

Annual SCOR Working Group Report to SCOR
July 2022

Summary:

Over the last year C-GRASS has made significant progress on several goals: (1) We synthesized data from around the world, including curation and QAQC of the global SeagrassNet database, toward a comparison of remotely sensed versus in situ monitoring of changes in seagrass density, the first MS from which should be submitted in 2022; (2) we worked with the Global Ocean Observing System toward formalization of the seagrass Essential Ocean Variable specifications and Darwin-Core-based data schema; (3) we worked with the World Seagrass Association toward incorporation of C-GRASS themes into the renovated WSA website to appear in 2022. A major part of recent planning and activities for the coming year involves the first in-person C-GRASS workshop to be held in association with the bi-annual International Seagrass Biology Workshop in Annapolis, MD, USA, on 13-14 August 2022. We will host approximately 10 members of the C-GRASS working group at the workshop, along with several associates, to advance these continuing goals, develop additional MSs, and to discuss proposals for extending C-GRASS themes and collaborations beyond the scope of the SCOR working group.

1. Name of group

C-GRASS (Co-leads: Emmett Duffy, Sara Pruckner)

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

- 2022: Planning for the first-in-person C-GRASS workshop to be held in Annapolis, MD, USA, 13-14 August 2022.
- August 2022: C-GRASS affiliated member Jonathan Lefcheck and Co-Lead Emmett Duffy planned and organized session at the International Seagrass Biology Workshop (to be held Aug 7-12, 2022): *“Seagrasses into the 21st century: Insights from global coordination and a way forward”*
- March 2022: Two virtual plenary meetings involving 29 and 20 participants from 6 countries. Including 13 early career (EC) researchers. Updates from the four component working groups and planning for Aug 2022 in-person workshop.
- 12 Dec 2021: Co-lead Duffy provided most recent of regular updates to Global Ocean Observing System Bio-Eco panel on C-GRASS activities focused on developing GOOS seagrass Essential Ocean Variable specification sheet and standardized data schema.
- 26 Oct 2021: Co-lead Duffy joined Steering Committee of Alliance for Submerged Aquatic Vegetation Enhancement (A-SAVE), organized by Pew Foundation, focused on joining forces toward a seagrass Community of Practice.
- 7 Oct 2021: Virtual C-GRASS plenary meeting involving 20 participants (7 EC), from 12 countries. Updates from the four component working groups, including progress on data synthesis.

- 13 Sep 2021: C-GRASS Community of Practice (CoP) group meeting, 13 participants (3 EC), from 4 countries.
- 9 August 2021. C-GRASS COP group meeting focused on development of seagrass online sourcebook to be hosted by World seagrass Association (WSA), 10 participants (4 EC), 4 countries.
- 9 August 2021. Duffy and Lefcheck met with The Nature Conservancy about common interests and collaboration related to seagrass conservation in Caribbean and eastern US.

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 continues to curate the 20-year SeagrassNet database assembled by Fred Short, allocating with full-time technician allocated to review previous curation, finalize database structure and format, and resolve lingering issues. Database QAQC and curation will be finished by late 2022, with MS on initial findings to follow.
- Postdoc Johannes Krause of Florida International University, working with Associate Member Jim Fourqurean, prepared draft MS comparing seagrass tier 1 (aerial extent) and tier 2 measurements (in situ sampling) observations, a first step towards integrating tiers in global synthesis of seagrass status and trends.
- Lefcheck and Duffy will host organized oral session at 14th Annual International Seagrass Biology Workshop (see above).
- Presentation: "Towards a Global Seagrass Monitoring Network: The past, present, and future of collaboration." J.S. Lefcheck. (2021) Invited Seminar. International Seagrass Biology Workshop Pre-event Seminar Series (Virtual).
- Presentation: "Towards a global seagrass observing community for conservation and synthesis." J.S. Lefcheck, M. Portourogrou, L. Weatherdon, S. Pruckner, A. Kornbluth, J.E. Duffy. (2021) CERF 26th Biennial Conference (Virtual).

- **Best practices**

- Development through several draft versions of seagrass EOVS spec sheet, in collaboration with GOOS Biology and Ecosystem Project Officer Lavenia Ratnarajah. The spec sheet is scheduled to be finalized at Aug 2022 in-person workshop.
- Members Len McKenzie and Chris Roelfsema leading development of Standard Operating Procedures document for both remotely sensed (Tier 1) and in situ sampling (Tier 2) of seagrass, to be presented to working group at the August workshop in Annapolis.
- Member Margot Hessing-Lewis recruited student Angela Phan to develop survey synthesizing information from seagrass community on seagrass sampling methods

related to the GOOS seagrass (draft) EOVS, and connections with traditional ecological knowledge.

- **Data schema:**
 - Ongoing discussions among C-GRASS members, OBIS, and GOOS Biology Ecosystems panel members regarding finalization of parameters and metadata, and scheduling public release, of Darwin-Core-compliant seagrass data template in association with seagrass EOVS spec sheet.
- **Community of Practice:**
 - Built and strengthened collaborations with WSA, including contribution of text and materials related to the C-GRASS Terms of Reference for inclusion on WSA renovated website, led by affiliated researcher Elizabeth Lacey and WSA President Jessie Jarvis.
 - Built and strengthened collaborations with A-SAVE.
 - Built and strengthened collaborations with regional CoPs in southeast Asia, led by Full Member Miguel Fortes.

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

- **Data analysis and synthesis:**
 - Finalize curation of SeagrassNet database and begin posting to OBIS.
 - Publish at least two MSs based on C-GRASS data synthesis (J. Krause, lead) and SeagrassNet data synthesis (J. Lefcheck and F. Short, leads).
 - Advance plans for collaborative global seagrass mapping proposals.
- **Best practices**
 - Finalize Seagrass Essential Ocean Variable spec sheet at Aug 2022 workshop, for approval by GOOS.
 - Publish MS(s) summarizing EOVS spec sheet, data schema, and Standard Operating Procedures for remotely sensed and in situ sampling of seagrass, supporting the GOOS EOVS.
 - Register the remote sensing and in situ protocols with the IOC Ocean Best Practices System.
- **Data schema:**
 - Finalize Darwin-Core-based Seagrass data schema in association with Essential Ocean Variable spec sheet at Aug 2022 workshop, for approval by GOOS and integration with Ocean Biodiversity Information Services (OBIS).
- **Community of Practice:**
 - Integrate C-GRASS themes and deliverables into Steering Committee structure and remodeled website of World Seagrass Association (WSA), scheduled to go live in late 2022.
 - Continue building plans with WSA, A-SAVE, CERF, and others to continue C-GRASS objectives into long-term.

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

Once again, uncertain travel as a result of recurrent surges of Covid-19 have interfered with plans for in-person meetings. Happily, our first in-person workshop is now on track for August 13-14, 2022, and will be hosted by the Smithsonian Environmental Research Center in Edgewater, MD, USA.

A second challenge has been staff turnover, as Co-leads Lauren Weatherdon and Sara Pruckner of UNEP-WCMC both transitioned into new positions in 2022 and have been unable to participate further in C-GRASS. We are currently working to have Chris McOwen, lead marine scientist at UNEP-WCMC, attend the August workshop to take over temporarily as co-lead.

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

Thank you for your help and patience during the various reorganizations of our working group leadership structure.

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.