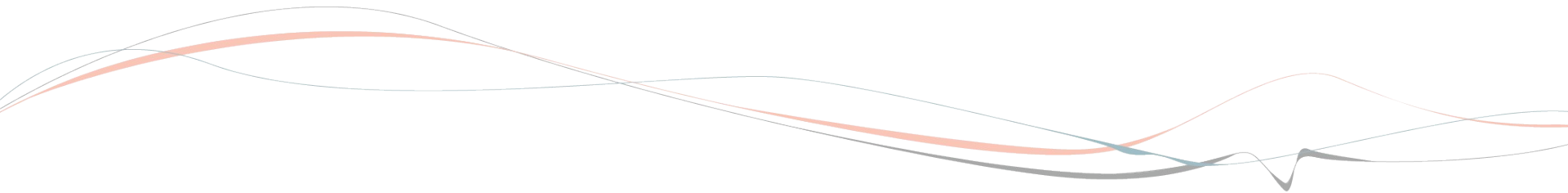


Ocean-Climate Governance in California and Considerations for Marine Carbon Dioxide Removal (mCDR)

Kevin Travis
NASEM mCDR Standing Committee Meeting #2
September 16th, 2025



California Ocean Science Trust



- Strengthen the bridge between scientific research and sound ocean management
- Created by the California Ocean Resources Stewardship Act to mobilize resources and capacity toward policy-relevant and solution-oriented science
- Support and bring world-class science and innovation together with state and federal policymakers to accelerate progress toward a healthy and resilient coast and ocean

Delivering Science
Advice for
Policymakers

Bringing Science
to Lawmaking

Supporting
Student Research

Stewarding
Investments in
Ocean Science

Our Approach to Responsible mCDR Science-Policy

Science Advising to
California Policymakers

Trusted Science
Communication

Strengthening Research
Capacity and Regional
Coordination

Our partners in this work



Stanford
University



Alaska Ocean
Acidification Network

Stewarding Science-Policy Dialogue

Fall 2023	mCDR Legislative Tours to increase awareness/understanding
⋮	
Summer 2024	State Agency Roundtable to support interagency coordination
⋮	
Fall 2024	mCDR Workshop w/ SCCWRP to understand environmental risks
⋮	
Early 2025	Executive & Legislative Engagement to provide science guidance
⋮	
September 2025	California Forum on Abiotic mCDR to explore efficacy (MRV)

California Overview

Scientific landscape

- California Current System is well-studied from oceanographic, climate, biological standpoint
- Hub of innovative climate solutions stemming from California's academic and scientific institutions
- Several small-scale pilot tests in state waters through existing permits

Policy landscape

- Variety of climate mitigation and environmental protection policies
- Accelerating legislative policy interest in mCDR



Executive Branch: Relevant State Agencies

California Air Resources Board

- Lead climate change agency; regulates GHG emissions; develops Scoping Plan to Achieve Net Neutrality by 2045



California Ocean Protection Council

- Lead agency responsible for ocean and coastal protection; funds research; advances policies; develops strategies; coordinates with agencies



State Water Resources Control Board

- Sets statewide standards, policy, and permits to “preserve, enhance, and restore” water quality; implements NPDES permits; coordinates with Regional Boards



California Coastal Commission

- Plans and regulates coastal development; issues Coastal Development Permits



Key Climate Policies & Programs

Net-zero emissions by 2045 (AB 1279, 2022)

Scoping Plan to Achieve Net Neutrality (AB 32, 2006; last updated 2022)

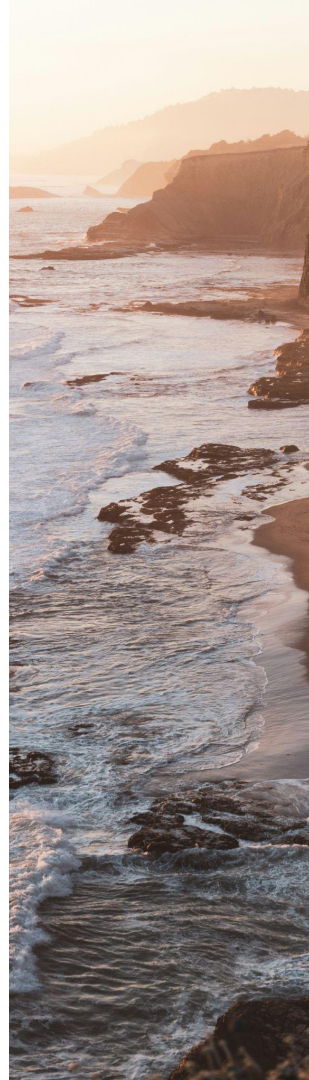
- CARB's pathway to achieve state climate goals; identifies CDR as necessary (not technology specific); aim of 75 MMT CO₂e CDR by 2045

Carbon Capture, Removal, Utilization, and Storage (CCUS) Program (SB 905, 2022)

- CARB's program to “evaluate, demonstrate, and regulate” CCUS and CDR projects

Cap-and-Trade Program (AB 32, 2006)

- Compliance offset criteria: “Real, quantifiable, enforceable, permanent, additional, and verified” GHG emissions reductions



Key Ocean Policies & Programs

Strategic Plan for California's Ocean and Coasts (2026-2030 draft available)

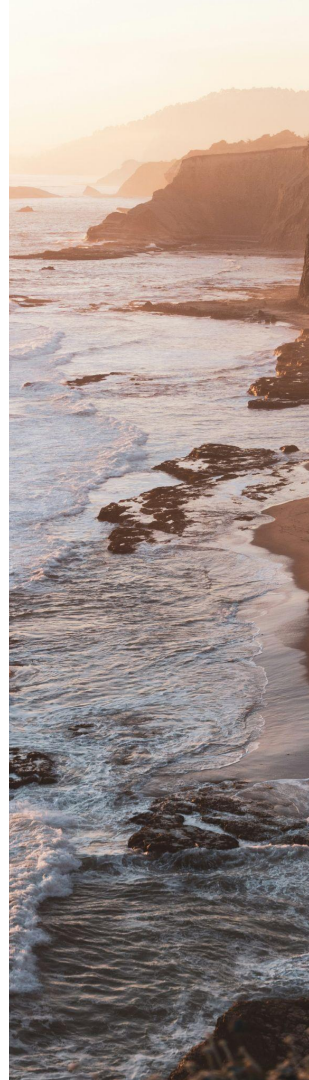
- 5-year plan to guide OPC's goals to protect California's ocean and coast; directs policy and investment priorities; interconnected goals (climate resilience, community benefits, biodiversity, sustainable blue economy)

California Ocean Plan (updated in 2019)

- SWRCB's plan that sets ocean water quality objectives and implementation provisions to protect beneficial uses

Coastal Development Permits (California Coastal Act, 1976)

- Issued by CCC or local government to regulate coastal development; protect coastal resources and public access



Legislative Branch: mCDR Proposed Bills

2025-2026 Legislative Session:

AB 1086 (Muratsuchi; held) - Marine Carbon Initiative

- Advance mCDR research and understanding

SB 643 (Caballero; enrolled) - CDR Purchase Program

- Explicitly calls out mCDR as an eligible CDR category

2024-2025 Legislative Session:

AB 2572 (Muratsuchi; held) - Ocean CDR Projects

- Include mCDR projects into CCUS program and more



California Governance Challenges and Questions

Policy & legal uncertainty

- How do mCDR projects fit within existing agency authorities?
- How are climate benefits considered in environmental regulations?
- How would mCDR projects be permitted and regulated?
- How would agencies coordinate on permitting/regulations?

Scientific and knowledge gaps

- What's the potential of mCDR to help meet California's climate goals?
- What methods are most viable for California's coastal waters?
- What are the potential site-specific impacts at different scales?