

THE ECONOMIC VALUE OF RESTORING COASTAL FORESTED WETLANDS IN SOUTHEAST LOUISIANA

ST. JOHN THE BAPTIST PARISH, LOUISIANA

IMPACT SUMMARY



\$101 million

in new and permanently protected ecosystem services (at a 3% discount rate)



\$3.2 million

in ecosystem services created every year



\$3 million

in improved ecosystem services compared to the previous agricultural use



27,000 metric tons

of carbon sequestered over 80 years

Nature-based solutions (NbS) are an important tool to achieve affordable outcomes that protect communities and support social and environmental resilience to floods, storms, and other hazards. In Louisiana, multiple efforts already harness the potential of NbS for enhancing socio-economic resilience, restoring water quality, and slowing the movement of storm surge.

Strategies like Louisiana's Coastal Master Plan are important foundations to advance implementation of NbS in Louisiana. However, there is room for expanding and diversifying existing approaches. Currently, nature-based risk-reduction efforts in Louisiana prioritize marsh ecosystems. **Explicitly including coastal forested wetlands in these initiatives could significantly improve the impact of NbS in enhancing statewide resilience.**

Delta Land Services, LLC is a regional leader in coastal forested wetland restoration activities. Since 2009, Delta has implemented over 72 restoration projects across 48 restoration sites. In 2016, Delta began development of the Belle Pointe Coastal Mitigation Bank (BPCMB), a 387.6-acre Wetland Mitigation Bank in the New Orleans District of the United States Army Corps of Engineers. The bank was previously agricultural land, which flooded frequently and required levees and pumping to remain productive. Delta permanently restored the site to a forested wetland, planting native coastal bottomland hardwood and bald cypress.

In 2023, Earth Economics analyzed the value of the ecosystem services created by the BPCMB—from the resiliency the forested wetland creates in the face of storms, to the clean air and sequestered carbon the planted trees produce in one of the most polluted areas in the US, not to mention the increased water quality from agricultural and industrial/commercial runoff. **Earth Economics found that every year, the restored forested wetland provides \$3.2 million in co-benefits** to residents of the adjacent community, students at the nearby school, and to the wider population of St. John the Baptist Parish. The wetland mitigation bank is permanently protected and will create \$101 million in benefits in perpetuity.



Forested wetlands possess tall and resilient woody vegetation (e.g., bald cypress) that is more effective than scrub-shrub habitat at adapting to sea level rise, mitigating storm damage by reducing the effects of the wind on the water surface and slowing water movement.



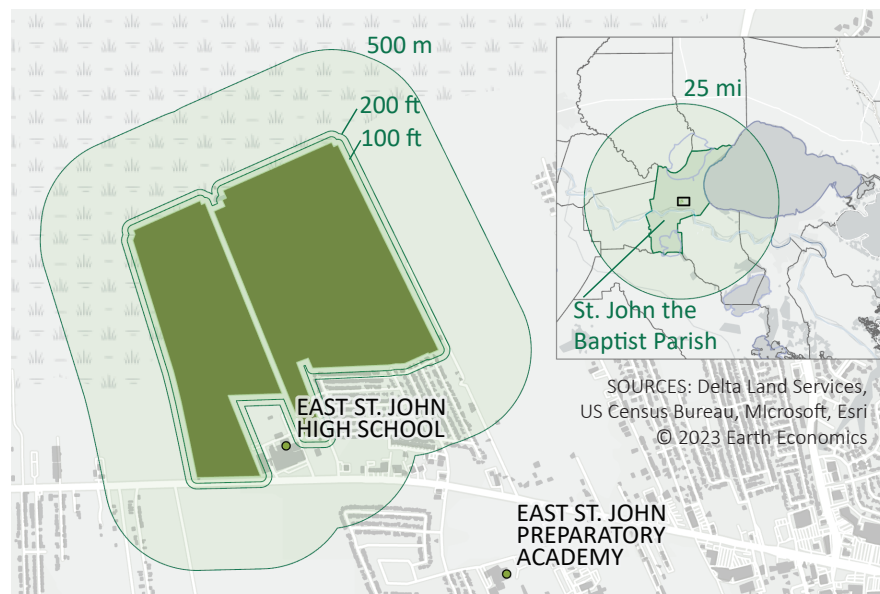
The BPCMB sits in St. John the Baptist Parish, between Baton Rouge and New Orleans, along a heavily industrialized stretch of the Mississippi River. To the north, the bank is connected to the 113,000-acre Maurepas Swamp Wildlife Management Area by contiguous swamp. Directly to the south lies a small community of 2,600 residents, the East St. John High School, and Belle Pointe Park.

Before restoration, the site was marginally productive agricultural land used for cattle pasture and sugar cane production. Water was pumped out on a regular basis to allow for farming, annual sugar cane burning released smoke and ash into the air, and seasonal, chemical applications to the crop exacerbated the local community's health issues.

Delta restored the site to a mix of coastal bottomland hardwood and coastal cypress swamp, with additional investments to support ecosystem services and biodiversity, such as protecting wetlands that are important for wading birds and waterfowl, removing non-native species on an ongoing basis, and purchasing an additional 187 acres to protect a wildlife corridor connected to the wildlife management area—all activities not credited under the mitigation bank program.

The ecosystem services provided by the BPCMB benefit multiple groups of people: local residents, homeowners, students, and residents in neighboring parishes.

- **254 residents with direct view** to the site experience the beautiful restored ecosystem
- **229 additional residents will enjoy the aesthetic benefits** when planted trees mature
- **93 to 177 homeowners' properties gain value** through the beautification of the area
- **1,506 residents will likely experience health benefits** due to improved air quality¹
- **1,100 students will likely benefit from spending time** in an environment with **better air quality**
- **3,800 students** attending six schools within a mile of the site **could benefit from field trips and education programs** that include visits to the restored wetlands
- **42,100 residents of St. John the Baptist Parish directly benefit from improved water quality** and a more resilient water supply system
- **434,000 residents within a 25-mile radius experience the positive effects of the site's restoration** indirectly benefiting from the creation of green space in a heavily industrialized region.



BEFORE



AFTER



¹ Asthma rates in St. John the Baptist Parish are 8% for adults and 9% for children. In addition, for the last 4 years, there have been on average 31 deaths per year in St. John the Baptist Parish due to respiratory issues.

Ecosystem services are the non-market benefits that nature provides to people, free of charge—clean and accessible water, clean air, food, and other vital goods and services that support human well-being and communities. Earth Economics found that the BPCMB restoration provides more ecosystem service benefits than the previous agricultural land use, improving resiliency, social benefits, and environmental benefits for local communities by \$3 million each year.



DISASTER RISK REDUCTION | \$166K per year | Forested wetlands offer protection against natural disasters like hurricanes by absorbing, storing, and slowing water from coastal waves and storm surges, as well as dampening surface winds.



AIR QUALITY | \$2.4K per year | Vegetation captures air pollutants, such as particulate matter and ozone, which can reduce incidences of adverse health effects from respiratory illness.



AESTHETIC BENEFITS | \$10K–\$54K per year | Areas of natural beauty hold significant value for residents and visitors who enjoy and appreciate the scenery, sounds, and smells of nature. Homes are often higher in value the closer they are to natural amenities—up to 7 percent in some cases.



WATER QUALITY | \$209K per year | Wetlands help maintain good water quality by processing and removing suspended and dissolved nutrients, solids, and other contaminants like ag and industrial/commercial runoff from surface and ground water, as well as keeping topsoil in place—benefitting both humans and aquatic species.



SOCIAL VALUE | \$1.1M–\$1.9M per year | People derive satisfaction simply from knowing habitats exist in the present, and it is well-documented that people are willing to pay for restoration projects, even if they will never see or use a site. BPCMB supports the protection and restoration of the adjacent Maurepas Swamp Wildlife Management Area (WMA).



POLLINATION & SEED DISPERSAL | \$86K per year | People depend on pollination to produce food and fiber, especially pollination by wild animals and insects, which in turn depend on suitable natural habitat to sustain their populations. The presence of nearby fields means the BPCMB contributes to increased local agricultural production.



HABITAT | \$94K–\$1.2M per year | Natural areas provide shelter, food, and living spaces for wildlife. With the restoration of the BPCMB site, additional habitat now connects to the Maurepas Swamp WMA.



CARBON STORAGE | \$98K per year | Natural lands can capture and store carbon from the atmosphere, helping to mitigate environmental risks due to climate change—which can be valued by changes in agricultural production, additional disaster risk, and more.

CAPTURING CARBON

The above-ground biomass of the bottomland hardwood and bald cypress trees Delta planted could store up to 27,000 metric tons of carbon over 80 years. Wetlands are complex ecosystems and capture more carbon in their soil, so this figure is an underestimate of the bank's total carbon storage potential.

SUPPORTING WILDLIFE

Delta removed non-native species like the invasive Chinese tallow tree and apple snails, which both negatively impact water quality. Since restoration, staff members have noted the presence of many wildlife species including many mammals, birds, reptiles, and insects—protected Bald Eagles now nest at the site.

Restoring wetland ecosystems provides multiple services of great social, economic, and environmental value to communities. Translating these benefits into dollars ensures that these values are properly accounted for in planning decisions. **Earth Economics found that the total value in ecosystem services produced by the BPCMB project was \$101 million (USD 2021)—this translates to \$1,813 per person per year for nearby residents and students.** Residents living outside the parish but within a 25-mile radius of the site receive benefits valued at \$3.30 per person. This project shows that targeted conversion of marginal, low-lying agricultural lands—which often requires levees, pumping, and is at risk of saltwater intrusion—to forested wetlands delivers a particularly high return in co-benefits. By developing a site in the landscape adjacent to the Maurepas Swamp WMA, the restoration supports resilience and biodiversity across the region.

The Pontchartrain/Breton coastal region is the most densely populated in the state, with communities expanding into previously undeveloped lowland and flood prone areas where the risk of damage due to storm surge-based flooding rises substantially. However, whilst the regions' existing 100,000+ acres of coastal forested wetlands are recognized for their resiliency benefits, Louisiana's Coastal Master Plan prioritizes only marsh creation for funding in the state.

As sea levels rise, **forested wetlands should be a priority habitat for restoration across the state** when planning for coastal retreat and long-term adaptation. Trees provide additional services, particularly resiliency during storms and storm surge events. Forested wetlands can also act as anchors for more complex ecosystems. For example, the BPCMB includes open water and emergent wetlands, which, in addition to reinforcing ecosystem adaptability and storm resiliency, support a broader range of biodiversity than a mono-habitat approach.

The BPCMB was developed through the US Army Corps of Engineers' Wetland Mitigation Banking Program. The restoration's initial costs were funded by private capital and the investment repaid by private investors offsetting their impact to wetlands. Currently, this program does not compensate credit sellers for most ecosystem services that can be provided by holistic restoration projects, like BPCMB, where Delta has made additional investments to support biodiversity and improve ecosystem function.

The BPCMB restoration serves as a template for pragmatic adaptation, supporting the case for broader adoption of complex coastal forested wetlands restoration across Louisiana. **Leveraging state, federal, and other funding sources** to support and incentivize initiatives that restore coastal forested wetlands, in addition to coastal marsh ecosystems, **can help private companies like Delta Land Services, LLC internalize the benefits their projects are generating and therefore help accelerate and scale their work.** Moreover, incentivizing land use conversion initiatives that prioritize restoration of marginally productive agricultural lands can help redirect taxpayer dollars to achieve resiliency goals.

