*Toledo Institute for Development and Environment [TIDE]*

*Grant agreement No. BZ – KfW FIII - 006 - 2024*

# Invitation to submit a proposal for the contracting of consulting services to submit a proposal to conduct and develop a habitat characterisation and coral reef health report of Sapodilla Cayes Marine Reserve.

*March 2026*

**TERMS OF REFERENCE**

## 1. BACKGROUND

The Mesoamerican Reef Fund, Inc. (MAR Fund) and Toledo Institute for Development and Environment (TIDE) have entered into a Grant Agreement under the project: *Enhancing Protection and Conservation of Commercial Species, Coral Reefs, and Fish Spawning Aggregation Sites in Sapodilla Cayes Marine Reserve, Belize* with the objective of increasing protection and biodiversity conservation of commercial species, coral reefs, and legally established FSAs within Sapodilla Caye Marine Reserve (SCMR) including the Elbow and Cayman Crown reef. KfW has been involved in the conservation of the Mesoamerican Reef on behalf of the German Federal Government since 2010 as part of its cooperation with the Mesoamerican Reef Fund (MAR Fund) to protect the natural resources of the world's largest transboundary coral reef and promote sustainable use. *(MAR Fund 2016).*

The Sapodilla Cayes Marine Reserve (SCMR) is the most southern of the marine protected areas in Belize and encapsulates the southernmost tip of the Belize Barrier Reef. It lies in the general area of N16 6 32.9, W88 16 10.4 and is an integral part of the Belize Barrier Reef Reserve System (BBRRS), inscribed as a UNESCO World Heritage Site in 1996.10. (SCMR management plan 2023)

The expanded marine reserve covers an area of 321,623.5 acres (approximately 130,156 ha) and contains fourteen palm-fringed sand or mangrove cayes, fringe reefs, natural lagoons, and key spawning aggregation sites (SPAGs). It is one of the 17 barrier reef regions that compose the Mesoamerican Reef System that is home to more than 65 species of stony coral, 350 species of molluscs and more than 500 species of fish. *(SCMR management plan 2021).*

Marine Protected Areas (MPAs) provide numerous benefits, if well designed and managed. They maintain healthy habitats, natural ecosystems and reproductive populations of key marine species to support long term sustainable fishing, protection from coastal hazards such as storm surge and flooding, biodiversity conservation, tourism opportunities and quality of life for locals. By helping to maintain healthy ecosystems, MPAs are key to buffering the unpredictable impacts of global climate change. With the significant expansion of the Sapodilla Cayes Marine reserve from 38,595 acres to 321,623.5 acres which includes a main portion of the Cayman Crown, a resilient coral reef ecosystem, it is critical for Toledo Institute for Development and Environment [TIDE] to continually seek funding for its effective management.

Since the expansion of SCMR, characterization of Cayman Crown has been done; however, other new zones need to be completed, along with updating the existing spawning aggregation sites within the marine reserve. This project will identify zones within the marine reserve and will systematically gather and analyse ecological and physical data to be able to inform management, conservation planning, and monitoring of the Sapodilla Cayes Marine Reserve.

## 2. OBJECTIVE OF THE CONSULTANCY

Within 4 months, complete a comprehensive ecological and physical baseline characterisation of coral reefs within the Sapodilla Cayes Marine Reserve, using field surveys, stakeholder consultations, and existing data, to inform evidence-based management and monitoring efforts.

## 3. CONSULTING ACTIVITIES

### 3.1 *Project Initiation & Planning*

- Meet with TIDE management, technical partners and co-management entity to clarify scope of work (objectives, key activities, deliverables, timelines and responsibilities)
- Review existing information - compile existing scientific reports, maps, biodiversity records, GIS data sets, water quality data, monitoring records, and legal documents.
- Identify data gaps and refine field work priorities.
- Develop a work plan, defining timeline, methodology, data needs, budget and team responsibilities.
- Plan logistics and access of research permits

### *3.2 Methodology Development*

- Review previously established Belize Fisheries Department (BFiD) AGRRA sites and reports with the intention of including these sites in the new site selection
- With TIDE Science team, aided by habitat maps and the SCMR Management Plan, determine potential new sites to be included in the new long-term coral reef monitoring program, and select sites to conduct initial site assessments (to include sites representative of different reef types and zones, and different management zones, in line with AGRRA recommendations). A total of 14 – 16 sites will be identified by the end of this consultancy.
- Consult with relevant stakeholders (e.g. rangers, fishers, tourism operators) during the site identification process to capture historical knowledge and pertinent site information
- Design Field Survey Protocols and finalise sampling strategy for habitats and coral reef health (using AGRRA methodology – coral and benthic assessments), in conjunction with TIDE Science team.
- Coordinate the inclusion of TIDE's marine biologist and Community Researchers in fieldwork as appropriate

### *3.3 Fieldwork and Stakeholder Consultations*

#### *3.3.1 Participatory Mapping*

- Work with stakeholders (e.g. rangers, fishers, tourism operators) to identify and map areas of use (fishing, tourism), concern, or significance e.g. overfishing, climate change).

#### *3.3.2 Initial Ecological and Physical Field Surveys*

- Conduct underwater surveys (e.g., SCUBA/snorkel transects, photo quadrats) to ground truth initial sites selected for review
- Collect physical data at all sites (habitat type and description, AGRRA coral and benthic assessments if determined a suitable site)
- Use GPS and GIS tools for mapping initial sites surveyed

#### *3.3.3 Review of initial surveys*

- Present initial findings to TIDE and review the suitability of the initial survey sites.
- Based on findings from the first fieldwork surveys, review findings with TIDE Science Team and plan the second phase of field surveys to continue to ground truth new or alternative sites
- Prepare summary of findings to be shared with team who will be simultaneously conducting fish stock assessment in SCMR to aid in their survey site selection

*3.3.4 Conduct final Ecological and Physical Field Surveys*

- Conduct underwater surveys (e.g., SCUBA/snorkel transects, photo quadrats) to ground truth secondary sites selected for review
- Collect physical data at all sites (habitat type and description, AGRRA coral and benthic assessments if determined a suitable site)
- Use GPS and GIS tools for mapping sites surveyed

*3.3.5 Review of second survey phase*

- Present findings to TIDE from both fieldwork phases and review the suitability of all survey sites for inclusion in TIDE's long term coral reef monitoring program
- Finalise site selection for TIDE's long-term coral reef monitoring program, ensuring representation of different habitat, reef and management zones, and to include existing BFiD sites if appropriate.

### 3.2 *Data Processing & Analysis*

*3.4.1 Data Entry and Management*

- Organise and digitise field data, photographs, GPS tracks, and consultation notes.

*3.4.2 Physical Analysis and Mapping*

- Use GIS to produce habitat maps, usage zones, and permanent site selection.
- Share information with consultancy team conducting baseline fish stock assessment for SCMR[1]

*3.4.3 Ecological Baseline Analysis*

- Conduct baseline assessment of selected permanent monitoring sites using standardized AGRRA analysis methodology where appropriate for coral and benthic species
- Identify trends, hotspots, and potential management concerns.



[1] Note that a team will also be hired to conduct a fish stock assessment for SCMR in 2026 – data from this consultancy will be shared with that team as it becomes available to be utilized as guiding documents in that program of work

### 3.3 *Reporting & Dissemination*

*3.5.1 Draft Habitat Characterisation Report*

- Prepare a summary report including baseline data, maps, and recommendations.
- Develop and share a database for habitat characterization data storage
- Share draft report with TIDE Management and Science team and technical team for feedback
- Share draft report with consultancy team conducting baseline fish stock assessment for SCMR

*3.5.2 Draft Coral Reef Health Report*

- Prepare a detailed report on coral reef health at newly established monitoring sites, to include coral reef and benthic parameters, using standard AGRRA reporting methods where appropriate
- Share draft report with TIDE Management and Science team and technical team for feedback
- Share draft report with team conducting baseline fish stock assessment for SCMR

*3.5.3 Final Report Submission*

- Incorporate feedback and submit the final habitat characterisation report
- Incorporate feedback and submit the final coral reef health report
- Submit all raw data in databases

*Note that cross-cutting activities include coordination and communication, maintaining regular updates with project partners and stakeholders and ensuring data accuracy, adherence to methods, accuracy and consistency in analysis. Further, complimentary to this baseline site characterisation assessment, a team will be conducting baseline fish stock assessment for SCMR. Information from this report will be shared with that team as it becomes available to support their planning.*

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## 4. Estimated Work Schedule (4.5 months)

| Activities as described | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Project initiation and planning | X | | | | |
| Methodology development | X | | | | |
| **Fieldwork and stakeholder consultations** | | | | | |
| Participatory mapping | | X | | | |
| Initial ecological and physical field surveys | | X | | | |
| Review of initial surveys | | | X | | |
| Final ecological and physical field surveys | | | X | | |
| Review of second survey phase | | | X | | |
| **Data processing and analysis** | | | | | |
| Data entry and management | | | | X | |
| Physical analysis and mapping | | | | X | |
| Ecological baseline analysis | | | | X | |
| **Reporting and dissemination** | | | | | |
| Draft habitat characterization report | | | | X | |
| Draft coral reef health report | | | | X | |
| Final report submission | | | | | X |

## 5. EXPECTED PRODUCTS

The consultant will deliver the following products:

| Deliverable No | Deliverables | Submission date |
|---|---|---|
| 1st deliverable | Inception report with detailed methodology and work plan. | 1 May 2026 |
| 2nd deliverable | List of 14 – 16 long-term coral reef monitoring sites | 19 June 2026 |
| 3rd deliverable | Draft habitat characterization and coral reef health reports | 31st July 2026 |
| 4th deliverable | Final habitat characterization and coral reef health reports | 29th August 2026 |

## 6. CONSULTANT'S PROFILE

**The consultant or consulting team must possess the following experience and qualifications:**

- Minimum of a Master's degree(s) in marine biology, ecology, coastal management, or related field.
- Demonstrated experience (minimum 5 years) in conducting fieldwork in marine environments, including data collection, sampling techniques, species identification and stakeholder engagement.
- Supporting researchers/surveyors must have a minimum of 3 years' experience using the survey methodologies required.
- Proficiency in using habitat characterisation and AGRRA data collection methods and analysing ecological data using statistical methods, standardized national and regional reporting formats, and software.
- Experience conducting similar studies in Belize is preferred.
- Experience using GIS and spatial data analysis
- Ability to operate and maintain scientific equipment used in marine research, such as underwater cameras, and other monitoring devices.
- Strong ability to write clear and concise reports summarizing research findings, as well as the ability to effectively communicate results.
- Ability to analyse complex ecological data, identify patterns, draw meaningful conclusions and provide management advice tailored to MPA contexts.
- Ability to identify and address challenges related to MPA characterization, such as data gaps, logistical constraints, or stakeholder concerns.
- Ability to adapt to changing field conditions and adjust research plans as needed.
- Familiarity with MPA designs, zoning, management and evaluation strategies in Belize
- Must hold relevant permits and certificates (e.g. dive certifications, AGRRA certifications) and research permits, or be willing to obtain them

## 7. Associated Costs:

All travel and transportation costs – including all costs relating to fieldwork and field surveyors - must be included in the BID (Guidance can be provided upon request).

## 8. Payments

Payment for the consultancy shall be made upon approval of the deliverables by the Contracting Party and submission of corresponding legal invoices in *4* payments in accordance with the payment schedule below.

| **Payment No** | **Product** | **Payment %** |
|---|---|---|
| 1 | Inception report with detailed methodology and work plan. | 50% |
| 2 | List of 14 – 16 long-term coral reef monitoring sites | 10% |
| 3 | Draft habitat characterization and coral reef health reports | 20% |
| 4 | Final habitat characterization and coral reef health reports | 20% |
| | **Total** | **100%** |

## 9. Consultancy supervision:

The consultant will be supervised by the MAR Fund/TIDE Project Manager and TIDE Science Director.

The consultant shall attend virtual and/or face-to-face meetings to which he/she is summoned for the execution of this consultancy.

The consultancy deliverables will be submitted to the consultancy supervisor for review and approval. If improvements are required, the consultant will proceed to make the requested adjustments.

Payment for each product will be made based on payment plan in contract.

In all discussions and comments made *on site*, the consultant shall expressly state that these reflect his/her opinion and not necessarily the position or opinion of the Contracting or Executing Party, MAR Fund or KfW.