Blue Carbon Resilience Project Feasibility Study

Request for Proposals – January 2021

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General Administrative Provisions

1.1 Statement of Purpose

It is the intention of The Nature Conservancy ("Customer") to solicit Proposals for a Carbon Offset Development Firm. Those receiving this Request for Proposal (RFP) are referred to as "Vendor".

THIS IS NOT AN ORDER.

THE NATURE CONSERVANCY (TNC) is a District of Columbia, USA, non-profit corporation with its principal place of business in Arlington, Virginia, USA. TNC works across the U.S. and in over 70 countries and territories around the world.

Since 1951, The Nature Conservancy has been working with communities, businesses and people like you to protect more than 119 million acres of land and 5,000 miles of rivers worldwide. We also operate more than 100 marine conservation projects globally. Our mission is to conserve the lands and waters on which all life depends. Please see www.nature.org for more details on what The Conservancy does and where we work.

TNC is developing a pipeline of coastal wetland restoration/conservation projects to be developed as blue carbon resilience credit (BCRC) projects. The work outlined in this RFP will support this body of work with a market feasibility analysis for identified project sites in Mexico.

While vendor location within Mexico is not required, we welcome consortium bids that include experts located in-country.

1.2 TNC's Procurement Process

Procurement activities will be conducted in a nondiscriminatory manner with fair treatment given to all Vendors.

Customer's Obligations

Customer incurs no obligation or liability whatsoever by reason of issuance of this RFP or action by anyone relative thereto.

Vendor's Obligations

Vendor must analyze and respond to all sections of this RFP providing sufficient information to allow Customer to evaluate the Proposal. Vendor, by submitting its Proposal, agrees that any costs incurred by the Vendor in responding to this RFP, are to be borne by Vendor and may not be billed to Customer.

Vendor's proposal must match the sequence in which the RFP was submitted or clearly state where the information resides. If Customer has any confusion or difficulty in retrieving the required information from a Vendor's proposal, it may result in such proposal to be disqualified. Vendor may not have the ability to resubmit their proposal to Customer.

Customer requests firm fixed pricing for the proposal. If a particular entity is chosen as an award winner and any additional costs are presented at the time of agreement negotiations or implementation, Customer has the right to reject that entity as the contract winner.

1.3 Vendor Submission Requirements

Submission of Proposal:

Vendor will send its response to this RFP electronically via email to the point of contact listed below.

Yves Paiz, Mexico Coastal Wetlands Coordinator
The Nature Conservancy

Email: ypaiz@tnc.org

1.4 Critical Dates

Proposals shall be delivered to The Nature Conservancy on or before **February 1st, 2021**. See Article 2.4 for Submission Requirements.

RFP Activities	Due Date
Distribute RFP	Jan 15, 2021
Vendor Written Proposals Due	Feb 5, 2021
Firm Selected and Notified	Feb 15, 2021
Execute Contract & Begin Work	Feb 22, 2021

1.5 Restricted Communications

It is the policy of the Customer to avoid situations which (1) place it in a position where its judgment may be biased; (2) create an appearance of conflict of interest with respect to rendering an impartial, fair, technically sound, and objective decision prior to selection; or (3) give an unfair competitive advantage to competing Vendors. Therefore, to ensure an ethical evaluation process, all inquiries or other communications regarding this RFP shall be exclusively directed to the Customer's authorized Agent, to the person and location specified in Article 1.3 of this RFP. Vendors are hereby expressly instructed not to otherwise communicate with Customer's officers or employees regarding this RFP. This prohibition is also applicable to Vendors' affiliates, officers, employees, agents, consultants, and subcontractors.

1.6 Disposition of Proposals

All material submitted in response to this RFP will become the property of the Customer and may be returned only at the option of the Customer and at the expense of the Vendor. Successful and unsuccessful bidders will be notified via email. The Customer shall not be obligated to detail any of the results of the evaluation.

1.7 Contractual Commitment of Proposal

The contents of submitted Proposals will be considered obligations of the successful Vendor. No information should be submitted that is not intended to be incorporated into the Proposal and any contract which may result from such Proposal. If there is any inconsistency between the terms herein and any of the other contract documents, the terms in the other contract documents shall prevail.

Any data, documentation or other business information furnished by or disclosed to the Vendor shall be deemed the property of the Customer and must be returned to the Customer upon request.

1.8 Conflict of Interest Disclosures

To assure and ensure that the Customer lives up to its high fiduciary obligations and operates in compliance with its highest corporate value: "Integrity Beyond Reproach," it maintains a rigorous conflict of interest policy. In order to eliminate any conflict of interest or perceived conflict of interest, it is necessary for each Vendor to disclose names and information in accordance with the linked Conflict of Interest Disclosure Form. This relates to people who will be working, directly or indirectly, to respond to this RFP, as well as may be doing the resultant work if the Vendor receives the contract.

The information will be kept confidential and given out only on a "need to know" basis to project partners.

Service Requested

2.1 Background Information

Blue carbon refers to the carbon sequestration ability of coastal vegetation in salt marshes, mangroves, and seagrass. Salt marshes, mangroves, and seagrass provide valuable coastal protection for people and critical habitat for native flora and fauna.

TNC has been supporting Federal Government efforts to promote a blue carbon initiative in México that would strengthen local conservation and restoration work in coastal areas. México has the fourth largest mangrove coverage in the world with almost 800,000 hectares, of which three quarters are in protected areas or are designated Ramsar Sites. In addition, the country´s National Determined Contribution (NDC) submitted to the United Nation Framework Climate Change Convention (UNFCCC) set the goal of protecting coastal ecosystems and the carbon they store as one of the ecosystem based adaptation (EbA) options. Furthermore, Mexico´s Climate Change Law established an Emission Trading System (ETS) where energy and industry sectors have binding requirements to reduce their emissions. Under this domestic ETS, there is the need to explore the opportunity for mitigation projects coming from Land Use and Land Use Change Sectors, such as blue carbon, to offset emissions. For these reasons, conducting a feasibility study for a blue carbon project will bring valuable inputs to design policies, assess gaps, develop tools and access to financing mechanisms.

Voluntary carbon markets now recognize tidal wetland restoration and conservation activities as eligible offset project activities that can reduce greenhouse gases (GHGs). In addition, TNC has developed an innovative methodology for quantifying coastal resilience by modeling flood reductions due to the presence of coastal habitats, like mangroves, near communities. This innovative methodology uses and expected damage function modeling approach (see appendix) and is pending approval from Verra's Sustainable Development Verified Impact Standard (SDVISta) program. The coupling of blue carbon offsets and resilience credits could provide an important and supplemental source of funding to restoration and conservation of these critical ecosystems. As new methodologies are accepted in the carbon market(s), 'proof of concept' projects could lay the groundwork for broader acceptance of tidal wetland restoration and conservation activities in the *regulated carbon markets* where demand and prices are higher.

TNC México has been working in the Gulf of California since 1996, supporting the establishment of protected areas, developing capacities of local stakeholders to conserve the important coastal and marine resources, promote sustainable fisheries and protecting and restoring coastal ecosystems. Recently, our work in Marismas Nacional -the largest mangrove wetland of the Mexico´s Northwestern Pacific- and the Colorado River Delta -an important bi-national estuary restoration initiative- offer the opportunity to analyze the implementation of blue carbon projects in mangroves and coastal marshes. Key to this effort is a feasibility analysis to guide projects development and implementation. The feasibility assessment should *not* include the collection of *new* data; rather the feasibility study should consist of gathering of *existing* data and information to *inform* whether market project development is viable *and* to provide recommendations for next steps. We anticipate a project timeline of 5-7 months.

What actions could make a viable site?

Ongoing or planned restoration or conservation activities in tidal marshes, or mangroves that could generate GHG mitigation include those that:

- Increase carbon stored in biomass and/or soils (e.g., reseeding or replanting native vegetation, restoring tidal flows to increase flushing, improving supply or adding sediment to reestablish native vegetation)
- Reduce carbon emitted from biomass and/or soils (e.g., restoring hydrology to drained systems)
- Avoiding emissions from ecosystem loss (e.g., mangrove deforestation, draining mangrove or marshlands)
- Reduce methane emitted from soils (e.g., restoring hydrology to impounded systems)
- Additional eligible project activities listed in the VM0033 Methodology.

At the onset of this project, TNC will provide the vendor with **two project site locations** and activities (e.g. restoration, enhanced management, conservation, etc.) to assess as part of this feasibility analysis. These sites will include the following sites in Mexico:

- Marismas Nacionales (80,000 hectares of mangrove in the coast of the States of Nayarit and Sinaloa to protect and restore)
- Cienega de Santa Clara (6,000 hectares of salt marsh conservation)

2.2 Tasks Requested

I. Prepare and send a draft work plan and/or inception report, including list of data needs related to planned project activities and expected GHG and resilience impacts.
II. Conduct 2 kick-off calls to discuss data needs and scope of work: one internal kick-off with TNC staff, and a second with TNC staff and relevant external partners.
III. Describe your approach for gathering of relevant data and information from field team and partners.
IV. Prepare draft Feasibility Study and supporting analysis that addresses:

a. **Market feasibility** – Evaluate current and potential voluntary and regulatory markets (domestic & international) and programs that could provide funding support for market-based project activities; Provide recommendations for how blue carbon could fit and align with Mexico emerging regulatory market.

b. **Technical feasibility** –

   i. Assess the applicability of appropriate methodologies, including the Verified Carbon Standard's (VCS) methodology for Tidal Wetland and Seagrass Restoration (VM0033) and VM0007 REDD+ Methodology Framework (REDD+MF) v1.6, and provide methodology recommendations for the project. Describe the general carbon accounting approach and produce estimates of carbon benefits and offset potential of the ongoing/proposed restoration/conservation activities considering baseline and with-project scenarios based on best available scientific data including site specific and regionally applicable research). Potential carbon benefits may include avoided GHG emissions and/or increased GHG removals resulting from project activities. Consider the potential impact of sea-level rise on the permanence of potential carbon benefits, as required by standard-approved methodologies. Provide a final analysis and recommendations on relevant gaps in current science research to support carbon project development.

   ii. Assess the applicability of the Sustainable Development Verified Impact Standard's (SDVISta) Coastal Resilience Methodology (currently in validation) and provide methodology recommendations for the project. A summary of the coastal resilience draft methodology approach is provided in the appendix. Identify existing data that could be used to model resilience benefits (using the approach outlined in the appendix) and/or any science gaps to be addressed. If applicable, provide estimates of resilience benefits based on project activities considering baseline and with-project scenarios (as with above).

   iii. Identify the opportunities to include the methodological proposal into the blue carbon protocol for the Mexico Emission Trading Scheme.

c. **Financial feasibility** – Provide estimates of project activity cost, carbon/resilience project costs, carbon/resilience credit revenues, and the relative potential contribution of market revenues to overall cost. Develop projections of market revenue cash flows over the project crediting period, taking into account monitoring events. Also take into consideration other ecosystem benefits which could provide for community/landowner income (e.g. fisheries, ecotourism, etc.)

d. **Legal feasibility** – in close coordination with TNC and The National Commission of natural Protected Areas (CONANP) staff gather relevant information , insights from on the ground and local stakeholders to evaluate issues related to ownership, carbon policy, and transfer of carbon rights, including likely legal agreements that will need to be negotiated to register and sell offsets/credits; consider legal authority of landowner to participate in market projects. Particular interest to the TNC Mexico Program is an assessment of opportunities to inform the design of the National Blue Carbon Strategy that the Federal Government is pursuing.

e. **Organizational feasibility** – Identify key organizations and prospective roles to support implementation of carbon/resilient credit project and evaluate potential project structure to allow for addition of similar project sites and activities over time ("grouped project").
f. **Landscape feasibility** – Perform GIS analysis (or other relevant mapping exercise) to identify other similar project sites within or nearby identified project site(s) falling within country/regional jurisdictions (as directed by Customer). Quantify area and assess potential size of grouped project. Estimate potential GHG and resilience benefits based on technical feasibility results above.

V. Liaise with TNC Global, TNC Mexico, and relevant stakeholders to support data collection and project planning.
VI. Present draft report including results and gather feedback from TNC/project team and additional stakeholders and external partners, as determined by TNC (either in-person or remotely).
VII. Revise draft report based on feedback and comments, and issue final report.

2.3 Expected Deliverables

1. A draft work plan/inception report and outline for feasibility study.
2. A draft report that includes: interim analysis and recommendations on science research and gaps, legal considerations and next steps, and social considerations (e.g. community benefits/challenges such as gender disparities and livelihoods, etc.) and any other relevant considerations. This will be presented to TNC (and appropriate partners as determined by TNC) in documented form.
3. A final version of feasibility study (including final analysis and recommendation on science gaps and next steps) of the two project site locations (Marismas Nacionales and Cienega de Santa Clara) also to be presented to TNC (and external partners as determined by TNC).

2.4 Proposal Specifications

Proposals should address the following:

a) scope of work/tasks, including approach for data/information gathering
b) estimated timeline, including anticipated start and end date, noting estimated dates for key deliverables listed above
c) staffing including CVs for key staff
d) fees and expenses, including estimated cost of adding additional project sites to assessment (beyond 2 listed above)
e) standard terms and conditions (if applicable)
f) risks and mitigation measures (if applicable)

Proposals should also contain information on your firm qualifications and prior experience of your firm and staff with blue carbon projects or methodologies, including VM0033 and the VCS standard.

Additional Information to be Submitted

3.1 Environment:
Please submit a copy of your firm's Corporate, Environmental, and Social Responsibility Policy or any other relevant document(s).

3.2 Subcontracting:
Any subcontractors must be identified along with the defined work they will perform. The Customer will not refuse a proposal based on the use of subcontractors but does retain the right to refuse the subcontractors selected. Vendor shall remain solely responsible for all subcontracted work. Describe your rationale for using subcontractors.

Appendix

Summary of Coastal Resilience Methodology submitted to Verra SDVISta program for validation (SUBJECT TO CHANGE UPON METHODOLOGY VALIDATION)

We describe here the key steps of the Coastal Resilience methodology and then outline some approaches/activities with which project proponents can implement this methodology (Table 1).

The aim of this methodology is to obtain the number of people affected by coastal flooding from a defined (set of) storm events for two scenarios: a) Baseline (i.e. no habitat restoration), and; b) Project (i.e. with habitat fully restored). The intermediate output, to obtain this number, is an assessment of the flood extent and depth for the event set. The benefits from the coastal ecosystem will be estimated as the number of people protected per unit area of ecosystem which can then be converted a total benefits value for the project extent.

This methodology involves five steps as described below and outlined previously in Beck & Lange (2016):

Step 1: Characterize Offshore Hydrodynamics:
Understanding local hydrodynamics associated with multiple extreme events (i.e. 1 in 25, 50, 100 year storms) within the project site first requires an estimation of the offshore (typically defined at an offshore depth of around 50 to 100 m) boundary conditions of wind-fields, water levels and wave heights that are applicable at the site. These boundary conditions should be obtained using a combination of a) historical records of past storm events; b) observations and measurements from climatological and ocean observation networks, and c) statistical models that provide reconstructions of these parameters. This method assumes the validity of existing storm frequencies which can be updated later (i.e. after 30 years of project life). It is likely that as storms continue to intensify due to global warming, the resilience benefits provided by the restored ecosystem will increase.
Note: This step is done once and the outputs are applicable to both baseline and project scenarios.

Step 2: Characterize Nearshore Hydrodynamics for the Baseline Scenario:
Next, these offshore parameter values will be used to estimate the total water level (TWL) at the shoreline for the baseline scenario, by estimating the propagation of waves and water levels from the offshore boundary to the shoreline for the different storm events in the absence of any restoration/conservation. The TWL at the shoreline comprises multiple additive components: the average sea-level, tide, storm surge and wave height/wave run-up (Fig 1). As waves and water levels travel towards the shoreline they interact with, and are transformed by, local bathymetry and intervening features. The resulting TWL at the shoreline can be estimated a) with observations and measurements of wave heights and water levels at multiple points from offshore to the shoreline, or more commonly, b) using numerical hydrodynamic models. A key dataset needed for this step is local bathymetry. While common, globally available sources of bathymetry that are typically of a resolution of ~ 1 km are acceptable for regional-scale analyses, local project-specific analyses should use higher resolution bathymetry obtained from nautical charts, surveys or imagery (i.e. Lidar). This step is used to estimate the total water level at the shoreline in the absence of the project.
NOTE: This step is done once and represents the baseline (without project) scenario.

Step 3: Characterize Nearshore Hydrodynamics with Restored/Conserved Habitat (i.e. Project Scenario):
In this step the TWLs at the shoreline are estimated for the project scenario with the restored/conserved habitat in place. Similar to Step 2, the total water level at the shoreline comprises multiple additive components: the average sea-level, tide, storm surge and wave height/wave run-up (Fig 1). The TWL at the shoreline estimated a) with observations and measurements of wave heights and water levels at multiple points from offshore to the shoreline, or more commonly, b) using numerical models that use either physical processes or observational and empirical data to approximate the transformation of waves and water levels across habitat features. In addition, therefore, in this step the proponent should prepare data on habitat location, extent, cross-shore profile, and expected friction (or rugosity) for input into the numerical model. These inputs and models are used to estimate the total water level at the shoreline for the project scenario.
NOTE: This step represents the project scenario.

Step 4: Estimate Inland Flooding
The TWL at the shoreline, which is higher than the average daily water level at the shoreline, is what results in the flooding of people and property living in a coastal floodplain. This inland flooding should be estimated using spatial models that use topographical data in combination with some process-based or empirical model of how higher-than-normal water levels at the shoreline will propagate inland. A critical dataset here is inland topographical data. There are global, low-resolution (~90 m) datasets available such as from SRTM, or in some regions, higher resolution datasets (~10 m) such as for the US. These models will result in a spatial map of flood extents and depths that will be used to determine the number of people affected.
Note: This step is to be done twice: once for the baseline scenario and once for the project scenario.

Step 5: Estimate Flood Damages
Once the two flood maps (for baseline and project scenarios) are obtained for the extreme event, the final step is obtaining the number of people affected by this flooding. This is done by measuring the number of people living within the extent of the flood maps. Flood damages are thus estimated for each storm event and these are combined to develop an annual expected flood damage for a given location within the floodplain. All people living within zones that will see flooding > 50 cm (the lowest depth for international depth-damage functions) will be counted as affected by flooding. Several datasets of population estimates are available at global scales including from the World Bank, UNEP-GRID, or at regional scales such as from the U.S. Census Bureau and several state or county-level datasets. The proponent should identify and obtain the most recent and highest resolution dataset available for their region.
Note: This step is to be done twice: once for the baseline scenario and once for the project scenario.

Approaches/Activities for Methodology Steps

There are multiple, valid approaches and activities for implementing each step in this methodology. These are described in Table 1. This method is used here with the assumption that the full extent of the vegetated habitat is conserved/restored in which case project benefits calculated on a per-hectare basis will stand. Otherwise these benefits can be re-evaluated based on changing areal extent of the project.

Table 1: Approaches/Activities and Example Data Sources for Resiliency Methodology

Methodology Step	Brief Summary of Approaches/Activities	Example Data Sources and Models
Step 1: Characterize Offshore Hydrodynamics	1. Data and Measurements on storm parameters, offshore waves and water levels 2. Historical information on storm parameters 3. Modelled data on reconstructed storm parameters, waves, water levels	Storm Surge (Global every 2degrees from 1891-2010); 100 year event TWLs (GTSR, Muis et al., 2017). Waves: Global data 0.25 degrees from 1979-2017 Tides: Astronomical Tide (1 degree, altimetry) Storm tracks: IBTRACS, 6-hourly (1851-2016)
Step 2: Characterize Nearshore Hydrodynamics	1. Obtain bathymetry data 2. Nearshore wave and water level propagation models using bathymetry data inputs	1. Bathymetry Global (~1km): GEBCO, ETOPO1 Regional (~100 m): NAVIONICS, TCarta, LANDSAT-derived Local (~10m): LiDAR, Depth Surveys 2. Models Local/Regional: SWAN, Delft-3D, Mike-21, XBEACH
Step 3: Characterize effect of project	1. Use bathymetry data from Step 2 2. Prepare/Obtain data on habitat extents and key characteristics 3. Nearshore wave and water level propagation models using bathymetry data and habitat extent and key characteristics as inputs	1. Bathymetry Global (~1km): GEBCO, ETOPO1 Regional (~100 m): NAVIONICS, TCarta, LANDSAT-derived Local (~10m): LiDAR, Depth Surveys 2. Models Local/Regional: SWAN, Delft-3D, Mike-21,XBEACH
Step 4: Estimate Inland Flooding	1. Obtain topographical data 2. Estimate inland flooding from shoreline TWLs using a spatial, topography-based hydraulic connectivity model 3. 2-D inland flow models	1. Topography/Elevation Global(~90 m): SRTM Local/Regional sources (~10m): Locally obtained 2. GIS models and tools: ArcGIS or Q-GIS 3. Models Local/Regional: ADCIRC, Delft-3D, Mike-21, XBEACH
Step 5: Estimate Flood Damages	1. Obtain data on exposure (i.e. number of people) within flood maps from global or higher-resolution datasets 2. Count number of people flooded to a depth >0.5 m	1. Population datasets Global(~1km to ~250m): World Bank, UNEP-GRID, WorldPOP, UNISDR, JRC-EU Local/Regional (~250m): US Census Bureau 2. GIS models and tools: ArcGIS or Q-GIS

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