

Call for Proposal (Institution/Organization)

Training Manual in English and Thai on Seagrass Mapping by using the Google Earth Engine & Organization of an online national user workshop on seagrass mapping

Terms of Reference

Type of contract: Contract for Services (Authors)

Duration: 6 months (15/10/2021-15/04/2022)

Closing date: 24 September 2021, 17h00 Bangkok time (GMT +7:00)

1. Background

The IOC Sub-Commission for the Western Pacific (WESTPAC) was established in 1989 by the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC/UNESCO) to promote international cooperation and to coordinate programmes in marine research, ocean observations and services, as well as capacity building in the Western Pacific and adjacent seas, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of governance, sustainable development and protection of the marine environment.

Seagrasses are submerged flowering plants found in shallow marine waters. It is one of the most ecologically important marine ecosystems in Southeast Asia. They provide food, habitat, and essential nursery areas to commercial and recreational fishery species and to countless invertebrates living in seagrass communities. They help in coastal protection by stabilizing the sand or mud they grow on, and preventing the seabed being washed away in currents. In addition, seagrass can absorb huge amounts of carbon from the atmosphere. It is estimated that seagrass meadows hold around 15% of the carbon stored in the ocean.

Seagrass is declining in terms of its distribution due to escalating human activities and climate change. To conserve it, many SEA countries have been endeavoring to map their distribution in order to understand their spatio-temporal change and identify the root cause to inform conservation decisions and strategies. The traditional methods of seagrass mapping are human and time consuming. The remote sensing and satellite image analysis could be an alternative method for seagrass mapping. Google Earth Engine combines a multi-petabyte catalog of satellite imagery and geospatial datasets with planetary-scale analysis capabilities and makes it available for scientists, researchers, and developers to detect changes, map trends, and quantify differences on the Earth's surface.

Within the framework of its implemented Japanese Funds-in-Trust project on Accelerating the Transfer of Marine Technology for the Conservation and Sustainable Use of Oceans, Seas and Marine Resources, WESTPAC has been promoting and coordinating the development of advanced remote sensing techniques to assist member countries in the region mapping the seagrass for conservation and management.

2. Work Assignment

Under the overall authority of the Director of UNESCO Bangkok, and the direct supervision of the Head of the IOC Regional Office for the Western Pacific (WESTPAC), the Contractor will develop and publish the training manual in English and Thai on seagrass mapping by using the Google Earth Engine, organize an online national user demonstration

workshop on seagrass mapping, and purchase two drones to collect the ground truth data to validate the results from the Google Earth Engine in Thailand. In particular, the Contractor shall undertake the following tasks:

1. Develop content of the training manual that includes
 - 1.1. Introduction
 - 1.2. What is Google Earth Engine?
 - 1.3. Method for field data collection for mapping seagrass meadow
 - 1.4. Satellite data set
 - 1.5. Water column correction
 - 1.6. Classification of seagrass type
 - 1.7. Accuracy assessment
 - 1.8. Result interpretation

The structure of the training manual can be adjusted in consultation with the IOC Sub-Commission for the Western Pacific (WESTPAC).

2. Provide substantive editing services by following the requirements below:
 - 2.1. Make sure that all the details of Style Manual have been adhered to (2004 version: <https://bit.ly/37b6qXb>)
 - 2.2. Delete redundant passages, add relevant missing content, fact-checking
 - 2.3. Make sure that the development of the author's argumentation is logical and ensure balance between the different parts of the manuscript
 - 2.4. Ensure consistency and fluency of style throughout the manuscript
 - 2.5. Correct spelling mistakes and grammatical errors
 - 2.6. Check terminologies, proper names and place names according to UNESCO usage
 - 2.7. Ensure all details are followed the UNESCO Style Manual
 - 2.8. Distinguish different levels of heading
 - 2.9. Ensure that all bibliographical references are in the right format and order
3. Strictly treat the publication confidential and the rights of distribution will reside solely with UNESCO
4. Purchase two drones to collect the ground truth data, and validate the GEE results of the demonstration sites in Thailand
5. Organize an online national user demonstration workshop on seagrass mapping to assess the technique efficiency and effectiveness, including operation of the drone and using technique for ground truth data collection for satellite image analysis.
6. Submit the final edited manuscript to the IOC Sub-Commission for the Western Pacific (WESTPAC) for approval on or before 28 February 2022, and publish the training manual by 31 March 2022

3. Deliverables and Timeframe

1. Draft table of contents by 31 October 2021
2. Draft manuscript of the training manual in English by 30 November 2021
3. Draft manuscript of the training manual in Thai by 31 December 2021
4. Edited manuscript in word file with tracked changes and notes to WESTPAC by 31 January 2022

5. Summary report of online training workshop for 20 participants by 28 February 2022
6. Final edited work of the manuscript by 28 February 2022
7. Published manuscript by 31 March 2022

4. Application

Interested institutions/organization are invited to submit the following in writing to UNESCO Bangkok:

- i. a short proposal(3-5 pages) including estimated budget breakdown with a rate per unit and relevant examples/reports of successfully undertaking such similar assignment.
- ii. CV of the individual(s) that will lead this assignment.

Your application should be submitted no later than 24 September 2021, 17h00 Bangkok time (GMT +7:00) to iocwestpac@unesco.org

Only shortlisted institutions/organizations shall be contacted.