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Department of Natural Resources Coastal Resources Division


Source: UGA MAREX

Coastal Blue Carbon: The State of U.S. Offset Markets and Methodologies

Katie Hill, October 15, 2024

Financial assistance provided by the Coastal Zone Management Act of 1972, as amended, administered by the Office for Coastal Management, National Oceanic and Atmospheric Administration and passed through the Coastal Management Program of the Department of Natural Resources.

Blue carbon refers to coastal ecosystems that have the potential to store large amounts of organic carbon in above and below-ground biomass and soils. **Salt marshes, mangroves, and seagrass meadows are three types of coastal blue carbon ecosystems that are best understood and most referenced.** Coastal blue carbon ecosystems have a very small global footprint, but they can store much more carbon per acre than tropical rainforests.

WHAT IS BLUE CARBON?

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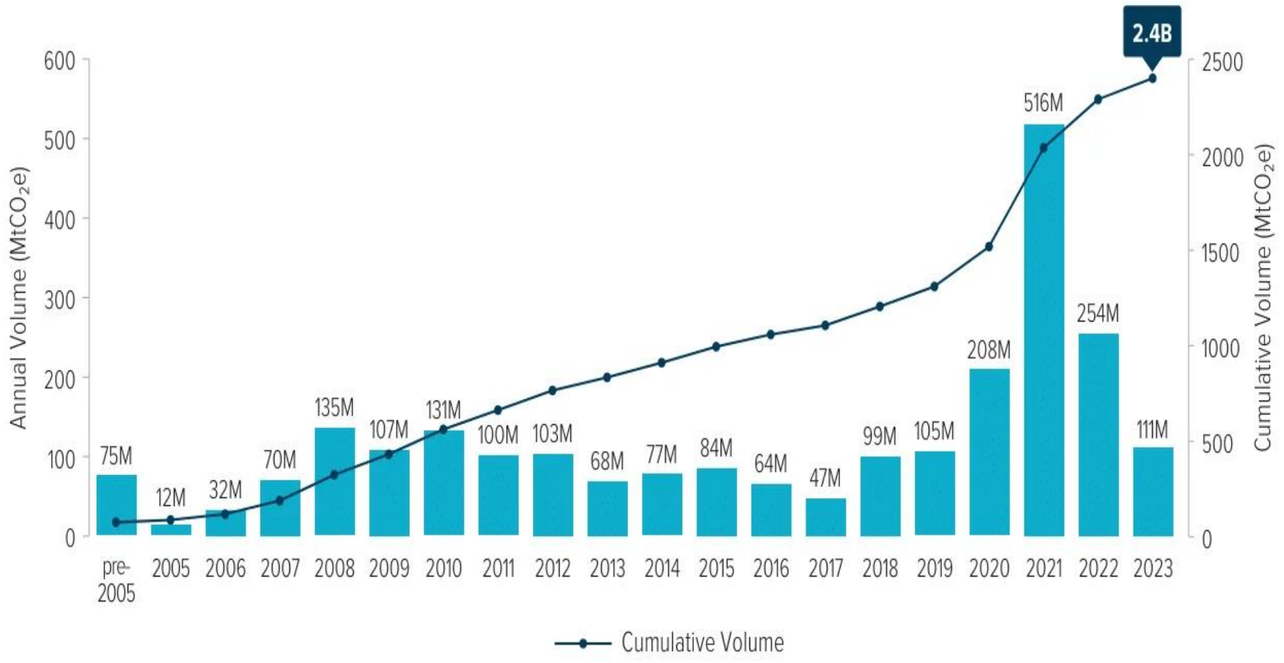
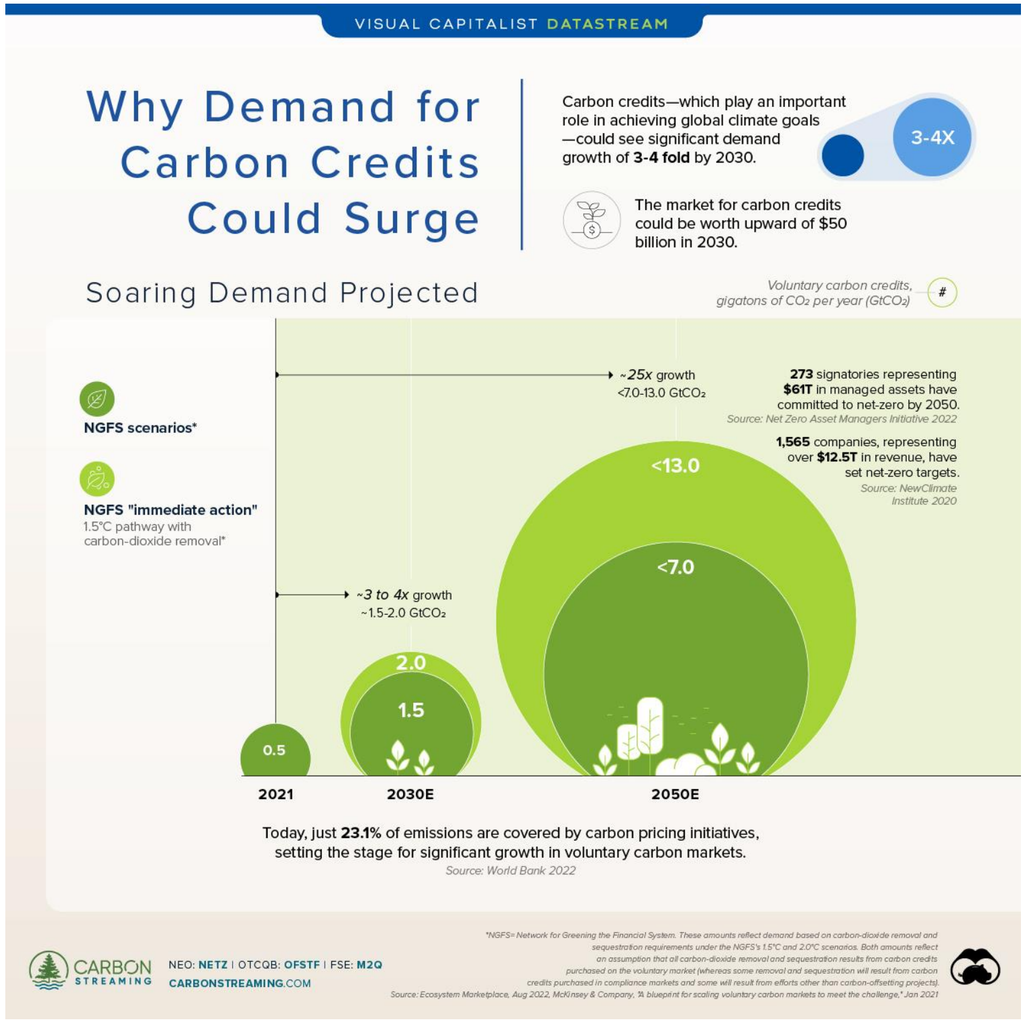
Figure 2. Voluntary Carbon Market Size, by Volume of Traded Carbon Credits, pre-2005 to 2023





WHAT'S THE BIG DEAL? Offset markets

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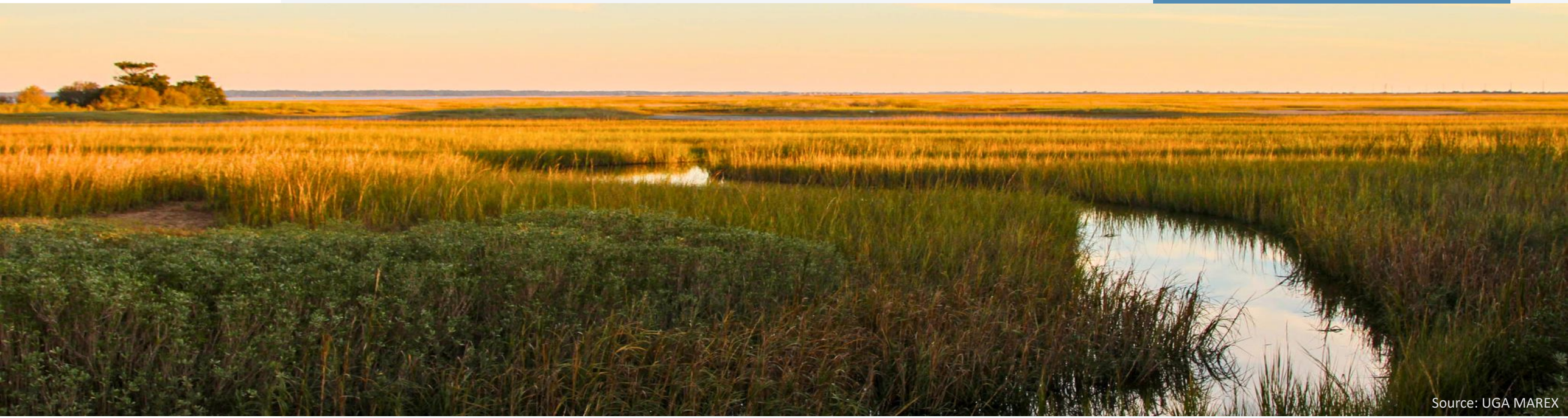

Source: UGA MAREX

BLUE CARBON OFFSET MARKETS AND METHODOLOGIES

Carbon markets are specialized financial markets where carbon offset credits are bought and sold. Each carbon offset credit represents one metric ton of carbon dioxide that has been removed from the atmosphere through a carbon offsetting project. Although frequently used, the term “blue carbon market” is a bit of a misnomer – blue carbon projects that generate carbon offset credits are part of the larger carbon market. **In practice, “blue carbon market” is often used to refer to the supply of and demand for blue carbon offset credits in the United States.**

WHAT ARE BLUE CARBON MARKETS?

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OFFSET MARKETS: COMPLIANCE VS. VOLUNTARY

Compliance markets are the result of regulatory programs that require greenhouse gas emitters to reduce their emissions. Regulated entities may be able to satisfy a portion of their emissions reduction requirements through the purchase of offset credits.

Voluntary markets are the result of corporations and other organizations voluntarily purchasing offset credits outside of a regulatory program. These purchases are often used as one way to meet net-zero emissions targets.

FUNDAMENTAL REQUIREMENT FOR OFFSET PROJECTS: ADDITIONALITY

Additionality requires that the project results in a net decrease in GHG emissions or increase in carbon dioxide removals above a baseline, business-as-usual scenario. It seeks to ensure that we are not categorizing something as an offset when it would have happened anyway. To this end, additionality requires a showing of regulatory surplus – the activity cannot be required by law.

Source: UGA MAREX

ADDITIONALITY EXAMPLES

Example 1: Jane Doe has a valid King's Grant on 1,000 acres of unaltered coastal marshland in Georgia. She wants to generate carbon offsets on the property through conservation by placing a conservation easement on the property to protect it in perpetuity. This would not qualify as additional because her activity (the recording of the conservation easement) has not resulted in any changes in GHG emissions or carbon storage. The only way this activity could qualify as additional is if she could show that the property is imminently at risk of development or another impact, the conservation easement will eliminate the risk, and she would not record the conservation easement were it not for the financing from the sale of carbon offsets. The presence of both federal Clean Water Act and Georgia Coastal Marshland Protection Act protections for the marsh makes this particularly challenging to prove.

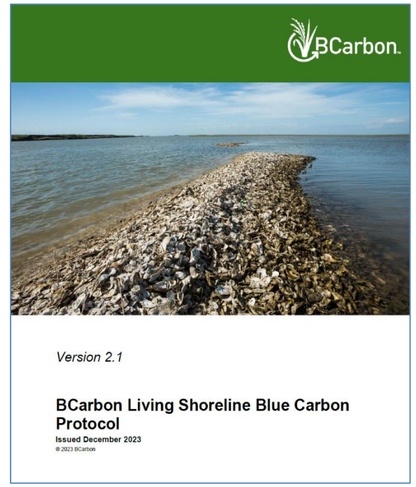
Example 2: John Doe is required to restore 20 acres of tidal wetlands as a condition of his Clean Water Act Section 404 permit. This restoration would not be additional because it is required by law.

Example 3: Louisiana has been engaging in extensive coastal restoration projects guided by their Coastal Restoration Master Plan and funded by the Deepwater Horizon settlement funds. Thus far, these projects would not be additional because Louisiana was going to do them anyway. When the Deepwater Horizon funding runs out, Louisiana's tidal wetland restoration projects may qualify as additional.

Carbon offset methodologies are protocols for estimating net greenhouse gas reductions from specific activities. Credible methodologies are developed based on best practices from the International Organization for Standardization. Three carbon offset registries – Verra, ACR, and CAR – account for the vast majority of carbon offset methodologies and projects in the U.S.

VM0033, developed by Silvestrum and Restore America's Estuaries, is the only globally-applicable blue carbon methodology. Activities that could generate carbon offsets under VM0033 include creating, restoring, and/or managing hydrological conditions, sediment supply, salinity characteristics, water quality, and/or native plant communities in mangrove forests, salt marshes, and seagrass meadows.

Other blue carbon methodologies available in the U.S. are applicable only to California (deltaic wetlands) and Texas (living shorelines).



BLUE CARBON OFFSET METHODOLOGIES

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U.S. BLUE CARBON PROJECTS AND TRENDS

VIRGINIA SEAGRASS RESTORATION PROJECT

A project to restore seagrass meadows in coastal Virginia is the only blue carbon project currently under development under VM0033 in the United States. It involves direct seeding of eelgrass. Over a 30-year crediting period the project is estimated to generate 40,486 metric tons of carbon dioxide equivalent net GHG removals. The project location is owned by the Commonwealth of Virginia and managed by The Nature Conservancy. The Commonwealth successfully amended legislation to ensure this project could legally proceed.

Source: The Nature Conservancy

CALIFORNIA DELTAIC WETLAND RESTORATION

A deltaic wetland restoration project on Twitchell and Sherman Islands has generated 52,000 carbon credits through ARC's methodology for California. The CA Dept. of Water Resources owns the properties.

WHY AREN'T THERE MORE PROJECTS IN THE U.S.?

Interrelated challenges result in domestic projects with uncertain financial returns.

- Complicated ownership/regulatory regimes.
- Global vs. limited methodologies.
- Net GHG emissions reductions or removals are highly site-specific.
- Up-front data costs.
- Expensive monitoring.
- Low price of carbon offsets.

Source: UGA MAREX

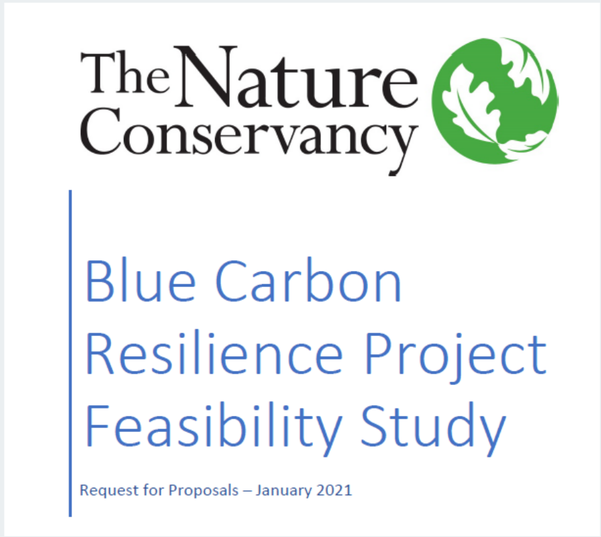
HERRING RIVER FEASIBILITY STUDY

Carbon offsets generated for this 1,000 acre salt marsh restoration project estimated to be between 0 and 311,608, with revenue estimates range from $0 to $4,674,125 depending on the number of offsets generated and the price of carbon. Verification and monitoring costs are estimated at $750,000 over 40 years (this does not include actual project costs).

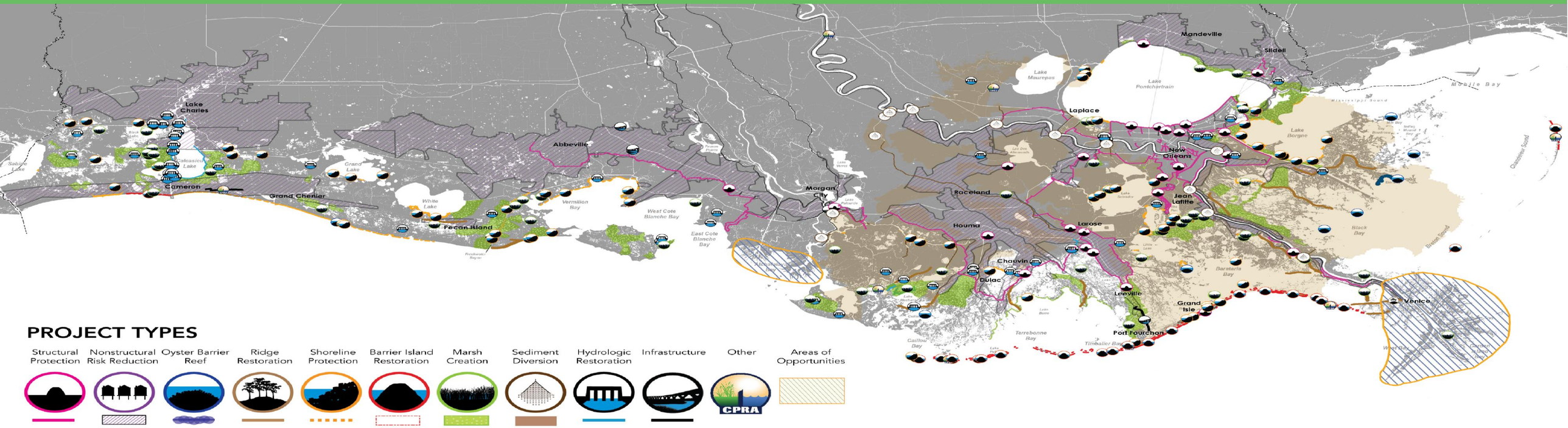
WILL THERE BE MORE BLUE CARBON OFFSET PROJECTS?

Probably

- Still a new field – coastal managers, investors, and others continue to learn the ropes
- Data collection and sharing is accelerating
- Methodologies being tweaked, possibly new ones being created
- Value of offset projects with co-benefits

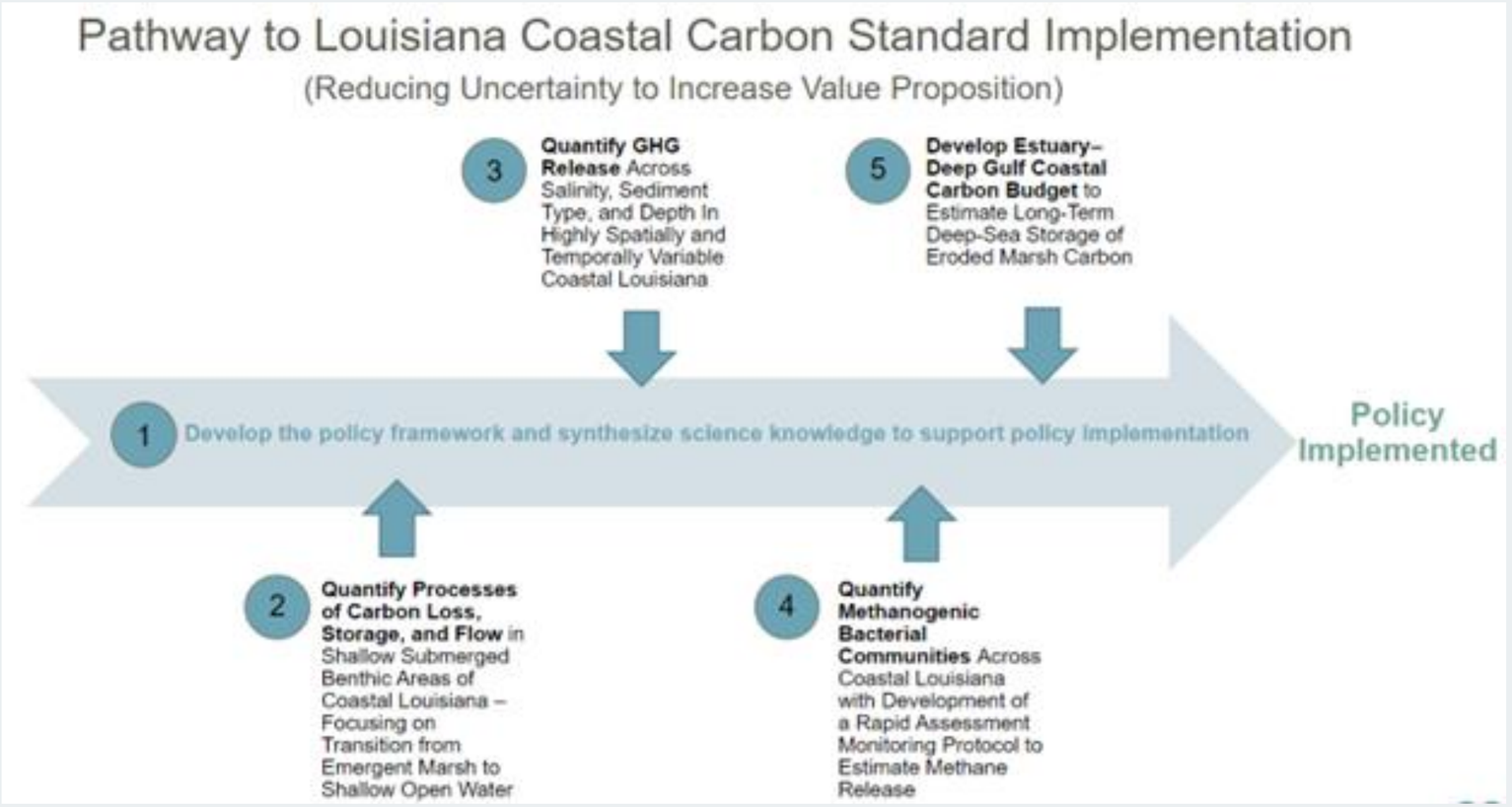


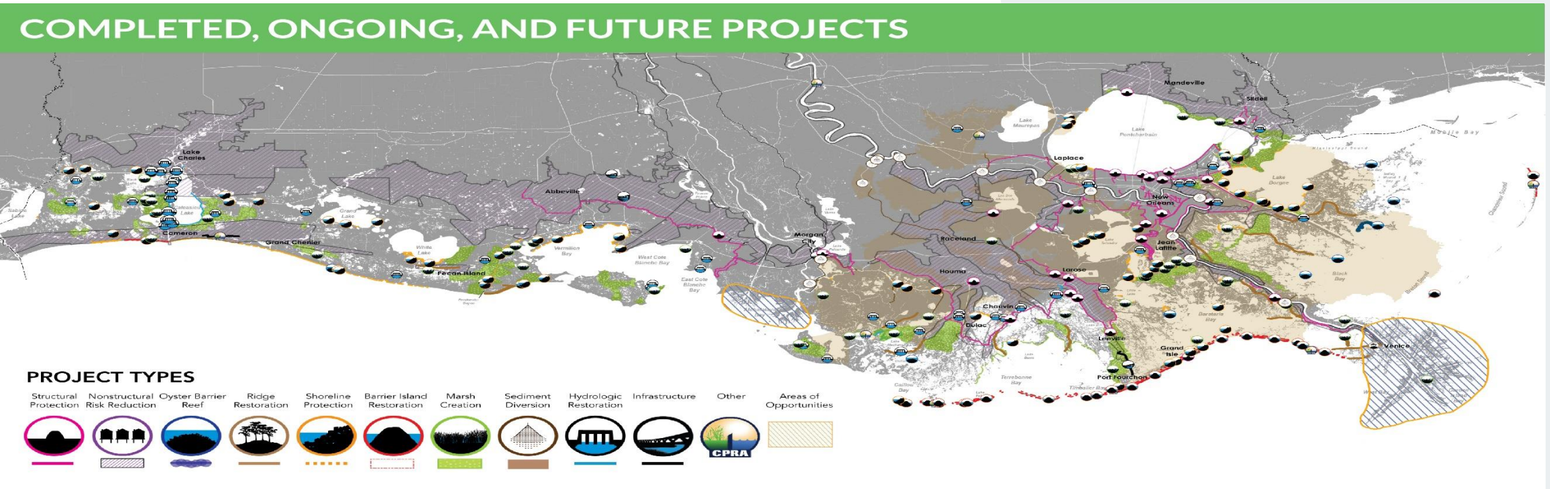
COMPLETED, ONGOING, AND FUTURE PROJECTS



STATE INITIATIVES

LOUISIANA: EXPLORING STATE/GULF BLUE CARBON METHODOLOGY





TEXAS: MAPPING, PILOT/FEASIBILITY PROJECTS, METHODOLOGY, LEGISLATION, RFP

Texas is partnering with The Nature Conservancy and other groups to:

- Map where coastal wetlands exist and where they might migrate
- Implement at least four demonstration projects to quantify the carbon benefits of different conservation and restoration initiatives (acquisition, hydrological restoration, beneficial use of dredged material, and erosion control)

BCarbon living shoreline methodology

Legislation:

- Allows TX Parks & Wildlife Dept. to keep funds from sale of carbon credits or other ecosystem service credits
- Allows TPWD to enter public-private partnerships to develop carbon sequestration or other ecosystem services projects on TPWD land and keep any generated funds

RFP issued Dec. 2023 for proposals “to construct nature-based carbon sequestration or other similar ecosystem services on TPWD properties”

QUESTIONS?

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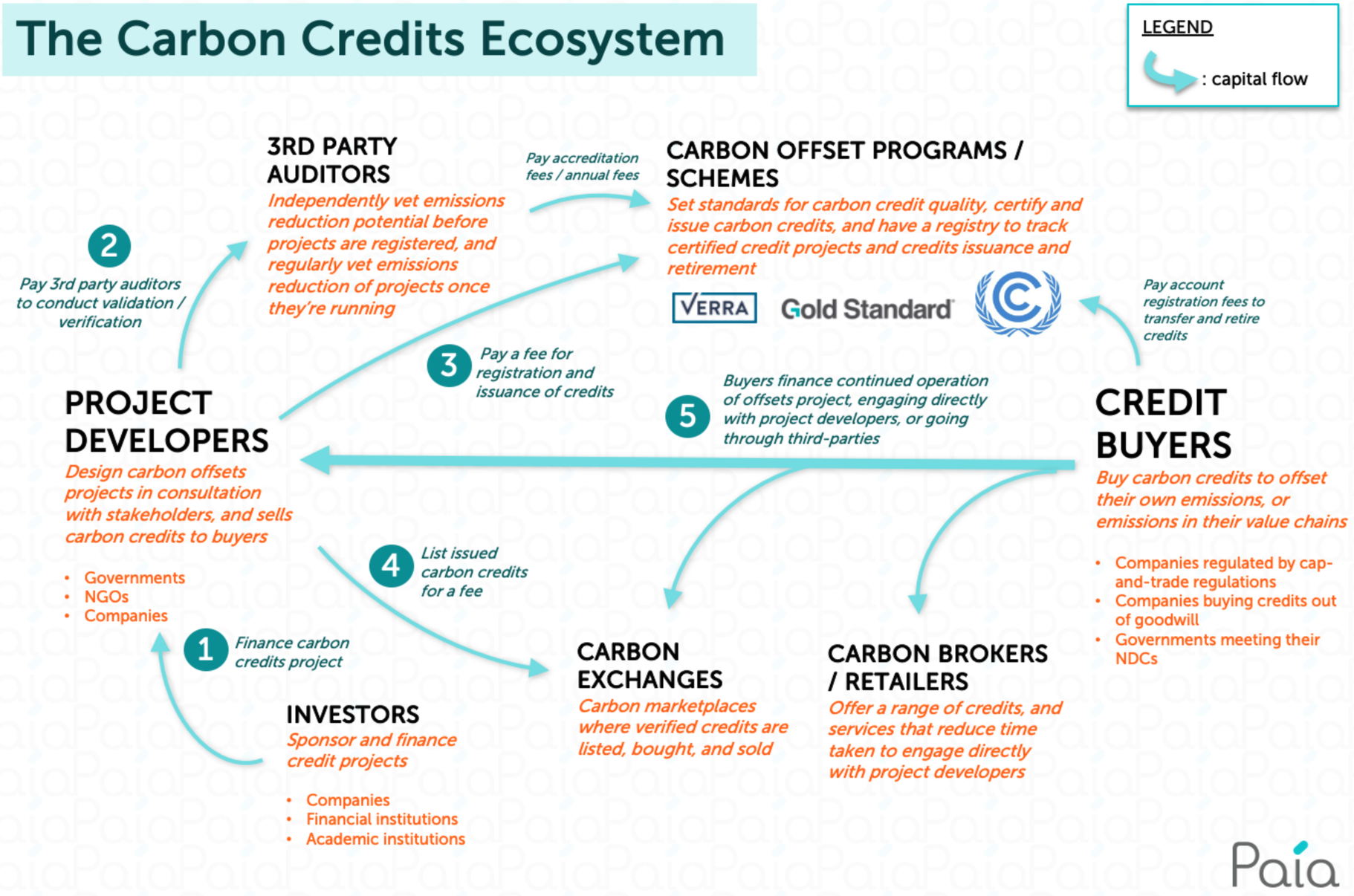
Extra slides

The Carbon Credits Ecosystem



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