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## Background

This document aims to provide a summary of and invite comments on the HELCOM driver indicator work towards HOLAS 3, specifically addressing drivers and driver indicators with relevance to pressure of fish extraction and fishery activity. Information is provided under key sections below.

### Drivers

As part of the development of a causal framework for application in HELCOM that addresses Drivers, Activities, Pressures, State, Impact and Measures (DAPSIM framework) initial work has started via the HELCOM MetDev project to explore drivers and potential driver indicators. Each component in the DAPSIM framework have connections to one or more other components that allow for the impact of any given component to be either qualitatively or quantitatively tracked throughout the framework. In these frameworks the D stands for drivers (or B for behavior) and despite the prevalence of this family of frameworks, no consensus exists regarding the definition of a driver (or behavior).

For the purposes of work within the MetDev project, drivers can be seen as “societal and environmental factors that, via their effect on human behavior or environmental conditions, may influence activities, pressures, or the state of the marine environment”. During HOLAS 3 assessment, focus and resources will be placed on societal drivers, and consequent driver indicators which can support management activities.

For the purposes of holistic assessment of the Baltic Sea, identified drivers and driver indicators will be linked to the other components of the DAPSIM framework, and these relationships can:

- identify drivers behind environmental problems, which can be used for evaluation of existing measures,
- be useful for appropriate design of new measures,
- highlight previously unconsidered factors which may be limiting the effectiveness and efficiency of measures,
- provide contextual support and additional explanatory power for other environmental assessments and evaluations such as HELCOM core indicator evaluations,
- be utilized in the development of future analyses of sufficiency of measures.

### Driver Indicators

In order to make the information on drivers useful in an assessment context, they should be connected with other DAPSIM framework components with explanatory proxies. Therefore, **quantification** of drivers and understanding the trends are desirable to ensure a concrete link from information on drivers to the other DAPSIM components and thus, for achieving efficient marine governance and healthy marine ecosystems. Using **driver indicators (proxies that can be quantified or succinctly described and infer changes in drivers)**, driver analyses that can support the understanding of trends, inform policy makers, and help to identify efficient measures.

Driver indicators have a two-fold purpose. Firstly, they provide a practical example of the impact of often abstract drivers, allowing for a more robust qualitative connection to be made between powerful but complex factors and the condition of the regional environment. Secondly, changes in these driver indicators (e.g., changes in trends or new drivers) can in some cases be linked to the broader DAPSIM framework to provide a more direct and potentially quantifiable impact on the environment. Such links can be used to inform a range of HELCOM priorities such as the evaluation of the effectiveness and sufficiency of measures.

Driver indicators are considered under the [HELCOM indicator manual](#) as part of the cluster of ‘supporting indicators’. These indicators are different from the HELCOM core indicators (and the relevant development stages of those, i.e. candidate, pre-core and core) in that they are considered to provide supporting information that can offer further insights or contextual information for HELCOM processes. In addition, indicators categorised as ‘Potential causative factors’ (i.e. Drivers and Activities), ‘Surveillance indicators’, or ‘Element indicators’ (see Indicator manual page 14) are not anticipated to have target values or threshold values but act more in the manner of informative fact sheets that may support contextual understanding, support management or help guide directed action.

### Thematic Workshops

The work is in its inception stage and currently general structures and approaches have been discussed with the aim of exploring a few achievable driver linkages (and driver indicators or proxies) that can be quantified or summarised descriptively. As part of this development work a decision tree was developed through which drivers, derived from known pressures, could be evaluated for their quantifiability and informative potential.

A series of expert workshops were then carried out (24-28 January 2022) targeting selected topics (and in some cases selected sub-topics) that included: inputs of nutrients, inputs of hazardous substances, and **extraction of fish** (i.e., key pressures identified under HOLAS 2). The outcomes of the expert workshops (Table 1) will form the starting point and guidance for the Secretariat on which drivers (and where identified, potential driver indicators) to further explore in the lead up to HOLAS 3.

**Table 1: Proposed drivers and driver indicators for the extraction of fish in the Driver Indicator Workshop.**

Driver	Driver Score	Quantitative Score	Driver Indicators	Explanatory value
Political will	★ 6	2	Excess TACs (TACs above scientific advice)	3
			TACs per year (in general)	2
			Fishery Subsidies	2
Consumer trends	★ 2	4	Fish export	2
			Trends in vessels number, outside options for fishers, alternative livelihoods	1
			Seafood and fish consumption patterns (i. Fish as Food; ii. Fish as fishmeal (spr...	3
			Biomass per fishery and per georegion	1
			Fish consumption in Baltic Countries	0
			Demand for salmon or aquaculture fish	1
			Demand for fur/fur industry	0
Market forces	★ 2	6	Number of operating fishing vessels or number of days at sea	2
			Trends in vessels number, outside options for fishers, alternative livelihoods	1
			Fish prices available in EU statistics	3
			Fuel prices (and other costs)	0
			Fishermen revenues	0

The extraction of fish expert workshop identified key drivers for further exploration as: **i. political will, ii. consumer demand, and iii. market forces**. The full outcomes of these expert workshops will be provided via the [HOLAS3 DRIVERS 1-2022 Meeting site](#) on the HELCOM Meeting Portal soon as they are available and have been commented by participants. Furthermore, the outcome of this event for the extraction of fish will also be presented at the upcoming ComFish WS 2-2022.

### Action requested

The Meeting is invited to comment on the proposed drivers and driver indicators for the extraction of fish, as presented in this document.