



Document title	L90 coastal fish
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Background

The document below provides a template filled by indicator leads to provide an overview of progress to STATE & CONSERVATION 15-2021. Key aspects such as methodologies, spatial extent changes, assessment scales and threshold values are presented, identifying ongoing work and other relevant issues towards HOLAS III. This process builds on the prior review of indicator development carried out under STATE & CONSERVATION 14-2021 (summarised in [document 4J-16 Rev.1](#), and detailed within numerous documents under agenda item 4J). The focus of these development works is the completion of indicator development and adjustment work for HOLAS III by the end of 2021, as previously agreed under HOD 57-2019 ([document 4-20](#), [Outcomes paragraph 4.51](#)).

The aspect of threshold values in particular is a key issue as threshold value approval will be carried out at HOD 61-2021, with these same templates being submitted to HOD at the same stage as submission to State and Conservation 15-2021 (to allow for the longer national processes required that culminate in approval at HOD).

The document below addresses a single indicator and as well as the generic 'action requests' relating to endorsement of the proposed application in HOLAS III (and the threshold values proposals, where relevant), specific additional requests or statements are also indicated within the separate sections of the document to help guide where further input/discussion/guidance may be needed.

This template aims to report the indicator development for HOLAS III, allowing for technical guidance and endorsement by STATE & CONSERVATION 15-2021 and also simultaneously to facilitate the threshold value approval process by HOD 61-2021.

Action requested

The Meeting is invited to:

- provide further technical guidance to the indicator leads and experts, including specific requests defined within the document;
- consider and endorse the proposed developments of the indicator for use in the HOLAS III assessment.

Size structure of key coastal fish species (L90 - indicator under development)

Indicator name
Size structure of key coastal fish species (L90 - indicator under development)
Scale of assessment for HOLAS III and rational
Very likely to be scale 3 (same as the abundance-based indicators for coastal fish in the Baltic Sea).
Spatial coverage of the indicator for HOLAS III
<p>The spatial coverage of the assessment of this indicator will likely be similar to that of the key coastal fish species indicator, as it builds on the same monitoring data. Further analyses within the HELCOM BLUES-project during autumn 2021 will provide information on what data and areas that will be included in the HOLAS III assessment.</p> <p>Due to lack of applicable monitoring, there will be no assessment of the indicator in Germany and Russia. Further, due to the extensive stretches of coastline in many assessment areas, and as a result of locally appearing coastal fish communities, there will also be certain spatial gaps and/or low representation of monitoring in some of the assessment units (Scale 3). Details on the foreseen gaps will be outlined in the indicator report following results from the HELCOM BLUES-project.</p> <p>The species to be assessed are perch, flounder and potentially also pike and pikeperch (in more Northern coastal areas) and eelpout (Danish coastal waters).</p>
Methodology to be applied for HOLAS III and rational
<p>The methodology for assessing the status of the indicator will be developed in the HELCOM BLUES-project.</p> <p>The development of an indicator representing the size-structure of coastal key fish species has been discussed in FISH PRO III during recent years, and some first initial analyses have been conducted regarding different options for the indicator. These analyses suggest that an indicator representing the size of fish at a given percentile of the size distribution in the sample (for example the length of the individual at the 90th percentile of the size distribution) is most feasible based on evaluations of precision and accuracy, spatial variation, ease of calculation and availability of data in Contracting Parties (<i>Östman et al. in prep.</i>). Preliminary results further suggest that the length of the fish at the 90th percentile of the size distribution, L90, responds to fishing pressure and is not too sensitive to other external sources of variability (e.g. eutrophication and climate; <i>Östman et al. in prep.</i>). A similar indicator (L95) has been suggested by ICES for commercial exploited fish species (<i>ICES 2011. Report of the Workshop on Marine Strategy Framework Directive1 - Descriptor 3+. WKMSFD1 D3</i>). Using the 90th- instead of the 95th-percentile is advocated for coastal fish in the HELCOM region as a substantially lower number of individual fish are sampled in the coastal fish monitoring programs compared to the trawl surveys that are a base for the ICES (2011) assessment of commercially exploited fish species. Using L95 will hence result in too high uncertainties in the assessment.</p> <p>The assessment of L90 relies on calculating the indicator for relevant key species in each monitoring area, and compare this against a potentially species-specific, regional threshold value. Hence, long time-series are not foreseen to be required for the assessment of the indicator (see below for further detailing).</p> <p>Due to delays in recruiting the expertise to carry out the analyses within the BLUES-project and to develop the methodology, no more details on the indicator is available at present. A more developed proposal is anticipated by end of 2021. The current progress regarding threshold values is outlined below.</p>
Threshold value setting logic and rational
Preliminary analyses suggest the possibility for a similar L90 threshold value across different coastal areas of the Baltic Sea, for perch and flounder species respectively (<i>Östman et al. in prep.</i>).

<p>The observed L90 for perch in a given coastal area appears linked to the level of fishing pressure in that area (<i>Östman et al. in prep.</i>). In the HELCOM-BLUES project we aim to further collect data from monitoring areas in the Baltic Sea representing both heavily impacted and non-disturbed coastal areas, to develop and suggest threshold values.</p>
<p>Threshold value(s)</p> <p>Preliminary analyses (<i>Östman et al. in prep.</i>) suggest a potential threshold-value for L90 perch in the range of 22-24 cm, and for L90 flounder between 25-30 cm. For comparison, the length at sexual maturity (Lm) for female perch is well below 20 cm (<i>Ciepielewski, W. and A. Hornatkiewicz-Żbik, 2006. Size and fecundity of perch females at age of maturity. Acta Sci. Pol. Piscaria 5(2):17-36.; FishBase; unpublished data</i>), and for female flounder 16-26 cm (<i>ICES, 2014. Report of the Benchmark Workshop on Baltic Flatfish Stocks (WKBALFLAT), 27-31 January 2014, Copenhagen, Denmark. ICES CM 2014/ACOM:39. 320 pp.; Kosior, M., J. Kuczynski and W. Grygiel, 1996. Reproduction of Baltic flounder (Platichthys flesus L.) in relation to some somatic factors. ICES C.M. J:29.; Froese, R. and C.C. Frieß, 1992. Synopsis of biological data on Platichthys flesus (L.), ICES assessment units 22 and 24, using the FISHBASE format. ICES C.M.1992/J:41. International Council for the Exploration of the Sea, Copenhagen; Erlandsson, J., Östman, Ö., Florin, A-B., Pekcan-Hekim, Z. 2017. Spatial structure of body size of European flounder (Platichthys flesus L.) in the Baltic Sea, Fisheries Research, 189:1-9.</i>). Hence, the indicative threshold values of L90 should be larger than the average size at maturation for the population in focus.</p>
<p>Other significant issues that need to be addressed or presented to State and Conservation</p> <p>As described above, there has been delays in the HELCOM BLUES-project and it has not yet been possible to carry out the analyses needed to suggest a threshold value for the indicator. This work will instead be carried out during fall 2021, and during January to March 2022. We aim to have well-documented and robust threshold values to propose as early as is possible. We will only be able to include data for this indicator until 2020, as is also the case for the abundance-based indicators for coastal fish, (see the rationale for this in the reporting of the <i>Abundance of key coastal fish species</i> and <i>Abundance of coastal fish key functional groups</i> indicators).</p>
<p>Latest indicator report or (for new indicators) initially completed indicator template</p> <p>As the indicator is still under development, no indicator report is available.</p>