

Annual SCOR Working Group Report: 2021 – 2022

WG 164: CoNCENSUS

1. Brief summary with the main highlights

(200-300 words)

The CoNCENSUS Working Group (WG) was approved in November 2021. CoNCENSUS aims to advance our understanding of the complementarity and interoperability of data collected by different **CO**astal and **Nearshore** visual **CENSUS** methods, and investigate solutions through parallel evaluations of the status of coastal and nearshore benthic fish assemblages and the processes structuring them over spatial scales relevant to regional and global reporting. The WG will allow the community to establish best practice guidelines and provide recommendations on how best to utilise data from multiple methods to address scientific questions of local and global importance. Furthermore, we aim to develop workflows for the management, publication and visualisation of open-access data.

Over the last six months we have focussed on introducing the team, and finalising the different Terms of Reference (ToR) and work plans; initiating capacity development and engaging with the broader underwater visual census community; developing an interactive shared workspace; and sourcing additional funding to allow increased participation by the full working group and to recruit early career scientists, in the form of postdocs and PhD students, to assist with the WG activities. Our kick-off meeting was held on-line in May and provided a great opportunity for the WG members to meet for the first time and discuss the details of the ToR. Leads and teams for each ToR were appointed during the meeting and these groups are now in the process of developing detailed work plans and starting the required work. We have secured funding for one PhD student, a postdoc and a research assistant to join the WG. One funding proposal is currently under review to provide co-funding to support the CoNCENSUS objectives. We have made some good initial progress with the proposed capacity development plans and engaging with key role players in the global community of practice.

2. Activities since previous report to SCOR

(e.g., virtual or in-person meetings, email discussions, special sessions). Limit 1000 words

- 2021/12: Capacity building training course was held with the staff of the Marine Megafauna Foundation (Tofu, Mozambique). The course focussed on the correct use and data management for assessments of coastal fishes with baited remote underwater stereo-video systems.
- 2021/12: Funding was sourced, and a PhD student (Angus van Wyk) was recruited at the start of 2022 to work on aspects of ToR 1 and ToR 4.
- 2021/12: Co-chairs Bernard and Stuart-Smith provided feedback to the Global Ocean Observing System (GOOS) Biology and Ecosystem (BioEco) panel on the objectives of the CoNCENSUS working group and its role in advancing the development of Essential Ocean

Variables (EOVs) for monitoring the status of coastal and nearshore demersal fish assemblages.

- 2022/04: Met with the Seychelles Island Foundation (SIF) to discuss CoNCENSUS and ways to support the SIF monitoring and research on demersal fishes at Aldabra Atoll – a key site within the Western Indian Ocean to support fish monitoring.
- 2022/05: Kick-off meeting was held on-line over four 1-hour meetings. The meetings were attended by 15 of the 19 WG members and seven guests. This allowed the group to meet for the first time, better discuss the details of the ToR and appoint ToR leads and teams that initiate the respective work.
- 2022/05: Co-chair Bernard was invited to be a member of the Global Archive Steering Committee and attended the first meeting. Relevant discussions focussed on the objectives of the CoNCENSUS WG and the role Global Archive could play to support the ToR.
- 2022/05: Co-chair Stuart-Smith hosted the first Reef Life Survey Global Scientific Committee meeting aiming to strengthen the global network of the volunteer-based monitoring programme.
- 2022/06: Met with the Namibian Nature Foundation to discuss CoNCENSUS and ways to support their monitoring and research on demersal fishes in the Namibian Islands Marine Protected Area and elsewhere in Namibia.
- 2022/06: Funding was sourced for a two-year postdoc to work on the CoNCENSUS ToR and deliverables. The position will be advertised in August with the selected candidate starting in January 2023.

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 peer-reviewed manuscripts have been published yet, however we are working on the bibliometric and lexical analysis to map the visual census research landscape, knowledge networks, gaps and agendas, and this will be submitted in early 2023 for peer-reviewed publication.

- (1) Kick-off meeting [report](#)
- (2) CoNCENSUS [website](#). The website consists of a public and members portal and will be the central workspace for all CoNCENSUS related activities. Currently the website is operational but still underdevelopment.

4. Progress toward achieving group's terms of reference.

List each term of reference separately and describe progress on each one. Limit 1000 words

ToR 1: Methodological comparison

- (1) Refined the TOR activities during the kick-off meeting and added an additional objective to better capture the steps required for method calibration.
- (2) Identified preliminary datasets available for use in the analyses.
- (3) Appointed Eva Maire (Lancaster University, United Kingdom) as the first lead for the TOR.

ToR 2: Best practice guidelines

- (1) Agreed on the best approach to develop the best-practice guidelines to maximize inclusivity and relevance to the community.
- (2) Identified Diver Operated Stereo-Video (stereo-DOV) and stereo-camera Remotely Operated Vehicle (stereo-ROV) as two maturing visual census methodologies that the members of WG can assist with best-practice development, community review and GOOS endorsement.
- (3) Appointed Ana Carolina Mazzuco (Universidade Federal do Espirito Santo, Brazil) as the first lead for the TOR.

ToR 3: Data management policy and infrastructure

- (1) Refined the TOR activities during the kick-off meeting to incorporate the development of a data governance framework and data use agreements.
- (2) Working group represented on the Global Archive ([link](#)) steering committee. Global Archive is an online repository for the management of marine biodiversity data collected with underwater cameras.
- (3) Appointed Peter Walsh (University of Tasmania, Australia) as the first lead for the TOR.

ToR 4: Determine priority areas for engagement, capacity development and research

- (1) Researchers within CoNCENSUS have begun engaging with the ROV research community on the development of best-practices (Activity 4.4.1).
- (2) We have a PhD student (Angus van Wyk) working on Activities 4.4.2 and 4.4.3. The student has begun the bibliometric and lexical analysis to map the visual census research landscape, knowledge networks, gaps and agendas.
- (3) Using outcomes from a Global Ocean Observing System Biology and Ecosystem panel research mapping [publication](#) and regional experience from the Western Indian Ocean (WIO) two preliminary sites have been identified to support research. The first is in Namibia on the west coast of Africa. Here, with institutional support from SAIAB, we are providing access to research equipment and training to enable research and monitoring in the Namibian Islands Marine Protected Area. We are also engaging with relevant management stakeholders to better understand their needs and mapping pathways to ensure that relevant data are flowing from the research activities into national reporting and policy. The second is the Seychelles Island Foundation (SIF) that manages the Aldabra Atoll MPA. Aldabra is a UNESCO World Heritage Site and considered to be the finest surviving tropical atoll ecosystem on earth; as such, it is an ideal location to record what baseline near-pristine coral atoll fish assemblages should look like and track long-term changes in the WIO. Through previous monitoring and research, SIF have demonstrated the institutional desire and capacity to carry out visual census monitoring at Aldabra and we have started discussions with them to provide support for video processing and the provision for more advanced visual census research equipment.
- (4) Appointed Anthony Bernard (South African Institute for Aquatic Biodiversity) as the first lead for the TOR.

ToR 5: Establish a global community of practice

- (1) Initial progress towards establishing the global community will be achieved through the work undertaken in the first 4 ToRs.

(2) Reef Life Survey ([RLS](#)), managed by co-lead Stuart-Smith, established a global scientific committee to support and encourage the broader UVC community to establish volunteer based monitoring programs.

5. WG activities planned for the coming year.

Limit 500 words

ToR 1: Methodological comparison

- During 2022-2023 we will move TOR activities 1-3 towards completion. Here we will finalize the work plan, complete the global dataset and agree on the detailed scope of the research questions. In addition we will draft publication reviewing the various visual census methodologies, ecological status indicators and draft a decision support framework to enable robust decision making regarding method, sampling and analytical approach selection applicable to diverse economic realities.

ToR 2: Best practice guidelines

- Work undertaken in 2022-2023 will focus on the identification and development of best-practice guidelines (TOR activity 2).
- In addition, we will distribute the already published stereo-DOV best practice [guidelines](#) to the global community of practice to identify necessary changes, if any, and obtain community approval. Following this, the amended guideline will be submitted to the GOOS for endorsement as a method for measuring essential ocean variables.

ToR 3: Data management policy and infrastructure

- Work on this TOR will begin in 2022-2023 in accordance with the proposed plan.
- We will agree on the minimum standards, data schema and vocabularies for metadata and biodiversity data in accordance with Darwin Core standard and FAIR principals to ensure interoperability and persistence of data.
- Begin the engagement with OBIS staff and relevant national-level biodiversity information managers to adopt or develop infrastructure and workflows that enable the seamless publication of data into OBIS via web services, integrated publishing toolkits and computer scripts, to create an enabling environment for data discovery, access, and harvesting.
- Work with GOOS, Global Archive, REEF and Reef Life Survey to better integrate their workflows and data management systems with OBIS.

ToR 4: Determine priority areas for engagement, capacity development and research

- Complete the bibliometric analysis mapping the visual census research landscape, knowledge networks, gaps and agendas. After this we will begin the community questionnaire-survey to understand where, how and why the different operators make use of the underwater visual census techniques.
- Initiate engagement with the ROV and towed camera research communities to investigate opportunities for data interoperability and best-practices.

ToR 5: Establish a global community of practice

- Participate in the Ocean Practices Workshops by hosting and contributing towards different sessions.
- Engage with the broader community through targeted capacity building initiatives (e.g. Ocean Data Bootcamp, Brazil).

Meetings

- We are planning to have an in-person meeting with available members at the International Temperate Reef Symposium in January 2023.
- In addition, the sub-groups working on each ToR will be having regular meetings to advance the required work.

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

Time availability was identified as a major concern by all members of CoNCENSUS. This has resulted in a delay in the WG activities commencing which will impact our ability to meet the original timeframe. It will likely have knock-on impacts to our ability to meet deadlines moving forward. To address this, we have been working on ways to bring more early-career researchers and additional established collaborators into the group. Seven guests were able to attend our kick-off meeting and a number of established and early-career researcher indicated they had time to work on the different TORs. We currently have one PhD student who will deal with aspects of TOR 1 and TOR 4. We have also sourced funding for a to-year postdoc to work on TORs 1+2. The advert for this position will be published in August with the suitable candidate starting in 2023. We have sourced funding to pay a research assistant 60-80 days per year for two years to assist with TOR 3. The research assistant will start in October 2022. Lastly co-chair Bernard submitted a funding proposal to support CoNCENSUS activities in Southern Africa. This proposal included co-funding for meetings and workshops and additional postdoc research positions.

7. Any special comments or requests to SCOR.

Limit 100 words.

None.

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.