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Working Group on the State of the Environment and Nature
Conservation

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Background

The attached list provides information regarding lead and co-lead countries and nominated contacts for HELCOM indicators. Associated nominations for relevant HELCOM expert networks are also provided.

Action requested

The Meeting is invited to:

- take note of the information and provide and changes where relevant.

Continued development of HELCOM indicators: Lists of Lead/co-Lead countries, appointed experts, and members of relevant HELCOM expert groups, networks and projects.

This document is updated to include information that is thematically organized to include:

- Information on Lead countries, co-lead countries and appointed national experts to develop HELCOM indicators.
- Contacts lists for HELCOM expert groups, projects and networks.
- Current understanding of development stage of pre-core or candidate indicators.*
- New or open aspects (e.g. possible options to support development or co-lead), or aspects for which clarification would be beneficial are highlighted within the document.*
- Indicators considered as of high priority (State and Conservation 6-2017, outcomes paragraph 4J.53).

*a number of these issues are included in the ongoing planning (e.g. within GEAR and State and Conservation) for future work on the indicators and these aspects may be best addressed within that process.

Please submit further information and updates to the Secretariat (jannica.haldin@helcom.fi).

Contact Lists of HELCOM Expert Groups/Project relevant for indicator work

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Mammals

Mammals indicators

NOTE: names added in yellow highlight are proposed addition by the SEAL EG (Seal 11-2017).

Core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Distribution of Baltic seals			Denmark Sweden	Anders Galatius, Markus Ahola
Population trends and abundance of seals	Sweden	Markus Ahola	Denmark	Anders Galatius,
Nutritional status of marine mammals	Sweden	Norbert Häubner	Finland Germany Denmark	Kaarina Kauhala Ursula Siebert Anders Galatius
Reproductive status of marine mammals	Sweden	Norbert Häubner	Finland Germany	Kaarina Kauhala Ursula Siebert

Candidate indicator	Lead Country	LC representative	Co-Lead Country	CLC representative
Harbour porpoise distribution and abundance	Germany	Sacha Viquerat		
			Development work on this indicator is actively ongoing, including in associations with the ASCOBANS Jastarnia Group.	
Seal pup weight at weaning			SEAL 8-2014 (outcome para 5.18) Proposed as relevant indicator as proxy for overall health of breeding females. Countries where seals breed i.e. SE, FI, EE have not included the parameter in monitoring programmes, however could be included in the future as a cost efficient parameter giving information from live animals (cf. other population condition indicators)	
'Marine mammal health indicators'			SEAL EG 10-2016 (para 8.12-8.13) considered a proposal from Germany on the further development of HELCOM indicators on marine mammal health. The Meeting supported the further development of new health indicators. Examples of type of indicators have been presented but candidate indicators have not been specified yet.	

		Proposal by Sweden that they could act as co-lead with Germany (contact point: Norbert Häubner).
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Birds

Bird indicators

Core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Abundance of waterbirds in the breeding season	Germany	Volker Dierschke	Finland	Jukka Rintala
Abundance of waterbirds in the wintering season	Germany	Volker Dierschke	Finland Sweden	Markku Mikkola-Roos Fredrik Haas

Candidate indicator	Lead Country	LC representative	Co-Lead Country	CLC representative
Distribution of seabirds			CORESET II 2-2015 Identified as useful and should be considered for further development in the future but was not prioritized in CORESET II project, as the indicator is considered difficult to develop on a conceptual level. Abundance indicators prioritized. No further work has taken place since CORESET II.	
Breeding success in guillemots of Gotland			State&Conservation 2-2015 BALSAM WP3 meeting January 2015 Breeding success is a good indicator that responds to anthropogenic pressures much faster and clearer compared to 'abundance' indicators. Information in the Baltic Sea is available for colony breeders, e.g. guillemots and auks, to support the concept development. Considered that the indicator could relatively easily be developed. Guillemot breeding success is known to show a clear response to changes in the pelagic food web due to fishing activities. No further development has taken place.	

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Coastal Fish

Coastal fish indicators

Core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Abundance of coastal fish key functional groups	Sweden	Jens Olsson	Finland	Antti Lappalainen
Abundance of key coastal fish species	Sweden	Jens Olsson	Finland	Antti Lappalainen

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Pelagic habitats – zooplankton

Zooplankton indicators

Core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Zooplankton mean size and total stock	Sweden	Elena Gorokhova	Finland Latvia Estonia	Maiju Lehtiniemi Solvita Strake Aarno Põllumäe
Discussion on how best to advance the spatial coverage of this indicator may be valuable in the future.				

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Pelagic habitats – phytoplankton

Phytoplankton indicators

Core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Seasonal succession of dominating phytoplankton groups	Estonia	Andres Jaanus	Finland	Harri Kuosa Sirpa Lehtinen Iveta Jurgensone Marie Johanssen
			Latvia Sweden	
			Further work has been carried out on this indicator with new developments on threshold setting and testing being presented at the HELCOM PEG in April 2017.	
			Tested in HOLAS II and will be updated for the purpose of the final State of the Baltic Sea report in 2018.	

Pre-core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Diatoms/ dinoflagellates index	Germany	Norbert Wasmund (confirmed till end 2019)	Estonia	Andres Jaanus
			Finland Latvia Poland Sweden	
			HOD 51-2016 (outcome para 6.18)	
			Proposed to be shifted to core indicator, shift not supported but HELCOM-38 agreed that the indicator could be tested in the Eastern Gotland Basin in the HOLAS II project. The indicator has been developed through a Lead Country	

		<p>approach during 2016 and development was presented at PEG 2017.</p> <p>Tested in HOLAS II and will be updated for the purpose of the final State of the Baltic Sea report in 2018.</p>
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Candidate indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
"Phytoplankton community composition as a food web indicator".	Finland	Sirpa Lehtinen Harri Kuosa	Lithuania Sweden Latvia Estonia Poland	Irina Olenina Marie Johansen Iveta Jurgensone Andres Jaanus Janina Kownacka
			<p>HOD 51-2016 (outcome para 6.18)</p> <p>Proposed to be shifted to core indicator, shift not supported. Main issues noted as requiring further development is data availability as reported to COMBINE and the documentation of the expert judgement steps in the concept. The concept, including a proposal for a threshold value, has been developed by the Lead Country during 2016 and development was presented to PEG 2016.</p>	
Phytoplankton species assemblage clusters based on environmental factors			Finland Latvia Sweden	Harri Kuosa Sirpa Lehtinen Iveta Jurgensone Marie Johanssen Andres Jaanus
			<p>State&Conservation 2-2015</p> <p>Shift to pre-core was not supported. The approach drafted in CORESET II (2013-2015) did not develop a final regional concept.</p> <p>Work on other phytoplankton candidate indicators has since been prioritized.</p> <p>No further development of the concept in 2016.</p>	
Phytoplankton taxonomic diversity			<p>CORESET I (2010-2013)</p> <p>The indicator concept is based on the BSEFS. Some of the parameters intended for use in the indicator have since been taken up in the eutrophication-indicators related to phytoplankton blooms.</p> <p>No further work has been done.</p>	

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Benthic habitats

Indicators of benthic communities and habitats

Core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Population structure of long-lived macrozoobenthic species			Finland Germany	Samuli Korpinen Henrik Nygård Alexander Darr Michael Zettler
State of the soft-bottom macrofauna community			Finland Sweden	Henrik Nygård Mats Blomqvist

Pre-core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Cumulative impact on benthic biotopes	Germany Sweden	Torsten Berg, Birgit Heyden Antonia Nyström- Sandman		
			<p>HOD 51-2016 (outcome para 6.18)</p> <p>Presented for agreement as core indicator although no threshold value has yet been proposed, the shift to core indicator was not supported.</p> <p>Co-lead countries developed the concept further actively during 2016 as the indicator has been identified as a priority for development by State and Conservation WG. Indicator development presented to IN-Benthic. Difficulty in developing regional maps of benthic biotopes at sufficient resolution has been a main obstacle to operationalization. Ongoing work in 2018 has also examined adjustments corresponding to (EU) 2017/848.</p> <p>Discussion and planning for future progress would be beneficial.</p>	
Condition of benthic habitats	Estonia	Georg Martin, Kristjan Herkul	Finland Germany Latvia Lithuania Sweden	Samuli Korpinen Alexander Darr Juris Aigars Darius Daunys Antonia Nyström Sandman Mats Blomqvist Anna Westling
			<p>State&Conservation 5-2016 (outcome para 4J.42)</p> <p>Indicator requires further work before shift to core indicator. Lead Country Estonia continues developing the indicator in 2017.</p> <p>The indicator was identified as a priority for development by State and Conservation WG.</p>	

			Discussion and planning for future progress would be beneficial.	
Lower depth limit distribution of the macrophyte community			Estonia Finland Germany Latvia (Sweden)	Kaire Torn, Georg Martin Samuli Korpinen Kolja Beisiegel Juris Aigars (Mats Blomqvist)
			State&Conservation 2-2015 (outcome para 4J.12) Concluded that for HOLAS II purposes national WFD indicators should be used, since the regional indicator approach developed in CORESET II was not foreseen to be operationalized in time for the HOLAS II project. State&Conservation 2-2015 was of the view that the regional indicator concept, which was developed to be aligned with HELCOM HUB classification should be further developed however work is not prioritized.	
Population structure of long-lived macrozoobenthic species			Finland Germany Sweden	tbc when active work is planned
			CORESET II (2013-2015) compiled information on known case studies. No progress made in 2016, progress impeded by the lack of monitoring data on size distribution. Experts proposed not to continue work on the indicator until more scientific information becomes available, and size is taken up as a parameter in regular monitoring programme activities. Note that the indicator was agreed at 'core' when agreeing on the first set of HELCOM core indicators (HOD 41-2013, para 2.45).	

Candidate indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Biomass ratio of opportunistic and perennial macroalgae	Estonia	Georg Martin	Sweden	
			Concept first drafted in CORESET II (2013-2015), noted that countries have either coverage or biomass monitoring and no approach for bringing the data together was found at the time. 2016 - Lead Country Estonia worked to clarify if both biomass- and coverage monitoring data can be used. Work did not progress sufficiently to develop a proposal to be considered by State&Conservation 5-2016, and thus there is currently no full indicator concept drafted.	
State of hard-bottom communities			Sate and Conservation 2-2015 Germany and Finland was of the view that the candidate indicator is a priority to be	

			<p>developed. There is currently no concept of the indicator documented.</p> <p>No further work has been carried out.</p> <p>Discussion and planning for future progress, including combining with other benthic indicators, would be beneficial.</p>
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Eutrophication

Core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
DIN	Germany	Dr. Wera Leujak, Federal Environment Agency (Wera.leujak@uba.de) Joachim Kuss (joachim.kuss@io-warnemuende.de)		
DIP	Germany	Dr. Wera Leujak, Federal Environment Agency (Wera.leujak@uba.de) Joachim Kuss (joachim.kuss@io-warnemuende.de)		
Oxygen debt	Sweden (for 2018 update only)			
Water transparency	Finland			
Chlorophyll a	Finland			
Total nitrogen concentrations	Germany	Dr. Wera Leujak, Federal Environment Agency (Wera.leujak@uba.de) Joachim Kuss (joachim.kuss@io-warnemuende.de)		
Total phosphorus concentrations	Germany	Dr. Wera Leujak,		

		Federal Environment Agency (Wera.leujak@uba.de) Joachim Kuss (joachim.kuss@io-warnemuende.de)		
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Pre-core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Cyanobacterial bloom index	Finland			<p>HOD 51-2016 (outcome para 6.17)</p> <p>Proposed to be shifted to core indicator, study reservation by DK. Main issues to be resolved is the applicability of the satellite data approach for the south western parts of the Baltic Sea. The indicator is agreed be tested in HOLAS II and the results to be considered as interim. An update of this indicator will be carried out in line with the final State of the Baltic Sea report.</p> <p>Proposed threshold value endorsed by State&Conservation 5E-2016 (outcome para 3.2).</p> <p>State & Conservation 6-2017 designated this indicator as of high priority for the coming year.</p>
Shallow-water bottom oxygen				<p>HOD 51-2016</p> <p>Agreed to be shifted from candidate to pre-core indicator. Concept has been developed during 2016 (outcome para 6.20). Germany withdrew from the Lead Country role (outcome para 6.26).</p> <p>State&Conservation 5-2016 (outcome para 4J.64-4J.66) was of the view that significant work is still needed on the indicator before operationalization.</p> <p>IN-EUTROPHICATION 7-2017 (p. 79): The meeting took note that currently there is no lead country, but a group of volunteers dividing the tasks (DE, FI, EE, PL, SE). The meeting agreed that the group of volunteers will continue work via correspondence.</p> <p>State & Conservation 6-2017 designated this indicator as of high priority for the coming year.</p>
Phytoplankton spring bloom intensity based on chl-a	Finland			<p>IN-EUTROPHICATION 7-2017 (p. 83):</p> <p>Lead country Finland informed the meeting that the indicator still lacks threshold values. Development has not been carried out due to resource constrains.</p> <p>Development of other pre-core and candidate indicators for eutrophication was prioritized.</p> <p>State & Conservation 6-2017 designated this indicator as of high priority for the coming year.</p>

Candidate indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Deep-water oxygen consumption'	Sweden		IN-EUTRO 7-2017: The meeting did not discuss the indicator due to time constraints. Development of other pre-core and candidate indicators for eutrophication was prioritized.	
Baltic Sea acidification			Sweden Germany	TBC
			This indicator was added to the list after State & Conservation 8-2018. Work planning and further details are required as work begins. Denmark remains to approve the inclusion of this within IN-EUTR.	

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Input of nutrients

The indicator on progress towards fulfilling Maximum Allowable Inputs for nitrogen and phosphorus is available [at the HELCOM web-site](#) and a proposal for operationalization of the indicator is contained in document 3.3 to HOD 48-2015.

Core indicators	Experts
Inputs of nitrogen and phosphorus to the sub-basins	RedCore DG (Lars Svendsen, DCE Denmark, Bo Gustafsson, BNI Sweden, and the Secretariat) Ricardas Paskauskas (LT)

Hazardous substances

Hazardous substances indicators

Core indicators	Lead Country	LC representative	Co-Lead Country	CLC representatives
Hexabromocyclododecane (HBCDD)	Sweden	Sara Danielsson Elisabeth Nyberg	Finland	Jaakko Mannio
Metals	Poland	Tamara Zalewska	Denmark Finland Sweden	Martin M Larsen Harri Kankaanpää Sara Danielsson
Polybrominated biphenyl ethers (PBDE)			Finland Sweden	Jaakko Mannio Sara Danielsson
Perfluorooctane sulphonate (PFOS)	Sweden	Sara Danielsson Elisabeth Nyberg	Finland	Jaakko Mannio
Polyaromatic hydrocarbons (PAH) and their metabolites	Denmark Germany (PAH metabolites)	Martin M Larsen Ulrike Kammann (PAH metabolites)	Finland Sweden	Harri Kankaanpää Sara Danielsson
	Germany	Detlef Schulz-Bull Berit Brockmeyer	Finland	Jaakko Mannio

Polychlorinated biphenyls (PCB) and dioxins and furans			Sweden	Sara Danielsson
TBT and imposex	Sweden Denmark	Marina Magnusson Martin M Larsen	Finland	Jaakko Mannio
White-tailed sea eagle productivity	Sweden	Peter Hellström	Finland Germany	Toni Laaksonen Christof Herrmann

Supplementary indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Reproductive disorders: Malformed amphipod embryos (supplementary, only FI&SE)			Finland Sweden (on amphipod embryos (Monoporeia))	Kari Lehtonen Brita Sundelin, Elena Gorokhova
			<p>State&Conservation 5-2016 (outcome para 4J.49)</p> <p>Finland and Sweden proposed that the indicator is taken up in HOLAS II as a supplementary indicator in the assessment units shared by the countries, and would be willing to agree on the proposed threshold value.</p> <p>EN-HZ 6-2017 discussed the availability of data for the indicator for HOLAS II purposes, noting that some data points are available.</p> <p>This indicator will be updated in line with the final State of the Baltic Sea report. The indicator focus has been on amphipods and not eelpout and the named contributors on the indicator report are: Brita Sundelin ,Elena Gorokhova and Nadezhda Berezina</p>	

Pre- core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Acetylcholines terase inhibition			CORESET I (2010-2013) A concept was drafted during the project. No further development on the indicator has been done.	
Diclofenac concentration			Finland (unclear)	Kari Lehtonen (unclear)
			CG Pharmaceuticals (2017 onwards) Further development of pharmaceutical core indicators are included among the ToR. This indicator has been developed further under the auspices of CG PHARMA and State and Conservation and PRESSURE endorsed it as a pre-core test indicator for the purposes of the HOLAS II final report.	

Estrogenic-like chemicals and effects			Finland	Kari Lehtonen
			CG Pharmaceuticals Further development of pharmaceutical core indicators are included among the ToR. No current development.	
Lysosomal membrane stability (LMS)			Finland	Kari Lehtonen
			CORESET II (2013-2015) The indicator was not significantly developed during the project and was not presented for agreement. No further work has been made since CORESET II.	
Fish Disease Index (no work done in CORESET II)			Finland	Kari Lehtonen
			CORESET I (2010-2013) An outline was made during the project, drafting the indicator concept. No further work has been made since CORESET I.	
Micronucleus test (no work done in CORESET II)			Finland	Kari Lehtonen
			CORESET I (2010-2013) An outline was made during the project, drafting the indicator concept. No further work has been made since CORESET I.	

Candidate indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
EROD activity			CORESET II (2013-2015) Indicator report was presented to STATE & CONSERVATION 2-2015 for shift to pre-core status and proposal on a GES boundary was included, however the proposal was not endorsed. No further work has been made in 2016.	

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Radioactive substances

Radioactive substances indicators

Core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Radioactive substances: Cesium-137 in fish and surface waters	Poland	Tamara Zalewska	Finland	Meerit Kämäräinen

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Oil pollution

Oil pollution indicator

Core indicators	Lead			
Oil-spills affecting the marine environment	IWGAS			

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Marine litter

Marine Litter indicators

Pre-core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Beach litter	Poland	Wlodzimierz Krzyminski	Denmark Sweden	Jakob Strand Eva Blidberg
			<p>HOD 51-2016</p> <p>Proposed shift from pre-core to core indicator was not supported.</p> <p>State&Conservation 5-2016 endorsed, in principle, the proposed indicator concept and the proposed interim definition of GES. Further work during 2017 continues through the HELCOM SPICE project in cooperation with the EN-Marine Litter on analyze available data aiming at defining a preliminary baseline for beach litter in the Baltic Sea region. Data reporting to include 2016 has taken place and an update in line with the State of the Baltic Sea report is envisaged.</p> <p>Active ongoing work.</p>	
Litter on the seafloor			Denmark Sweden	Jakob Strand to be confirmed
			<p>HOD 51-2016 (outcome para 6.20)</p> <p>Agreed to shift the indicator from candidate to pre-core.</p> <p>State&Conservation 5-2016 was of the view that data in trawls during fish stock surveys is to be complemented so that data from shallow water areas and the northern areas</p>	

			<p>of the Baltic Sea can be included in the indicator concept.</p> <p>Further work during 2017 continues through the HELCOM SPICE project in cooperation with the EN-Marine Litter on exploring the possibilities to define a baseline for litter on the seafloor. An update in line with the State of the Baltic Sea report is envisaged.</p> <p>Active ongoing work.</p>
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Candidate indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Microlitter in the watercolumn	Finland	Outi Setälä	Denmark Germany	Jakob Strand Elke Fischer
			<p>State&Conservation 5-2016 (outcome para 4J.67)</p> <p>Noted the progress made during 2016 on the indicator development.</p> <p>Further work during 2017 continues through the HELCOM SPICE project in cooperation with the EN-Marine Litter on compilation, treatment and analysis of microlitter data available in the Baltic Sea region and identification of the best option for setting up a regional database for microliter. An update in line with the State of the Baltic Sea report is envisaged.</p> <p>Active ongoing work.</p>	

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Underwater noise

Underwater noise indicators

Pre-core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative
Continuous low frequency anthropogenic sound	Poland	Zygmunt Klusek	Denmark Finland Germany Sweden	Jakob Tougaard Jukka Pajala Jens Fisher Mathias Andersson, Emilia Lalander
			State&Conservation 5-2016 (outcome para 4J.62) Noted the progress made during 2016 and endorsed the indicator concept and assessment protocol. EN-Noise to further consider the concept related proposal to monitor higher	

			<p>frequencies, for instance, 2kHz and 10 kHz, and to further develop the assessment protocol to ensure appropriate approach for areas where specific sound sensitive species occur. During 2017 further development and discussion has taken place, and is ongoing, within the EN-NOISE (next meeting to take place on 04/10/17).</p> <p>An update in line with the State of the Baltic Sea report is envisaged.</p> <p>Active ongoing work.</p>	
Distribution in time and space of loud low- and mid-frequency impulsive sounds	Germany	Carina Juretzek	Denmark Finland Sweden	<p>Jakob Tougaard Jukka Pajala Mathias Andersson, Emilia Lalander</p> <p>HOD 51-2016 (outcome para 6.20)</p> <p>Agreed to shift the indicator from candidate to pre-core indicator.</p> <p>State&Conservation 5-2016 noted the developed concept and that a proposal for a threshold is not yet available however could be further developed by considering the frequency and distribution of the impulsive noise events that will not have an adverse impact on elements of the marine environment. During 2017 further development and discussion has taken place, and is ongoing, within the EN-NOISE (next meeting to take place on 04/10/17).</p> <p>An update in line with the State of the Baltic Sea report is envisaged.</p> <p>Active ongoing work.</p>

HELCOM Expert Network on Underwater Noise

Updates after Pressure 3-2015 and PRESSURE 4-2016 included

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Additional indicators

i.e. indicators that are not linked to previously listed experts groups/networks/projects.

NOTE: names added in yellow highlight are proposed addition by the SEAL EG (Seal 11-2017).

Core indicators	Lead Country	LC representative	Co-Lead Country	CLC representative	Working arrangements
Abundance of salmon spawners and smolt	Finland	Tapani Pakarinen, Atso Romakkaniemi			Updated in cooperation with ICES WGBAST
Abundance of sea trout spawners and parr	Finland	Tapani Pakarinen			Updated in cooperation with ICES WGBAST
Number of drowned mammals and waterbirds in fishing gear	Germany Sweden	Sven Koschinski (sk@meereszoologie.de) Volker Dierschke Ursula Siebert Michael Dähne Julia Carlström	Poland Denmark Finland	Katarzyna Kaminska Tomasz Linkowski Iwona Pawliczka Finn Larsen Penina Blankett	Active work being carried out to define and discuss data requirements.
Proportion of large fish in the community	Sweden	Norbert Häubner	Germany Finland	Christian Pusch Thurid Otto Antti Lappalainen	Taken forward under FISH WG <i>Note: When operational, the indicator is proposed to be updated in cooperation with ICES WG BFIFS.</i>
Trends in arrival of new non-indigenous species	Finland	Maiju Lehtiniemi	Germany Latvia	David Johannes Christian Buschbaum Manuela Krakau (Federal Environment Agency) Kai Hoppe (kai.hoppe@kueste-nbiologie.de)	TG ballast indicated that the indicator is not a good fit with the group.

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Candidate indicators	Lead Country	LC representative	Co-Lead Country	CLC representative	Working arrangements
Maximum length fish in the pelagic community	Sweden	Norbert Häubner			Taken forward under FISH WG