



*"Investing in Seychelles' blue future"*



## **"Enabling the Seychelles Marine Spatial Plan"**

### **Terms of Reference for**

### **A 12-month assessment of mud crab (*S. serrata*) stock and fishery on Mahé, Praslin and Silhouette Islands**

#### **1. BACKGROUND**

The Seychelles Conservation and Climate Adaptation Trust (SeyCCAT) is funding a project entitled "Enabling the Seychelles Marine Spatial Plan" which aims to support the development, implementation, and adaptive management of the Seychelles Marine Spatial Plan (SMSP) <sup>1</sup> within the Seychelles Exclusive Economic Zone (EEZ).

In March 2020 Seychelles completed the designation of 30% of its territorial waters and EEZ as Marine Protected Areas. This process that began in 2014 has seen the area of Seychelles' territorial sea and EEZ waters protected increase from less than 1% to over 30%. Implementing and managing these areas will require significant additional effort, investment, and capacity in order to realize the conservation and sustainable use objectives of these protection areas.

The areas designated under the SMSP comprise two categories: **Zone 1** is a high biodiversity protection zone not suitable for resource extraction or seabed alteration, and **Zone 2** is a medium biodiversity protection and sustainable use zone, subject to management provisions in line with the objectives of the designated area. The geographic distribution and zoning of these marine protection areas fulfil Milestone 3 of the phased approach of the SMSP. The remainder of Seychelles' waters are classified as **Zone 3** and are designated as multiple use areas for economic activities within a framework of the long-term sustainability of natural resources. These include high value and/or high priority areas for the marine sectors that use Seychelles waters for economic, social and cultural benefits. For more information on the SMSP, please see [www.seymsp.com](http://www.seymsp.com).

Significant additional effort, investment, and capacity are required to transition the Seychelles Marine Spatial Plan from the zoning to the implementation phase. SeyCCAT and the Government of Seychelles are supported by existing and new partners to achieve the conservation and sustainable use objectives of the marine protection zones of the SMSP, with SeyCCAT performing a grants management and a project coordination function.

In October 2021, the Seychelles Government launched the aquaculture industry. However, due to its large EEZ and limited freshwater areas for freshwater farming, the focus will be on mariculture. In order to accelerate the development of the sector, the Seychelles Fishing Authority (SFA) developed a list of recommended species that investors are being encouraged to

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<sup>1</sup> The Seychelles Marine Spatial Plan (SMSP) will be legally gazetted.

culture. One of those species is the mud crab (*Scylla serrata*). The hatchery technology for mud crab farming is not commonly known at the moment, with the majority of countries doing mud crab fattening<sup>2</sup> as opposed to breeding from a hatchery reared stock. Mud crab fattening would involve recruitment from the wild but as of yet, there has not been a mud crab stock assessment in the Seychelles in order to determine the status of its population and the viability of sourcing wild stock for fattening, and to ensure that there are no detrimental impacts to the stock status of the species and the wider ecosystem.

This stock assessment will enable policy makers to make an informed decision as to whether to allow commercial mud crab mariculture in the Seychelles, and in which form this should be promoted i.e., fattening vs. hatchery breeding.

There is a small local market for mud crab and this fishery also needs to be understood as it does not suffice to only know the current wild stock status. If fattening is the method of choice for mariculture in the Seychelles, the Government will need to make evidence-based policies to allow the development of the sector catering to both the ongoing fishery and commercial mariculture.

## 2. OBJECTIVE & CONTEXT

The Government of Seychelles is committed to see the successful development of aquaculture in the Seychelles. The vision for aquaculture in the Seychelles is: a small but internationally competitive, knowledge-based industry, contributing to local food security and supplying international niche markets for high value fish products, which is guided by international best management practices in accordance with the principles of the Ecosystems Approach to Aquaculture and ecological sustainability.

The Aquaculture Regulation promotes the development of indigenous species rather than the introduction of exotic species. The hatchery phase of selected finfish species, black pearl oyster and prawns have already been established. Hatchery technology for mud crab, on the other hand, has not successfully been established yet, except in South East Asia. The most common form of mud crab aquaculture is fattening of crabs caught from the wild.

The 12-month assessment of mud crab fishery and stocks on Mahé, Praslin, and Silhouette will provide the SFA technicians a better understanding of the fishing techniques and stock status, and it will also give an indication of the mud crab population status in the inner islands. It is to be noted that, Silhouette is a National Park with limited scope for harvesting activities. It will therefore be interesting to compare the population status between protected and unprotected sites.

SeyCCAT, seeks to recruit a **consultant(s) to conduct a stock assessment of the mud crab (*Scylla serrata*) population on Mahé, Praslin, and Silhouette**. The consultant(s) will also assess the fishery of the mangrove crab. The overall objective of this consultancy is for SFA to have a better understanding of the wild mud crab population, their geographic distribution and abundance within the inner islands, the seasonality of life cycle stages (if any), the harvesting methods used in the local fishery, and carapace size frequency as it relates to the fishery so as to determine

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<sup>2</sup> Shelley, C.; Lovatelli, A. *Mud crab aquaculture – A practical manual*. FAO Fisheries and Aquaculture Technical paper. No. 567. Rome, FAO. 2011. 78pp.

whether or not mud crabs can be sustainably exploited for future mariculture development, such as fattening in Seychelles, and if there is a need to regulate the fishery.

A protocol will also be developed for continuous stock assessment of mud crabs by SFA technicians, to improve the long-term management of the resource for both aquaculture and the fishery sectors, and thus ensure its sustainability.

### **3. SCOPE OF WORK**

In accordance with the Covid-19 guidelines by the Seychelles Department of Health<sup>3</sup> the consultant, will be required to carry out the following tasks:

- 1) Convene an initial meeting with the project team to discuss the implementation of the assignment including a detailed timeline and the scope of the assignment.
- 2) Prepare monitoring protocols for mud crab stock assessment (baseline data collection) as well as the local crab fishery, to be approved by SFA. The priority will be to conduct assessments on Mahé, Praslin, and Silhouette, but the consultant(s) may propose other sites within the inner island, with adequate justification. The final choice of additional sites will be determined by SFA and SeyCCAT and based on budget constraints.
- 3) Prepare equipment list for the field work with quotes from reliable suppliers. This will be purchased by SFA prior to work commencing.
- 4) Undertake a survey of the mud crab fishery and develop a stock assessment over a period of 12-months. Data should also include an estimation of effort in the fishery, a fishing gear frame survey, population size and distribution, and seasonality in reproductive cycles. The biomass, abundance, distribution, and size-frequency will need to be determined during the two seasons.
- 5) Report on the findings from the field work and make recommendations on whether or not the mud crab can be sustainably exploited for future mariculture development, such as fattening, in Seychelles and if there is a need to regulate the fishery.
- 6) Review and finalise the monitoring protocol for continuous stock assessment of mud crabs and provide training for SFA technicians so as to improve long-term management of the resource for both mariculture and the fishery sectors, and thus ensure its sustainability.
- 7) Facilitate two (2) stakeholder workshops to present findings and validate the final report. Workshops will be held on Mahé and on Praslin, with costs being covered by SFA.
- 8) In consultation with SFA PR and Communications Officer, prepare communications materials (education and awareness for policy makers and fishermen through posters, newspaper article, infographics for social media, videos etc.)

### **4. DELIVERABLES**

With reference to the scope of work, the consultant will be required to produce the following deliverables:

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<sup>3</sup> DoH guidelines for stakeholder meetings available from their website (<http://www.health.gov.sc>)

- 1) An Inception Report describing how the consultant(s) plans to implement the assignment AFTER activity 3.1 above, when the scope of the assignment is clarified with the project team. This should include:
  - A detailed work plan with timelines elaborated for each activity as per the scope of work.
  - A protocol for a mud crab stock assessment of the status of the fishery (baseline data collection), including proposed sampling sites on Mahé, Praslin and Silhouette. The consultant(s) may propose other sites within the inner island, with adequate justification.
  - An equipment list for the field work.
- 2) Following 12, month's field work, a draft report on the findings about the on mud crab fishery and wild stock assessment. An excel sheet with raw data needs to be submitted every 3 months.
- 3) PowerPoint presentation to present findings from the 12-months survey and recommendations for regulating the fishery and developing a sustainable mariculture of mud-crabs
- 4) Final stakeholder validated report on mud crab stocks and status of the fishery with recommendations on the viability of sustainable exploitation through mud crab mariculture and/or regulation of the local fishery. The report should incorporate feedback, as may be relevant, from stakeholders.
- 5) Communications materials (education and awareness for policy makers and fishermen through posters, newspaper article, infographics for social media, videos etc.) to be agreed during the inception meeting.

## **5. TYPE OF CONTRACT**

This is a long-term national consultancy.

The consultancy is not limited to Seychellois applicants.

## **6. DURATION AND TIMELINE**

The assignment is expected to commence in June 2022, for a period of 15 months, and end in September 2023.

## **7. RESPONSIBILITIES AND REPORTING**

The consultant shall report on any matter pertaining to the task directly to Dr Ameer Ebrahim (SFA Technical Fisheries Coordinator & Scientific Advisor), who will be responsible for the effective implementation of the assignment. Guidance will also be provided by the SeyCCAT's Projects Coordinator (PC) of the Oceans5 project to ensure that the work aligns with the objectives of the Oceans5 funded project entitled "enabling the Seychelles Marine Spatial Plan"

The consultant will also be expected to work in partnership with Mrs. Veronica Alphonse-Uzice, Aquaculture Assistant Manager.

## 8. QUALIFICATIONS AND SKILLS REQUIRED<sup>4</sup>

The bid is open to individuals or a team of consultants, and should contain a background of the consultant(s) qualifications, experience, and skills, including a clear indication of their ability to deliver on the proposal.

The consultant(s) should have the following:

### Qualifications and experience

- An advanced university degree (MSc, PhD) in fisheries science or a related marine science.
- At least 5 years of experience in fisheries stock assessment, fisheries survey and data analysis techniques, fisheries Monitoring, Control and Surveillance (MCS) systems, and fisheries management planning.
- Experience in small-scale artisanal fisheries management and management planning.
- Understanding of marine environmental and resource management issues.

### Competencies and Skills

- Planning, coordinating and organizing – Ability to establish priorities and to plan and coordinate work; proven experience in coordinating multi-stakeholder projects
- Communications - Excellent communication skills and effective interpersonal and negotiation skills and a proven ability to promote teamwork among individuals and stakeholder groups that may not easily collaborate with each other, including, but not limited to senior Government officials, the private sector, managers, marine park rangers and scientific researchers
- Strong writing, presentation and reporting skills
- Demonstrated examples of similar work undertaken
- Proven track record of delivering on time for past contracts/project
- Knowledge or past experience working on donor funded projects is an advantage
- Fully Microsoft Office literate

### Language

- Full proficiency in English is a requirement

## 9. APPLICATIONS

Applications may be submitted by email or as hard copies in sealed envelopes, sent or delivered to the address below. Applications must include the following:

- A cover letter describing experience and qualifications
- A full CV
- A sample of previous works similar to what is being requested in TOR
- A simple work plan or timeline. The template provided in Annex 1 may be used.
- A financial proposal linked to the work plan. The template provided in Annex 2 may be used.

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<sup>4</sup> Note that a scoring system is used, based on these criteria, to assess the technical skills of all applicants.

- Mark proposals as **MUD CRAB ASSESSEMENT**

**Proposals should be sent to:**

Projects Coordinator  
Seychelles Conservation and Climate Adaptation Trust (SeyCCAT)  
Ocean Gate House, Room 109, Flamboyant Avenue, Victoria, Mahé, Seychelles  
**Tel (Office):** [+248 4325806](tel:+2484325806) **Tel (mobile):** +248 2590772  
**Email:** [info@seyccat.org](mailto:info@seyccat.org) or [etalma@seyccat.org](mailto:etalma@seyccat.org) or [vuzice@sfa.sc](mailto:vuzice@sfa.sc)

**NOTE: in line with the Covid-19 guidelines from Department of Health,  
please book an appointment in advance for hand deliveries**

**Closing Date:** 3pm Seychelles Time on **25<sup>th</sup> May 2022** (Late submissions and/or incomplete applications will not be considered. Only short-listed applicants will be contacted).

**ANNEX 1**

**TEMPLATE FOR THE PROPOSED WORK PLAN**

The purpose of this template is to provide sufficient details for the proposal to be evaluated, enabling reviewers to see if how you intend to complete the job on time.

**NAME:** ..... **TEL (248):** .....

**WORK PACKAGE:** MUD CRAB ASSESSEMENT **T.I.N:** .....

**CONTRACT DURATION:**  
(Please refer to TOR)

**SCOPE OF WORK AND PROPOSED APPROACH:**  
(Please refer to TOR – elaborate your proposed approach and justify and changes being proposed)

**LIST OF DELIVERABLES AND PROPOSED TIMELINE:**  
(Please refer to TOR – indicate number of days required for each, with breakdown by team members if relevant)

**WORK PLAN WITH PROPOSED TIMELINE FOR EACH TASK** (table to be revised as needed)

Tasks to be completed (See scope of work in TOR)	Proposed Timeline (months/weeks)										Number of days	Deadline for deliverable	
	Month 1												Month 15
Sign contract and submit revised/final work plan based on Inception meeting	X												
Etc...													

**COVID-19 PRECAUTIONS BEING PROPOSED:**  
(Please refer to the most recent guidelines by Seychelles Department of Health)

**ADDITIONAL NOTES IF RELEVANT:**

**ANNEX 2**

**TEMPLATE FOR THE FINANCIAL STATEMENT**

The purpose of this template is to provide sufficient details for the proposal to be evaluated, enabling reviewers to see if the proposal is realistic to complete the job.

**NAME:** .....

**TEL:** .....

**WORK PACKAGE:** MUD CRAB ASSESSEMENT

**T.I.N:** .....

ITEM DESCRIPTION	QUANTITY Days	UNIT PRICE Per day (CURRENCY)	TOTAL (CURRENCY)
1. Professional fees	DAYS		
2. Travel costs (if relevant)	DAYS		
3. Public consultations	DAYS		
3. Any other cost ( <i>please itemize e.g. taxes</i> )			
Additional information			
The cost of the workshops on Mahé and Praslin will be covered by SFA			
<b>TOTAL COST (CURRENCY)</b>			

Date: .....

Signature: .....