

Ocean Carbon Dioxide Removal: Legal Challenges and Opportunities

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Ocean CDR: A Rapidly Growing Field

In-ocean, controlled field trials needed to evaluate efficacy, benefits and risks of different techniques

Governments and others are providing significant funding for research

Corporate actors are exploring ways to commercialize techniques

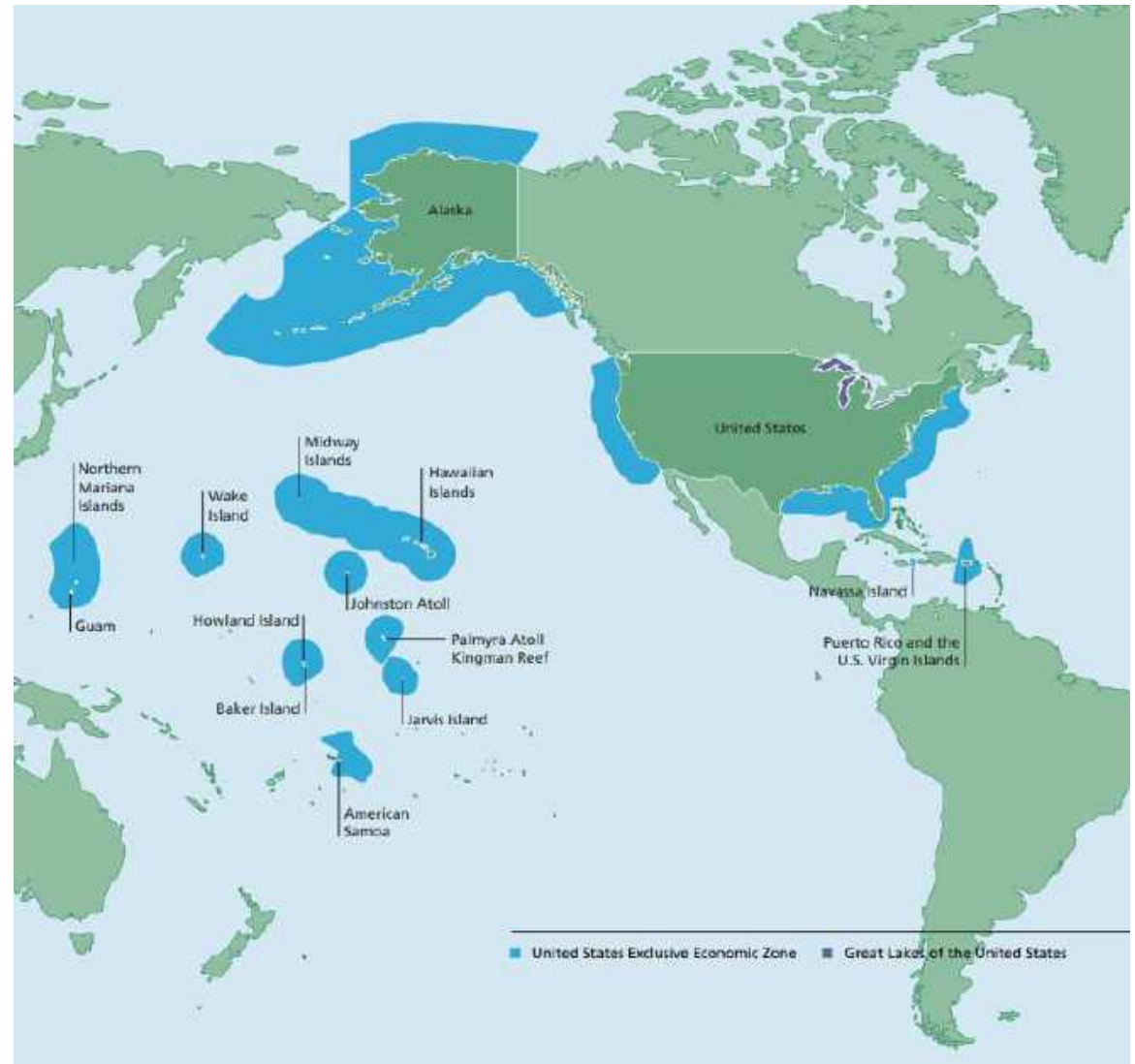


U.S. Ocean Jurisdiction

U.S. jurisdiction extends 200 nautical miles from the coast (further in some areas)

Management of ocean areas is shared among the federal govt, coastal states and territories, localities, and Native American Tribes

There are many players at each level of government

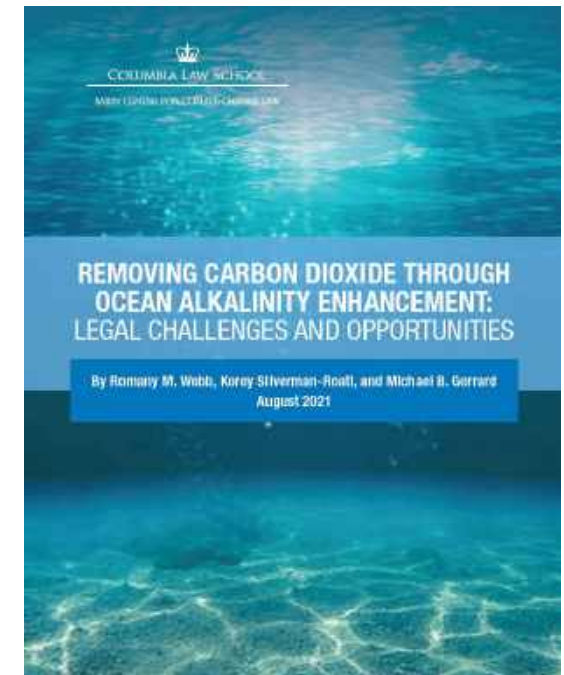
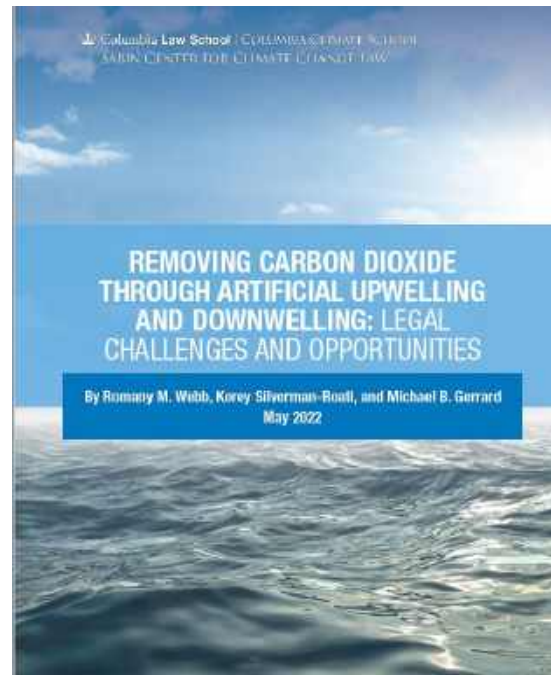
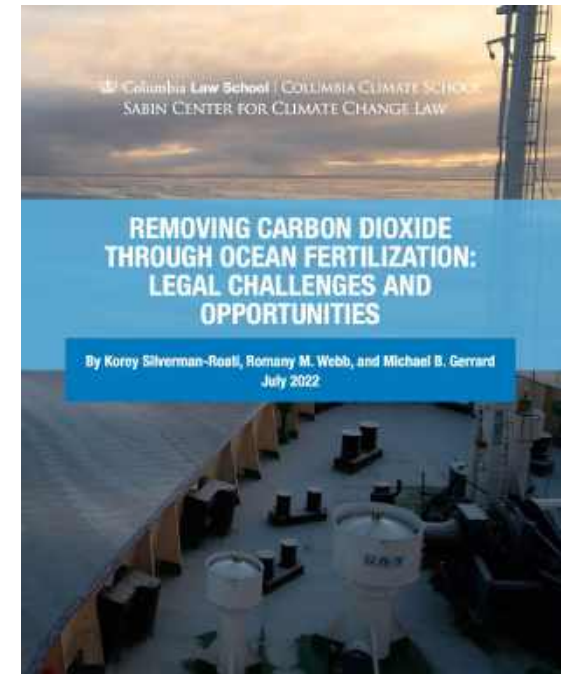


Existing Legal Frameworks

No comprehensive legal framework specific to ocean carbon dioxide removal

Large body of general environmental law that could apply

BUT environmental laws were developed for other activities, making application to ocean carbon dioxide removal complex and uncertain



Potentially Applicable Federal Law

Ocean CDR Technique					
Location	Ecosystem Recovery	Seaweed Cultivation	Nutrient Fertilization	Artificial Upwelling/ Downwelling	Ocean Alkalinity Enhancement
U.S. state waters	NEPA ^a	RHA ^b	MPRSA	RHA ^b	MPRSA
	CZMA ^{a,c}	MPRSA ^d	CWA	CZMA ^{a,c}	CWA
	ESA ^e	NEPA ^a	NEPA ^a	ESA ^e	NEPA ^a
	MMPA ^f	CZMA ^{a,c}	CZMA ^{a,c}	MMPA ^f	CZMA ^{a,c}
	NMSA ^g	ESA ^e	ESA ^e	NMSA ^g	ESA ^e
	MSFCMA ^{a,h}	MMPA ^f	MMPA ^f	MSFCMA ^{a,h}	MMPA ^f
		NMSA ^g	NMSA ^g	MPRSA ^d	NMSA ^g
		MSFCMA ^{a,h}	MSFCMA ^{a,h}		MSFCMA ^{a,h}
U.S. federal waters (within territorial sea)	NEPA ^a	OCSLA ⁱ	MPRSA	OCSLA ⁱ	MPRSA
	CZMA ^{a,c}	MPRSA ^d	NEPA ^a	CZMA ^{a,c}	NEPA ^a
	ESA ^e	NEPA ^a	CZMA ^{a,c}	ESA ^e	CZMA ^{a,c}
	MMPA ^f	CZMA ^{a,c}	ESA ^e	MMPA ^f	ESA ^e
	NMSA ^g	ESA ^e	MMPA ^f	NMSA ^g	MMPA ^f
	MSFCMA ^{a,h}	MMPA ^f	NMSA ^g	MSFCMA ^{a,h}	NMSA ^g
		NMSA ^g	MPRSA ^d	MSFCMA ^{a,h}	
		MSFCMA ^{a,h}			
U.S. federal waters (within EEZ)	NEPA ^a	OCSLA ⁱ	MPRSA	OCSLA ⁱ	MPRSA ^j
	CZMA ^{a,c}	MPRSA ^{d,j}	NEPA ^a	CZMA ^{a,c}	NEPA ^a
	ESA ^e	NEPA ^a	CZMA ^{a,c}	ESA ^e	CZMA ^{a,c}
	MMPA ^f	CZMA ^{a,c}	ESA ^e	MMPA ^f	ESA ^e
	NMSA ^g	ESA ^e	MMPA ^f	NMSA ^g	MMPA ^f
	MSFCMA ^{a,h}	MMPA ^f	NMSA ^g	MSFCMA ^{a,h}	NMSA ^g
		NMSA ^g	MPRSA ^{d,j}	MSFCMA ^{a,h}	
		MSFCMA ^{a,h}			

Source: [NASEM](#) (2022)

Implications for Research and Deployment

Hinder needed research

Fail to adequately protect the environment and communities

Affect public perceptions and lead to public opposition

Create opportunities for “rouge actors” to game the system



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Possible Solutions

At the federal level:

- **Executive action** to streamline and improve existing permitting processes
- **New legislation** to establish dedicated permitting regime, including specific requirements re: public engagement, risk assessment, monitoring, reporting, etc.

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DEVELOPING MODEL FEDERAL LEGISLATION TO ADVANCE SAFE AND RESPONSIBLE OCEAN CARBON DIOXIDE REMOVAL RESEARCH IN THE UNITED STATES

By Romany M. Webb and Korey Silverman-Roati

March 2023

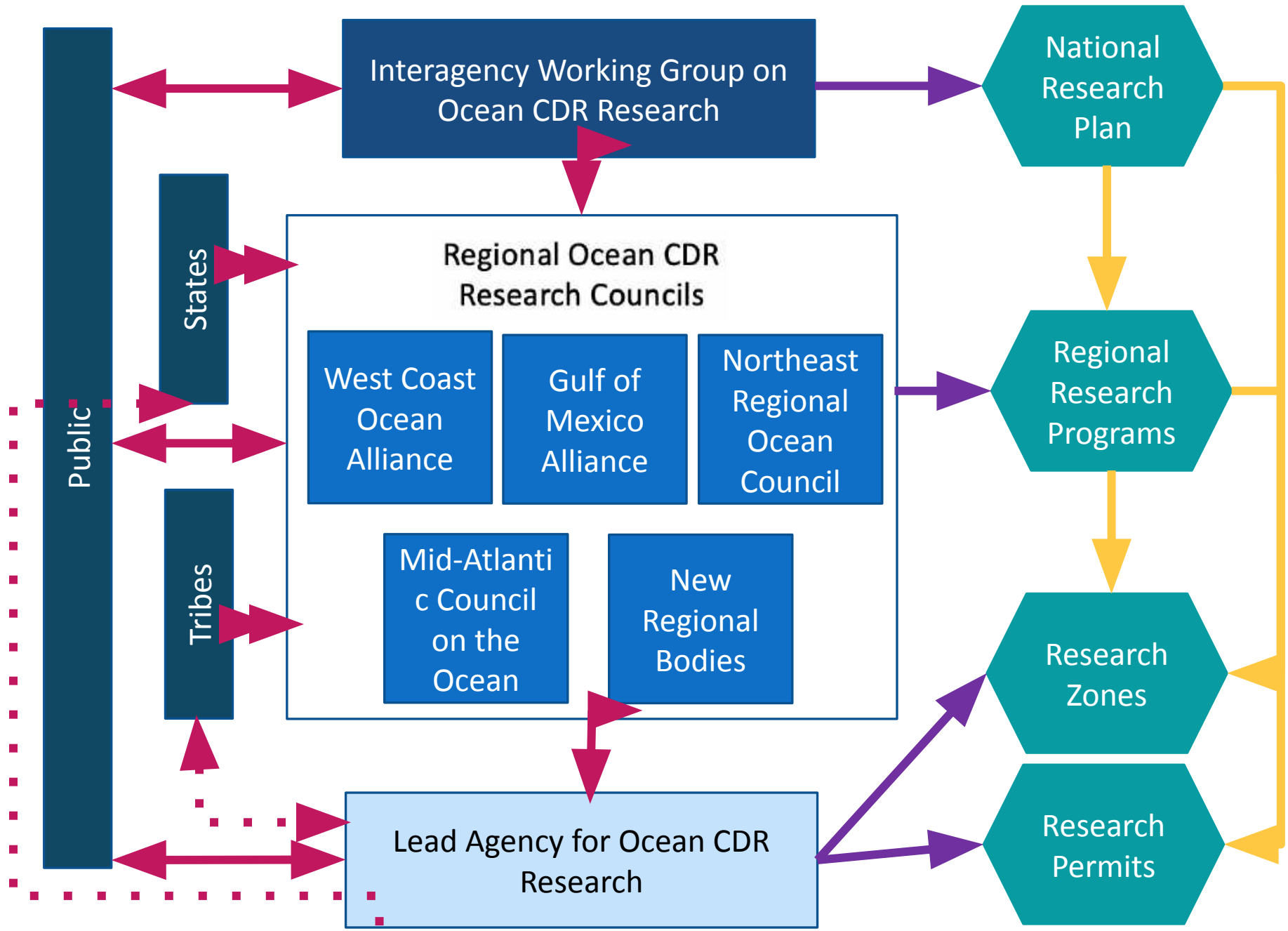
Model Federal Legislation to Advance Safe and Responsible Ocean CDR Research

Section 1. Findings and Purposes

(h) The Federal Government has a strong interest in regulating ocean carbon dioxide removal research in ocean areas under the jurisdiction of the United States. The Federal Government has exclusive authority over areas lying beyond State waters within U.S. territory and retains regulatory authority to regulate in State ocean waters for the constitutional purposes of commerce, navigation, national defense, and international affairs.

(i) Along with the Federal Government, States, Indian Tribes, and local governments also play important roles in, and have valuable expertise and knowledge relating to, ocean management and stewardship.

(j) This Act aims to give States, Tribal governments, and local governments and communities meaningful opportunities to participate in policymaking and permitting decisions regarding ocean carbon dioxide removal research.



Regional / State Level Reforms

Permitting

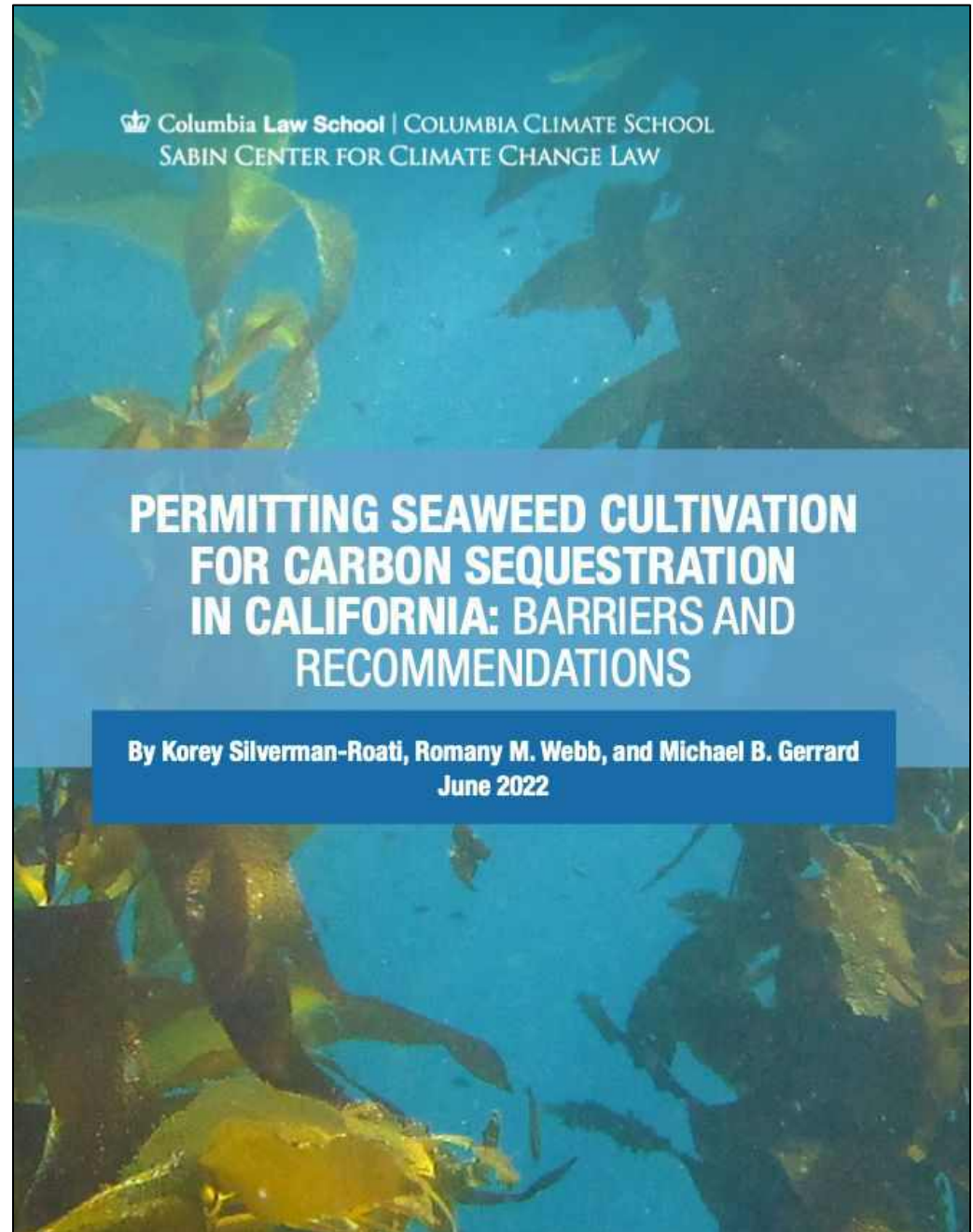
- Streamline application processes
- Clarify criteria for issuance of permits
- Establish new permit classes

Planning

- Identify preferred locations for research
- Evaluate environmental impacts holistically
- Manage potential conflicts

Stakeholders

- Engage and educate



More Information:

[Sabin Center for Climate Change Law: Research Program on Carbon Management and Negative Emissions Technologies](#)

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