

Atlantic Geological and Geophysical (G&G) and The National 5 year Draft Proposed Program



Mike Celata

Deputy Regional Director
Gulf Of Mexico Region
Office of the Regional Director, BOEM

John C. Johnson

Supervisor
Data Acquisition and Special Projects Unit (DASPU)
Office of Resource Evaluation, BOEM

Arie Kaller

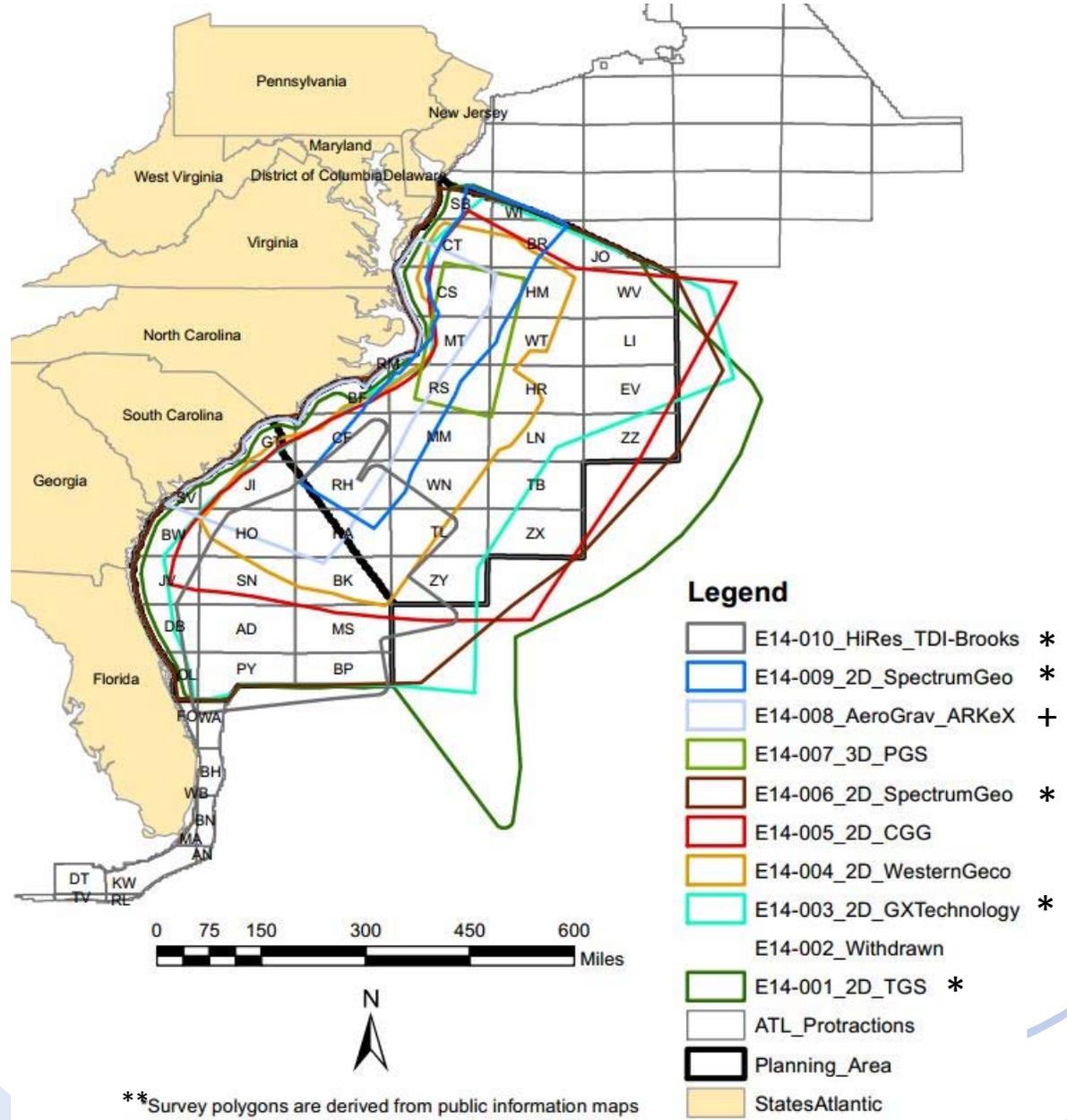
Supervisor
Biological Sciences Unit
Office of Environment, BOEM



G&G Permitting

- Goal of G&G Permitting:
 - Provide an oversight mechanism which allows industry to collect G&G data (needed for research and to explore and produce Outer Continental Shelf (OCS) mineral resources) in an orderly manner
 - Ensure the data collection is done in an environmentally sound way to preserve and protect other OCS resources

Current Atlantic OCS Permit Applications

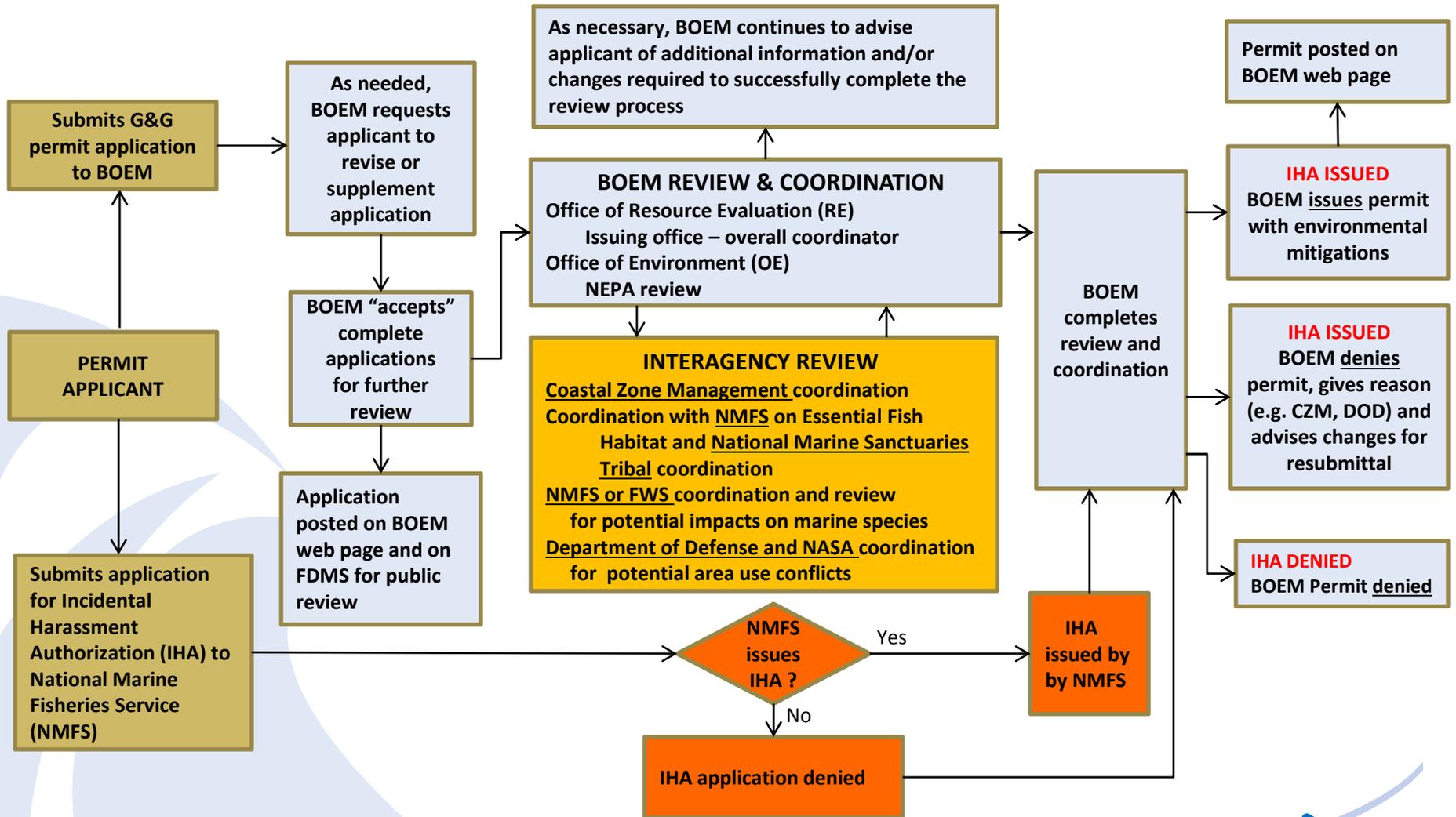


G&G Permitting

Permitted Activities: Geophysical Surveys

- **Gravity and Magnetics:** Hydrocarbon Exploration; Archeological Surveys
- **Side Scan Sonar (bottom mapping):** Archeological Surveys; Hazard Surveys
- **High Resolution Seismic (shallow penetration):** Sand surveys for beach replenishment; Hazard Surveys for Renewable Energy; Oil & Gas Exploration & Development
- **2D and 3D Seismic (deep penetration seismic):** Research; Oil & Gas Exploration; Reserves Estimates, Fair Market Value, National Assessment

Atlantic G&G Permitting Process



G&G Permitting (Completeness)

- Review Information Provided

- Ensure application is complete
- Accept Application
- Post Application/Public Information Map to:
 - BOEM's Public Web Site
 - FDMS for public comment
- Initiate Department of Defense (DOD) coordination
- Initiate NASA coordination
- BOEM initiates the Coastal Zone Management (CZM); notify states the G&G application has been received
- National Marine Fisheries Service (NMFS) Incidental Harassment Authorization (IHA) coordination begins
 - Permit applicant must apply to NMFS for an IHA

G&G Permitting (Processing)

- BOEM Office of Environment (OE) performs NEPA analysis and completes an Site-specific Environmental Analysis (SEA)
 - Review application
 - Request additional information as needed
 - Create a Site-specific EA, which includes conditions of approvals and mitigations received and agreed upon as part of the ESA BO and (when appropriate) NMFS Conservation Recommendations, CZMA review
 - The SEA reviewed by Subject Matter Experts (SME) to ensure environmental compliance and safety
 - Use the SEA as the basis for the permit application approval

G&G Permitting (Processing)

- EFH Consultation

- Create an EFH assessment: description of the activity to be permitted, analysis of potential adverse effects, conclusions of those effects, include applicable proposed mitigation
- Send the EFH assessment to NMFS (SERO; GARFO) for review
- If a formal consultation is deemed necessary, receive NMFS' Conservation Recommendations
- Coordinate on the Conservation Recommendations and if applicable create mitigation which are included in the SEA
- ❖ A similar procedure would occur if we are in the area of a National Marine Sanctuary (NMS)

Typical Mitigations:

- Various mitigations for protected species
 - Time-area closures
 - Exclusion zones
- Protected Species Observers (PSO)
- Required use of Passive Acoustic Monitoring (PAM)
- Exclusion areas for protection of known benthic communities
- Protection of Archaeological Resources
 - Listing of known/potential resources in survey area, avoidance/reporting guidance

G&G Permitting (Processing)

- Issuing the Permit

- Ensure CZM approval from each affected state has been received
- Ensure DOD and NASA coordination is satisfactory
- Ensure NMFS has issued an Incidental Harassment Authorization (IHA) to the permittee and BOEM has included any additional NMFS mitigations to its SEA
- Review OE mitigations
- Cover Letter Includes permit specific mitigations
- Attach cover letter to permit and issue
- Publish Permit and Cover letter to BOEM Public Web Site
- Publish Site Specific Environmental Analysis to BOEM Public Web Site

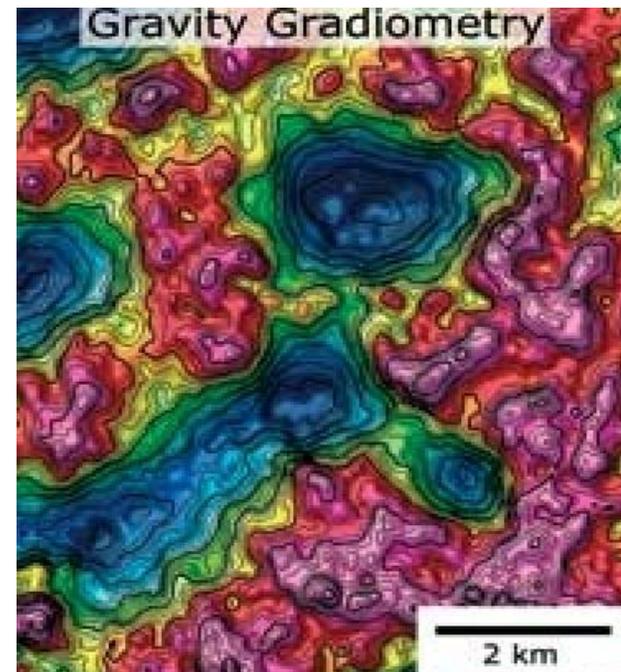
Gravity Survey

A gravity survey measures the changes in rock density by measuring changes in the Earth's gravity. These data are gathered by two methods:

- Marine Surveys
- Airborne Surveys

The Sensors and equipment are typically mounted inside the ship or airplane.

Map of a gravity Survey showing changes in the Earth's gravity resulting from differences in the subsurface deposits.

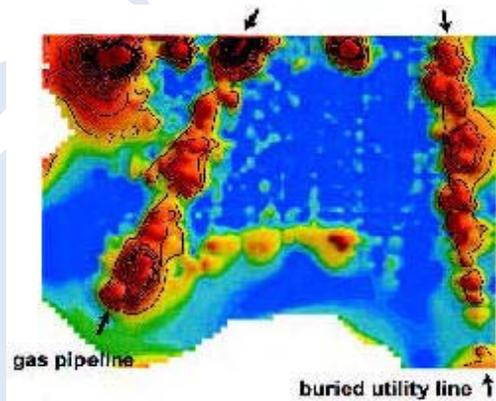


Magnetic Survey

A magnetic survey measure changes in the Earth's magnetic field to determine the structure and sedimentary properties of subsurface geology or the presence of iron based metals. This information is gathered by two methods:

- Marine Surveys
- Airborne Surveys

Magnetometer surveys are commonly also use to locate marine archaeological sites as well as buried pipelines or cables.



(Southwest Research Institute)



Airborne Magnetometer (USGS)

Example of a magnetic survey used to locate a gas pipeline and a utility line.

High Resolution Surveys Multi-beam Echo Sounders

Depth/Echo Sounders: These come in two basic types:

- 1) Single beam, a typical depth recorder; and
- 2) Multi-beam echo sounders which can be used to map the sea floor.

Sensors are typically hull mounted.

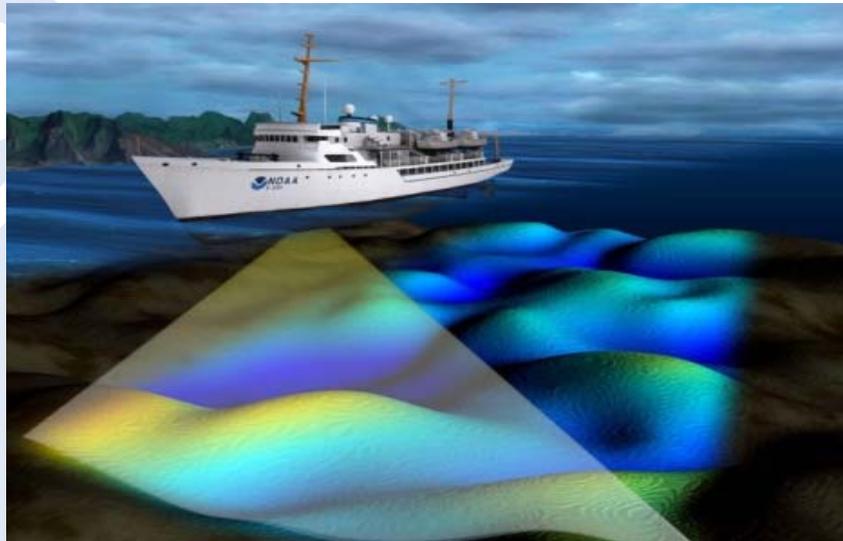
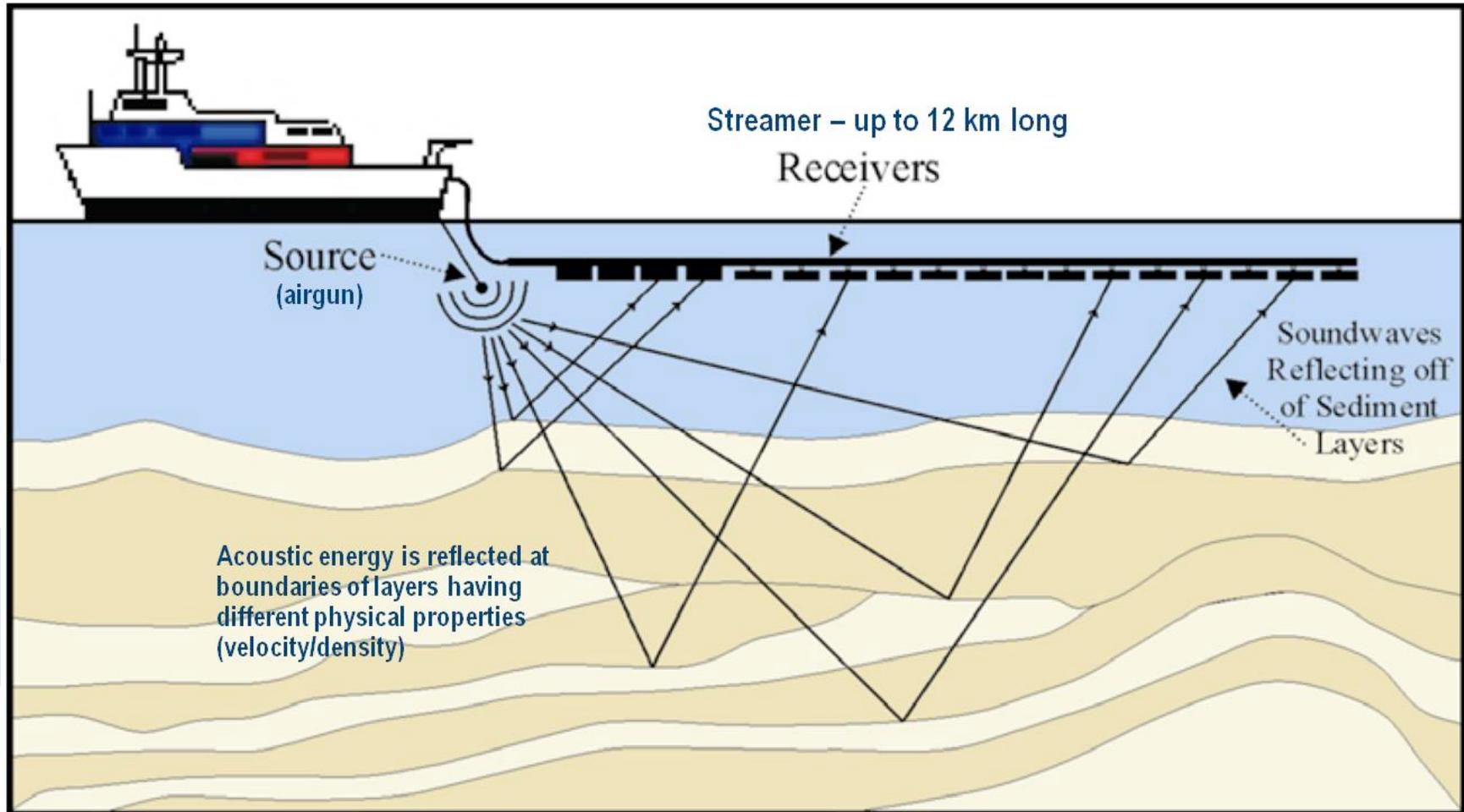
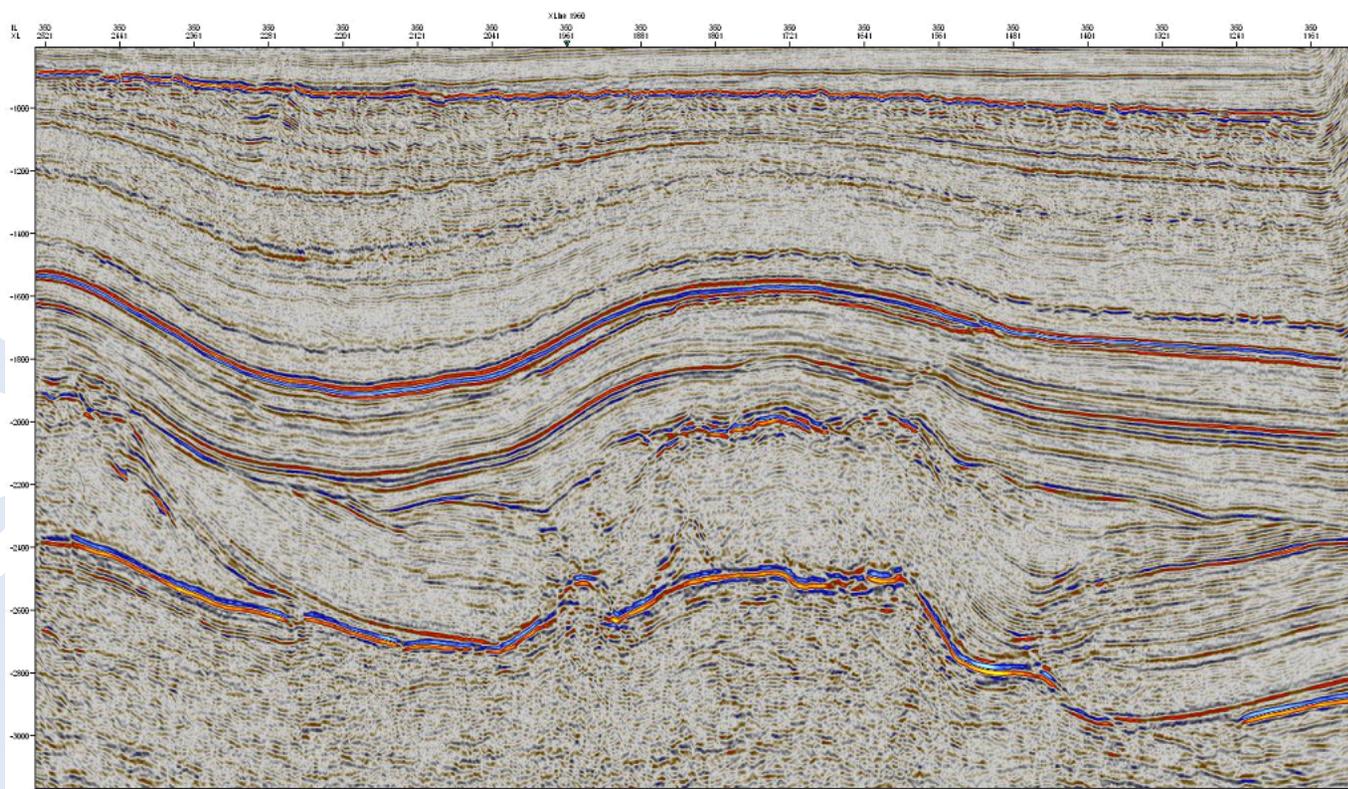


Image of a HRG multibeam echosounder survey (NOAA, 2014) Photograph credit from the National Office of Atmospheric Administration (NOAA), Coast Survey, 2014. Multibeam Survey Image. Accessed from website: <https://noaacoastsurvey.wordpress.com/about/>

2D Seismic Acquisition



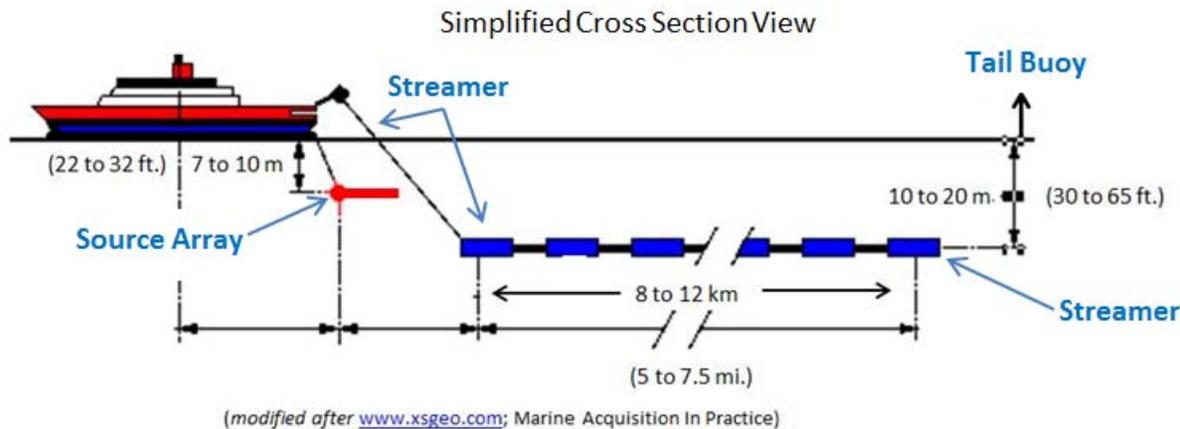
Processed 2D Seismic Data



(ThermoGIS)

TYPICAL MARINE 2D SEISMIC SURVEY

- Single survey vessel
- Survey vessel speed is approximately 5 knots
- Single Source Array: Typically composed of 3 or 4 subarrays
- Source Array usually covers an area of ~ 50' by 50'
- Typically One Streamer (cable with hydrophones)
- Streamer will usually be 8 to 12 km long
- Streamer is typically towed 10 to 20 meters deep with a tail buoy
- Source array will typically be towed 7 to 10 meters deep

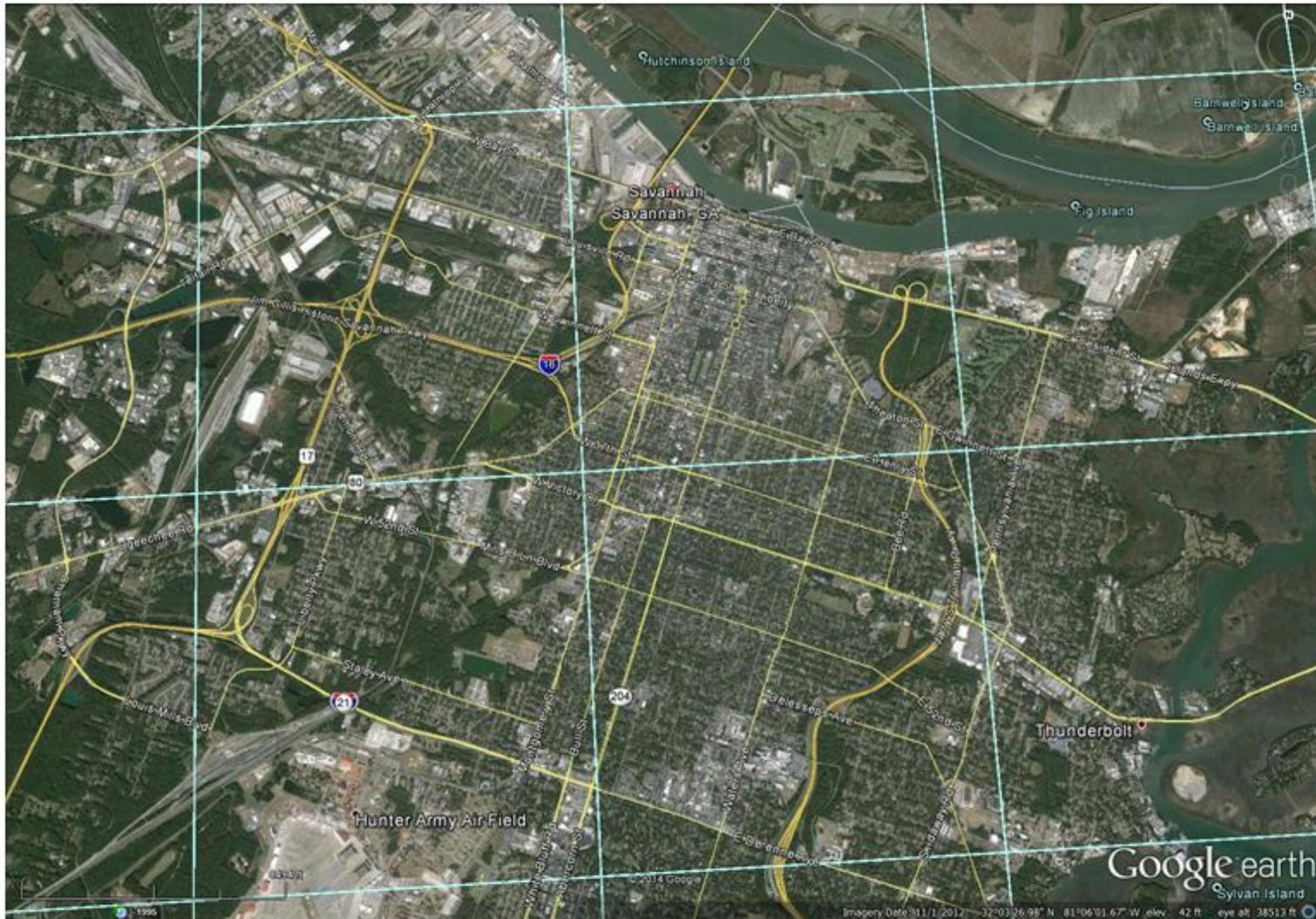


Dual Use Issues: Surveys & Commercial/Sport Fishing

- Notice to Mariners
- Real-time direct radio contact
- Guard vessels (typically in front and behind survey; attempt to speak face-to-face with vessels)
- Where necessary survey will go around and/or stop acquisition
- Can work with fishing communities/industry to minimize any potential impacts

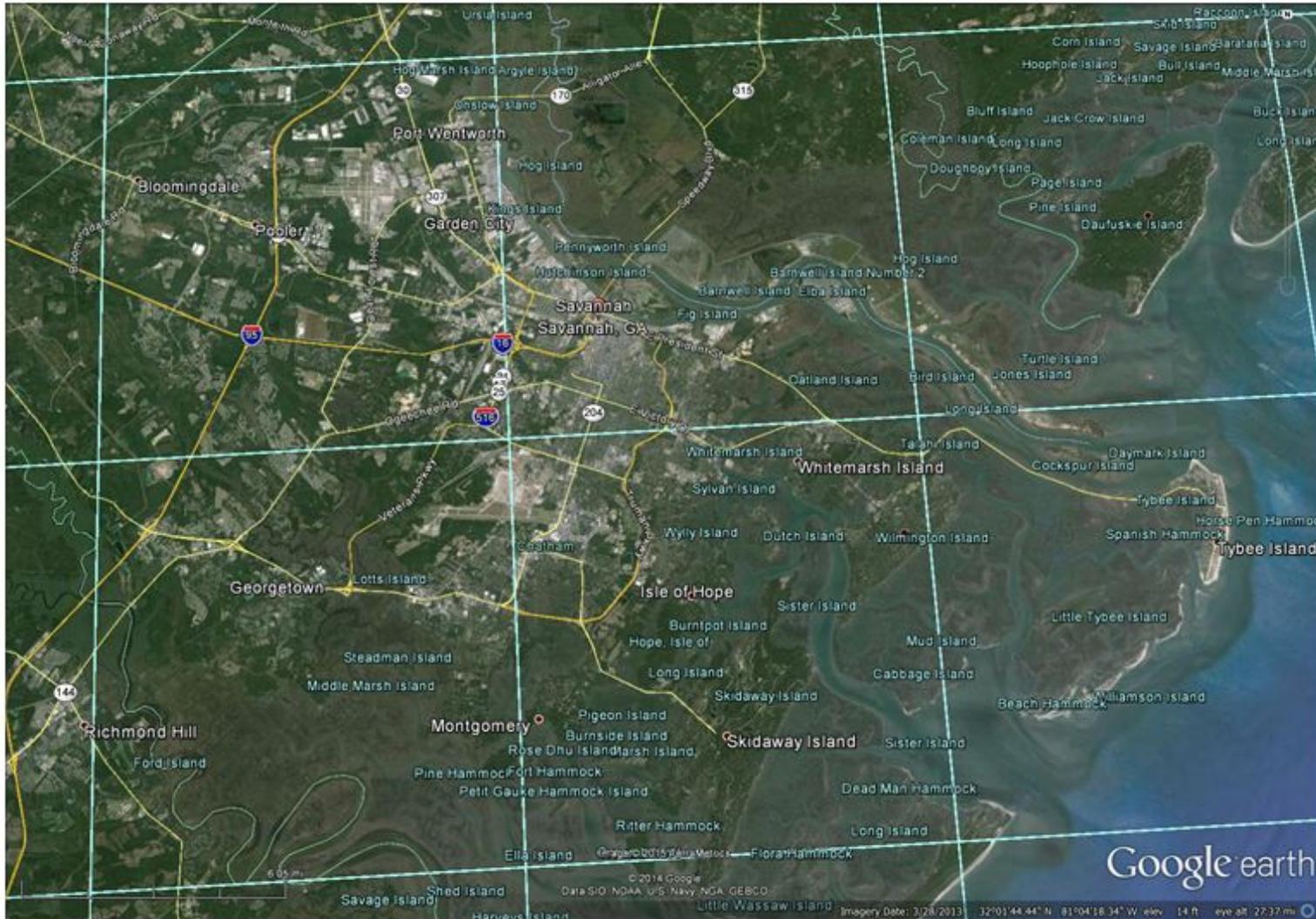
2.5 mile by 2.5 mile 2D Seismic Grid

View of Savannah, GA



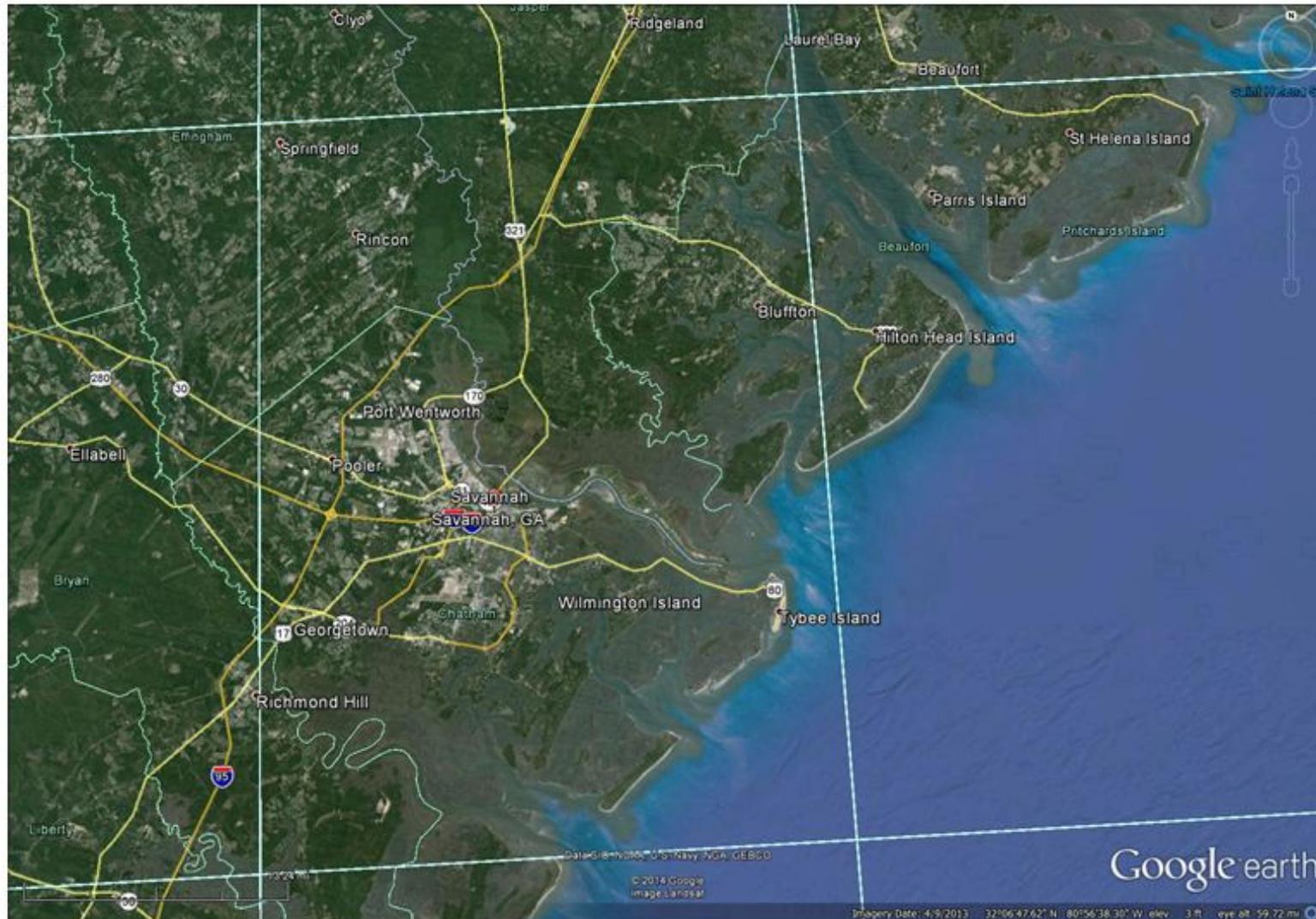
10 mile by 10 mile 2D Seismic Grid

View of Savannah, GA



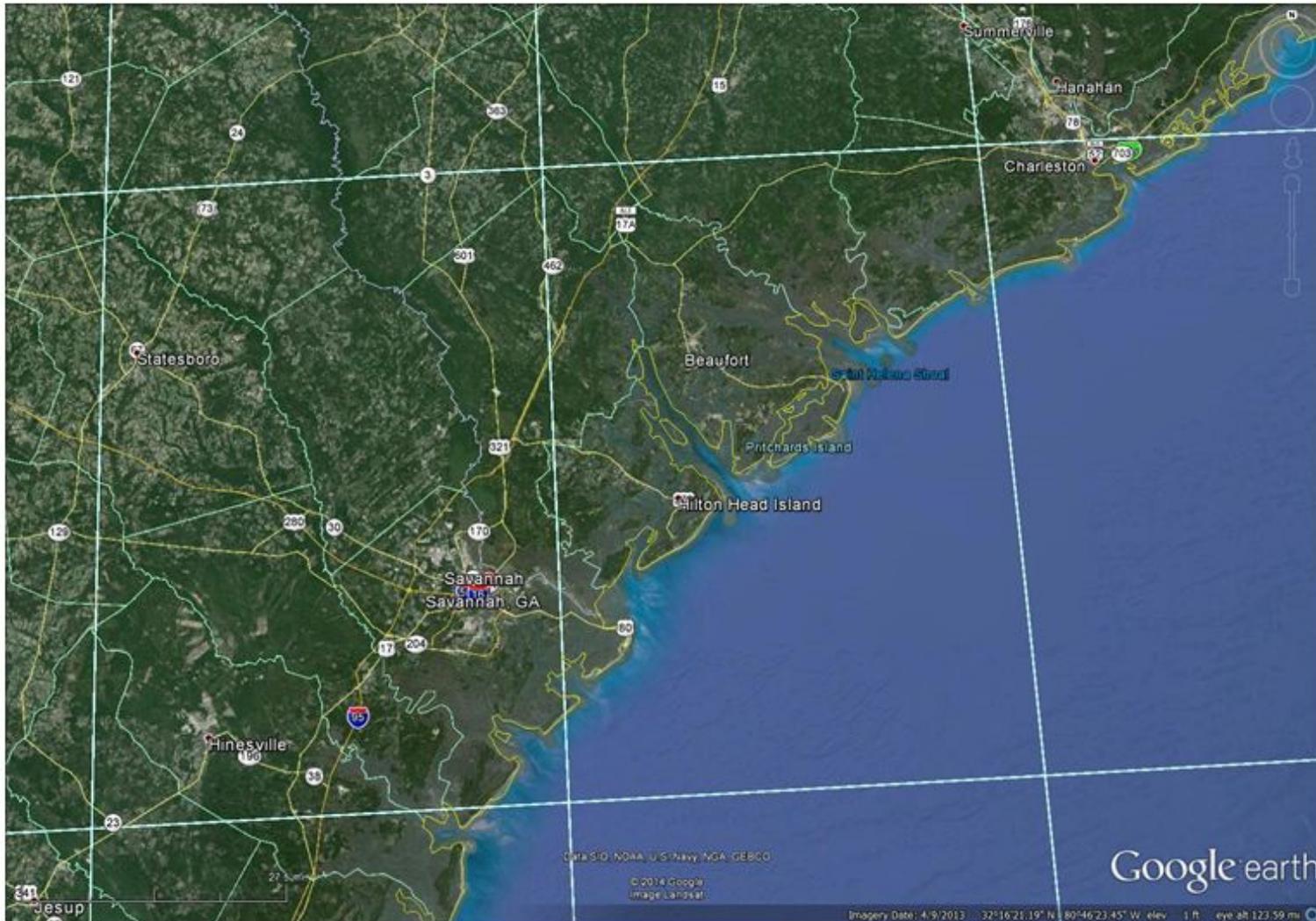
30 mile by 40 mile 2D Seismic Grid

View of Savannah, GA

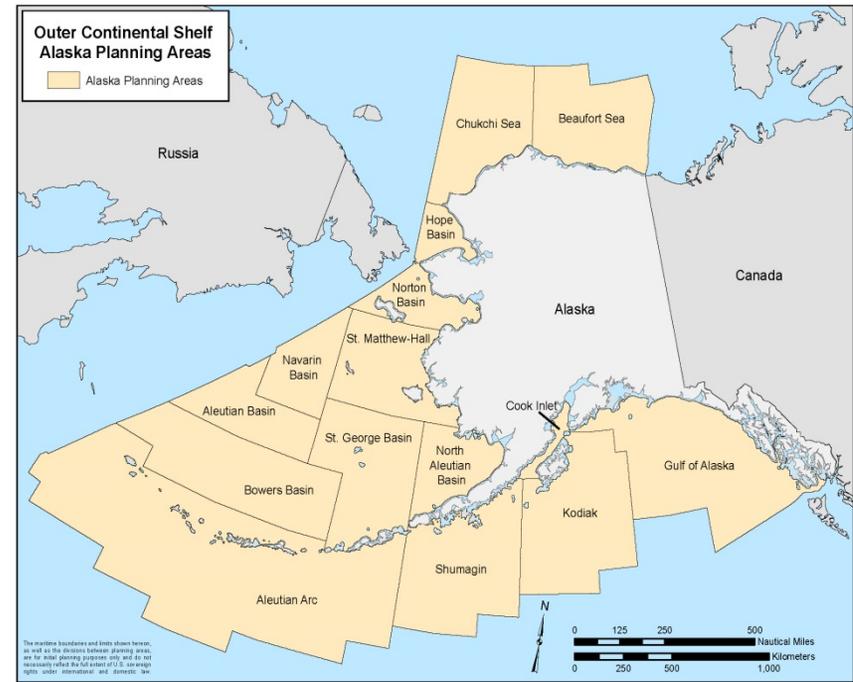
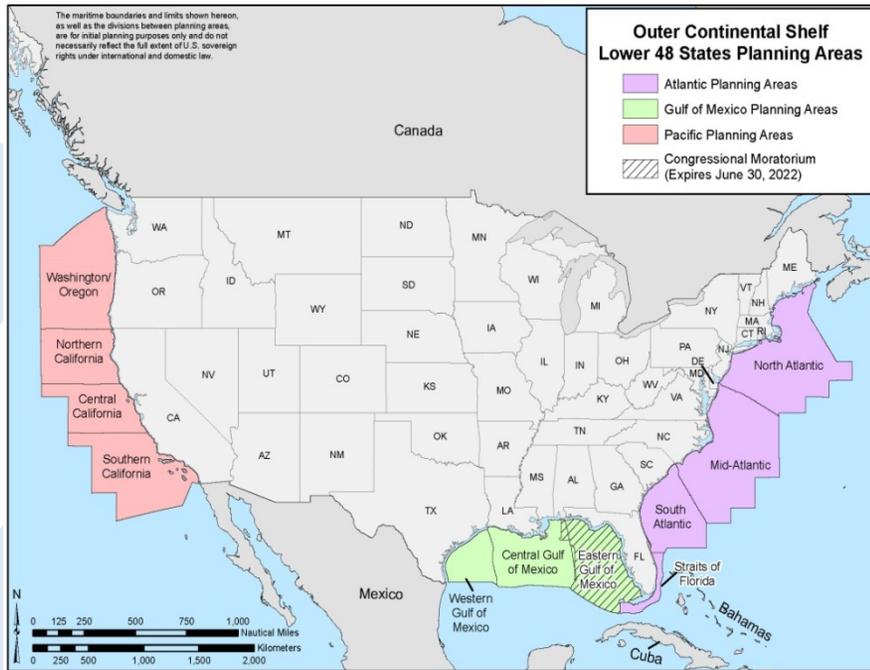


50 mile by 70 mile 2D Seismic Grid

View of Savannah, GA and Charleston, SC



Development of the Five Year Program for 2017 - 2022



National Policy and BOEM's Mission

*“(T)he outer Continental Shelf is a **vital national resource reserve held by the Federal Government for the public**, which should be made available for **expeditious and orderly development**, subject to **environmental safeguards**, in a manner which is consistent with the maintenance of competition and other national needs”*

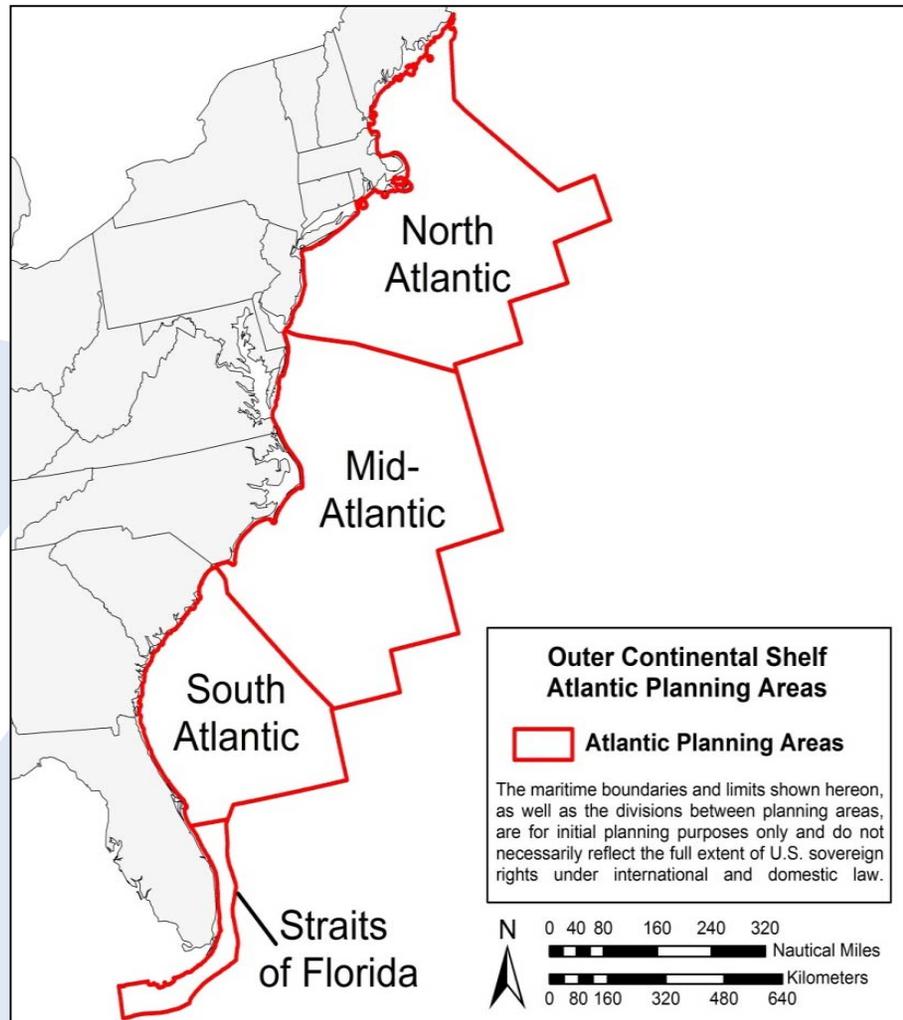
Outer Continental Shelf Lands Act (OCSLA)

Sec 3(3)

“Manage the mineral resources on the Outer Continental Shelf (OCS) in an environmentally sound and safe manner.”

BOEM's Mission Statement

Atlantic OCS Region History ARK2



- 9 Lease Sales were held on the Atlantic OCS from 1976 to 1983
 - 410 leases acquired for a total bonus of \$2.8 billion
 - 51 total wells drilled
- Virginia Lease Sale 220 area was included in the 2007-2012 Program (scheduled for 2011) but was cancelled following the *Deepwater Horizon* event
- The Atlantic OCS Region was not included in the 2012-2017 Program

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ARK2

Do we need the history especially if we are worried about time.

Kaller, Arie, 2/25/2015

Five Year Program Development Process



- Request for Information (RFI) comment period began on **June 16, 2014**
- Extended comment period ended on **August 15, 2014**
- Draft Proposed Program (DPP) Decision Document and the Notice of Intent to Prepare an EIS, issued **January 29, 2015**
 - DPP Decision Document includes an analysis of all 26 OCS Planning Areas

What is the Draft Proposed Program (DPP)?

- The DPP is the first of three proposals issued for public review before the new Five Year Program is approved – is followed by a further refined Proposed Program
- Includes eight planning areas, including portions of the Mid- and South Atlantic
- Although the DPP decision document examines all 26 of the planning areas, only the areas and options included in the DPP decision will be further analyzed in preparing the Proposed Program

What Is Being Proposed for the Atlantic?

One sale late in the Program at least 50 miles offshore the coasts of Virginia, North Carolina, South Carolina, and Georgia

- allows for consideration of a targeted area while limiting potential environmental impacts and conflicts with other ocean uses
- 50-mile buffer was included in response to the Governor of Virginia's comments and to minimize conflicts with commercial and recreational fishing, critical habitat for marine mammals and sea turtles, hard bottom environments and other environmental concerns

DPP Mid- and South Atlantic Program Area



OCSLA Section 18^{ARK3} factors

The following 8 factors are considered (with no priority of importance) in determining the timing and location of leasing:

1. Geographical, geological, and ecological characteristics
2. Equitable sharing of developmental benefits and environmental risks
3. Location with respect to regional and national energy markets and needs
4. Location with respect to other uses of the sea and seabed
5. Interest of potential oil and gas producers
6. Laws, goals, and policies of affected states
7. Environmental sensitivity and marine productivity
8. Environmental and predictive information

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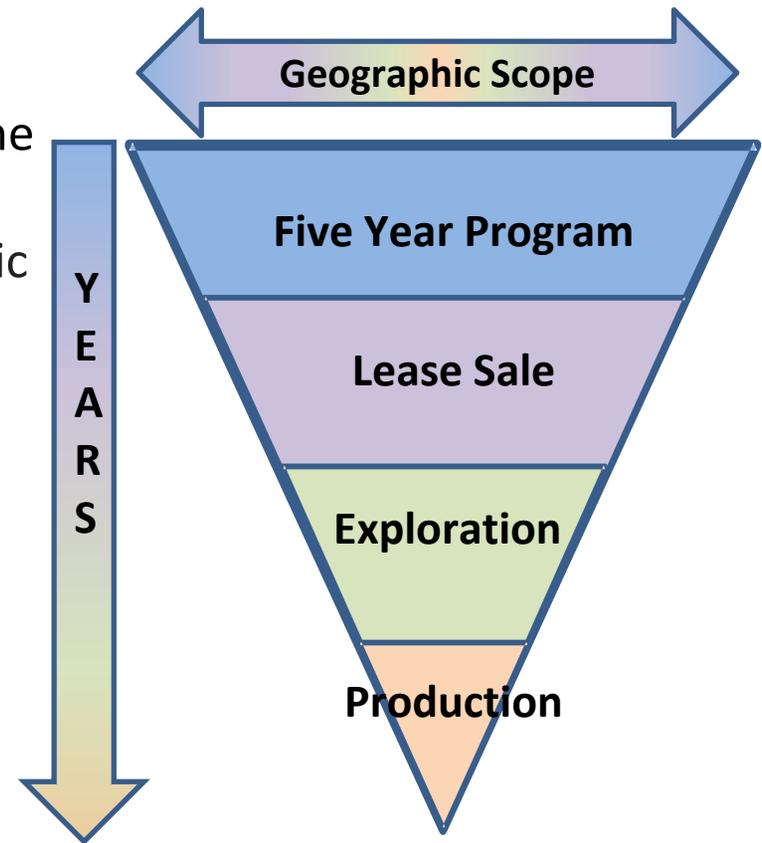
ARK3

8 or 18...below are only 8

Kaller, Arie, 2/25/2015

Importance of the DPP Decision

- Once the areas are narrowed, they cannot be expanded without either starting over with the entire Five-Year Program development process, an act of Congress, or including public notice of possible expansion at the DPP stage which may mean supplementing the NEPA review.
- There is always another chance to further narrow or remove an area, but never one to expand (or narrow differently)



Opportunities for Public Comment

Multiple opportunities for public comment:

1. Issuance of an initial Request for Information and comments – comment period ended August 15, 2014.
2. Issuance of the DPP – 60-day comment period (current step). **Deadline for comments is March 30, 2015.**
3. Scoping period – 60 day comment period, which includes public meetings, prior to preparing the Draft Programmatic Environmental Impact Statement (PEIS) under NEPA (also current step). **Deadline for comments is March 30, 2015.**
4. Issuance of the Proposed Program – followed by 90-day public comment period
5. Issuance of the Draft PEIS (concurrent with the issuance of the Proposed Program); issuance of the Draft PEIS is followed by public hearings as well as a request for written comments. Minimum 45-day comment period.

BOEM Web Pages of Interest

- BOEM Atlantic OCS Region Page: <http://www.boem.gov/Atlantic-Region/>
- Atlantic Oil and Gas Information: <http://www.boem.gov/Atlantic-Oil-and-Gas-Information/>
- Atlantic G&G Permitting: <http://www.boem.gov/Atlantic-G-and-G-Permitting/>
- Currently submitted Atlantic OCS Region Permit Applications: <http://www.boem.gov/Currently-submitted-Atlantic-OCS-Region-Permits/>
- Public Information Query for G&G permits (including SEAs): https://www.data.boem.gov/homepg/data_center/other/WebStore/pima ster.asp?appid=5%20
- Environmental Studies Program Information System: http://www.data.boem.gov/homepg/data_center/other/espis/espisfront.asp

BOEM POCs

- G&G
John Johnson john.johnson@boem.gov
- Environmental Review and Consultations
Arie Kaller arie.kaller@boem.gov
- Five Year Program
Bob Sebastian robert.sebastian@boem.gov
- Office of Public Affairs
John Filostrat john.filostrat@boem.gov
Caryl Fagot caryl.fagot@boem.gov