OCEAN CARBON WORKING GROUP TERMS OF REFERENCE

21 April 2023

1. Background

The ocean is a large natural carbon sink and plays a crucial role in global climate regulation as the ocean stores around 42 times more carbon than the atmosphere (Friedlingstein et al., 2022; Lebling et al., 2022). The ocean is one of the largest potential natural pathways for removing carbon dioxide from the atmosphere while avoiding new sources of anthropogenic emissions. The sustainable management of blue carbon stocks (coastal, open ocean, and deep ocean carbon) is a nature-based climate solution with significant potential for climate change mitigation.

Ocean-based activities that leverage the ocean's natural processes to sequester carbon have been receiving increasing attention in the context of ambitions to achieve net-zero emissions. Ocean-based carbon dioxide removal (CDR), according to the Aspen Institute (2021), refers to "a range of intervention techniques that: (1) take place primarily in the ocean, including in coastal regions; (2) extract CO_2 directly from the atmosphere, or from seawater leading to an additional reduction of atmospheric CO_2; and (3) durably store the extracted CO_2 for a significant period of time."

Commonly discussed ocean-based CDR opportunities include macroalgal cultivation, seabed management, nutrient fertilization, alkalinity enhancement, electrochemical approaches, artificial upwelling, and artificial downwelling. These approaches differ widely in their potential scales, the selected pathway to enhance or manipulate ocean systems, and the degree of intervention they require (NASEM, 2021).

Verra develops and manages standards that help governments, the private sector, and civil society achieve their sustainable development and climate goals. As a mission-driven nonprofit organization, Verra is committed to helping reduce greenhouse gas (GHG) emissions, improve livelihoods, and protect natural resources across the private and public sectors. Verra's flagship program — the Verified Carbon Standard (VCS) Program — is the world's leading GHG crediting program with almost 2,000 registered projects in over 100 countries that have cumulatively generated more than one billion Verified Carbon Units.

Currently, the VCS Program includes methodologies for the conservation and restoration of coastal and tidal blue carbon ecosystems, which are supported by the Wetland Restoration and

Conservation (WRC) requirements. Coastal blue carbon refers to the atmospheric carbon captured and stored in mangroves, tidal salt marshes, and seagrass meadows (Mcleod et al., 2011). However, the suitability of the WRC requirements for open ocean applications is limited. Given the widespread interest in these ocean-based activities that reduce and remove emissions, the development of rigorous VCS Program rules and requirements, as well as associated methodologies, will require incorporating the latest science and research, best practices, and new technologies to be eligible for voluntary carbon market support.

2. Objectives

In response to the urgent need for scientifically robust and market-oriented nature-based solutions, Verra is establishing the Ocean Carbon Working Group (WG) to identify and develop updates to the VCS Program's rules and requirements related to ocean-based project activities. Emphasis will be placed on carbon standards-related concepts and topics that will inform VCS Program development.

The Ocean Carbon WG will build on the success of Verra's previous Blue Carbon Working Group and ongoing Seascape Carbon Initiative (SCI). The SCI aims to catalyze research on seascape carbon activities, develop carbon crediting methodologies to quantify and verify their impacts, and help drive finance to blue carbon projects. The SCI has identified several gaps in the VCS Program that limit the development and scaling of activities in coastal, open ocean, and deep ocean systems. Verra manages the world's leading GHG crediting program and has developed the first blue carbon conservation methodology. As such, Verra is uniquely positioned to develop rules and requirements that enable the development of high-integrity projects using these ocean-based approaches for climate change mitigation.

The purpose of the WG will be to offer guidance on standards-related topics, including:

1. Providing technical input on various updates to VCS Program rules to enable the certification of projects implementing ocean-based activities;
2. Considering additional approaches to standards-related aspects that would improve the alignment of the VCS Program's fundamental quantification processes (e.g., monitoring and verification, project boundaries) and methods with the modeling of ocean system dynamics and carbon cycling; and
3. Evaluating opportunities, challenges, and risks related to the successful development and scaling of ocean-based carbon project activities.

3. Roles and Responsibilities

The role of the WG is to provide insights into the needs of a broad range of stakeholders (as set out in Section 4 below) as they relate to the above topics. Members will contribute expert recommendations and respond to ideas and suggestions that Verra presents about VCS Program updates and standards-related topics, including additional rules and accounting mechanisms (e.g., additionality, uncertainty, and verification), which may involve:

- Updates to the VCS Program rules and/or requirements that would facilitate and support ocean-based project activities and methodology development; this may include standards-related concepts such as:
    - Monitoring for permanence;
    - Developing tools and methods to assess the risk of non-permanence and minimize uncertainties in ocean system dynamics;
    - Determining project boundary and baseline scenarios;
    - Determining carbon pools in the ocean carbon system; and
    - Developing alternative accounting methods and using default values/conservative estimates.
- Legal and regulatory considerations to determine ownership of ocean-based carbon credits, including the ability to claim carbon credits from activities that take place in a country's exclusive economic zone and the high seas;
- State of opportunities, including industry priorities, emission reductions and removals potential, parameters contributing to scalability, market readiness, and state of financing;
- State of the science, including current scientific understanding, quantification, and sources of uncertainty associated with the estimation of carbon emissions;
- Innovation in measurement, reporting, and verification (MRV) and identification of promising monitoring technologies (e.g., advances in remote sensing) and/or modeling approaches to be incorporated into the VCS; and
- Strategies for maximizing the sustainable development benefits and ensuring alignment with enhanced safeguards that prevent negative consequences for marine ecosystems and coastal communities.

4. Member Composition and Commitment

Verra anticipates inviting approximately 15-20 individuals to join the WG. WG members will have diverse experience and expertise, and will serve in a volunteer capacity.

Participants in the WG should meet one or more of the following criteria:

- Strong knowledge of ocean and climate sciences, including biology, geology, and geophysics; marine chemistry and geochemistry; marine policy; and/or physical oceanography. Strong technical expertise in these areas is desirable;
- Strong knowledge of the challenges/opportunities associated with the implementation of coastal and ocean-based project activities;
- Strong understanding of existing relevant standards and certification approaches;
- Strong understanding of relevant new or emerging market and demand/finance opportunities and trends;
- Experience as a technology provider enabling ocean-based carbon innovations;
- Experience as a leading player in related ocean-based carbon initiatives and/or government programs; and/or
- Experience as a user or stakeholder of the VCS Program, including strong familiarity with the VCS Program rules and requirements or voluntary carbon markets.

We are seeking a diverse group of global experts representing academic institutions, government agencies, multilateral organizations, non-governmental organizations (NGOs), civil society groups, and VCS Program stakeholders (e.g., project developers, validation/verification bodies, and corporate buyers). Members will be selected to maximize diversity across geography, profession, expertise, gender, age, and other attributes.

Participation in the WG is without remuneration and is expected to run 12 to 18 months between September 2023 and December 2024. WG member responsibilities will include providing input on electronic documents via email and participating in one 60- to 90-minute conference call every six to eight weeks, on average. Members may be required to spend one to two hours preparing for conference calls, including reviewing pre-reading materials, prompts, or polls. No in-person meetings are expected, though side meetings at relevant conferences where members are participating may be organized. Appointment of the WG members shall be at Verra's sole discretion.

5. Operation of the WG

Verra will convene the WG, and Verra staff will be responsible for preparing meetings (including developing and sharing background briefs), organizing and facilitating WG meetings, collecting and organizing additional input from the WG and other stakeholders as needed, facilitating communication and consultation with other stakeholders, and defining and advancing concrete actions/solutions. Verra may create smaller ad hoc groups to explore specific topics (e.g., GHG modeling, remote sensing) depending on need and participant interest, availability, and expertise.

The WG will provide guidance and technical input to Verra but will not have decision-making power. The products of this WG may include changes to the VCS Program, as well as potential changes to other Verra standards, rules, requirements, and tools. Members of the WG will adhere to a code of conduct, which includes confidentiality and conflict of interest policy. The working language of the WG will be English.

6. Termination

WG members or Verra may give notice of termination of member participation in the WG at any time. Verra reserves the right to inactivate or terminate the WG at any time.

7. Application for Membership

Interested individuals are invited to apply for membership in the WG until 23 June 2023 via the Application Form. Please send applications and a CV/resume to Kim Lewtas, Senior Program Officer, Blue Carbon Innovation (klewtas@verra.org).

Verra aims to make appointments to the Ocean Carbon Working Group by late July 2023 and plans to convene the first meeting in September. The appointment of WG members will be at Verra's sole discretion via direct invitation and from the list of applicants.

8. References

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