



DEPARTMENT OF THE ARMY  
MOBILE DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 2288  
MOBILE, AL 36628-0001

CESAM-RD-C  
PUBLIC NOTICE NO. SAM-2008-0034-TMZ

JAN 15 2008

JOINT PUBLIC NOTICE  
U.S. ARMY CORPS OF ENGINEERS AND  
STATE OF ALABAMA  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

PROPOSED 3D SEISMIC SURVEY AS PART OF OIL AND GAS EXPLORATION

NEARSHORE WATERS SOUTH OF DAUPHIN ISLAND AND FORT MORGAN PENINSULA,  
GULF OF MEXICO

TO WHOM IT MAY CONCERN: This District has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act Clean Water Act (33 USC 1344). Please communicate this information to interested parties.

**APPLICANT:** GX Technology Corporation  
2105 City West Boulevard, Suite 900  
Houston, Texas 77042  
(713-789-7250)

**WATERWAY:** Gulf of Mexico, to 14.7 miles south of Dauphin Island, Mobile County, and Fort Morgan Peninsula, Baldwin County, Alabama. Corner coordinates for the survey area are as follows: **NW:** N 30-13-38.82, W 88-19-57.37; **NE:** N 30-14-53.38, W 87-40-49.93; **SW:** N 30-01-16.83, W 88-19-47.41; **SE:** N 30-01-34.72, W 87-40-44.46.

**WORK:** The applicant proposes to conduct a "speculative" 3D seismic survey for potential oil and gas reserves within nearshore State and Federal waters in the Gulf of Mexico up to 14.7 miles south of Dauphin Island, Mobile County, and Fort Morgan Peninsula, Baldwin County, Alabama. All operations will be in the water as a ship-based operation. It is anticipated that no discharges subject to jurisdiction under Section 404 of the Clean Water Act will result from this activity. To perform the seismic survey, airguns releasing pulses of compressed air will be used to generate low-frequency sound waves directed to the seafloor. The sound waves will be recorded by passive sensors (receivers) attached to buoyed cables placed on the seafloor. The recorded signals provide images of the geologic structure of the continental crust, to depths of 50 kilometers below the seafloor. The proposed total survey consists of 1,035 square kilometers (400 square miles) of receiver area, 42,510 receivers, and 238,192 airgun shots. The pulsed low frequency sound waves generated by the airgun array are not comparable to underwater sonar as used by the military.

Three vessels will be used to perform the deep water survey. One of these will deploy and retrieve receiver cables and recording buoys. The total length of the receiver cables will be from 3 miles long to 35 miles long. The second vessel will deploy three (3) airgun sub-arrays at an operating depth of 6 meters in deeper water and 2 meters in shallower water. The third vessel is assigned to the crew in support of operations. In shallow waters adjacent to Dauphin Island and Fort Morgan Peninsula,

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a shallow draft boat will be utilized to deploy receiver cables and buoys in water depths of 18 feet or less. Sensors along the cables will be placed at 50-foot intervals. Airgun arrays will be made up of 2 sub-arrays consisting of 8 individual airguns each; airguns will be towed shallow (3 feet) to minimize substrate disturbance. For flexibility, the location of the buoys and cables will be in the east-west direction and can be moved depending on obstructions that may be encountered in the field. It is expected there will be gaps in coverage due to the presence of the navigation channel and archaeology exclusion zones that have been identified in the area.

The applicant has applied for state water quality (WQ) certification in accordance with Section 401(a)(1) of the Clean Water Act, and for coastal zone (CZ) consistency in accordance with the State Coastal Zone Management Program. Upon completion of the required advertising and public comment review, a determination relative to WQ certification and CZ consistency will be made by the Alabama Department of Environmental Management.

This public notice is being distributed to all known interested persons in order to assist in developing facts on which a decision by the U.S. Army Corps of Engineers can be based. For accuracy and completeness of the record, all data in support of or in opposition to the proposed work should be submitted in writing setting forth sufficient detail to furnish a clear understanding of the reasons for support or opposition. The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and use of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production, and in general, the needs and welfare of the people.

The Corps is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state with particularity, the reasons for holding a public hearing.

Evaluation of the probable impacts involving deposits of dredged or fill material into waters of the United States will include the application of guidelines established by the Administrator of the U.S. Environmental Protection Agency.

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In accordance with Section 106 of the National Historic Preservation Act, and Appendix C of 33 CFR 325, the undertaking defined in this notice is being considered for the potential to effect cultural and historic properties within the permit area. Although the extent of federal control and responsibility for these considerations are confined to the limits of the permit area for this particular project, the potential indirect effects that may occur to historic properties as a result of this undertaking are also being considered. We are seeking comment from the State Historic Preservation Officer, federally-recognized American Indian tribes, local historical societies, museums, universities, the National Park Service, and concerned citizens regarding the existence or the potential for existence of significant cultural and historic properties within the permit area. Historic architectural or archaeological investigations may be necessary to ascertain the existence of such resources. Efforts will be made through the consultation process to avoid, minimize, or mitigate any adverse effects to significant cultural and historic properties that may occur as a result of this undertaking. The district engineer remains the final decision authority.

Preliminary review of this application and the U.S. Department of the Interior List of Endangered and Threatened Wildlife and Plants indicates that the proposed activity may affect listed endangered or threatened species, or their critical habitat. Preliminary endangered species surveys will be conducted to determine the presence of Federally listed species or critical habitat. These surveys will be provided to the National Marine Fisheries Service and the U.S. Fish and Wildlife service in accordance with the provisions of the Federal Endangered Species Act, to insure that the proposed activities will not adversely affect any listed or proposed species. The applicant has developed a monitoring protocol to mitigate any potential adverse effects to endangered species; these measures include having trained marine protected species observers on board ship to identify or recover stressed animals, and to conduct shoreline recovery surveys when necessary for stranded marine protected species.

The National Marine Fisheries Service requires the evaluation of impacts to Essential Fish Habitat of estuarine species. **This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act.** The proposal would potentially impact estuarine substrates and emergent wetlands utilized by various life stages of red drum, Spanish mackerel, and shrimp. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or Federally managed fisheries. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service and/or U.S. Department of Fish and Wildlife Service.

Correspondence concerning this Public Notice should refer to Public Notice Number SAM-2008-34-TMZ and should be directed to:

District Engineer  
U.S. Army Engineer District, Mobile  
Post Office Box 2288, Mobile, Alabama 36628-000  
Attention: Regulatory Division

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with a copy to the:

Alabama Department of Environmental Management  
4171 Commanders Drive  
Mobile, Alabama 36615

Comments should be received no later than **30 days** from the date of this Public notice.

If you have any questions concerning this publication, you may contact the project manager via e-mail at [tad.m.zebryk@usace.army.mil](mailto:tad.m.zebryk@usace.army.mil) or telephone number **(251) 694-2658**. Please refer to the above Public Notice number.

For additional information about our Regulatory Program, please visit our web site at [www.sam.usace.army.mil/RD/reg](http://www.sam.usace.army.mil/RD/reg), and please take a moment to complete our customer satisfaction survey while you're there. Your responses are appreciated and will allow us to improve our services.

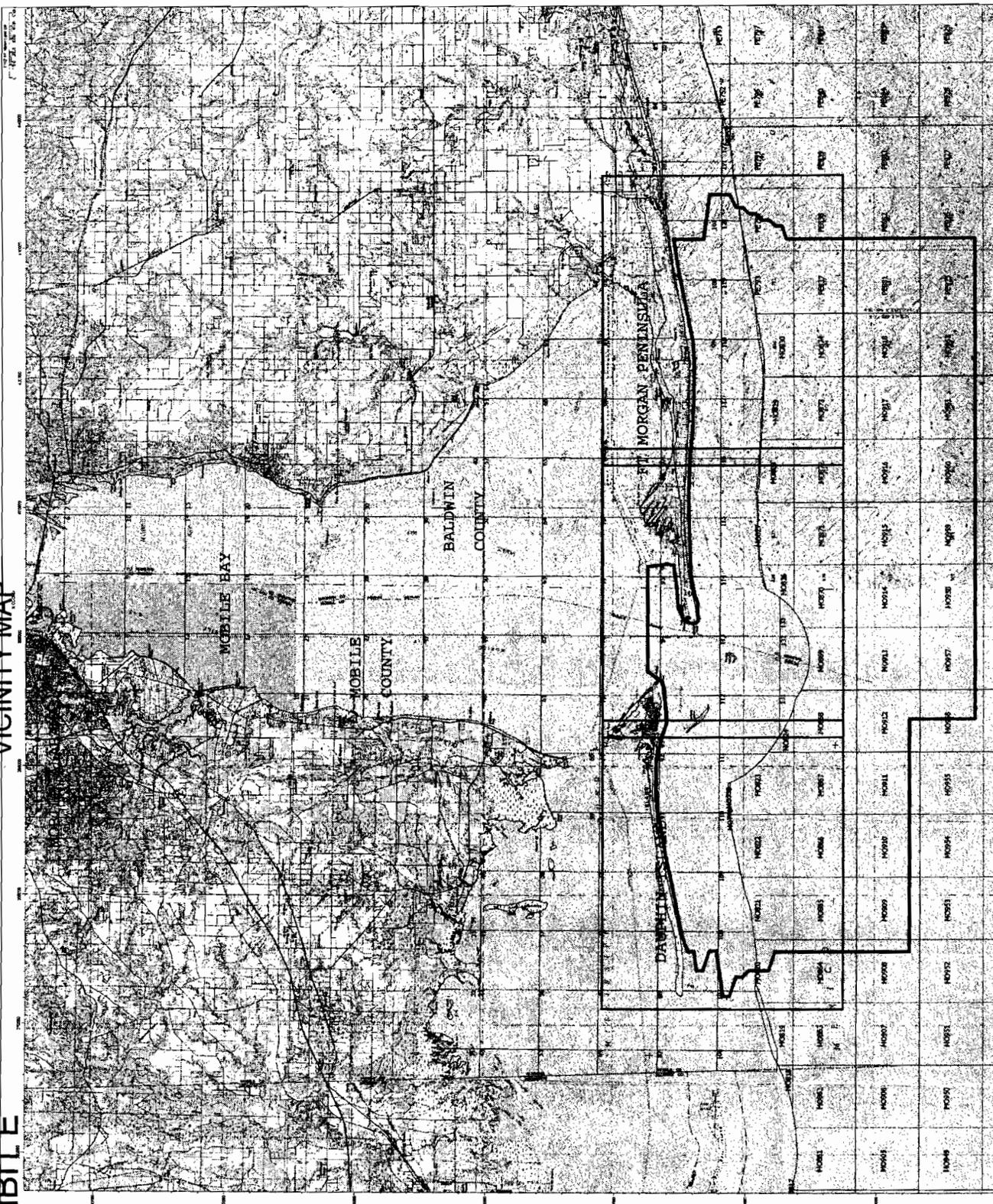
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MOBILE DISTRICT  
U.S. Army Corps of Engineer

**EXHIBIT**

**VICINITY MAP**

Scale: 1" = 1 Mile  
North Arrow  
Legend  
County Lines  
Municipal Boundaries  
Water Bodies  
Topography  
Roads  
Railroads  
Other Features



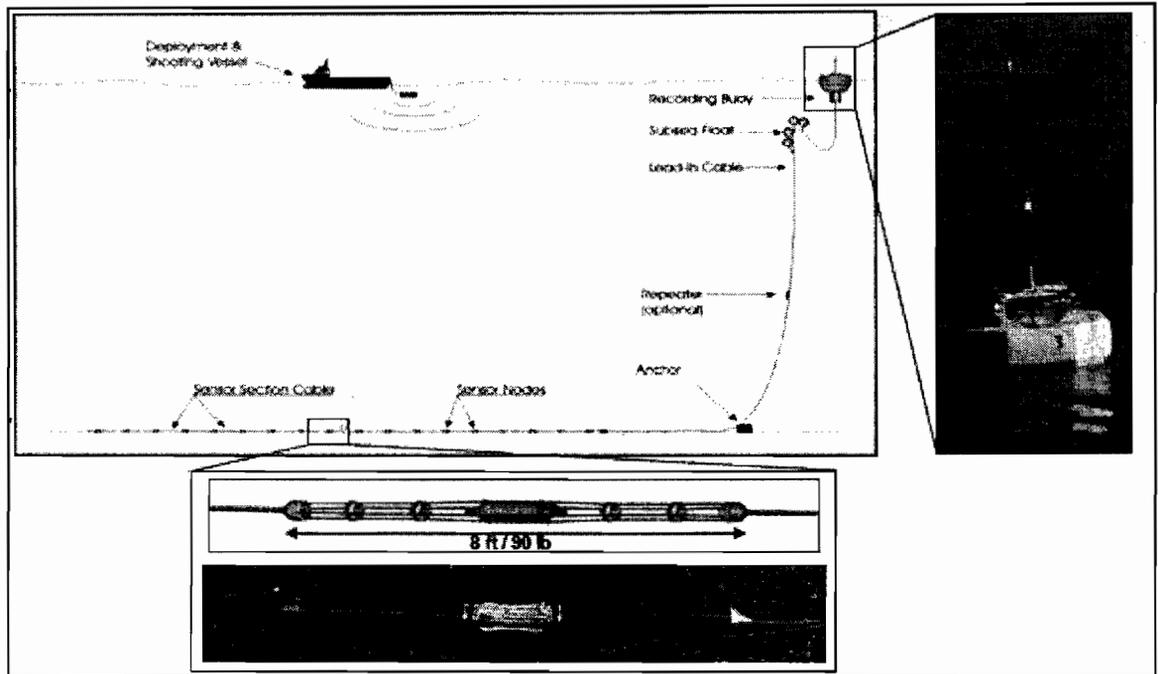


# Exhibit D - Estimated Statistics for Federal & State Blocks

- **Total Survey**
  - Total receiver area: 1,035 sq km (VSO: 975 sq km; TZ: 60 sq km)
  - Number of receivers: 42,510
  - Total receiver line length: 2,125.5 km (1,320.7 mi)
  - Number of shots: 238,192
  - Total sail line length: 12,276.2 km (7,628.1 mi)
  - Number of shots per km/mi: 19.4 per km / 31.2 per mi
- **Federal Waters**
  - Total VSO receiver area: 652 sq km
  - Number of receivers: 28,604 (67%)
  - Total receiver line length: 1,430.2 km (888.7 mi)
  - Number of shots: 145,077
  - Total sail line length: 7,477.1 km (4,646.1 mi)
- **State Waters**
  - Total receiver area: 383 sq km (VSO: 323 sq km; TZ: 60 sq km)
  - Number of receivers: 13,906 (33%)
  - Total receiver line length: 695.3 km (432.0 mi)
  - Number of shots: 93,115
  - Total sail line length: 4,799.1 km (2,982.0 mi)
- Deep water source: 3,990 in<sup>3</sup> (107 bar-m at 6.0m depth)
- Shallow water source: 1,500 in<sup>3</sup> (39 bar-m at 2.5m depth)

## V. Ocean Bottom Cable Operations

- VectorSeis Ocean (VSO) Recording  
ION's VSO is a revolutionary re-deployable OBC system for acquiring full-wave (multi-component) data from the seabed. By integrating several proprietary ION technologies, including the award-winning VectorSeis digital, MEMS-based sensor, VSO delivers step-change improvements in image quality, operational productivity and HSE exposure compared to conventional OBC systems.



*VectorSeis Ocean Recording Buoy & Cable*

GXT plans to acquire this survey with three (3) vessels. Two (2) of these are specialized OBC vessels that have seismic equipment (ION's VSO system) specifically designed for OBC operations. One of these OBC vessels is the cable handling vessel. This vessel will deploy and retrieve the VSO cables and recording buoys. The second OBC vessel is the source vessel and also the "control center" for the seismic operations. This vessel will deploy three (3) airgun sub-arrays at an operating depth of 6 meters in deeper water and 2 meters in shallower water. The third vessel assigned to the crew is in support of the operations.

Other VSO operations' aspects include:

- Estimated receiver area is 975 square kilometers (376 square miles)
- VSO cables are deployed to approximately 18 feet water depths and deeper
- The total cable lengths are 12 or 9 kilometers long ( 3.47 miles)
- The sensors along the cables are positioned every 50 meters (165 feet)
- Airguns will be towed shallow (6 feet) to minimize seafloor disturbance
- The airgun array is made up of 3 sub-arrays
  - Each array has 12 individual airguns
  - The total output of the array is approximately 3990 cubic inches

## VI. Transition Zone Operations

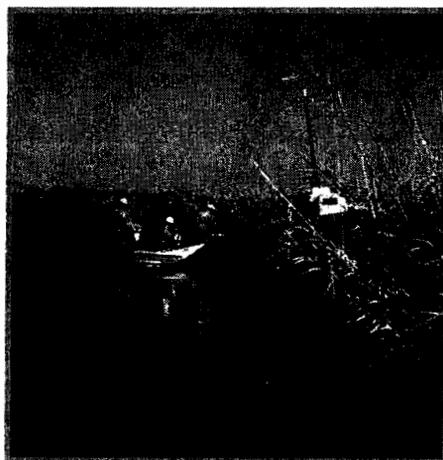
- Portable RSR VectorSeis Recording  
ION's RSR VectorSeis system brings a high level of flexibility to the planning and execution of 3D seismic surveys. The system is uniquely suited for work in the most difficult operation areas, specifically in environmentally sensitive wetlands and shallow water applications.

GXT Plans to acquire the shallow water portion of the survey using specialized Transition Zone (TZ) vessels and seismic equipment (ION's RSR VectorSeis) specifically designed for TZ areas. The vessels will be shallow draft and rigged to deploy remote recording buoys and cables.

Other RSR VectorSeis operations' aspects include:

- Estimated receiver area is 60 square kilometers (23 square miles)
- RSR buoys & cables are deployed to approximately 18 feet water depths and shallower
- The cable length per buoy is 300 meters long (985 feet)
- The sensors along the cables are positioned every 50 meters (165 feet)
- Airguns will be towed shallow (3 feet) to minimize seafloor disturbance
- The airgun array is made up of 2 sub-arrays
  - Each array has 8 individual airguns
  - The total output of the array is approximately 1500 cubic inches

For flexibility, the location of the buoys & cables will be in the east-west direction and can be moved depending on the obstructions that are found in the field. It is fully expected that there will be larger gaps due to the ship channel and other shallow water areas or archaeology exclusion zones that have been identified in the area. Likewise, the location of the source lines will be chosen based on water depth limitations as well any exclusion where the gaps between cables ultimately fall.



*RSR VectorSeis Recording System*

## Protected resources: Summary of mitigation measures

All measures will be discussed and reviewed with all crew members prior to survey start-up.

Species / Resource	Agency / Jurisdiction	Location	Probable Risk	Activity Posing Risk	Mitigation Measures
<b>Dolphin</b> ( <i>T. truncatus</i> <i>Stenella spp</i> )	NMFS-MMPA protected species	Year round, throughout the project	Moderate risk to noise impacts	Air gun operations	Follow MMS NTL guidelines seismic survey mitigation measures. Delay ramp until animal is clear. Implement stranding notification and have vessel on standby for distressed animals
<b>Manatee</b> ( <i>Trichechus</i> <i>manatus</i> <i>latirostris</i> )	NMFS-USFWS protected / endangered species	Year round, throughout the project	Moderate risk to noise impacts and low risk for vessel strike	Air gun operations, vessel strikes	Follow MMS NTL guidelines but require turtle pause. Implement stranding notification and have vessel on standby for distressed animals
<b>Marine Turtles</b>	NMFS & USFWS threatened and endangered species	Year round, with peaks between May - Oct	Moderate risk to noise impacts and low risk for vessel strike	Air gun operations, vessel strikes	Follow MMS NTL 2007-G02 seismic survey mitigation measures. Implement stranding notification and have vessel on standby for distressed animals
<b>Gulf Sturgeon</b> ( <i>Acipenser</i> <i>oxyrinchus</i> )	USFWS endangered species	Offshore during winter months	Minimal to low	Seismic noise disturbance	Vessel on standby for distressed animals
<b>Colonial Water Birds</b>	Multiple Agencies protected species	Year round nesting in spring	None to minimal	Seismic vessel noise disturbance	Shoreline surveys when vessels are within 1000m from shore. Visual documentation onboard vessel.
<b>Shore Birds</b>	Multiple Agencies protected species, one endangered species	Year round nesting in spring / summer, wintering Plovers	None to minimal	Seismic vessel noise disturbance	Shoreline surveys when vessels are within 1000m from shore. Visual documentation onboard vessel.
<b>Alabama Beach Mouse</b>	USFWS endangered species	Year around; vegetated dunes	None	Seismic vessel noise disturbance	None required - no work in dune areas
<b>Other Marine Mammals</b>	NMFS - MMPA protected species; unlikely to have USFWS listed species	Year round typically greater than 200m	Minimal to low	Seismic vessel noise disturbance	Follow MMS NTL guidelines
<b>Striped Bass</b>	Important recreational species	Year round	None	Seismic vessel noise disturbance	None required - no impacts expected
<b>Sea-grass</b>		Year around	Low	Placement of cable on seabed	Consult maps of sea-grass resources to insure no vegetated bottoms will have cable-lay
<b>Public lands / Structures</b>	USFWS Bon Secour NWR	Onshore North of proposed survey area		Visual disturbance	Information meeting prior to starting work. Notification of work within 1000m of NWR shoreline. Continuous Vibration monitoring
<b>Private lands / Structures</b>	N/A	Onshore North of proposed survey area		Visual and perceived acoustic disturbance	Public education meeting. Continuous Vibration monitoring on site. Public info. personnel on site when work is being conducted within 1000m of shoreline