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**Request for Proposals:**

**Interfacing electronic traceability at Northern Fishermen Cooperative Society Ltd. in Belize with an existing data visualization platform**

**July-December 2022**

**Scope of Work**

Introduction:

The Nature Conservancy (TNC) is seeking a suitably qualified and experienced entity with the necessary capacity to digitally link an existing cooperative-level fisheries landings data visualization dashboard with landings data feeding from an electronic traceability system at Northern Fishermen Cooperative Society Ltd. (‘Northern’), the largest fishing cooperative in Belize.

The existing data visualization dashboard was linked to the electronic traceability system at National Fishermen Producers Cooperative Society Ltd. (‘National’) - Belize’s second largest fishing cooperative - in 2019, resulting in data representing ~30% of lobster and conch landings nationally being integrated into the tool. While not a sufficient proportion of total national landings upon which to base national level fisheries management decisions, this single-cooperative-level demonstration tool provided proof of concept, demonstrating the potential for real-time analysis, reporting and adaptive management of the lobster and conch fisheries in Belize. The current objective is to expand integration of traceability data into the existing fishery visualisation tool to enable it to receive and visualise data from both major cooperatives, enabling data-driven adaptive management based on landings data collectively representing over 70% of landings of lobster and conch nationally in Belize.

TNC formally invites applicants whose resources, experience and expertise match the criteria outlined in this Request for Proposals (RfP), to propose their services to fulfill the needs outlined herein by 1st July 2022.

Specific Objectives:

1. Develop a data analysis and visualization module within the existing data visualisation tool to visualize the current and past statuses of fishery performance indicators, by 28th November 2022.
2. Create a method of sharing data easily from the Tally landings database at Northern Cooperative, alongside the existing landings data flow from National Coop, to the existing visualization tool to populate it with real time landings data.
3. Train a group of up to eight users from Northern Cooperative, National Cooperative, TNC and the Belize Fisheries Department on how to use the fishery visualisation tool before the agreed project completion date.

Scope of Services

1. **Summary:**

The scope of the services of this consultancy include providing technical assistance toward the linking of the existing software-based dashboard that includes data visualization tools to support fisheries managers, cooperatives and NGOs involved in the [Belize Spiny lobster Fishery Improvement Project (FIP)](https://fisheryprogress.org/fip-profile/belize-spiny-lobster-free-diving-and-casitas) to collaboratively contribute to effective, efficient, data-informed management of Belize’s lobster and conch fisheries.

The system must be grounded in sound science and adhere to commitments made by the Government of Belize to national and international lobster and conch management initiatives e.g. OSPESCA’s MARPLESCA Plan, OSP 02-09 and CITES. The system must be resilient to replication beyond the two cooperatives, in the event it is expanded in other seafood purveyors in Belize and regionally. It should therefore be versatile in receiving other types of fisheries-dependent and fisheries-independent data and synthesise this for future enhancements to the adaptive management approach.

Successful implementation may result in extension of the contract into 2023-2024 in the event of success in the objective of incentivizing decision-makers to adopt this approach for national expansion to all seafood purveyors in Belize.

1. **Key Activities:**

The key activities of this consultancy include the integration between the adopted electronic traceability system at Northern and National Cooperatives and the existing data visualisation tool, delivery of the data visualization tools through an online platform, and necessary training for personnel that will interact directly with the tool:

1. The adopted electronic traceability system currently already captures specific product landing data (listed below) at National Cooperative since June 2018, and at Northern since July 2021.

The following data fields are collected and available through the traceability platform at both cooperatives:

* Date
* Fisherman Name
* Vessel Name
* Product Type
* Total Weight (in lbs)
* Zone Fished
* Gear Type
* Effort (in sea days)

1. These data outputs already integrate with the existing data visualisation platform from National Cooperative’s electronic traceability system, via an API developed in partnership between the respective software developers. This is enabling digitised compilation, analysis, and visualization of fisheries data from National Cooperative. The key activity of this consultancy is to integrate, via an API, the above Key Data Elements (KDEs) from Northern Cooperative’s newly installed electronic traceability system into the existing data visualization platform, thereby enabling real-time, data-informed management decisions to be make based on landings data representing over 70% of the fishery.
2. The above data will be sent through the API from Northern’s electronic traceability system to the existing data visualisation platform on a recurring basis, the specific time intervals of which will be agreed upon between Northern Cooperative, The Belize Fisheries Department and TNC. Based on the current data available via the electronic traceability system in both cooperatives, the Contractor would integrate landings data comprising the above data fields from both National Cooperative and Northern Cooperative to feed into the data visualization tools described in section 4a. (ii).
3. **Future State:**

This work is intended to support a wider effort in Belize to establish a data-informed fisheries management decision-making tool, known as the Belize fisheries Adaptive Management Framework (AMF). The AMF concept aims to utilise multiple fisheries dependent and fisheries independent data sources, of which this tool would be one, to inform fisheries managers on the present status of lobster and conch (and in future – finfish), and to subsequently select prescribed management measures designed to achieve specific desired outcomes that support sustainability of these fisheries. In support of this TNC will discuss with the Contractor the potential for addition of other Fishery Performance Indicators (FPIs) to the visualisation tool in future, and the system must therefore be versatile to any proposed additions/modifications in the future. Examples may include expansion of the system to include other species beside lobster and conch, creating digital linkages to future AMF decision-making tools, and addition of new FPIs, for example:

*• Tail length and tail weight size distribution of landings*

*• Target species’ gender ratio*

*• Spatial and temporal distribution of effort*

*• Revenue per Unit Effort (RPUE, or CPUE x Price)*

*• Proportion of juveniles in catch*

Note that for any of the above FPIs it may be required to enhance the electronic traceability system and/or the API integration between the electronic traceability system and the data visualisation tool to include data that is not currently being collected or transferred between the two platforms.

1. **Training**

To ensure accessibility to the use of the platform, the Contractor will conduct remote training in the form of a webinar to support with configuration of accounts and set-up the identified users. The Contractor would conduct this training in partnership with TNC to ensure key stakeholders who will be using the system are engaged.

1. **Platform Access and Support**

Built into the cost of this proposal is access to the data visualisation tool platform for 6-8 named users including support time of up to 5 hours a month for a one-year period with a start date of November 28th 2022. If additional user licenses are required, they should be requestable for a cost of approximately $20 USD / user / month.

After one year (starting 28th November 2023), if the visualization and simulation tools continue to be in use by the fishery and the co-operative, the Contractor will work to develop a fair and sensible users licensing agreement for ongoing platform access and required support.

Expected Outcome and Deliverables

1. A fully operational fishery visualization tool that is receiving landings data as per the data fields described 3b (i)., from both National Cooperative and Northern Cooperative, and that is capable of presenting this data via an automated, user-friendly interface that generates the following outputs:
   1. A map showing total catch (lbs/kgs), effort (days at sea) CPUE, proportion of different gear types used, and other analyses to be determined via discussion between TNC and the Contractor, across each of the 9 Managed Access fishing areas over selectable time ranges.
   2. Graphs and other visualization tools displaying the following:

*• Total monthly biomass landed (lbs/kgs) per zone*

*• Total biomass (lbs/kgs) per zone per season (individual zones + all zones combined)*

*• Total number of landing events per month per zone*

*• Total number of landing events per zone per season*

*• Total monthly effort (days at sea) per zone*

*• Mean monthly effort (days at sea) per trip per zone*

*• Total effort (days at sea) per zone per season (individual zones + all zones combined)*

*• Mean effort (days at sea) per trip per zone (individual zones + all zones combined)*

*• Mean monthly CPUE (lbs/kgs per day at sea + lbs per trip) per zone*

*• Mean CPUE (lbs/kgs per day) per season*

*• Mean daily RPUE ($BZ/$US per day at sea) per zone*

*• Total monthly value ($BZ/$US per month) per zone*

*• Mean value per trip ($BZ/$US per trip) per zone*

1. A table displaying the data used to generate the graphs and maps.
2. Training of 6-8 personnel from TNC, Belize Fisheries Department, Northern Cooperative and National Cooperative to a level of competence as to be independent users.

With respect to the deliverables listed within this section, the Parties may discuss additional details and adjust based on any additional changes to scope.

Project Schedule and Milestones

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| **Deliverables** | **Schedule – Deadline from signing of contract (Payment is conditional upon the acceptance of deliverables as meeting the required standards)** |
| **D1.** Signed contract and project work plan and budget approved by TNC. | 18th July 2022 |
| **D2.** Draft 1 of data visualization system integration as described in Section 4 – for review and feedback by TNC by 17th October 2022. | 3rd October 2022 |
| **D3.** Draft 2 of data visualization system integration as described in Section 4 – for review and feedback by TNC by 14th November 2022. | 31st October 2022 |
| **D4.** Final version of Draft 1 of data visualization system integration as described in Section 4. | 28th November 2022 |
| **D5.** Training of 6-8 personnel from TNC, Belize Fisheries Department, Northern Cooperative and National Cooperative to a level of competence as to be independent users. | 12th December 2022 |

Eligibility and Criteria for Selection

To be considered for selection, entities and/or individuals must:

* Demonstrate capacity to create software-based fisheries visualisation and simulation tools.
* Demonstrate intimate familiarity with the Adaptive Management Framework for Belize.
* Demonstrate involvement in the data-collection aspects of Belize’s Managed Access program.
* Have a high level of expertise and technical capacity in fisheries science, fisheries modelling, data analysis.
* Have familiarity with the economic and social aspects of conch and lobster fisheries in Belize.
* Provide visibility to implementation and operational costs (i.e. detailed work plan and budget).

**Preference will be given to competitive proposals that include:**

* Work plan detailing full scope of implementation, including all human, physical and logistical resources that your organisation will provide;
* Detailed budget breakdown outlining all costs.

Proposal Format & Timeline

Please submit RfP responses in .DOC or .PDF format.

Entities and/or individuals are invited to respond to this RfP until the submission deadline of **Friday 1st July 2022** at 11:59pm Belize time.

Principal Point of Contact

The principal point of contact for this RfP shall be James Foley, Fisheries Specialist for The Nature Conservancy’s Belize Program; available by email at [james.foley@tnc.org](mailto:james.foley@tnc.org)

Scoring and Key Criteria for Selection

Vendor responses that meet minimum requirements identified above will be weighted according to the following criteria:

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| **Criteria** | **Description** | **Weighting** |
| *Ability to address the technical objectives of software development to meet above deliverables* | Aggregate score based on demonstration of capacity of the vendor to fulfil technical development of the above-described products by 3rd May 2019. | 50% |
| *Training processes, and implementation plan* | Aggregate score based on provisions for training and implementation to enable stakeholder competency in use of product by 24th May 2019. | 15% |
| *Overall fit, Approach* | Qualitative score based on overall fit of vendor’s response to needs outlined in the RfP. | 10% |
| *Price* | Aggregate score based on competitiveness at which services fit the available budget. | 25% |