Coastal Carbon Investigations

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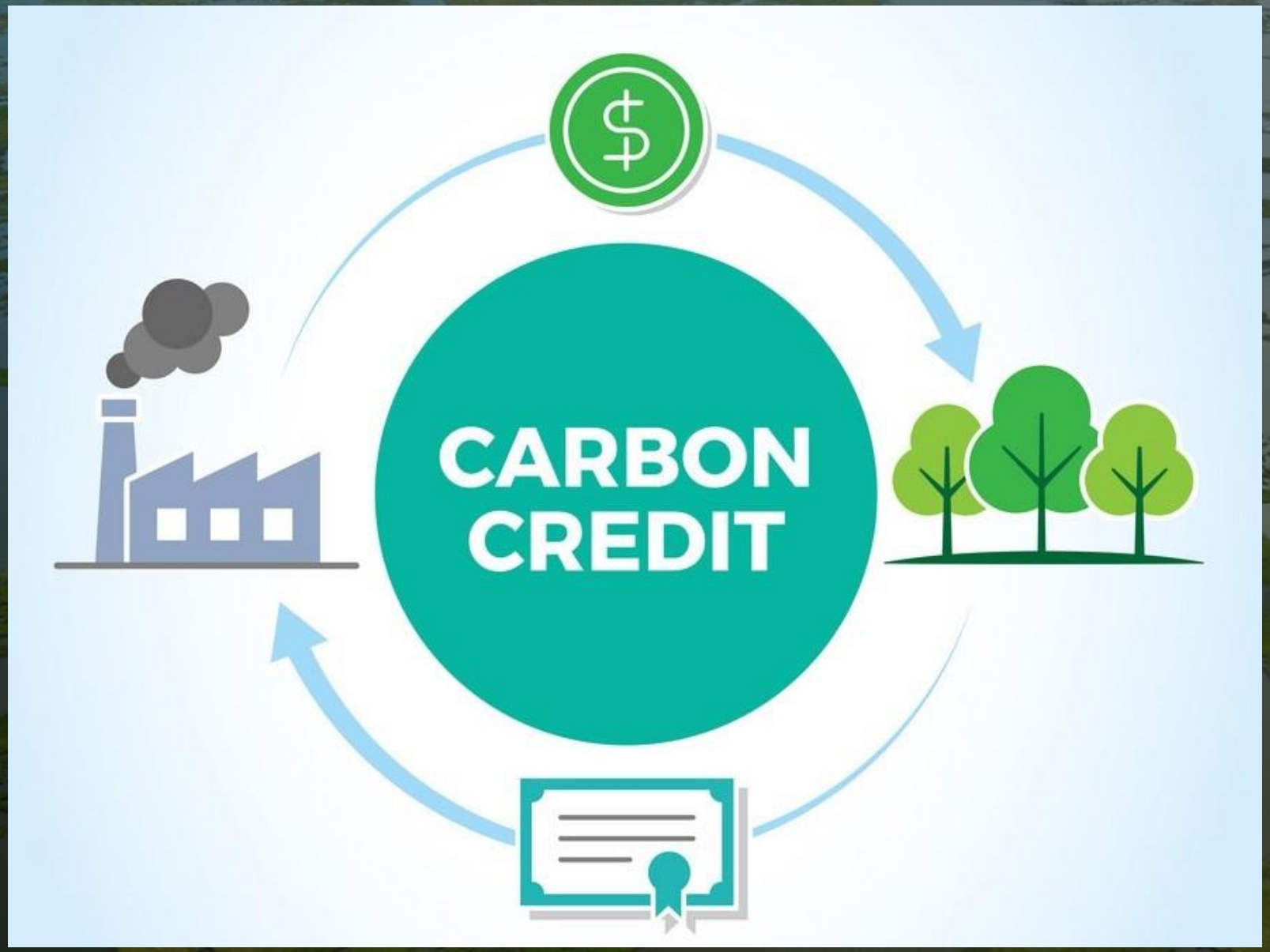
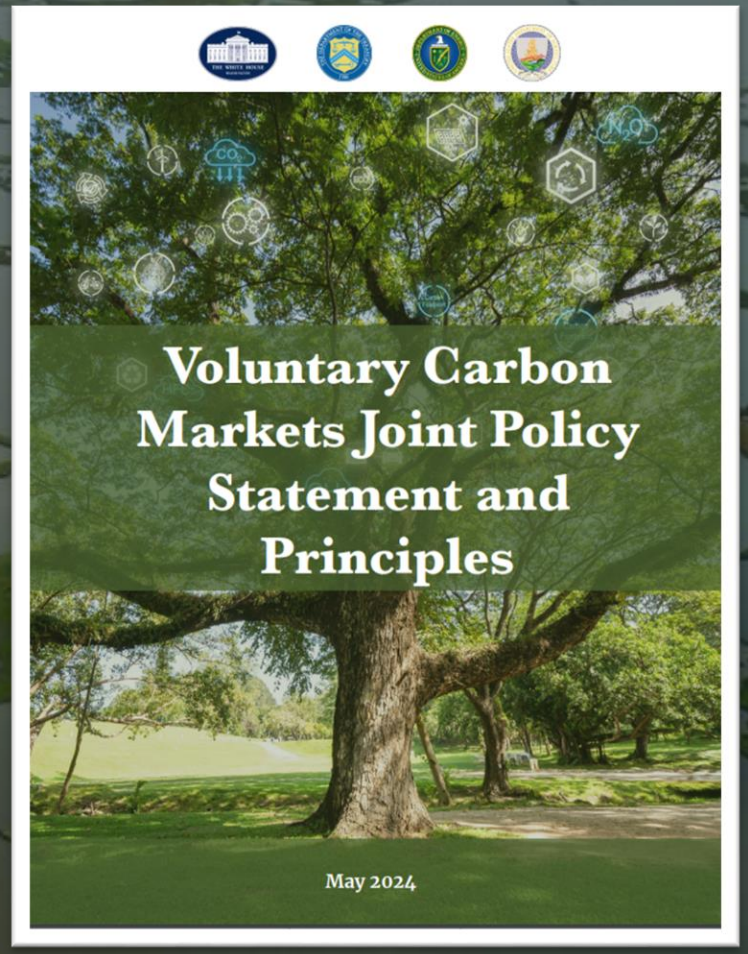
CPRA

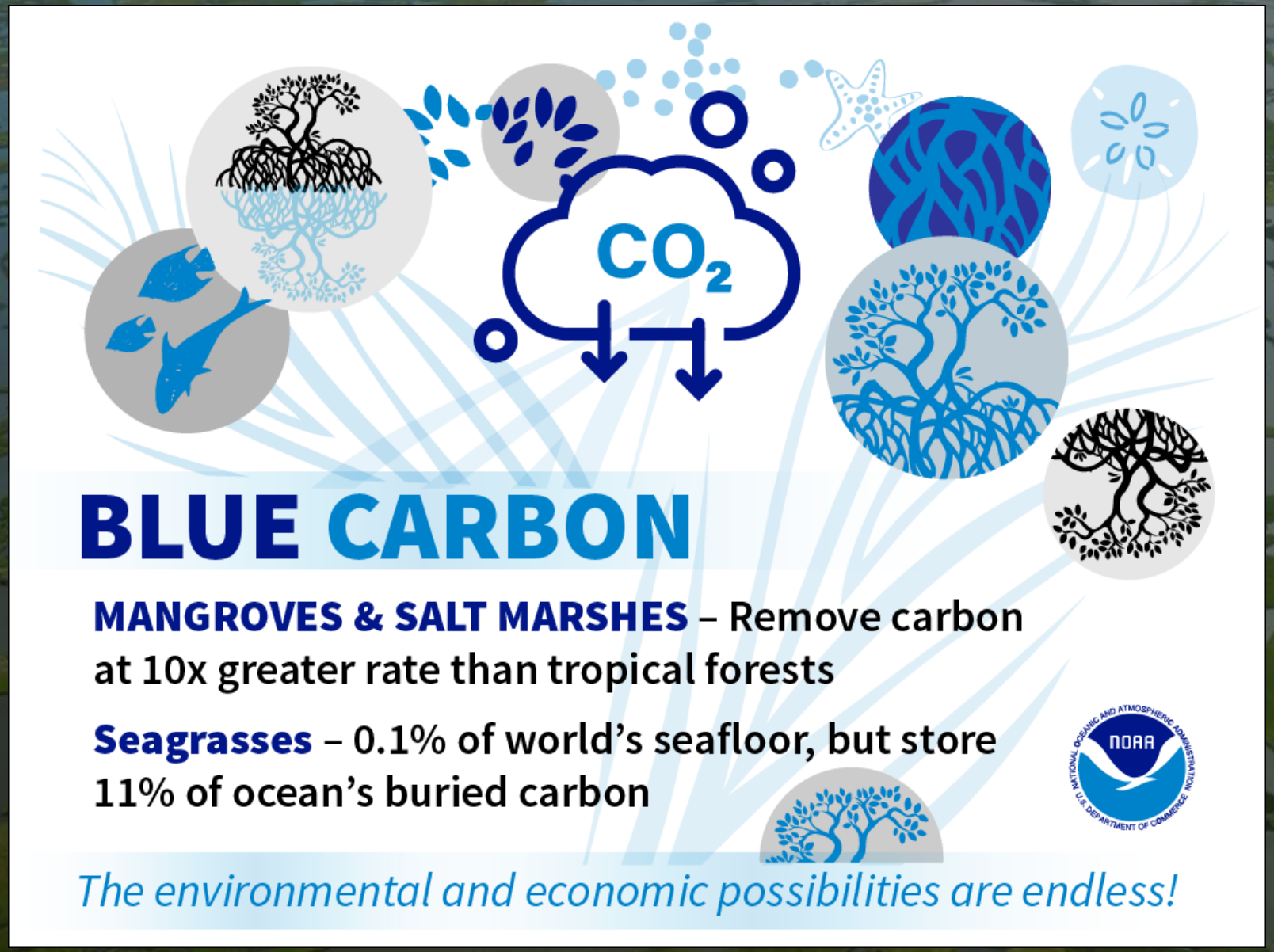
THE WATER INSTITUTE

Carbon Markets





What is Blue or Coastal Carbon?



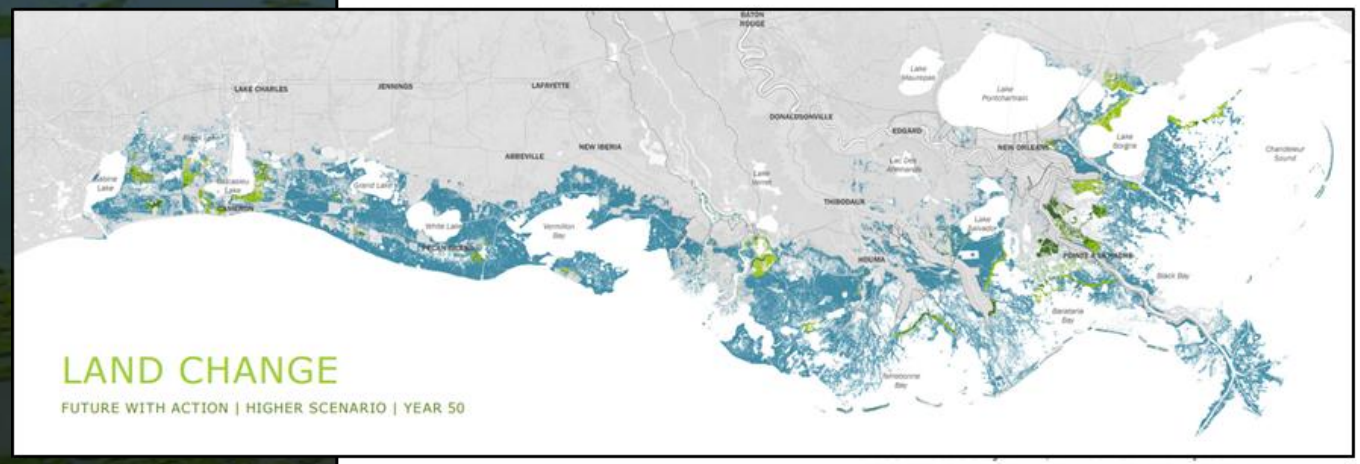
NOAA National Ocean Service

Why “Coastal” Carbon?

More than seagrasses, mangroves, and salt marshes

CPRA Considerations for Coastal Carbon

What does the plan propose?



- **65 Restoration Projects**
- **12 Structural Risk Reduction Projects**
- **$11B for Nonstructural Risk Reduction Projects**
- **$19B in Dredging Projects**

will be required to continue living, working, and playing here. The master plan alone is not sufficient to respond to all the challenges the future may bring. It aims to be a catalyst for coordinating local, state, and federal efforts to help address the coastal land loss crisis and threats from storm surge-based flooding, and in pursuing the greenhouse gas reductions necessary to avoid the most severe impacts of climate change.

Explore the project types included in the master plan on the following pages. These work together to provide comprehensive restoration and risk reduction benefits.

Figure: Funding by Project Type, in USD.

Coastal Program Considerations

Can estimates of net coastal carbon benefits from restoration and risk-reduction projects in Louisiana be submitted to existing carbon-crediting accreditation frameworks to generate credits?

If not, are amendments to the existing frameworks, or new frameworks needed?

How can we leverage carbon science/policy that has already been done?

Coastal Carbon Potential: Nature-based, not down hole

"The science of blue carbon is now clear, and there is substantial interest from companies and individuals who wish to offset greenhouse gas emissions that they cannot otherwise reduce."

Potential demand $10 billion

CATEGORY	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME	VALUE	PRICE	PRICE (USD)
FORESTRY & LAND USE	242,339,151	$1,401,461,426	$5.78	113,253,651	$1,148,848,783	$10.14	-53%	-18%	+75%	$11.21
RENEWABLE ENERGY	214,508,581	$463,950,451	$2.16	92,477,042	$386,054,729	$4.16	-57%	-17%	+93%	$3.97
CHEMICAL PROCESSING & INDUSTRIAL MANUFACTURING	17,253,275	$53,877,016	$3.12	13,338,781	$68,531,895	$5.14	-23%	+27%	+65%	$4.69
HOUSEHOLD / COMMUNITY DEVICES	8,687,821	$46,606,814	$5.36	9,070,331	$77,590,244	$8.55	+4%	+66%	+60%	$7.33
ENERGY EFFICIENCY / FUEL SWITCHING	10,936,656	$23,583,132	$2.16	6,601,354	$35,577,952	$5.39	-40%	+51%	+150%	$3.69
WASTE DISPOSAL	11,647,530	$42,292,142	$3.63	6,207,615	$44,870,139	$7.23	-47%	+6%	+99%	$9.00
AGRICULTURE	987,026	$9,525,119	$9.65	3,783,393	$41,700,362	$11.02	+283%	+338%	+14%	$6.43
TRANSPORTATION	5,405,466	$6,257,391	$1.16	176,338	$770,485	$4.37	-97%	-88%	+277%	-

Source: Ecosystem Marketplace State of the Voluntary Carbon Markets 2023

PLOS CLIMATE

Capitalizing on the global financial interest in blue carbon

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Abstract

Natural climate solutions are crucial interventions to help countries and companies achieve their net-zero carbon emissions ambitions. Blue carbon ecosystems such as mangroves, seagrasses, and tidal marshes have attracted particular attention for their ability to sequester and store carbon at densities that can far exceed other ecosystems. The science of blue carbon is now clear, and there is substantial interest from companies and individuals who wish to offset greenhouse gas emissions that they cannot otherwise reduce. We characterise the rapid recent rise in interest in blue carbon ecosystems from the corporate sector and highlight the huge scale of demand (potentially $10 billion or more) from companies and investors. We discuss why, despite this interest and demand, the supply of blue carbon credits remains small. Several market-related challenges currently limit the implementation of blue carbon projects and the sale of resulting credits, including the cost and burden of verification of blue carbon compared to verifying carbon credits in other ecosystems, the general small scale of current blue carbon projects, and double counting of credits between commercial and national institutions. To overcome these challenges, we discuss other supplementary financial instruments beyond carbon credit trading that may also be viable to fund the conservation and restoration of coastal habitats, such as bonds and ecosystem service insurance. Ultimately, a portfolio of financial instruments will be needed in order to generate funding streams that are substantial and reliable enough to realise the potential of blue carbon ecosystems as a natural climate solution.

Check for updates

OPEN ACCESS

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1. Introduction

Keeping global temperature increases within 1.5-2˚C above pre-industrial levels will require the rapid decarbonization of the global economy, alongside technological and other solutions that draw down greenhouse gas emissions from the atmosphere. Natural climate solutions refer to a range of management actions that increase carbon sequestration by vegetation, and are an essential supplement to decarbonisation efforts for countries and corporations with net-zero ambitions. Natural climate solutions can potentially sequester 23.8 petagrams of CO_2e per

Friess, D. A., Howard, J., Huxham, M., Macreadie, P. I., & Ross, F. (2022). Capitalizing on the global financial interest in blue carbon. PLOS Climate, 1(8), e0000061.

Science Challenge – using current accreditation mechanism (VM0033) with current market carbon accreditation not financially feasible

- Upper Barataria marsh creation (largest ever) is 485 ha (1200 acres)
- At 2016 prices (much the same 2023) – carbon credit revenue from a marsh creation may cover the additional monitoring for certification…
- Will not cover the monitoring over 30 years or any construction cost
- (WI, RAE, Terra Carbon – 2016) –for Port Fourchon)
- VM0033 states 'conservative assumptions' over 50 times

VERRA

Verified Carbon Standard

Coastal Carbon in Louisiana: Current Pitfalls

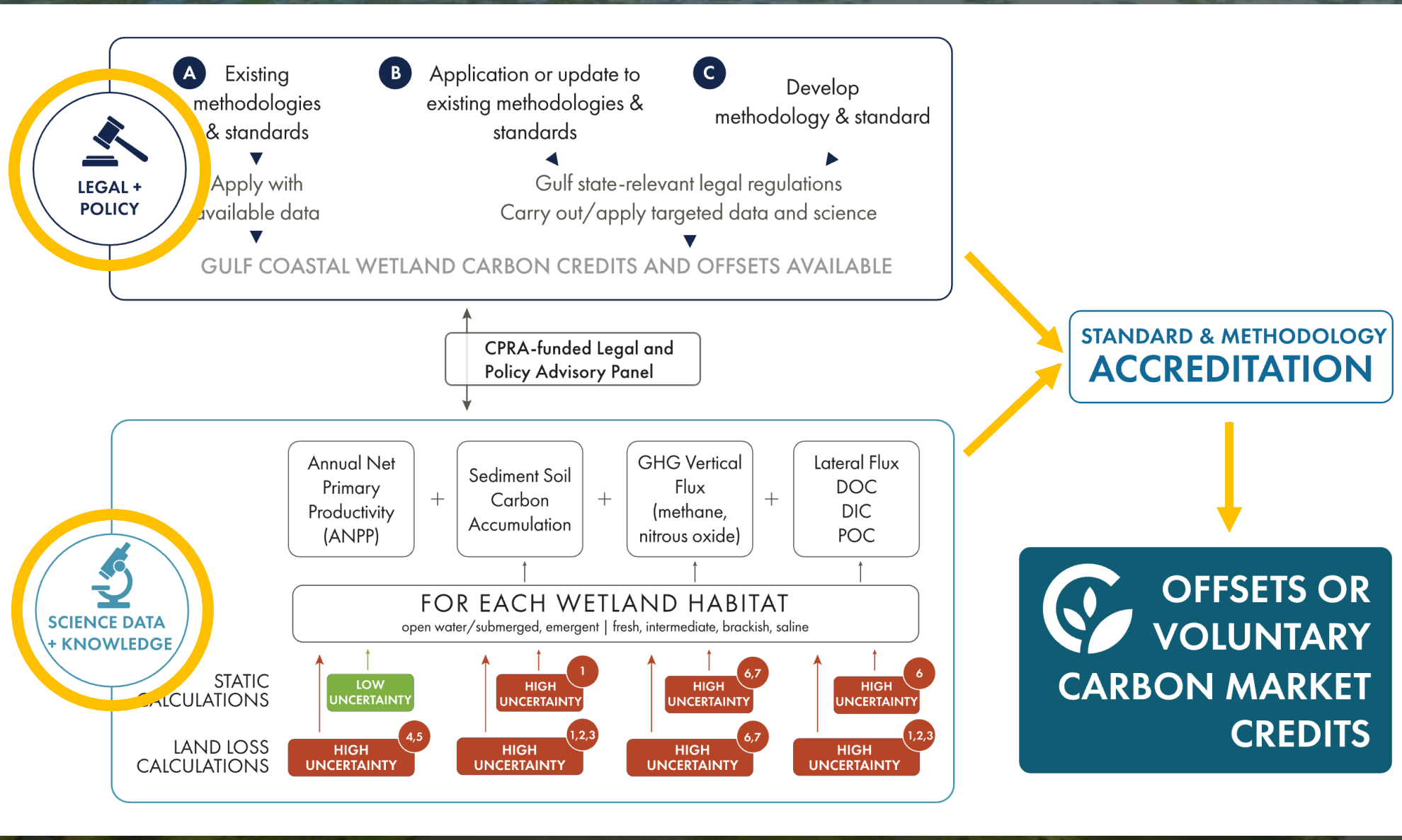
Permanence – longevity and durability of any given project

Additionality – emissions reductions or removals would not have occurred without revenue from the sale of carbon credits

Current Methodology Assumptions

Data and Science Gaps

Pathway to a financially viable tidal wetland blue carbon accreditation



What has been done? A lot.

A lot of science and policy work with many partners.

frontiers

Identifying and filling critical knowledge gaps can optimize financial viability of blue carbon projects in tidal wetlands

Tim J.B. Carruthers [1*], Beaux Jones [1], Megan K. Terrell [2], Jonathan F. Scheibly [3], Brendan J. Player [4], Valerie A Black [1], Justin R. Ehrenwerth [1], Patrick D. Biber [5], Rod M. Connolly [6], Steve Crooks[32], Jason P. Curole[1], Kelly M. Darnell[5], Alyssa M. Dausman[1], Allison L. DeJong[1], Shawn M. Doyle[1], Christopher R. Esposito[1], Daniel A. Friess [10], James W. Fourqurean [11], Ioannis Y. Georgiou[1], Gabriel D. Grimsditch [12], Songjie He [13], Eva R. Hillmann [14], Guerry O. Holm, Jr [15], Jennifer Howard [16], Hoonshin Jung [1], Stacy D. Jupiter [17], Erin Kiskaddon [1], Ken W. Krauss [18], Paul S. Lavery [19], Bingqing Liu [20], Catherine E. Lovelock [21], Sarah K. Mack [22], Peter I. Macreadie [23], Karen J McGlathery [24] J. Patrick Megonigal [25], Brian J. Roberts [26], Scott Settelmyer [27], Lorie W. Staver [28], Hilary J. Stevens [29], Ariana E. Sutton-Grier [30], Jorge A. Villa [20], John R. White [13], Michelle Waycott [31]

IMPROVING NET CARBON FLUX ESTIMATES FOR TIDAL WETLANDS

Integrating Deep Learning and Ecosystem Modeling to Assess Net Carbon Flux for Marsh-Mangrove Tidal Wetlands at Port Fourchon, LA, USA

SHAWN DOYLE, HOONSHIN JUNG, BINGQING LIU, ERIN KISKADDON, YUSHI WANG, AND TIM CARRUTHERS

Draft Deliverable for Work Order No. 2023.009690

A lot more work is underway.

CPRA Funded

- Report 2.1 - Legal & Policy Review of Federal & State funding Credit Allowances
- Report 2.2 - Technical Review of Accreditation Methodologies
- Policy & Legal Advisory Panel - Nationally/Internationally recognized experts
- Gulf Coastal Carbon Working Group: Convening and collaborating to gather regional expertise and experience

Industry Funded

- Investigating what “permanence” means in a dynamic delta
- Improving estimates of carbon from restoration efforts
- **On the Horizon**
  - NOAA RESTORE Proposal – Fate of Stored Carbon in the Wetlands of the MS Delta over Paleontological Time Scales (partnership with The Water Institute, LUMCON, CPRA)
  - Outcomes from Reports 2.1, 2.2 – Determine priority next steps

Why does this matter?

MORE THAN A CREDIT!
We need to adequately value one of our greatest resources – our wetlands.

Wetlands provide known environmental, economic, and social benefits.

Better understanding the coastal carbon cycle:

- Benefit-Cost Analysis
- Recognize Global Importance
- Incentivize private investment
- Improve coastal management