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<b>Document title</b>	Document 4 – EUTRO-OPER workspace example and initial suggestion on Biodiversity workspace implementation
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## Background

The project EUTRO-OPER piloted the development of a data-flow method allowing for a semi-automated assessment for eutrophication related indicators. This document contains a brief summary of functionalities in the EUTRO OPER workspace and suggestions on how this kind of functionalities could be utilized in the biodiversity context.

The data-flow workspace of EUTRO-OPER and the options with the data-views will be demonstrated at the workshop. This document provides a brief background and summarizes the main steps.

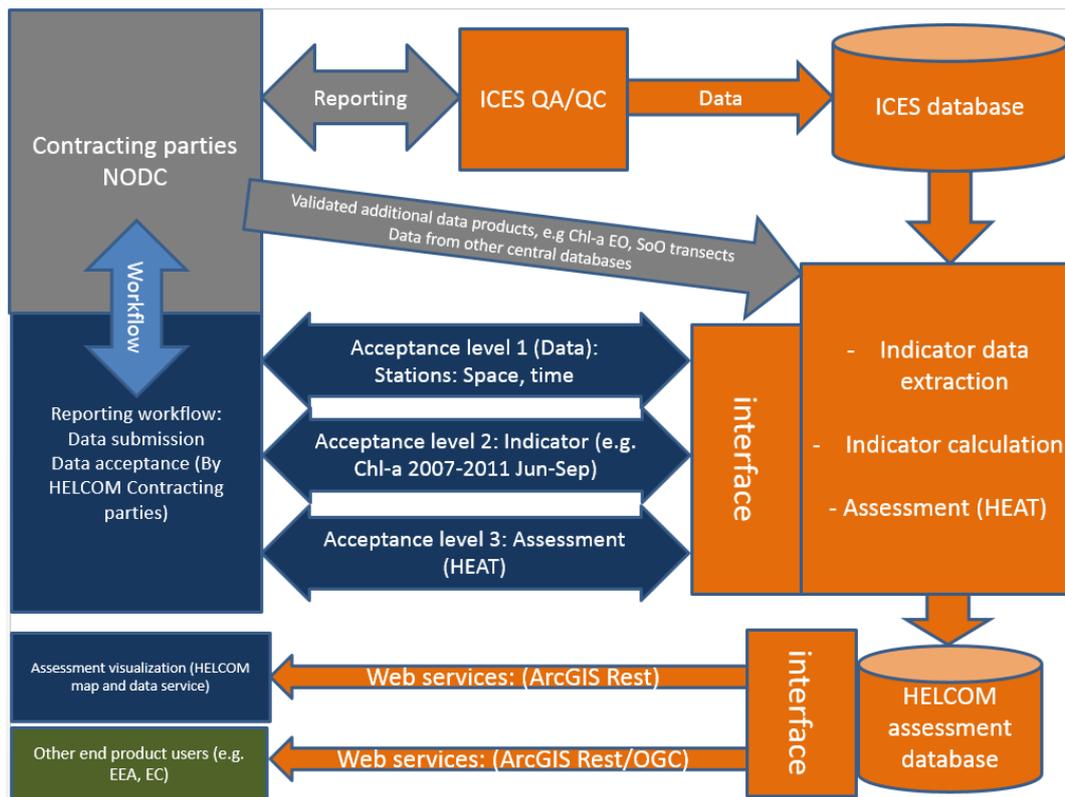
The full [EUTRO-OPER assessment manual](#) is available online where the process is documented in more detail.

## Action required

The Meeting is invited to take note of the information and use the information when proposing how the biodiversity assessment workspace developed.

## EUTRO OPER workspace concept – Brief summary

The EUTRO-OPER project developed a data-flow model that allows for a semi-automated assessment approach. The aim was to develop a system where Contracting Parties to HELCOM are able to ensure that all relevant data has been included. The EUTRO OPER Workspace was developed to ensure a high quality of the whole assessment procedure starting from reporting of raw data to integrated assessment result. To minimize the risk of processing errors, algorithms were developed to calculate indicators and integrated assessments (Figure 1). Important aspect of the workspace is checking procedure to approve reported underlying data, performed indicator calculations and assessment results (Acceptance Levels 1-3 in Figure 1) performed by national contact points.



**Figure 1. Example of eutrophication data and information flow. The color of the items indicate the actor/host: Gray = Contracting Parties, Blue = HELCOM workspace (hosted at the Secretariat), Orange = ICES/Data host, Green = Other end-users.**

The review of acceptance levels 1-3 is done in the 'Eutrophication data reporting workspace', under 'national check-up'-page (<https://portal.helcom.fi/workspaces/EUTRO-OPER-70/Lists/National%20data%20checkup/AllItems.aspx>), where experts have been provided with rights to relevant review table (Figure 2). The assessment data can be viewed at the 'Dataview' -page, or downloaded for more detailed analysis.

## Acceptance of reported data, indicators and assessment

Task of each country is to validate following checks for their national data on:

### Acceptance Level 1 (Stations, space, time):

1. Check that no observations are missing from the assessment dataset, i.e. **all monitoring data is reported** (information on this available via Dataview)
2. Check that there are no double or extra observations in the assessment dataset, i.e. **all reported data is correct** (available via Dataview)
3. Check that there are no missing parameters in the observations (available via Data view) i.e. **all reported data is correct** (available via Dataview). If any missing / extra / faulty station visits or observations were found, submit the corrected data to ICES using the guidelines.

### Acceptance Level 2 (Indicators):

- Acceptance of calculated indicator values, i.e. **all indicator calculations are correct** (information on this available via Dataview)

### Acceptance Level 3 (Assessment):

- Acceptance of assessment results, i.e. **assessment calculation is correct** (available via Data view)

Acceptance is indicated in the workspace, by filling in the national data check-up table (Figure 2)

The screenshot shows a SharePoint page titled 'DK: Open sea monitoring data review'. It contains three main tables for data check-up:

Accepted	Title	Checked	Exceptions	Description of exceptions	Actions
No	No observations missing	...	No	No	
No	No double observations	...	No	No	
No	No removable observations	...	No	No	
No	No missing parameters in an observation	...	No	No	

Accepted	Title	Checked	Exceptions	Description of exceptions	Actions
No	All coastal units are represented and assigned with the indicators relevant for them	...	No	No	
No	All indicators are represented and assigned with ES, ET and ER in the relevant assessment units	...	No	No	
No	Accuracy of ES value: for all indicators, all relevant coastal units	...	No	No	
No	Accuracy of ET value: for all indicators, all relevant coastal units	...	No	No	
No	Accuracy of ER calculation: for all indicators, all relevant coastal units	...	No	No	
No	Accuracy of map: assessment period; MSFD classification, MSFD & 5-levels, MSFD & 10-levels	...	No	No	

Accepted	Title	Checked	Exceptions	Description of exceptions	Actions
No	All coastal units are assigned with a HEAT assessment	...	No	No	
No	Accuracy of N value	...	No	No	

Figure 2. National data check-up table view including three assessment levels.

Data view

The “Data view” section of the workspace is used as a tool which enables performing the national data check-up (Figure 2). The Data view contains 4 levels of checking the data from observations to the assessment:

1. Accessions (Figure 3): Can be used to assess whether data has been reported and approved in the database
2. Stations (Figure 4): Can be used to assess whether reported data (assessment dataset) contains all monitoring station locations and samples.
3. Indicators (Figure 5): Can be used to assess whether indicator has been calculated correctly from the assessment dataset
4. Assessment (Figure 6): Can be used to assess whether status classification is correctly calculated from the indicators.

Page Viewer

Country	Description	DatasetID	AccessionID	Status	Submitted	Completed
Denmark	2008-2015 DTU Aqua 12 Havfisken cruises	ENQ720s	20160170	Pending ICES	2016-02-03	
Germany	2014 BFGG contaminants in seawater - 3...	envCWBFGG2014 ENQ608cKENQ5...	20150423	Completed	2016-01-26	2016-01-27
Germany	2013 BFGG contaminants in seawater - 3...	envCWBFGG2013 ENQ608ch ENQ...	20140384	Completed	2016-01-26	2016-01-27
Germany	2015 TI_SF 1 Walther Herwig and 3 Solea...	ENQ710as	20160039	Completed	2016-01-20	2016-01-20
Estonia	2014 MSI TTU ESIN ferrybox 2014 ocean...	ENQ818i	20150935	Completed	2015-12-16	2015-12-16
Estonia	2015 MSI Ferry box data and phytoplankt...	ENQ818i	20150918	Deleted	2015-12-15	
Estonia	2008-2011 MSI-TTU Estonian oceanogra...	ENQ818h	20150899	Completed	2015-12-02	2015-12-14
Estonia	2015 MSI-TTU Ferry box data	ENQ818g	20150870	Completed	2015-11-27	2015-11-27
Sweden	1987 SMHI 8 stations done on Aranda	ENQ719bc	20150499	Completed	2015-10-07	2015-10-07
Finland	2014 FMI Finnish CTD data 2014	ENQ629aa	20150372	Completed	2015-07-13	2015-07-14

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Figure 3. Accession view: Table of reported data by HELCOM Contracting Parties.

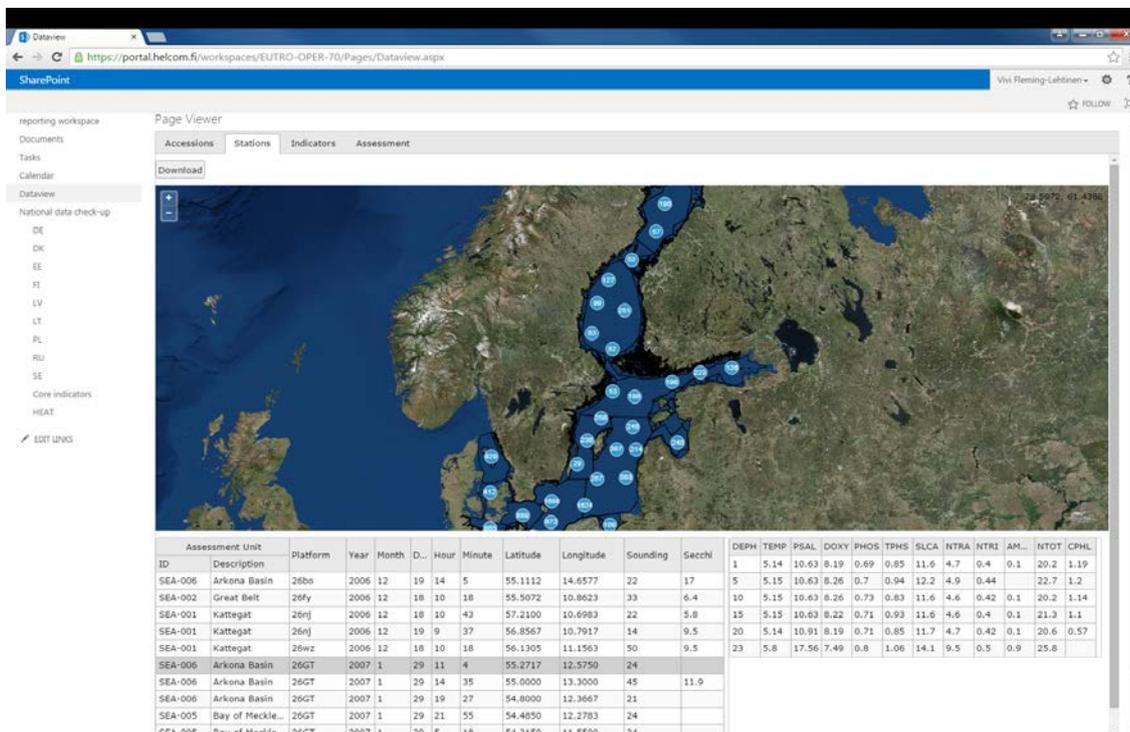


Figure 4. Stations view: Map and tabular view of stations, including depth profile observations.

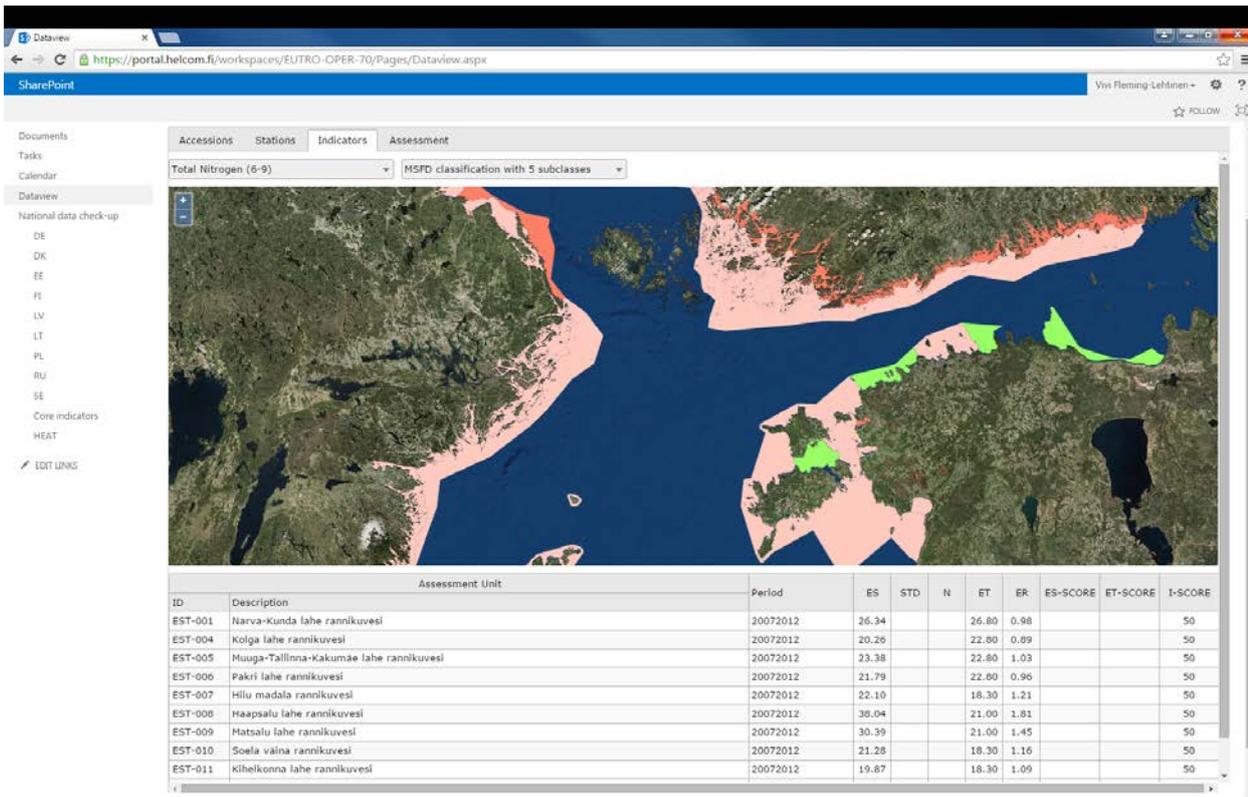


Figure 5. Indicators view: Calculated indicator values on assessment unit scale.

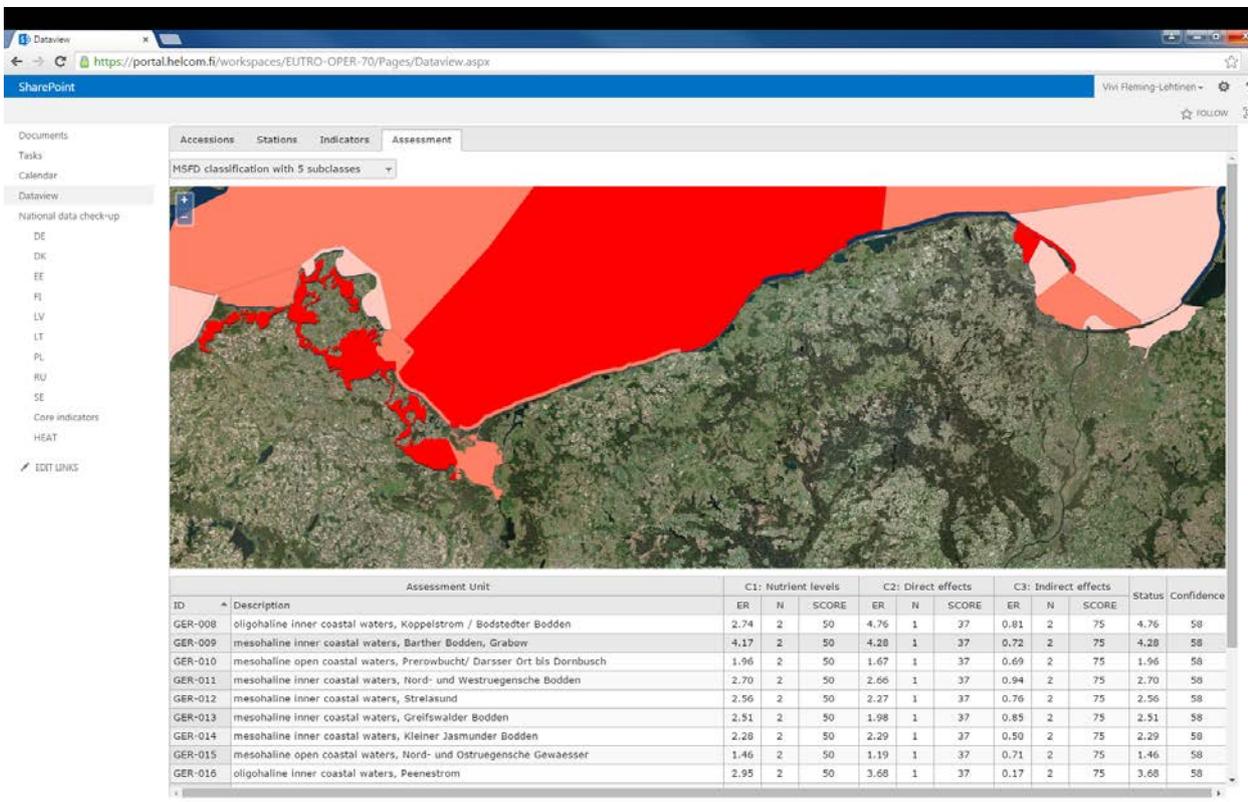


Figure 6. Assessment view: Assessment status map based on indicators.

## Utilizing workspace concept for the Biodiversity theme in BOOST project

### Requirements regarding biodiversity databases

A similar workspace structure than implemented for EUTRO OPER can be utilized for the biodiversity theme, given that the underlying databases can provide required information on similar levels than the EUTRO OPER example, relying on the COMBINE database hosted at ICES.

Required information levels from the underlying databases:

- Annual data submission reported by HELCOM Contracting parties to view gaps in data reporting
- Stations/Observation/areas can be visualized to assess adequacy and completeness of reported data
- Calculated indicator maps can be visualized

Within BalticBOOST WP1.2 on development of data arrangements for birds, coastal fish and seals, the databases and online web tool to access the data will be developed for these themes by the HELCOM Secretariat. The workspace related requirements can be taken account in the design and the needed queries/functionalities will be developed.

### Requirements regarding workspace user management

National data contacts/experts reviewing the workspace site require specific access levels that can be controlled by the Sharepoint workspace user management. User accounts will be based on existing HELCOM Meeting portal user accounts.

Access level	Indicator	Project/assessment unit
Admin/HELCOM secretariat	Edit & see all	Edit & see all
National contact person	Edit national & see all	Edit national & see all
National expert	Edit own insertion & see national	No access

### Initial requirements regarding biodiversity data

- Assessment units
  - GES boundary
  - Evaluation result
  - Confidence
- MSFD criteria/elements for assessment
- BSAP objective/category