Working Group on Marine Benthal and Renewable Energy Developments (WGMBRED)

2018/MA2/HAPISG01 The **Working Group on Marine Benthos and Renewable Energy Developments** (WGMBRED), chaired by Jan Vanaverbeke, Belgium, and Joop Coolen, the Netherlands, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2019	12–15 February	Brussels, Belgium		
Year 2020	20–23 April	by corresp/ webex		physical meeting cancelled - remote work
Year 2021	8–11 March	Online meeting	Final report by 1 May to SCICOM	

ToR descriptors

ToR	Description	Background	Science Plan codes	Duration	Expected Deliverables
a	Develop guidelines on standardised data collection methodologies and criteria for metadata to enable integration of benthos data of marine renewable energy devices into wider international frameworks.	WGMBRED recognises the fact that data on the benthos of marine renewable energy devices are collected and stored according to different standards, hampering in integrated analyses of the effect of such devices on the benthos on wider spatio-temporal scales. Standardisation of data collection and storage methodology will overcome this problem, facilitating joint analyses and international collaboration.	3.1	Year 1–3	Synthesis report to ICES on review of existing standards and methodologies including guidelines for setting criteria of metadata facilitating integration and analysis of marine renewable energy devices benthic data.
b	Provide an integrated example dataset based on benthos data of marine renewable energy devices from various sources	To date, data on the effect of marine renewable energy devices are scattered in national or institutional databases. This lack of integration hampers the understanding of the general effects in space and time of renewable energy devices on the marine benthos. WGMBRED will therefore provide a prototype of an integrated database (based on publicly available data) that can be used for scientific purposes by the international scientific community	2.1; 3.1	Year 1–3	Prototype database on the benthos of renewable energy devices, submitted to a database repository.
c	Review the knowledge on changes in the benthos associated with environments where marine renewable energy devices are located and relate them to the presence of these structures and the changes to other human activities (e.g. fisheries)	Earlier WGMBRED work, showed a locally increased habitat diversity in areas where renewable energy arrays are in function. This results in increased diversity of the benthos (including non-indigenous species). At the same time, many fisheries activities are excluded from these areas. As such, marine renewable energy device arrays could act as de facto conservation areas for	2.1; 2.2; 6.1	Year 1–3	Report to ICES on the assessment of the evidence of whether marine renewable energy device arrays can be considered as de facto marine protected areas.

		benthos, adding to the existing network of designated Marine Protected Areas. This is of high importance and should be taken into account during marine spatial planning processes where multiple activities within concession zones for marine renewable energy devices are being planned for.			
d	Develop the scientific basis for assessing the conservation of benthic habitats beyond the exploitation phase of marine renewable energy installations	Based in the current knowledge, WGMBRED realises that the local and regional biodiversity of the benthos may be positively affected in areas where marine renewable energy devices are exploited. This results from a combination of the provisioning of habitat, food and shelter for a number of marine organisms. These effects need to be taken into consideration in the decision making process for locating and the possible decommissioning of marine renewable energy devices sites.	6.1	Year 1–3	Manuscript to be submitted to peer-reviewed journal
e	Review and provide an empirical overview on the role of benthos associated with marine renewable energy devices in the maintenance of important ecosystem processes.	WGMBRED aims to provide the knowledge base to support the implementation of the Ecosystem Approach to Management with respect to marine renewable energy devices. This requires moving towards a process-driven understanding of how the changes to the structural and functional composition of the benthos (including non-indigenous species) associated with marine renewable energy devices) contributes to ecosystem functioning and the provisioning of ecosystem services (such as nutrient cycling and food provision via fisheries species).	2.2	Year 1–3	Manuscript submitted to a peer-reviewed scientific journal
f	In collaboration with WGMRE, provide a preliminary draft of advice on the current state and knowledge of studies into the deployment and environmental impacts of the following wet renewable energies and marine energy storage systems: wave energy (floating, coastal infrastructure), tidal stream (screws, kites), tidal flow (barrage, lagoon) and others. Advice should cover the status of wet renewable development in the OSPAR region, future prospects, potential environmental problems (sea bed habitat loss/disturbance, fish, marine mammals, birds, seascape/ public perception, and cumulative impacts), potential benefits, next steps and	Advisory Requirements: ICES has received a special request from OSPAR to advice on the current state and knowledge of studies into the deployment and environmental impacts of wet renewable technologies and marine energy storage systems. Given its expertise, WGMBRED wil contribute to the advice with data and expertise on the benthic component of the marine realm. A subgroup will meet in ICES headquartes 15-16 January with experts from WGMRE and WGMBRED to draft a first version of the advice. The preliminary draft advice will be developed further during WGMBRED meeting and finalised during WGMRE meeting.	6.1	Year 1	Section of the report ready for WGMRE on 25 February 2019.

	conclusions.

Summary of the Work Plan

Year 1	Begin reviews to start to address ToRs a, c, d and e; make inventory of data availability for compilation and integration for ToR b; develop and set out opinion matrix for ToR c. Contribute to advisory request from OSPAR (ToR f).
Year 2	Continue review activity to address ToRs a, c, d and e; Develop structure and populate integrated database for ToR b, further develop opinion matrix ToR c
Year 3	Finalise reviews ready for submission for ToRs a, c, d and e; make integrated database publicly available (ToR b), finalise expert opinion table ToR c;

Supporting information

Priority	The activities of the EG will lead ICES into a structural and functional understanding of how the marine benthal community of marine renewable energy devices contributes to the functioning of the marine ecosystem, and how they can act as areas where benthal biodiversity can be promoted. The objectives addressed for this group are therefore considered of high relevance in the context of ecosystem-based management of coastal areas where an increasing number or marine renewable energy devices are planned, and will be of directly use in marine spatial planning initiatives. Hence, the activities can be considered to be of very high priority.
Resource requirements	No specific resource requirements beyond the need for invited members to prepare for and resource their participation in the meeting. Additional resources are required to respond the request for advice from OSPAR. A subgroup of experts from WGMRE and WGMBRED will meet in January in Copenhagen to draft a first response to the adivice.
Participants	The Group is normally attended by 15–20 members and guests working with the effects of marine renewable energy developments on the marine benthal communities (i.e. algae, invertebrates, and demersal fish). Participation from current ICES member countries and also from countries where marine renewable energy developments have started recently (Spain, Portugal) to develop knowledge on these activities.
Secretariat facilities	None.
Financial	Additional resources covered by OSPAR special request.
Linkages to ACOM and groups under ACOM	There are no obvious direct linkages. However, some contributions could be made to under 'pressures' as part of ICES ecosystems overviews.
Linkages to other committees or groups	There is a very close working relationship with Benthos Ecology Working Group (BEWG), the Working Group on Marine Renewable Energy (WGMRE), the Working Group for Marine Planning and Coastal Zone Management (WGMPCZM) and the Working Group on Biodiversity Science (WGBIODIV).
Linkages to other organizations	OSPAR ICG-CUM