

# Considerations for new seismic data acquisition supporting CCS in the Gulf of Mexico

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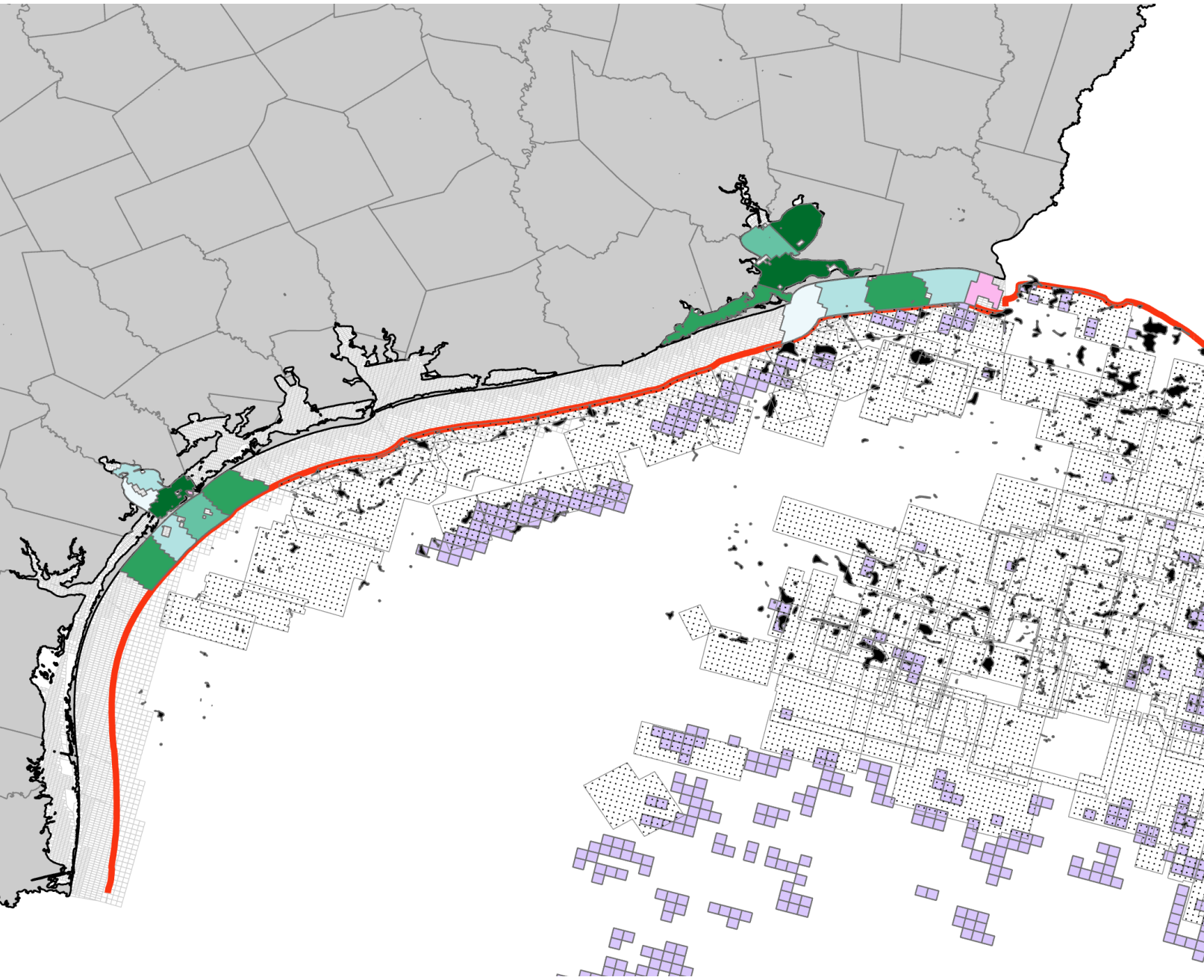
# Issue of Importance

Weilgart, L. (2013). "A review of the impacts of seismic airgun surveys on marine life." Submitted to the CBD Expert Workshop on Underwater Noise and its Impacts on Marine and Coastal Biodiversity, 25-27 February 2014, London, UK. Available at: <http://www.cbd.int/doc/?meeting=MCBEM-2014-01>

## A Review of the Impacts of Seismic Airgun Surveys on Marine Life

Noise from a single seismic airgun survey, used to discover oil and gas deposits hundreds of kilometers under the sea floor, can blanket an area of over 300,000 km<sup>2</sup>, raising background noise levels 100-fold (20 dB), continuously for weeks or months (IWC 2005, IWC 2007). Seismic airgun surveys are loud enough to penetrate hundreds of kilometers into the ocean floor, even after going through thousands of meters of ocean. Since this exposes large portions of a cetacean population to chronic noise, the International Whaling Commission's Scientific Committee noted "...repeated and persistent acoustic insults [over] a large area...should be considered enough to cause population level impacts." (IWC 2005)

# Biden Administration's CCUS Federal Lands and Outer Continental Shelf Permitting Task Force



## 7 Project Operators



## 15 Regulatory Bodies



## 14 Non-Profits



The CCUstodian

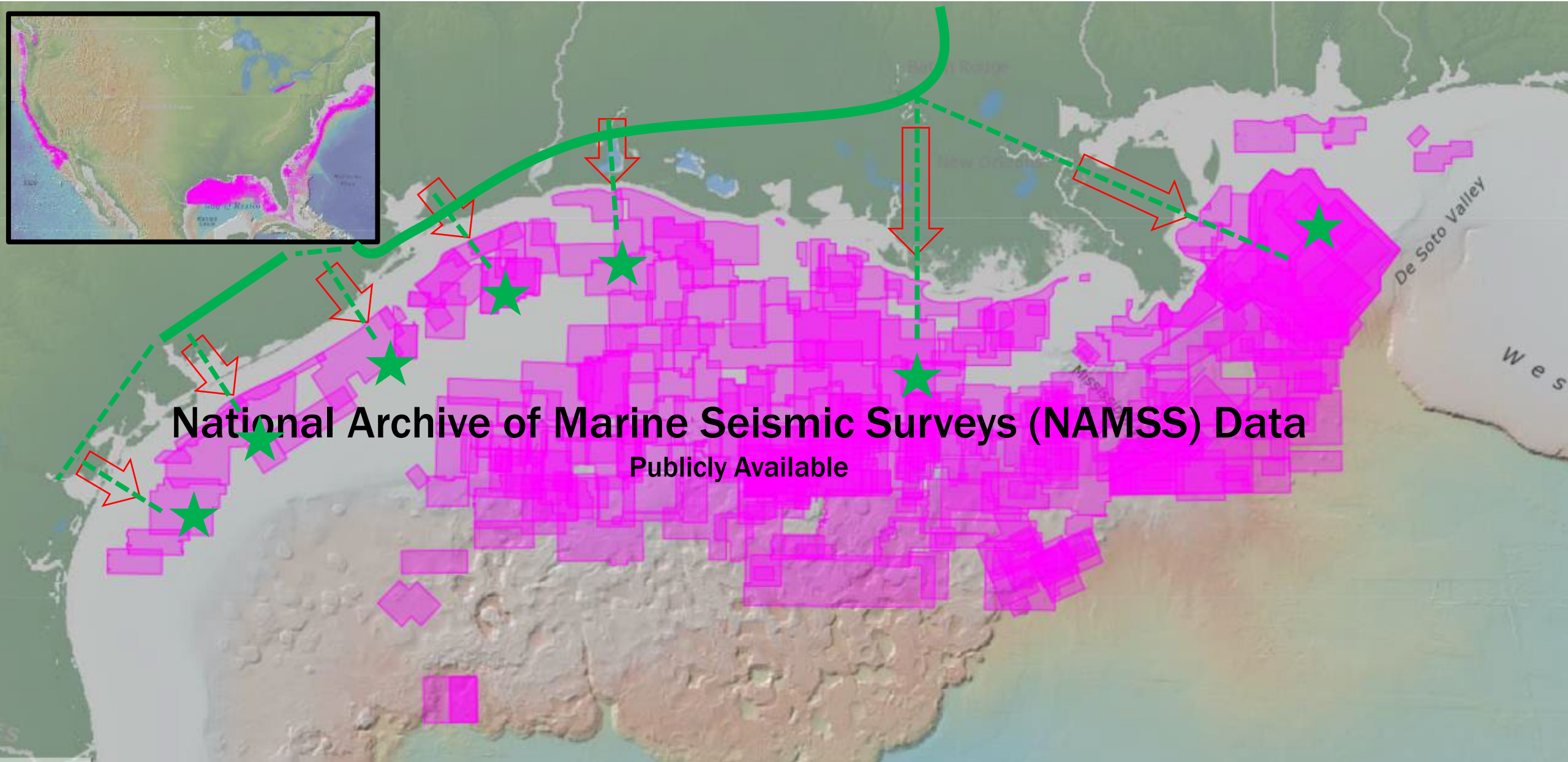
1. The White House Council on Environmental Quality (CEQ)

Source:

March 24, 2023

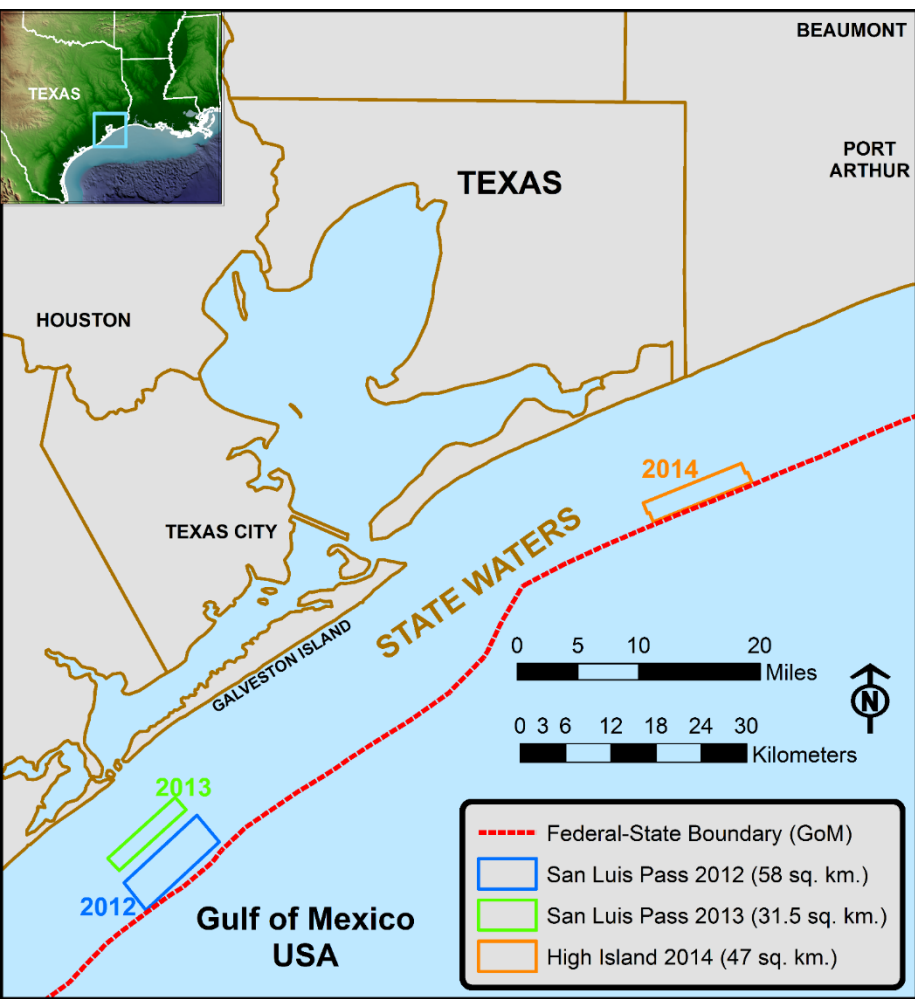
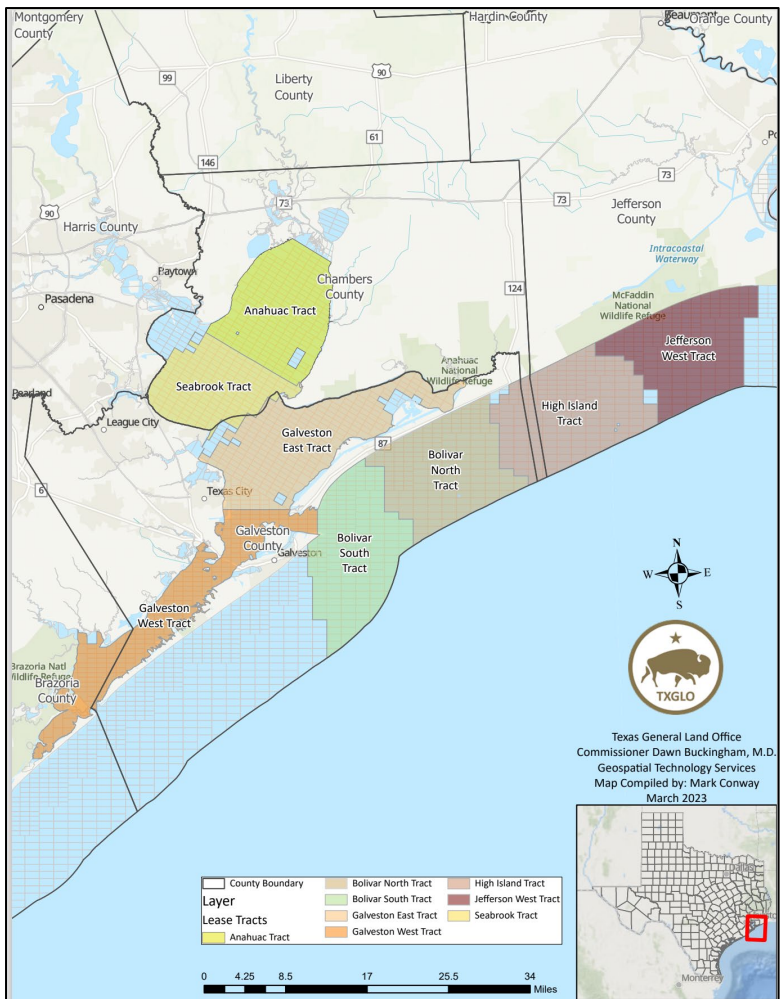


# Gulf Coast CCS toward 2050





# 3 Prior HR3D Surveys Collected by GCCC



2013 dataset in  
pubic domain

2014 dataset  
recently requested  
by commercial  
entity

# Aspects of New Seismic Data Collection

- **Authority:** Marine Mammal Protection Act
- **Action Status:** Proposed Rule
- **Published:** 01/05/2023
- **Affected Species (GoM Focus):** Dolphin and Whale species

Regulations allow for the issuance of Letters of Authorization to survey operators for the incidental take of marine mammals during the described activities and specified timeframe, prescribe the permissible methods of taking and other means of affecting the least practicable adverse impact on marine mammal species or stocks and their habitat, as well as requirements pertaining to the monitoring and reporting of such taking.

OCS Study  
MMS 2008-006

**Sperm Whale Seismic Study  
in the Gulf of Mexico**

Synthesis Report



**MMS** U.S. Department of the Interior  
Minerals Management Service  
Gulf of Mexico OCS Region

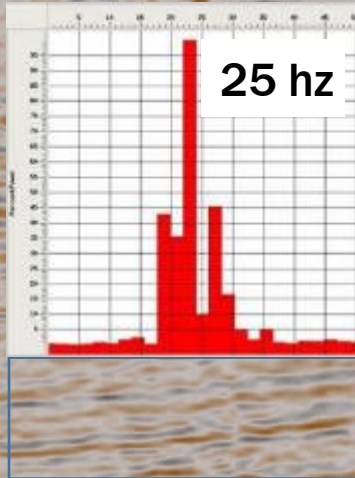
<https://espis.boem.gov/final%20reports/4444.PDF>



Conventional 3D

$$= \left( \frac{1}{25 \text{ hz}} * 1500 \text{ m/s} \right) / 4$$

**= 15 meters**



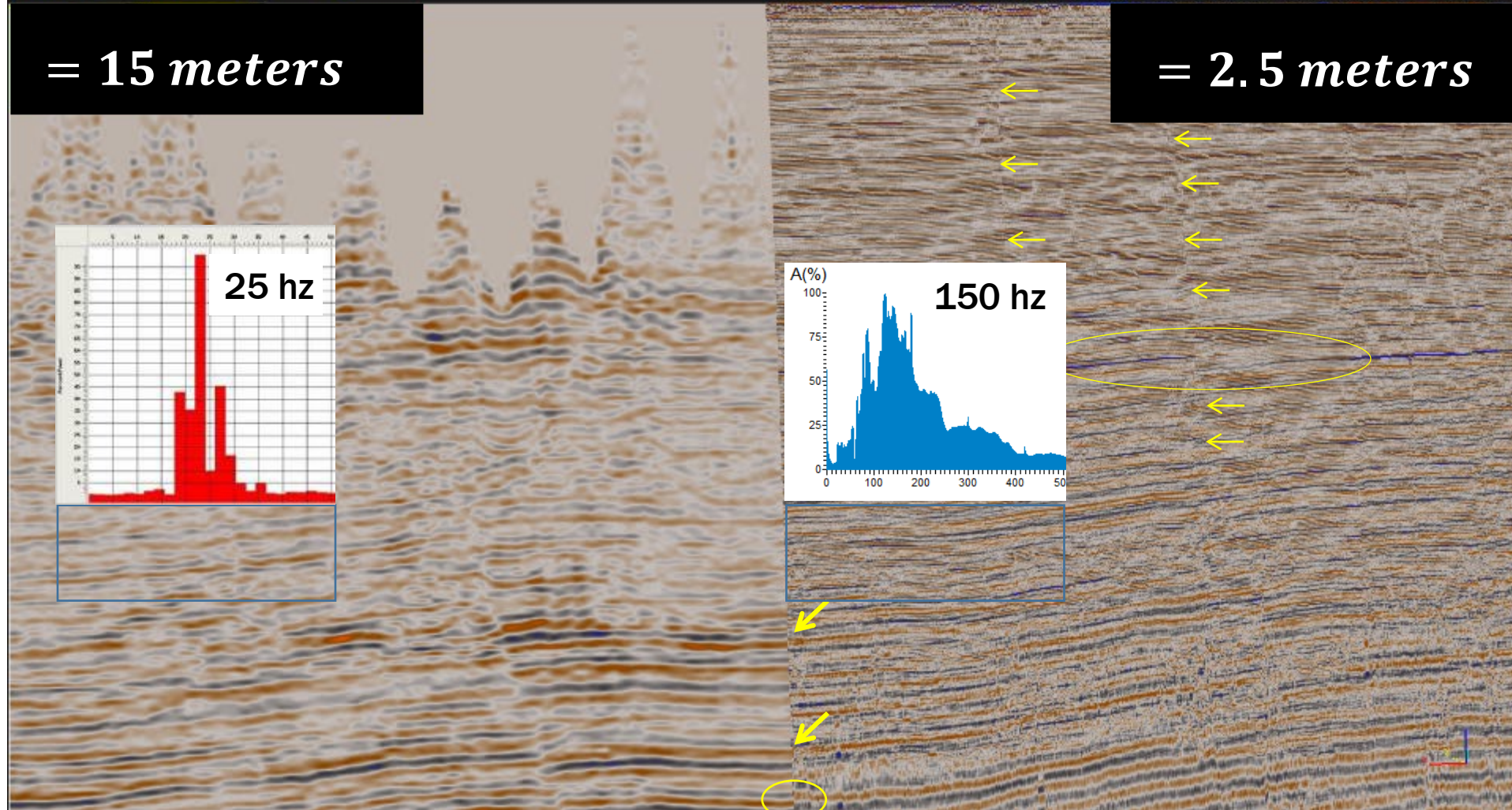
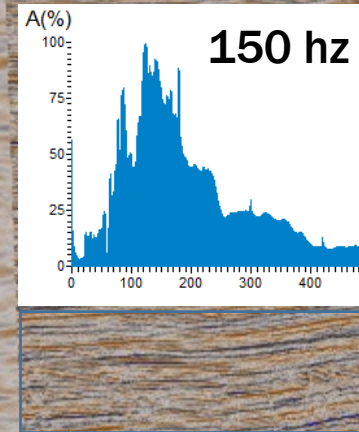
***Vertical Resolution***

$$= \left( \frac{1}{f} * V \right) / 4$$

HR3D - PCable

$$= \left( \frac{1}{150 \text{ hz}} * 1500 \text{ m/s} \right) / 4$$

**= 2.5 meters**



1500 ms ~ 1125 meters depth = 3,700 ft



# Aspects of New Data Collection: GCCC & Federal Funds in State Waters

- Active-source offshore seismic surveys in the Gulf of Mexico using Federal Funds cannot receive a **Categorical Exclusion** from further NEPA requirements.
- BEG hired **LGL, Ltd.** to assist with an **Environmental Assessment (EA)**
  - Communications between the NETL NEPA compliance officer, LGL and BEG about the National Marine Fisheries Service (NMFS) regarding an IHAA (incidental harassment authorization application)
  - LGL drafted and sent letters for publicizing the proposed HR3D survey. The letters were to be sent to libraries (e.g., Galveston Rosenberg library) and the Galveston, TX newspaper.
  - March 7, 2023 sent the IHAA to NOAA NMFS
  - The Texas General Land Office (GLO) determined that there were no significant unresolved federal/state consistency issues with respect to the pending EA.
  - The proposed IHA published in the Federal Register 8/7/23. The public comment period ended on 9/7.

# **Academic Research**

## **210 GI Airgun**

### **Mexican Gulf**

### **Summer 2022**



# Summary

- Existing (NAMMS) 3D data in GoM can be used in the meantime, but may not be adequate for CCS project development (resolution, vertical extent, 4D baseline).
- New Seismic acquisitions of any kind will need to address current and evolving rules.
  - Not clear if this regulatory aspect is incorporated in BOEM/BSEE Draft Rules under development. (different agency)
- While new data can be collected, it will add to timeline and cost.
- Presents a communication challenge for offshore CCS – is more seismic acquisition acceptable for addressing emissions?