

Regional coastal resilience: Co-benefits, finance and best practices to guide Maryland

-Confidential clients-

Agenda

- Why resilience now?
 - Co-benefits
 - Funding pathways
 - Current examples
 - The path forward
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Why now for resilience in coastal MD?

Challenges:

- Climate pressures on the Lower Shore: flooding, erosion, and growing insurability challenges in residential market
- Counties acting alone more likely to take fragmented, grant-dependent approaches
- Continued federal grant funding is uncertain

Opportunities:

- Regional collaboration → more leverage, potential funding stability, insurance pools, a stronger political voice; climate impacts are cross-border; future avoided costs may be greater with coordinated action now

Risks:

- Regional collaboration → multiple priorities, funding sources; need to look at cost-sharing vs. benefit distribution, legal agreements, etc.

Question: *What co-benefits are most important, and what kinds of projects/funding would you favor to deliver them?*

Menu of co-benefits from resilience investment

- List below is not exhaustive—co-benefits vary by feasibility and time needed to realize them
- Local jobs, water quality, and regional leverage score highly across both criteria

Category	Co-Benefit	Resilience funding impact	Feasibility	Timeline
Economic	Local jobs	Workforce in restoration, aquaculture, resilient infrastructure	High	Short–Medium
	Property tax base stability	Protects home values, keeps properties insurable, preserves county revenues	Medium	Medium–Long
	Tourism & recreation	Resilient waterfronts and parks sustain heritage tourism	High	Medium
Environmental	Natural buffers	Wetlands, dunes, oyster reefs reduce flood/erosion risk	Medium	Medium–Long
	Water quality	Oysters + green infrastructure reduce runoff	High	Short–Medium
	Habitat protection	Marshes/forests support biodiversity and resilience	Medium	Long
Community	Safer housing & infrastructure	Flood-safe neighborhoods, resilient public facilities	Medium	Medium–Long
	Equity & inclusion	Benefits flow to disadvantaged/flood-prone areas	Medium	Short–Medium
	Public health & quality of life	Cleaner water, cooler microclimates, access to nature	High	Medium
Fiscal	Avoided damages & cost savings	Every \$1 invested saves \$4–\$6 in disaster costs	High	Medium–Long
	Insurance & insurability	Keeps markets viable and stabilizes premiums	Medium	Medium–Long
	Long-term revenue models	Fees, cost-sharing, bonds reduce grant dependence	Low–Medium	Long
Governance	Regional leverage	Joint voice improves access to state/federal funds	High	Short
	Collaborative capacity	Shared data and planning build trust/efficiency	Medium	Short–Medium

Funding pathways for co-benefits

- New types of funding may be needed in federal grant context
- Innovative models (in **red**) can be applied in different enabling circumstances

Cat.	Co-Benefit	Funding Model	Enabling Factors / Conditions
Econ.	Local jobs	Grants, county training budgets, private-sector apprenticeships	Partnerships with trade schools & employers; clear job pipelines
	Property tax base stability	Resilience bonds , county cost-sharing, insurance-linked incentives	Strong actuarial case for avoided losses; county buy-in
	Tourism & recreation	P3, hospitality/tourism taxes, philanthropy	Visitor demand; business association engagement
Env.	Natural buffers	Green bonds, environmental trust funds, phil. restoration grants	Verified ecosystem service benefits; state/federal permitting alignment
	Water quality	Nutrient trading markets , conservation easements, watershed improvement fees	Regulatory framework for nutrient trading; local utility participation
	Habitat protection	LTE's, conservation finance (REIT, CO2 credits)	Landowner cooperation; credible M&R systems
Comm	housing & infrastructure	Community resilience fees; social impact bonds	Clear metrics (lower flood risk); resident fee tolerance
	Equity & inclusion	Philanthropic equity funds, foundation grants	Documented community need; strong local champions
	Public health & quality of life	Health system partnerships, philanthropic wellness funds, carbon/health co-benefit bonds	Hospital/health insurer engagement; clear data on health savings
Fiscal	Avoided damages & cost savings	Resilience & catastrophe bonds, insurance-backed financing	Strong avoided-loss data; insurer/actuarial partnerships
	Insurability	Insurance pools , premium stabilization funds, state-backed reinsurance	State regulatory alignment; insurer participation
	Long-term revenue models	Utility surcharges, resilience fees, asset-based revenues (urban wealth funds)	Political support; transparent fee structure; asset inventory
Gov.	Regional leverage	Regional resilience authority model, pooled grant funds, county consortia	Formal governance structure; MOU between counties
	Collaborative capacity	Philanthropic backbone funding, pooled county ops budgets	Dedicated secretariat; shared data infrastructure

National examples



Anne Arundel County Resilience Authority

Overview

- \$38M mobilized since 2021 for resilient infrastructure. Shoreline, park, community center, EV pilots

What they did / Co-benefits demonstrated:

- **Fiscal stability:** Demonstrated ROI with \$48M in avoided damages already recorded.
- **Community co-benefits:** New community centers and parks provide recreation, education, wellness hubs while delivering resilience.
- **Innovative governance model:** First-of-its-kind Maryland resilience authority with legal ability to issue revenue bonds and structure P3s.

Best practices for Lower Shore:

- **Diversified portfolio:** Not just nature-based projects, AARA mixed community centers, EV charging, shoreline parks → shows funders visible benefits across sectors.
 - **Governance clarity:** A dedicated resilience authority gave credibility and administrative capacity. Resilience investment benefits from a vehicle, not just projects.
 - Revenue innovation: Piloted private shoreline restoration with cost-sharing, showing P3 models can work.
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Tangier Island (Virginia)

Overview:

- Island losing land at ~9 acres/year; resilience projects include shoreline armoring, wetland restoration, and relocation planning.

What they did / Co-benefits demonstrated:

- **Community equity & heritage:** Projects framed around preserving cultural identity and historic fishing community.
- **National visibility:** Elevated as a “canary in the coal mine” for climate adaptation, bringing wider attention and funding.
- **Pilots** include shoreline armoring, wetland restoration, and discussions of relocation.

Best practices for Lower Shore:

- **Narrative leverage:** Heritage and cultural identity can be powerful co-benefits in gaining philanthropic and media support.
 - **Equity lens:** Protecting vulnerable communities resonates with state/federal priorities.
 - **Retreat readiness:** Having difficult conversations early about retreat and adaptation creates credibility.
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Lower Shore Land Trust

Overview:

- Local land trust implementing coastal restoration, oyster reef projects, and farmland conservation.

What they did / Co-benefits demonstrated:

- **Environmental:** Restored wetlands and oyster reefs improve water quality, habitat, and shoreline protection.
- **Economic:** Oyster aquaculture generates jobs and local income streams.
- **Equity/Community:** Trusted local institution building relationships with farmers, landowners, and residents → social license to operate.

Best practices for Lower Shore:

- **Dual benefits:** Tie restoration directly to livelihoods (e.g., aquaculture, recreation).
 - **Local trust:** Land trusts or NGOs can act as neutral conveners when governments lack credibility.
 - **Market linkages:** Explore carbon/nutrient credits to monetize ecosystem services.
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Louisiana Coastal Protection & Restoration Authority (CPRA)

Overview:

- \$50B Master Plan backed by oil spill settlements and recurring state revenue streams.

What they did / Co-benefits demonstrated:

- **Environmental:** Restored wetlands and oyster reefs improve water quality, habitat, and shoreline protection.
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Severn River Shoreline P3 Pilot (Anne Arundel, Maryland)

Overview

- Pilot program for nature-based shoreline stabilization on private properties along the Severn River. **50/50 cost-share** between the Maryland Department of Natural Resources (Chesapeake & Atlantic Coastal Bays Trust Fund) and private shoreline owners, with coordination from the Resilience Authority.

What they did / Co-benefits demonstrated:

- **Environmental:** Living shorelines reduce erosion and improve aquatic habitat.
- **Fiscal:** P3 reduces burden on county/state budgets.
- **Community trust:** Landowners become active partners.
- **Scalability:** Model could apply across Anne Arundel's 500+ miles of private shoreline.

Best practices for lower shore

- **Leverage P3:** Engage property owners in co-funding resilience, reducing grant reliance.
 - **Show replicability:** If one pilot shows feasibility, scale across coastal counties.
 - **Align incentives:** Protects private property value alongside public ecological benefits.
 - Partnership model provides a proof of concept for P3 shoreline collaboratives in small coastal towns.
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Path Forward & Discussion

- Process (Equity Lens): Community-driven, trust-building, collaborative infrastructure can support funding and implementation
 - Next Steps:
 - Identify 2–3 co-benefits that resonate most
 - Map more detailed funding pathways around them
 - Develop framework for regional collaborative
 - *What feels most achievable here, and what would you want to see next?*
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