



**BOEM** Bureau of  
Ocean Energy Management

# Carbon Sequestration on the Outer Continental Shelf

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# Science & Data Needs – Leasing and Planning Decisions

## Leasing, Planning, & Permitting Decision Steps:

- Programmatic & Regional Assessments and Planning
- Pre-Lease Exploration
- Lease Sale
- Site Characterization and Operations Plans
- Technical and Engineering Plans (BSEE)
- Permitting (BSEE)



**OCS Planning Areas**



# OCS Legal, Regulatory, and Policy Framework for Carbon Sequestration

## BOEM's & BSEE's Implementing Statute, Regulations, and Policies

Outer Continental Shelf Lands Act of 1953 with amendments in 2005 (EPA Act) and 2021 (BIL – authority for sub-seabed CS delegated to BOEM and BSEE)

Code of Federal Regulations (CFR), 30 CFR Chapter II (BSEE) and Chapter V (BOEM) (New regs under development for CS)

Department of the Interior Manual, Part 516

## Lead Federal Agency

National Environmental Policy Act of 1969

Oil Pollution Act of 1990

National Marine Sanctuaries Act of 1972

Executive Order 13840: Ocean Policy

Executive Order 11990 (1977): Protection of Wetland

Executive Order 12114 (1979): Environmental Effects Abroad

Executive Order 13007 (1996): Indian Sacred Site

Executive Orders 12898 (1994) and 14096 (2023): Environmental Justice

Executive Order 13089 (1998): Coral Reef Protection

Executive Orders 13112 & 13571: Invasive Species

Council on Environmental Quality 2020 NEPA Regulations and Secretarial Order 3355: Environmental Reviews

## Federal, State, Tribal Consultations

Magnuson-Stevens Fishery Conservation and Management Act of 1976 (BOEM consults NOAA)

Endangered Species Act of 1973 (BOEM consults NOAA/FWS)

Migratory Bird Treaty Act of 1918 (BOEM consults FWS)

Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds (BOEM MOU with FWS)

Coastal Zone Management Act of 1972, as amended in 1996 (BOEM consults affected coastal states)

National Historic Preservation Act of 1966 (BOEM consults with SHPO)

Executive Order 13175: Tribal Consultation and Coordination (BOEM consults with Tribes)

## Operators

Marine Mammal Protection Act of 1972 (Operators obtain permit from NOAA)

Clean Air Act of 1970, as amended 2012 (BOEM approves operator plan or operator obtains EPA air permit)

Clean Water Act of 1972, as amended 1990 (Operators obtain NPDES permit from EPA and submit Subpart RR reporting)

River and Harbors Act of 1899, Section 10 (Operators obtain permit from ACOE)

USC Title 26, 45Q (Operators submit CO<sub>2</sub> storage volumes to IRS for tax credit)

Code of Federal Regulations (CFR), 30 CFR Chapter II (BSEE) and Chapter V (BOEM)



# Science & Data Needs – Leasing and Planning

- National and regional resource assessments  
(<https://www.data.bsee.gov/>)
- Pore space/pressure space management
- Legacy wells
- Deconflicting / other uses of the OCS  
(military, traffic, fishing, environmental) –  
multi-purpose Marine Cadastre  
(<https://marinecadastre.gov/>)

- Protected areas
- Public/stakeholder input
- State consistency
- Financial & economic considerations
- Liability
- Environmental



# Science & Data Needs – Environmental

- **All environmental resources (marine, coastal, human)**
  - Flora, fauna, water quality, air quality, cultural, sociological, recreational, visual, environmental justice, etc.
- **Baseline**
- **Environmental and cumulative impacts**
- **Risk assessment and management (mitigation measures)**
- **Leakage pathways**
- **Modeling of leakage scenarios (including worst-case)**
- **Sound**
- **Overpressuring and induced seismicity**
- **Geohazards**



# Science & Data Needs – Operational

## Operations and Post-Operations:

- Risk assessment and management
- Plume migration and pressure front monitoring and verification
- Environmental monitoring
- Reporting

## BSEE

- Well and infrastructure qualification
- Operations, facilities, and pipelines (design, construction, operations)
- Emergency response and mitigation
- Decommissioning



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