

ECONOMIC IMPACT OF GEORGIA'S ARTIFICIAL REEF PROGRAM

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THE ISSUE

Georgia's artificial reefs create important habitat for fish and other marine life, enhancing the marine ecosystem and supporting the state's multimillion-dollar recreational fishing industry. Over 70,000 acres of seafloor off Georgia's coast have been set aside to support artificial reef development, but only about 59 acres have structures on them. These structures, which consist of various materials like old subway cars and battle tanks, are located among 46 sites distributed across areas close to shore (15 inshore sites) and farther out at sea (21 nearshore and offshore sites).

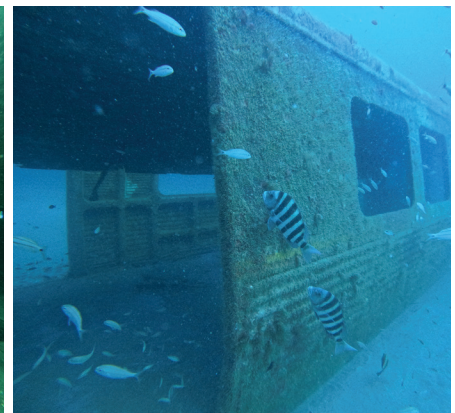
Georgia's artificial reef program is managed by the Georgia Department of Natural Resources (GA DNR) Coastal Resources Division (CRD). To gather more detailed economic information and better communicate the value and benefits of artificial reefs with stakeholders and increase investment in the program, CRD funded Marine Extension and Georgia Sea Grant in 2023 to conduct the first-ever economic assessment of the state's artificial reefs.



Redbird subway cars donated by the New York City Transit Authority and deployed as artificial reef material at Reef CCA-JY in December of 2002.
Courtesy of GA DNR CRD



MARTA Rail Cars deployed as artificial reefs on L Reef off the coast of Georgia. Captured seven months after deployment.
Courtesy of GA DNR CRD



Rail cars deployed as artificial reef materials off the coast of Georgia.
Courtesy of GA DNR CRD

OUR RESEARCH

Marine Extension and Georgia Sea Grant developed a comprehensive online survey aimed at Georgia-based anglers, guides, and divers to:

- Gauge the perceived importance of Georgia managed artificial reefs
- Explore preferences for artificial reef features, and assess the value assigned to these features
- Examine the economic contributions of artificial reefs
- Evaluate the overall net benefit of Georgia’s artificial reef program

To understand preferences for different artificial reef features, the survey included choice scenarios that consisted of three options: Artificial reef program A, Artificial reef program B and Neither (Figure 1). The scenarios varied by structure size, relief, location, recreational access, and cost to the participant.

The survey also collected data on participants’ demographics as well as travel costs to artificial reef sites.

A total of 370 survey participants (anglers, guides, and divers) completed the survey. Participants were further categorized as users (if they have visited at least one of Georgia’s managed artificial reef sites in the past twelve months) and non-users (if not).

Their responses as well as data provided by CRD on the cost of running the artificial reef program were gathered and analyzed using economic impact analysis software (Microsoft Excel, Stata, and IMPLAN).






	Artificial Reef Program A	Artificial Reef Program B	Neither
Structure size 	0.1 acre	2 acres	There will be no further artificial reef enhancement / restoration projects
Relief (Height) 	High relief (greater than 6.6 feet)	Low relief (less than 6.6 feet)	
Location 	Offshore (15-25 nautical miles)	Inshore (up to 2.5 nautical miles)	
Recreation Access 	Unlimited	Limited	
Cost to household (Annual donation pledged) 	\$5	\$50	

Figure 1: Example of Choice scenario used to gather preferences for artificial reef features, aimed at guiding reef managers on which features people would like to see included in artificial reef programs.

- I prefer Program A
- I prefer Program B
- Neither
- I prefer not to vote.

KEY FINDINGS

Positive net benefit

- Over 50 years, Georgia’s artificial reef program could generate an estimated net benefit ranging from \$38 million to \$139.3 million.
- For every \$1 invested in the program, \$1.60 to \$2.40 is generated, highlighting the program’s economic efficiency and long-term value.

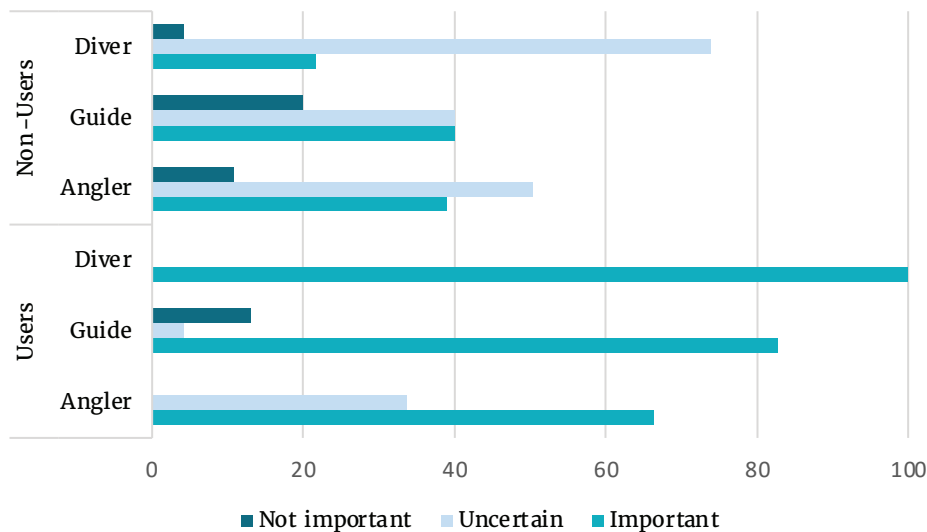
Substantial statewide economic contributions

- The estimated total economic contribution of artificial reef visits in 2023 is \$8.2 million, with a value-added impact of \$4.1 million.
- Artificial reef visits support 44 full and part-time jobs, with total labor income reaching \$2 million.
- The total trip cost to artificial reef sites was estimated at \$4.9 million in 2023.

Artificial Reef Preferences

- Survey results indicate differing preferences for artificial reef features, but respondents generally favor artificial reefs over no reefs.
- Users prefer large-sized artificial reefs located nearshore
- Non-users prefer large-sized reefs with high relief, located inshore with unlimited recreation access
- Anglers and Divers prefer inshore reefs with unlimited recreation access.
- Guides prefer reefs nearshore and offshore.

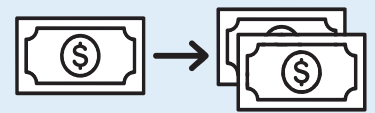
Perceptions of the importance of artificial reefs varied between users and non-users.



Georgia’s artificial reef program could generate

\$38 MILLION TO \$139.3 MILLION.

in net benefits over 50 years.



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Artificial reef visits contributed

\$8.2 million

to the economy in 2023.

Figure 2. Respondents’ views on the importance of artificial reefs varied depending on whether they had visited one recently. Those who had not visited an AR in the past year were more uncertain, while those who had visited recently mostly viewed ARs as important, with guides and divers especially showing strong support.

RECOMMENDATIONS

As the program continues, maintaining focus on stakeholder preferences and maximizing net benefits through strategic management will be key to its long-term success. Artificial reef managers should:

- Continue to support and expand the artificial reef program, ensuring that funding for reef construction and maintenance is sustained over the program’s lifespan. Long-term planning should include the periodic evaluation of economic impacts to justify continued investment.
- Balance reef placements between inshore, nearshore, and offshore locations to cater to a broad range of stakeholders. Periodic surveys and monitoring should be conducted to adjust reef installations and ensure that they continue to meet user needs and preferences over time. Managers should ensure these reefs have sufficient recreational access to meet the needs of anglers, guides, and divers. Future reef sites should focus on accessibility to maximize user engagement.
- Develop targeted outreach campaigns to raise awareness about the ecological and recreational benefits of artificial reefs. Highlighting the positive economic impact and recreational opportunities provided by artificial reefs can attract more donors and users, especially among divers and anglers.
- Collaborate with local businesses, tour operators, and the fishing industry to create more opportunities for employment related to artificial reef visitation and use. Helping these groups integrate these findings into their business strategies can foster opportunities for private donations.



All photos courtesy of GA DNR CRD.



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