Benthos Ecology Working Group (BEWG)

2017/MA2/EPDSG01 The **Benthos Ecology Working Group** (BEWG), chaired by Silvana Birchenough, UK, will work on ToRs and generate deliverables as listed in the Table below.

	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
Year 2018	14–18 May 2018	Banyuls-sur-Mer, France	Interim report by 30 June	
Year 2019			Interim report by 30 June	
Year 2020			Final report by 30 June	

ToR descriptors

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
A	**Long-term benthic series and climate change** 1. To identify methodological issues in long-term series comparability	The need for the BEWG to work on current tools and techniques associated with the understanding of natural variability and climate change on the benthos is of importance. There is a need to review and compile methodological issues associated with long-term series comparability in marine assessments.		1- 3 years	Review paper on current methodological applications
B	**Species distribution modelling and mapping** 1. To report on ongoing case study: "Towards a benthic ecosystem functioning map: interregional comparison of two approaches	Distributional modelling (SDM) helps the understanding of the distributionof species and communities. These are considered to be robust tools in support of a scientifically-sound management of the marine ecosystem. While qualitative SDM (i.e. modelling the likelihood of occurrence of benthic feature) has been regularly applied, there is a need to focus on quantitative modelling techniques (e.g. modelling densities or biomass) over environmental drivers (e.g. sediment type, organic matter content and other relvatn parameters) and processes. BEWG will report on the performance of different qualitative and quantitative species distribution modelling methods, e.g. methods validity and with hypothesis driven case studies to showcase the use, benefits and further gaps associated with these tools.		e.g. year 1-3	Position paper (with a case study example).
C	**Benthos and legislative drivers** 1. To report on the use of benthic indicators and ongoing initia-tives 2. Variability and expert judge-	A wide suite of benthic quality indicators were developed, intercalibrated and applied within the framework of several international regulations. At present, the most relevant directives within the North Atlantic realm are the Water Framework Directive, the Habitats Directive and the Marine Strategy Framework Directive. BEWG will investigate the Compatibility and complementarity within the use of benthic indicators and targets for management applications. Further work will		Years 1-2	Position paper

	ment of benthic species tolerances/ sensitivities	concentrate on investigating the importance of species autecology in indicator development and application and review the development of effective monitoring programmes, e.g. design, harmonisation and quality assessments.	Years 1-3	Research paper(s)
	3. To review the development of effective monitoring programmes, e.g. design, harmonisation and quality assessments (e.g. MPAs). Case study developed under the –Joint Monitoring Programme -JMP		Years 1-2	Review paper
D	**Benthic biodiversity and ecosystem functioning**	Disentangling the link between biodiversity and ecosystem functioning is currently considered to be key to fully understand the health of marine ecosystems. This topic hence became a cross-cutting theme since the BEWG 2012 meeting. BEWG will therefore review and identify benthic indicators to reflect the link between biodiversity and ecosystem functioning and review how ecological function and diversity relates to different parts of the benthic communities at different spatial scales, taking account of e.g. ecological processes and biological traits. BEWG will also scope for research on the functional diversity of macrobenthos in relation to ecosystem functioning. This work has been an important topic and an overview of current and recent research gaps and priorities wil be discussed. The ongoing discussion will be based on a conceptual perspective, BEWG will continue investigating the link between ecosystem functioning and ecosystem services.		
	1. To report on the ongoing case studies to assess ecological responses across sediment gradients.		Years 1-3	Research paper to report on a selected case study.
	2. To consider new functional indicator needs to support MSFD requirements.		Year 1-3	Viewpoint paper
	3. To identify links between benthic functions and ecosystem services.		Year 1-2	Viewpoint paper
E	**Benthic biodiversity and conservation: to review the role of benthic ecology in MPAs**	Understanding ecological issues associated to the development/proposal of MPAs and how effective MPAs are going to be for the conservation of priority benthic species is key to support conservation and management strategies. This work has been developed to understand the different levels of protection (i.e. management measures) being applied within MPAs. The exercise will help to assess whether the designation processesin place are adequate to protect the species in need of protection, creating further repercussions to the ecosystem function and processes in specific habitats and species. This ToR will consider issues associated with conservation/restoration, Autecological/environmental as well as human issues.	Years 1-3	Review paper
	1. To review and report on the implications of the designation and management of Marine Protected Areas (MPAs) in relation to role of benthic ecology.			

F	**To explore the feasibility to undertake studies (e.g. laboratory or field experiments) to test ecologically relevant hypothesis in relation to benthic responses.** 1. To explore funding opportunities and collaborative proposals for setting up and conducting experimental studies; 2. To compile a list of scientific ideas to develop research Master's thesis projects and promote co-supervision activities within BEWG members.	Conducting applied science to test direct hypothesis driven questions, which can help to support and validate dedicated case studies Similarly BEWG recognises the need to widen its scientific scope and a way to support this activitiy is by jointly supervising specific research projects. This type of further research will help for extending its remit, build dedicated set of skills and widen its influence accross differet networks. The BEWG also recognises the need toinvite and include early career scientists in to our annual meetings, helping to shape the new round of ecologists.	Years 1-3 Year 1-3	Review paper Thesis preparation and invitation to meetings.

Summary of the Work Plan

Year 1	ToRs a., b.1, c.1-3, d.1-3, e.1, f. 1-3
Year 2	ToRs a., **B.1, C.1-3, D.1-3**, e.1, **F. 1**-3
Year 3	ToRs **A.**, **B.1, C.1-3, D.1-3**, e.1, **F. 1**-3

Supporting information

Priority	The current activities of BEWG will continue along the main priority within BEWG ToRs, based on: long-term series and climate change, benthic indicators and EU directives, and species distribution modelling, and one cross-cutting (horizontal) axis on benthic biodiversity and ecosystem functioning (including issues directly in connection to MPAs). All issues mentioned fit the ICES Science Programme and are considered to be of high priority. The BEWG are active contributors and aim to report their outcomes directly to ICES in their annual report and in paralell as peer reviewed literature. Some of the outputs will be submitted to ICES JMS, Ecological Indicators, Marine Pollution Bulletin, etc.)
Resource requirements	The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
Participants	The Group is normally attended by some 20-30 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and group under ACOM	There are no obvious direct linkages.

Linkages to other committees (groups	There is a possibility for interaction of several ICES expert groups, among which WGDEC, WGSFD, WGECO, WGMHM and WGEXT.
Linkages to other organization	The group has had also interaction with OSPAR IGC-COBAM.