

Application Score Sheet

Proposed Project: Apalachicola Bay System, Florida State University (#69)

Proposed Project/Program County: Franklin

Board of County Commission Support: Yes

Total Projected Project Cost: \$9,498,678

Match Provided: \$1,500,000 in direct cash in years 1-5 plus in-kind and additional grant dollars

Triumph Funds Requested: \$7,998,678

Triumph Funds Recommended by Staff: \$7,998,678

Score: A

Triumph Board Approval: Yes/No

Triumph Funds Approved by Board:

Date:

Economic Impact Analysis and Score

The Florida State University (FSU) proposal describes the Apalachicola Bay System Initiative (ABSI) project intended to achieve significant job creation and economic development in Franklin County and adjacent regions through improved fisheries and enhancement of a broad spectrum of ecosystem services in Apalachicola Bay. The FSU cash match of \$1,500,000 represents 16 percent of total projects outlays, while the requested Triumph award of \$7,998,678 provides 84 percent of project outlays. Additionally, FSU will waive all fixed and administrative costs and provide services of its FSU Coastal Marine Lab facilities (FSUCML) and associated infrastructure such as boats. FSUCML scientific and support staff will allocate a portion of their effort to ABSI at no cost to Triumph. As Triumph support expires, FSU will assume the salaries of all permanent staff hired using Triumph funds out to at least 15 years so that the work can continue. Current and new research faculty hires will be required to obtain ongoing external funding in support of the broader scientific focus of ABSI, ensuring the ongoing success monitoring of the Bay and the success of the oyster industry

Major activities during this work will cover several dimensions. ABSI will develop a science-based plan of action for restoration of the oyster reef system and an overall management plan for the Apalachicola Bay. It will partner with the Franklin County community members as well as government, academic and non-governmental organization (NGO) stakeholders to build lines of communication with the appropriate Federal and NGO entities and then work to secure the necessary resources required for bay restoration. The restoration partnership will then implement the restoration plan and monitor its progress using the resources which were leveraged using Triumph Gulf Coast funds and the initial FSU cost-share and long-term commitment to ABSI. FSU has committed to partner with their Moran Institute, their School of Entrepreneurship and/or their College of Business and others in helping build the capacity of entrepreneurs to participate in the economic activities of a rejuvenated oyster sector.

FSU has indicated a strong willingness to be inclusive in bringing on partners in the science, business and community dimensions in identifying and suggesting improvements for this important sector. A multi-faceted approach will be needed and is firmly supported by the applicant. As was stated by the shellfish industry experts who testified before the Triumph oyster working group, the nature of our marine assets and the risks inherent in working with Mother Nature mean that lasting solutions must necessarily include all subsegments of the oyster industry, and all stakeholders with interests in the Apalachicola Bay estuary system.

One dimension of the above activities is the creation and operation of a Community Advisory Board (CAB) to be facilitated by the Florida Center for Conflict Resolution Consensus Center to facilitate development of a shared vision among CAB members and other stakeholders throughout the effort. CAB will be constituted with input from Triumph Gulf Coast, and there will be representation of the broader scientific community in the form of working groups focused on specific technical topics. For this project, it is particularly important that sector-wide facilitation occur to ensure that all voices affected by the oyster industry are heard and that a clear channel is available for community input into sector revitalization.

The project has the potential to be transformational for Franklin and adjacent counties. Apalachicola Bay had at one time been the source of 10 percent of the nation's oysters, and restoration of this vital asset will bring market-driven benefits across the region. Credible analysis presented in the May 2018 ABSI application update suggests that in the presence of credible research results and well-formulated implementation plans, ABSI-related activities will enable:

- \$900,000 in external contract and grant awards in years 1-5.
- \$6,136,858 from FSU in salaries and benefits from FSU for ABSI faculty and staff in years 6-15.
- \$4,000,000 in new contracts and grants for research in years 6-15.
- \$40,041,600 in costs for implementation of plan to restore 485 hectares (perhaps federal or state funding)
- \$13,650,000 linked to start-ups and new businesses (via 25 startups with 50 jobs)
- \$18,657,000 in cumulative value of increased oyster landings.
- \$20,673,231 in cumulative increased ecosystem services from the Bay associated with achieving the target restoration goal.
- The calculation of the benefit to cost ratio (BCR) based on the sum of the benefits cited above then yields $(\$105,558,689 \text{ in benefits})/(\$7,998,678 \text{ in costs}) = \sim 13.2$.

The project will help elevate the function, visibility, and viability of the region via the historically important oyster fishery. For these reasons, staff rate this program "A" in terms of economic impact to Franklin County and the surrounding area.

Project Summary (based on information provided by the applicant)

The Florida State University Coastal & Marine Laboratory (FSUCML) in St. Teresa (Franklin County) requests \$7,998,678 from Triumph Gulf Coast, Inc. to gain insight into the extent of deterioration of the reef system and the underlying causes of the observed decline resulting in a plan of action for recovery of the oyster reefs and the health of the Bay. The overarching objective of Apalachicola Bay System Initiative (ABSI) is to provide information and tools that will facilitate the recovery of the Apalachicola Bay ecosystem, which is critical to the economy of Franklin County.

The proposed objective will be met by understanding the trajectory of change in physical structure and water flow over time, monitoring oyster recruitment and survival, and conducting laboratory and field experiments that inform predictive models of oyster productivity.

The plan of action will be developed in concert with the agencies responsible for the management and conservation of the region, implemented by those agencies and will be adaptable as new information arises. Field sites are proposed to include Apalachicola Bay System (Apalachicola Bay, East Bay, St Vincent Sound, East and West St George Sound and Alligator Harbor), and adjacent near-shore areas.

The ABSI effort proposes to leverage substantial external funding in support of the research and plan implementation. Recovery of oyster reefs will translate into positive economic outcomes for those whose livelihoods depend on a healthy Bay.

The Apalachicola Bay System has always been the economic and cultural epicenter of Franklin County. The seafood industry, recreational fisheries and tourism are extremely important to the vitality of the county and depend on a functional and highly productive Apalachicola Bay System. A critical supporting feature of the ABSI effort will be the construction and operation of a pilot- scale oyster hatchery which will develop new and transferable know-how, technologies and products (such as unique strains of oysters) that will support bay recovery and associated industries (e.g., harvest, aquaculture, ecotourism). The hatchery is intended to be a prototype for an industrial-scale hatchery that could be constructed in the region by the private sector.

The products developed in the ABSI oyster hatchery can be transferred to residents through the training of interns and by interaction with state and federal agencies, with stakeholders, and with private and public sectors. This transfer could support substantial economic gains on large-scale oyster recovery efforts and aquaculture throughout the region. In the final analysis, the ABSI will serve as an important member of a team of players composed of local community, state, federal and NGO partners in treating and resolving the crisis unfolding in Apalachicola Bay.

The proposal goal is to generate science-based management and restoration plans that will result in the recovery of oyster reef communities in the Apalachicola Bay System, and improvement of

the overall ecosystem. The benefit of this effort will be manifested in restored fisheries and tangible improvements in ecosystem services. These include increased revenue from fisheries and tourism, improved water quality, shoreline stabilization, and a myriad of aesthetic and recreational interests supported by a healthy bay system. In addition, the ABSI includes training for a growing aquaculture workforce and development of entrepreneurial businesses (such as shell recycling) that may be supported by future restoration efforts.

In recent years, a variety of natural and man-made disturbances have impacted the overall health of the bay, including local and regional factors such as harvesting, disease and predation, extreme climate conditions and changes in the flow regime. The deterioration of the bay has resulted in significant economic hardships in Franklin County and adjacent areas. One key manifestation of these disturbances has been the well-documented and fairly recent collapse of the Apalachicola Bay oyster fisheries.

As a keystone species, oysters are important from both an economic and ecologic perspective. In the past, oyster harvesting contributed to up to 50% of the local economy, and the oysters themselves provide critical refuge, feeding grounds, and nursery habitat to many other economically and ecologically important fish and invertebrate species. Oysters can be thought of as ecosystem engineers, providing significant ecosystem services to the entire bay. Their health is essential for bay recovery.

The Initiative (ABSI) seeks to obtain solutions to the ecosystem decline and to develop the strategic and implementation plans needed for moving towards recovery. Products will include information on how oyster populations are connected to each other, which reefs are good sources of new spat, and how environmental conditions affect recruitment. This information will enable managers to predict which reef sites might be the most successful. The ABSI will also determine whether there are local oyster strains that are more resilient to stress and disease; these could be targeted for aquaculture and restoration.

Changes in freshwater flow have been cited as a major reason for the oyster fishery collapse. While flow into the Apalachicola Bay is influenced by managed release from reservoirs, it is also strongly affected by natural climatic conditions. The ABSI, through long term studies of oyster recruitment, growth, productivity and diseases, together with detailed environmental information, will provide a comprehensive understanding of how the dynamic conditions in the Apalachicola Bay system are affecting the oysters and their communities. This information will be used to identify areas where oyster productivity may have changed in the bay as a result of shifting flow regimes, and could also be used to provide guidance to the US Army Corps for targeting the timing and quantity of water flow needed in order to maintain healthy oyster populations.

All the complex data generated through the ABSI will be distilled into user friendly products made available to scientists, stakeholders, and managers and used by them to understand and predict how oyster populations will respond to different environmental and biological scenarios. This will be a valuable tool for managing harvesting, water flows, and restoration efforts, as well as a community engagement tool to garner buy-in from stakeholders that would potentially

increase understanding and compliance with management decisions. These products could also be adapted to other species.

Finally, the ABSI will become the nucleating agent for assembling a team of local, state, federal, private and NGO partners for developing a plan for recovery and management of oyster resources and habitat to be undertaken over the 15-year period of the effort, the first five years of which will be primarily supported by the requested Triumph Gulf Coast, Inc. funding. The development of the plan and the coalescing of the key support partners and necessary resources would not be possible without the catalytic and essential input of funding from Triumph Gulf Coast, Inc. In addition to plan development and implementation, a variety of new techniques, technologies and research products will be created with significant, potential commercial and economic development implications.

The fact-based and long range plan developed during the effort, will facilitate recovery of significant portions of the oyster reefs in Apalachicola Bay and the ecosystem services that they provide, including the biophysical, ecological, economic, social, and cultural services derived from restored bay health.

Tremendous focus has been placed on recovering historical freshwater input as a solution to ecosystem decline. While freshwater inflow to the estuary is important, it is only one of a number of forces influencing the success or failure of oysters in Apalachicola Bay; harvesting, climate, habitat, recruitment and survival all influence the success of oyster populations. The ABSI will evaluate the influence of these and other factors on oyster reefs and their communities, will develop a series of management tools, and will identify alternatives for management, restoration and aquaculture.

The proposed effort builds on a foundation of prior and on-going work conducted by several entities including Florida State University (FSU), Florida Fish and Wildlife Research Institute (FWRI), University of Florida (UF), University of South Florida (USF), Apalachicola National

Estuarine Research Reserve (ANERR), the Florida Department of Agriculture and Consumer Services (FDACS) and The Nature Conservancy (TNC). The multidisciplinary, collaborative, project will provide a scientific foundation for ecosystem management and restoration, as well as create best practices and technologies for aquaculture. The outcomes of ABSI will benefit commercial and recreational fishers, aquaculture practitioners, and private-sector industries, and will provide the long-term economic boost of a healthier coastal ecosystem to Franklin County.

The pilot-scale hatchery will serve as the prototype and design model for a private-sector, industrial scale hatchery that could potentially be needed to support bay restoration efforts. This large scale hatchery could be replicated elsewhere. The techniques could be transferred to hatcheries throughout the broader Gulf Coast region. The biophysical model will extend beyond the ABSI and identify connectivity of oyster populations across the region.

It is envisioned that the pilot-scale hatchery will consist of 6,250 gross square feet @ \$400/GSF for a total construction cost of \$2,500,000. Design, permitting and the extensive amount of specialized tanks and related structures (“soft” costs) will add \$850,000 to the total project cost.

This model can also be adapted for other species, creating a more general tool to assess species connections. Similarly, the management and restoration plans will have applications over a much broader geographical scope than ABSI. Finally, the collaborations and partnerships established through this project will create synergies that will continue to impact the region after the conclusion of the project.

Targeted community outreach will create the following opportunities for community engagement:

- Development of an ABSI Advisory Board composed of stakeholders, agency personnel, and FSU faculty;
- Provision for paid hatchery internships (which will prepare high school students and/or other local residents for work in commercial hatcheries);
- Development of a shell recycling program, which could develop into a private business;
- Opportunities for active stakeholder working groups that include fishers, hatchery operators, managers, and policy makers (thus facilitating feedback from the community on ABSI progress);
- Public events at FSUCML and at ANERR showcasing the project;
- Public interface through social media and on the FSUCML website.

Years 1-5 of the project will be supported by Triumph Gulf Coast, Inc., with additional FSU cost-share and external contract and grant funding. Years 6-15 will be funded by FSU and external funding.

Years 1-5 will lead to development of comprehensive management and restoration plans in concert with natural resource management agencies. Years 6-15 involve continued research by ABSI and interaction with stakeholders while restoration efforts, monitoring, and management are carried on by resource management agencies.

In the short term, the ABSI will develop immediate tangible products that can be applied to management and restoration efforts. For example, the ability to choose optimal sites for oyster settlement, growth, and survival in a particular year will support sustainable management of recovering stocks; and understanding oyster recruitment rates, population distribution and habitat requirements will increase success and cost effectiveness of restoration efforts. Long term benefits lie the adaptive nature of the ABSI products which will allow management entities to respond to changes in environmental and ecological conditions to ensure sustainable fisheries and economy.

The transformational potential of ABSI lies in the broad scale collaborative nature of the project, which will bring together multiple academic, management, and stakeholder entities to generate a science-based adaptive management approach that can be used to enhance oyster population recovery, and reverse what appears to be an accelerating decline in the overall health of the bay. A significant product of the ABSI will be a science-based restoration plan, which incorporates novel restoration techniques that will improve success and cost-effectiveness. The data and tools produced through ABSI will help enhance oyster fisheries and provide training, technology and

optimal strains of oyster broodstock for commercial hatcheries thereby supporting regional aquaculture endeavors.

After year 5, the funding for all research faculty and support staff hired using Triumph Gulf Coast funds (7 FTEs) will be assumed by Florida State University. The University commitment to these salaries amounts to \$6,136,858 over the ten-year period (years 6-15). Furthermore, current faculty and staff at FSUCML will be actively involved in this effort in years 6-15, and beyond.

Most importantly, it is anticipated that early on in the effort FSUCML faculty will secure external contracts and grants from Federal, State and private entities to support the overall research effort. These grants will require goods and services from local business and will provide an economic boost to the local area.

The Apalachicola Bay recovery plan developed during the Triumph Coast Gulf, Inc.-funded phase of ABSI will continue in years 6-15. The extended plan is for ABSI to continue working with stakeholders and natural resource managers to develop best practices for continued ecosystem recovery, and to ensure that this knowledge is incorporated into regional management plans. The hatchery will continue to operate as a research and training facility, improving stocks and culture techniques for oysters and other economically valuable species. The models generated by ABSI will be updated and improved, providing tools for adaptive management variable flow and climate regimes.

Funding and Budget (as provided by the applicant)

5. Please provide a Project/Program Budget. Include all applicable costs and other funding sources available to support the proposal.

A. Project/Program Costs:

A. Project/Program Costs (See Appendix 8 for details)	
Renovations to existing buildings and enhancements of research infrastructure	\$750,000
Pilot-scale Oyster Hatchery	\$3,350,000
Research consultants	\$305,947
Permanent staff (includes fringe benefits)	\$2,670,959
Temporary staff (includes fringe benefits)	\$691,772
Research and outreach operations	\$1,480,000
Contingency	\$250,000
Total project costs	\$9,498,678
B. Other Project Funding Sources	
City/County	0
Private Sources	0
Other (Florida State University)	\$1,500,000

Total Other Funding	\$1,500,000
Total Amount Requested	\$7,998,678

Total Project Costs: \$9,498,678.00

B. Other Project Funding Sources:

Florida State University will contribute \$1,500,000 in direct cash support of this project. However, it is anticipated that FSUCML faculty will also generate approximately \$900,000 in related contracts and grants in years 3-5 to support of the overall ABSI effort. This contribution has not been factored into the percentage calculation above and in point 5B below.

At the end of the five-year period there will be seven full-time, permanent employees at FSUCML with an average annual salary of \$63,950 (this does not include fringe benefits which amount to 30% of the base salary). In addition, there will be a large number of local temporary employees involved in the lab and field experiments. Furthermore, we expect the generated contracts & grants during this period to employ postdoctoral fellows, graduate research assistants and technicians. Note that in years 6-15 Florida State University will assume responsibility of the salaries of the seven permanent FSUCML employees at a total projected costs of \$6,136,858.

Total Other Funding: \$1,500,000.00 in direct cash support

Total Amount Requested: \$7,998,678.00

Letters of Support

Apalachicola National Estuarine Research Reserve (ANERR)
 Florida Fish and Wildlife Conservation Commission, Marine Fisheries Division
 Florida Fish and Wildlife Conservation Commission, Molluscan Fisheries Division
 Florida Department of Agriculture and Consumer Services, Division of Aquaculture
 The Nature Conservancy
 Apalachicola Riverkeeper
 The Pew Charitable Trusts
 Florida Wildlife Federation
 National Wildlife Federation