



BFSF Grant Award Program Application Form

A. BACKGROUND INFORMATION (max 1 page)

1. Lead Organization

Project Title:	<i>Restoring science, community engagement and megafauna tourism at Gladden Spit Marine Reserve</i>
Organization name:	MarAlliance (MAR)
Organization Address:	Charter House Suite 6, Mile 3.5 N Hwy, Belize City, Belize 209 Mississippi Street, San Francisco, CA 94107, United States
Type of Organization:	<i>(NGO, Private, Community Based organization/association, GOV etc.)</i> Local Belizean NGO and 501(c)(3) International non-profit,
Date of incorporation of Organization:	<i>(mm/dd/yyyy)</i> 14/04/2014

2. Main Contact

Contact name: Dr. Rachel Graham

Position: Founder and Executive Director

Contact info (email and telephone): grants@maralliance.org

3. Project Duration: 36 Months

Anticipated Start Date: 06/01/2023 *Anticipated end date:* 05/30/2026

4. Project location

Gladden Spit and the Silk Cayes Marine Reserve and environs, and dependent coastal communities.

5. Project budget summary

Contributing Organizations		Total Contribution (BZD)	Percentage (%)
Funds requested from BFSF		\$ 652,342.00	61%
Contribution from Organization Applying:		\$ 231,040.00	22%
Contributions from Partner	<i>BIOPAMA</i>	\$ 175,800.00	17%

Organizations (co-financing)			
Total Project Estimated Cost		<i>\$ 1,059,182.00</i>	100%

B. SUMMARY (*max-500 words*)

This MarAlliance (MAR) led project aims to support co-managers Southern Environment Association (SEA) to restore knowledge of the status of commercial fish and develop a basis for scientifically informed and community-based marine wildlife tourism in Belize by focusing on one of Belize’s iconic fish spawning aggregation (FSA) sites, Gladden Spit. The project will focus on four components that include monitoring, capacity building, information creation and dissemination for conservation, management, and a roadmap for long-term monitoring and financial sustainability. Historically, Gladden Spit was economically important to the livelihood of at least eight southern communities who fished the site during the spawning season and later participated in whale shark tourism. The decline in aggregation sizes and numbers of whale sharks returning seasonally to the site has impacted local and national income. The purpose of this project is to collaboratively investigate and understand the status of the FSA site(s) across multiple species of commercially important finfish during peak spawning months and the factors that have led to the disappearance of visiting whale sharks. This includes a detailed assessment of FSAs during the 6-month peak reproductive season for groupers and snappers and documentation of marine megafauna (MM) visitation, relative abundance, and their potential contribution to vibrant wildlife encounter tourism. Understanding these aspects with the community, tourism, fishing, and academic sectors will enable us to find solutions to restore fish populations and dynamic management of Gladden Spit, once a jewel in the crown of Belize’s wildlife encounter tourism and protected areas network.

This project will address several components of BFSF strategic objectives:

- Bolster fisheries management and community engagement with SEA through data collection and recommendations to support the rebuilding of depleted FSAs and fish stocks at Gladden Spit and environs;
- Support sustainable tourism growth in southern Belize by developing strategies for shark tourism including whale sharks to boost the Blue Economy in Belize;
- Inform climate change resilience strategies for FSA and wildlife visitation through the collection of environmental data in relation to biotic processes;
- Support BFSF strategic objectives through targeted training and the development and dissemination of educational material that support improved monitoring, management and stewardship of marine resources.

The direct beneficiaries of this project are the stakeholders of Gladden Spit, the eight stakeholder communities, the tourism and fishing sectors, and the management organization- Southern Environmental Association (SEA). Lack of funding and changes in the institutional arrangements at SEA have led to reduced monitoring efforts, enforcement, and research. Although this project does not focus on enforcement, results generated will support SEA and communities to solve the mystery of the disappeared whale sharks and declining FSAs, and help to develop strategies to render monitoring sustainable through expanded wildlife tourism.

This project supports the Sustainable Tourism Plan, the Blue Economy Strategic Plan, the established and recent listings of reef-associated sharks on CITES and the achievement of SDG 14, specifically Target Goal 14.7 to increase economic benefits from the sustainable use of marine resources through sustainable management of fisheries and tourism.

C. ORGANIZATIONAL BACKGROUND AND CAPACITY (max-500 words)

MarAlliance's Mission: We explore, enable, and inspire conservation action for threatened marine wildlife and their critical habitats with the support of coastal communities.

Our Vision: Threatened marine wildlife thrive throughout the world's tropical seas with local stewardship.

Founded in 2014, MarAlliance (MAR) is an international non-profit, registered in the USA and in Belize, with a global staff of 22 employees and a network of 60 part-time fisher field associates. Our Belize team of 5 and 24 fisher and guide partners conduct long-term monitoring throughout Belize and provide marine education and training programs. We have long supported the Belize Tourism Sector, Ministry of Education, and the Fisheries Department with science for its management of fisheries and large marine fauna, and tourism guides and students through education to improve knowledge, pride, the tourism experience and marine stewardship.

The primary purpose of the proposed project is to assess the health of FSAs and marine megafauna in Gladden Spit with co-managers (SEA) to restore knowledge and the future prosperity of fisheries and marine wildlife encounter tourism in Southern Belize. MarAlliance staff has conducted monitoring of marine wildlife in Belize for 25 years, with groundbreaking research on whale sharks and FSAs (Graham et al 2007; Graham 2007; Graham and Castellanos 2009; etc.), FSA fisheries (Graham et al 2007), wildlife tourism (Graham 2004; 2007). MarAlliance has also produced the longest continuous megafauna abundance survey in the western Caribbean at Lighthouse Reef Atoll (Graham et al. 2005; 2008; 2009; 2012; Garzon et al 2021; Baremore et al 2021). Our research and collaboration with industry and management agencies has led to the national legislative protections of MPA creation, fish spawning aggregations, whale sharks and nurse sharks, gillnet ban and shark fishing restrictions (GOB 2001; 2003; 2005; 2011; 2020; 2021). We have a strong and established scientific approach, but the core of the work is accomplished only through collaboration with fishing communities, the tourism sector, and managers. Dr. Graham, Dr. Rhodes and Ms. Forman-Castillo have more than 60 combined years of work and numerous relevant published papers. Dr. Rhodes has also published on FSA status (Rhodes et al. 2014), FSA and marine megafauna interactions (Rhodes et al. 2019), management (Rhodes and Warren-Rhodes 2005), fisheries impacts (Rhodes et al. 2015), monitoring techniques (Heyman et al. 2004; Pet and Rhodes 2006) and trained numerous monitors over the years, including in Belize.

Pew Charitable Trust - 3 yrs, 150k - Panama 2021-2024

Lead, 100% of funding. Building community and hammerhead resilience in the Coiba National Park and World Heritage Site region.

The Oak Foundation - 5 yrs, 350k - Belize 2015-2022 (pandemic delays)

Lead, 100% of funding. Building MarAlliance's capacities to function as a new international marine research and conservation NGO.

NOAA SK - 2 years, 300k (€ 0.29 m)- Micronesia 2021-2023

Lead, 100% of funding with subgranting to Micronesia Conservation Trust. Expanding Domestic Marketing and Commercial Export Opportunities for Micronesian Value-added Nearshore Pelagic Fish Products.

D. PROJECT OUTCOMES AND EXPECTED RESULTS (max-500 words)

Problem Statement: The status of fish and megafauna populations and cause of the relative disappearance of whale sharks from Gladden Spit (once fueling multi-million dollar encounter tourism) now remain unknown. Monitoring of Gladden Spit's FSAs and whale shark visitation has not been consistent for nearly a decade. Fishers report increasing numbers of other shark species that take their catch, increasing fishing effort but also providing a potential opportunity for wildlife encounter tourism expansion. With no consistent biological monitoring occurring during the spawning season (December-May), it is difficult to say what is causing these changes and how to mitigate these impacts.

Rationale: This project aims to compare the current status of the aggregation site to its previous baseline and use new technologies to assess observed changes to recommend scientifically supported management strategies for the area. The proposed outcome is to increase fish and megafauna abundance and develop tourism initiatives that result in improved economic benefits to stakeholder communities and Belize.

Specific activities:

1. Monthly monitoring at Gladden Spit during the spawning season for groupers and snappers and marine megafauna.
2. Deployment to environmental loggers and acoustic monitoring to monitor temperature and pH and FSA spawning sounds.
3. Build the capacities in novel monitoring and analytical techniques with a large cohort of competent monitors trained from the fishing, tourism and academic sectors.
4. Develop a broad communication project that integrates citizen science, community engagement, education and outreach that can be readily replicated to other sites.
5. Create a road map for monitoring, management and tourism sustainability at Gladden Spit with potential for replication to other MPAs in the region.

Specific outputs:

1. Comprehensive assessment of Fish Spawning Aggregations and marine megafauna in comparison to previous data at Gladden Spit.
2. Capacity-building of key stakeholders and local communities with established and novel techniques to support rewilding of ecologically and economically important marine species at Gladden Spit.
3. Creation of clear communication instruments, capacities, and sustainability protocols/roadmap to support enduring monitoring and financial stability as well as open access and engagement in mission.

Specific outcomes:

1. The status of Gladden Spit's FSA and megafauna is known, as is the reason for the decline in whale shark visitation, which enables a realistic repositioning of wildlife encounter tourism and stakeholder expectations.
2. Stakeholder communities are reinvigorated with knowledge, capacities, and engagement in the monitoring and decision-making processes to improve stewardship and management of the MPA.
3. Automated processes to capture and analyze data are established and mainstreamed for the benefit of Gladden Spit management, Belize FSAs and marine wildlife and regionally.
4. Key steps are identified to secure a future for Gladden Spit and commercial fish that benefits Belize and can be replicated to other sites or MPAs.

Potential impact: Data collected and capacities built by the proposed project have the potential to significantly benefit management of commercial fish to improve fish population status and bolster marine wildlife encounter tourism in Southern Belize.

Expected Results:

1. Systematization of FSA and MM monitoring at Gladden Spit with high-quality data outputs.
2. New cohorts of highly trained fishers, guides and students to provide continuity and sustainability to monitoring within Gladden Spit, to support better management of the area.
3. Improved understanding and communications within the fishing sector and between the fishing, management, and scientific sector on target species.
4. Improved tourism output and income at the protected area.
5. A roadmap charting financially sustained monitoring and tourism at Gladden Spit for the coming decade.
6. Information gathered through this project be used to inform national decision making processes such as the Marine Spatial Plan (MSP). This information gathered within this project will be key in identifying important areas, and strategies to be taken into consideration during the development of the MSP.
7. Revised best practices for whale shark tourism and development of a national shark tourism strategy.

Location: Gladden Spit & Silk Cayes Marine Reserve is located along the southern portion of the Belize Barrier Reef Complex, about 36 km offshore, east of Placencia Village. The primary focus of management is Gladden Spit, a unique geological promontory that falls sharply into the sea, resulting in currents that attract large spawning aggregations of groupers, snappers, and other species, in synchrony with the lunar cycle. This, in the past, has attracted a large gathering of whale sharks to the area during the snapper spawning season to feed on fish eggs.

LOGICAL FRAMEWORK			
	Indicators (SMART)	Means of Verification	Assumptions
GOAL (Impact):			
<i>To improve the status of commercial fish and support a basis for marine wildlife encounter tourism in Southern Belize</i>	<p>30 monitors trained in monitoring techniques over the course of the project</p> <p>A minimum of 4 snapper and 2 grouper species assessed for seasonality, abundance and FSA location annually</p> <p>All marine megafauna encounters documented and quantified through Scuba and snorkel Underwater Visual Transects (UVCs) and monthly spot checks</p>	<p>Management actions</p> <p>Meeting minutes</p> <p>FSA field survey and marine megafauna encounter data logs</p> <p>Completed review of all previous work conducted at Gladden on FSA and MM</p> <p>Publications</p>	<p>The assessment will provide an updated understanding of the status of the Gladden Spit FSA.</p> <p>The information gathered will be beneficial to focus site management and management of all FSAs in Belize.</p> <p>Inclusion into Fisheries</p>

	<p>At least 3 peer-reviewed publications by project end</p> <p>At least 2 project recommendations incorporated into management actions</p> <p>Meetings with BTB and relevant stakeholders on developing a strategy/action plan for marine wildlife encounter tourism</p> <p>1 sustainability plan for financing monitoring and tourism at Gladden Spit by the end of Yr 3</p>		<p>Research permit will be approved.</p>
PURPOSE (Outcome):			
<p><i>A scientific assessment of Gladden Spit's FSA and megafauna is complete with updated resources, networks, and technologies in place and supporting key stakeholders in the management of the MPA.</i></p>	<p>All available records acquired and reviewed to provide a composite baseline; 5 days monitoring per month over 6 months per year for 3 years</p>	<p>Literature review</p> <p>Underwater visual census</p> <p>Photographic and video recordings</p> <p>Reports and publications</p>	<p>Identification and location of target species is attainable within each monitoring period and prior baseline data is available for comparison.</p> <p>Marine megafauna present and counts achievable.</p>
RESULTS:			
Specific Objective 1:			
Status of Gladden Spit MPA's FSA and megafauna resources are assessed relative to environmental conditions			
<p>Output 1.1 Fish Spawning Aggregation (FSA) monitored for snapper and grouper species based on</p>	<p>5 days monitoring monthly for 6 months annually for three years using 4 divers</p>	<p>Data sheets</p> <p>Scuba logs</p>	<p>Weather and human resources enable all monitoring to</p>

their economic and ecological importance for multiple sectors, including fisheries and tourism.		Video and photographic recordings Reports and papers	take place; all target species are located and assessed.
Output 1.2 Monitoring of marine megafauna (sharks, rays, turtles) at Gladden Spit	5 days per month YR1-3 between December and June with complementary boat-based methods from July-November	Data sheets Scuba logs Video and photographic recordings Reports and papers	Weather and human resources enable all monitoring to take place; all target species are located and assessed.
Output 1.3 Environmental monitoring of water quality parameters	Minimum of 4 temperature loggers, 1 salinity probe and 1 bioacoustic hydrophone deployed at Gladden over 3 years (~1100 days)	Data sheets with Temperature, salinity and bioacoustic records from Gladden Spit	Weather and human resources enable all monitoring to take place; no loss or theft of equipment.
Output 1.4 Support local fishing associations to actively participate as members of the FSA and Shark Working Groups	Frequent, periodic meetings and communication with all members of the FSA and Shark Working Groups; coordination and communication of activities across monitoring sites	Meeting minutes Attendance records	All members available and amenable to regular meetings.
Output 1.5 Develop a citizen science (CS) program to support monitoring	Development of CS program in Y1 communicated to 5000+ stakeholders Increase of citizen science portal by 25% by project end	Site visitation numbers Data obtained through citizen science portal	The public has an interest in participating in field data collection and data sharing. Data reliable
Specific Objective 2:	Resources, instruments, and capacities for rewilding of ecologically and economically important marine species in the Gladden Spit MPA are improved		
Output 2.1 Training select fishers, guides, rangers, biologists, and students in identification of target species, reproductive	Training of 3 new cohorts of a minimum of 20 people annually in FSA and	Training materials Social media posts Presentations	Stakeholders are interested in undertaking and

life history characteristics, monitoring techniques and evaluations.	megafauna assessments	Certifications	implementing training.
Output 2.2 Updated FSA monitoring protocol	1 revised, updated and approved Reef Fish Spawning Aggregation Protocol for the Wider Caribbean, where necessary to include innovative methods in FSA and marine megafauna monitoring	Methodology reviewed and training materials developed Protocol revised Training materials developed	All current protocol materials freely available and reviewable; methodology applicable to Gladden Spit.
Output 2.3 Updated FSA and shark tourism course for Gladden Spit that integrates novel knowledge and species shifts	1 revised, updated and approved tour guide course.	Training materials developed Courses held by SEA	Course materials available and SEA is willing to run the courses
Output 2.4 Automation and standardization of data collection and analysis.	1 database specialist identified and enlisted All acquired data entered 1 set of protocols developed 1 application developed and accessible 1 centralized database created	Data entry application developed Acquired data entered into the centralized database	Application and database development cost-prohibitive. Other monitoring teams are willing to share data.
Specific Objective 3:	Develop communication instruments to inform key stakeholders and the public on findings, activities, and proposed initiatives at Gladden Spit.		
Output 3.1 Broaden communication and collaborations with key stakeholders across the private, public, government, and non-government sectors	Quarterly meetings within the community of Placencia with stakeholder and 2 broader meetings annually with key stakeholders across the private, public, government, and non-government sectors	Meeting minutes Photos List of stakeholder groups engaged Action points adopted	Stakeholders are interested and engaged in the improved management of FSAs and MM.

<p>Output 3.2 Creation of educational outreach materials and social media</p>	<p>3 presentations created, annual project briefs, 3 project posters, 1 FSA/MM course and school oriented educational presentation materials created and dispersed Minimum of 36 social media posts shared to an audience of over 60,000 (MarAlliance FB and Insta, Belize Shark Project) + MAR Website.</p>	<p>Education and outreach materials Social media posts analytics</p>	<p>Materials are effective in reaching a broad audience.</p>
<p>Output 3.3 Develop a long-term management and financial sustainability plan for continued monitoring, engagement, and stewardship of local stakeholders</p>	<p>1 management plan developed for Gladden Spit monitoring and stewardship in Yr 3 disseminated electronically and an Executive summary printed (500 copies) and shared with project actors.</p>	<p>Long-term sustainability plan</p>	<p>Stakeholders are interested in the improved management of FSAs.</p>

E. ACTIVITIES & PHASES

Project title: Restoring science, community engagement and megafauna tourism at Gladden Spit Marine Reserve							Project start and end date: 1 June 2023 to 30 May 2026						
Objective 1: Status of Gladden Spit MPA's FSA and megafauna resources are assessed relative to environmental conditions													
Specific Output 1.1: Fish Spawning Aggregation (FSA) monitored for snapper and grouper species based on their economic and ecological importance for multiple sectors, including fisheries and tourism.													
Activity	Responsibility for implementation	Timeline of activity											
		Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.1.1 Access, review and evaluate all existing print and digital materials on past monitoring activities at Gladden Spit to enable cross-comparison	MAR	X	X										
1.1.2 Access and review all relevant past data on target species seasonality/presence and abundance at Gladden Spit to enable cross-comparison	MAR	X	X										
1.1.3 Based on past findings and methodology, develop and update a monitoring protocol useful for training and standardization of monitoring techniques	MAR		X	X	X	X							
1.1.4 Conduct monthly underwater visual census at Gladden Spit (December - June)	MAR			X	X	X		X	X	X		X	X
Specific Output 1.2: Monitoring of marine megafauna (sharks, rays, turtles, large piscivorous fish) at Gladden Spit													
1.2.1 Development and/or amendment of a marine megafauna monitoring protocol	MAR					X	X	X	X				
1.2.2 Data collection through underwater visual census	MAR			X	X	X		X	X	X		X	X
1.2.3 Construction and deployment of BRUVs	MAR			X	X	X		X	X	X		X	X
1.2.4 BRUV data analyzed and interpreted	MAR			X	X	X		X	X	X		X	X
1.2.5 Reports written and findings disseminated	MAR	X	X	X	X	X	X	X	X	X	X	X	X

Specific Output 1.3: Environmental monitoring of water quality parameters													
1.3.1 Deploy, maintain and download temperature and salinity loggers at Gladden	MAR	X	X	X	X	X	X	X	X	X	X	X	X
1.3.2 Deploy and/or facilitate with regional partners deployment, maintenance and data downloading of bioacoustic monitoring equipment (hydrophones)	MAR	X	X	X	X	X	X	X	X	X	X	X	X
1.3.3 Data analyses and reporting of environmental parameters relative to FSA formation and spawning times for fish species and/or presence of marine megafauna	MAR			X	X			X	X			X	X
Specific Output 1.4: Support local fishing associations to actively participate as members of the FSA and Shark Working Groups													
1.4.1 Fisher representative present at FSA and Shark Working Groups meetings semi-annually	MAR			X				X				X	
Specific Output 1.5: Develop a citizen science program to support monitoring													
1.5.1 Development of citizen science portal for reporting	MAR	X	X	X									
1.5.2 Testing and implementation of the CS portal	MAR			X	X	X	X	X	X				
1.5.3 Training with fisher and tour guides on how to use the portal to report sightings	MAR								X	X	X		
Objective 2: Resources, instruments, and capacities for rewilding of ecologically and economically important marine species in the Gladden Spit MPA are improved													
Specific Output 2.1: Training select fishers, guides, rangers, biologists, and students in identification of target species, reproductive life history characteristics, monitoring techniques and evaluations													
2.1.1 Update training for MarAlliance monitoring team members following training material evaluation and updates, including monitoring teams within partner organizations, e.g. FSA and Shark Working Groups	MAR	X				X				X			
2.1.2 Capacity building for fishers in communication	MAR	X	X	X						X	X		
2.1.3 Travel for two fishers to attend FSA working group meeting	MAR		X		X		X		X		X		X

2.1.4 Initiate monthly grouper FSA monitoring at Gladden Spit with co-managers using a combination of fixed transect-based monitoring and photo/video recording	MAR	X	X			X	X			X	X		
2.1.5 Initiate monthly snapper FSA monitoring at Gladden Spit using a combination of time swims and photo/video recording	MAR			X	X			X	X			X	X
2.1.6 Initiate monthly monitoring of marine megafauna/sharks in combination with 6 mths of FSA monitoring at Gladden Spit using a combination of standard data collection, photographic/video documentation and baited remote underwater video (BRUVs) cameras	MAR	X	X	X	X	X	X	X	X	X	X	X	X
Specific Output 2.2: Updated FSA monitoring protocol													
2.2.1 Latest versions of monitoring protocols acquired and reviewed	MAR	X	X	X									
2.2.2 Amendment of monitoring techniques completed and revised manual written	MAR			X	X								
2.2.3 Revised manual review for Working Groups' approval	MAR				X	X							
2.2.4 Revised manual adopted and disseminated	MAR				X	X							
2.2.5 Updated monitoring techniques introduced and monitors trained in updated techniques, as needed	MAR					X	X	X				X	
Specific Output 2.3: Updated FSA and shark tourism course for Gladden Spit that integrates novel knowledge and species shifts.													
2.3.1 Creating course content and revisions	MAR		X	X						X			
2.3.2 Course presented annually	MAR/SEA				X		X			X			
2.3.3 Revised best practices for whale shark tourism, and development of a national shark tourism strategy	MAR/SEA				X	X	X	X	X	X			
Specific Output 2.4: Automation and standardization of data collection and analysis.													

2.4.1 Data development specialist identified and hired	MAR	X	X										
2.4.2 Past monitoring data introduced for development of beta-version application software	MAR		X	X									
2.4.3 Application software developed and new monitoring data entered	MAR		X	X	X								
2.4.4 Application disseminated and data introduced from other monitoring teams	MAR			X	X	X	X	X	X	X	X	X	X
2.4.5 Data and monitoring outputs widely available for comparison and meta-analysis	MAR					X	X	X	X	X	X	X	X
Objective 3: Develop communication instruments to inform key stakeholders and the public on findings, activities, and proposed initiatives at Gladden Spit.													
Specific Output 3.1: Broaden communication and collaborations with key stakeholders across the private, public, government, and non-government sectors													
3.1.1 Conduct quarterly evaluation of data and report findings during regular meetings to all members of the FSA and Shark Working Groups and Belize Fisheries Department	MAR	X	X	X	X	X	X	X	X	X	X	X	X
3.1.2 Provide comparative assessments and updates of data to identify trends in monthly and seasonal abundance of target species	MAR				X				X				X
3.1.3 Annual technical reporting of findings locally, nationally, and internationally	MAR				X				X				X
3.1.4 Direct invite to MSP lead persons to all meetings, and information sharing activities	MAR	X	X	X	X	X	X	X	X	X	X	X	X
3.1.5 Publishing of findings and sharing on social media	MAR					X	X			X	X		X
Specific Output 3.2: Creation of educational outreach materials and social media													
3.2.1 Develop passive and active communications materials, including press releases, project briefs annually, Powerpoint presentations, social media, YouTube video and MAR website updates for dissemination to stakeholders and the public	MAR	X	X	X	X	X	X	X	X	X	X	X	X

3.2.2 Develop games that illustrate key conservation and life history aspects of fish species and marine megafauna utilizing Gladden Spit for dissemination to fishers and other stakeholders	MAR				X					X			
3.2.3 Develop three posters on FSA processes, Gladden Spit and MM encounter tourism	MAR		X			X				X			
Specific Output 3.3: Develop a long-term management and financial sustainability plan for continued monitoring, engagement, and stewardship of local stakeholders													
3.3.1 Working with SEA MPA Co-manager and stakeholders to develop sustainable tourism management and monitoring plans for Gladden Spit with iterative adjustments	MAR					X	X	X		X		X	
3.3.2 Disseminate the draft and adjusted plans locally and internationally via multiple media methods.	MAR									X	X	X	X

F. RISKS TO IMPLEMENTATION AND RISK MITIGATION (*max 1/2 page*)

Risk/Factors	Risk category (e.g. political, social, economic, technological, environmental, legal)	Potential level of impact (e.g. low, medium, high)	Risk mitigation measures
Weather disrupting monitoring activities	Environmental	Medium	Maximize # of monitoring days and times
Weather extremes dislodging environmental monitoring equipment	Environmental	Low	Equipment firmly secured and removed prior to extreme weather events
Covid variant outbreak preventing planned activities	Social	Medium	Proactive protection measures to reduce risk of cross-infection; virtual meetings
Disinterest among citizen scientists, stakeholders or other planned participants	Social	Low	Regular communication regarding the potential economic benefits of the projects
Lack of partner participation for monitoring other sites	Social	Low	Partner participation support through regular communication and data sharing
Inability to identify and enlist a data developer	Technological	Low	Provide opportunities for local computer science students; collaboration with outside universities

G. EVALUATION AND INDICATORS (*max 500 words*)

The expected outcome of the project is the completion of a full 3-year assessment of Gladden Spit to evaluate the status of known and previously monitored fish spawning aggregations and marine megafauna following a long-term void in assessment, all of which supports co-manager SEA's management. In doing so, the project will update information on the impact of past and recent conservation and management measures, address the sustainability of key commercial fisheries based on population abundances, and address concerns about losses in biodiversity, including the loss and/or absence of whale sharks once important to both ecosystem health and marine tourism.

The project will actively conduct monthly site assessments between December and June using a combination of an underwater visual census (UVC) using scuba and snorkel and remote, automated monitoring (e.g., BRUVs, acoustic hydrophones, temperature, and salinity loggers), with the latter continuing throughout the remaining months of the year. Data will be assessed each month following UVC, with instrumentation and camera downloads occurring quarterly, at a minimum. Assessments of performance will be ongoing throughout the project in line with the stated activities. Communications and awareness raising will provide regular up-to-date information in the form of website and social media updates, Powerpoint presentations to stakeholders and government offices

during semi-annual meetings, with regular updates to the Belize FSA and Shark Working Groups during scheduled meetings.

The project's achievements will be determined based on the number of completed abundance, biodiversity, and environmental data collections. The additional outcomes will be achieved through the developed communications materials, data comparisons, recommendations for improved management measures (as needed), reports, publications, and social media outputs, and a raised awareness level among stakeholders of the importance of the site to biodiversity, sustainable fisheries, and marine tourism.

	Indicators (SMART)	Baseline	Mid- Target	End Target	Means of Verification
Objective 1: Status of Gladden Spit MPA's FSA and megafauna resources are assessed relative to environmental conditions	6 monthly data collections and assessments per year for 3 years; all FSAs evaluated; all marine megafauna documented	No contemporary data available	1.5 yrs of monthly data collected for at least 2 grouper and 3 snapper species, requiem sharks and marine mammals and reptiles	Updated assessment of the abundance, seasonality and status of all FSA within Gladden and a complete biodiversity assessment of other marine megafauna	36 months of data collection and analyses, reports, publications and awareness materials complete
Objective 2: Resources, instruments, and capacities for rewilding of ecologically and economically important marine species in the Gladden Spit MPA are improved	Training of a minimum of 60 persons over a three year period in FSA and megafauna assessments	Few people trained in the monitoring of FSAs and MM	Half the target amount of persons trained	Persons training and supporting FSA monitoring of FSA sites in Belize	Training materials Social media Attendance records
	1 Revised and updated Reef Fish Spawning Aggregation Protocol completed and shared	Existing Reef Spawning Aggregation Protocol for the Wider Caribbean Published 2004	Draft FSA document	Final data collection protocol that is well-informed, and can assist resource managers in designing their monitoring program for FSAs	FSA document
	1 centralized database developed and accessible to the FSA	No database	Draft database completed	Database completed and citizen scientist,	Database

	network and their partners		and being tested	and field persons contributing to the data base	
Objective 3: Develop communication instruments to inform key stakeholders and the public on findings, activities, and proposed initiatives at Gladden Spit.	2 meetings annually with key stakeholders across the private, public, government, and non-government sectors and dispersion of educational materials and social media updates	No current status updates on Gladden Spit	BFD, stakeholders, tourism and the public informed of the current status and potential use of marine resources at Gladden Spit	BFD, stakeholders, tourism and the public fully informed of the current status, activities and long-term use of marine resources at Gladden Spit	Education and outreach materials Social media Meeting minutes List of stakeholder groups engaged
	Development of a long-term management and financial sustainability plan for continued monitoring and stewardship with local stakeholders.	No long-term plan in place	Management plan drafted and under review with key stakeholders	Management plan developed for Gladden Spit monitoring and stewardship	Long-term sustainability plan

H. SUSTAINABILITY & REPLICATION (max 300 words)

The sustainability of the project's impact is supported by three main elements: local capacity-building, communications, and the collaborative development of a sustainability plan. Capacity-building in the form of training, workshops, the creation of a collaborative network of key stakeholders to support the MPA co-manager, and an updated FSA monitoring protocol will support sustained project activities and unified action. Equipment purchased for the project will be utilized beyond the project period to support Maralliance's long-term in-country monitoring. Stereo laser sets, two GoPros, BRUV structures, and temp loggers will remain with SEA-trained partners for continued implementation and monitoring. The wide-reaching and highly accessible communications element of the project supports long-term community engagement, awareness, and stewardship.

Built into the projects is the creation of a management plan informed by the FSA and marine megafauna/sharks assessment results and in collaboration with co-manager SEA and key stakeholders. The plan will outline actions to ensure enduring monitoring and long-term financial stability. The plan will be disseminated electronically with an executive summary printed (500 copies) and shared with key project actors. This plan and the project methodology spanning monitoring methodology and technologies utilized, capacity-building, education, and communications has the potential to be replicated at other MPAs following a collaborative review.

J. ATTACHMENTS

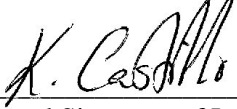
- *Key Project implementation personnel CVs (project manager, Financial Administrator etc.).*
- *Letters of Support from relevant stakeholders/Partners*
- *Commitment letters from contributing organizations*
- *Memorandum of Association*
- *Articles of Association*
- *By-Laws (if applicable)*
- *FIU Certificate*
- *Environmental Clearance letter (where applicable)*
- *Maps (if applicable)*
- *Strategic Plan*
- *Registration Certificate or Document*
- *Certificate of Good standing*
- *Plan/Design (where applicable)*
- *Feasibility study (where applicable)*

- *Any other supporting document related to the proposed project*

Please use the following checklist to ensure your application is complete.

Project Name	Activity Budget
Project Type	Budget category
Summary of the project	Description of the organization
Project Location	Capacity of the Organization
Name and Address of Organization	List of previous projects
Main contact person info (email and telephone number)	Risks
Duration of Project	Required attachments
Estimated Cost of Project	Implementation Plan
Contribution BFSF Strategic Objectives	Signed application form
Beneficiaries	

I hereby declare that all the above information is correct and accurate to the best of my knowledge.



Name and Signature of Legal representative

22nd May 20223
Date