

## Working Group on Biological Effect of Contaminants (WGBEC)

2018/MA2/HAPISG04 The Working Group on Biological Effects of Contaminants (WGBEC), chaired by Juan Bellas, Spain, and Steven Brooks, Norway, 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	11-15 March	Vigo, Spain		
Year 2020	2-6 March	Lisbon, Portugal		Joint meeting with MCWG and WGMS
Year 2021	8-12 March	Online meeting	Final report by 1 May to SCICOM	

### ToR descriptors

TOR	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
a	Review and report new developments and innovative methods to study and monitor effects of contaminants	There is a continuous development of new techniques by which to monitor effects of contaminants. The use of "old" methods needs evaluation and development. For 20 years, WGBEC has maintained a list of recommended methods for marine monitoring, ensured that there are protocols available (mainly through TIMES publications) and developed quality assurance programmes. WGBEC competence has been used to develop programmes elsewhere, e.g. the Baltic, and contributed to the development of MSFD (descriptor 8).	4.4	year 2-3	Annual report to ICES, TIMES manuscript
b	Review and synthesise environmental effects of natural and synthetic particles and evaluate their direct effects and interacting effects on marine biota	Particles are critical to understand the behaviour of contaminants in marine ecosystems. Some anthropogenic activity leads to increased input of particles, some of which are associated with chemicals, others providing surfaces for adsorption. Particles will also affect organisms per se. Anthropogenically derived particles include micro- and nanoplastics, nanoparticles, mining discharges and discharges from offshore drilling.	3.1; 3.2; 6.1	year 3	Annual report to ICES, scientific paper
c	Investigate and synthesise the direct and indirect effects of ocean contamination to human health	Contaminants/pollution is one of the human pressures on marine ecosystem health resulting in human health impacts. In addition to direct effects, chemical pollutants can decrease the resilience of marine ecosystems, affect sea food security production/ resources, and may ultimately contribute to a loss of biodiversity. Several analytical and biological effect methods suggested by the ICES community can be used to establish links with	5.8; 6.1; 6.4	year 3	Scientific paper

		human health.			
d	Update and summarise national activities on effect-based monitoring, evaluate different approaches taken and identify gaps and future avenues	WGBEC members have contributed significantly to the development and implementation of effect-based monitoring programmes in European countries, as well as OSPAR and MSFD. Monitoring is being harmonised throughout Europe as a result of WFD and MSFD, but there are still differences in take-up and implementation. Through its membership, WGBEC is uniquely placed to maintain an overview of national programmes and discuss pros and cons for different approaches.	3.1; 3.2; 6.1	3 years	Annual report to ICES
e	Describe and evaluate interaction of contamination effects with those of climate change and acidification	Contaminant exposure is not the only stressor in marine ecosystems and it is important for WGBEC to review effects of climate change and acidification-related stressors and how their presence interact with contaminant stress.	2.1; 2.2	year 3	Scientific paper
f	Review and assess effects of contaminants of emerging concern	WGBEC originally requested MCWG to inform about substances of emerging concern since they generally would appear in chemical analyses. The definition of “emerging” has been so wide and important effects have been observed in marine organisms following exposure to e.g. pesticides, so WGBEC have included the item on the work programme.	2.1; 2.2; 4.5	year 2–3	Annual report to ICES
g	Investigate and report effects of individual contaminants on marine communities	There is an ongoing discussion as to whether community analyses can detect effects of contaminants; they are definitely not the most sensitive in this respect. Since biodiversity, i.e. community analyses, is an important component of WFD and MSFD effect programmes, there is a clear need to develop complementary analytical methods that are specific to effects of contaminants and not influenced by other ecological factors.	2.1; 2.2; 6.1	year 2–3	Scientific paper
h	Review and evaluate effects of contaminants on sediment-dwelling organisms, together with critical analysis of the sensitivity of the methodologies applied	The highest concentrations of contaminants in marine ecosystems are found in sediments. The standardised toxicity tests for sediments are unfortunately not very sensitive to contaminant exposure, at least partly because the organisms that are used are those amenable to lab culture. This item was on the work programme for WGBEC 20 years ago, but there is still limited progress. New analytical techniques alongside “traditional” methods bear promise for improved methods.	2.2	year 2–3	Scientific paper
i	Contribute to ICES Ecosystem overviews according to the request	Ecosystem overviews have been advanced significantly during the past years and several ICES EGs have been very active to provide input. However, there is a room for further development through adding new components	6.5	3 years	Contribution to Ecosystem overviews according to the provided guidelines/template

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on issues where ICES has expertise, such as the biological effects of contaminants, and which are essentially relevant in marine ecosystem management and policy context.

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### Summary of the Work Plan

Year 1	Update and review national monitoring programmes.
Year 2	Review effects of contaminants, including baseline studies and risk assessment; Review effects of contaminants of emerging concern; Review the study of individual effects in community studies (scientific paper) Review effects of contaminants on sediment-dwelling organisms (scientific paper) Update ToRs a, b, c, d.
Year 3	Review effects of natural and synthetic particles (scientific paper); Review progress with concepts regarding the oceans and human health (scientific paper) Review interactions of contamination effects with those of climate change and acidification (scientific paper) Continue work on ToRs a, f, g, h

### Supporting information

Priority	The current activities of this Group will lead ICES into issues related to the ecosystem effects of fisheries, especially with regard to the application of the Precautionary Approach. Consequently, these activities are considered to have a very high priority.
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 10–15 members and guests.
Secretariat facilities	None.
Financial	No financial implications.
Linkages to ACOM and groups under ACOM	There are no obvious direct linkages.
Linkages to other committees or groups	There is a working relationship with WGMS, WGEEL and WGIBAR. It is also very relevant to the Marine Chemistry Working Group (MCWG).
Linkages to other organizations	OSPAR MIME/HASEC, HELCOM, EEA