

Annual SCOR Working Group Report to SCOR

2 July 2021

1. Name of group

C-GRASS (Co-leads: Emmett Duffy, Lauren Weatherdon)

2. Activities since previous report to SCOR (e.g., virtual or in-person meetings, email discussions, special sessions). Limit 1000 words

14 Sep - 1 Oct 2020: Launched the C-GRASS project with 3-week long virtual workshop including six sessions. Program included plenary presentations by experts from coordinated networks focused on seagrasses and other marine life, establishment of all four working groups, discussions to define ways of working, relationships, and plans for the project.

7 Dec 2020: Steering Committee meeting.

11 Jan 2021: 2nd C-GRASS Plenary Meeting.

22 Mar 2021: Meeting of C-GRASS working group leads with World Seagrass Association (WSA). Established informal agreement with WSA to sustain C-GRASS activities, Community of Practice, and host key C-GRASS products on WSA website into long-term future.

Throughout 2021: Separate, smaller meetings of working groups.

17 Dec 2020, 23 Feb 2021 & 05 Apr 2021: 3 meetings of C-GRASS leads with National Coordinated Alliance for SAV Enhancement (NCA-SAVE), organized by Pew Charitable Trust, to build connections and complementarity.

C-GRASS Data synthesis group co-lead Jonathan Lefcheck (Smithsonian) had proposal accepted for special session on coordinated research on seagrass at International Seagrass Biology Workshop (re-scheduled for September 2022).

3. Documents published since previous report to SCOR (e.g., peer-reviewed journal articles, reports, Web pages) and should be limited to publications that resulted directly from WG activities and which acknowledge SCOR support

No MS acknowledging SCOR support has been submitted yet. However, several MSs are in progress.

4. Progress toward achieving group's terms of reference. List each term of reference separately and describe progress on each one. Limit 1000 words

● **Data analysis and synthesis:**

- Smithsonian MarineGEO advanced curation of the SeagrassNet database, transferred from U New Hampshire in 2020, and translation into standardized, Darwin-Core

compliant form with the help of a 9-month intern. The database currently contains 107,000 observations spanning 20 years and 107 locations in 29 countries.

- C-GRASS member Jim Fourqurean (Florida International U) generously allocated a full-time postdoctoral fellowship to C-GRASS data synthesis and hired Dr. Johannes Krause in January 2021. Johannes is working to link seagrass data from satellite imagery to that from *in situ* sampling. Preliminary results show that trends are moderately coupled and that Tier 1 (in situ) lags Tier 2 (remotely sensed) trends, likely because in situ surveys tend to target extensive semi-permanent beds that are more resistant to change.

- **Best practices**

- The group worked to connect protocols for in situ sampling and remote sensing, toward the goal of finalizing the GOOS seagrass EOVS spec sheet. Work included exploration of new approaches developed by C-GRASS member Chris Roelfsema et al for coral reefs (Roelfsema CM et al. 2021. [Workflow for the generation of expert-derived training and validation data: a view to global scale habitat mapping](#). *Frontiers in Marine Science*. doi: 10.3389/fmars.2021.643381).

- **Data schema:**

- Meetings were held with all working group members, discussing the alignment of the data schema with various existing frameworks.
- UNEP-WCMC hosted an intern that aligned the proposed seagrass data schema with DarwinCore.
- C-GRASS has been working with OBIS, US MBON, the Hakai Institute, and NCA-SAVE to establish a permanent seagrass metadata registry for publicly accessible information on seagrass research programs and datasets worldwide. A development version of the registry portal developed by OBIS can be found here: <https://bioeco-dev.obis.org/>.

- **Community of Practice:**

- Meetings with the World Seagrass Association established an informal agreement to become a sustaining partner for C-GRASS beyond the SCOR grant.
- Began working on terms of reference for a Steering Committee that could be aligned/integrated with WSA.
- Developed a questionnaire intended to collect information on seagrass-related activity worldwide, towards developing a community of connections and sourcebook for global information flows and best practices.
- Held several meetings with Pew's NCA-SAVE to better link seagrass monitoring and mapping efforts with managers and policymakers, including Atlantic and Pacific Coastal Fish Habitat Partnerships.

5. WG activities planned for the coming year. Limit 500 words

- **Data analysis and synthesis**

- We are aiming for public release of the seagrassNet database in late 2021, cross-listed on OBIS.
- A manuscript summarizing the main status and trends from the global SeagrassNet data set will be submitted by winter 2021/2022.

- Postdoc Johannes Krause will complete assessments of degree of agreement between Tier 1 data and Tier 2 seagrass observations, with the aim of ultimately combining them for a larger synthesis. We have engaged other C-GRASS members to acquire additional data from Texas and Alabama (USA), and Australia, and aim to have a manuscript draft reporting these results circulated by Sept 2021.
- **Best practices**
 - Finalize the Seagrass Essential Ocean Variable spec sheet, uniting both remote sensing and in situ approaches, for approval by GOOS.
 - Develop and implement a hierarchical structure to guide and establish preferred and recommended data capture approaches.
 - Register the remote sensing and in situ protocols with the [IOC Ocean Best Practices System](#).
- **Data schema**
 - Coordinate metadata collection and curation.
 - Seek funding for further development of the OBIS portal's capabilities.
 - Explore how to operationalise the flows of seagrass data from [OBIS](#) through to platforms, such as [Ocean+ Habitats](#).
 - Convene a session on seagrass data coordination at the 5th Ocean Best Practices Community Workshop.
- **Community of Practice**
 - Reschedule C-GRASS in-person workshop/meeting for Spring 2022 and/or at ISBW 2022, adopting a hybrid approach to allow virtual participation.
 - Convene C-GRASS Steering Committee meeting, tentatively scheduled for August 2021.

6. Is the group having difficulties expected in achieving terms of reference or meeting original time schedule? If so, why, and what is being done to address the difficulties Limit 200 words

Inability to meet in person as a result of COVID-19 has significantly impacted progress on our outcomes and partnerships. For instance, we were in advanced stages of planning our May 2020 inaugural workshop at INVEMAR in Santa Marta, Colombia, leveraging collaboration with the MBON Pole-to-Pole group and co-funding by NASA. This co-located workshop would have helped facilitate diversity of partnerships and engagement in the Global South, and we hope to reschedule something similar during the grant period. More generally, it has been challenging to maintain momentum and the progress that would usually be achieved through intensive in-person meetings.

On the bright side, adaptation to the COVID-19 world has forced us to build strong capacity to continue work virtually and allowed us to engage a much broader audience into the community than we would have been able to achieve in person. This will be key to the long-term sustainability of the C-GRASS outcomes.

7. Any special comments or requests to SCOR. Limit 100 words.

Due to the various challenges posed by the last year of COVID-19 we request a one-year no-cost extension of the project to complete our objectives.

Additional information can be submitted and will be included in the background book for the SCOR

meeting at the discretion of the SCOR Executive Committee Reporter for the WG and the SCOR Secretariat.