BOEM
Bureau of Ocean Energy Management

Proposed FY14 Physical Sciences Studies

Discipline	Title
PO	**Mississippi Delta Baseline Mudflow Hazard Maps**

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Mississippi Delta Baseline Mudflow Hazard Maps

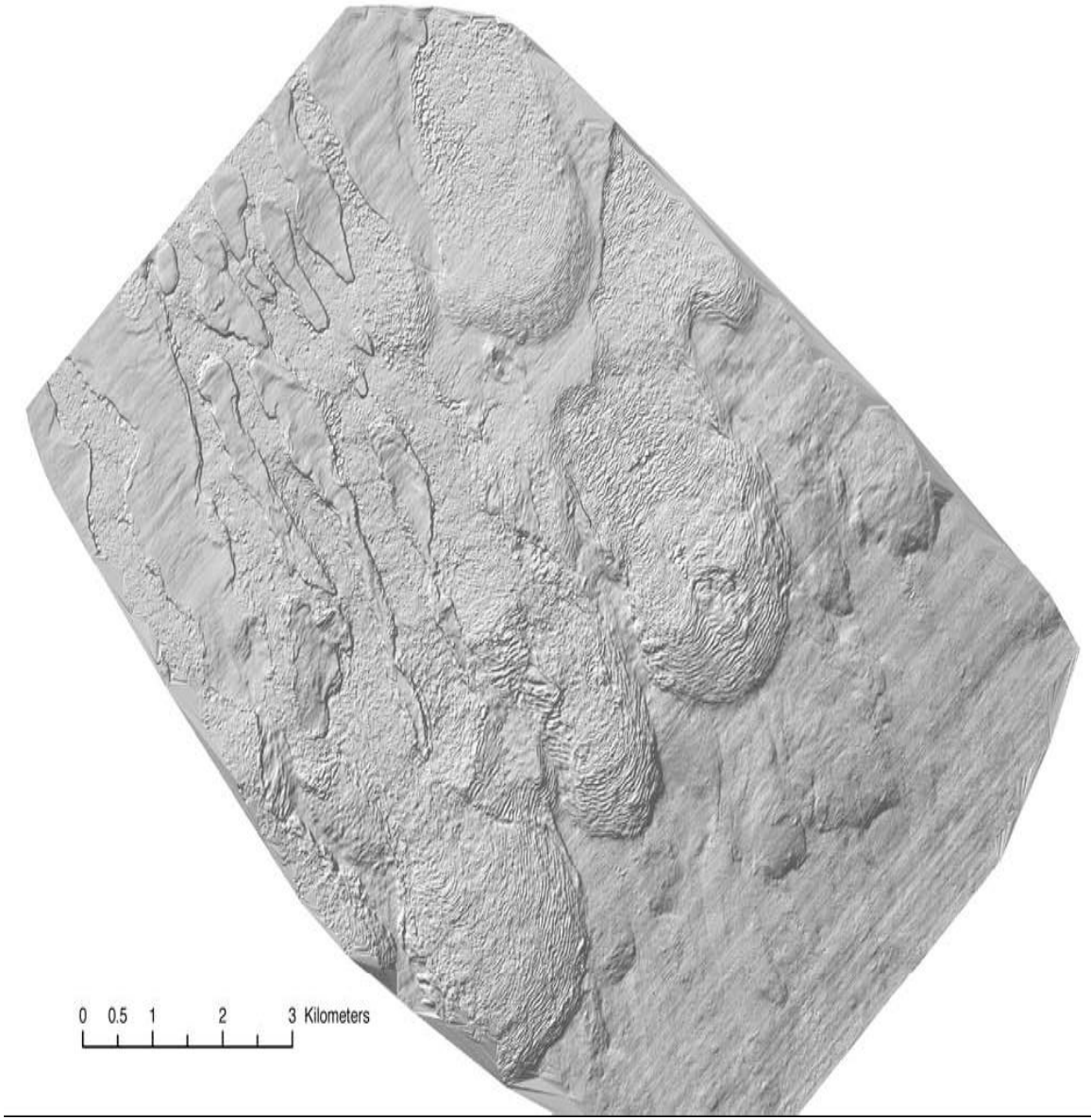
Toutle River mudflow destruction - down stream of Mt. St. Helens, Washington

Mississippi Delta Baseline Mudflow Hazard Maps

Submarine mass wasting events or submarine slides, either catastrophic or creep modes, are a “bit” harder to record. But documenting is more easy because such mudflows leave scars on the ocean floor, see right figure.

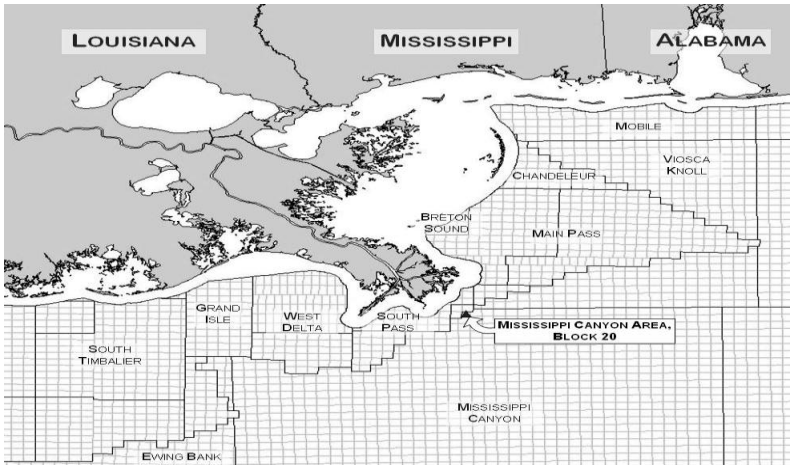
Mudflows occur over the continental shelf and upper slope, are associated with large inputs of sediments, and generally need an external force to initiate the downslope movement.

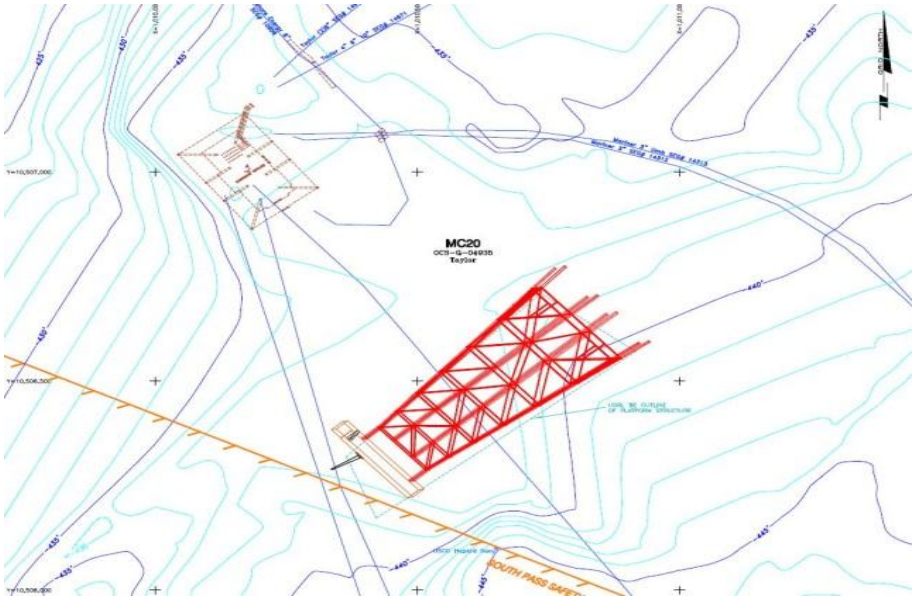
In the Gulf of Mexico the region south of the Delta is prone to such events because, of the large sediment input (6 $x10^{11}$ kg/year) discharge directly to continental slope, sediment character and annual storm/hurricanes to initiate motion. They affect OCS infrastructure, benthic organisms, and archeological sites.



Mississippi Delta Baseline Mudflow Hazard Maps

- In September 2004 Hurricane Ivan induced a mud slide south of the Delta that topple and bury the Platform A and carried it 450 ft downslope.
- This failure created an oil spill and required many other actions from BOEM/BOEMRE/MMS.
- Thus, the mudslide zone is a constant threat to OCS activities, structures and the environment. Similar events occurred during Camille (2 structural failures) and Katrina.
- BOEM and Industry need to keep on top of this threat; but its an expensive ongoing activity because the sediment input and driving forces.





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BOEM is seeking the Committee's guidance and advise on this issue ...

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1- It is very expensive to study submarine mudslides or mass wasting, BOEM's initial estimate for such a study is ~$12 M!

2- Should we pursue this as

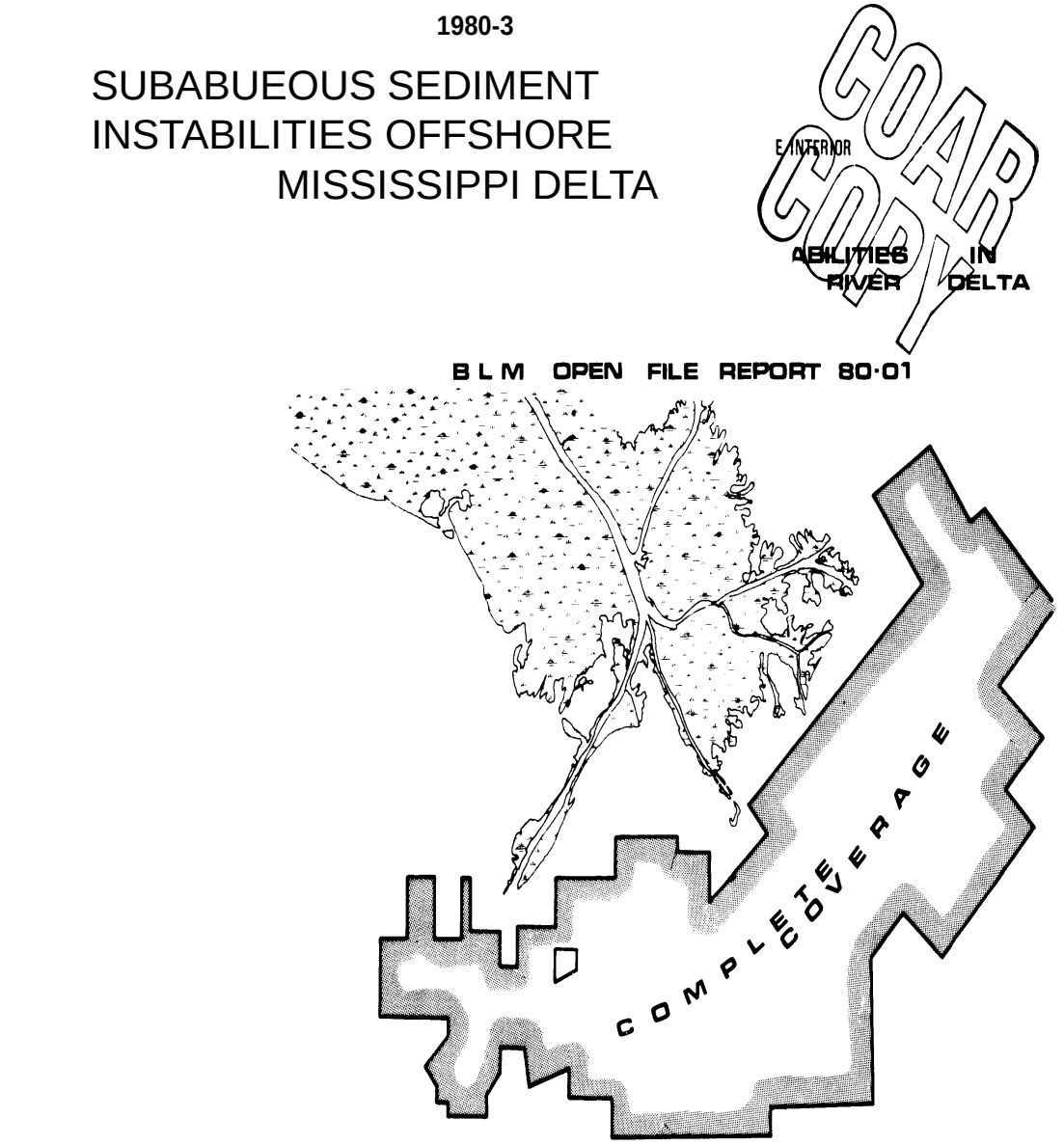
A- joint effort with BSEE which is a major costumer for this study;

B- joint effort with Industry and BSEE;

C- option B plus other Federal Agencies, e.g., USGS and USCOE;

D- Go solo as in previous studies;

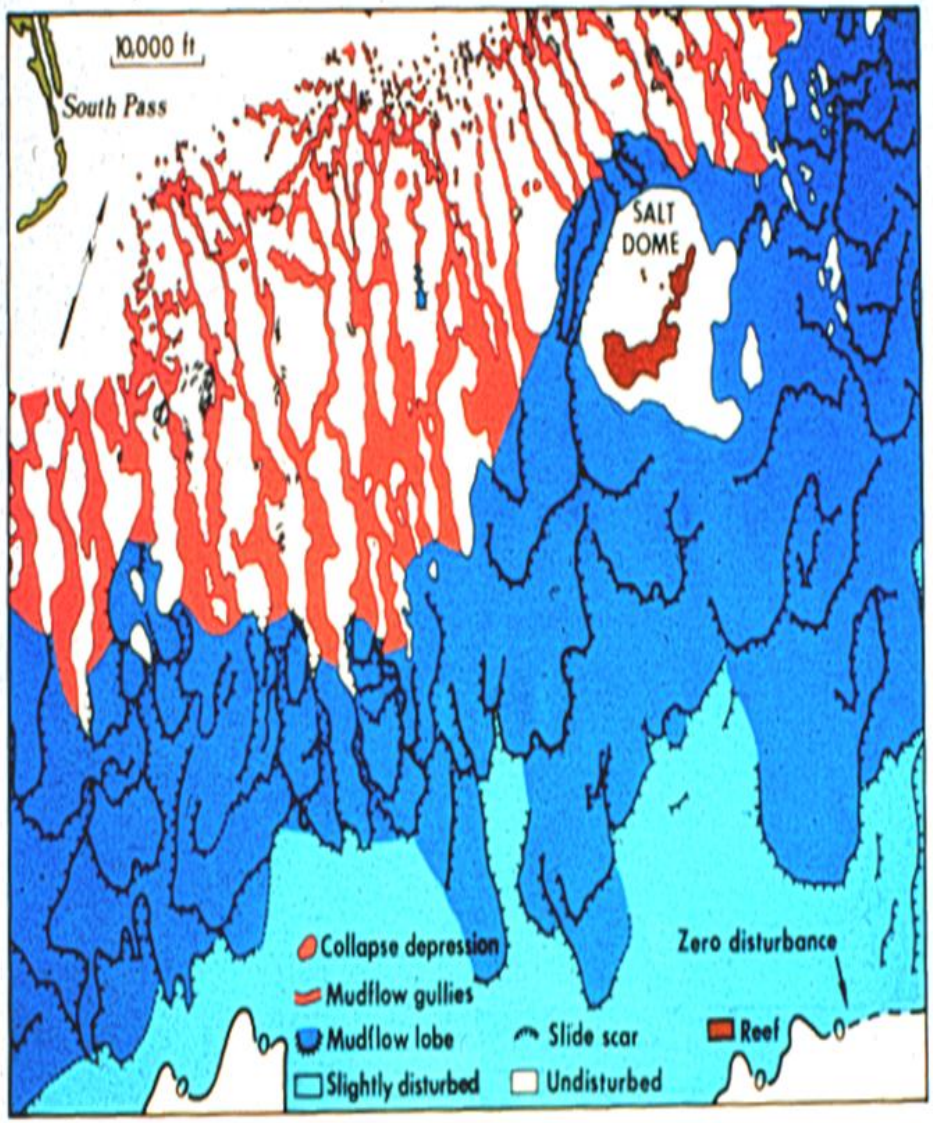
E- pass it to BSEE.



Mississippi Delta Baseline Mudflow Hazard Maps

1- BOEM wants to be proactive because the continuous safety and environmental threats and consequences; potential archeological impacts; and impacts to assessing value of leases in prone areas.

2-BOEM needs updated information, the most recent map of mudslide risks is vintage 1970s, see right map.



Mississippi Delta Baseline Mudflow Hazard Maps

What is best approach to conduct this study,

1- One big study?

2- Series of incremental studies?

3- Only field work; modeling; or most surely a combination?

4- Establish a surface & subsurface monitoring program?

Modeling is still a complicated effort because scales and state of models in this field, see right figure.

Regardless of which approach, it will be wise to conduct a workshop then start designing the study or studies.

Another major concern for BOEM is: how often should BOEM updated this risk map given the continuous nature of sediment input and occurrence of storm/hurricanes in the area?