



A Regulatory Agency's Role in Ocean Exploration?

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A Role in Ocean Exploration?

Minerals Management Service:

To manage the mineral resources on the OCS in an environmentally sound & safe manner and to timely collect, verify, and distribute mineral revenues from Federal and Indian lands.





National

Safety/Environmental Performance
Globalization of Offshore Industry

Pacific

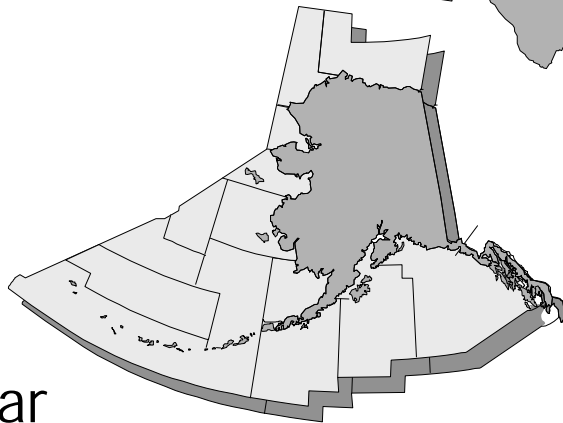
Developed/
Producing
Leases

Alaska

Liberty

Northstar

Beaufort Sea & Cook Inlet leasing

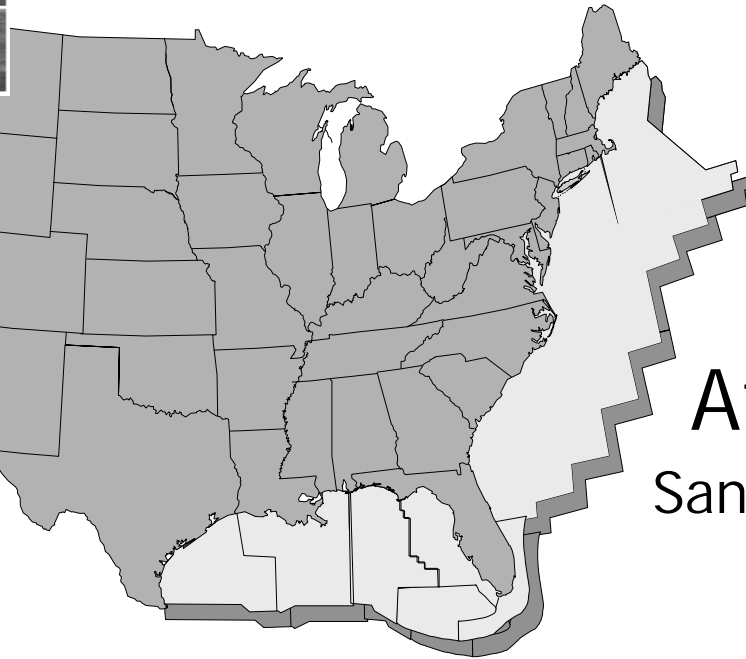


Gulf of Mexico

Deepwater

Active Leasing

Sand and Gravel

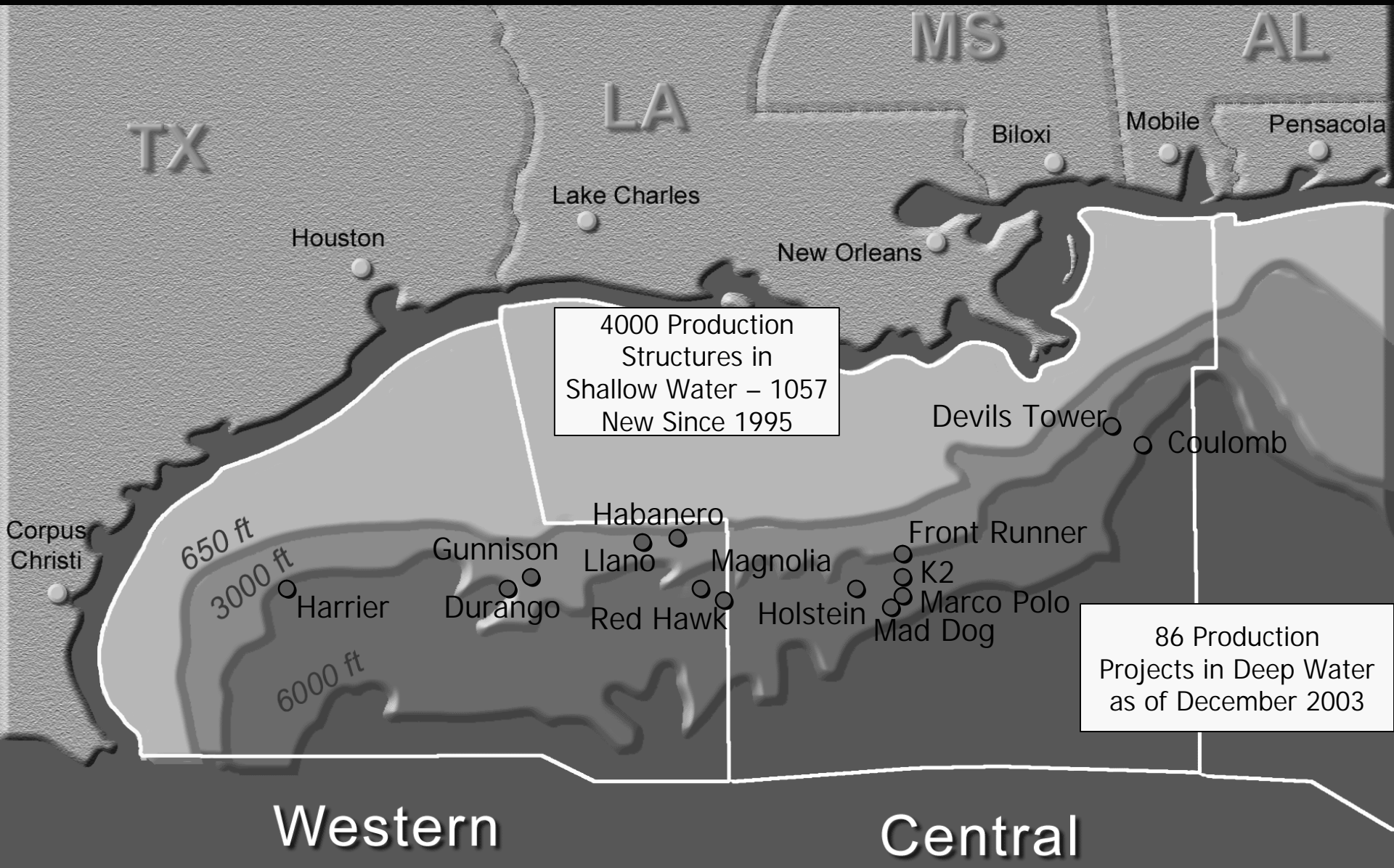


Atlantic

Sand and Gravel

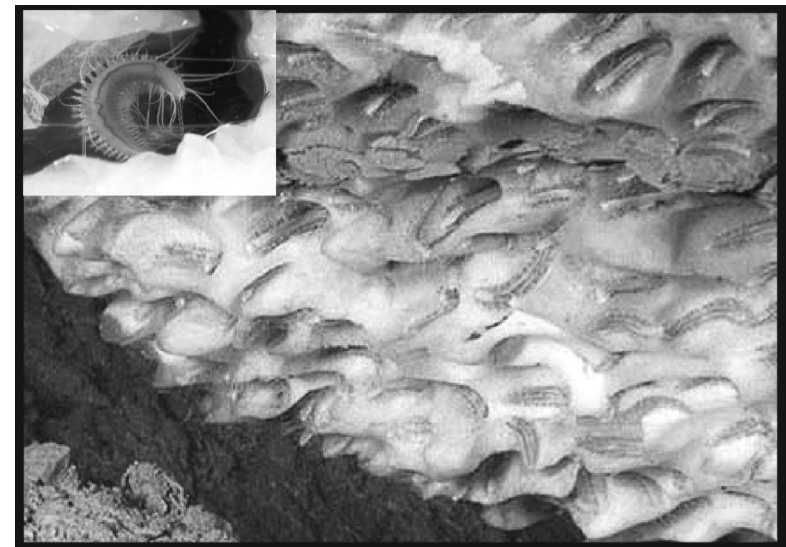
Working in Deep Water

(e.g. Deepwater Areas)



Major Projects on GOM Chemosynthetic Communities & Gas Hydrates

- Chemosynthetic ecosystems study
- Stability and change in Gulf of Mexico chemosynthetic communities
- Improving the predictive capability of 3D seismic surface amplitude data for identifying chemosynthetic community sites



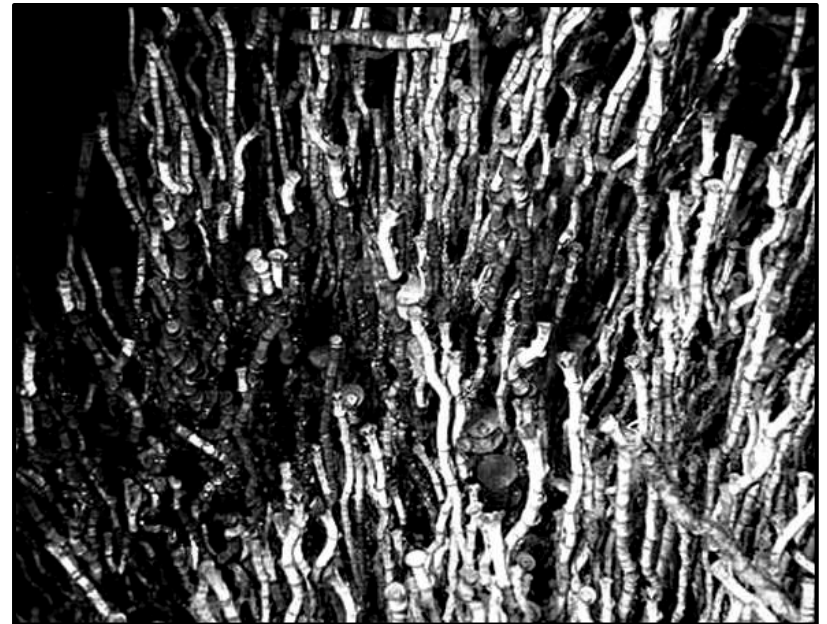
Research Results

- Currents at relevant depths can disperse larvae across the entire upper continental slope.
- Upper depth limit for Gulf of Mexico chemosynthetic communities is between 400 and 500 meters.
- In contrast to rapid tube growth at hydrothermal vents, cold seep tubeworms grow very slowly.
- It is estimated that worms 2 meters in length are from 170-250 years old.



....., in our own back yard!

Chemosynthetic fauna associated with Gulf of Mexico hydrocarbon seeps are similar to those of hydrothermal vents.



The Use of Research Results

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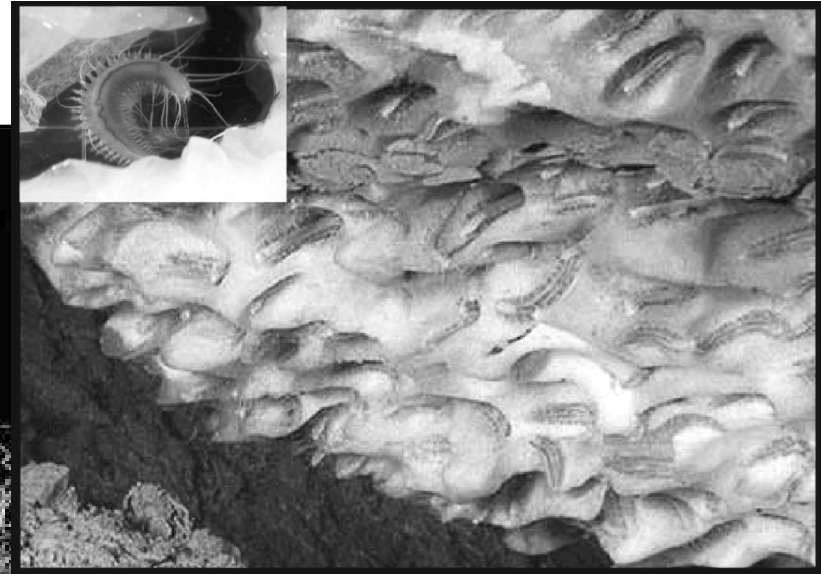
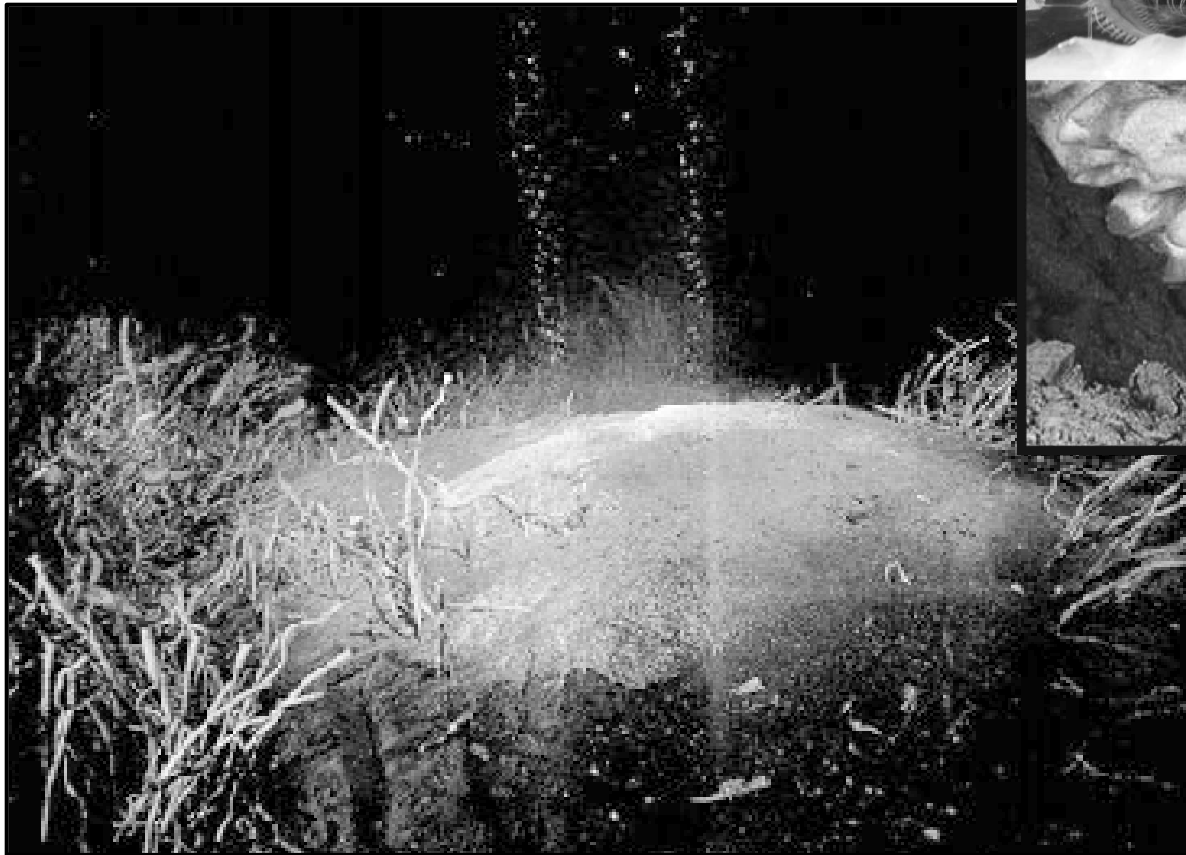
Chemosynthetic Communities

“to provide a consistent and comprehensive approach to protecting high-density chemosynthetic communities

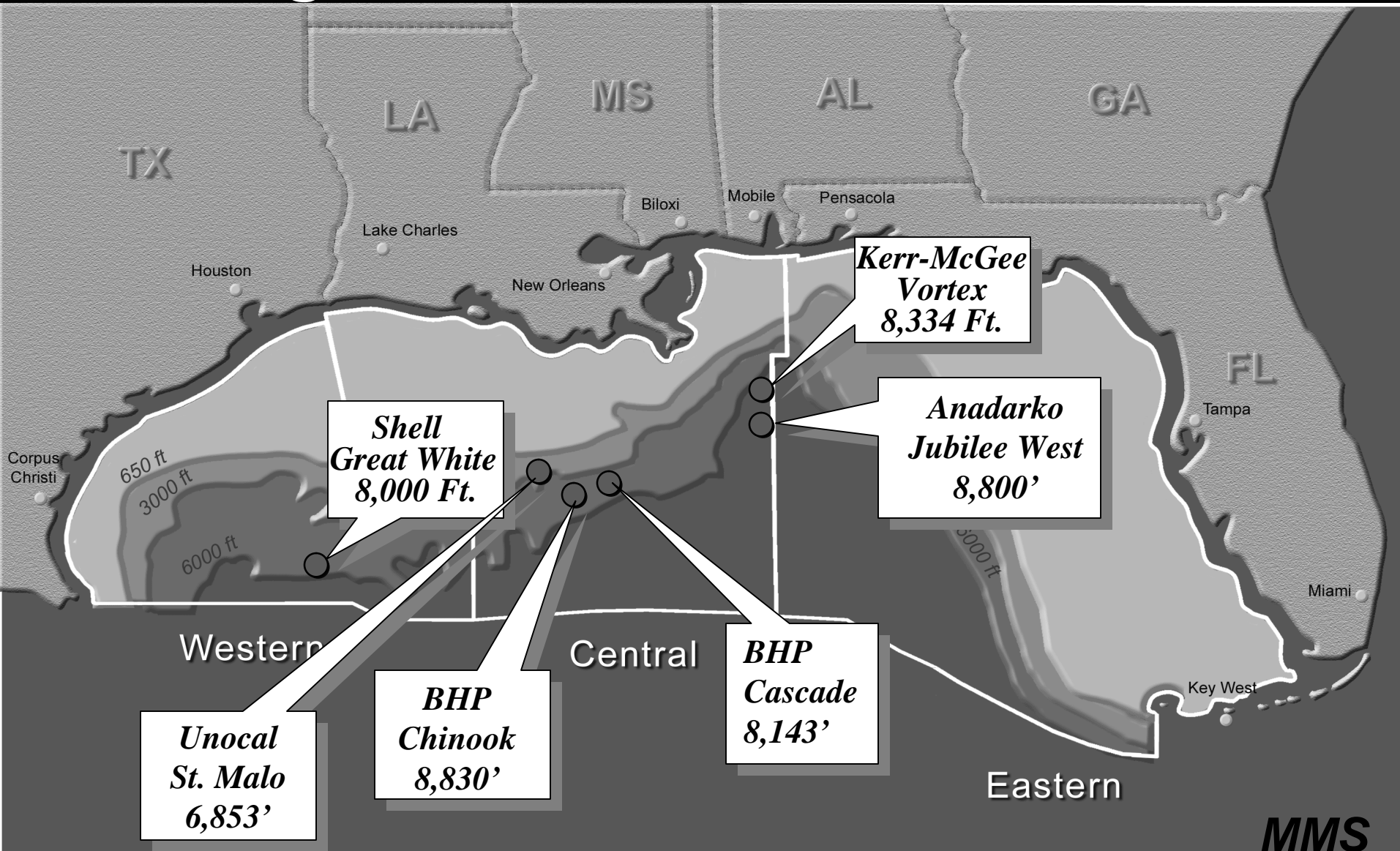


A Future Energy Source?

Gas hydrates are more important to seep community ecology than anticipated.



Significant New Discoveries



New Efforts, Summer 2004

Characterization of Northern Gulf of Mexico deepwater hard bottom communities with emphasis on *Lophelia*, a deepwater coral

Archaeological and biological analysis of World War II shipwrecks in the Gulf of Mexico: a pilot study of the artificial reef effect in deepwater

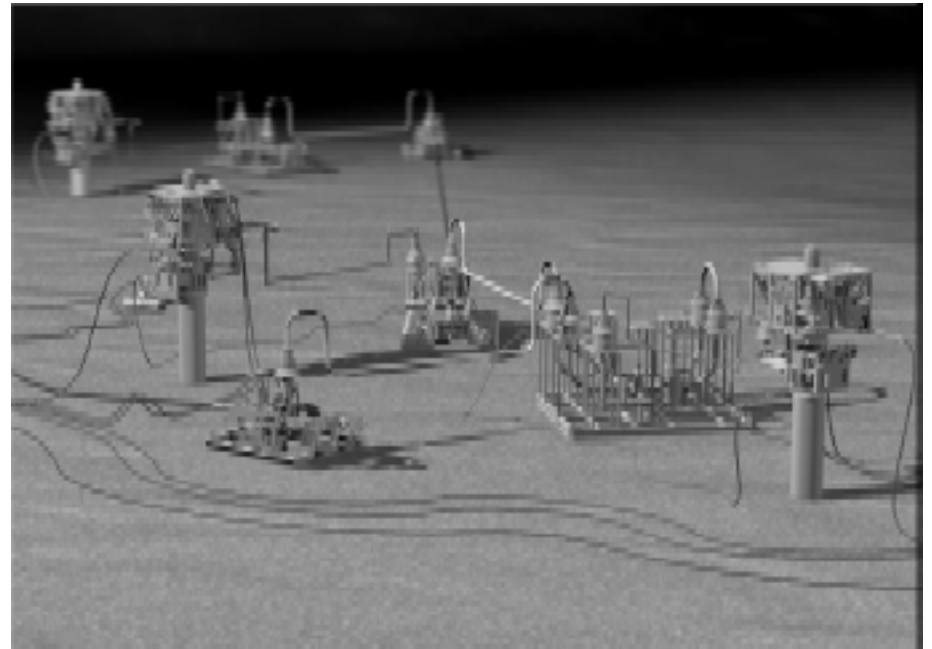
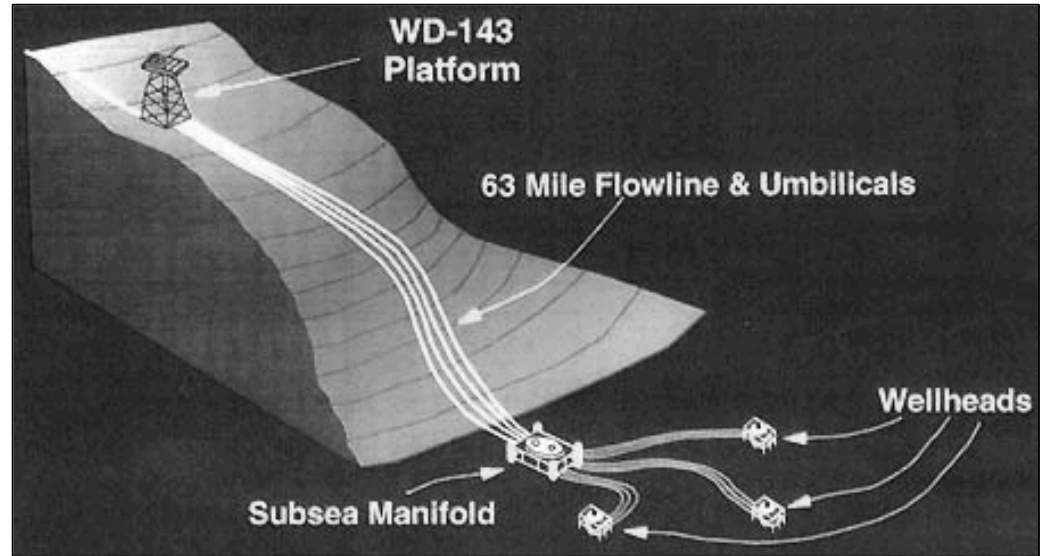
New Efforts, Summer 2004

Characterization of Northern Gulf of Mexico Deepwater Hard Bottom Communities with Emphasis on *Lophelia* Coral



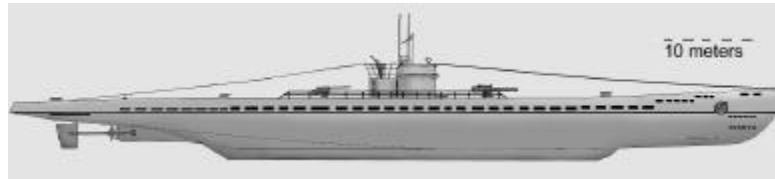
- Field studies beginning July 2004
- Johnson Sea Link sub mission, 2004 & 2005
- Coordination with USGS sub missions

Ecological/Historical/Engineering



New Efforts, Summer 2004

The Archaeological and Biological Analysis of World War II Shipwrecks in the Gulf of Mexico: A Pilot Study of the Artificial Reef Effect in Deepwater



Field Studies to begin on NOAA vessel with ROV, July 2004

Six sites to depth of 6,500 feet



MMS – Decisionmaking Information

- Deepwater reef effect?
- National Historic Preservation Act

NOAA

- Exploration!



MMS & NOAA – Leveraging of Resources

A Little Lagniappe!

- *Oil in the Sea*
- Inter-disciplinary ocean science
- U/W archaeology/biology/micro/exploration
- Chemistry/engineering
- Use of exploration to stimulate education

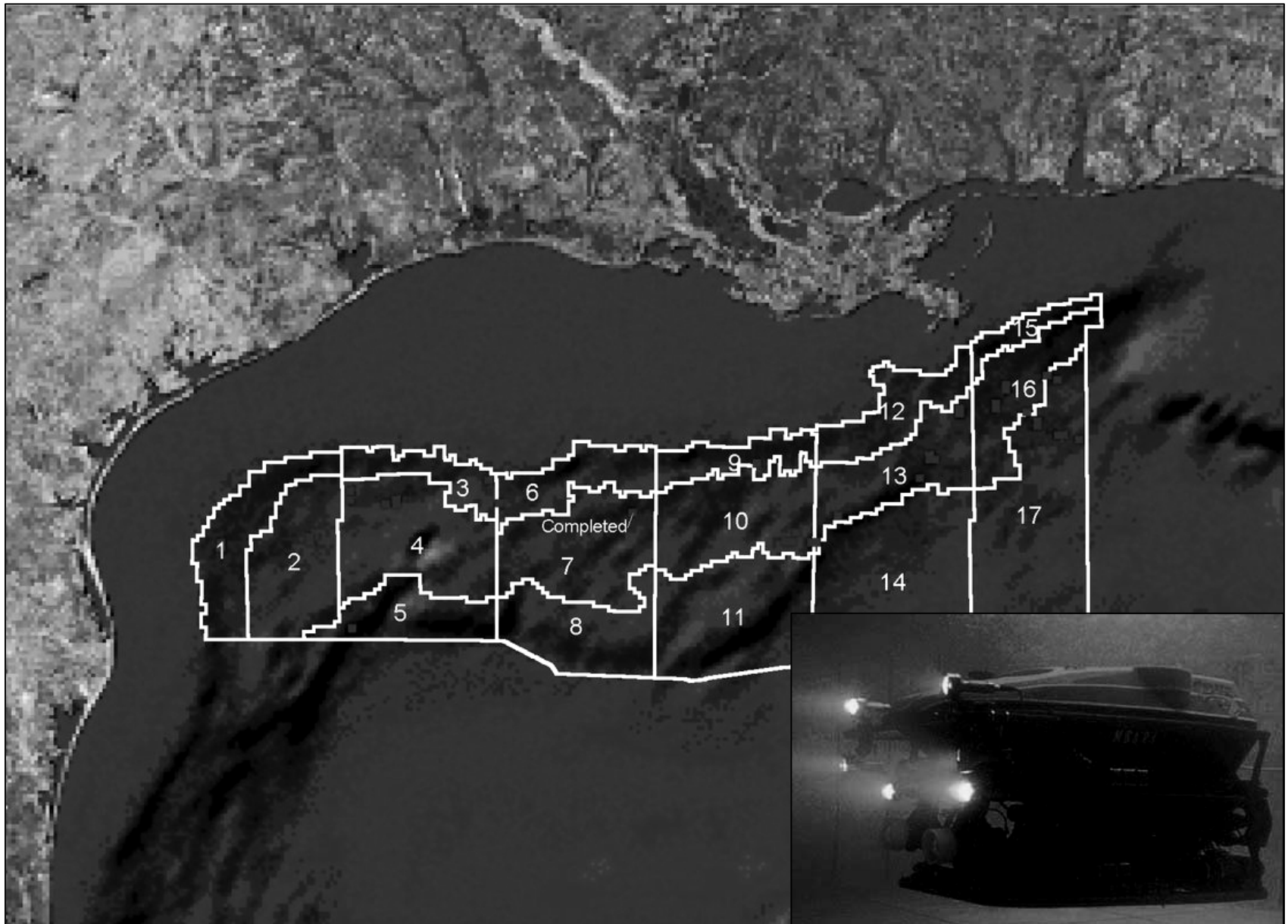
Standard Operating Procedures

Remotely Operated Vehicle (ROV) Surveys

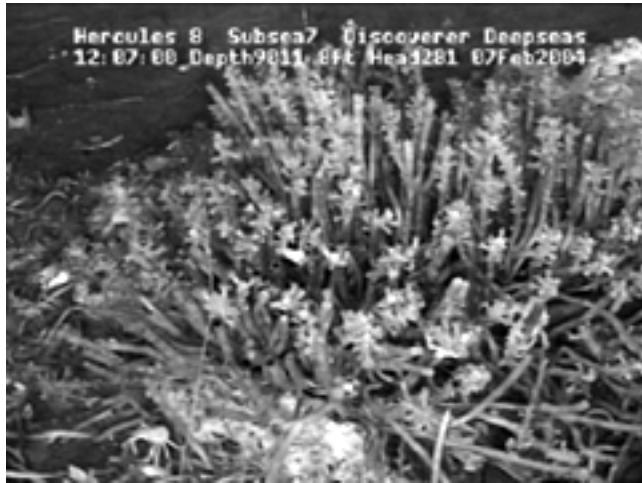
- Applies to activities in depths >400 m.
- Operators submit plans as part of their exploration & development activities.
- Decision based on available information.



Grid Map for ROV Surveys



Deepest Hydrocarbon Seep Community in Northern Gulf of Mexico



Discovered
February 2004
by Chevron/Texaco



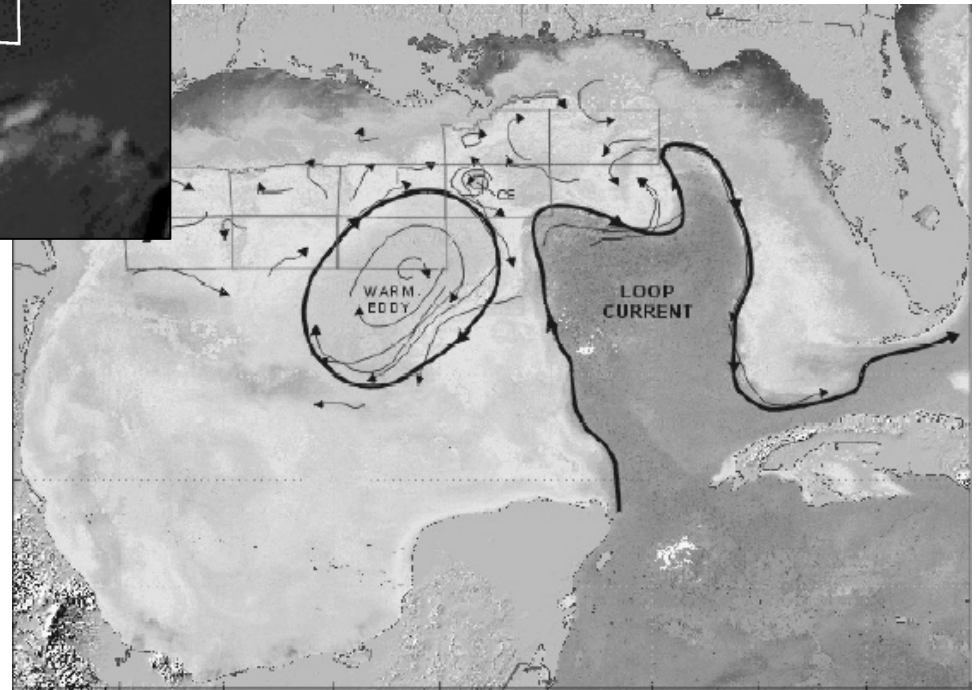
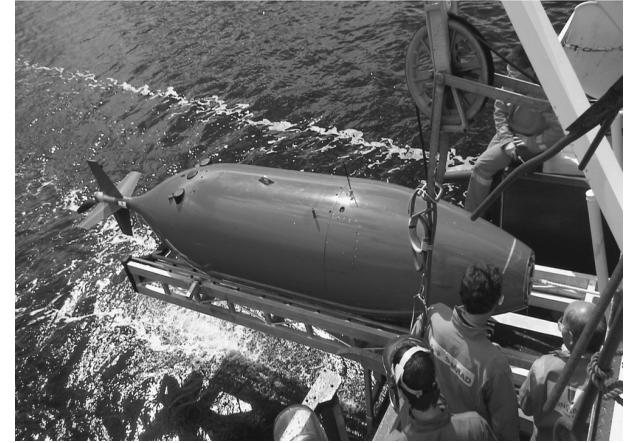
Alaminos Canyon
818



9,020 feet



International Collaborative Efforts

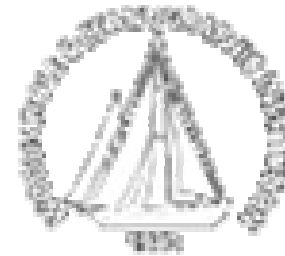




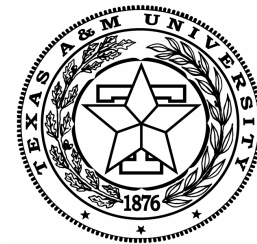
WHALES and WELLS



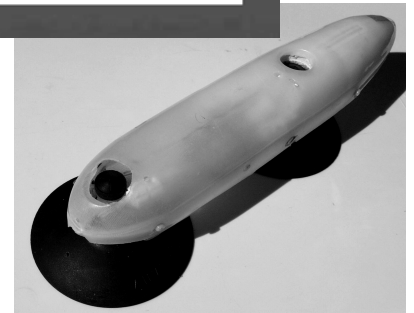
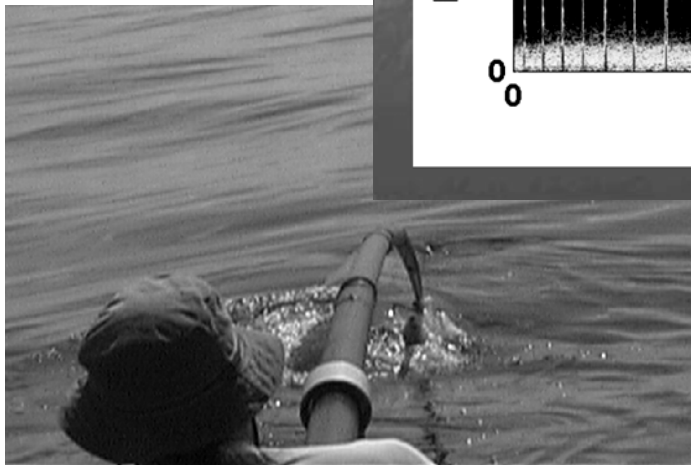
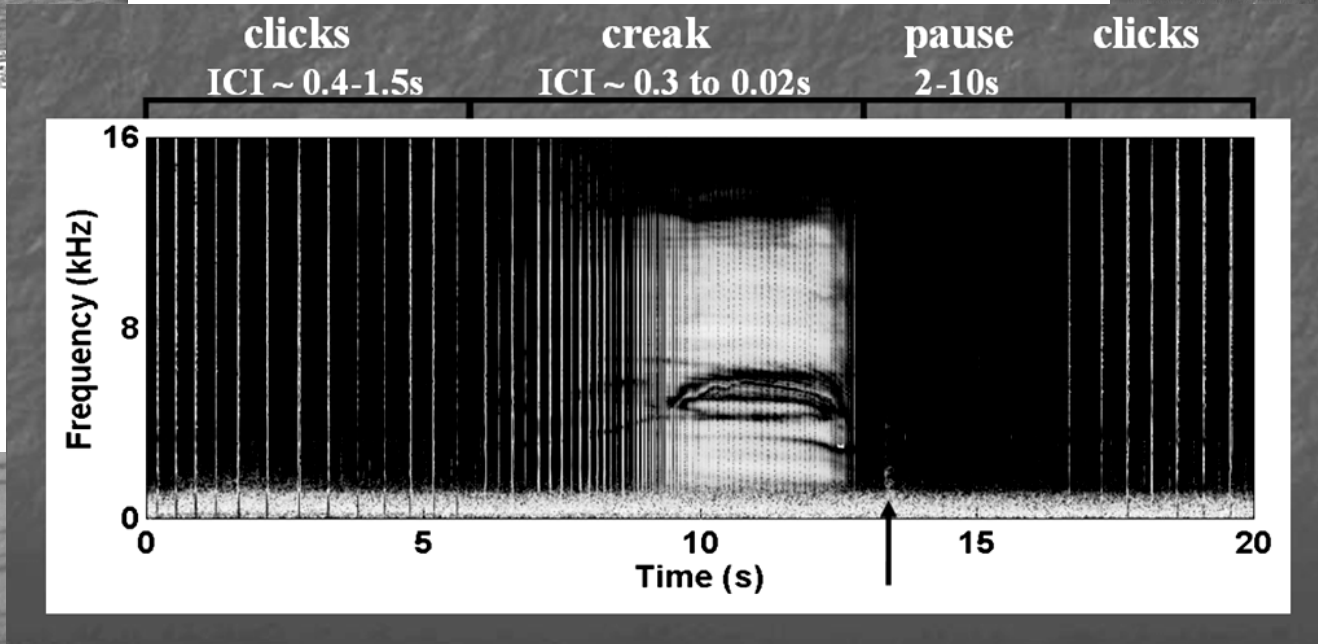
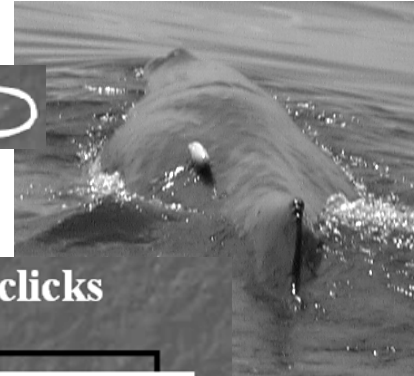
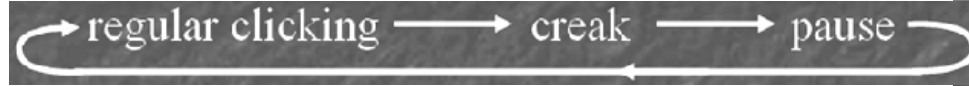
SPERM WHALES in the GULF of MEXICO and the OFFSHORE PETROLEUM INDUSTRY



OREGON STATE
UNIVERSITY



Click Cycle of Foraging Dives





A Regulatory Agency's Role in Ocean Exploration!

