Opportunities and Challenges: Technology and the Environment

Gas and Oil Resources from the Outer Continental Shelf Offshore of Virginia

Presentation for
Virginia Commission on Coal and Energy

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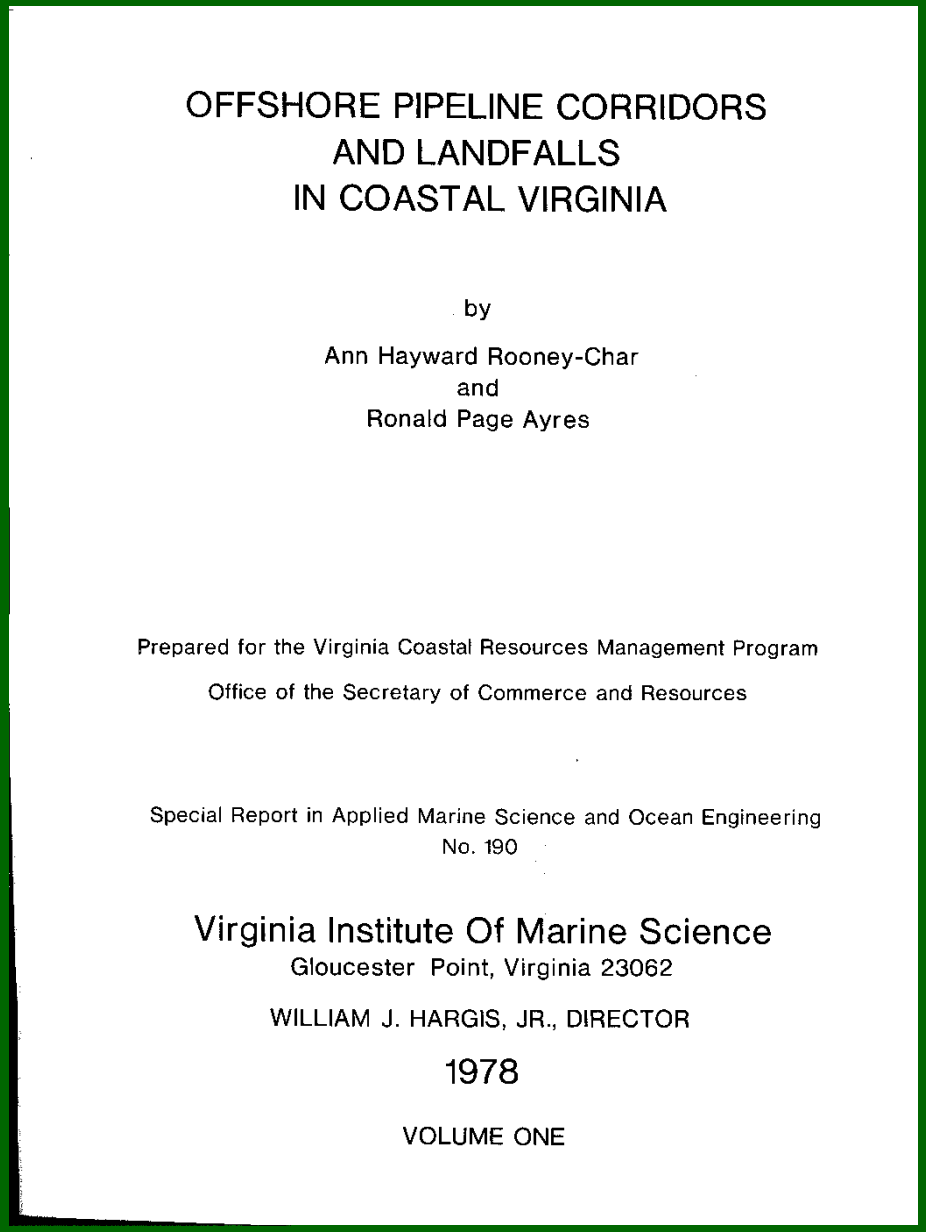
Offshore Energy Resources

We have been here before.

"This report is a planning effort aimed at anticipating and planning for the implications of oil and gas drilling on the Atlantic Continental Shelf. Specifically, it is designed to provide technical information on pipeline siting and construction requirements as well as on the potential environmental impacts associated with pipelines. It is intended to assist state and local officials in making decisions about pipelines coming ashore in Virginia – whether to allow or no not allow pipelines and, if they are allowed, to determine the coastal areas which would be most suitable as landfall sites. The report does not intend to promote or discourage pipelines but rather to identify and discuss the range of potential problems and opportunities associated with pipeline activities. In addition, this is a technical planning document only and does not attempt to establish policy for the Commonwealth of Virginia with respect to pipelines or any other OCS activity."



OFFSHORE PIPELINE CORRIDORS
AND LANDFALLS
IN COASTAL VIRGINIA

by

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Prepared for the Virginia Coastal Resources Management Program

Office of the Secretary of Commerce and Resources

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WILLIAM J. HARGIS, JR., DIRECTOR

1978

VOLUME ONE

Schematic Cross Section Showing the Continental Shelf, Slope, and Rise

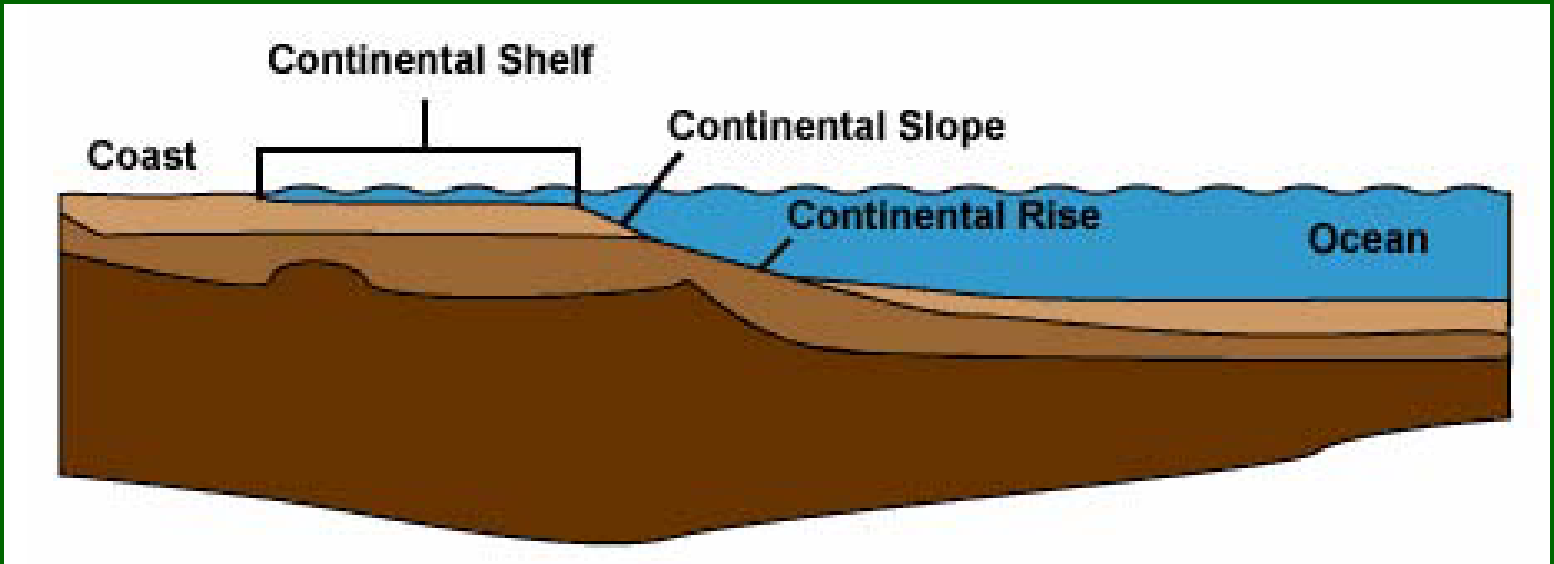
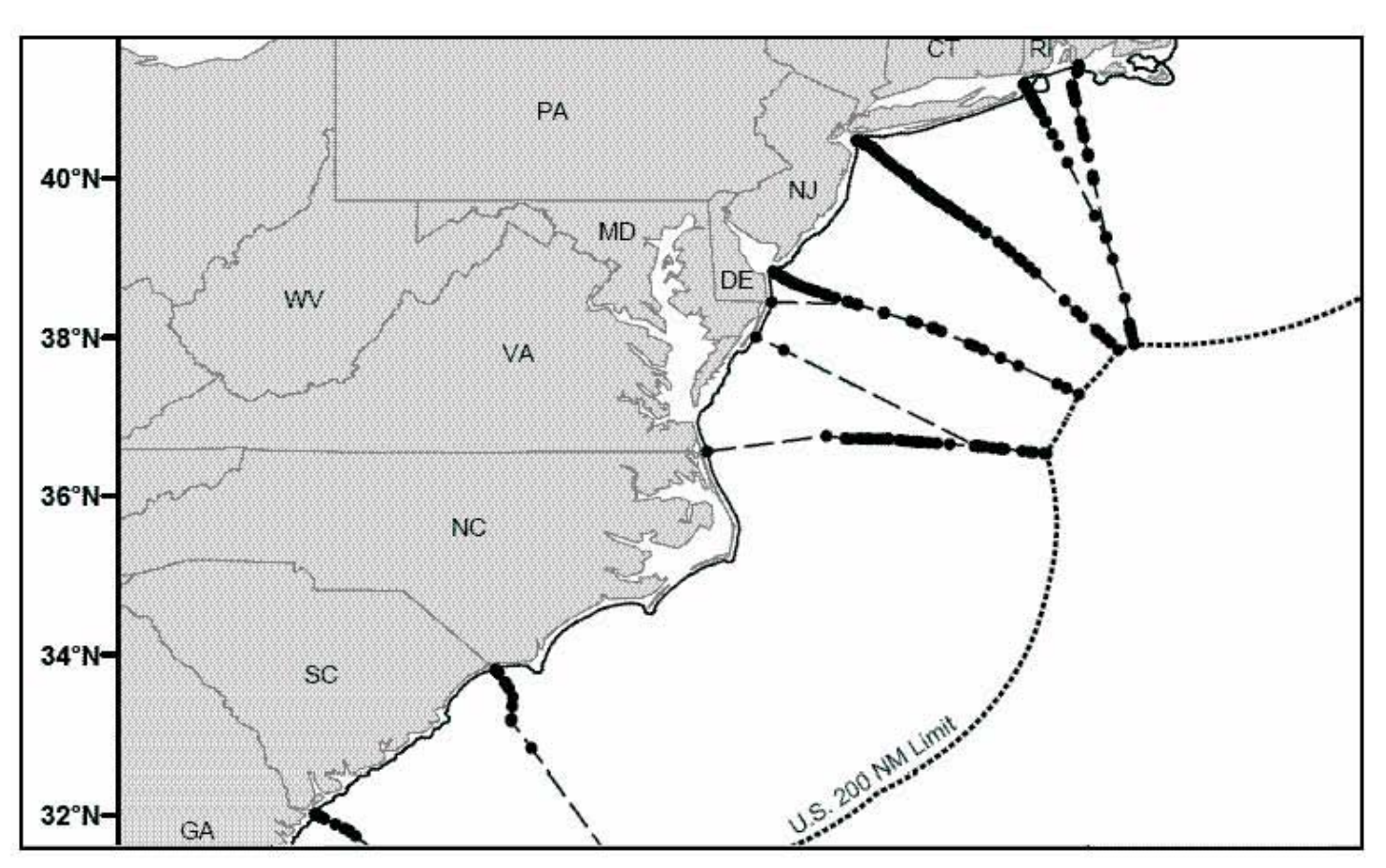


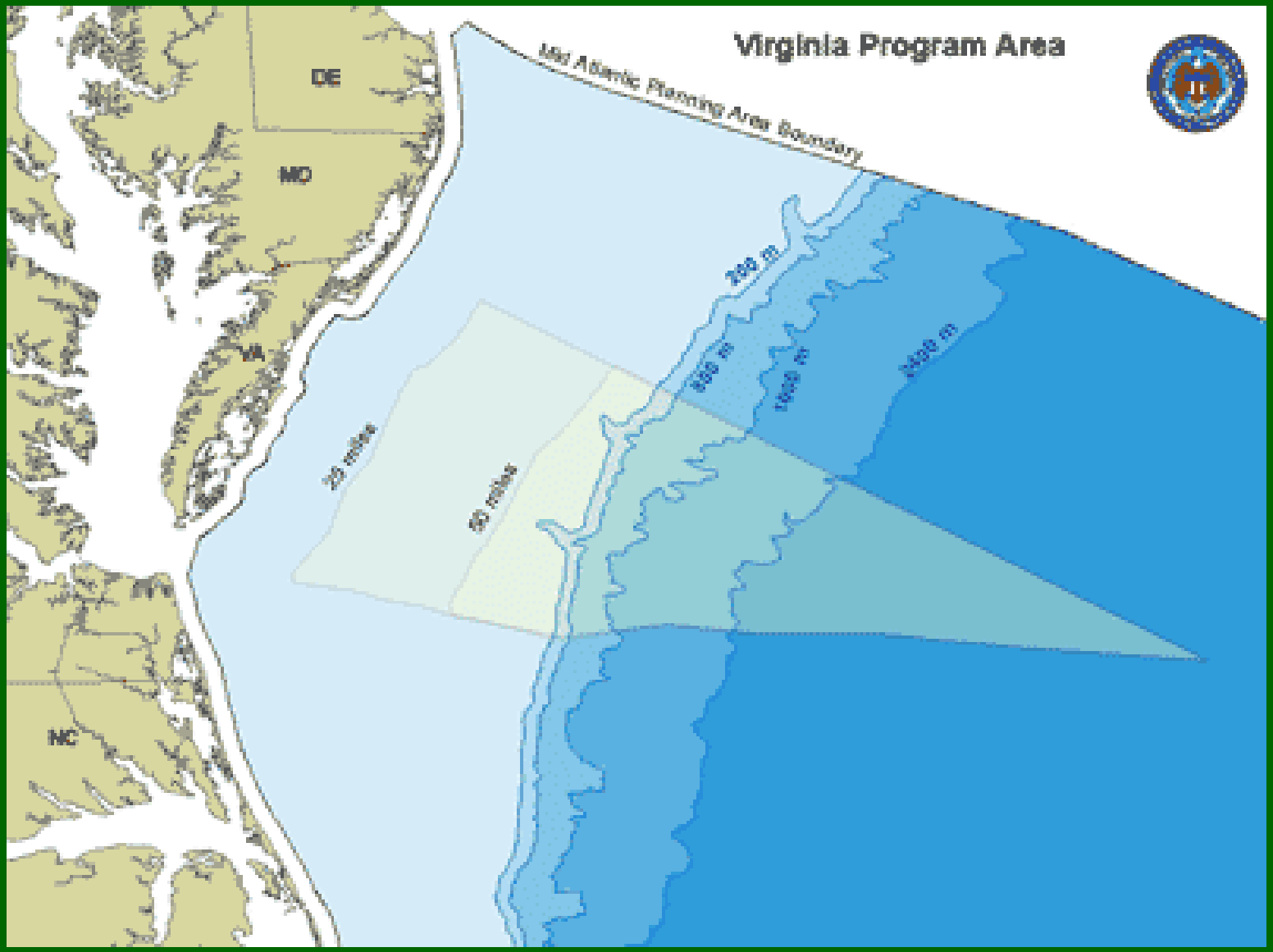
Figure 1 from Virginia House Document No. 22, 2006
(Citing http://www.onr.navy.mil/focus/ocean/regions/oceanfloor2.htm)
http://leg2.state.va.us/dls/h&sdocs.nsf/By+Year/HD222006/$file?HD22.pdf

MMS Atlantic States Administrative Boundaries



Federal Register, v. 71, n. 11, pp 127-131, Jan 3, 2006

Virginia Offshore Program Area as presented by MMS



Hydrocarbon Play Extents Defined by the MMS in 2000

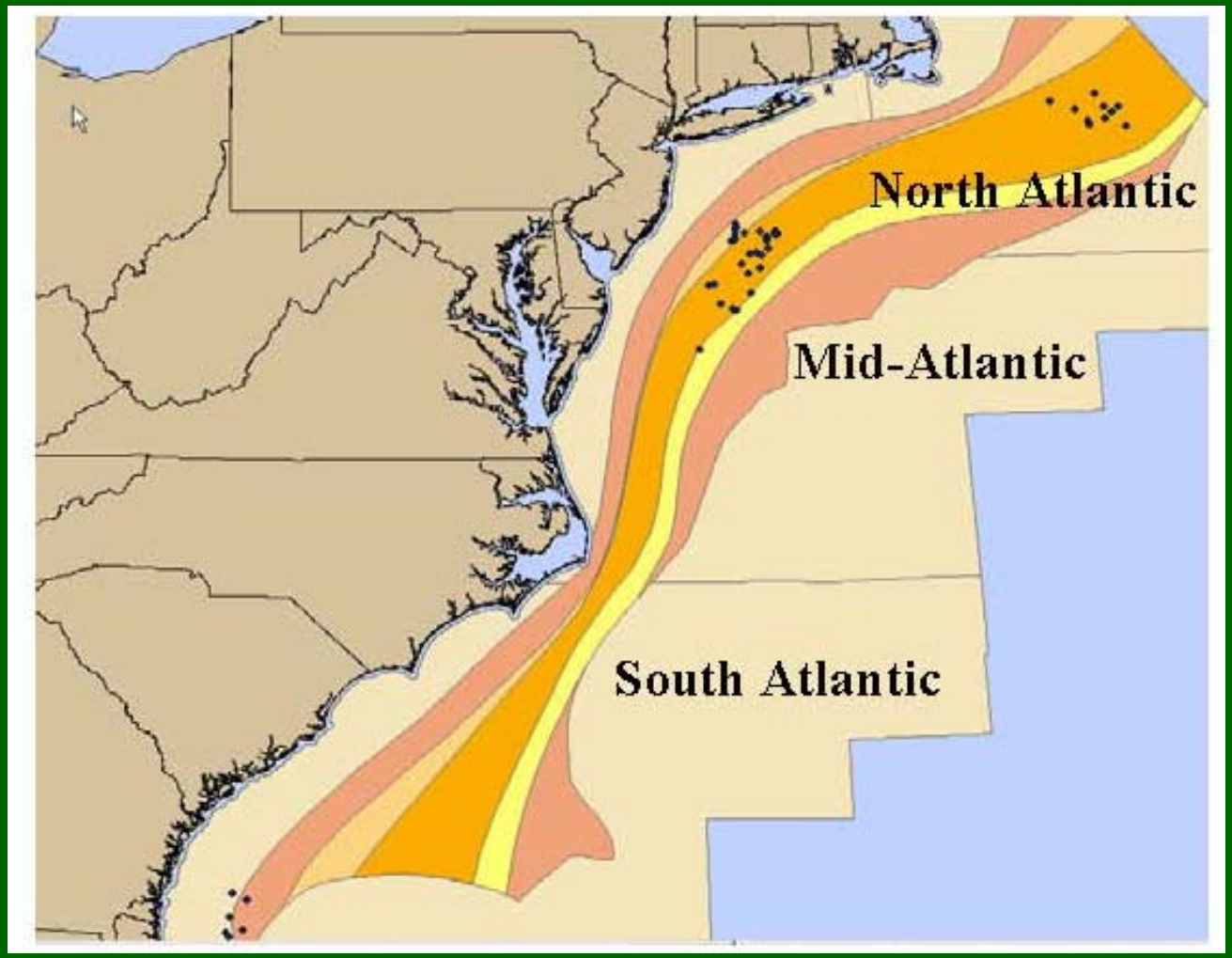


Figure 4 from Virginia House Document No. 22, 2006
http://leg2.state.va.us/dls/h&sdocs.nsf/By+Year/HD222006/$file/HD22.pdf

Oil and Gas Potential from Seismically Delineated Structures and Stratigraphic Traps, Offshore Virginia

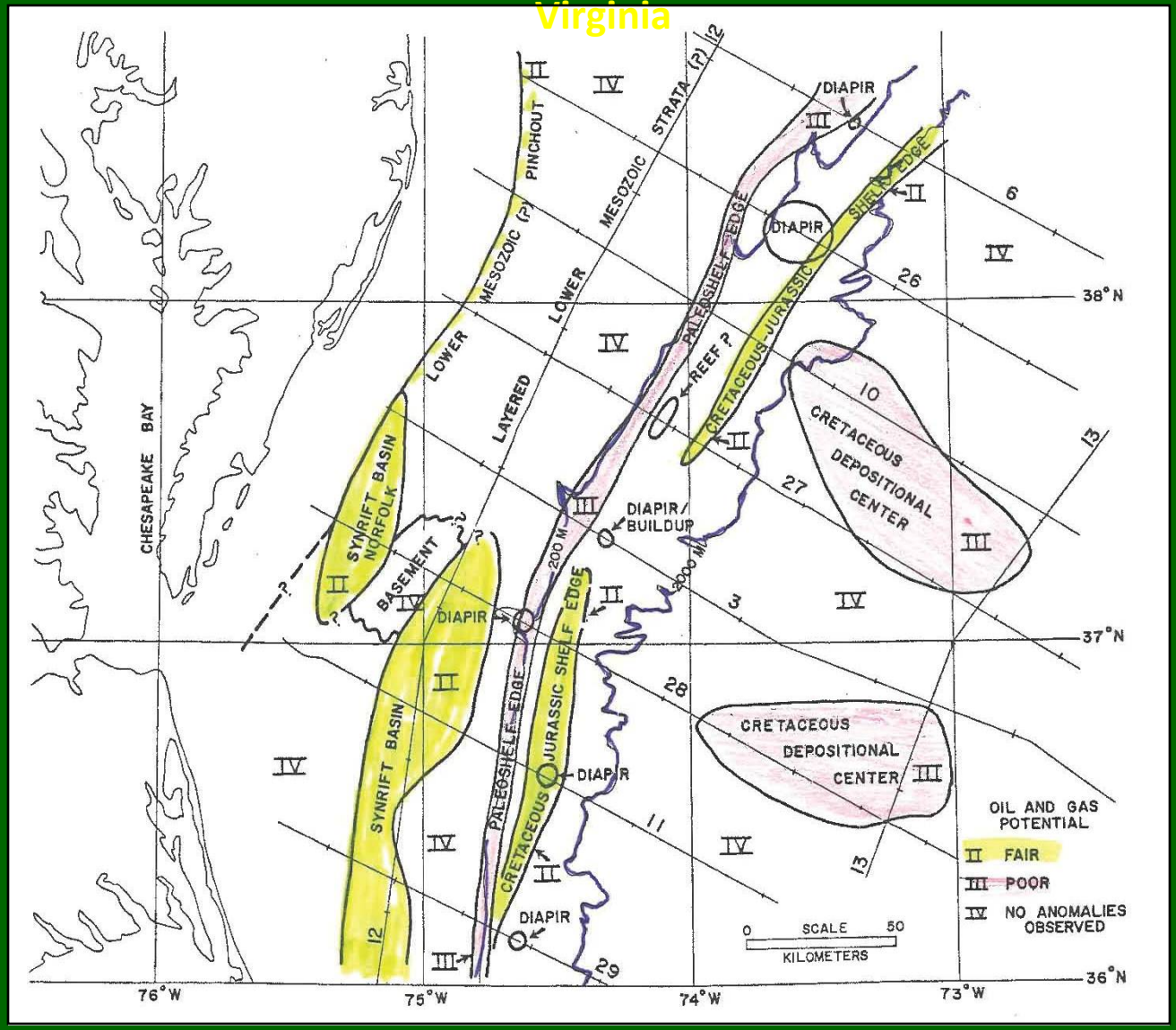
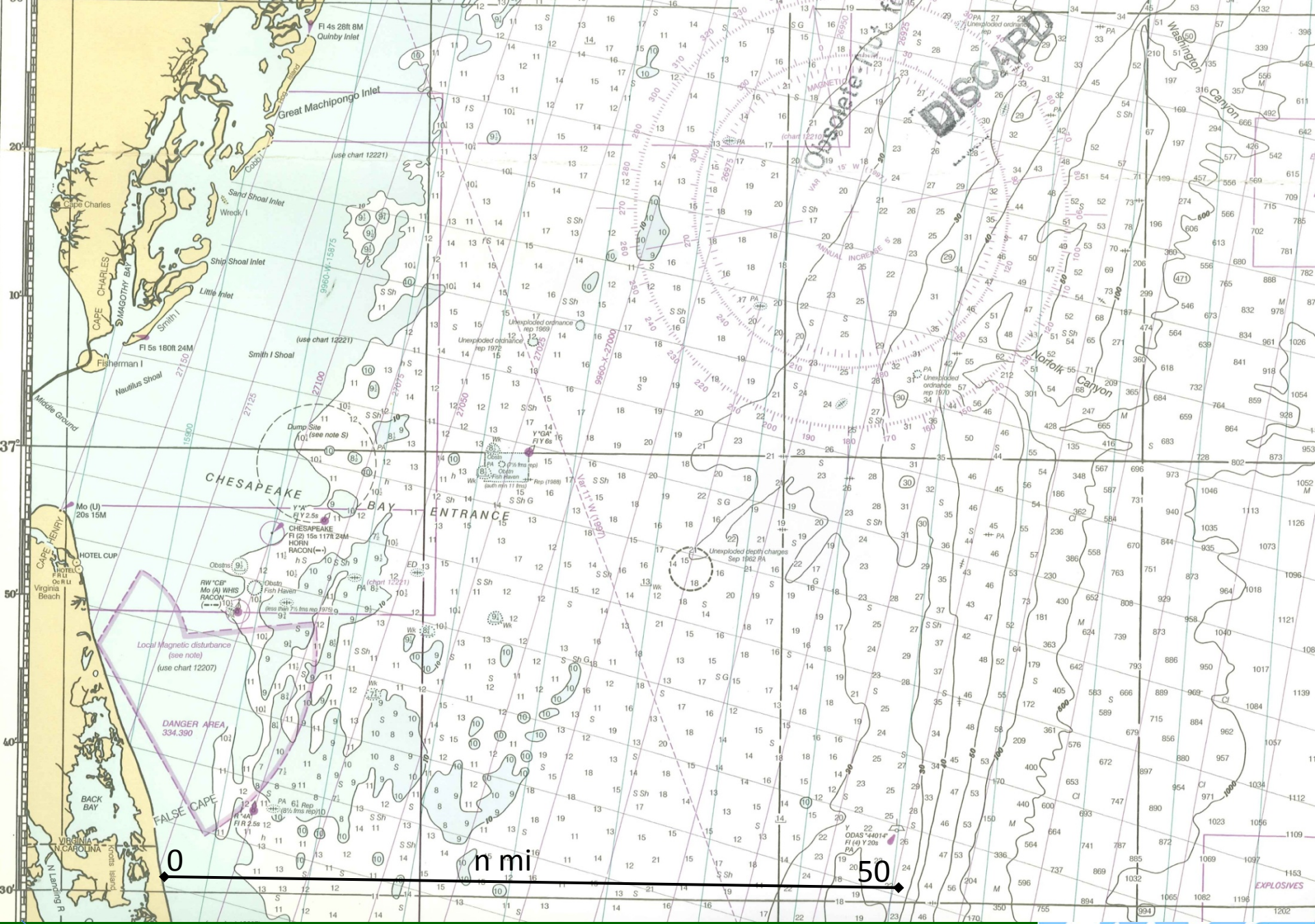


Figure 5 from Bayer, K.C. and R.C. Milici, 1987. Geology and Petroleum Potential of Mesozoic and Cenozoic Rocks, Offshore Virginia. Virginia Division of Mineral Resources Publication 73, Part D, 111p.



Portion of NOS Chart 12280

Topics that must be considered

Production platforms

- Platforms will be cited where the resources are located.

- Will they be a hazard to navigation?
- Will they survive storms etc?
- What is the stability of substrate for supporting the platforms?
- What are the environmental concerns associated with constructing the platforms?
- What are the environmental concerns associated with the platforms after they are built

Moving the product from platform to shore

This probably would be by pipeline.

- **Should pipelines be on the surface of the sea floor or should they be buried?**
- **How deeply should pipelines be buried?**
- **What would be the environmental consequences of burying the pipelines?**
- **How severe will the disturbances caused by the pipeline be?**
- **How quickly will the system recover?**

Additional considerations for submarine pipelines

- Potential conflicts with existing and planned submarine communications cables (both civilian/commercial and military)
- Shipwrecks and other archaeological sites
- Commercial fishing areas (dragging gear across the sea floor etc.)
- Unexploded ordinance
- Actual and potential areas of spoil disposal or sand mining
- Other special use areas

Bringing the pipeline ashore

- Where should pipelines come ashore?
- How deeply should pipelines be buried as they cross the nearshore zone
- How far inland should it remain buried?
- What is the rate of shoreline retreat? Is it likely to change?
- What will the onshore environmental consequences be?
- Different onshore environments (beach, dunes, marsh, bluff, upland) require different considerations.
- Even if the refining/processing complexes are farther inland, what onshore structures are required?
- What would be needed to assure the security of the pipelines and associated infrastructure?

Regulatory considerations

- This will require the NEPA/Environmental Impact Statement process.
- The earlier the work on the EIS is begun and the more thorough the EIS , the smoother the process will be.
- Federal, state, and local concerns and participation.

The role of VIMS

- VIMS is the Virginia agency charged to provide advice on coastal, estuarine, and marine matters.
- VIMS is neither for not against offshore drilling.
- VIMS provides environmental data and unbiased interpretations.
- VIMS has a long history in this sort of scientific and environmental investigation and in project coordination.
- Fishes and fisheries, sea turtles, marine mammals.
- Bottom-dwelling organisms.
- Wave climate and currents.
- Sea floor disturbance and sediment movement.
- Tools such as side-scan sonar to view the sea floor.
- VIMS will be involved in reviewing the research of others pertaining to the EIS etc.