United Nations Environment Programme (UNEP) and International Coral Reef Initiative (ICRI)
Small Grants Programme 2021

CONCEPT NOTE TEMPLATE
(4 pages maximum, including cover page)

Project title: Protecting seagrass beds by promoting the use of sustainable gear for high-quality lobster harvest at the Turneffe Atoll Marine Reserve and beyond.

Intervention country: Belize

Applicant: The Turneffe Atoll Sustainability Association (TASA) in partnership with the Future of Fish (FoF) and The Nature Conservancy (TNC)

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Are you an ICRI member?	**No (Belize is a member of ICRI as a country)**		

For NGOs

Date of creation:	2012
Country of registration:	Belize
Registration number:	**Certificate of Incorporation No: 13134 NGO Registration Certificate No.:154/2016**

THE PROJECT

Title: Protecting seagrass beds by promoting the use of sustainable gear for high-quality lobster harvest at the Turneffe Atoll Marine Reserve and beyond.

Which ecosystems is the project addressing:

The Turneffe Atoll Sustainability Association's (TASA) primary goal is to promote the sustainable use and conservation of the marine ecosystems at the Turneffe Atoll Marine Reserve (TAMR) through management of natural resources, education and outreach, and science for adaptive management. TAMR is considered to be an integral part of Belize's coral reef ecosystem, and one of the most-developed Atolls of the Mesoamerican Barrier Reef (MAR) region, a global ecological hotspot for marine biodiversity. The combination of the extensive terrestrial and mangrove vegetation of the Atoll (some 11,000 hectares), its close connectivity to the productive coral reefs and seagrass beds of the central lagoon, and limited anthropogenic impacts make this area unique within the Belize reef ecosystem. Turneffe is arguably one of the most productive areas in Belize owing to the combination of ecosystems present in the 325,000-acre marine reserve, providing several environmental services, supporting livelihoods and protecting lives. The area is also a major contributor to Belize's commercial harvest of lobsters, conch and finfish, and is known to be an important source of high-value tourism. In addition, the atoll serves as a major first-line buffer for the mainland, especially the low-lying and largest city, Belize City, during major storms such as hurricanes.

Brief summary of the project, issues to address and the planned intervention strategy:

There are continuous and tremendous threats to the TAMR, especially unsustainable fishing practices and coastal development that clears mangroves, and dredges or removes habitat, including seagrass. Today, there are approximately 750 commercial licensed fishers that fish at TAMR, including lobster fishers. According to research conducted by TASA, different gear types used by the lobster fishery have very different environmental impacts on the ecosystem, as well as differential costs to fishers. The goal of this study is to build upon initial research already conducted to: 1) identify sustainable fishing gear for the lobster fishery that reduces environmental impact on the fragile seagrass ecosystem, minimizing harm to other species (reduces bycatch) and improve quality of the lobster catch itself; and 2) develop the gear production and financing mechanism that could help transition fishers to this more sustainable gear *at scale*, in coordination with the existing spiny lobster Fishery Improvement Project (FIP).

Based on preliminary studies, the combination of shade (casitas) with the use of a snare appears to be the most sustainable fishing method, producing less harm on the seagrass, protecting biodiversity by reducing bycatch, and facilitating selection—specifically, reducing catch of berried females and small lobsters. In contrast, TASA's research shows that traps have the highest level of by-catch, and lobster harvested have, on average, half the carapace length in comparison to lobster caught by shades. This preliminary data also indicates shades tend to last longer than traps. The two gear types have similar costs (approximately BZD $30-150 for traps and BZD $20-180 for shades) but today more fishers employ traps (about 7100 in the TAMR region) than shades (approximately 5500).

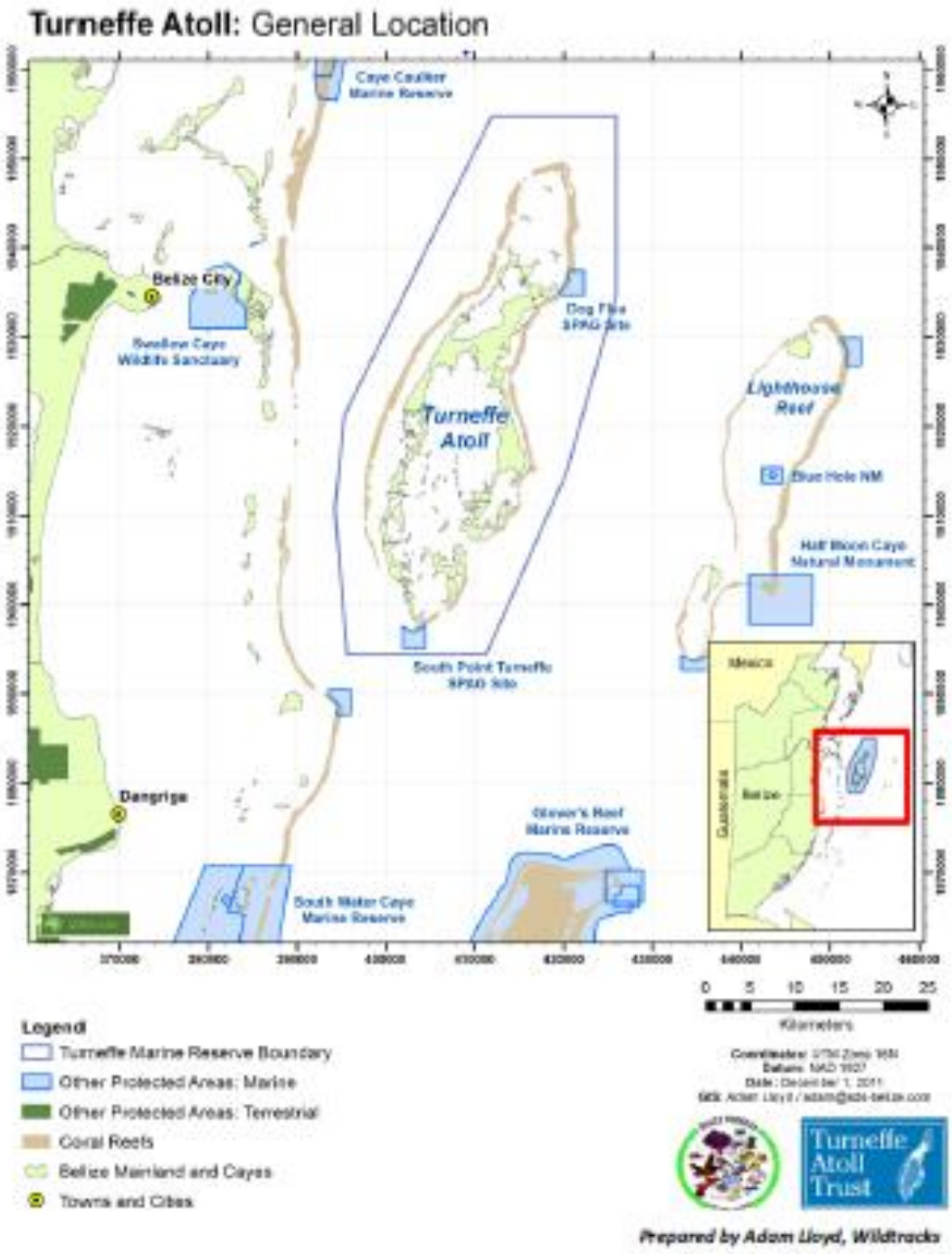
While shades appear to be strong candidates as the more environmentally friendly gear type, more research is needed to identify and develop a method that can ensure protection of the seagrass and other bottom habitat, while still being practical and cost-effective for fishers. Specifically, improvements in shade design are needed to increase i) effectiveness in each bottom type, even when shade flips over; ii) efficiency in terms of materials and long-term resistance; and iii) practicality in tagging and inventory monitoring to help control effort and support sustainable management.

The current proposal aims to design a more sustainable gear for lobster fishing and promote its development and adoption under innovative approaches and partnerships. The ultimate goal of the project is to reduce impact of the lobster fishery on Turneffe's delicate coral reef and seagrass ecosystem by enhancing sustainable fishery management measures at the TAMR, in alignment with the coordinated management efforts promoted by the Central American Fisheries and Aquaculture organization (OSPESCA) and the novel triple impact Fisheries Improvement Project (FIP),[1] which

[1] https://fisheryprogress.org/fip-profile/belize-spiny-lobster-free-diving-and-casitas

advances livelihoods security of lobster fishers and cooperatives, and environmental sustainability of coral reefs.

Precise location: The project will take place in TAMR, and reach fishers in Belize City, San Pedro, Caye Caulker and all stakeholders that conducts lobster fishery using lobster traps and shades. The TAMR is situated 50 km east of the central Belize coastline. See here for maps .



Project Objectives:

1- Design and prove affordable, locally developed and sustainable gear to catch lobster that respects the environment, protects biodiversity and improves the quality of lobster caught by Belizean fishers.

2- Advance and complement TASA's research efforts on environmental and biological impact of fishing gear, and link findings to a cost-benefit analysis of the most suitable option for better access to markets.
3- Promote community-based alternative income opportunities via an innovation challenge to engage the community in the design and development of sustainable lobster gear.
4- Initial partnership development for eventual local gear production and promotion of gear adoption via a financial mechanism.

How will planned activities achieve project objective(s)?:

This project will conduct research to test environmental impact of shades and traps on seagrass and other common bottom habitat and bycatch species in the TAMR *in order to* identify elements of design that reduce impact and improve lobster quality (size, health) *in order to* build the environmental and economic case (via a cost-benefits analysis) for more sustainable gear *in order to* advance local gear production opportunities (supporting livelihoods for coastal communities) and create a scalable model for sustainable, economically viable lobster harvest for Belize, with applications to the wider Caribbean region.

By designing and testing sustainable gear for harvest of lobster in partnership with coastal communities and key stakeholders through an innovative approach that not only proves environmental impact, but also proves quality results for better market access, this work will empower and engage fishers and communities in enhancing sustainable fishing practices and protecting their local marine ecosystem.

The specific activities to support this theory of change are:

1- By working with FIP fishers using existing gear in TAMR and other areas, conduct a short -term study of environmental impacts on seagrass and depending on sea bottom, other coral reef habitat, as well as bycatch and examine the impact on the size and quality of lobster caught. Consideration will be given to determine best gear materials and construction, key environmental and quality attributes of design, and features that facilitate inventory (monitoring of placement and number of gear types) and traceability.
2- Have a blind quality testing with a renowned chef in the country, in partnership with FIP's buyers, to test the quality of lobster caught with each gear type and promote sustainable fisher practices for high-quality markets.
3- Define and launch an innovative design competition for gear modification, using the sustainable criteria identified in the study (including capacity for local crafting with local materials and elements that enhance quality) to set design parameters. Conduct the competition in partnership with fishery experts, the two major lobster cooperatives, and at least 5 community-lead teams that include women and representation from diverse fisher communities. Design competition will include a) selection of the most innovative, affordable, and sustainable design; b) support to build the prototypes; 3) partnership with fishers and TAMR co-managers to test and gather feedback on impact and results.
4- Conduct a cost-benefit analysis of the winning gear design selected, including business feasibility model for fisher adoption.
5- Support the winning team with an award for minimum viable product (MVP) development and provide business planning and capacity building in partnership with FIP stakeholders.
6- Partner with a local Credit Union and cooperatives for designing the financial mechanism to access the sustainable gear. Analyse the potential of incentives mechanisms to promote a larger-scale gear swap.
7- In partnership with the cooperatives and FIP stakeholders, run peer-review demonstration workshops, and develop a communication campaign to show the benefits of sustainable gear.

How will you measure success?

- Production of a sustainable and affordable gear design that proves the sustainability and quality criteria raised by the study, is selected in a community design challenge.
- A local team is awarded to build the MVP and continue its development through capacity and business support.
- The impacts of gear are communicated by a multistakeholder campaign, and its adoption promoted in partnership with local financial institutions and cooperatives.
- Number of lobster traps used by fishers at TAMR is reduced by 40% in the next 3 years fostering reduced bycatch.

Explain briefly why this project is innovative:

The project is innovative in several distinct ways:
1- Provides research and demonstration of the environmental *and* quality impacts of each gear type used to catch lobster, with the aim of promoting design and development of the most sustainable, suitable, and affordable design based on evidence and data.
2- Applies an inclusive approach to design sustainable gear that is not harmful for the environment, is affordable, and can be locally built, with the purpose of generating alternative income opportunities to the coastal communities of Belize. This will promote engagement and empowerment of community youth and women, that otherwise are not participating in community-based management activities.
3- Advances the novel triple impact spiny lobster FIP+ which seeks to test and prove a holistic model that supports sustainable development of the fisheries sector while reinforcing ecosystem and community health.

How will you ensure stakeholder engagement?:

Stakeholders from Belize City, Chunox, Copper Bank, Sarteneja, Caye Caulker, and San Pedro will be engaged via the FIP+, which already includes active participation of key lobster fishery and local management stakeholders (including a tech-based enforcement Task Force) and TASA's broader strategies, networks, and social channels.[2] The multi-purpose design competition, focused on sustainability, quality, and local production, will leverage training fairs and capacity building though FIP participants. The primary stakeholders are: TAMR fishers to test and pilot, experts and community-lead design developers, finance partners, and marketing partners (local chef and lobster buyers), and on a broader scope include fishers and communities.

How will you ensure sustainability of the project and what is the potential for replication?

This project will continue and scale up the efforts of TASA's Adaptive Management Programme, in order to reduce unsustainable fishing practices at the TAMR. Sustainability of the intervention is supported by the promotion of sustainable gear and sustainable fishing practices in concert with quality improvement, as part of the TASA's AMP and enforcement work of the FIP+. Project long-term sustainability is related to the feasibility of the model for local manufacturing, which will be supported through actions included in the multistakeholder FIP. Additionally, by partnering with local Credit Unions, robust access to finance to invest in sustainable gear can be promoted and even incentivize a larger-scale gear swap.

Total estimated budget (in USD): USD 80,000

Do you have co-financing?:

The project is complementary to current efforts lead by TASA, particularly to the project "Applying Adaptive Management Practices to Enhance Compliance with Fishery Management Measures at the TAMR ", currently starting its implementation and funded by the GEF, with a total project cost of BZD$375,100 (USD$187,550), which addresses community-based conservation of threatened ecosystems and species commodities with the objective to improve management effectiveness of protected areas (see annex, project concept and letters of commitment). Additionally, the project embarks in first stage of a pilot that TASA will lead in partnership with FIP stakeholders, to work in an end-to-end proof of concept of traceability practices engaging fisheries and conservation management, and designing in and proving market and finance strategies for high-quality and 100% traceable lobster spruced in a verified protected area.

Other Partner(s):

Building on the multi stakeholder partnership of the FIP,+ through this project TASA will be collaborating with The Nature Conservancy (TNC), Future of Fish (FoF) and other key MPA stakeholders that include the Fisheries Department, National and Northern Fishing Cooperatives, MPA managers, members of

[2] https://www.facebook.com/TNCBelize/posts/the-belize-spiny-lobster-fip-launch-is-this-thursday-march-25th-at-1000-am-follo/997263984416471/

the FIP+ Tech-based enforcement task force, and other international marine conservation NGOs. In their co-leading roles at the FIP+, FoF will lead activities related to social innovation, marketing and finance; TNC will support activities related to communication and cooperatives engagement, and support fisheries management, traceability and governance. Additionally, TASA, TNC and FoF will be direct partners in planning & design, implementation and monitoring of the project.

Requested start date: 1 June 2021 **Expected completion date:** 1 June 2022