on population growth issues in 2005 and 2006 and formed a stakeholder committee to guide the development of a program of workshops designed to inform decision-makers and local citizens about the impact of different growth alternatives.

In 2006, AES received a grant from the GLO under the Coastal Management Program to aid this effort, and was titled Coastal Community Health and Resource Management (CHARM). The CHARM project administered a quality of life survey to help guide policy makers and design future educational programs. The survey was administered at several meetings or public events in 2006 and 2007 and was answered by both residents and vacationers. Results from the survey

were discussed in public meetings and discussion forums, where agents of the AES presented the findings to local governmental officials and the general public. As a follow-up, the Aransas County AES hosted a series of public meetings entitled "Conversations About Growth."

In addition to these efforts, the Aransas County AES office supports the Rockport/Fulton Area Chamber of Commerce by providing speakers for luncheons and participating when needed. This arrangement allows the AES to utilize these luncheons as a means of training coastal decision-makers. The Aransas County AES also hosts and co-hosts a variety of training events regarding smart growth, rainwater harvesting, native plants, and ecotourism, among others. In addition, the AES provides and coordinates the training for the local Master Naturalists and Master Gardeners. Master Naturalists must receive 40 hours of classroom and field instruction in addition to completing 40 hours of volunteer service and eight hours of continuing education. Similarly, Master Gardeners must receive 50 hours of classroom training and perform 50 hours of volunteer service in addition to completing six hours of continuing education.

The Aransas County AES office will likely be a primary partner for CTP efforts, but other surrounding County AES offices, such as Nueces, Refugio and San Patricio, will also partner in training events. Many of the other county offices are also conducting decision-maker training events for the TCFF and are involved in the training of local Master Naturalists and Master Gardeners. While some activities remain the same for AES offices, each county office focuses on a set of issues that best serves the needs of its community. The Refugio County AES office focuses on agricultural issues, 4-H and youth development, and quality of life issues. The Calhoun County AES office focuses primarily on issues of integrated pest management and the Farm Bill. The Nueces County AES office focuses on issues relating to quality of life such as community health, and agricultural issues including 4-H activities, horticulture, gardening, and urban pest management. In comparison, the San Patricio County AES office deals with both of the agricultural and quality of life issues common across the various counties but also addresses issues of rangeland management and integrated pest management. While the Aransas County AES office is likely the best fit as a member of the Mission-Aransas NERR CTP advisory council, partnerships between the Mission-Aransas NERR and other AES county offices remain a valuable option for the CTP when hosting events that address issues related to agriculture and the coastal and estuarine environments. Further information regarding the AES can be found on the internet at http://texasextension.tamu.edu/ or http://aransas-tx.tamu.edu/.

Texas Chapter of the American Planning Association

The American Planning Association (APA) is a nonprofit public interest and research organization representing over 39,000 practicing planners, officials, and citizens involved with urban and rural planning issues. The mission of the Texas Chapter of the APA is to advocate the profession of planning, providing expertise and processes that empower citizens to be engaged in the development and sustainability of communities in Texas.

The Texas Chapter of the APA held its ninth annual series of training sessions for planning commissioners and elected officials during the months of April through August in 2007 (Table 2). The training was staffed by professional planners and the sessions were coordinated with the

Texas Association of Regional Councils, local Council of Government offices, and Regional Sections of the Texas Chapter. The course titles for this training series included the following:

- Texas Planning – What You Need to Know in 2007
- Being an Effective and Ethical Planning Commissioner: Roles, Responsibilities, Ethics and Legal Responsibilities
- A Comprehensive Plan That Works
- Learn By Doing – An Exercise In Decision Making
- Introduction to Zoning
- Use of Planned Development districts
- The Board of Adjustment
- Legislative and Court Activity

These sessions provide an opportunity for appointed and elected officials in the Mission-Aransas NERR watershed to become better informed of their duties and responsibilities. The APA is the primary entity that local land use planners utilize and the CTP should involve them in training events that relate to land use. Further information regarding the APA can be found on the internet at http://www.txplanning.org/.

Texas Commission on Environmental Quality

Texas Commission for Environmental Quality (TCEQ) does not directly pursue the training of coastal decision-makers; however, TCEQ does fund the Texas Stream Team that is administered through Texas State University. The Texas Stream Team (formerly know as Texas Watch) is a water quality sampling program that provides sampling protocols, coordinates sampling efforts, and trains volunteer samplers (Table 2). This program also reviews and analyzes data for various water quality parameters, including bacterial counts. Training events hosted under the Texas Stream Team program typically attract local citizens and government representatives interested in water quality and public health issues. Further information regarding the TCEQ can be found on the internet at http://www.tceq.state.tx.us/.

In addition to supporting the Texas Stream Team, TCEQ does support one avenue of coastal training that addresses total maximum daily loads (TMDL). A TMDL exists for Copano Bay, the tidal portion of the Mission River, and the tidal portion of the Aransas River. The goal of the TMDL is to reduce bacteria concentrations to levels that will make it safe to harvest and eat shellfish from the bay. As a result of the TMDL, TCEQ has hosted several public meetings designed to share information about the TMDL process and gather feedback from stakeholders (Table 2). Previous TMDL meetings disseminated technical information regarding bacteria source tracking efforts and sampling of waste water treatment plants. Feedback from attendees was requested through a survey distributed at the public meetings and contact information was provided to receive feedback from attendees at a later time. Further information on the Texas Stream Team can be found on the internet at http://texaswatch.rivers.txstate.edu/, and further information regarding Texas State University can be found on the internet at http://www.txstate.edu/.

Texas Department of Transportation

The Texas Department of Transportation, in cooperation with local and regional officials, is responsible for planning, designing, building, operating, and maintaining the State's transportation system. TxDOT maintains the Copano Causeway and the state highways that are adjacent to the Mission-Aransas NERR and is a member of the Reserve Advisory Board. TxDOT, acting through the Texas Transportation Commission, is also the nonfederal sponsor for the Gulf Intracoastal Waterway. As the nonfederal sponsor, the TxDOT coordinates local management efforts with the US Army Corps of Engineers. Coordination by TxDOT is run out of the Gulf Intracoastal Waterway Office in the Transportation Planning & Programming Division.

The Texas Department of Transportation (TxDOT) provides regular annual and semi-annual training events (Table 2). These training events are often co-sponsored by the Texas Transportation Initiative which is a research department with Texas A&M University College Station. These training events are interrelated and cover topics such as ports and waterways, environmental affairs for highway sites, surveying and planning, and maintenance of the transportation system. These training efforts seek to reach public officials and TxDOT staff, vendors, and customers. Further information regarding TxDOT can be found on the internet at http://www.dot.state.tx.us/.

Texas General Land Office

The Texas General Land Office (GLO) is responsible for the management of state lands and mineral-right properties and is a member of the Reserve Advisory Board for the Mission-Aransas NERR. Included in the management responsibility of the GLO are Texas beaches, bays, estuaries and other "submerged" lands out to 10.3 miles in the Gulf of Mexico. In managing this land, the GLO leases drilling rights for oil and gas production on state lands, producing revenue and royalties for the State's Permanent School Fund.

Coastal training is not a primary goal of the GLO, but the GLO has hosted and participated in numerous educational events for citizens throughout Texas, although many of these have not directly targeted coastal decision-makers (Table 2). The GLO does, however, host several types of conferences that draw the attendance of coastal decision-makers. The GLO hosts technical conferences featuring topics such as beach nourishment, wetland and habitat restoration, shoreline change, sea level rise, and coastal hazards, among others. Such a conference might draw 300 to 400 attendees ranging from local to international. These technical conferences take the form of a speaker and presentation, which is followed by a question and answer session and a discussion.

In addition to hosting technical conferences, the GLO hosts public issues forums that are non-technical and accommodate a much wider audience. Recently, the GLO partnered with the American Shore and Beach Foundation to host a public issues forum in Galveston, Texas. This forum focused on as many as 25 different coastal issues ranging from beach nourishment and erosion to activities such as surfing. A public issues conference could draw between 1,000 and 2,000 attendees. The public issues forum utilizes discussion tables with each table being

assigned a topic for discussion and the attendees rotating to discuss different topics with different people.

The GLO frequently uses SurveyMonkey® for their post-training evaluations (www.surveymonkey.com). SurveyMonkey® is an electronic survey tool that offers a variety of question types so users can customize any survey to meet their specific needs. The goal of these surveys is to check retention and comprehension of information among the attendees as well as to evaluate the logistics of the workshops such as the frequency and lengths of breaks.

While the GLO does not directly target coastal decision-makers with their conferences, they indirectly attract coastal decision-makers to their events, due to the large audiences. Additionally, the GLO is looking to get more involved in public outreach and training as they seek to fill a new marketing position. This position would increase the public involvement of the GLO throughout Texas, but will likely remain focused primarily on marketing and outreach, rather than training. Further information regarding the GLO can be found on the internet at http://www.glo.state.tx.us/.

Texas Parks and Wildlife Department

Texas Parks and Wildlife Department (TPWD) provides outdoor recreational opportunities and manages and conserves wildlife, wildlife habitat, and historic areas. TPWD is a member of the Reserve Advisory Board for the Mission-Aransas NERR and manages several areas in the Mission-Aransas NERR including Goose Island State Park and the Redfish Bay State Scientific Area. Goose Island State Park is located north of Rockport in Aransas County and consists of 321.4 acres of oak mottes, coastal prairie, and wetlands that are bounded by the St. Charles Bay and Aransas Bay. The Redfish Bay State Scientific Area contains 50 square miles (32,000 acres) of prime fishing habitat and includes 14,000 acres of submerged seagrass beds. Redfish Bay contains the northernmost extensive stands of seagrass on the Texas coast. As such, Redfish Bay was designated as a state scientific area by the Texas Parks and Wildlife Commission for the purposes of protecting and studying the native seagrasses.

Training of coastal decision-makers is not the primary responsibility of the TPWD; however, the efforts of this agency do involve some coastal training capabilities. For instance, in 2006, TPWD developed and implemented a seagrass protection regulation for Redfish Bay State Scientific Area. In developing and implementing this regulation, TPWD communicated with and educated local governments at the city and county level, Chamber of Commerce members, and stakeholder groups such as the Coastal Conservation Association.

The training events hosted by TPWD often take the form of a public meeting with an informational presentation followed by discussion to allow for comprehension, understanding, and input from the attendees regarding the release of a new regulation. This training enables decision-makers to understand how a regulation affects their constituents and assists them in pursuing informed public policies. Further information regarding TPWD can be found on the internet at http://www.tpwd.state.tx.us/. Additional information regarding Goose Island State Park can be found on the internet at

http://www.tpwd.state.tx.us/spdest/findadest/parks/goose_island. Further information regarding Redfish Bay State Scientific Area can be found on the internet at http://www.tpwd.state.tx.us/landwater/water/habitats/seagrass/redfish.phtml.

Texas State Soil and Water Conservation Board

The Texas State Soil and Water Conservation Board (TSSWCB) is the lead state agency for planning, implementing, and managing programs and practices for preventing and abating agricultural and silvicultural nonpoint sources of water pollution. The TSSWCB also coordinates the programs of the Texas' 217 soil and water conservation districts such as the Copano Bay District and administers the state brush control program. The TSSWCB maintains regional offices in strategic locations across the state to help carry out the agency's responsibilities. Additionally, the TSSWCB partners with the NRCS in order to ensure that water quality management plans meet USDA standards.

TSSWCB is also currently partnering with AES to host Texas Watershed Steward programs. The Texas Watershed Steward program is designed for those interested in water quality issues and those who may want to become more directly involved in watershed protection and management in their area. The workshops are one-day training events that address the fundamentals of watershed systems, water quality regulation and monitoring, watershed improvement methods, enhancing watershed functions, and community-driven water resource management. Each training will focus on a specific watershed but the workshop is structured so that participants from outside these targeted watersheds will be able to apply what they learn to where they live. Participants will receive a free copy of the Texas Watershed Curriculum Handbook, a certificate of completion, and continuing education units and/or credit hours for a variety of fields. Further information regarding TSSWCB can be found on the internet at http://www.tsswcb.state.tx.us/managementprogram/txwsp.

Texas Water Development Board

The Texas Water Development Board (TWDB) provides water planning, data collection and dissemination, and financial and technical assistance services to the citizens of Texas. The mission of the TWDB is to provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas. While the TWDB does not hold formal training events for decision-makers, they collect data and hold meetings for regional water planning groups. While some information is likely to reach decision-makers through this process, the primary aim is to present information, rather than to provide training. The TWDB is a good resource for identifying coastal decision-makers that may be interested in water issues. Further information regarding TWDB can be found on the internet at http://www.twdb.state.tx.us/home/index.asp.

Welder Wildlife Foundation

The Rob and Bessie Welder Wildlife Foundation, established in 1954, is a non-profit, 501(c)(3) foundation. The Welder Wildlife Foundation headquarters and offices are located on a 7,800-acre native wildlife refuge eight miles north of Sinton, Texas, in San Patricio County. The

Welder Wildlife Foundation's research and educational priorities include wildlife management, conservation, and other closely related disciplines.

While the focus of the outreach efforts of the Welder Wildlife Foundation is education, the training of coastal decision-makers occurs indirectly. The conservation education programs target public school and university groups, and emphasize ecology and management of wildlife and its habitats. A wide array of public tours, school and college programs, teacher in-service programs, conservation workshops, scientific education programs, symposia, and field days, led by professionally trained staff, are offered throughout the year.

The Welder Wildlife Foundation offers training events featuring speakers from throughout Texas, with the majority of speakers being from the immediate region. Training events include a combination of classroom work such as lecture, question/answer, or discussion and field study such as skills practice, monitoring, and observation. The training events are often species specific and can cater to landowners interested in land conservation, nature enthusiasts, or natural scientists. In addition to focusing on individual species, topics of interest for the training events include impacts of various fire regimes, water quality, and ecology (Table 2). Training events often utilize outdoor facilities and an indoor theater style auditorium (Table 1). Further information regarding the Welder Wildlife Foundation can be found on the internet at http://www.welderwildlife.org/.

Table 1. Training facilities and their locations in the Coastal Bend region.

Location	Facility Name	Approx. Capacity	Contact
Paws & Taws *Rockport, TX*	Paws & Taws	100	Front desk
Rockport Beach Park *Rockport, TX*	Saltwater Pavilion; Beach Pavilion	150; 50	Tom Staley
City of Rockport *Rockport, TX*	City Hall	50	Tom Blazek
Texas Maritime Museum *Rockport, TX*	Meeting Room	30	Jennifer Rogers
Welder Wildlife Foundation *Sinton, TX*	Auditorium	50	Selma Glasscock
ANWR *Austwell, TX*	Visitor Center and outdoor venues	30	Chad Stinson
UTMSI *Port Aransas, TX*	Auditorium	150	Linda Fuiman
TAMUCC *Corpus Christi, TX*	Carlos F. Truan Natural Resources Center	150	Liz Smith
CBBEP *Corpus Christi, TX*	Conference Room	30	Jace Tunnell

Table 2. Market analysis summary table.

| Entity	Title/ Topic(s)	Training Type	Training Length	Target Audience	Evaluation Method
CBBF	Water issues, biodiversity, sea grasses, and bacteria	Forum or public meeting (monthly)	Typically 1 to 2 hour events	Coastal decision-makers, students, and interested citizens	None
	Fisheries, heavy metal toxicity, and endangered species	Technical conference or seminar	Varied	Coastal decision-makers and interested citizens	None
Fennessey Ranch	Ecology, wildlife management, water quality, agriculture, etc.	Indirect training: Education or outreach events	None	Varied	N/A - education or outreach
NOAA CSC	Coastal Community Planning and Development/ smart growth	Technical conference or seminar	2 day events	Coastal decision-makers representing various sectors of the local community	Paper evaluation distributed at the end of the event
NRCS	Agricultural issues including riparian buffers, water quality and conservation.	Technical conference or seminar	Multiple day event	Copano Bay Soil and Water Conservation District Board	Survey administered at day end and a final survey administered at the end of the event. Used Survey Monkey to administer surveys.
Rockport Water Quality Committee	Issues relating to the water quality, including topics such as bacteria, bird life, and sea grasses	Technical conference or seminar	Typically 1 to 2 hour events	Members of the committee, other coastal decision-makers, and interested citizens	None
TAMUCC	Master naturalist training/riparian ecology	Fieldwork for a certification program	40 hours class 40 hours field	Naturalists training for their Master Naturalist certification	None

Entity	Title/ Topic(s)	Training Type	Training Length	Target Audience	Evaluation Method
	Water quality	Technical conference or seminar (grant funded)	NA	Local experts and officials	None
TAES	TCFF/ growth, development and community preferences	Forum or public meeting	Varied	Coastal decision-makers and interested citizens	None
	Ecotourism	Luncheon	~1 hour event	Members of the Rockport/ Fulton Area Chamber of Commerce	None
	Master Gardener	Certification program	50 hours class 50 hours field 6 hours continuing education	Local gardeners	N/A - certification program
	Master Naturalist	Certification program	40 hours class 40 hours field	Local naturalists	N/A - certification program
Texas Chapter of the APA	Landuse planning, decision-making, legislation rules and reguations	Annual training event	NA	Coastal decision-makers and planning commissioners	None
Texas Stream Team	Volunteer monitor training	Volunteer monitor training	Varied	Coastal decision-makers and other citizens interested in monitoring their local water quality	Quality assurance and control measures performed on the volunteer data
TCEQ	Total Maximum Daily Load	Forum or public meeting	~3 hours	Coastal decision-makers, stakeholders, and concerned citizens	Survey collected at the close of the meeting
TxDOT	Ports and waterways, environmental affairs for highways sites, surveying, planning, and system maintenance	Technical conference or seminar	NA	TxDOT staff, vendors, customers, and other coastal decision-makers	None

Entity	Title/ Topic(s)	Training Type	Training Length	Target Audience	Evaluation Method
Texas GLO	Beach nourishment, wetland and habitat restoration, shoreline change, sea level rise, and coastal hazards	Technical conference	NA	300-400 coastal decision-makers and specialists ranging from local to international	Distributes 2 surveys: retention of information and training logistics and format
Texas GLO (continued)	25 coastal issues including beach nourishment, erosion, and surfing	Rotating issue specific discussion	NA	1000-2000 coastal decision-makers and interested citizens	Distributes 2 surveys: retention of information and training logistics and format
TPWD	Compliance and enforcement of sea grass regulations	Forum or public meeting	NA	Coastal decision-makers, stakeholders, and concerned citizens	None
TSSWCB/ AES	Texas Watershed Steward Program/ water quality	Technical conference or seminar; certification program	1 day events	Decision-makers dealing with water resources	None
TWDB	Development and conservation of water resources	Technical conference or seminar	NA	Regional water planning groups	None
Welder Wildlife Foundation	Ecology, environmental management, conservation, fire regimes, and water quality	Indirect training: Education or outreach events	NA	Land owners, naturalists, and local residents and their children	N/A - education or outreach

1.5 Analysis of Findings

Several market analysis questions were included on the Mission-Aransas NERR needs assessment survey to gather additional input from coastal decision-makers in this document. The needs assessment survey was distributed to 215 coastal decision-makers in the Coastal Bend and received 108 responses (over 50% response rate). Of those surveyed, 21 respondents reported providing training opportunities beyond the scope of typical education or outreach activities (Figure 3).

Figure 3. Services provided among respondents.

Services provided by survey respondents
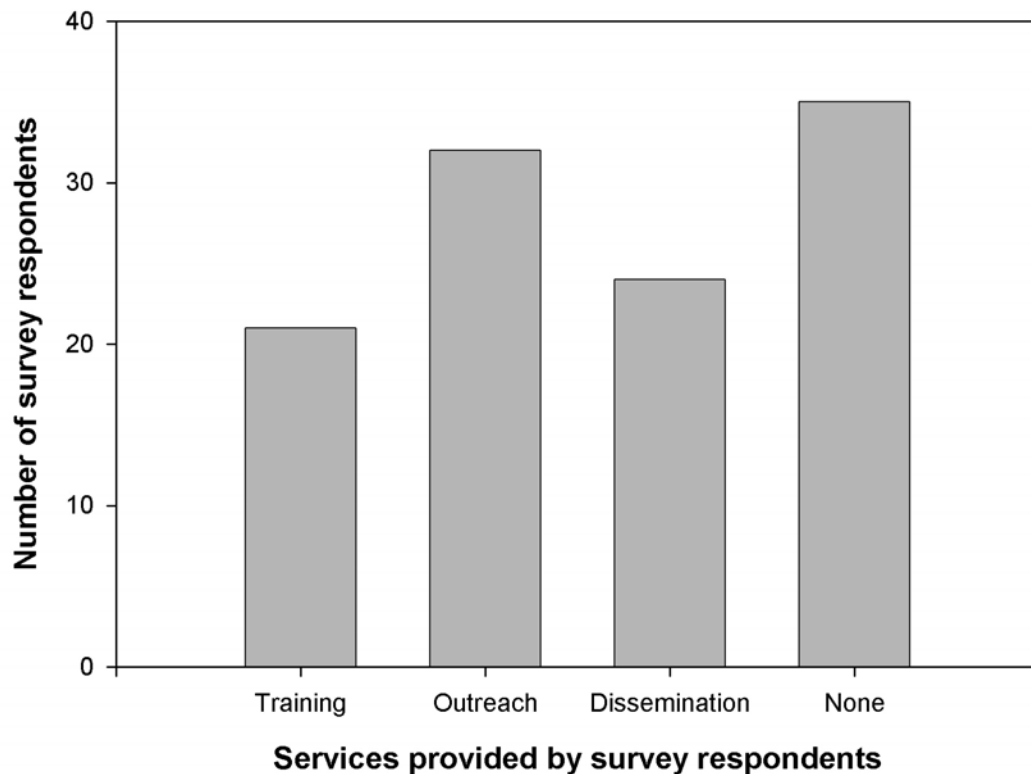
Of those respondents that reported providing coastal training, 14 provided fewer than ten events over the last five years (fewer than two per year), while only three respondents had provided more than 20 trainings over the last five years (more than four per year) (Figure 4). This suggests that several organizations provide a number of training opportunities, but the majority hold events infrequently. Additionally, the small number of respondents that reported providing high levels of training in the past five years suggests that a core group of entities have been responsible for past local training efforts.

The survey also sought information to determine the importance and availability of partnership opportunities for coastal training. Based on survey responses, approximately 66% of local training events occurred through partnerships. This suggests that some training events might have been counted twice in the survey results with multiple respondents reporting the same event. Also, 80% of respondents indicated that they would be willing to partner with the Mission-Aransas NERR in some way to increase the amount of training available in the region. Together, these responses demonstrate the importance of partnerships in coastal training activities.

Figure 4. Number of coastal trainings offered by survey respondents.
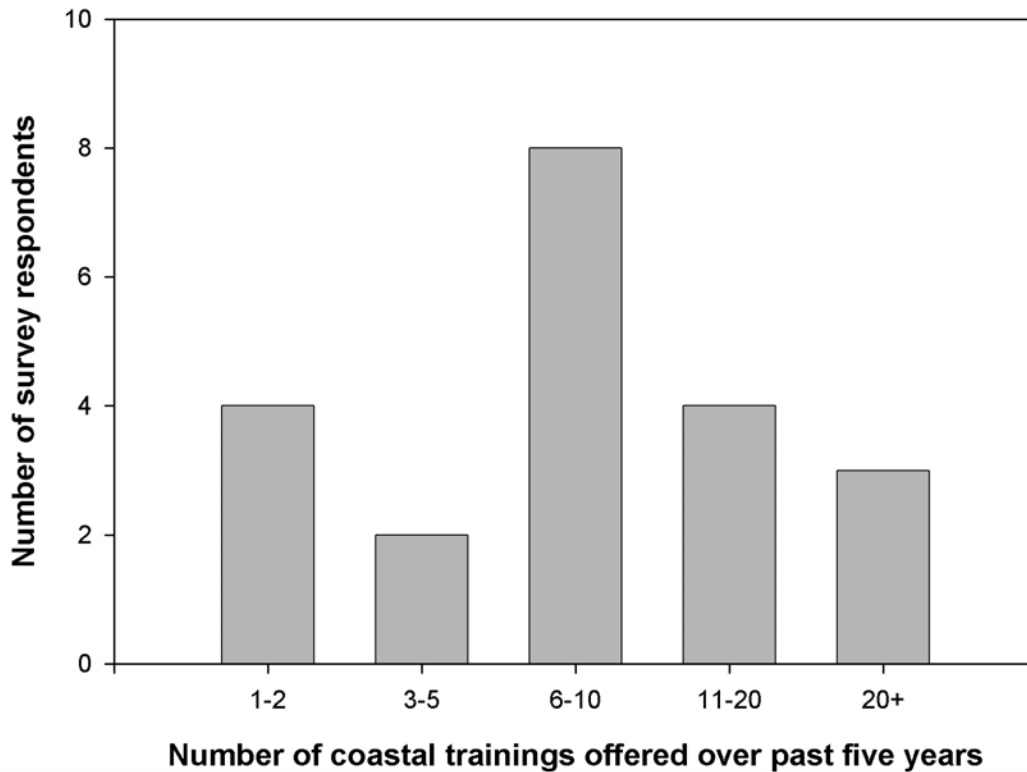
To complement data from the needs assessment survey, this analysis also used the list of topics from the survey to identify the topics of existing training efforts. Each topic from the list was evaluated based on research and telephone interviews to identify topics where some level of training was available and to indicate which entities have addressed the topic (Table 3). In some cases, multiple organizations provide training on the same topics. These cases represent potentially duplicate efforts; however, these cases may also represent reasons for multiple events such as an essential topic, varying aspects of the topic, or other restrictions that require multiple events such as geographic or social barriers. Training topics already addressed by another organization in some way represent ideal opportunities for partnership, especially in cases where there is a clear need for additional training, despite the existing effort.

The list of topics included in the needs assessment survey was subdivided into five categories: habitat, coastal management, water/air, planning and regulation, and resource management. Each of the five categories contains between five and seven topics in which there is an existing training effort, except for the coastal management category. This category only contains two topics with an existing training effort and each of these topics is only addressed by one entity. As such, topics of coastal management such as coastal and estuarine processes represent potentially important topics of training for the Mission-Aransas NERR. Refer to the needs assessment document for further information on local training needs.

Table 3. Issues addressed by training events from local entities.

Habitat Issues	
Biodiversity	Fennessey Ranch, Welder Wildlife Foundation
Endangered/threatened species	Fennessey Ranch, Welder Wildlife Foundation, TPWD
Fire management	Fennessey Ranch, Welder Wildlife Foundation
Habitat buffers	Fennessey Ranch, Welder Wildlife Foundation, NRCS
Invasive species	AES
Native species	AES
Wetland protection/management	Fennessey Ranch
Coastal Management Issues	
Coastal erosion and accretion	GLO
Recreational use	AES
Water/Air Issues	
Combined sewer outflows	Rockport Water Quality Committee, AES
Eutrophication & nutrient loading	Rockport Water Quality Committee, AES, GLO
Non-point source pollution	TSSWCB
Point source pollution	TCEQ
Septic system issues	Rockport Water Quality Committee, TAMUCC, CBBF, TCEQ
Waste water management	Rockport Water Quality Committee
Water resources (supply & quality)	TWDB, NRCS
Planning and Regulation Issues	
Conservation land planning	AES, Texas Chapter of the APA
Environmental health	AES. GLO, Rockport Water Quality Committee
Environmental legislation	TPWD
General land planning	AES, Texas Chapter of the APA
Sustainable building, development, and/or industries	AES, Texas Chapter of the APA
Resource Management Issues	
Agricultural issues/practices	Fennessey Ranch, NRCS
Critical area delineation and management	AES, Fennessey Ranch, Welder Wildlfe Foundation
Ecological landscaping	AES
Environmental education	AES
Erosion control	GLO
Watershed management	TCEQ, TPWD, TSSWCB

To identify other opportunities for coastal training, a gap analysis was used to identify training topics that were not being addressed by other organizations in the area (Table 4). The gaps in the existing training effort represent areas where additional training does not risk duplicating a known training effort. These topics represent training gaps for local coastal decision-makers, although specific topics should not be identified solely by existing market conditions. The gap analysis revealed two categories of issues with 11 topics each, coastal management and resource management. This suggests that training in these categories will fill gaps in existing training efforts. The needs reported by coastal decision-makers in the needs assessment will provide the additional information to identify topics for training that meet coastal decision-maker needs while avoiding the duplication of an existing effort.

Table 4. Issues not addressed by training events from local entities (Gap Analysis).

Habitat Issues	Water/Air Issues
Habitat restoration	Air emissions/air quality
Protected/special area management	Groundwater issues
Streambank restoration	Sedimentation
Wildlife Corridors	Thermal pollution
Coastal Management Issues	**Resource Management Issues**
Beach and nearshore ecology	Aquaculture/mariculture
Coastal public access	Conservation technologies
Coastal and estuarine processes	Environmental monitoring
Coastal hazards	Estuarine Ecology
Coastal zone management	Fisheries/by-catch issues
Dredging and filling	Fisheries and fishery law
Fisheries management	Forestry issues
Marina management	Global climate change/sea level rise
Port/harbor planning and management	Mineral, oil, and natural gas extraction
Saltwater intrusion	Real estate issues
Shoreline upland ecology	Renewable energy
Planning and Regulation Issues	
GIS	
Interagency coordination	
Regulatory compliance	

1.6 Conclusions

The Mission-Aransas NERR is developing a CTP within the framework of the NERRS. This market analysis will inform the program development about the current training market and will identify potential partnerships as well as existing training efforts. The CTP development will tailor training events to meet specific needs in regard to both content and location.

The majority of the Mission-Aransas NERR lies within Aransas County and this area will be a primary focus of coastal decision-maker training events for the CTP. Since future development is predicted to impact the area, it is likely that planning and regulation issues with be future topics for CTP training events. Key partnerships for training events in the Aransas County area include Aransas County AES, NOAA CSC, and Texas Chapter of the APA. It is also anticipated that there will be training needs for issues related to ecotourism and natural resources and therefore it is important that partnerships be created with TAMUCC, TCEQ, and TPWD.

The majority of the training events hosted in Aransas County will occur in the City of Rockport because it is the biggest population center in the area and contains several venues and facilities appropriate for CTP events. Rockport Water Quality Committee meetings can be also used as an outlet for technical seminars. In addition, the CTP can partner with the committee to use technical seminar speakers for training events outside the water quality meetings.

Nueces County contains the largest population of the counties represented by the Mission-Aransas NERR and the City of Corpus Christi and Port Aransas will be a key focus of CTP coastal decision-maker training events. Large population centers and anthropogenic impacts in this county indicate that there will be many training needs that the CTP can seek to provide. Key partnerships for training events in the Nueces County area include NOAA CSC, TAMUCC, Nueces County AES, TxDOT, and the Texas Stream Team.

The Mission-Aransas NERR headquarters are located in the City of Port Aransas and will be the primary location for training events that target decision-makers in Nueces County. Coastal Bend Bays Foundation will also serve as an outlet for technical seminars. In addition, the CTP can partner with CBBF to use technical seminar speakers for training events outside the City of Corpus Christi.

Much of the Mission-Aransas NERR lies within Refugio County and it is anticipated that CTP training events in this area will focus issues such as groundwater, agriculture, and ranching. San Patricio County lies adjacent to Refugio County and also has similar issues including agriculture and ranching. Training events will likely seek decision-makers from both counties due to their small populations and similar interests in the issues. Key partnerships for this area include the NOAA CSC, NRCS, Welder Wildlife Foundation, Nueces County AES, Refugio Coutny AES, San Patricio County AES, TCEQ, TSSWCB, and TWDB.

It is anticipated that the majority of the training events hosted in Refugio and San Patricio County will be hosted in the Cities of Refugio and Sinton, which are the largest cities in the counties. Training events that require field sites, will rely upon the facilities at Fennessey Ranch and potential partnerships with Welder Wildlife Foundation.

Additional CTP events will be provided on an as needed basis for other counties in the Mission-Aransas NERR watershed. CTP partnerships with the CBBEP and NOAA CSC are vital to the success of the program. Although CBBEP does not host training events, this agency is well informed of the issues, information needs, and decision-makers in the Coastal Bend region. NOAA CSC will be an important partner to the CTP because this agency has the capacity to provide resources such as speakers and training materials that are tailored to the training needs of the Coastal Bend region.

In general, it appears that two types of training events are predominant in the Coastal Bend (Table 2). The first common training type is a "forum or public meeting." This meeting type is characterized by an open attendance with presentation and discussion format. This type of training offers a valuable forum for coastal decision-makers to clarify their understanding of the issues presented. These training events typically do not incorporate post-training evaluations.

The second common training type is a "technical conference or seminar." This type of training can be similar to the forum or public meeting training type, but typically attended by smaller groups that have previous knowledge of a subject. This training type is common among professions that require or encourage continuing education such as government technical staff, city planners, and professional engineers. These training events tend to follow a pre-determined schedule of topics and allow for the use of surveys as post-training evaluation instruments to gather information about comprehension, retention, and training logistics.

Despite the prevalent nature of these two training types, it is likely that the Mission-Aransas NERR will most often offer training events that would fall into one of these two categories. The prevalence of these training types suggests that this format serves the needs of those attending and are likely to be successful. In some instances, the Mission-Aransas NERR will attempt to increase the variety of training types to include "certification programs" and other less common training types.

Several questions on the needs assessment survey were intended to gather information for this market analysis. Among respondents to the survey, 21 reported providing some form of coastal training in the past five years. Of those who have provided training during this period, 14 provided fewer than ten trainings in the past five years. Approximately 66% of trainings occurred through partnership and 80% of respondents stated that they would be willing to partner with the Mission-Aransas NERR in some way to increase the amount of training available in the region.

Of the five categories of topics, four of them contain between five and seven topics with some level of existing coastal training. Within each of these general topic areas, a core group of entities provide the majority of the training events (Table 3). A gap analysis also indicated that there is no existing training effort for multiple topics in each category of issues (Table 4). While specific training needs will be evaluated in the needs assessment analysis, the information in this document will prove valuable in avoiding duplicate trainings and identifying potential partners for future training events.

The findings of this document suggest that the Mission-Aransas NERR is well positioned to have a positive impact on coastal training through the efforts of staff who are dedicated to providing coastal training and by developing key partnerships with entities in the Coastal Bend that are also conducting training events.

Coastal Training Needs Assessment
Mission-Aransas National Estuarine Research Reserve

2.0 Needs Assessment Summary

Establishment of a successful Coastal Training Program (CTP) requires determining local training needs. The Mission-Aransas National Estuarine Research Reserve (NERR) completed a survey effort to provide data for a training needs assessment. This needs assessment will define the scope of the CTP by describing types of training needed, training topics, and logistical preferences for training events.

This document describes the methods, analysis, and results of the needs assessment survey. Survey findings include a detailed review of the survey data with information about training preference and respondents' evaluation of their general knowledge, work-related experience, and perceived need for training on a variety of coastal issues. Additionally, this section includes a review of the same findings for the subgroup of public sector respondents. The survey findings section also reviews the results of the follow-up interviews and a discussion of the assumptions and limitation of this analysis.

This document reviews the logistical and cost preferences of coastal decision-makers for training events. Findings suggest that the Mission-Aransas NERR should host training events predominately in the winter months and attempt to avoid hosting events in the summer months. Additionally, training events should begin in the morning, not exceed one day and be scheduled to be as short as possible. Respondents also had a significant preference to communicate with trainers using e-mail and the internet. The survey indicated that a $15 training fee would accommodate approximately 84% of respondents, who would also be willing to pay approximately $3.50 for breakfast, $7.00 for lunch, and $10.50 for dinner. The majority of respondents were willing to travel 28 miles one-way to reach a training event. This demonstrates a need for the Mission-Aransas NERR to host training events in local communities whenever possible to ensure adequate attendance. Again, the data for the subset of public sector respondents is consistent with these values for cost and distance.

Findings suggest that coastal decision-makers require additional training events than those currently available in the Coastal Bend. The categories that rated the highest for perceived need for training are planning and regulation and habitat. In regard to specific issues, the Mission-Aransas NERR should focus training events on the top two rated issues in each of these categories: wetland protection/management, regulatory compliance, habitat restoration, and general land planning. Additional training efforts should consider the issues ranking highest in the remaining categories: coastal zone management, water resources, environmental education, coastal erosion and accretion, wastewater management, and erosion control. Follow-up interviews indicated the presence of a variety of training needs related to water quality and coastal development/management.

In addition to analyzing the entire data set, the subset of public officials was also reviewed. In general, the public sector aligned closely with results of the entire data set. However, general land planning was an important issue as indicated by low levels of general knowledge and work-related experience, that was combined with a high need for training in this area. Additionally, ratings for perceived need for training were significantly high for both the entire data set and the public sector subset. This reiterates the need for additional training events in the Coastal Bend.

Overall, this document will be used to develop a CTP for the Mission-Aransas NERR. The logistical preferences conveyed by survey respondents will inform the form and function of future events. The survey results will provide the basis for future training events that meet the stated needs of coastal decision-makers to increase the utility of these efforts in meeting program goals. Additionally, the program can specifically address the needs of high priority groups such as the local governmental officials represented by the public sector respondents.

2.1 Introduction

The Mission-Aransas National Estuarine Research Reserve (NERR) is developing a Coastal Training Program (CTP) that provides up-to-date scientific information and skill-building opportunities to individuals who make decisions that affect coastal and estuarine resources. An integral part of establishing a successful program is determining the training needs in the region surrounding the Mission-Aransas Estuary, known as the Coastal Bend. A valid needs assessment required input from a variety of coastal decision-makers in the Coastal Bend. For the purposes of this document, a "coastal decision-maker" is any individual who makes regular decisions that impact the coastal or estuarine environments either directly or indirectly through their professional or volunteer activities. The Mission-Aransas NERR undertook a survey effort to collect data from individuals who met these criteria. Survey results are compiled in this needs assessment that will provide guidance for the CTP to develop programs and training events that fulfill the needs of the local decision-makers. The needs assessment outlines the training needs of coastal decision-makers including the types of training needed, training topics, and logistical preferences for training events. Additionally, the needs assessment analyzes needs expressed specifically by public sector survey respondents, because they are the primary coastal decision-makers in the Coastal Bend.

2.2 Methods

This needs assessment relies on data collected from decision-makers in the Coastal Bend. The first step in this process was to establish a list of individuals that are coastal decision-makers in the local area. After a list of coastal decision-makers was compiled, a survey was created and distributed to those individuals. Survey responses were collected and analyzed to determine the training needs identified by respondents. Finally, responses from those in the public sector were considered as a subset of the data to determine the specific needs of this group of coastal decision-makers.

The compilation of coastal decision-makers was initiated by modifying and adding to a list of existing contacts developed through the designation process of the Mission-Aransas NERR. This list was refined to delete contacts that were not coastal decision-makers and was revised to incorporate changes in contact information. This contact list was then supplemented to include other individuals that qualified as coastal decision-makers. Supplemented individuals were identified through research using the internet, phone books, and interviews with local governmental officials. The involvement of local government officials was critical as these individuals are among the primary coastal decision-makers in the Coastal Bend.

The contact list included a wide variety of potential respondents including heads of local government, local elected officials, other government officials, and other coastal decision-makers. A head of local government included officials such as county judges and local mayors, while other elected officials included individuals from county commissions, city/town councils, and elected committees and groups such as the Planning and Zoning Committee or the Aransas County Navigation District. Additionally, responses were sought from a variety of appointed government officials and government staff that would include officials such as City Manager and City Planner as well as unelected committees such as the Rockport Water Quality Committee. Finally, the contact list included coastal decision-makers who generally fell outside of the governmental process such as professional engineers, consultants, real-estate agents, builders, contractors, fishers,

university professors, representatives of local Chambers of Commerce, and not-for-profit organizations addressing coastal and estuarine issues. The list of coastal decision-makers was not, nor was it intended to be, representative of the general population, and the selection of potential respondents was not random. While efforts were made to include a diversity of potential respondents, some biases may exist in the selection and survey methods. Local elections occurred during the administration of the survey, which will date the survey results but should not significantly influence the overall trends observed due to the relatively few number of individuals whose status as a coastal decision-maker was influenced by the election. Additional description of the local counties, cities, and entities providing training is included in the market analysis.

Survey questions were developed to identify information about the need for coastal training efforts in the Coastal Bend. The survey was divided into the following sections:
- General information including contact information for the respondent
- Characterization of existing knowledge for various topics or issues
- Characterization of work-related experience for the same topics or issues
- Characterization of the perceived need for training for the same topics or issues
- Characterization of training preferences and past training experiences.

The questions were reviewed throughout survey development and with a test group comprised of a small set of individuals with a variety of backgrounds. Revisions were made to the questions after each test group trial. After performing a minimum of ten test trials of the survey, revisions were then made to the hard copy in order to increase comparability between the electronic and hard copy survey forms. The survey included a variety of question types (i.e, multiple choice, rating, free response) and care was taken to minimize the amount of time needed to complete the survey. Testing indicated that the survey could be completed in as few as 15 minutes but should not require more than 30 minutes to complete. The electronic version of the survey had the capacity to apply logic to survey questions and this technique reduced the time needed to take the electronic survey in comparison to the hard copy survey. For example, logic would allow a public employee to avoid reading questions directed at those in private industry. The use of survey logic is one key difference between the electronic survey and the hard copy survey. Hard copy surveys were distributed with a general purpose letter intended to meet the needs of all participants rather than the group letters used to promote the electronic survey notifications. This allowed these surveys to be taken to meetings and public events to accommodate any requests for hard copies. An example of the hard copy survey is included in Appendix 1.

After the contact list of coastal decision-makers was complete and the survey was created, the survey was distributed by mail, in person, and electronically using an internet tool called SurveyMonkey® (www.surveymonkey.com). During survey development, announcements at various events served as initial notification of the survey effort. The first formal correspondence to follow these announcements was a letter sent via e-mail to individuals on the coastal decision-maker contact list that included a hyperlink to the electronic survey. The cover letter was specific to the respondents' sector of employment and contained basic information about the survey effort including: what the survey information would be used for, an assurance that no responses would be connected to individual respondents in any report, and, for those distributed by e-mail, a website hyperlink was included to provide access to the survey (Appendix 2). Additionally, each letter encouraged respondents to contact the CTP Coordinator if they experienced any technical

difficulties or preferred to fill out a hard copy of the survey rather than the electronic copy, accessible through the internet.

The initial date of survey distribution was recorded for each survey recipient. For the surveys distributed electronically, each e-mail was carbon copied to the CTP Coordinator and a "read receipt" was requested from the respondent. These measures were undertaken to increase the accountability for respondents and therein encourage a higher survey response rate. Correspondence from the respondent was saved for future reference and is discussed when appropriate throughout this document.

A second e-mail reminder was sent approximately one month from the initial distribution. This reminder included the date of the first contact and a deadline for completing the survey in addition to the relevant information from the first letter. Respondents were all sent the same letter during this round of contact, and some respondents were contacted via telephone to encourage their response (Appendix 3). This second round of e-mails followed a similar procedure as the first round, in that the date of contact was recorded, a carbon copy was sent the CTP Coordinator, and a "read receipt" was requested from the respondent. Again, these measures were undertaken in order to encourage respondents to complete the survey. Approximately two weeks after sending the reminder e-mail, the survey was closed.

Any survey submitted in a hard copy format was entered into SurveyMonkey® manually before data was downloaded into Microsoft Excel® for analysis. Due to the format in which SurveyMonkey® stores survey responses, most responses were originally recorded in text. In order to explore statistical relationships, all standard responses involving text were coded into integer values. Any answer left blank by a respondent was also left blank in the resulting data codes. When necessary, responses were coded using a vertical look-up function, in order to assign all possible text responses a corresponding numerical value. This operation was not performed in instances where respondents were asked to expand upon, explain, or provide any additional information. These responses were handled on an individual basis and are addressed as necessary throughout this document. The final coded responses were cross-checked for errors prior to data analysis.

A variety of statistical methods and techniques were used to evaluate the data generated by the needs assessment survey. All statistical analysis was performed using Microsoft Excel®. The statistics presented include arithmetic means, medians, standard deviations, standard errors, and measures of significance. Two separate methods were used to calculate the standard deviations. In general, the standard deviation for the data was calculated by measuring the square root of the variance, using the following formula:

$$SD = \sqrt{\left(\frac{1}{(n-1)}\right) \sum (x_i - x_a)^2}$$

Where *SD* represents the standard deviation, *n* represents the number of observations, x_i represents the observed value of each response, and x_a represents the average response. In essence, this equation calculates the variance of each response, recorded from the average response for that question, and uses this information to calculate the standard deviation based on the sample size.

For responses measured in percentages or those involving a discrete choice between two options, the bootstrap method was used to determine the standard deviation. This method estimates the standard deviation of the data by assuming that the survey responses are representative of the population of coastal decision-makers. This measure provides a good estimate for reasonably large sample sizes and allows for measures of standard deviation to be taken when otherwise impossible. Standard deviation was calculated using the bootstrap method by the following formula:

$$SD = \sqrt{(x * (1 - x))}$$

Where *SD* is the standard deviation and *x* represents the percentage of respondents indicating a particular selection in the survey.

In addition to calculating standard deviations, the needs assessment used a z-test to test the statistical significance of findings. The z-test uses the following formula:

$$z = \frac{(x_O - x_E)}{SE}$$

Where *z* represents the desired result, x_O represents the observed value, x_E is the expected value, and *SE* is the standard error. The standard error is calculated using the standard deviation and relating it to the standard normal cumulative probability curve. The z-statistic describes how many standard errors away the observed value is from the expected value or null hypothesis. By applying this information to a standard normal table a p-value or an observed significance level can be determined. The p-value is the probability of getting a z-statistic as extreme or more extreme than the observed value on the basis that the null hypothesis or observed value is correct. Thus, the smaller the p-value, the stronger the evidence is against the null hypothesis and the more statistically significant the result. In keeping with the literature, this needs assessment depicts results as significant at p-value of less than 5%. Other results were labeled as not statistically significant and treated as such throughout the document.

In addition to reviewing the entire data set, a subset of public sector responses were analyzed to identify both the specific needs of this group and differences to the entire data set. The watershed of the Mission-Aransas NERR spans nine counties which include more than 20 municipalities ranging from small, rural communities to larger urban communities such as Corpus Christi. Local governments in Texas wield tremendous authority which, when combined with the number of municipalities, complicates the management of environmental resources that span political boundaries. Given the relative importance of local governmental officials as coastal decision-makers, analysis of the subset of public sector respondents is included throughout this document. Further subdivision of survey respondents was considered in this analysis, but statistics were not reported here due to concerns resulting from small sample sizes. This approach will allow the CTP to generally address the needs of local coastal decision-makers, while specifically exploring the needs of respondents in the public sector that represent an essential audience.

This analysis was concluded with several follow-up interviews with a sample of survey respondents. These interviews were designed to collect in-depth information about specific training needs beyond topical preferences such as technical skills or management tools (Appendix 4). A total of six survey respondents were contacted in December 2008 through telephone numbers furnished in the survey. Interviewees were given a brief update to remind them of the survey and to describe the reason for

performing follow-up interviews. Respondents were then asked a series of questions about their training needs.

2.3 Survey Findings

Survey research relies heavily on achieving a satisfactory response rate, and the response rate for the Mission-Aransas NERR needs assessment survey was 50.2% (52.6% public sector and 47.4% private sector). A total of 215 survey invitations were sent, of which, 108 responses were received, including both electronic and paper copies. For this type of survey, a response rate of 30-40% is considered average, so 50% is a good rate of response, serving as a testament to the commitment of many local coastal decision-makers and the efforts taken in survey marketing and distribution (University of Texas Division of Instructional Innovation and Assessment 2007).

2.3.1 Background of Respondents

Residential Information

The majority of survey responses were received from coastal decision-makers that reside in the five counties adjacent to the Mission-Aransas NERR. The survey had the highest response from Aransas County (42.5%) (Figure 5). Participants also contributed from Nueces County (34%), San Patricio County (7.5%), Refugio County (1.4%), and Calhoun County (1.4%). Ideally, a higher percentage of the responses would have been received from San Patricio, Refugio, and Calhoun counties, but these counties have smaller populations with fewer coastal decision-makers than Aransas County or Nueces County. A high response from Aransas County and Nueces County is important for the needs assessment because these counties exert a disproportionate influence on the Mission-Aransas Estuary due to their large populations and close proximity. Although Aransas County and Nueces County received the highest percentage of responses overall, Nueces County contained a higher percentage of public sector respondents (39.1%) than Aransas County (37.5%).

A total of nine respondents indicated that they lived outside the five counties included in the Mission-Aransas NERR. These other counties included Bee, Chambers, Harris, Jim Wells, Matagorda, Medina, Travis, Webb, and Williamson. These counties seem to be divisible into two distinct groups. The first group includes coastal counties to the north of the Mission-Aransas NERR that surround the City of Galveston (Chambers, Harris, and Matagorda). Each of the respondents from these areas represents a regional interest in the environment of the Coastal Bend and met the definition of a coastal decision-maker. The second group includes one county (Bee) in the watershed of the Mission-Aransas NERR and several other inland counties (Jim Wells, Medina, Travis, Webb, and Williamson). With the exception of the response from Webb County, each of these respondents was identified as a coastal decision-maker; the response from Webb County included insufficient information to be included in further analysis. The effects of this distribution are discussed in section 2.3.5.

Figure 5. Residency distribution of survey respondents.
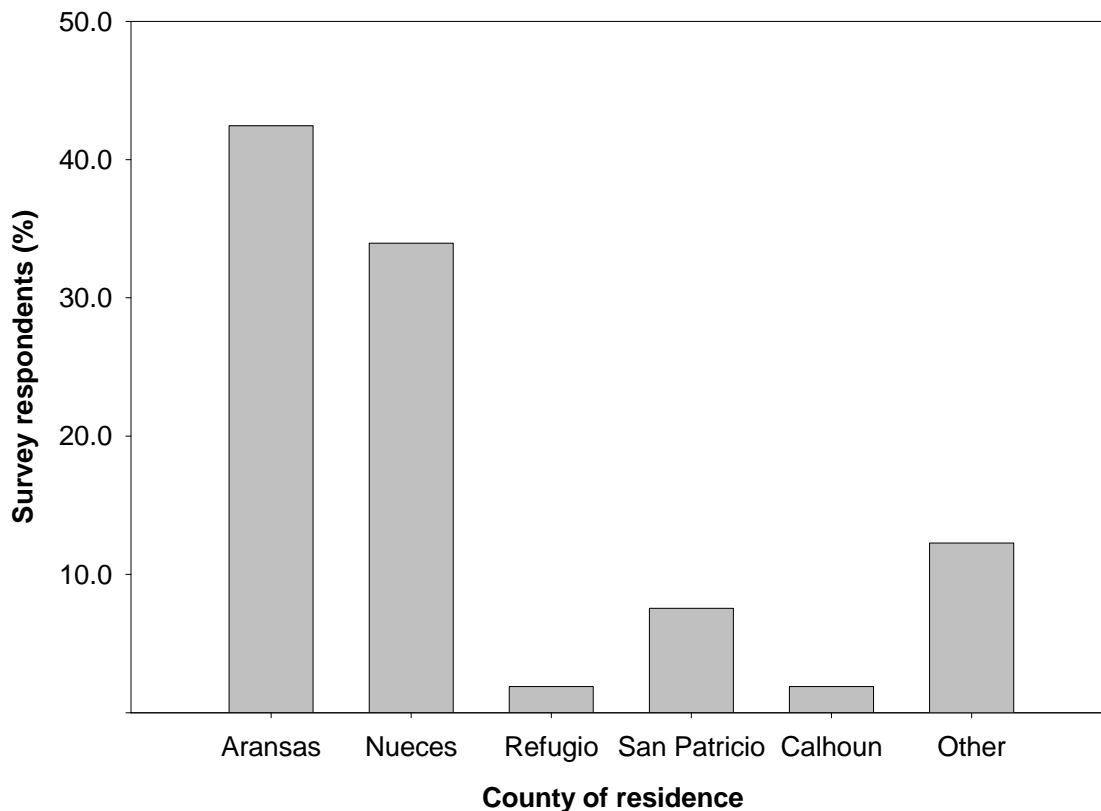
Duration of Residency and Experience

The survey included three questions to determine the duration of residence, as well as professional and civic experience. The first of these questions was intended to characterize the residency time of the respondent. The majority of respondents indicated that they had lived in the Coastal Bend for more than ten years (66.7%) (Figure 6). This suggests that the respondents have significant local knowledge and likely posses considerable experience with environmental issues and the decision-making process in the Coastal Bend. An additional 20% of respondents indicated that they had lived in the Coastal Bend for 5-10 years providing further indication that respondents likely posses sufficient knowledge and experience of the Coastal Bend. Only 11.4% of respondents had lived in the Coastal Bend for 2-5 years, and 1.9% of respondents had lived in the Coastal Bend for fewer than two years. This pattern supports the notion that respondents have local knowledge and/or experience, and that the results of this survey are representative of the current training needs.

The survey also included a question about the length of time the respondent had worked for their entity. Most respondents had worked for more than ten years with their current employer (41.9%) and 28.6% of respondents indicated employment for 5-10 years with the same entity (Figure 4). Few respondents indicated employment with their current organization for less than five years (29.5%) and only 9.5% reported periods of employment at less than two years. Results indicate that respondents have adequate local experience to provide valuable survey responses.

To explore the diversity of the respondents' experiences, the survey asked about how long respondents had held their present position within their entity. Most respondents had held their current position for 2-5 years (32.4%) and 25.7% of respondents have held their present position more than ten years (Figure 6). A small percentage of respondents indicated holding their current position for less than two years (19.0%). When combined with the previous two results, this suggests that respondents have primarily held multiple positions with their current employer or held one position for their employer for some duration. This variety ensures that the responses include different types of experience. Additionally, responses from the public sector demonstrated the same trends as the overall data set.

Figure 6. Duration of residency and employment for survey respondents.
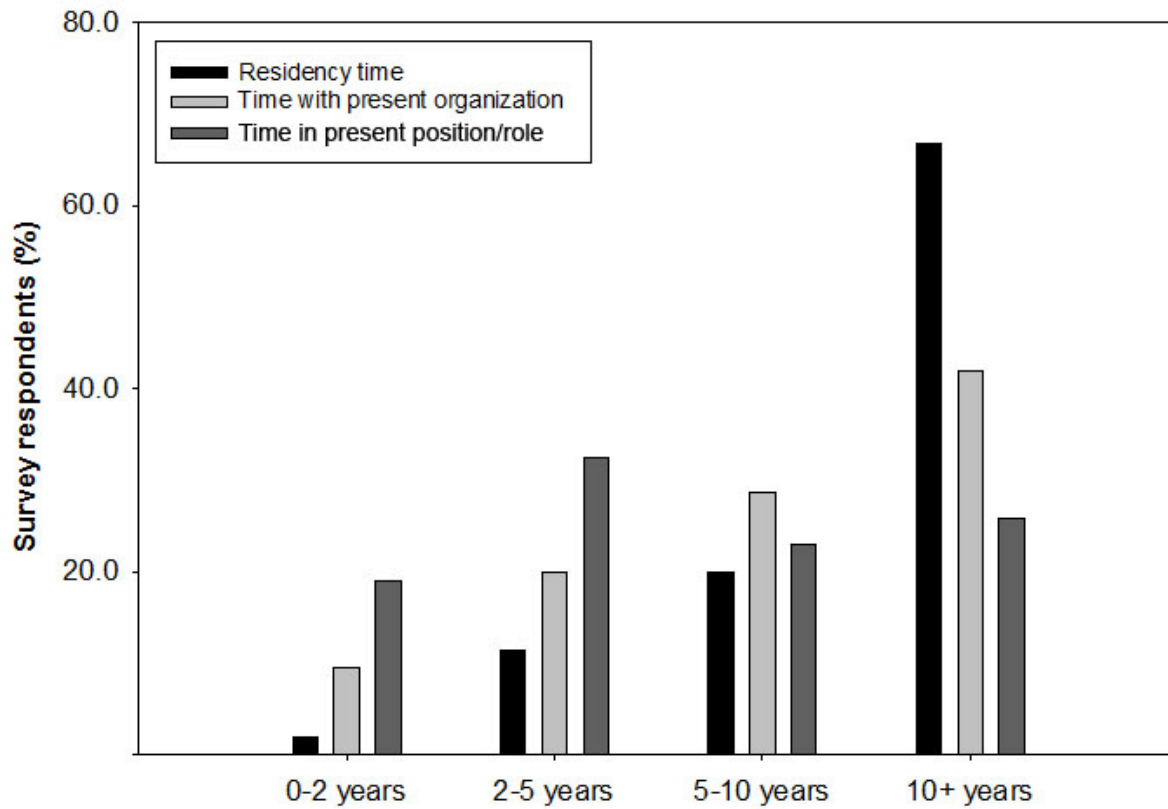
Sector of Employment

To explore the respondent backgrounds, the survey included a number of questions regarding sector of employment. The majority of respondents replied that they worked in the public sector (61.5%) and 38.5% of respondents replied that they worked in the private sector. This result is not surprising due to the efforts taken to contact individuals in the public sector who comprise the primary group of coastal decision-makers in the Coastal Bend.

Those in the public sector were also asked if their positions were elected, appointed, or neither. The majority of these respondents answered that they were neither elected nor appointed (57.8%); while,

21.9% of these respondents indicated that their positions were appointed and 20.3% that their positions were elected. Additionally, 60.9% of public sector employees described their positions as non-regulatory while 39.1% of these respondents described their positions as regulatory.

Respondents in the private sector were asked if their company or organization was for-profit or not-for-profit. Private sector respondents were distributed evenly with 51.2% working for a profit and 48.8% working for not-for-profit organizations.

In addition to classifications based on the criteria from the survey, an additional classification was added for each respondent to identify their sector of employment based on the groupings outlined in the NERRS CTP Performance Monitoring Manual (2006). This document identifies ten groupings for identifying audiences for reporting purposes. These groupings are general but are more specific than those used for the survey. Survey respondents included three from the federal government, 18 from the Texas state government, 15 from county governments, two from regional professionals, 14 from local governments, 36 from a wide variety of business interests, 13 university faculty and staff, seven other community members, and 14 from the non-profit community. No respondents were identified as media or tribal.

2.3.2 Respondent Training Preferences

Training Length

Another objective of the survey was to identify preferences of meals, timing, seasonality, and training length. Respondents indicated a preference for shorter training events, demonstrating a significant preference for training events of 2-4 hours in duration (47.6%, $p \leq 0.0001$) (Figure 7) (Public sector: 44.9%, $p \leq 0.0001$). Although not a significant result, the second most frequently preferred training length was 1-2 hours (22.0%). Thus, almost 70% of respondents prefer a training no longer than four hours. An additional 20.7% of respondents preferred a training event lasting one day while only 2.4% preferred a training event lasting two days. The remainder of the respondents (7.3%) selected the other option with all but one response being "it depends" or some variation.

Figure 7. Training length preferences.
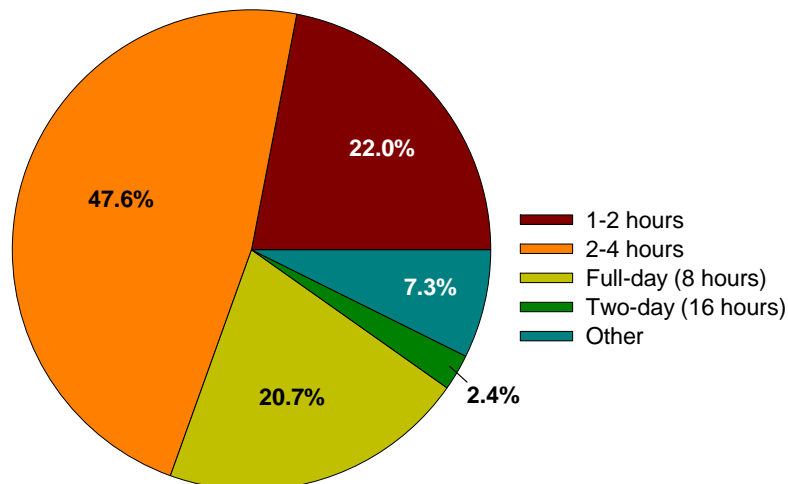
Start and End Timing

Respondents demonstrated a significant preference to begin events in the morning (8 AM to 11 AM) (Figure 8a) (74.4%, p ≤ 0.0001) (Public sector: 75.5%, p ≤ 0.0001). Fewer than 10% of respondents preferred any other starting time. More variation was observed in finish times for a training event. Respondents demonstrated a significant preference for training to conclude in the afternoon (between 1 PM and 5 PM) (43.9%, p ≤ 0.0003) (Figure 8b) (Public sector: 51.0%, p ≤ 0.0001). Preferences for start and finish time for training events will inform future training schedules.

Figure 8. Preferred start and end time for training. A: start time preference. B: end time preference.
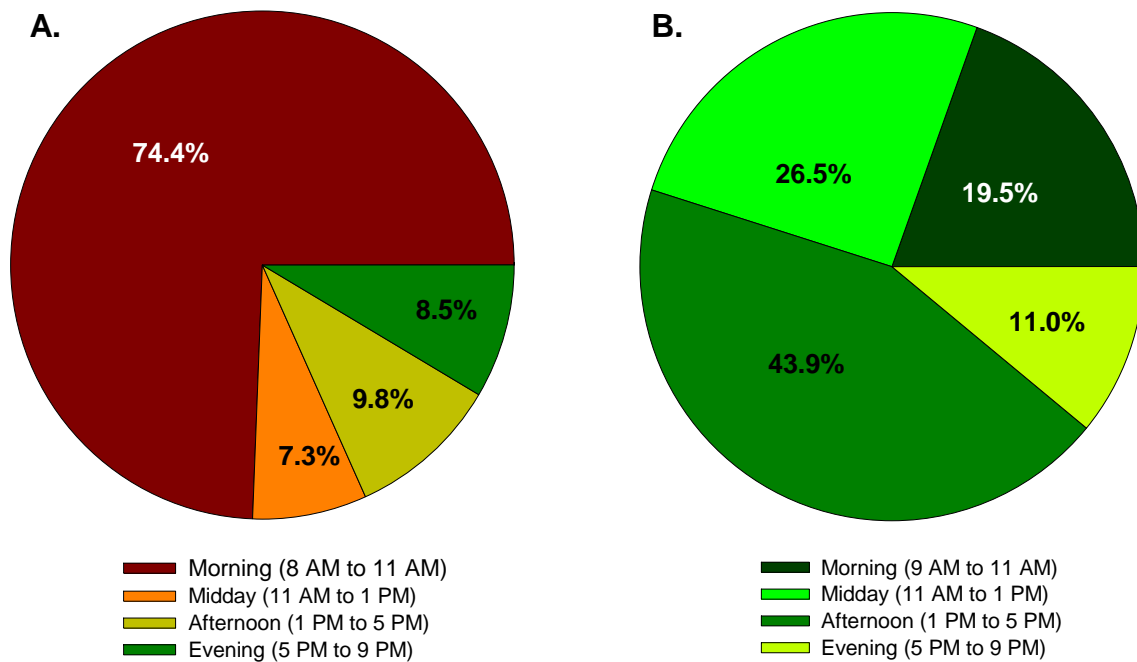
Seasonality

Respondents were asked in which season(s) they would prefer to have training events. A significant percentage of respondents (65.9%, $p \leq 0.0022$) preferred to have training events in the winter (Figure 9) (Public sector: 65.3%, $p \leq 0.0015$). Summer was the least preferred season for training events with a response of 32.9% ($p \leq 0.0005$). The respondents second least preferred season for training was the spring with a percentage response of 39.0% ($p \leq 0.0207$). While 43.9% of respondents preferred training events in the fall, this was not significant. This suggests that the Mission-Aransas NERR should focus training efforts in the winter months, while reducing training efforts in the spring and summer.

Figure 9. Training preference for time of year.
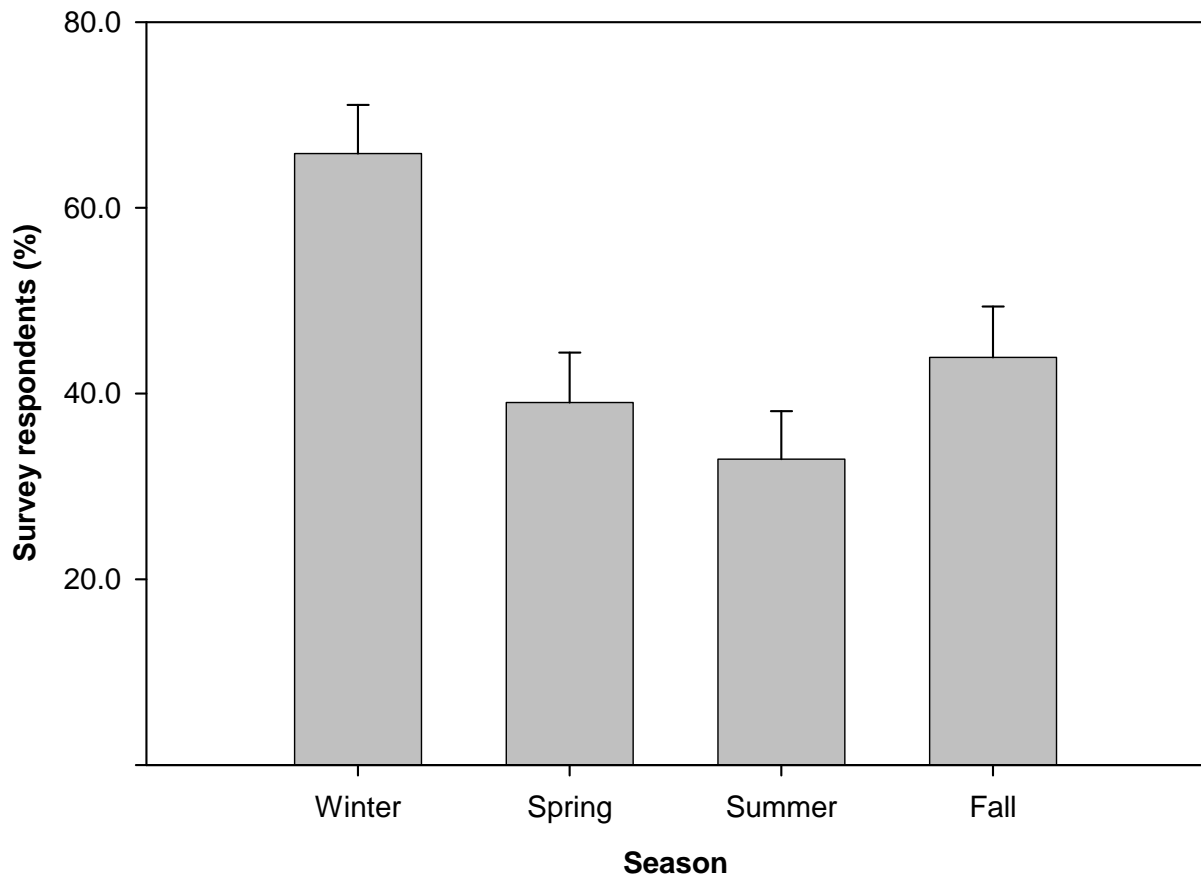
Meal Preferences

The survey also evaluated preferences for meal locations at training events. The most frequent selected option was time available to go out to lunch (40.2%, p ≤ 0.0025), followed by the preference to have meals catered on-site with the cost included in the training price (35.4%, p ≤ 0.0250) (Figure 10). An additional 15.9% of respondents preferred the option of purchasing a meal on-site in advance, and respondents clearly would not prefer to provide their own food and beverage, as only 4.9% of respondents selected this option. Several respondents (3.7%) provided a different response. Of these responses, one respondent suggested than any of the options provided would be acceptable, while another respondent indicated a desire to only have water available. The responses of public sector respondents closely mirrored the trends demonstrated by the analysis of the entire data set.

Figure 10. Meal preferences for training events.
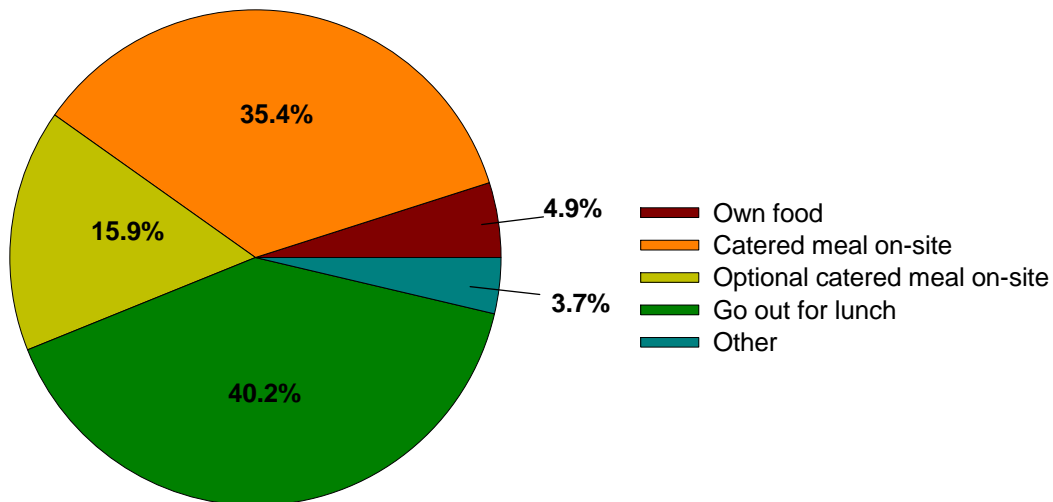
Willingness to Pay for Training

While the CTP strives to provide events free of charge, some events may require a small fee to offset costs. The needs assessment survey explored cost preferences for training events. When asked how much they would be willing to pay for a full-day training event that included an out-of-town speaker and refreshments such as coffee, tea, water, and cookies, respondents indicated they would spend an average of $42.33 (Table 5). The survey results indicate that, assuming the responses are normally distributed, 84% would be willing to pay at least $15.82 for such a training event. The results for the subset of public sector respondents are consistent with these figures and trends. Some respondents (8.5%) provided alternative answers to these questions. These respondents usually conveyed a response of "it depends" or some variation, while one respondent replied with a value of $0 indicating that they would not be willing to pay for a training event.

Respondents also demonstrated that training value is associated with training length. Over 80% of respondents indicated that they would pay more for a longer training event or less for a shorter training event. Only 19.5% of respondents considered training cost independent of training length.

Alternatively, only 15.9% of respondents would be willing to pay more for a larger variety of refreshments, indicating that while respondents would pay more for a longer event, they were unwilling to pay more for additional food options. Each of these scenarios yielded a significant result with p-values approaching zero; the same holds true for the subset of public sector respondents. This suggests that pricing decisions regarding training events depend less on the refreshments options and more on the length of training.

Table 5. Willingness to pay for training and meals.

	Willingness to pay							
	Training		Breakfast		Lunch		Dinner	
	All[1]	Public Only[2]	All[1]	Public Only[2]	All[1]	Public Only[2]	All[1]	Public Only[2]
Mean	$42.33	$45.44	$5.53	$4.87	$9.18	$9.08	$14.35	$14.25
Median	$50.00	$50.00	$5.00	$10.00	$10.00	$10.00	$15.00	$15.00
Standard Deviation	$26.51	$26.20	$2.04	$1.73	$2.38	$2.26	$3.72	$3.82
Approx. 84%[3]	**$15.82**	**$19.24**	**$3.49**	**$3.14**	**$6.80**	**$3.82**	**$10.63**	**$10.43**

1- Columns labeled "ALL" show analysis based on all available data.
2- Columns labeled "Public Only" show analysis based on the subset of respondents who reported working in the public sector.
3- This measure was calculated by subtracting one standard deviation from the mean.

Willingness to Pay for Meals

When asked how much they would be willing to pay for breakfast at the training, respondents answered that they would pay a mean average of $5.53 for breakfast (Table 5). Assuming the data are normally distributed, an extrapolation of the data suggests that 84% of respondents would be willing to pay at least $3.49 in addition to the training price for a breakfast (Public sector: $3.14). Similar questions were asked for lunch and dinner. Respondents would pay a mean average of $9.18 for lunch (Table 5). Assuming the data are normally distributed, an extrapolation of the data suggests that 84% of respondents would be willing to pay at least $6.80, in addition to the training price, for lunch during training (Public sector: $6.82). Respondents would also pay a mean average of $14.35 for dinner (Table 5). Assuming the data are normally distributed, an extrapolation of the data suggests that 84% of respondents would be willing to pay at least $10.63 in addition to the training price for dinner (Public sector: $10.43). In issues involving cost, it is important to measure this willingness to pay in order to accommodate as many of the individuals as possible, to ensure participation in coastal training events.

Willingness to Travel

Another issue that could serve as a barrier to those attending training events is their willingness to travel. The primary facilities available to the Mission-Aransas NERR are located at the University of Texas Marine Science Institute. When asked about the maximum distance

they would be willing to travel to attend a full-day training event (one-way), 69.5% of the respondents reported a maximum willingness to travel of at least 60 miles (Figure 11). The mean response was 89.61 miles with a median response of 60 miles. Assuming the data are normally distributed, 84% of respondents were willing to travel 28 miles one-way to reach a training event (Public sector: 33 miles). This information will assist the CTP in selecting appropriate locations for training events and demonstrates the need to have access to additional training facilities.

Figure 11. Willingness to travel to training events (one-way).
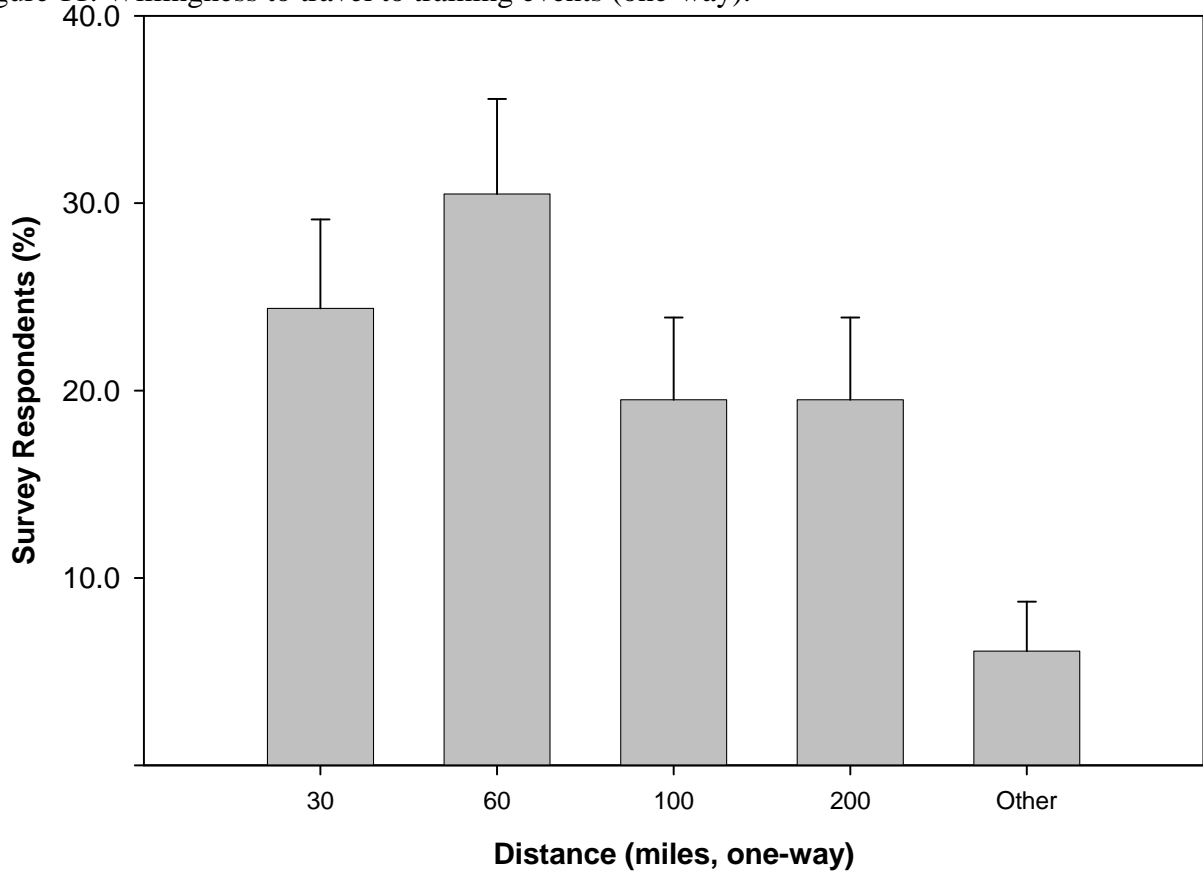
Receipt of Correspondence and Materials

The final logistical detail that the survey explored was the method by which respondents prefer to receive correspondence. When asked how they would prefer to communicate with trainers, respondents overwhelmingly preferred to receive information via e-mail (91.5%). Respondents have a strong preference for receiving course-related materials via e-mail attachment (81.7%), although a group of respondents would prefer to receive materials via the United States (US) Postal Service (17.1%). The majority of respondents (93.9%) would prefer to register for events via the internet or e-mail. These results are mirrored by the subset of public sector respondents. These results for the general data set and the subset of the public sector suggest that while some instances may require the use of alternative contact methods, the use of e-mail and the internet to communicate with coastal decision-makers will satisfy the vast majority of individuals.

2.3.3 Analysis of Issue Ratings

Analysis of Full Set of Survey Respondents

The survey asked respondents to rate a series of issues based on their general knowledge, work-related experience, and perceived need for training. Within each of these three questions, the issues were divided into five categories: habitat, coastal management, planning/regulation, water/air, and resource management. Each category allowed the respondents to select from four possible ratings. For the general knowledge section, respondents were asked to describe their level of knowledge as: 1) expert, 2) knowledgeable, 3) some/limited knowledge, or 4) no knowledge. For the work-related experience section, respondents were asked to describe their experience as: 1) daily, 2) monthly, 3) annually, or 4) never. For the perceived need for training section, respondents were asked to describe their perception of the need of coastal decision-makers as: 1) essential, 2) important, 3) somewhat important, or 4) unimportant. Responses were assigned numerical values (0-3) to calculate a weighted average for comparison.

Respondents indicated they had the greatest general knowledge in issues of wetland protection and management, recreational uses, environmental impact assessments, water resources, and environmental monitoring (Table 6). This information is valuable in understanding the baseline level of knowledge when planning training events. These questions also identify potential training needs by indicating the current knowledge. For example, since sustainable building was rated low, this issue could be a good candidate for a training. Another option is advanced training events covering topics with high levels of general knowledge, such as wetland protection/management. The CTP will use this information to host more advanced training events for issues that rated highest and offer more introductory training events for those issues that rated lowest.

Table 6. Survey response from all participants to general knowledge of issues.

ALL RESPONDENTS – General Knowledge				
	Highest	**Second Highest**	**Second Lowest**	**Lowest**
Habitat	Wetland protection/ management	Native species	Fire management	Streambank restoration
Coastal Management	Recreational use	Coastal and estuarine processes	Marina management	Port/harbor/planning/ management
Planning/regulation	Environmental impact assessments	Regulatory compliance	Geographic information systems	Sustainable building, development, & industries
Water/Air	Water resources	Non-point source pollution	Combined sewer outflows	Thermal pollution
Resource Management	Environmental monitoring	Environmental education	Critical area delineation and management	Forestry issues

Respondents were also asked to consider their work-related experience for each issue. Respondents reported the highest levels of work-related experience in issues of wetland protection and management, recreational use, regulatory compliance, point source pollution and environmental

monitoring (Table 7). Responses of work-related experience were similar to those of general knowledge. This trend is expected, since people learn much of what they know through their profession; however, in some circumstances work-related experience differs from general knowledge. For instance, while water resources (supply and quality) was rated the highest issue in the water/air category for general knowledge, this issue rated below point source pollution in work-related experience. In this case, it is possible that more respondents handle point source pollution professionally and deal with water resources (supply and quality) more frequently in their personal lives. In general, training events focused on the relevancies of work-related experience may have a greater impact due to the professional involvement of many respondents in the coastal decision-making process.

Table 7. Survey response from all participants to work-related experience.

ALL RESPONDENTS – Work-Related Experience			
	Highest	**Second Highest**	**Second Lowest**	**Lowest**
Habitat	Wetland protection/ management	Native species	Streambank restoration	Fire management
Coastal Management	Recreational use	Coastal and estuarine processes	Port/harbor/ planning/management	Marina management
Planning/regulation	Regulatory compliance	Interagency coordination	Conservation land planning	Sustainable building, development, & industries
Water/Air	Point source pollution	Non-point source pollution	Combined sewer outflows	Thermal pollution
Resource Management	Environmental education	Erosion Control	Renewable energy	Forestry issues

The needs assessment survey also asked respondents to rate these issues based on their perceived need for training. Respondents indicated having the greatest perceived need for training of wetland protection and management, coastal zone management, regulatory compliance, water resources, and environmental education (Table 8). Comparisons can be drawn between the issue ratings for perceived need for training and issue ratings for general knowledge and work-related experience. For instance, although water resources (supply and quality) was not the highest rated water/air issue for work-related experience, it was the highest rated issue in this category for both general knowledge and perceived need for training. Thermal pollution rated the lowest water/air issue on all three rating iterations. This suggests that while respondents lack personal and professional knowledge in regard to thermal pollution, they do not consider this an issue of importance. The same might be said for fire management and streambank restoration, which were the two lowest rating habitat issues in all three questions.

Table 8. Survey response from all participants to perceived need for training.

ALL RESPONDENTS – Perceived Need for Training				
	Highest	**Second Highest**	**Second Lowest**	**Lowest**
Habitat	Wetland protection/ management	Habitat Restoration	Streambank restoration	Fire management
Coastal Management	Coastal zone management	Coastal erosion and accretion	Port/harbor/ planning/management	Marina management
Planning/regulation	Regulatory compliance	General land planning	Sustainable building, development, & industries	Geographic information systems
Water/Air	Water resources	Waste water management	Air emissions/ air quality	Thermal pollution
Resource Management	Environmental education	Erosion control	Mineral, oil, and natural gas extraction	Forestry issues

Average values of issues ratings in each category were compared to demonstrate categorical trends in responses. When considering their general knowledge, respondents rated habitat issues and coastal management issues the highest and resource management issues and planning/regulation issues the lowest (Table 9). None of these results are significant, although the habitat issues category was almost significant ($p \leq 0.0526$). While this information will not reveal which specific training would be successful, it is helpful to be aware that respondents consider their knowledge of habitat issues superior to resource management issues. As a result, the level of training events can be adjusted to the appropriate level for the audience.

Table 9. Average rating of issues from all participants by major category.

ALL RESPONDENTS – Average Issue Ratings by Category			
	General Knowledge	**Work-Related Exp.**	**Perceived Need for Training**
Habitat	1.62	1.75	2.16
Coastal Management	1.58	1.63	2.32
Planning/regulation	1.42	1.54	2.18
Water/Air Issues	1.47	1.55	2.08
Resource Management	1.41	1.51	2.08

The average ratings for work-related experience were higher than the ratings for general knowledge. Habitat issues and coastal management issues rated the highest, while planning/regulation issues and resource management issues rated the lowest. The only category for work-related experience to yield a significant result is the habitat category (p $\leq$ 0.0166) suggesting that significant levels of professional expertise exist.

The average values for the perceived need for training were all higher than the average values indicated for general knowledge and work-related experience. The highest rated categories were coastal management and planning/regulation; the lowest rating categories were water/air and resource management. Interestingly, averages for all of these categories of perceived need for training were significant (p $\leq$0.0001), therein demonstrating a large need for local training.

Analysis of the Subset of Public Sector Respondents

A subset of survey responses were analyzed for the public sector. The high diversity of respondents resulted in sample sizes that were too small to yield appropriate power for subgroup analysis. Given the importance of local government and the large numbers of public sector respondents, it was determined that further analysis of this group would provide valuable insight into the specific needs of the public sector as well allowing a comparison of the public sector data to the entire data set. Further information regarding local communities and organizations is included in the market analysis. Responses in the public sector had the greatest general knowledge in the issues of wetland protection and management, recreational uses, regulatory compliance, water resources, and environmental monitoring (Table 10). This information is valuable in understanding the baseline level of knowledge for public officials when planning training events. The only difference between this list of priority issues and the list for the entire data set is the increased knowledge of regulatory compliance. Issues with high ratings represent topics for more advanced and specialized training, while issues with low ratings might represent topics for introductory or intermediate training. For example, since general land planning rated relatively low for general knowledge among the public sector, this issue could be a good candidate for training.

Table 10. Survey response from the public sector to general knowledge of issues.

PUBLIC SECTOR RESPONDENTS – General Knowledge				
	Highest	**Second Highest**	**Second Lowest**	**Lowest**
Habitat	Wetland protection/ management	Native species	Fire management	Streambank restoration
Coastal Management	Recreational use	Coastal and estuarine processes	Marina management	Port/harbor/planning/ management
Planning/regulation	Regulatory compliance	Interagency coordination	Geographic information systems	General land planning
Water/Air	Water resources	Non-point source pollution	Air emissions/ air quality	Thermal pollution
Resource Management	Environmental monitoring	Environmental education	Critical area delineation and management	Forestry issues

Respondents indicated that they had the greatest level of work-related experience with issues of wetland protection and management, native species, recreational use, interagency coordination, water resources, and environmental monitoring (Table 11). Work-related experience responses were similar to those of general knowledge. In general, training events focused on the relevancies of work-related experience may have a greater impact due to the professional involvement of many respondents in the coastal decision-making process.

Table 11. Survey response from the public sector to work-related experience.

PUBLIC SECTOR RESPONDENTS – Work-Related Experience				
	Highest	**Second Highest**	**Second Lowest**	**Lowest**
Habitat	Wetland protection/ management	Native species	Streambank restoration	Fire management
Coastal Management	Recreational use	Coastal and estuarine processes	Port/harbor/planning/ management	Marina management
Planning/regulation	Interagency Coordination	Regulatory compliance	Conservation Land Planning	Sustainable building, development, & industries
Water/Air	Water resources	Non-point source pollution	Air/emissions/ air quality	Thermal pollution
Resource Management	Environmental monitoring	Environmental education	Mineral, oil, and natural gas extraction	Forestry issues

Respondents indicated that they had the greatest perceived need for training in wetland protection and management, coastal zone management, general land planning, water resources, and environmental education (Table 12). When compared to ratings for the entire data set, the public sector had lower rated level of general knowledge and a higher rated need for training in general land planning. This indicates a need for general land planning training events specifically for local governmental officials.

Table 12. Survey response from the public sector to for perceived need for training.

PUBLIC SECTOR RESPONDENTS – Perceived Need for Training				
	Highest	**Second Highest**	**Second Lowest**	**Lowest**
Habitat	Wetland protection/ management	Habitat restoration	Streambank restoration	Fire management
Coastal Management	Coastal zone management	Coastal erosion and accretion	Salt water intrusion	Marina management
Planning/regulation	General land planning	Interagency coordination	Environmental impact assessments	Geographic information systems
Water/Air	Water resources	Non-point source pollution	Air/emissions/ air quality	Thermal pollution
Resource Management	Environmental education	Environmental monitoring	Mineral, oil, and natural gas extraction	Forestry issues

Average ratings of issues in each category were compared to demonstrate categorical trends. When considering their general knowledge, public sector respondents rated coastal management issues and planning/regulation issues the highest and resource management issues and water/air issues the lowest (Table 13). In general, however, public sector respondents rated their general knowledge low in all categories producing a significant negative response (in each case $p \leq 0.0294$) except coastal management ($p \leq 0.0548$). While this information will not reveal which specific training would be successful, it is helpful to be aware that, for instance, respondents consider their knowledge of coastal management issues superior to resource management issues. As a result, the level of training events can be adjusted to the appropriate level for events directed toward the public sector.

Table 13. Average issue ratings by category among public sector respondents.

PUBLIC SECTOR RESPONDENTS – Average Issue Ratings by Category			
	General Knowledge	**Work-Related Exp.**	**Perceived Need for Training**
Habitat	1.29	1.04	1.84
Coastal Management	1.32	1.08	1.88
Planning/regulation	1.31	1.14	2.04
Water/Air Issues	1.20	0.85	1.84
Resource Management	1.14	0.89	1.73

Average ratings for work-related experience were generally lower than the ratings for general knowledge. This is a departure from the ratings for the entire data set; however, it is not surprising considering the breadth of issues that many public sector officials must address. In work-related experience, coastal management issues and planning/regulation issues rated the highest, while water/air issues and resource management issues rated the lowest. Each category that was averaged for the public sector responses had negative values in comparison to the range of ratings available (0-3). This result was different than the averages of the entire data set, which was positive.

Average values of perceived need for training from the public sector were also considered. These ratings were higher than the average values for both general knowledge and work-related experience. The highest rated subjects were coastal management issues and planning/regulation issues; the lowest rating subjects were water/air issues and resource management issues. Interestingly, averages for all categories, except habitat issues, were significant and demonstrate a strong need for training in the Coastal Bend (in each case $p \leq 0.0250$).

2.3.4 Follow-up Interviews

To further support the findings of the needs assessment survey, several follow-up interviews were performed. Subjects for these interviews were selected from the group of survey respondents in an effort to include responses from different counties and professions. Interviews included local and federal government officials, a contractor, a member of the local non-profit community, and a member of the ecotourism community for a total of six interviews. These interviews were designed to collect in-depth information about specific training needs beyond topical preferences such as

technical skills or management tools (Appendix 4). Respondents reported a variety of topics that represent primary needs for additional training effort, including climate change, sea level rise, water quality, ecosystem services, impacts of non-point source pollution, erosion control, bulkheading, permitting processes, and the impacts of urbanization and urban sprawl. Of these topics, water quality was mentioned by three of the six respondents, stressing the need for additional training in this subject.

Expanding upon the topical suggestions for training, the interview went on to ask participants to describe any technical skills that would be beneficial to them or other coastal decision-makers. Participants listed technical skills such as basic water quality sampling, bacterial source tracking, an update of research and methods for water quality sampling over the past five to ten years, ecosystem based management tools, the importance and use of metadata, understanding cumulative impacts, and basic modeling limitations and techniques. This set of technical skills further stresses the desire for more training involving water quality.

To approach the need for training from another direction, the interview asked participants to list any management tools that a workshop or training could help them understand or use. The list of management tools included climate change tools such as rolling easements or climate ready estuaries, best management practices for storm water, tools for saltwater intrusion, tools for nutrient control, conservation easements, development rules, permitting processes, coastal management, conservation, networking, and invasive species control. Four of the six participants listed at least one management tool related to coastal development, demonstrating a need for additional training in this area.

Participants were encouraged to provide comments throughout the interview. These comments varied widely but generally captured participant training preferences. Participants suggested that training topics including technical skills and management tools would depend widely on audiences. Key audiences described primarily included public officials. This included specific mention of elected positions with both county and municipal governments, city planning and permitting departments, regulatory agencies, and land owners. The emphasis on the public sector here supports the use of public sector respondents as a subgroup for this analysis. Participants also reaffirmed their preferences for small training events that last no more than one day. Interview responses captured a demand for the mixed use of class work and field work that includes both expert presentation and breakout groups. These preferences further reinforce the analysis of survey data relating to logistical preferences.

2.3.5 Assumptions and Limitations of Data

Survey Response Bias and Error

The data generated by the needs assessment survey relies on a number of assumptions. Studies that rely on survey instruments assume that the respondents are representative of the population. In this case, the population described is that of decision-makers in the Coastal Bend. While no evidence indicates that the survey missed a key group of individuals, some trends warrant discussion.

The survey data included a higher number of responses from coastal decision-makers in Aransas County and Nueces County than from the other counties in the Mission-Aransas NERR. While this is a concern, it is reasonable to assume that these counties exert a disproportionate influence on the Mission-Aransas Estuary due to the proximity of Aransas County and the high populations of Nueces County and Aransas County. Due their high populations, these counties support a higher number of coastal decision-makers than the other counties in the Mission-Aransas NERR. Based on the relative importance of these counties to the Mission-Aransas Estuary, this possible source of error has little impact on the interpretation of the results of the survey.

Another result that might signal an unrepresentative sample of coastal-decision makers was the percentage of respondents in the public sector versus those in the private sector. Even though over 60% of respondents identified themselves as public officials, this is still a representative sample. Public officials included three different subgroups: elected, appointed, and neither, while private sector respondents only included individuals representing for-profit and not-for-profit entities. While it was more difficult to obtain e-mail addresses for coastal decision-makers in the public sector, the development of the contact list for the survey made a specific point to include local public officials. Additionally, public officials have a higher likelihood of making decisions that directly impact the environmental conditions in the Mission-Aransas Estuary. The variety of respondents in the public sector may have exceeded 50%, but in this instance, public sector officials are the primary decision-makers in the Coastal Bend and this does not suggest an unrepresentative sample. This conclusion is supported by similarity between the response rates of the public and private sectors as well as the importance of the public sector expressed in the follow-up interviews.

The decision to utilize an electronic survey may have influenced survey results. Some individuals expressed having difficulty with the electronic format, so it is reasonable to assume that others struggled who did not express their difficulties. It is possible that technical difficulties could bias the data toward the responses from those more comfortable with e-mail and using internet resources such as the electronic survey. While this is an important possibility to consider, the developers were aware of this concern before survey distribution began. E-mail is a well accepted form of communication, so the use of this technology should not unduly influence the results. To reduce this potential source of error, the cover letter for each survey included contact information for the CTP Coordinator and instructions on how to easily request technical assistance or a hard-copy of the survey. Some subtle differences existed in the hard-copy survey in comparison to the electronic survey, although the effects of these differences are estimated as minimal. Only two hard-copy survey responses were received, thus greatly reducing the possible influence of these slight differences. As with all surveys, responses only represent the opinions of those who responded to the survey. However, responses collected from upwards of 100 coastal decision-makers is a large enough sample size to assume that general trends analyzed will reflect the trends actually occurring.

Changing Baseline Conditions

The results of the needs assessment survey are based on data collected in March through May of 2008. This information dates the data collected because it is dependent on the baseline conditions that existed at the time. A local political election occurred in the beginning of May, just as the survey period was closing, and none of the newly elected officials provided a survey response. Thus, the results reflect the opinions of those elected in the previous term.

In addition to the recent local elections, economic conditions have changed dramatically since the survey was closed. The most notable example of this change is the cost of energy. The price index for energy rose 4.4% in May of 2008 and rose an additional 6.6% in June (Bureau of Labor Statistics 2008). In June, the petroleum-based energy price index increased by 10.0%. Energy prices are embedded in many of the decisions that we make and can alter the decision making processes that goes into responding to the issues covered in the needs assessment survey. The market has also observed other increases in prices such as those for food. The food price index increased 1.0% in June. In fact, the price index for all items excluding food and energy event went up 0.3% in June (Bureau of Labor Statistics 2008). At this time, information is unavailable to quantify the effects of the shifting economic conditions into this analysis, but this information is important to consider when interpreting the findings of this document.

Survey Design

The survey design includes a number of benefits such as the quantity and diversity of information that it was designed to collect, but it was not without its drawbacks. The most noticeable drawback of the survey design was its length. Although only a 15 to 30 minute survey, this is a significant amount of time to ask for a respondents' careful attention. This causes fatigue in the respondents, can lead to an increase in erroneous responses in later survey questions, and can reduce the response rate of later survey questions. A total of 108 respondents started the survey but later questions intended for all respondents received as few as 82 responses. Additionally, a steady decline of responses can be observed throughout the survey. Each section received fewer responses than the previous section. While some of this decline might be attributable to technical difficulties encountered by respondents, it does not appear that all of the incomplete survey responses can be attributed to such difficulties. This suggests that some individuals demonstrated their survey fatigue by failing to complete surveys. In addition to the decreasing number of responses, several respondents criticized the length of the survey. This supports the claim that the length of the survey was difficult for some respondents. The only evidence available to demonstrate an increase in erroneous responses is the negatively sloping trend line of expertise for the five categories of issues. While the order to the individual issues was randomized within each of the five sections of environmental issues, the order of the groupings never shifted. Analysis revealed a negatively sloping trend line of ratings for each category in all three areas: general knowledge, work-related experience, and perceived need for training. While this could be a coincidence, it is possible that this is a reflection of fatigue in respondents due to the length of the survey.

Additional issues with survey questions including question type, answer choices, and vocabulary selections among others may have also impacted the responses to some extent, but there is no information to either confirm or deny these impacts at this time. It is clear that some error in the survey data exists, but the discussion above suggests that efforts were taken when possible to control for potential sources of error whenever possible to limit the impact of these errors in the final result.

2.4 Conclusions

This needs assessment is a detailed review of the survey data with information about training preference and respondents' evaluation of their general knowledge, work-related experience, and perceived need for training for a variety of coastal issues.

Preferences for training logistics were evaluated by survey respondents. Winter was identified as the preferred season for training while summer was the least preferred season for training. The survey did not reveal a significant preference for or against training events in the fall. Respondents demonstrated significant preferences for training events that last fewer than four hours and begin in the morning (8:00 AM to 11:00 AM). Although respondents agreed less on the ending time for events, they still indicated a significant preference for events that end in the afternoon (1:00 PM to 5:00 PM).

Based on these findings, the Mission-Aransas NERR should host training events primarily in the winter while providing training as needed in the spring and fall seasons. In general, training events in the summer months should be avoided when possible. Additionally, training events should begin in the morning at approximately 9:00 AM and continue no longer than one day. When possible, these events should be kept under four hours to encourage maximum participation from coastal decision-makers. Participants in follow-up interviews indicated a preference for events lasting no more than one day.

This needs assessment also presented information regarding meal and cost preferences. Findings suggest that respondents would be willing to pay a small fee not exceeding $15 dollars. While the mean average value was $42.33 for a one-day training event, this would still be more expensive than many respondents (~50%) would be willing to pay. It is important for the Mission-Aransas NERR to accommodate the majority of potential coastal decision-makers. Reducing fees as low as $15 would accommodate approximately 84% of the respondents assuming normally distributed data. Analysis of a subset of data suggest that these figures also apply to those in the public sector.

In addition to the cost of the training itself, this needs assessment includes information about the meal preferences. Respondents were divided on whether to have meals catered on site or to have time allotted for attendees to go out for lunch while a much smaller group preferred to have the option to purchase a catered meal. The preference for going out to lunch received the highest percentage of response and was significant, and the on-site catered meal was also significant. Very few people would prefer to bring their own food and beverage to training events, indicating that events such as brown bag lunches should not be high priorities for the Mission-Aransas NERR CTP. The CTP Coordinator should evaluate the circumstances of the event to determine appropriate meal selections.

When meals are catered, prices should be kept low to encourage attendance. Breakfasts should cost no more than $3.50, lunch should cost no more than $7, and dinner should cost no more than approximately $10.50. Assuming normally distributed data, each of these values will accommodate approximately 84% of respondents. As with any cost number, the current economic conditions will impact these prices to some extent and should be considered when evaluating pricing decisions. Additionally, some preference was indicated for training events to provide healthy eating options for attendees. The Mission-Aransas NERR should accommodate this desire whenever possible but should not increase the cost in order to do so. Analysis of a subset of data suggest that these figures apply to the public sector as well.

The willingness to travel is another important logistical factor for hosting training events. Using the same evaluation metric from the cost estimates, approximately 85% of respondents would be willing

to travel at least 28 miles one-way to attend a training event. While it may not always be possible to host a training within 28 miles of all desired attendees, efforts should be made whenever possible to take training events into local communities, to encourage participation. In planning events directed at public officials, training events should be hosted within 33 miles of all desired attendees. This need is increasingly true considering the increases in consumer pricing that have been observed since the survey was administered.

The needs assessment identified communication preferences for training event notifications. Respondents indicated a significant preference for electronic communication either through e-mail or the internet. This includes receiving information about training, receiving course-related training materials, and registering for training events. In all cases, electronic communication was preferred, although some individuals would still prefer to receive course-related materials via the US Postal Service. Interpretation of this result should include the caveat that since the survey was distributed electronically, this finding, in particular, may be somewhat skewed. As a result, efforts should be made whenever possible to accommodate those who prefer other means of communication or registration. Analysis of a subset of data suggest that these figures would apply specifically to the public sector as well.

In general, this document identifies a clear need for training in a variety of coastal and estuarine issues. One critical finding of this document is the need to take training events to local coastal decision-makers. The low number of responses from Refugio, San Patricio, and Calhoun counties coupled with the data regarding willingness to travel suggest that additional effort needs to be devoted to addressing the training needs of areas further from the Mission-Aransas NERR headquarters in Port Aransas, Texas. This clearly demonstrates the need for the Mission-Aransas NERR CTP to create an advisory committee and to continue to develop partnerships that will allow the Mission-Aransas NERR to expand training activities as indicated by respondents of the needs assessment survey.

The needs assessment indicated that training is needed at a variety of levels and in a variety of subject areas. Coastal decision-makers require training events as evidenced by the elevated ratings observed for the respondents' perceived need for training. This alone suggests a need for additional coastal training resources in the Coastal Bend.

The category that received the highest average for the perceived need for training was coastal management followed by planning/regulation issues. This suggests a perceived need for training in these areas, although it should not dissuade the hosting of training events in water/air or resource management issues. The need for training in these areas is supported by the fact that respondents rated their general knowledge and work-related experience for these issues as the lowest or second lowest of the five categories. It is possible that the lower perceived need for training observed in the survey responses for water/air issues or resource management issues is due to a lack of general knowledge or work-related experience and that these skills would be valuable for some coastal decision-makers in the Coastal Bend.

In regard to specific issues, the needs assessment indicates that the Mission-Aransas NERR should primarily focus training events on the top rated issues for perceived need for training, in habitat and planning/regulation (the top two rated categories): wetland protection/management, regulatory

compliance, habitat restoration, and general land planning. Additional training efforts should consider the issues ranking highest in the remaining categories: coastal zone management, water resources, environmental education, coastal erosion and accretion, wastewater management, and erosion control. These specific issues represent the top two rated issues for the perceived need for training identified in each of the five categories. The need for training in topics, skills, and tools relating to water quality and coastal development was supported by the results of several follow-up interviews to the needs assessment survey. Training events should focus on these issues while still addressing other training needs as they occur. Additional needs could occur based on changing economic or political conditions. For instance, the increase in energy costs might prompt an elevated demand for training events addressing renewable energy resources.

In addition to analysis of the entire data set, the subset of public officials was also analyzed. In many cases, answers from the public sector align very closely with those of the entire data set, although there are some differences. For instance, general land planning arose as an important issue with coastal decision-makers in the public sector, as demonstrated by the low levels of general knowledge and work-related experience and a high need for training. Additionally, there was a significant perceived need for training, which demonstrates that a CTP would be beneficial to the coastal decision-makers of the Coastal Bend.

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4.0 Acknowledgments

5.0 Appendices

Appendix 1: Hard copy survey example.

THANK YOU FOR TAKING YOUR TIME TO RESPOND.

I know you are busy, but it should take no more than 30 minutes to complete this survey. Please read each question carefully. While some questions may appear to be similar, each question is designed to collect different information.

NO INDIVIDUALS WILL BE NAMED IN ANY REPORT RESULTING FROM THIS SURVEY; ALL PERSONAL INFORMATION WILL REMAIN CONFIDENTIAL.

The information from this survey will be used to help the Mission-Aransas National Estuarine Research Reserve's (Mission-Aransas NERR) Coastal Training Program (CTP) define both audiences and topics for future training activities for coastal decision-makers. The goal of this non-regulatory program is to perform long-term research in relatively natural settings. The program is administered through the National Oceanic and Atmospheric Administration and the University of Texas Marine Science Institute.

The Mission-Aransas NERR CTP presents an opportunity to establish and expand training partnerships between agencies, organizations, local governments, and educational institutions. The goal of the CTP is to provide a coordinated approach to coastal and environmental resource management training for individuals whose daily decisions, professional or volunteer, impact coastal watershed resources. The objective of the program is to assist these individuals, referred to throughout this document as "coastal decision-makers," in making informed decisions about coastal and watershed issues.

YOUR PARTICIPATION IN THIS SURVEY WILL HELP ME MEET LOCAL NEEDS BY FILLING GAPS IN EXISTING TRAINING EFFORTS, AVOIDING DUPLICATE TRAINING EFFORTS, CAPITALIZING ON PARTNERSHIP OPPORTUNITIES, AND FOCUSING ON THE ISSUES IDENTIFIED AS IMPORTANT TO YOU.

The survey contains 5 main sections:

1. General Information
2. General Knowledge Rankings
3. Work-Related Experience Rankings
4. Perceived Need for Training Rankings
5. Training Information and Specifics

There is also a field for general comments at the very end of the survey in case you have comments that will further help me define this program from your viewpoint. If you have any questions, I can be reached at (361) 749-6782 or cleister@mail.utexas.edu.

Thanks again,

Chad Leister

Coastal Training Program Coordinator

Mission Aransas National Estuarine Research Reserve

General Information

Name

_____

Agency/Organization

_____

Department

_____

Job Title

_____

Work Address

_____

_____

Phone Number

_____

E-mail Address

_____

Civic Involvement/Membership in Organizations and Boards

_____

_____

_____

_____

What county do you **live in**? (Circle one)

a) Aransas   b)   Nueces
c) Refugio   d)   San Patricio
e) Calhoun   f)   Other_____

Are you responding to this survey based on your profession, other civic involvement as indicated above, or both? **Please answer the rest of the survey from this perspective**.

a) Profession
b) Other Civic Involvement
c) Both

This is an important distinction, so if you would like to clarify your response, please do so below.

_____
_____

How long have you **lived in the Coastal Bend region of Texas?** (Circle one)

    a.   0-2 years   c)   5-10 years
    b.   2-5 years   d)   10+ years

How long have you **been with your agency/organization?** (Circle one)

    a)   0-2 years   c)   5-10 years
    b)   2-5 years   d)   10+ years

How long have you held your **present position within your agency/organization?** (Circle one)

    a)   0-2 years   c)   5-10 years
    b)   2-5 years   d)   10+ years

What, if any, continuing education or professional training opportunities have you taken advantage of in the past? (Please include relevant information)

        _____
        _____
        _____

Are you in the **public or private sector?** (Circle one)

    a) Public
    b) Private

If you are in the public sector, is your position **elected or appointed?** (Circle one)

    a) Elected
    b) Appointed
    c) Neither

If you are in the public sector, would you describe your position as **regulatory or non-regulatory?** (Circle one)

    a) Regulatory
    b) Non-regulatory

If you are in the private sector, is your organization **for profit or not for profit?** (Circle one)

    a) For profit
    b) Not for profit

2. General Knowledge Rankings

This section asks you to rank various coastal issues in five different categories based on your GENERAL KNOWLEDGE.

For the sake of this survey GENERAL KNOWLEDGE can include information and experience from all parts of your personal and professional life. Each issue at left is followed by four different choices ranging from "Expert" to "No Knowledge."

If you are unsure about how to rank an issue or feel that your ranking falls between two choices please make the selection that BEST represents your GENERAL KNOWLEDGE for the listed issue. Also, please note that each issue requires a ranking in order for you to proceed.

Expert	1	2	3	4	No Knowledge

Habitat Issues
Biodiversity
Endangered/threatened species
Fire management
Habitat buffers
Habitat restoration
Invasive species
Native species
Protected/special area management
Streambank restoration
Wetland protection/management
Wildlife corridors

Coastal Management
Beach and nearshore ecology
Coastal Public Access
Coastal and estuarine processes
Coastal hazards
Coastal erosion and accretion
Coastal zone management
Dredging and filling
Fisheries management
Marina management
Port/harbor planning/management
Recreational use
Saltwater intrusion
Shoreline upland ecology

Planning and Regulation Issues
Conservation land planning
Environmental health
Environmental legislation
General land planning
GIS
Interagency coordination
Regulatory compliance
Sustainable industries and development

Water/Air Issues
Air emissions/Air quality
Combined sewer outflows
Eutrophication & nutrient loading
Ground water issues
Non-point source pollution
Point source pollution
Sedimentation
Septic system issues
Thermal pollution
Waste water management
Water resources (supply & quality)

Resource Management Issues
Agricultural issues/practices
Aquaculture/mariculture
Conservation technologies
Critical area delineation and
Ecological landscaping
Environmental education
Environmental monitoring
Erosion control
Estuarine ecology
Fisheries/by-catch issues
Fisheries and fishery law
Forestry issues
Global climate change/sea level rise
Mineral, oil, and natural gas extraction
Real estate issues
Renewable energy
Watershed management

Other (Please specify)

3. Personal Experience with Coastal Issues

This section asks you to rank various coastal issues in five different categories based on your WORK-RELATED EXPERIENCE.

For the sake of this survey WORK-RELATED EXPERIENCE includes experience from BOTH YOUR PROFESSIONAL AND VOLUNTEER ACTIVITIES. This should include your involvement with local government, community organizations, or any activity that qualifies you as a coastal decision-maker. Each issue at left is followed by four different choices ranging from "Daily" to "Never."

If you are unsure about how to rank an issue or feel that your ranking falls between two choices please make the selection that BEST represents your WORK-RELATED EXPERIENCE for the listed issue. Also, please note that each issue requires a ranking in order for you to proceed.

Daily	1	2	3	4	Never

Habitat Issues	Regulatory compliance
Biodiversity	Sustainable industries and development
Endangered/threatened species	**Water/Air Issues**
Fire management	Air emissions/Air quality
Habitat buffers	Combined sewer outflows
Habitat restoration	Eutrophication & nutrient loading
Invasive species	Ground water issues
Native species	Non-point source pollution
Protected/special area management	Point source pollution
Streambank restoration	Sedimentation
Wetland protection/management	Septic system issues
Wildlife corridors	Thermal pollution
Coastal Management	Waste water management
Beach and nearshore ecology	Water resources (supply & quality)
Coastal Public Access	**Resource Management Issues**
Coastal and estuarine processes	Agricultural issues/practices
Coastal hazards	Aquaculture/mariculture
Coastal erosion and accretion	Conservation technologies
Coastal zone management	Critical area delineation and
Dredging and filling	Ecological landscaping
Fisheries management	Environmental education
Marina management	Environmental monitoring
Port/harbor planning/management	Erosion control
Recreational use	Estuarine ecology
Saltwater intrusion	Fisheries/by-catch issues
Shoreline upland ecology	Fisheries and fishery law
Planning and Regulation Issues	Forestry issues
Conservation land planning	Global climate change/sea level rise
Environmental health	Mineral, oil, and natural gas extraction
Environmental legislation	Real estate issues
General land planning	Renewable energy
GIS	Watershed management
Interagency coordination	**Other (Please specify)**

4. Perceived Needs for Coastal Training

This section asks you to rank various coastal issues in five different categories based on your PERCEIVED NEED FOR TRAINING.

For the sake of this survey PERCEIVED NEED FOR TRAINING should include YOUR TRAINING NEEDS AND THE TRAINING NEEDS OF OTHER COASTAL DECISION-MAKERS. Each issue at left is followed by four different choices ranging from "Essential" to "Unimportant." Please consider both existing training efforts (supply) and the relative importance of each issue (demand) in your rankings.

If you are unsure about how to rank an issue or feel that your ranking falls between two choices please make the selection that BEST represents your PERCEIVED NEED FOR TRAINING for the listed issue. Also, please note that each issue requires a ranking in order for you to proceed.

Essential 1	2	3	4	Unimportant

	Habitat Issues				Water/Air Issues
	Biodiversity				Air emissions/Air quality
	Endangered/threatened species				Combined sewer outflows
	Fire management				Eutrophication & nutrient loading
	Habitat buffers				Ground water issues
	Habitat restoration				Non-point source pollution
	Invasive species				Point source pollution
	Native species				Sedimentation
	Protected/special area management				Septic system issues
	Streambank restoration				Thermal pollution
	Wetland protection/management				Waste water management
	Wildlife corridors				Water resources (supply & quality)
	Coastal Management				**Resource Management Issues**
	Beach and nearshore ecology				Agricultural issues/practices
	Coastal Public Access				Aquaculture/mariculture
	Coastal and estuarine processes				Conservation technologies
	Coastal hazards				Critical area delineation and
	Coastal erosion and accretion				Ecological landscaping
	Coastal zone management				Environmental education
	Dredging and filling				Environmental monitoring
	Fisheries management				Erosion control
	Marina management				Estuarine ecology
	Port/harbor planning/management				Fisheries/by-catch issues
	Recreational use				Fisheries and fishery law
	Saltwater intrusion				Forestry issues
	Shoreline upland ecology				Global climate change/sea level rise
	Planning and Regulation Issues				Mineral, oil, and natural gas extraction
	Conservation land planning				Real estate issues
	Environmental health				Renewable energy
	Environmental legislation				Watershed management
	General land planning				**Other (Please specify)**
	GIS				
	Interagency coordination				
	Regulatory compliance				
	Sustainable industries and development				

5. Training Preferences and History

Consider allotting enough time to cover a topic and your time constraints, what is your preferred length of training session?

  a) 1 – 2 hours
  b) 2-4 hours
  c) Full-day (8 hours)
  d) Two-day (16 hours)
  e) Other (please specify) _____

What time of day would you prefer to *begin* a training session? (Circle all that apply)

  a) Morning (Between 8 AM and 11 AM)
  b) Midday (Between 11 AM and 1 PM)
  c) Afternoon (Between 1 PM and 5 PM)
  d) Evening (Between 5 PM and 8 PM)

What time of day would you prefer to *finish* a training session? (Circle all that apply)

  a) Morning (Between 9 AM and 11 AM)
  b) Midday (Between 11 AM and 1 PM)
  c) Afternoon (Between 1 PM and 4 PM)
  d) Evening (Between 5 PM and 9 PM)

What is your preferred season(s) for training events? (Circle all that apply)

  a) Winter
  b) Spring
  c) Summer
  d) Fall

How much would you be willing to pay for a full day training event that included an out-of-town speaker and refreshments such as coffee, tea, water, and cookies? (Circle one)

  a) $10
  b) $25
  c) $50
  d) $100
  e) Other(please specify) _____

Would this value fluctuate depending on the length of the training event? (Circle one)

  a) Yes, I would pay more/less for a longer/shorter training event
  b) No, A training event should cost the same regardless of length

If yes, please briefly describe how much more/less you would pay for various training lengths.

_____
_____

Would this value fluctuate depending on the variety of refreshments provided? (Circle one)

    a)   Yes, I would pay more for a larger variety of refreshments
    b)   No, I would be content with the selection of refreshments described above

If yes, please describe how more you would be willing to pay and your preferred options.

_____
_____

What would be your meal preference for a full-day/multi-day training event? (Circle one)

    a)   I would prefer to bring my own food and beverage (to reduce cost or meet dietary restrictions)
    b)   I would prefer to have meals catered at the training site and included in the training price
    c)   I would prefer to have the option of purchasing a meal catered on-site in advance
    d)   I would prefer to have time allotted so that attendees could go out to lunch

If you would like to have meals included in training fees or to have that option, how much more would you be willing to pay for a breakfast? (Circle one)

    a) $2
    b) $5
    c) $7
    d) $10
    e)   Other (please specify) _____

If you would like to have meals included in training fees or to have that option, how much more would you be willing to pay for a lunch? (Circle one)

    a) $5
    b) $7
    c) $10
    d) $15
    e)   Other (please specify) _____

If you would like to have meals included in training fees or to have that option, how much more would you be willing to pay for a dinner? (Circle one)

a) $7
b) $10
c) $15
d) $20
e) Other (please specify) _____

What is the *maximum* distance that you would be willing to travel to attend a full-day training event? (Circle one)

a) 30 miles
b) 60 miles
c) 100 miles
d) 200 miles
e) Other (please specify) _____

How would you prefer to communicate with trainers? (Circle one)

a) Via US Mail Service
b) Via Telephone
c) Via E-mail
d) Other (please specify) _____

How would you prefer to receive any course-related materials? (Circle one)

a) Via US Mail Service
b) Via Fax
c) Via E-mail
d) Other (please specify) _____

How would you prefer to register for training events? (Circle one)

a) Via US Mail Service
b) Via the internet
c) Via e-mail
d) Via telephone
e) Other (please specify) _____

Is there anything else regarding the specifics and logistics of a training event that you would like to comment on, expand upon, or describe for us?

_____

_____

_____

Would you be willing to partner with the Mission-Aransas NERR in order to increase the amount of training available in the Coastal Bend region? Would you be able to offer any resources such as materials, personnel, transportation, speakers, financial support, or meeting facilities toward such a partnership?

_____

_____

_____

Does your organization provide training, outreach, science-based information, or some other educational product or service related to the coastal environment? (Choose all that apply)

   a. Yes, we provide trainings (workshops, seminars, conferences, etc.)
   b. Yes, we provide outreach (webpage, newsletter, brochures, etc.)
   c. Yes, we provide science based information (reports and technical documents)
   d. No, we do not provide training, outreach or educational materials.

How many coastal training opportunities has your agency/organization provided (hosted, funded or
      otherwise supported) over the past 5 years? (Please describe briefly)

   a. 1-2
   b. 3-5
   c. 6-10
   d. 11-20
   e. 20+

_____

_____

_____

_____

How many of these opportunities were offered jointly through a partnership with another
agency/organization? (Please describe briefly)

    a. 1-2
    b. 3-5
    c. 6-10
    d. 11-20
    e. 20+

_____
_____
_____
_____

Where were these trainings held? (Please list city or town and specific location if possible)

_____
_____
_____
_____

Who was the target audience of the training? _____

_____

Other Comments:_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Thank you very much for your time and effort. We would like to remind you that your specific answers
are confidential and you will not be identified by name in any report. If you have any questions, please
feel free to contact Chad Leister at (361) 749-6782 or cleister@mail.utexas.edu.

Appendix 2: Example cover letter sent out with survey.

Dear Head of Local Government,

Head of Local Government, I need your help. The Mission-Aransas National Estuarine Research Reserve (Mission-Aransas NERR) is dedicated to providing relevant information and training to guide your adopted policies in serving the greater needs of your elected responsibility. In order to facilitate this process, I would appreciate it if you would take some of your valuable time to answer a survey that should take no more than 30 minutes to complete. It is important to learn from people of your stature what is germane and this survey is designed to provide that data.

Please click on the survey link below:
Mission-Aransas NERR Needs Assessment Survey

If you do not have access to the internet, have trouble accessing the link, or prefer to fill out a paper copy, please contact me at (361) 749-6782 or cleister@mail.utexas.edu and I will be happy to assist you in troubleshooting or by providing a paper copy.

I know how many requests you receive for your time and I thank you for this effort on my behalf. I am sure that the data collected in this survey will prove valuable in developing a series of training opportunities that specifically address topics and issues of great importance to you and your local community. I would gladly receive any of your comments regarding the survey or this process.

Sincerely,
Chad Leister
Coastal Training Program Coordinator

Appendix 3: Example reminder letter.

Dear _____,

I need your help. I sent you an e-mail on _____ with a link to an electronic Needs Assessment Survey that seeks input for training efforts in the Coastal Bend. I really need your opinions in order to allow this survey to be used for program development for the Coastal Training Program of the Mission-Aransas National Estuarine Research Reserve (NERR). Your time is valuable and I recognize that the survey seems lengthy, but it should take you no more than 30 minutes to complete; many respondents finished in as few as 15 minutes. I would also like to remind you that all responses are confidential and no one will be named in any resulting report.

Response rate is a very important factor for this study. A high percentage of response is a requirement for this survey. This is my first major task as Coastal Training Program Coordinator for the Mission-Aransas NERR and each additional response will improve my chances of success in this endeavor. I am required to report my initial findings including the response rate by May 15. So, I would appreciate it if you could devote a few minutes of your time to complete my Needs Assessment Survey.

For your convenience, I have included the survey link below:
Mission-Aransas NERR Needs Assessment Survey

As previously, if you do not have access to the internet, have trouble accessing the link, or prefer to fill out a paper copy, please contact me at (361) 749-6782 or cleister@mail.utexas.edu and I will be happy to assist you by troubleshooting or providing a paper copy. I would gladly receive any of your comments regarding the survey or this process.

Thanking you in advance for being willing to devote some of your important time toward this worthwhile task that is so important to me.

Sincerely,
Chad Leister
Coastal Training Program Coordinator

Appendix 4: Follow-up interview template and questions.

1. Thank individuals for completing the survey.
2. Explain why we are following up, time line, agree to send copies of the final versions.
3. Explain or review results if requested.
4. Ask follow-up questions

   • If the Mission-Aransas NERR could host a workshop/training covering any one topic, what topic would you choose? Why? What format would the training take? Who would be the target audience?
   • Are there any technical skills that you would like to see a workshop of training cover? Why? What format wold the training take? Would this be a field exercise (outdoors) or indoors? Who would be the target audience?
   • Are there any management tools that a workshop could help you understand or use? Why? What format would this workshop take? Who wold be the target audience?
   • Are there important audiences for CTP to incorporate that have yet to be included?
   • Did you attend the Coastal Community Planning and Development Workshop hosted by the Mission-Aransas NERR in June? If so, how have you used the information, tools, and skills from the event? What results of outcomes from the event have you observed in your community? <results not included in this document>