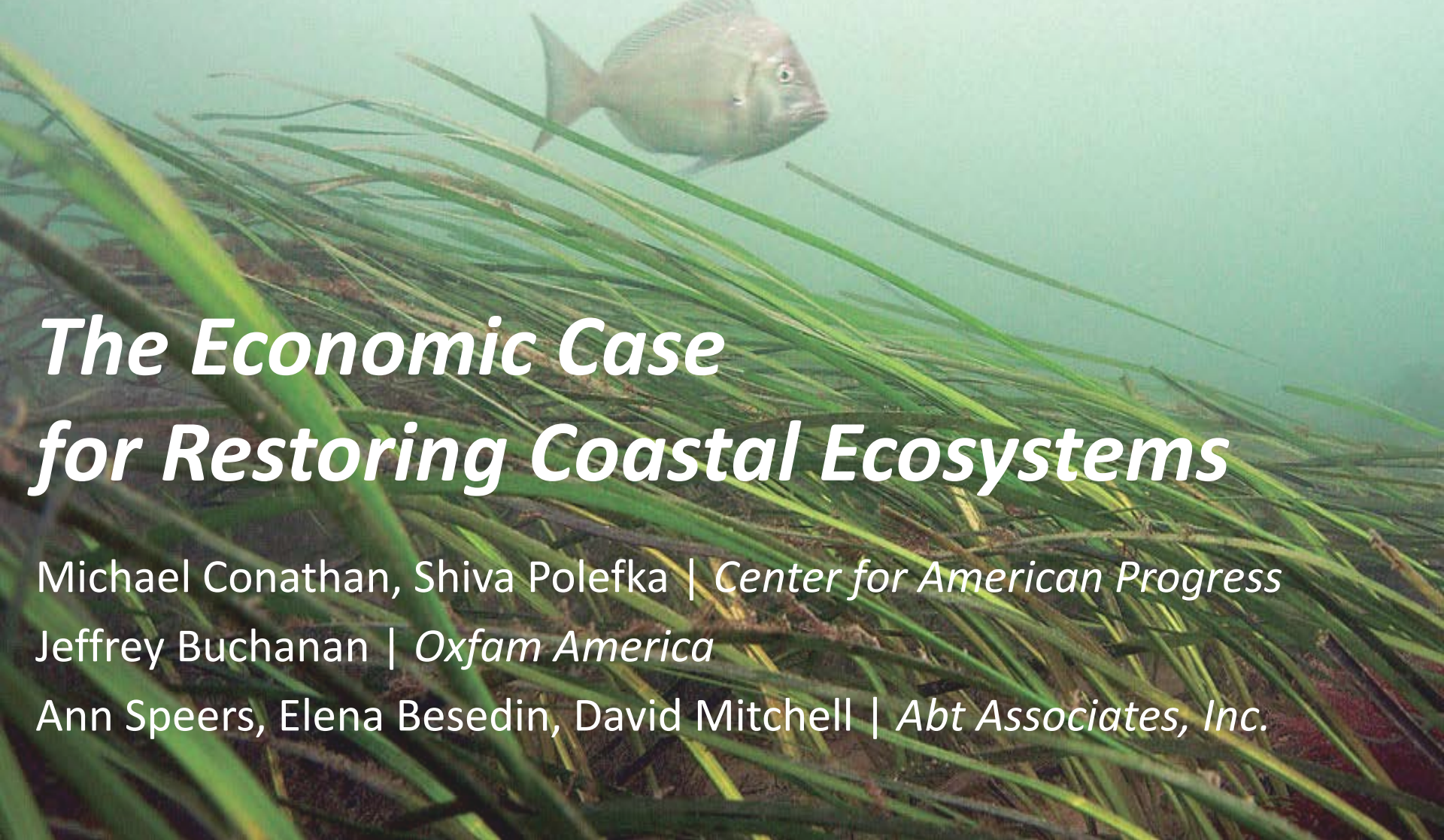


# Center for American Progress



## ***The Economic Case for Restoring Coastal Ecosystems***

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## The American Recovery and Reinvestment Act of 2009 (ARRA), as implemented by NOAA

- Included \$167 million allocated for coastal habitat restoration
- 50 sites competitively chosen from among \$3 billion in restoration proposals (unmet need)
- Succeeded as primary policy objective:  
*Economic stimulus:*
  - Each \$1M invested → 17.1 jobs
  - 80% of jobs paid more than national median wage
  - See Edwards et al. 2012 (“Investing in nature...”)



# Study Goal: Demonstrate that restoration of ecosystem services = long term economic value







# Methods: estimating the change in ecosystem services values (*Part A*)

1. Review ecological monitoring reports and prior studies
2. Link restoration activity with habitat endpoints
3. Develop long-term habitat restoration trajectory
4. Estimate net change in ecological endpoints associated with restored habitat







# Methods: estimating the change in ecosystem services values (*Part B*)

Following EPA Guidelines

1. Describe the baseline and policy cases
2. Link habitat endpoints with specific goods and services (MEA 2005)
3. Review and select economic valuation studies of similar sites
4. Transfer benefits, tailoring to policy case at our three sites
5. Analyze community distribution of impact





## Results: Restoration can provide benefits far exceeding taxpayer investments, but results are site specific

TABLE 1

### Economic benefits of coastal ecosystem restoration at three sites

	NOAA Recovery Act Investment project cost*	Total economic output from spending on project**	Lifetime value of benefits provided by restored ecosystem	Benefit-cost ratio
San Francisco Bay Salt Ponds	\$8.27 million	\$8.07 million	\$68.9–\$220M	18.45
Virginia Seaside Bays	\$2.35 million	\$2.57 million	\$34.9–\$84.8M	26.56
Mobile Bay, Alabama	\$3.18 million	\$3.46 million	Insufficient data	1.08
				<b>Average: 15.36</b>

Note: All values in 2013 U.S. dollars. Lifetime value of benefits provided by restored ecosystem excludes economic output from project spending. In the benefit-cost ratio, benefits equal output plus midpoint of ecosystem benefits. The Mobile Bay study produced an estimate of \$0.2–0.3 million in ecosystem service benefits, but given the insufficient monitoring time, the limited number of other valuation studies for some of ecological benefits involved, and to be conservative in our valuations we counted this value as \$0 for the sake of determining our summary benefit-cost ratio.

Source: \*National Oceanic and Atmospheric Administration, "Restoration Atlas: Marine and Coastal Habitat Restoration Projects Funded Under the American Recovery and Reinvestment Act," available at [http://www.nmfs.noaa.gov/habitat/restoration/restorationatlas/recovery\\_map.html](http://www.nmfs.noaa.gov/habitat/restoration/restorationatlas/recovery_map.html) (last accessed March 2014). Values adjusted to 2013 U.S. dollars via Bureau of Labor Statistics' CPI Inflation Calculator; \*\*C. Coyle, "Job Creation through Coastal Restoration: An analysis of projects funded under the American Recovery and Reinvestment Act of 2009." Unpublished IMPLAN analysis (2012); Lifetime value of benefits are the total present value, or TPV, estimates calculated assuming a 40-year project lifespan.





# Example: Virginia Seaside Bays

\$2.3M ARRA/NOAA grant to Virginia Institute of Marine Science, TNC, and Virginia CZM Program

Restoration Activity	Habitat Quality Indicators	Ecosystem Goods & Services (Summary)
<ul style="list-style-type: none"><li>• Constructed oyster reefs</li><li>• Planted eelgrass meadows</li><li>• Tested bay scallop spawning stock program at a demonstration site</li></ul>	<ul style="list-style-type: none"><li>• Oyster density and maturity at constructed reefs</li><li>• Eelgrass coverage and shoot density</li><li>• Scallops not quantifiable given available data</li></ul>	<ul style="list-style-type: none"><li>• Commercial seafood harvests</li><li>• Recreational fishing</li><li>• Supporting services (primary production, food web, etc.)</li><li>• Carbon and nutrient cycling</li><li>• Cultural benefits</li></ul>

An aerial photograph showing a coastal bay area. The water is blue, and there are patches of green eelgrass meadows and brownish oyster reefs visible. The surrounding land has some buildings and infrastructure.



# Recommendations and messages for policymakers

1. Increase funding for coastal ecosystem restoration, view these systems as infrastructure
2. National Endowment for the Oceans (authorized in WRDA)
3. Focus RESTORE Act funds on ecosystem restoration, as long term investment in economic health
4. Incorporate restoration into flood control and risk mitigation projects
5. Link restoration projects with STEM education and career development programs
6. Allocate sufficient restoration project funds to support long term monitoring and performance analysis



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*Report & supporting materials available at:*  
**[ampr.gs/CoastalRestoration](http://ampr.gs/CoastalRestoration)**

