Working Group on Marine Renewable Energy (WGMRE)

2016/MA2/SSGEPI03 The **Working Group on Marine Renewable Energy** (WGMRE), chaired by Marijke Warnas, 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 2017	11–13 April	Lisbon, Portugal	Interim report by 30 June	
Year 2018	16–18 April	Runde, Norway	Interim report by 1 June	
Year 2019	26–28 February	Ostend, Belgium	Final report by 15 April to SCICOM	**Change of Chair**: Outgoing: Finlay Bennet, UK Incoming: Marijke Warnas, NL

ToR descriptors

ToR	Description	Background	Science Plan codes	Duration	Expected Deliverables
a	Summarize and analyze the state of development of the marine renewable energy sector, covering offshore wind energy, in-stream tidal energy, wave energy and tidal barrages, updated on an ongoing basis, and including 'horizon scanning' to identify future issues for marine environmental management.	● Science Requirements: the marine renewable energy sector is rapidly emerging as a new user of marine space. There is a need for up-to-date, information on developments and on current research activities to determine potential interactions with ecosystems and other sea users. ● Advisory Requirements: Advice to OSPAR and other customers requires access to latest research outcomes and experience of developments in this emerging science area. ● Requirements from other EGs: marine renewable energy developments will impact or interact with topics considered by other EGs, for example marine mammals, seabirds, benthos.	2.1; 2.7; 4.5	Ongoing	National reports, on marine renewable energy developments and associated research, updated and extended annually. The product will be developed into a manuscript to be submitted to a peer-reviewed scientific journal.
b	Report on developments in consenting procedures for marine renewable energy.	As for ToR a) above.	2.1; 2.7; 4.5	Ongoing	As for ToR a) above.
c	Review the development of decision-support and management tools for planning and regulation of marine renewable energy developments, considering the relevance to new technology, cumulative effects and the application	As for ToR a) above	2.1; 2.7; 4.5	Ongoing	As for ToR a) above..

	of risk-based ecosystem approaches to management.				
d	Identify monitoring priorities associated with potential mechanisms of effects that are assumed within cumulative assessment frameworks, and how monitoring is integrated into the development of decision-support tools and regulatory requirements. Report on development and standardisation of post-consent monitoring methods that promote efficient use of resources within ICES community and can provide robust results at single MRE locations and through use of meta-analysis approaches at multiple locations.	As for ToR a) above.	2.1; 2.7; 4.5	Ongoing	As for ToR a) above.
e	Foster strong collaborative working relationships with other ICES Expert Groups, ensuring integration across topic areas and identifying priority issues and science applications based on regulatory and planning needs in relation to marine renewable energy.	As for ToR a) above.	2.1; 2.7; 4.5	Ongoing	As for ToR a) above.
f	Provide 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	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. A subgroup will meet at ICES headquartes 15-16 January with experts from WGMBRED and WGMRE and draft a preliminary version of the advice. The preliminary draft advice will be further developed during WGMBRED (12-15 February 2019) meeting and finalised during WGMRE meeting.	6.1	Year 3	Report to ICES according to the advisory request

environmental problems (sea bed habitat loss/disturbance, fish, marine mammals, birds, seascape/ public perception, and cumulative impacts), potential benefits, next steps and conclusions.	

Summary of the Work Plan

Year 1	- Provide annual report against ToRs, revising format as necessary - Invite chairs and members of other EGs to participate in the WG meeting and identify cross-cutting issues; reviewing relevant material in other EG reports - Report on the development of tools and approaches that can be used to align Policy with Evidence in a manner that promotes risk-based decision making when addressing societal trade-offs between the upscaling of marine renewable energy with impacts to wildlife populations, habitats and ecosystem services - Report on research priorities and approaches to study design and standardisation of monitoring in order to meet the needs of risk-based decision making in an efficient and robust manner - Draft manuscript for publication in a peer reviewed journal based on the output of multi-annual ToRs - Collaborations with other EGs (mainly via video-conferecning) - Review multi-annual ToRs for years 2 and 3 and adjust as appropriate
Year 2	- Provide updates to annual report against ToRs - Submit manuscript to a peer reviewed journal - Review multi-annual ToRs for year 3 and adjust as appropriate
Year 3	- Provide updates to annual report against ToRs - Undertake outstanding work to ensure anuscript is accepted by peer reviewed journal e.g. addressing peer reviewers' comments - Deliver advisory product according to ToR f.

Supporting information

Priority	Current activities of this Group will enable ICES to respond an advice request from OSPAR and will lead ICES into issues related to the ecosystem effects of marine renewable energy, especially with regard to the application of the Precautionary Approach in the context of risk-based decision making and the need to reduce scientific uncertainty associated with the impacts of new and established marine renewable technologies. Consequently, these activities are considered to have a high priority.
Resource requirements	The research programmes which provide the source material for this group already exist or are underway, and resources are already committed. Additional resources are required to respond the request for advice from OSPAR. A subgroup of experts from WGMRE and WGMBRED will meet in Januaty in Copenhagen to draft a first response to the adivice.
Participants	The Group is normally attended by approximately 12 members and guests.
Secretariat facilities	None.
Financial	Additional resources covered by OSPAR special request.

Linkages to ACOM and groups under ACOM	There are no obvious direct linkages.
Linkages to other committees or groups	There is a very close working relationship with WGMBRED, WGMME and a range of other WGs who consider the impacts of marine renewable energy within their ToRs.
Linkages to other organizations	OSPAR