



Evaluation of Visual Impact on Cultural Resources/Historic Properties: North Atlantic, Mid-Atlantic, South Atlantic, and Florida Straits

Volume I: Technical Report of Findings



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ABSTRACT

John Milner Associates, Inc. (JMA), in association with New South Associates, Inc. (NSA), was retained by the Bureau of Ocean Energy Management (BOEM) of the U.S. Department of the Interior to prepare a GIS database of known cultural resources/historic properties that could be impacted by the introduction of off-shore energy facilities along the east coast of the United States. Cultural resources/historic properties include buildings, districts, sites, structures, and objects that have been recognized by federal or state government as historically and culturally important and worthy of preservation. The investigation was intended to provide a baseline of cultural information that will inform preliminary planning decisions regarding renewable energy development in the Atlantic Region, and assist in compliance with Section 106 of the National Historic Preservation Act of 1966 and the National Environmental Policy Act of 1969 in conjunction with specific projects.

A study area was defined that encompassed a continuous coastal strip beginning at a defined shoreline and extending inland for a distance of 0.25 mi (0.4 km). Within this corridor, information was collected from a variety of sources, including the National Register Information System (NRIS), the State Historic Preservation Offices (SHPOs) of 13 coastal states (Maine, New Hampshire, Massachusetts, Rhode Island, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida), local municipalities, other government agencies, and state and federally recognized Native American tribes. Connecticut was excluded from the study area because none of its coast faces the open sea. Data were codified into 27 basic attributes that addressed various aspects of identity, location, status, size, ownership, type, age, function, accessibility, public visitation, and setting.

A total of 9,600 known cultural resources/historic properties were addressed. Of this total, 9,175 were considered to have a historically significant maritime setting, and 1,108 were considered to have a historically significant view toward the open sea. Publically accessible resources with significant maritime settings were field-visited, and representative, geospatially-linked, digital photographs were taken of selected resources and from such resources toward the open sea. Public visitation data were collected for 62 resources.

The end product of the investigation was a technical report, Microsoft Access database, ArcGIS Geodatabase, and 822 survey photographs documenting the location, description attributes, and example viewsheds of cultural resources/historic properties within the study area.

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1.0 INTRODUCTION

The Bureau of Ocean Energy Management (BOEM), an agency of the U.S. Department of the Interior, is charged with the responsibility of considering the effects of its actions on significant cultural resources/historic properties on the Outer Continental Shelf (OCS) of the United States, extending from State waters to the limit of the Exclusive Economic Zone (EEZ). This mandate arose from a number of laws, enacted to ensure proper management and protection of the nation's cultural heritage. The most pertinent of these are the National Historic Preservation Act of 1966 (NHPA), as amended; and the National Environmental Policy Act of 1969 (NEPA).

While possible impacts to cultural resources/historic properties located on the OCS have long been a focus of the BOEM, other possible impacts related to the development of renewable energy sources have become a concern, as well. With respect to off-shore energy facilities, one of the most important concerns is the possible impacts that these structures and lighting may have on on-shore cultural resources/historic properties. Section 106 of NHPA requires that planning for placement of off-shore energy facilities include an assessment of visual effects that the undertaking could have on buildings, structures, sites, objects, and districts that are eligible for the National Register of Historic Places (NR). NEPA requires that planning for placement of off-shore energy facilities include an assessment of possible socio-economic impacts on cultural resources/historic properties.

This investigation is intended to provide a baseline of cultural information that will inform preliminary planning decisions regarding renewable energy development in the Atlantic Region and assist in compliance with NHPA and NEPA with respect to the placement of off-shore energy facilities. It identifies known cultural resources/historic properties that could be visually affected, as well as publically accessible cultural resources/historic properties that could be socio-economically impacted due to diminished levels of visitation. The methods employed are summarized in this Technical Report of Findings. The results of the investigation are presented in a separate, Geographic Information System (GIS) Database.

John Milner Associates, Inc. (JMA), in association with New South Associates, Inc. (NSA), undertook the work on behalf of the BOEM (FY 2008-2010). JMA assumed overall responsibility for management of the project, as well as data collection in the northern states (Maine, New Hampshire, Massachusetts, Rhode Island, New York, New Jersey, Delaware, Maryland, and Virginia). NSA assumed responsibility for data collection in the southern states (North Carolina, South Carolina, Georgia, and Florida). Connecticut was excluded from the study area because its coast faces Long Island Sound and not the open sea. Cultural resources/historic properties along the Connecticut coast would not be visually affected by the placement of off-shore energy facilities.

2.0 METHODOLOGY

2.1 DEFINITION OF THE STUDY AREA

The study area was defined to encompass the Areas of Potential Effects (APEs), the areas within which future offshore development could reasonably be determined to have impacts on cultural resources/historic properties. Determining the limits of the APEs is not a straightforward process. The theoretical limit of the APEs is the viewshed associated with the structure(s) constructed offshore. The tallest structures currently being contemplated are offshore wind turbine generators (WTGs). Existing offshore turbines (in Europe) are generally between 2 and 4 MW, with tower heights greater than 200 ft (60.96 m) and rotor diameters of 250 ft (76.2 m) to 350 ft (106.68 m). Turbines of up to 5 MW with a nacelle height of 328.08 ft (100 m) and a total height (to blade tip) of more than 524.9 ft (160 m) are being planned. The theoretical limits of the viewshed of structures of that height can extend over tens of miles with a theoretical maximum limit being determined only by the curvature of the earth. In practice, the ability of the human eye to detect (as opposed to recognize) the presence of a structure is considerably less than the theoretical viewshed limit.

Scottish National Heritage has co-sponsored a guidance document for assessing the visual impact of wind farms on seascapes (DTI 2005). That document recommends using 21.75 mi (35 km) as the *seaward* limit of visual significance. However, a considerably shorter distance has generally been used to assess the *landward* limit of visual impact. Another Scottish National Heritage study (Scott et al. 2005) for example, set 6.21 mi (10 km) as the landward limit of analysis. If one employs the 6.21 mi (10 km) limit of analysis used by Scottish National Heritage and assumes that 3 mi (4.83 km) offshore is the nearest point at which a structure of concern might be constructed, one is left with a study area extending approximately 3.2 mi (5.15 km) inland. However, the Scottish National Heritage studies, as well as most other studies dealing with the visual effects of wind farms (both inland and onshore), are primarily concerned with impacts to aesthetic resources and resources that derive their importance primarily from their association with a landscape or seascape. Cultural resources/historic properties, although they may be located within the viewshed of a proposed project, need to be considered differently.

A more relevant precedent to the current study is the Cape Wind Energy Project, proposed for construction off the Massachusetts shore (Cape Wind Associates 2004). This project has gone through extensive environmental reviews by the State of Massachusetts, the Army Corps of Engineers, and the BOEM. The environmental reviews for Cape Wind generally placed the limit of the visual APE, for cultural resources/historic properties at 300 ft (91.44 m) upland of the shoreline. Within the visual APE, concern appropriately focused on those properties which derived their significance, in whole or substantial part, from their associated setting, especially settings that include a seascape. There are certain resource types that clearly fall within this category, for example, lighthouses, seashore resorts, coastal fortifications, and residences sited specifically to take advantage of ocean views. Historic districts associated with a history of maritime commerce may also fall within the category of resources that derive their significance

in part from associated seascapes. Each of these resource types can generally be found within close proximity to the shoreline. However, as one moves further inland, the likely presence of these resource types drops significantly. While the 300 ft (91.44 m) limit was appropriate for Massachusetts, where views are often screened by topography, intervening structures, and vegetation, it may not be appropriate for other states along the eastern seaboard.

In consideration of these previous approaches, JMA defined the inward limit of the study area as 0.25 mi (0.4 km) (Note: An exception was made for Traditional Cultural Properties. See Section 2.6 below). This limit is much more focused than the Scottish National Heritage studies and considerably more conservative than the 300 ft (91.44 m) used for the Cape Wind analyses. However, use of this larger area insured that a more comprehensive inventory was prepared, including a consideration of possible inland properties, such as hillside estates or multi-story buildings that may have been sited to afford a view to the open sea. The seaward limit of the study area was defined as a line paralleling the inward limit at a distance of 3 mi (4.83 km) offshore. This seaward limit was selected to include shallow-water shipwrecks whose locations are known and may be present between the shoreline and the landward edge of the EEZ. Shallow water was defined as anything less than 30 ft (5 fth). Wrecks below that depth are unlikely to extend to the surface and be readily visible, even at low tide.

2.2 PREPARATION OF STUDY AREA MAPPING

JMA/NSA initially prepared GIS base mapping that showed the locations of currently listed NR properties within the study area. The study area was defined to encompass a continuous coastal strip beginning at a defined shoreline and extending inland for a distance of 0.25 mi (0.4 km) and seaward for a distance of 3 mi (4.83 km). The NR properties and study area boundary were layered on a U.S. Geological Survey (USGS) topographic base, showing county and municipal names and boundaries. The GIS mapping allowed JMA/NSA to determine the distribution and relative concentrations of currently listed NR properties by state, county, and municipality and thus more effectively apportion time and materials for data collection.

JMA/NSA used 7.5-minute USGS quads as the base map. These quads were acquired from the GIS data depot at GeoComm (<http://data.geocomm.com/>). Approximately 240 quads were required for the northern states and approximately 220 quads for the southern states. The end product was essentially a series of re-creations of the quads at 1:24,000 or 1:25,000 scale showing study area boundaries and NR points. NR points were acquired from the National Register Information System (NRIS) (<http://www.nps.gov/history/nr/research/nris.htm>). The study area boundaries were created from several online sources.

Preliminary research showed that no current federal/state/commercial shoreline data files accurately depicted the shoreline required for this project. Therefore, JMA/NSA used three separate GIS files that depicted the shoreline at varying levels of accuracy and detail. The sources of these GIS data files were the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Sensitivities Research Institute (ESRI). The final shoreline delineation was completed by scanning the entire shoreline of the study area at a scale of

1:10,000 to 1:20,000 to determine which files matched the shoreline best. If none of the source files matched the USGS mapping within a close tolerance, the shoreline was edited or re-digitized to match the USGS quadrangle.

The shoreward limit of the study area was created by buffering the shoreline for a distance of 0.25 mi (0.4 km) inland. (Note: The study area was understood to extend seaward to include known shallow-water shipwrecks that may be present between the shoreline and the landward edge of the EEZ, a parallel line located 3 mi [4.83 km] offshore.)

2.3 COLLECTION OF STATE HISTORIC PRESERVATION OFFICE DATA

Hard copies of the GIS base mapping were printed and distributed to JMA/NSA researchers who were responsible for verifying and collecting site-specific information. JMA/NSA researchers were also provided with information on currently listed NR properties, as available from the NRIS. These data formed the basis of a database of possibly impacted resources that was augmented with site-specific information as data collection progressed. JMA/NSA researchers annotated hard copies of the GIS mapping to show property locations and boundaries as new information was collected. In addition, JMA/NSA researchers were provided with a recording form (Appendix A) so that relevant attributes for each resource could be recorded in a consistent manner. The attributes addressed issues of identity, location, status, size, ownership, type, age, function, accessibility, visitation, and setting.

The primary and most comprehensive sources of information about cultural resources/historic properties within each state are the records, files, and collections of the various State Historic Preservation Offices (SHPOs). However, the content and organization of information varies widely from state to state. Therefore, in order to ensure a complete and consistent collection of data, JMA/NSA researchers employed a staged approach.

The first stage pertained to Web searches. Preliminary research indicated that six of the thirteen relevant SHPOs maintain some level of information about specific cultural resources/historic properties on their publically accessible Websites. To the extent possible, JMA/NSA researchers utilized these readily accessible sources as the first means of data collection. JMA/NSA researchers downloaded cultural resources/historic properties lists and NR forms from each Website, as available, and correlated hard data for specific properties with GIS mapping data, noting any documentation deficiencies.

As a second stage of data collection JMA/NSA researchers conducted a search of SHPO hard-copy files to collect data on known cultural resources/historic properties not available via download from SHPO Websites. JMA/NSA researchers correlated hard data for specific resources with GIS mapping data and Web search data, and noted any remaining documentation deficiencies.

Since the content and organization of data varies widely from state to state, it is not possible to generalize on how the SHPO data collection was conducted. The following specific procedures and protocols were employed for each state.

2.3.1 Maine Historic Preservation Commission

Data collection in Maine occurred in May and June of 2009. The Maine Historic Preservation Commission (MHPC) maintains files on NR-listed and –eligible properties, as well as locally surveyed resources. A portion of the NR nominations was reviewed at the MHPC; the remainder was scanned from the collection of the NR office in Washington, D.C. The MHPC does not have a public database of surveyed resources, and much of the coastal area of the state has not been surveyed. Available materials, filed by town, were reviewed, and resources within the project area were recorded. The MHPC also maintains an inventory of prehistoric and historic sites and corresponding reports for archaeological projects conducted in Maine. An electronic file of these resources within the study area was provided for project use.

2.3.2 New Hampshire Division of Historical Research

Data collection in New Hampshire occurred in June of 2009. The New Hampshire Division of Historical Research (NHDHR) in Concord maintains an archive of reports and surveys undertaken by permit throughout the state. The databases have been completely digitized and are available electronically on-site at the archives of the NHDHR. The NHDHR staff is able to generate via GIS software, on request and within specified geographic limits, concise and clear maps of all levels of documented resources from prehistoric and historic archaeological sites to NR-listed properties and districts and state and local landmarks. The New Hampshire NR also provides an online list of historic properties and historic districts by county.

2.3.3 Massachusetts Historical Commission

Data collection in Massachusetts occurred from May through July of 2009. The Massachusetts Historical Commission (MHC) in Boston publishes the "State Inventory of Historic Places" for the entire Commonwealth and maintains the Massachusetts Cultural Resource Information System (MACRIS), an online database that includes the Inventory of Historic Assets of the Commonwealth, NR nominations, NR and State Register listings, local historic district study reports, and individual town reports. The State Inventory of Historic Places is a simple but comprehensive list of buildings, structures, objects, and sites that have received local, state, or national designations based on historical or archaeological significance. The online database, MACRIS, is searchable by a number of variables. It is a list of individual resources organized by location, e.g., town, municipality, city. Detailed documentation on individual properties or sites is not available online or in digital format and must be physically located in the files of the MHC, which contain hard copies of all forms and reports listed in MACRIS and the State Inventory of Historic Places.

Although the digitization of files documenting prehistoric and historic archaeological sites in the Commonwealth of Massachusetts is in progress, only a very small percentage of the MHC's site file holdings are currently available online or in digital format. Prehistoric and historic site information that is not available in digital format must first be geographically located by town or city on USGS quad maps. Physical files containing detailed information on each site number must then be individually located in the files maintained by the MHC.

2.3.4 Rhode Island Historical Preservation and Heritage Commission

Data collection in Rhode Island occurred in July of 2009. The Rhode Island Historical Preservation and Heritage Commission (RIHPHC) in Providence maintains a digitized database of NR, state, and local register-listed properties in Rhode Island with listings searchable by property, municipality, and a variety of additional variables. Access to the database is gained only through RIHPHC staff, to which requests for copies of specific listings may be addressed.

The RIHPHC also maintains the archive of the State Survey, which includes records of all permitted prehistoric and historic archaeological research conducted in the state and all known prehistoric and historic archaeological sites. Individual prehistoric and historic sites must first be located on USGS quad maps. While the State Survey information on individual sites has not been digitized for online access, electronic copies of the complete survey site files (containing basic categories of information on each site) are available from the RIHPHC, eliminating, for the purposes of this project, the necessity to physically locate individual site reports in the RIHPHC files.

2.3.5 New York State Office of Parks, Recreation and Historic Preservation

Data collection in New York occurred in March of 2009. The New York State Office of Parks, Recreation and Historic Preservation (OPRHP) maintains a GIS-based inventory of historic properties known as the SPHINX system. The SPHINX system includes location information on NR and State Register properties in New York, but does not include archaeological site data. GIS resources are based on current records, databases, and file information retained at the OPRHP. The database includes generalized boundary information for nearly 4,500 individual properties and historic districts. In addition, the SPHINX system contains a listing by municipality of individual properties in the state's Building-Structure Inventory. The inventory includes information on unlisted NR-eligible properties, as well as unevaluated properties. The OPRHP at Peebles Island maintains hard copies of forms and reports listed in the SPHINX system. The OPRHP also maintains consolidated site files for previously recorded archaeological sites and areas of archaeological sensitivity.

The OPRHP maintains a separate shipwreck data inventory. There are more than 400 individual entries in the inventory for the coastal counties of Nassau, Suffolk, Queens, Kings, Richmond, and New York. However, only a limited number of entries are associated with

Universal Transversal Mercator (UTM) or Long Range Navigation (LORAN) coordinates, or have an assigned latitude and longitude. The vast majority of entries are associated with locations such as “two miles off of Jones Beach.” Only shallow-water wrecks with assigned locations are included in the JMA database.

2.3.6 New Jersey Historic Preservation Office and New Jersey State Museum

Data collection in New Jersey occurred from May through September of 2009. The New Jersey Historic Preservation Office (HPO) in Trenton maintains copies of all cultural resource studies reviewed by the HPO. These studies include NR- and State Register-listed and eligible properties, Cultural Resource Management (CRM) reports, and local survey work. Digitized records and GIS information are not currently available to the general public. All researchers must attend an HPO research training session prior to using the HPO collection.

The majority of NR- and State Register-listed and eligible properties are identified on a set of USGS topographic maps that has been annotated to indicate the name(s) and location of each resource. This is the earlier of the two documentation systems of such resources at the HPO. Also available is an online database of NR- and State Register-listed and -eligible properties, organized alphabetically by county, then municipality. The annotations on the USGS topographic maps and online database listings do not correlate exactly, and many NR- and State Register-listed and -eligible properties are not shown on the USGS maps. Additional information concerning these properties is available from individual resource files. However, some of these files may be identified as “missing” or “out” for internal review.

Like the NR- and State Register-listed and -eligible properties, the CRM studies are mapped on a separate set of USGS topographic maps. Each CRM study is assigned an in-house accession/reference number which corresponds to a report on-file in the HPO library. Some of these reports include abstracts and/or conclusions or summaries that identify specific resources; however, not all do. In general, the earlier the report, the less likely it is to provide such detailed information. Over the years, some reports have gone “missing.”

The results of local architectural surveys are maintained in loose-leaf binders, organized alphabetically by county, then local municipality. The survey forms vary considerably in the quantity and quality of information. Mapping for some areas also varies, and in some cases is nonexistent.

The research approach taken at the HPO followed the order described above. First, all of the NR and State Register-listed and -eligible property data were collected. The USGS topographic maps were first reviewed, revealing the bulk of the state’s NR and/or State Register properties, and their locations. The state’s online NR database was then cross-checked with the topographic information in order to ensure the comprehensive collection of such resource data. File checks were then conducted for each resource in order to obtain information about significance, maritime settings, and/or views to the ocean. District boundaries were also more closely reviewed and documented. Following the collection of NR and State Register information, the

CRM reports were reviewed for information concerning documented cultural resources. Recommendations of NR and State Register eligibility resulting from these studies were cross-referenced with the state's online database in order to confirm the current status of identified resources. Local survey files were reviewed to determine the presence of other cultural resources not otherwise identified in the NR and State Register files or CRM reports.

The New Jersey State Museum in Trenton maintains the state's official archaeological site files. Appointments are required prior to visits, as well as the sharing of research inquiries. All records are pulled and made ready for review upon appointment. A total of 22 USGS quads were requested and reviewed. All sites within the study area were mapped and archaeology site forms were requested for additional information. The site forms varied in quality and consistency.

2.3.7 Delaware Division of Historical and Cultural Affairs

Data collection in Delaware occurred from July through September of 2009. The Division of Historical and Cultural Affairs (DHCA) maintains an online GIS inventory of cultural resources; however; the inventory does not contain any in-depth information, except for NR-listed properties. There is no statewide database of cultural resources. Limited on-site research is possible by appointment at the Historic Property Research Center in Dover. The research center provides access to a variety of maps, such as 1964 aerial mosaic maps, USGS topographic maps, and tax maps, as well as microfiche and paper records of site files and project reports. Specific records and/or reports can be accessed upon request, in many cases subject to a fee. Inventory forms vary in quality and rarely denote NR status.

The research approach taken at the DHCA was to first collect information on NR-listed properties, available through the online GIS system, known as CHRIS (Cultural & Historic Resource Information System). A user system was requested and created via the DHCA before access to this system was allowed. Soon thereafter, numerous trips were made to the DHCA to map all remaining resources shown on the 1964 aerial mosaic maps. In the case of densely surveyed areas, large local tax maps were employed. Other miscellaneous maps were also reviewed, including bridge maps, USGS topographic maps, and private/independent survey maps, and relevant information was transcribed. For resources identified by Cultural Resource Survey (CRS) number, CRS Property Inventory Forms (filed in three-ring binders in the research administrator's office) and Photographic Inventory Cards (filed in the research room) were reviewed.

2.3.8 Maryland Historical Trust

Data collection in Maryland occurred in June of 2009. The Maryland Historical Trust (MHT) administers the Maryland Inventory of Historic Properties (MIHP) and the Maryland portion of the NR. The MIHP was established primarily for informational and recordation purposes. MIHP recordation forms include written architectural descriptions, statements of significance, photographs, and a location map of the resource. Resources included in the MIHP have not

necessarily been evaluated for their significance or NR eligibility, and the vast majority of resources in the MIHP have received no formal determinations of NR eligibility. The MIHP information recorded through 2004 is available in an online database, and in hard copy format at the MHT library. The online MIHP is comprised of scans of the Maryland Historic Sites Inventory forms, searchable by county. The MHT library also includes copies of NR nominations for Maryland resources, archaeological site and survey records, and MHT preservation easement records.

The NR nominations for Maryland properties are not available online. The MHT Website does offer an online database of abstracts from these nominations. This database is searchable by property name, address, city/town, county, and keyword. A vicinity map for the NR properties is also part of this database. There are no NR-listed resources within the Maryland portion of the study area, although several resources within the Maryland portion of the study area have been determined eligible for listing in the NR.

GIS-based mapping of MIHP resources and NR properties is available through Maryland's Environmental Resources & Land Information Network (MERLIN). The data in MERLIN includes resources listed on the MIHP before April 2009, excepting most properties within the City of Baltimore. The information in MERLIN is not downloadable. GIS-based mapping is also available on workstations in the MHT library, but it too is not downloadable from this location.

For the current project, the initial data collection was done using the online MIHP database. A follow-up visit was made to MHT. During the follow-up visit, additional resources that had been inventoried since 2004 were noted, as were any discrepancies in data presented in the online MIHP.

2.3.9 Virginia Department of Historic Resources

Data collection in Virginia occurred in June and July of 2009. The Virginia Department of Historic Resources (VDHR) administers the Virginia Landmarks Register and the Virginia portion of the NR. Besides these two registers, VDHR also maintains records from architectural and archaeological surveys. These survey records are maintained in an electronic database, the Data Sharing System (DSS). DSS includes the written information presented on reconnaissance and/or intensive survey forms, including location information, construction date, detailed architectural description, and evaluation of significance, and a GIS-based mapping system. The information presented in DSS is available for download only as Portable Document Format (PDFs). While the DSS forms include an evaluation of significance written by the surveyor, most properties included in DSS do not include a formal evaluation of eligibility for the Virginia Landmarks Register or the NR. Access to DSS to search for properties is available only on a paid subscription basis. The information is available free at the VDHR archives in Richmond, Virginia.

GIS-based mapping of surveyed Virginia resources is available through DSS. This information is not downloadable. All of the NR nominations for architectural resources in

Virginia are available as PDFs through the VDHR Website. These are grouped by county or independent city. They are not searchable by other criteria. NR nomination forms for archaeological resources are available only at the VDHR archives. However, archaeological survey forms are available through DSS.

For the current project, the initial data collection was done using the online DSS database. A follow-up visit was made to VDHR to note any discrepancies in the data presented in the online DSS and any resources that had not yet been added to the DSS.

2.3.10 North Carolina Department of Cultural Resources

Data collection in North Carolina occurred in November of 2008. No electronic resources for spatial data concerning North Carolina statewide historic property inventories are currently available. Records for architectural and archaeological resources exist in hardcopy format only. Files concerning historic architectural resources, survey project reports, NR listings, and maps showing the location of recorded properties are maintained at the Survey and Planning Branch, State Historic Preservation Office, as well as the regional offices of Archives and History. The survey database is organized by county, property name, and site number. Photographic negatives are curated separately in the Archives and Records Section of Archives and History. Files concerning archaeological resources are housed at the Office of State Archaeology in Raleigh and can be accessed by appointment. Researchers accessed both repositories and collected resource locations of a broad portion of the North Carolina coast to ensure that all potential resources lying within the study area were recorded.

2.3.11 South Carolina Department of Archives and History and South Carolina Institute of Archaeology and Anthropology

Data collection in South Carolina occurred in April of 2009. Files concerning historic architectural resources are maintained at the South Carolina Department of Archives and History (SCDAH), and files concerning archaeological resources are housed at the South Carolina Institute of Archaeology and Anthropology (SCIAA), both located in Columbia. SCIAA and SCDAH have collaborated in creating an online access point for statewide cultural resource datasets call ArchSite. While attribute data for architectural resources is included in the spatial data available through ArchSite, attributes for archaeological sites are not currently included in ArchSite's catalog. Therefore, after determining which archaeological sites were located within the study area, researchers collected site forms for each of the sites from the SCIAA repository in Columbia. Archaeological site attributes were then parsed from the hardcopy site forms and joined to the spatial data. The South Carolina NR files include nomination forms, photographs, and maps that are kept at the Archives and History Center. Scans of NR nominations and selected photographs are also available online at the SCIAA Website.

2.3.12 Georgia Historic Preservation Division

Data collection in Georgia occurred in June of 2009. The Historic Preservation Division of the Department of Natural Resources (GAHPD), in collaboration with the Georgia Archaeological Site File (GASF) at the University of Georgia, has developed Georgia's Natural, Archaeological, and Historic Resources GIS (NAHRGIS), an interactive Web-based registry and geographical information system designed to catalog information about the natural, archaeological, and historic resources of the state. In its current, initial phase of development, NAHRGIS contains information about archaeological sites recorded in the GASF and historic resources included in the NR and GAHPD Historic Resources Survey.

The staff at the University of Georgia's Information Technology Outreach Services (ITOS) allowed researchers access to the online repository of the source data of the NAHRGIS system. However, in downloading the database that serves as the backbone of NAHRGIS, some errors occurred in translating the online Oracle-based data to Microsoft Access compatible data. Therefore, some of the attributes associated with resource data point were not properly decoded. Attributes like UTM coordinates, resource names, and NR eligibility were parsed from the downloaded data provided by ITOS. Once the locations of archaeological sites and historic resources were determined within the study area, missing resource attributes were researched through NAHRGIS's Web-based browser.

2.3.13 Florida Division of Historical Resources

Data collection in Florida occurred in July of 2009. The Florida Master Site File (FMSF) is a hard copy archive and computer database of recorded historical cultural resources in Florida. Categories of resources recorded at the FMSF include archaeological sites, historic structures, historic cemeteries, historic bridges, and historic districts. The FMSF also holds copies of survey reports and other manuscripts relevant to Florida history and prehistory. GIS data on each resource can be imported via File Transfer Protocol (FTP). The FMSF provides polygon data for previous cultural resource surveys, archaeological sites, historic cemeteries, and NR districts; point data for historic structures and archaeological sites; and line data for historic bridges.

The FMSF organizes cultural resource files alphabetically by county, and resources are assigned numbers sequentially as they are recorded. The staff assists researchers from the Tallahassee office, and can perform limited research on request. There are currently more than 170,000 historic structures and archaeological sites listed on the site file. These resources are not required to meet any minimum level of historical or scientific importance, but usually are at least 50 years of age, and are adequately located and documented. For this project, all Florida data were obtained directly in digital format from the FMSF, including GIS locations.

2.4 COLLECTION OF MUNICIPAL DATA

JMA/NSA anticipated that some significant cultural resources/historic properties would not be represented in SHPO files. In order to address this possibility, JMA/NSA researchers solicited input from local municipalities. A standardized inquiry was distributed via e-mail or regular mail to the appropriate official in each municipality within the study area. A list of these municipalities is included as Appendix B. Each inquiry was accompanied by a list of known cultural resources/historic properties within the municipality. A template text for these inquiries is included as Appendix C. JMA/NSA historians reviewed the responses received from these inquiries and, based on the information provided, added newly identified cultural resources/historic properties to the database. The collection of municipal data occurred from August of 2009 to March of 2010.

2.5 COLLECTION OF PUBLIC VISITATION DATA

JMA/NSA researchers identified cultural resources/historic properties within the study area that were regularly accessible to the public as tourist destinations. For these resources, JMA/NSA historians solicited statistical data on visitation in an attempt to identify significant trends over time. Data included numbers of visitors per year, hours open to the public per week, and revenue generated per year. Information on publicly-owned properties was collected directly from property owners. Information on privately-owned properties was collected from various local, state, and federal agencies and organizations. These searches were augmented with follow-up email or telephone contact, as required. Responses were collected for 62 resources. JMA/NSA historians assembled the visitation information for inclusion in the recording forms and database. The collection of public visitation data occurred from December of 2009 to March of 2010.

2.6 COLLECTION OF NATIVE AMERICAN DATA

A major class of properties that could be visually affected by offshore alternative energy development, and could also be located outside the study area, is Native American Traditional Cultural Properties (TCPs). Many of the indigenous peoples of the eastern seaboard consider themselves to be “The People of the Dawn,” “People of the First Light,” or “Dawnland People.” As such, they conduct many ceremonies either individually, as families, as bands, or as tribes. These ceremonies call for places of quiet contemplation and unhindered views to the rising sun. These locations may include mountain or hill tops at a considerable distance from the shoreline. The importance of this property type in assessing visual impacts from offshore wind energy projects was recently highlighted in connection with the Cape Wind Project. The Draft Environmental Impact Statement (DEIS) for that project was criticized by the Aquinnah and Mashpee Wampanoag Tribes because, in their opinion, it failed to adequately consider the importance to the Tribes of clear, unobstructed views across Nantucket Sound. Obtaining

information on the locations of these properties can present difficulties, as the information is often considered privileged and limited to tribal members.

JMA attempted to collect information on this class of properties by soliciting responses directly from Native American tribes. First, the list of Federal and State recognized tribes was acquired from the Website of the National Conference of State Legislatures (NCSL) (<http://www.ncsl.org/default.aspx?tabid=13278>), accessed July 2009. Then, mailing addresses were obtained by online searches, most from the tribe's individual Website which provided a contact listing. If a tribe did not have a Website with contact information, the 500 Nations Website (http://500nations.com/tribes/Tribes_States.asp) was consulted (accessed July 2009). Letters were sent out to each Native American tribe (Appendix D), and responses were organized for inclusion in the recording forms and database. The collection of Native American data occurred in December of 2009.

JMA contacted 19 federally recognized Native American tribes and 42 state recognized Native American tribes, all located in states along the east coast of the United States. Table 1 summarizes the results of this consultation. Four of the tribes responded to the letter JMA sent (Appendix E). The Penobscot Indian Nation replied with the return of the provided coastal map, indicating several areas of concern. The Nanticoke Indian Association, Inc. from Delaware and Pee Dee Indian Tribe of South Carolina both responded by indicating that no TCPs would be affected by offshore energy facilities. The Sand Hill Band of Indians from New Jersey responded through email, providing a corrected address. JMA replied back through email, attaching the original letter and appropriate coastal map. However, to date no response has been received.

While no definitive reason for the poor response rate can be determined, it is possible that one or more of the following factors are responsible in whole or in part: 1) many tribes require that inquiries of the type made by JMA be made on a government-to-government basis, reflecting the tribes' status as sovereign nations; 2) lack of tribal resources (time/personnel) to allow for a response to inquiries such as the one made as part of the project; 3) tribes may consider the type of information requested by JMA to be sacred or otherwise confidential; and 4) the controversy surrounding the Cape Wind Energy Project and its effect on Native American traditional cultural properties.

2.7 SITE VISITS

2.7.1 Selecting Field Candidates

JMA/NSA researchers reviewed data collected for each known cultural resource/historic property to determine which resources could be visually impacted by future offshore developments. The resources were expected to fall within two major groups: those for which maritime setting was a historically significant characteristic and those for which maritime setting was not a historically significant characteristic. Resources for which maritime setting was significant were expected to fall within two major subgroups: those for which views to the sea

Table 1

Summary of Native American Consultation

	Tribe	State	Contact	Letter Sent	Return to Sender	Reason	Letter Received	Map Returned	Response
Federally Recognized	Aroostook Band of Micmac Indians	ME		12/07/09					
	Houlton Band of Maliseet Indians	ME		12/07/09					
	Passamaquoddy Tribe of Maine Township Reservation	ME	Governor William Nicolas	12/07/09					
	Passamaquoddy Tribal Council	ME	Jackie Nicholas, Tribal Clerk	12/07/09					
	Penobscot Indian Nation	ME	Bonnie	12/07/09			X	X	Indicated several areas of concern
	Mashpee Wampanoag Tribal Council	MA	Cedric Cromwell, Tribal Chairman	12/07/09					
	Wampanoag Tribe of Gay Head of Massachusetts	MA	Cheryl Andrews-Maltais, Chairwoman	12/07/09					
	Narragansett Tribe	RI	John Brown, THPO	12/07/09					
	Cayuga nation	NY	Chief Vernon Isaac	12/07/09					
	Oneida Indian Nation of New York	NY	Raymond Halbritter, Nation Rep.	12/07/09					
	Onondaga Nation	NY	Head Chief Leon Shenandoah, Sr.	12/07/09					
	St. Regis Mohawk Tribe	NY	Chief Norman Tarbell	12/07/09					
	Seneca Nation of Indians	NY	Dennis Bowen, Sr., President	12/07/09					
	Tonawanda Band of Senecas	NY	Chief Bernie Parker	12/07/09					
	Tuscarora Nation	NY	Chief Arnold Hewitt	12/07/09	X	Deceased			
	Eastern Band of Cherokee Indians	NC	Barbara Jones, Social Services	12/07/09					
	Catawba Tribe of South Carolina	SC	Chief Donald Rodgers	12/07/09	X	Not deliverable- unable to forward			
	Miccosukee Tribe	FL		12/07/09					
Seminole Tribe	FL	Mitchell Cypress, Vice President	12/07/09	X	Unclaimed- unable to forward				

Table 1. Summary of Native American Consultation (continued).

Chappaquiddick Tribe of the Wampanoag Indian Nation	MA	Aleatha (Quiet Waters) Dickerson, Sachem & President	12/08/09					
Nipmuc Nation Tribal Office	MA		12/08/09	X	Unclaimed- unable to forward			
Nipmuc Tribal Council- Hassanisco Herring Pond Wampanoag Tribal Council	MA	Chief Walter Vickers	12/08/09	X	Unclaimed- unable to forward			
Pocasset Wampanoag Tribe	MA	Harry Hunt, Council Chairman George Spring Buffalo, Chairman	12/08/09					
Seaconk Wampanoag Tribe	MA	Pat "Gentle Rain" Ries, Chairperson	12/08/09					
Poospatuck Indian Reservation	NY		12/08/09					
Shinnecock Indian Nation Tribal Office	NY	Beverly Jensen, Comm. Officer	12/08/09					
Nanticoke Lenape	NJ		12/08/09					
Rankokus Indian Reservation	NJ		12/08/09					
Ramapough Mountain Indians	NJ		12/08/09					
Sand Hill Band of Indians	NJ	Ronald Holloway, Chairman	12/08/09				X	Responded via email
Nanticoke Indian Association, Inc.	DE	William H. Daisey, Assistant Chief	12/08/09				X	No adverse visual impact, keep informed
Chickahominy Indian Tribe	VA		12/08/09					
Eastern Chickahominy Tribe/ Chickahominy Indians Eastern Division	VA	Chief Gene Adkins	12/08/09					
Mattaponi Indian Nation	VA	Chief Webster "Little Eagle" Custalow	12/08/09	X	No such number- unable to forward			
Monacan Indian Nation Inc.	VA	Kenneth Bramham, Chief	12/08/09					
Nansemond Indian Tribal Association	VA		12/08/09	X	Unable to forward			

Table 1. Summary of Native American Consultation (continued).

Nansemond Indian Tribe	VA	Chief Barry Bass	12/08/09						
Pamunkey Nation	VA		12/08/09						
Pamunkey Indian Reservation	VA		12/08/09						
Sappony Tribal Center	VA		12/08/09						
United Rappahannock Tribe	VA		12/08/09	X		Insufficient address			
Upper Mattaponi Indian Tribe	VA	Chief Ken Adams	12/08/09						
Coharie Intra-Tribal Council	NC	Elizabeth Maynor, Executive Director	12/09/09						
Haliwa-Sapponi Indian Tribe	NC		12/09/09						
Lunbee Tribe	NC	Jimmy Goins, Tribal Chairman	12/09/09						
Meherrin Tribe	NC	Ernest Poole, Chair	12/09/09						
Ocenaechi Band of Sapponi Nation	NC		12/09/09						
Waccamaw-Siouan Tribe	NC	Chief Lacy Wayne Freeman	12/09/09						
Beaver Creek Indians	SC	Chief Louie C. Chavis	12/08/09						
Pee Dee Indian Tribe of South Carolina	SC	Chief Caulder	12/09/09		X				Unaffected, located 90 miles inland
Pee Dee Indian Nation of Upper SC	SC		12/09/09						
Piedmont American Indian Association, Lower Eastern Cherokee Nation of SC	SC	Chief Gene Norris	12/09/09						
Santee Indian Organization	SC	Chief Oscar Pratt	12/09/09						
Waccamaw Indian People	SC	Chief Harold Hatcher	12/09/09	X		Unclaimed- unable to forward			
Wasmasaw Tribe of Vamertown Indians	SC	Lisa Leach, Chief Administrative Officer	12/09/09						
Chaloklowa Indian People	SC	Chief Vernon Tanner	12/09/09						

Table 1. Summary of Native American Consultation (continued).

State Recognized	Edisto Indian Organization	SC	Chief Matthew Creel	12/09/09					
	Cherokee Tribes of SC, aka Eastern Cherokee, Southern Iroquois & United Tribes of SC Inc.	SC		12/09/09					
	Georgia Tribe of Eastern Cherokee, aka Georgia Cherokee Indians	GA	Lucian Lamar Sneed, Administration	12/09/09					
	Cherokee of Georgia Tribal Council	GA		12/09/09					
	Lower Muscogee Creek Tribe	GA	Principal Chief Vonnie McCormick	12/09/09					

were a historically significant characteristic and those for which views to the sea were not a historically significant characteristic. The applicability of these categories was noted for each resource in the recording forms and database.

For each known cultural resource/historic property JMA/NSA researchers reviewed the statement of significance included with the NR registration or state survey documentation, as appropriate. The historical significance of maritime setting was relatively easy to discern from available documentation. Resources within this category derived their importance, in whole or in part, from their proximity to the sea. They included TCPs, coastal fortifications, parks and seashores, residential estates, lighthouses, life-saving stations, breakwaters, marinas, fishing and resort communities, and shore lodgings of all kinds, including hotels, motels, inns, seasonal cottages, and permanent residences.

The historical significance of views from the resource toward the sea is rarely addressed in NR and survey documentation. Where the subject of views from the resource toward the sea was not addressed explicitly, JMA/NSA researchers exercised judgment, based on contextual information presented in the NR registration or state survey documentation. In some case it was necessary to field-view the resource to observe the general layout of the property or the siting of specific buildings before a decision could be reached regarding the likely historical importance of views from the resource toward the sea. Resources for which maritime setting or views to the sea had no historical significance were relatively easy to identify, based on their non-maritime historic functions and/or remote locations from the water.

2.7.2 GPS Camera and Field Recording

JMA/NSA researchers visited known cultural resources/historic properties within the study area that possessed a significant maritime setting and afforded a clear view toward the open sea from a vantage that was accessible from a public, mainland right-of-way. Cultural resources/historic properties located on islands or in or under the water offshore were not visited. In general, archaeological sites were excluded from field recording since their significance is not derived from their visual setting. Exceptions were made for TCPs that derived importance from unhindered views toward the rising sun, and for archaeological sites suitable for public interpretation and open to the public. In municipalities that contained numerous SHPO-unevaluated resources in close proximity to one other, representative resources were identified for site visits.

At each selected resource, JMA/NSA researchers took geospatially-linked photographs using a Nikon D90 digital, single-lens reflex (SLR) camera with a NIKKOR 18-105 mm lens and a Nikon GP-1 Global Positioning System (GPS) adapter. All photographs were taken at a lens setting of 32 mm (equivalent to 50 mm on a standard 35 mm camera) to approximate normal human eyesight relative to scale. Photographs were taken in two directions: one toward the open sea from the resource; the other toward the resource from the direction of the open sea. In general, such photographs were taken from ground level and from the exterior of buildings and structures. JMA/NSA researchers also took photographs from the interior upper stories of publicly accessible buildings and structures, if such views toward the open sea had been

considered as a significant characteristic of the resource. These photographs were identified on the recording forms by their GPS coordinates, and images were referenced in the database. The GPS camera and field recording occurred from November of 2009 to March of 2010, allowing JMA/NSA researchers to avoid the foliage season and thus maximize visibility to and from resources.

2.8 BUILDING THE DATABASE

Tabular data from the JMA/NSA research efforts was compiled into a Microsoft Access database in a relational format (Figure 1). These data include descriptive data about each resource, NR status, function, location, significant dates, and significance related setting and view to the sea. Sub-tables are used in this database to contain information that could have multiple instances per resource, such as historic function. These tables are said to have a “many to one” relationship to the main table because there can be many examples of a historic function for a single resource in the main table. The defining of this relationship is what creates a relational database. This database has a single main table and nine sub-tables.

In a relational database structure, each sub-table must be linked to its parent table by a unique identifier. Very often, this is a number or a string of alpha-numeric characters. In this database, the unique identifier is a long integer called the [prop_ID]. The [prop_ID] is a subjective number assigned to each resource when it was entered into the database. The [prop_ID] is not intended to be sequential or denote any order to the resources. It simply exists as a unique number to identify each individual resource in the database and link the sub-tables to the main table.

The creation of a data entry form facilitated the entry of resource data into the database main and sub-tables. A unique [prop_ID] was assigned to each resource when it was entered into the database. After the initial data entry, additions and corrections to the tabular data were made via the database frontend. The logical integrity of the database was checked through Standardized Query Language (SQL) queries and rules enforced in the many-to-one relationships.

Each resource included in the Microsoft Access database contains a spatial component that is stored in an ESRI Shapefile. This format is used for its near universal ability to be imported and exported into various open and proprietary formats. There are four shapefiles included with this report. The four layers are cultural resources location points, cultural resource location polygons, field photograph locations, and the 0.25 mi (0.4 km) study area. Each unique resource in the database, denoted by a [prop_ID] number, has a single spatial representation in either the shapefile for cultural resource points or polygons. The assignment of a point or polygon was decided by choosing which geometry best fit the original mapping of the resource. In a small number of cases, multi-part polygons were used to represent cultural resources spread over a discontinuous area. Within the datatables for both the cultural resource points and polygons are fields for [prop_ID], UTM zone, and UTM North and East coordinates for the North American Datum (NAD) 1983 and 1927. These UTM coordinates represent the location of cultural resource points and the centroid of cultural resource polygons. Each unique [prop_ID] in the

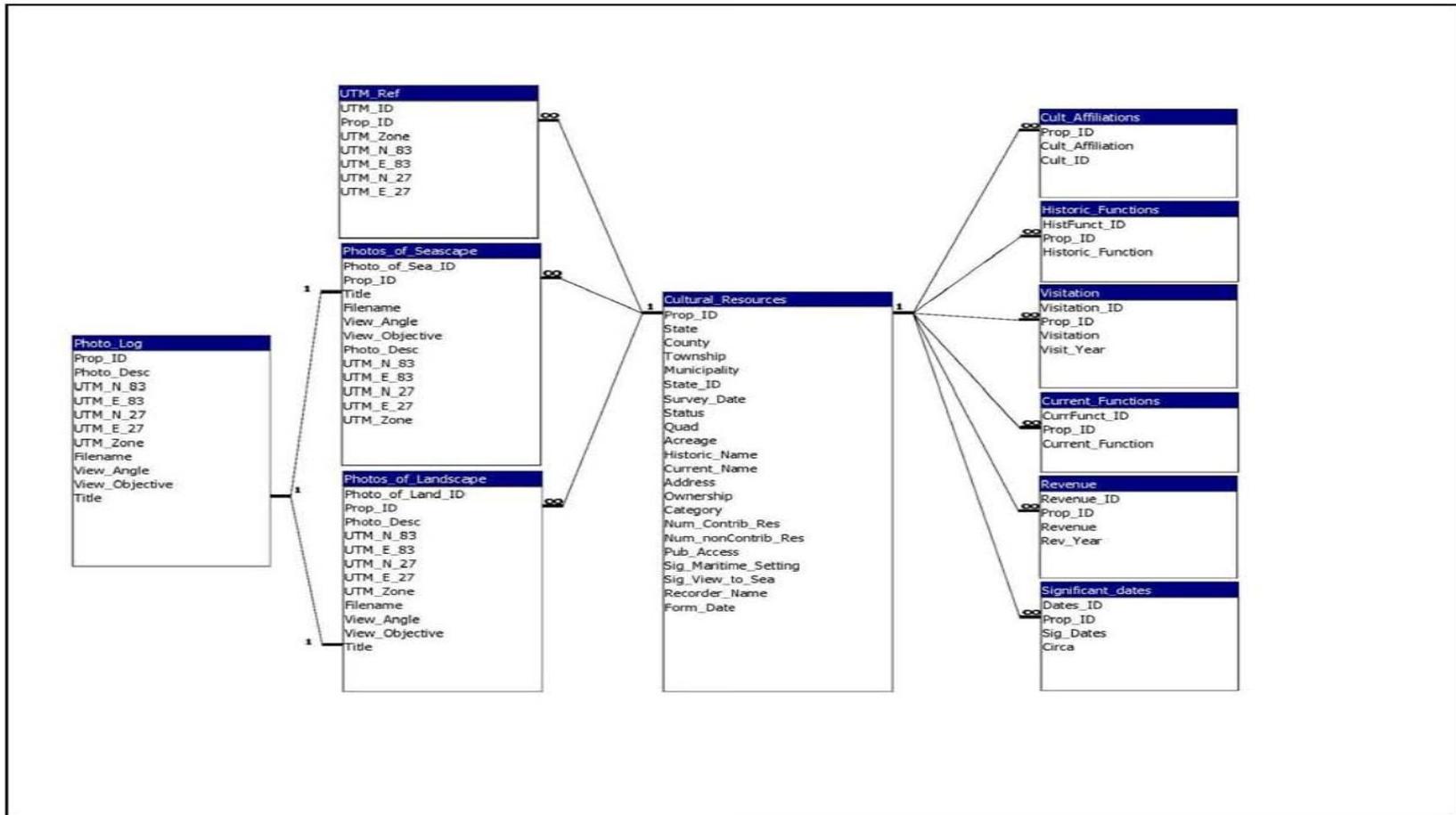


Figure 1. Relational Structure of the Database

shapefile data tables can be linked directly to the unique [prop_ID] in the Cultural_Resources table within the Access database.

The location of each cultural resource/historic property was mapped by heads-up digitization from a USGS quad map or based on the location assigned in the spatial database provided by the SHPO, as described in Section 2.2. The location of field photo locations was derived from the Nikon GP-1 GPS unit, as described in Section 2.7.2. The data table for field photographs includes information on the [prop_ID], view direction, view objective, photo description, UTM coordinates, photo title, and the filename of the Joint Photographic Experts Group (JPEG) file. The field for [title] is the unique identifier for each photo and is created by combining the [prop_ID], the view direction, and a subsequent lower case letter if multiple images of the same resource are shot at the same view angle. The [title] field can be linked to the [title] field in the Photos_of_Seascape and Photos_of_Landscape tables in the Access database. The data dictionary (Appendix F) contains more information on the properties of each data table. The four shapefiles are defined in the Geographic Coordinate System (GCS) using the World Geodetic System (WGS) 1984 datum.

A number of tests were run on the Access database and shapefiles data tables to ensure that data and structure were consistent and logical. SQL queries were run on these data to confirm that unique identifiers were indeed unique, that duplicates were not entered, that each resource had a unique spatial representation, and that each photograph had an entry in the photo-log that matched a resource. These queries in combination with the enforced relationships inherent in the Access database relational structure confirm that the logical structure of the database is intact.

3.0 SUMMARY OF RESULTS

A total of 9,600 known cultural resources/historic properties were documented and mapped in the tabular and spatial database included with this report (Table 2; Appendices G, H, and I). These resources were drawn from a range of sources, including SHPO paper files, maps, reports, or digital files, as well as municipality and tribal consultation. Based on existing data, each resource was assessed with respect to its maritime setting and view to the sea. In total, 9,175 were considered to have a historically significant maritime setting, and 1,108 were considered to have a historically significant view toward the open sea. Field visitation and photography were conducted for 354 individual resources. Public visitation data were collected for 62 resources.

Included with this final report is a Digital Video Disc (DVD) containing the cultural resource Microsoft Access database and ESRI Shapefiles containing spatial data. These file types are proprietary yet standard file types that can be easily integrated into the BOEM Coastal and Offshore Resource Information System (CORIS). Additionally, included on the DVD is a copy of ESRI ArcGIS Explorer. This program, once installed, will allow the browsing of the ESRI Shapefile spatial data on a background of aerial photographs or USGS quadrangle maps.

Table 2

Summary of Known Cultural Resources/Historic Properties within the Study Area

NR Status	Significant Maritime Setting / Significant View to Sea							Total
	Yes/Yes	Yes/Unknown	Yes/No	Unknown/Unknown	No/Yes	No/Unknown	No/No	
Unknown	22	13	20	4			5	64
National Historic Landmark	18	1	5		1		2	27
National Register-Eligible	70	2	469		1		48	590
National Register-Listed	282	10	132		14	1	89	528
National Register-Not Eligible	13		376		1	1	40	431
SHPO-Listed	1	1	1				1	4
SHPO-Not Eligible	1		2				1	4
Traditional Cultural Property	2	1	7					10
SHPO-Unevaluated	676	130	6920		6	1	209	7942
Total	1085	158	7932	4	23	3	395	9600

4.0 LITERATURE CITED

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The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the sound use of our land and water resources, protecting our fish, wildlife and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island communities.



The Bureau of Ocean Energy Management

The Bureau of Ocean Energy Management (BOEM) works to manage the exploration and development of the nation's offshore resources in a way that appropriately balances economic development, energy independence, and environmental protection through oil and gas leases, renewable energy development and environmental reviews and studies.