

## Topic Paper Fishery – Central Baltic Case

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### Summary

The topic paper fishery CB case has a focus on strengthen knowledge of the fisheries in partner countries in BalticSCOPE from a MSP perspective where data and compiled maps of national fisheries are presented and analysed from a spatial perspective with transboundary areas in focus.

Previous thematic meetings has identified differences in national data, mapping methods and policy principles. Altogether this is a challenge for the ambitions to produce a joint map in the project. The agreement at the thematic meeting in Tallinn was to promote better common knowledge through descriptions of methods behind compiled national maps of fisheries and the structure of the institutional management of the sector and their role and contributions to a national MSP process.

To operationalize this agreement, four questions are answered in the topic paper

1. *How do you want to represent fisheries in your marine plan?*
2. *Who is involved in representing fisheries in your marine plan?*
3. *How would you like to present your fishing interests in other countries EEZ?*
4. *How would you like other countries to present their fishing interests in your marine plan?*

The answers to the questions above reveals the difference of phases for a MSP processes in participating countries. Overall the topic paper form a improved material to dig deeper into fisheries in a transboundary MSP perspective through a better knowledge of national management and MSP process.

# 1. Introduction

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## 1.1 Role of the topic paper

The two case areas within the Baltic SCOPE project, the Central Baltic (CB) and the Southwest Baltic (SWB), share many issues related to fisheries. This topic paper aims to give a general overview of fisheries based upon the two cornerstones fish resources and commercial fisheries. During the process, the topic paper has served as an introduction to discussions in the thematic workgroup on fisheries. Further progress of the paper has been clarified spatial aspects and dynamics with focus on transboundary issues based on recent discussions in the thematic group.

Contributions from both Estonia and Latvia on national situations regarding fisheries, as well as updates on the current discussions regarding fisheries within the framework of national MSP consultations, have been submitted in preparation for the CB thematic meetings and form the basis of this topic paper. In relation to contributed material the topic paper draws upon the thematic discussions of available and missing data in fisheries and present main challenges and potentials to adapt and restructure data to serve as planning evidence in Marine Spatial Planning (MSP) in the study area.

This topic paper focuses primarily on commercial fisheries but touches on recreational fisheries in some cases as it is closely linked (e.g. in cases where the same species are targeted by recreational and commercial fisheries) and in some cases is considered together with commercial fisheries interests in the MSP process.

## 1.2 Role of the topic paper

Central Baltic constitutes important fishing grounds for the Baltic Sea fisheries sector. The area also includes essential fish habitats for herring, sprat, cod and flounder. Bearing this in mind it will be necessary to take fisheries into consideration when discussing and finding spatial solutions for the needs from other sectors such as shipping and off-shore wind energy, as well as nature protection issues within the Baltic SCOPE project. Fisheries is mainly regulated and handled within the Common Fisheries Policy (CFP), even though the CFP provides some provisions to nationally regulate fisheries in the territorial waters.

Commercial fisheries take place in almost every fishable location in the Baltic Sea, also in border areas in the Central Baltic area. The bordering exclusive economic zones of Estonia, Latvia and Sweden are one example where vessels from the different countries fish in the other countries' zones. Another important example is the Gulf of Riga (Estonian and Latvian waters) with the largest coastal catches in the Baltic Sea. With some exceptions only the national fleet fish in the territorial waters of Estonia and Latvia. Increased or new uses of the sea may potentially negatively affect the fisheries.

Considering the complexity to collect and analyse cross border information on fisheries there is a need for a thematic group on fisheries. The role of the group would be to compile information on fisheries/habitats for the identified cross-border areas/hot spots (to be identified) and to analyse the impact on fisheries of any change of the use of the sea.

- National Expert Representatives**
- **Robert Aps** Estonia: *University of Tartu and Estonian delegate in ICES*
  - **Didzis Ustups** Latvia: *Ministry of Environmental Protection and Regional Development*
  - **Ingūna Urtāne** Latvia: *Director at Spatial Planning Department at Ministry of Environmental Protection and Regional Development, Baltic Scope CBC case leader*
  - **Ulrika Gunnartz**, Sweden: *Fisheries Policy Unit at Swedish Maritime and Water Management*

**Figure 1: List of group participants at Thematic Meetings in Riga and Tallinn**

In the thematic group for fisheries experts who work within the national fisheries administration/science are representatives. Two thematic meetings have taken place in Baltic Scope CBC so far with one expert from each country. The meetings were held in Riga 16-17 December 2015 and Tallinn 9 – 10 February 2016 consisting the same representatives at both occasions. (See figure 1).

At some stage the project would benefit from input from stakeholders. Possibly the Baltic Sea Advisory Council (BSAC) or the national fisheries organizations (fisheries as well as the processing industry) could participate at some stage. Sweden is topic coordinator for Topic paper Fisheries and since March 2016 Terje Selnes, planner at SWaM, is the coordinator of this topic.

## 2. Background and future challenges in fishery

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### 2.1 Introduction

Some of the main evidence used for displaying fisheries interests are spatial data on fishing activity, fishing harbours and essential fish habitat for species of interest to fisheries (e.g. spawning and nursery areas). In some cases recreational fisheries and aquaculture are also considered as fisheries interests.

Fishing takes place in more or less all waters. Small-scale fisheries is normally conducted in limited areas and sometimes on a stationary basis (mostly fixed net fisheries), while other forms of fisheries are more flexible in nature and are conducted over large areas (mostly trawl fisheries). Fishing locations vary between seasons, but also depend on possible changes and developments of fishing opportunities. These opportunities are related to changes e.g. in gear type, target species and potential changes of characteristics and spatial patterns of fish stock.

Commercial fisheries are one of the most important forms of exploiting marine resources with special socioeconomic and cultural importance. This segment is also the main focus in this topic paper due to the transboundary characteristics of fishing activities in neighboring countries and crossborder areas.

In general, wild fish resources constitute an important ecosystem service for human well-being as providing food and cultural services such as recreation, cultural heritage and legacy of the sea. At the same time fisheries may affect marine ecosystems. Overfishing may cause changes in the trophic chain and the use of active gears may influence vulnerable marine ecosystems on the seabed.

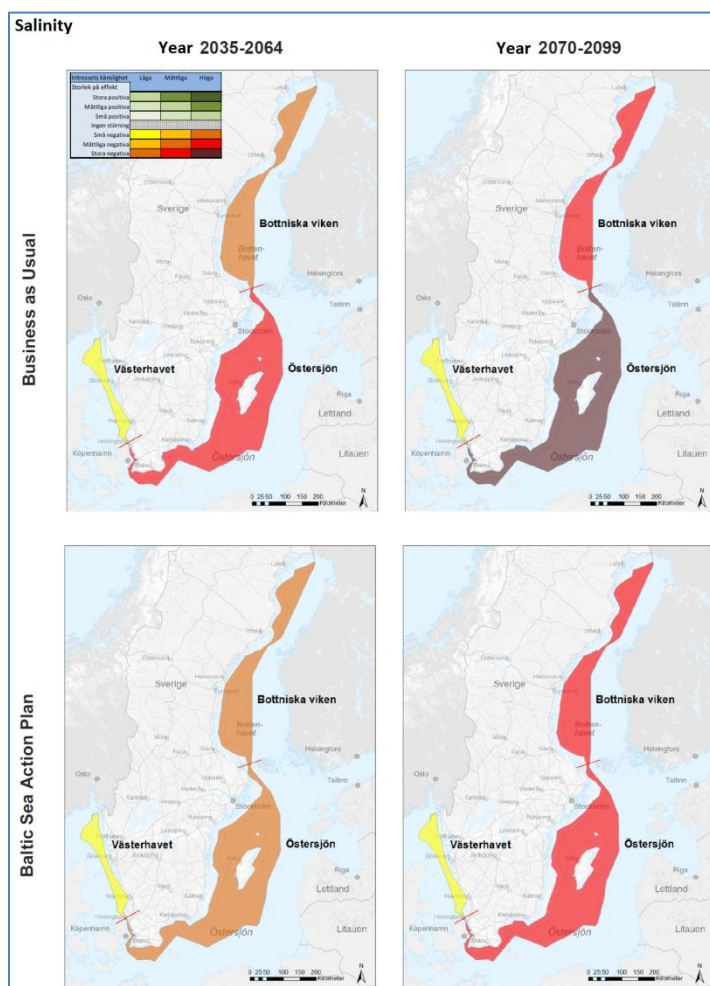
### 2.2 Ecosystem approach – A link between fishery management and Marine Spatial Planning

EU, the common fisheries policy (CFP) was recently reformed to aim for sustainable fisheries through ecosystem based management. The EU directive 2014/89 also constitutes how ecosystem based approach is a main objective for the MSP process. The dual focus on ecosystem based management is important factor to include the sector in the MSP process in a good manner. From a Baltic Scope perspective Latvia is applying an ecosystem services

approach in the national MSP and Sweden are investigating how ecosystem services could be presented in the national planning process.

Out of the twelve principles forming the ecosystem based approach, there are both spatial and temporal aspects regarding both the ecosystems and management. Spatial aspects of the ecosystem and management can be referred to principle 5 *"Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach"* and principle 6 *"Ecosystem must be managed within the limits of their functioning"*. Here the keywords *functions* and *structure* in the principles highlights spatial aspects of the ecosystem approach which also motivates discussions within the Baltic Scope project as the functional and structural aspects of fishing activities is transboundary.

Temporal aspects in the principles of the ecosystem based approach focus on the need to view changes over time as inevitable as well as potentially slow in process to show its effects (Principle 8 and 9). An example of the temporal aspects is shown in a yet unpublished SwAM report on marine effects of climate change. Figure 2 show potential changes in salinity in the three MSP-areas in Sweden divided into scenarios of "Business as usual" and a development in accordance to agreements within the Balt Sea Action Plan. The time period shows how lower salinity level occurs in a



**Figure 1: Potential changes in salinity from Climate Change (SWAM 2016)**

slow process over decades. From a Baltic Scope perspective, a lower salinity level is likely affect the presence of different fish species and thereby spatial patterns of fishing activities in the Baltic area.

Expectations of the reformed CFP are to see improvement in fish stock followed by a positive development in the fishery sector. However, there are difficulties to predict the characteristics of future fisheries regarding type (passive/active gears) and targeted species. This difficulties is the result of lack of projections of future needs in the sector as well as lack of knowledge how current fishing methods affects the ecosystem. The unknown damage from current fishing methods is an example of the challenge of temporal aspects of an ecosystem based approach. Changes in fisheries could also be related to effects of climate change. SwAM currently working on scenarios where the waters of the Baltic are predicted to see huge changes in qualities that will effects the characteristics of the fishing sector.

### **2.3 Spatial aspects of fishery management**

Section 2.1 highlights several spatial dynamics of fish habitats and fishing activities. Beside seasonal and habitat dynamics, commercial fisheries tends to also be transboundary issues. The resource in itself, fishes nurses, spawns and migrates between nations around the Baltic which has resulted in both transboundary fishing activities as well as management at EU level through the CFP and the quota system. The quota system is distributed among the member states where the regional areas of EU waters are viewed as a common resource. After negotiations between member states, the right to quota tends to be concentrated to countries near the water area e.g. the Baltic Sea.

The reformed CFP is taking these spatial patterns of quotas distribution into consideration by the implementation of regional groups for fishery management. BALTFISH is the regional forum in the Baltic Sea where member states meet each other regarding regulations and management of fisheries.

Based on CFP legislation and the natural dynamics of the fisheries and fish habitats, Maritime Spatial Planning (MSP) are facing some challenges to incorporate spatial needs and claims of a dynamic fishing sector in a comprehensive plan for solving different interests at sea. Fishing constitutes a traditional activity at sea and is likely to be affected by other new or expanded uses of the sea demanding space that imply less flexibility for the fisheries. In some cases

there might also result in reduced fishing possibilities as other uses of marine space or protection of areas for e.g. fish habitats is recommended through a MSP process.

<b>Requirements of the sector</b>	<b>Current fishing activities in the Central Baltic (mainly trawl)</b>
<ul style="list-style-type: none"> <li>» Fishable and healthy stocks</li> <li>» Access to fishing grounds and ports for landing, bunkering and repairs</li> </ul>	<ul style="list-style-type: none"> <li>» Herring (particularly important in the Gulf of Riga)</li> <li>» Sprat and cod (mainly in the southern parts)</li> <li>» Salmon</li> <li>» Flounder</li> </ul>
<b>Regulations</b>	<b>Potential conflicts</b>
<ul style="list-style-type: none"> <li>» EU:s Common Fisheries Policy</li> <li>» Bilateral agreement with Russia (cooperation in fishery and conservation of marine resources)</li> <li>» National regulations</li> </ul>	<ul style="list-style-type: none"> <li>» Marine conservation (Activity)</li> <li>» Shipping (Activity (static gear) and Habitat)</li> <li>» Energy installation phase including cables (Activity and Habitat)</li> </ul> <p><i>Also:</i></p> <ul style="list-style-type: none"> <li>» <i>Between different types of fisheries</i></li> <li>» <i>Mining and Dumping (Activity and Habitat)</i></li> <li>» <i>Cultural heritage (Activity)</i></li> </ul>
<b>Potential synergies</b>	
<ul style="list-style-type: none"> <li>» Marine conservation for sustainable fish stocks (Habitat)</li> <li>» Offshore Wind Farms (OWF) – installations as areas of potential fish habitats</li> </ul>	<ul style="list-style-type: none"> <li>» OWF as potential exclusive marine areas for fishing with static gear</li> </ul> <p>Shipping and Fisheries strengthen development of multi-use ports infrastructure</p>

**Figure 3: Identified characteristics of fishery sector in Baltic Scope**



## **2.4 Spatial aspects of the Fishery sector – regional maps as potential for improvements of planning evidence**

There are sample data on the geographical distribution of the fisheries, with the exemption of small scale fisheries (in particular vessels less than 12 meters). For small scale vessels exact fishing locations is not always reported in a detailed way which is in accordance with EU-legislation. Small scale vessels constitute a large share of all vessels, but a small share of the total catches.

Data collection in the fisheries is constructed to serve national agencies and their responsibility for surveillance of the national fleet and keep catch activities within the national share of a fishing quota. As a result of this national focus there are limitations regarding spatial distribution of national fishing activities at regional or sub-regional levels available.

However, the ICES Working Group on Spatial Fisheries Data (WGSFD) has developed regional maps of fisheries activity in the Baltic area in response to data calls from e.g. HELCOM. Based on VMS and logbook data, WGSFD present total fishing effort 2009 – 2013 in the Baltic Sea, Figure 4 shows a general view of catch intensity in the Baltic by aggregation of three gear groups.

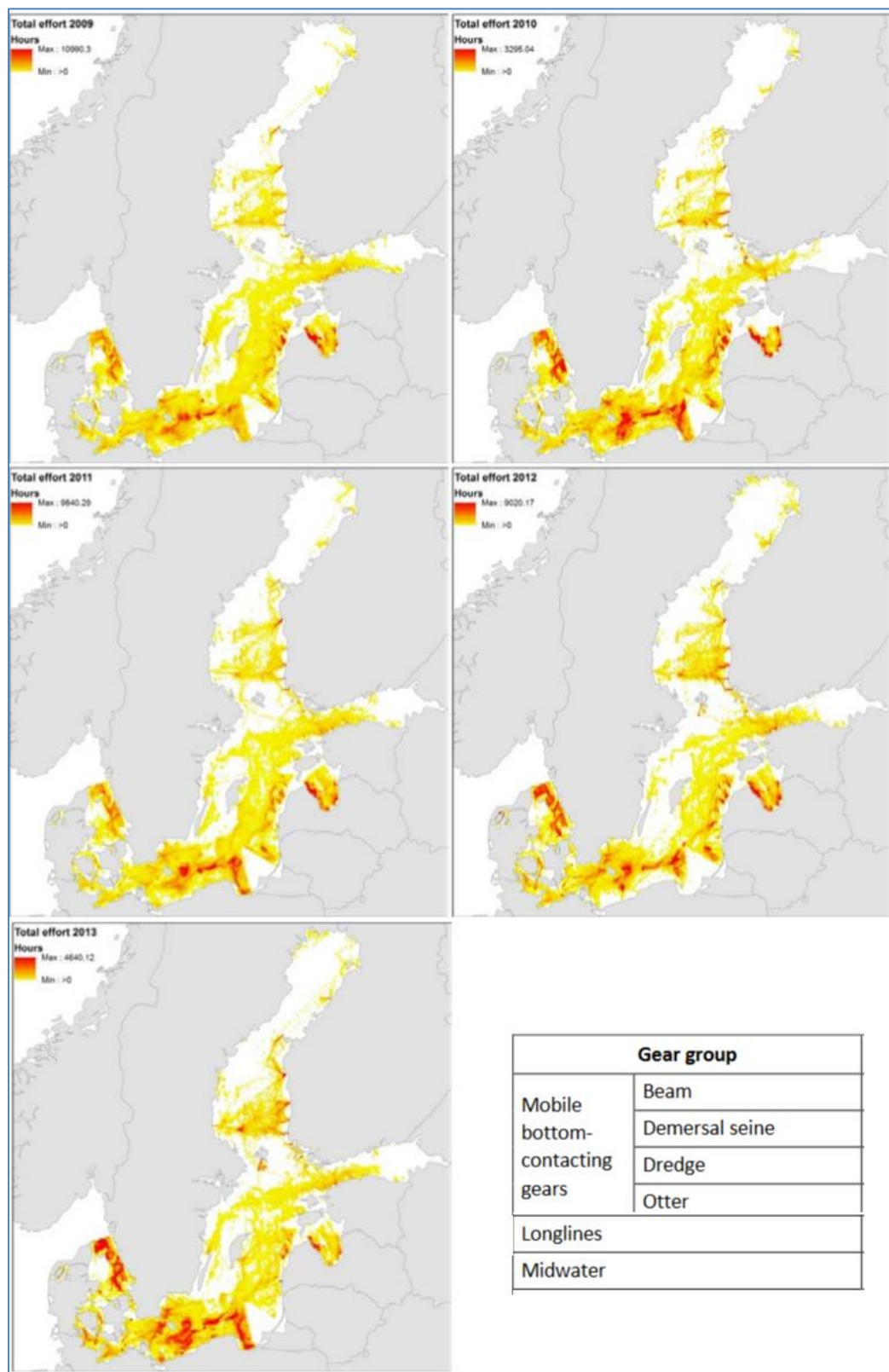


Figure 4: HELCOM total VMS effort (hours) for mobile contact bottom gear, midwater trawl and longlines 2009-2013 (Compiled by Topic Coordinator from <http://www.ices.dk/community/groups/Pages/WGSFD.aspx>.)

Spatially the fishing activities is concentrated to the south of the Baltic and also gives a hint of fluctuations when 2010 and 2013 seems to be years with greatest fishing intensity.

ICES also present a seasonal overview of the fishing efforts in 2013 (Figure 5). In the CBC case area fishing efforts seems to a peak in the first 4 months of the year.

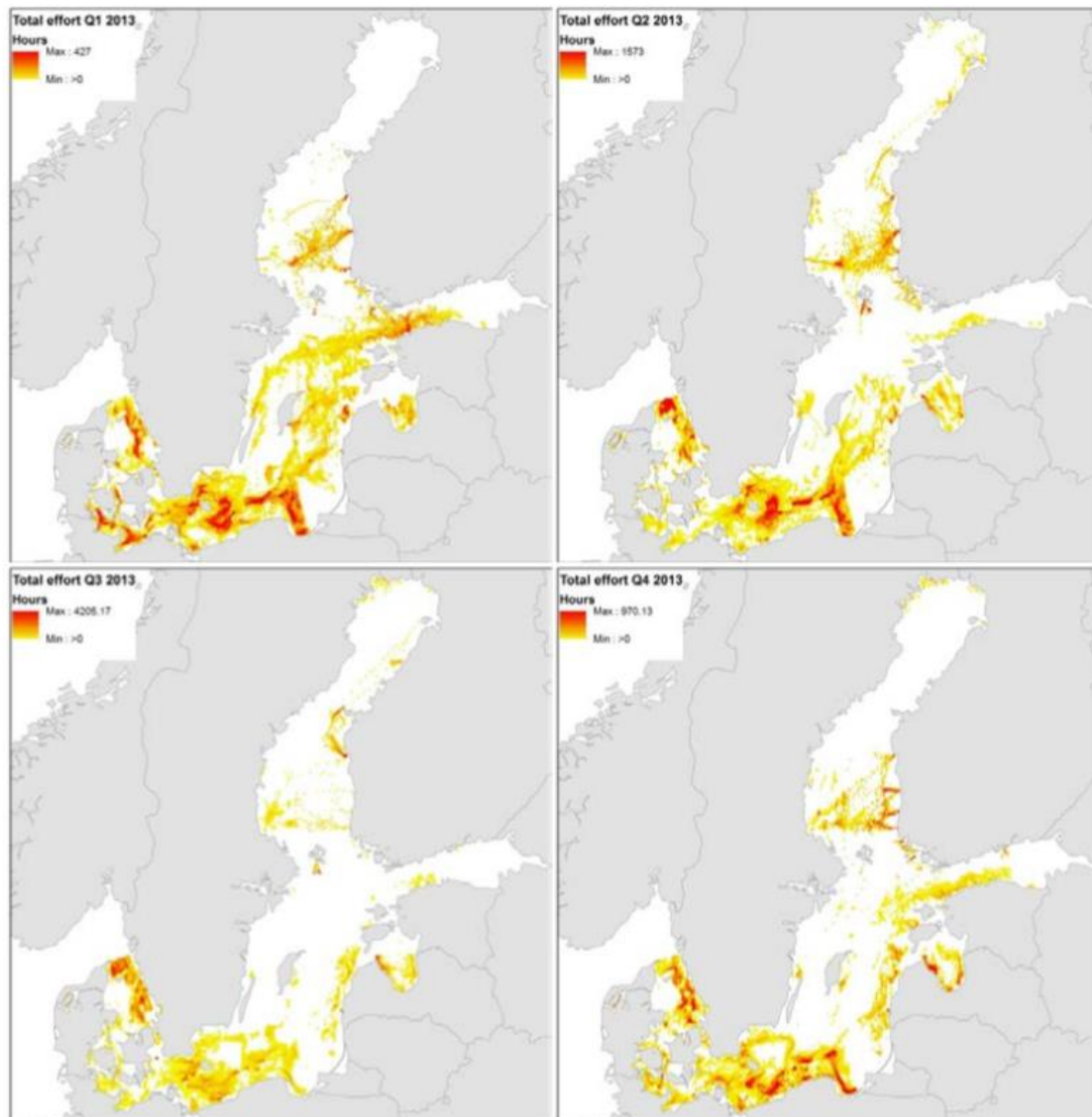


Figure 5: HELCOM total VMS effort (hours) for mobile contact bottom gear, midwater trawl and longlines seasonal variations of 2013 (Compiled by Topic Coordinator from <http://www.ices.dk/community/groups/Pages/WGSFD.aspx>.)

In the data call HELCOMs request played an additional role to the OSPAR request where fishing activities were transferred into economic aspects. The WGSFD group calculated the landing value in euro. All maps are available in the reports from WGSFD through their homepage <http://www.ices.dk/community/groups/Pages/WGSFD.aspx>.

WGSFD identifies several caveats by using VMS as data source i.e. difficulties of setting a speed filter to distinguish between fishing and steaming activities among the vessels as well as the limited coverage of vessels >12 meters. However, from a transboundary perspective the VMS is estimated to cover the part of a total fishing fleet that is engaged in fishing activities in a cross border zone. The ICES WGSFD working group has data from all member states regarding total catch and landing weights for the Baltic Sea structured in zones of 3x3 nautical miles. In accordance to ICES agreements this material is not published to a broad public before member state give their permission. For transboundary issues in a MSP process this means that ICES spatial information does not cover national participation in shared fishing grounds which then makes it hard to identify common vessel routes between fishing ground and important harbors and landing places around the Baltic sea.

Regarding the Baltic Scope project the data available at ICES has a potential possibility to form improved planning evidence where spatial information of the national distribution of the catches in the fishery sector from common fishing grounds can be shown. An agreement of sharing this type of information still has to be discussed in the Baltic Scope project. At the moment ICES data presented in the topic paper presents a broad picture of catch intensity and can be compared with areas for nursery and spawning in the Baltic (section 3.4)

## **2.5 Methods and Representation of fisheries in Baltic Scope**

In preparation for the first meeting of the CB thematic group on fisheries Estonia, Latvia and Sweden submitted examples of maps displaying fishing activity in various ways as a basis for defining national interests for fisheries.

The conclusion from discussions in the group was a need to develop this topic paper with focus on how to handle differences between the submitted maps by clear out the process behind the maps. A vital part is here to submit *flow charts* of how current maps or planned maps regarding national fisheries are constructed and processed in order to ease incorporation of other countries fishing interests in a national MSP plan.

Additional information regarding structure and responsibilities of national agencies as well as their representation in the national MSP process will also be presented in the topic paper. Overall the topic paper will answer these four questions that the thematic meeting agreed upon:

5. *How do you want to represent fisheries in your marine plan?*
6. *Who is involved in representing fisheries in your marine plan?*
7. *How would you like to present your fishing interests in other countries EEZ?*
8. *How would you like other countries to present their fishing interests in your marine plan?*

<b>DATA</b>	<b>Available information</b>
<b>Logbook data (Vessels &gt;10 m) of catches, quantities, location, time</b>	BaltSEA plan Pilot studies
<b>VMS Satellite (Vessels &gt; 12 m)</b> <b>AIS radio (Vessels &gt;15 m)</b>	SwAM: Marine Planning Current status Report 2014
<b>Gear</b>	Helcom: Fishing by different gear types 2007 (Maps online)
<b>Quantities</b>	ICES Advice: general information
<b>Location</b>	NordStream Atlas Map
<b>Time (Logbook vessels &gt;10)</b>	

**Figure 6: Available data and info for fisheries**

## 3. Basic facts of Commercial fishing activity

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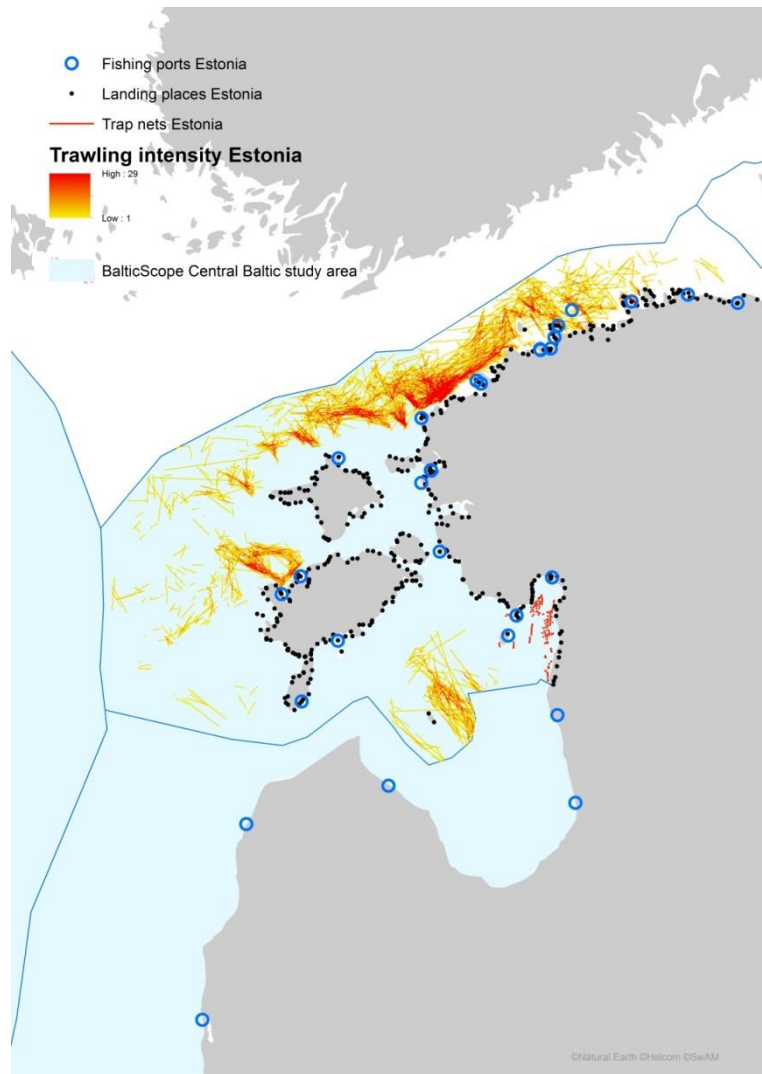
### 3.1 Fishing activities in Estonia

Estonian fishing activities (Baltic Sea trawl fishery and the trap-net herring fishery in the Pärnu Bay), fish landing places, fishery harbours and ports in the Baltic Sea waters under Estonian jurisdiction are presented in Figure 7.

Important fishing areas for Estonian open sea trawl fishing are specified based on spatial analysis of Estonian Electronic Reporting System (ERS) data. Coastal fishery landing places and small-scale coastal commercial fishery trap nets positions in the Pärnu Bay are also shown. All necessary detailed data on Estonian Baltic Sea small scale coastal commercial fishery including the 1) coastal fishing operations reporting (Electronic Fisheries Information System) and 2) catches and landings (landing places, gear, species, quantities, first sale detail and value) are readily available at the website of the Ministry of Rural Affairs. The Estonian Fisheries Information System (EFIS) Managed by the Estonian Ministry of the Environment also data from the licensed recreational fishery (gillnet, longline, salmon fishery in rivers etc.) following a logbook/diary census type programme. This data includes time period and catch information by species (only harvest).

Referring to EU Regulation (EU) No 1380/2013 (EU CFP Regulation) the Estonian fishing vessels registered in the EU fishing fleet register have equal access to all the Baltic Sea EU waters and resources that are managed under the CFP with exception of the 12 nautical mile zones of the Member States (national spatial aspect of MSP).

According to equal access rights and the particular fishing quota allocation conditions and agreements Estonian trawl fishery also fish in the Central and Southern Baltic and land catches in the fishing ports of Latvia, Lithuania, Poland, Denmark and Sweden.



**Figure 7: Estonian fishing activities (Baltic Sea trawl fishery and the trap-net herring fishery in the Pärnu Bay), fish landing places, fishery harbours and ports in the Baltic Sea waters under Estonian jurisdiction.**

### 3.2 Fishing activities in Latvia

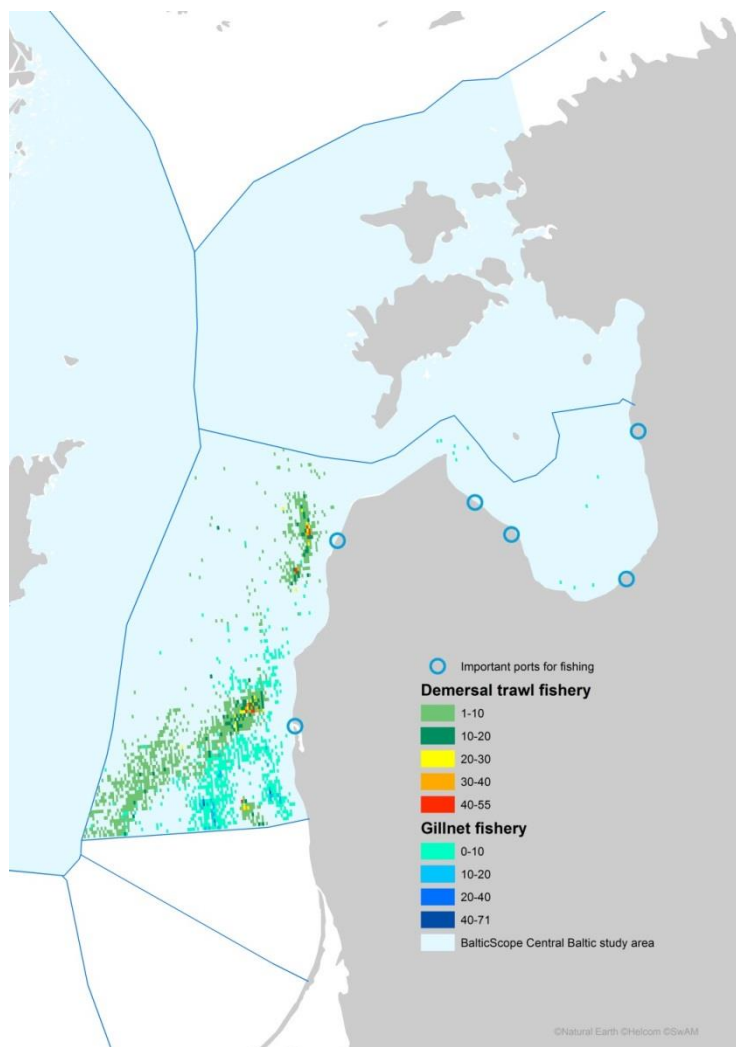
Figure 8 below displays fishing activities and ports in Latvia. In 2014, there were 628 fishing vessels (including recreational fishery) in Latvia, authorized to fish in the coastal waters of the Baltic Sea and the Gulf of Riga. Major part of them is small boats (not longer than 5 m) without engine. In open Baltic Sea fishery 70 vessels (mainly trawlers) were registered in 2013. The number of this segment has been decreased during the last years because of



implementation of scrapping programme. Number of employers in fisheries due to decrease of fleet decreased in last years as well (680 in 2012).

In Latvia fishermen use nine harbours where of six are small— Skulte, Mērsrags, Salacgrīva, Roja, Engure, Pāvilosta, and Ventspils, Riga and Liepāja are large harbours. 76% of the catch is landed in the large harbours. Fish unloading amounts at the Latvian harbours are significantly influenced by the average market price of fish and geographical location of the fish stock. Therefore for herring the most important are three small harbours in Gulf of Riga - Roja, Mersrags and Salacgriva. Ventspils is the most important harbour for sprat fishery where 59% of sprat landings were unloaded. Liepaja is a major harbour for cod fishermen where 84% of cod landings were unloaded. Due to better market possibilities part

of the fish are unloaded at the areas of foreign ports, as a result the amounts of unloaded fish at Latvian ports decrease. The biggest amounts of unloaded fish of late years were in Nekso (Denmark), Vladislavovo (Poland) and Karlskrona (Sweden).



**Figure 8: Latvian fishing activities and ports in Latvian waters.**

### **3.3 Fishing activities in Sweden**

Sweden has the EU's longest coherent coastline and is surrounded by several sea areas in which Swedish commercial fishing takes place. Swedish fisheries are conducted more or less intensively in the Baltic, Kattegat and Skagerrak, but at times also further away in the North Sea and the Norwegian Sea. Fishing pressure varies spatially and over time. Small-scale fishing takes place in limited areas and is sometimes stationary, while other fishing activities are more flexible and conducted across large areas. Where fishing is conducted varies between seasons, but also depending on how fishing opportunities evolve.

In terms of catch per area, the Baltic Sea (including the Gulf of Bothnia Sound) dominates with 65 per cent of Swedish catches, followed by the North Sea, 20 per cent; and Skagerrak/Kattegat, 16 per cent. In both the Swedish territorial sea and the exclusive economic zone fishing from other EU countries' vessels occurs.

Even if the fish is landed in many places, a small number ports for about 90 percent of landings in Sweden in quantity, with the main ones in the Baltic being Gävleborg (Norrundet ), Kalmar ( Västervik ), Gotland ( Ronehamn ), Blekinge (Nogersund, Karlskrona), Skåne (Simrishamn , Trelleborg, Skillinge ). Traditionally, significant quantities has been landed in Denmark, especially pelagic fish such as herring and sprat. In 2012 Swedish landings in Denmark represented about 40 percent of total Swedish landings. The largest pelagic catches from an area south of Gotland between Poland and Sweden as well as area along the west coast.

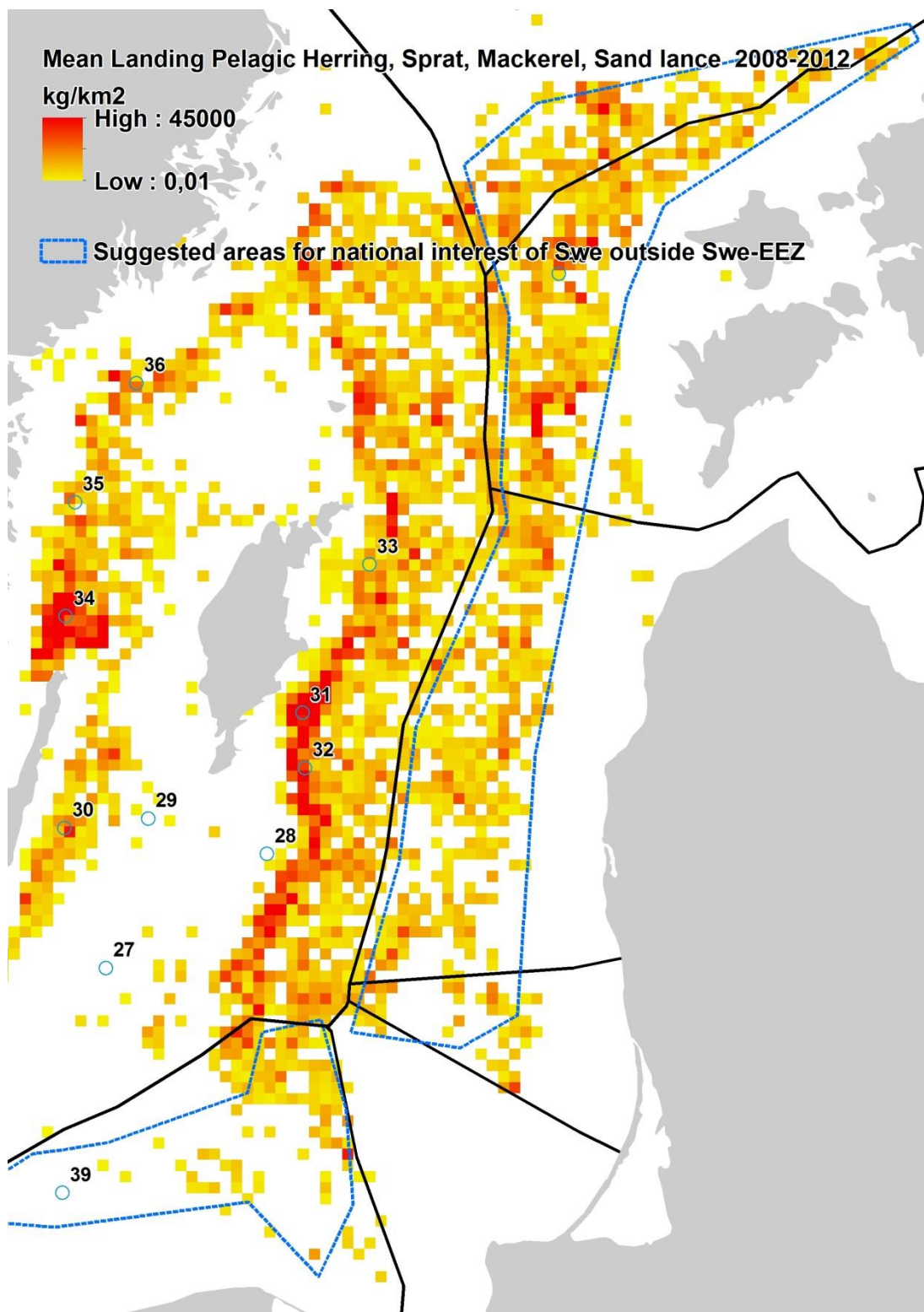


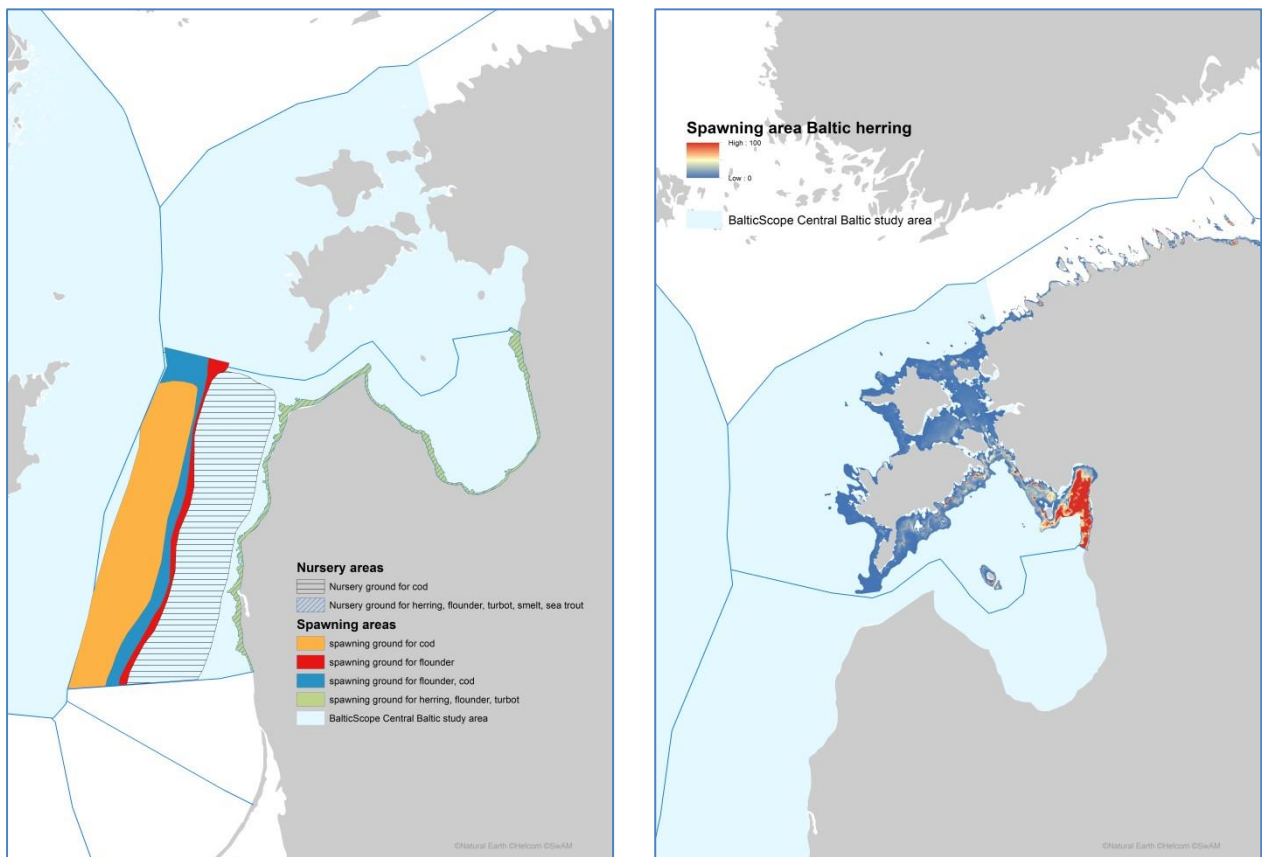
Figure 9: Suggested area (43) for national interest of fishery and concentration of Swedish pelagic catches by trawl and seine (herring, sprat, mackerel and sand lance) Quantity (kg) by landed weight, 2008 – 2012 (© openstreet Map, © Helcom © SLU)

### 3.4 Fish Habitat

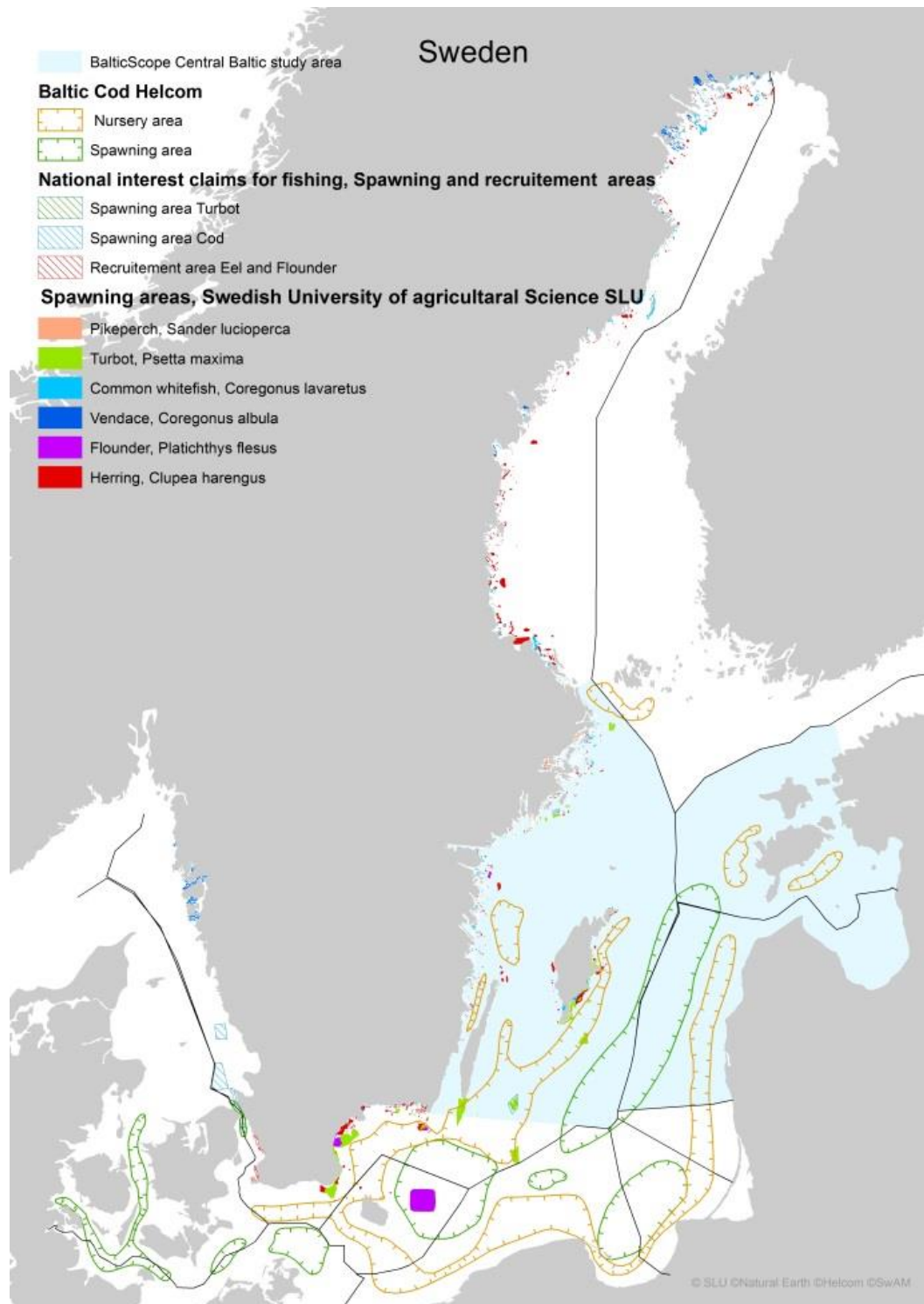
Further work is required to develop reliable maps of essential fish habitats which discriminate spatial and temporal variability which is essential to support marine planning. However, Figure 10, and 11 gives an indication of how important spawning and nursery areas is spread over the case study area containing nursery areas within national borders as well as transboundary important area for spawning

There are few available comprehensive maps on essential fish habitats, but partial and squattered information for certain stocks/areas have been modelled such as:

- Cod spawning areas: deep areas (e.g. Eastern Gotland basin, SE, EE, LT, LV (low), Bornholm basin/Arcona basin SE, DK, PL and Gdansk basin (low).
- Herring spawning areas: coastal areas (spring and autumn), off shore (autumn).
- Flounder: open Baltic Sea, Swedish coast.



Figur 10: Latvian spawning and nursery areas and Estonian spawning area for herring



**Figure 11: Important fish habitats according to Sweden (Current Status report 2014 and SLU Aqua)**

## **3.5 Towards common solutions? - Main differences between the compiled national maps**

### ***3.5.1 Introduction***

Maps presented in this section is compiled by each country and has mainly been the material since to beginning of the project. During the project there has been discussions around the differences between compiled map and if there's a need to start a process to produce joint maps within the project.

In the fishery group the discussions resulted in an agreement to provide information behind the national MSP process as well as methods to produce current maps rather than striving for a joint map. The agreement included four questions to answer in this topic paper.

Therefore, as a concluding part of this section the main differences between national maps is listed below to clear out the different data and hopefully inspire improvements of the mapping in each country. This differences can be viewed as food for thought for discussions in Jormala on strategies to improve the material in a coherent direction.

### ***3.5.2 Different transboundary information:***

Sweden's map is the only one which includes national fishing activities outside their own EEZ as well as the transboundary areas of important habitats.

### ***3.5.3 Difference in Period of time:***

Estonian map shows no time period for the national fishing activities (Figure 7) Latvias fishing activities has the longest period 2004 – 2013. Sweden's map shows a tme period within the Latvian span reaching from 2008-2012

### ***3.5.4 Difference in gear type:***

All countries include fisheries with passive gears but differs in their presentation. Latvian map shows the intensity of passive gear fishing while estonian map only show spatial positions of trap nets without information on the intensity. Sweden doesn't seperate passive gears in the map from trawling. Trawling acitivities is also presented differently in the maps. Latvian map doesn't include pelagic trawling on the map while Estonian map does not distinguish trawling activities between demersal and pelagic fisheries. Sweden's map shows pelagic activities without distinguish passive and active gears due to the overall domination of pelagic fisheries in the case area.

**3.5.5. Differences in ports/landnig places:**

The Latvian map has selected some ports as "important ports for fishing" while the Estonia map include all ports without any distinction of the number of landings. Sweden only describes important ports in the text.

**3.5.6. Difference in species presentet in fish habitats:**

Sweden presents habitats of nursery and spawning for several species regardless of spatial area or national borders. Latvian map also include several species in the habitat map while Estonia focus on herring and the spawning area due to their definition of all water areas with a maximum of 20 meters depth as important for nursery of all species.

## 4. Fishery in MSP process: How do you want to represent fisheries in your marine plan?

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### 4.1 Estonia

#### *4.1.1 Fishing areas of national interest*

The accounting for Estonian commercial fishing is used as the official source of information to present and protect the fishing rights and interests in a course of national and the transboundary MSP processes.

According to Estonian Fishing Act a person who is registered in the commercial register as an operator and whose area of activity entered in the commercial register is fishing may fish or collect aquatic plants by commercial fishing gear on the basis of a fishing authorisation on internal water bodies, on transboundary water bodies, at sea, in the exclusive economic zone of the Republic of Estonia, or outside the waters under the jurisdiction of the Republic of Estonia.

Commercial fishing rights are granted by a fishing authorisation, which may be either the fishing authorisation of a fishing vessel or a fisherman's fishing authorisation.

A commercial fishing authorisation is issued within the limits of the total annual allowable catch, number of fishing days, amount of fishing gear, fishing efforts or fishing capacity of vessels or number of fishing vessels (hereinafter fishing opportunities) for a specified time limit but for not longer than one calendar year.

Referring to Estonian Fishing Act a person who fishes or collects aquatic plants on the basis of a commercial fishing authorisation is obliged to submit catch, collection, transshipment or landing information or other information relating to these works. The accounting for fishing data is used as the official source of information to present and protect the fishing rights and interests in a course of national and the transboundary MSP processes.

Estonian sea areas of fishery related national importance/interests are factually documented based on 1) Electronic Reporting System (ERS) - electronic transmission of fishing data visualization for the Baltic Sea trawl fishery (including the fishing in EEZ of other countries and the landing in foreign fishing harbours/ports) , 2) Fisheries Information System (KIS) data



visualization for small scale coastal commercial fishery, and 3) Estonian Fisheries Information System (EFIS) – collects data from the licensed recreational fishery.

Visualisation of the Electronic Reporting System (ERS) electronic transmission of fishing data for the Baltic Sea trawl fishery is performed with resolution 1X1 km. Fisheries Information System (KIS) data for small scale coastal commercial fishery are visualised based on the Estonian standard small statistical rectangles and the data for licensed recreational fishery can be visualised by the ICES rectangles as required by the recreational catch reporting legal acts.

The quality and relevance of the data/factual approach based visualisations of fishing areas of national importance/interests is periodically discussed at the multi-level national stakeholder meetings initiated by Estonian Ministry of Finance.

#### ***4.1.2 Current process of mapping fishery for upcoming Maritime Spatial Planning***

The data based mapping the Estonian fishery to be used by upcoming Maritime Spatial Planning processes is based on Electronic Reporting System (ERS), Fisheries Information System (KIS) and Estonian Fisheries Information System (EFIS) official data collected according the CFP and the national legal acts requirements. ArcGIS software suite is used to create of the GIS geo-databases and to enable the spatial modelling as required.

Stakeholder involvement is seen as the important element of the Estonian fishery mapping. ESTMSP geoportal application under development is based on distributed GIS technology as an advanced platform in support of participatory processes.

ESTMSP geoportal serves as the “participatory GIS” platform using argumentation maps as an object based model for geographically referenced discussions that support the deliberative aspects in spatial decision-making. Argumentation map methodology defines argumentation elements and geographic reference objects as independent entities distinguishing between reference objects which are part of the map and reference objects which are created by users, e.g. to mark a point location or highlight an area.

ESTMSP geoportal supports all standard tools to work with map, such as: map navigation, scaling, and measurement. It provides the tools for displaying, hiding, and setting transparency of the map layers as well as for search, identification and spatial query.

### **4.1.3 Access to GIS map layers and the current maps production**

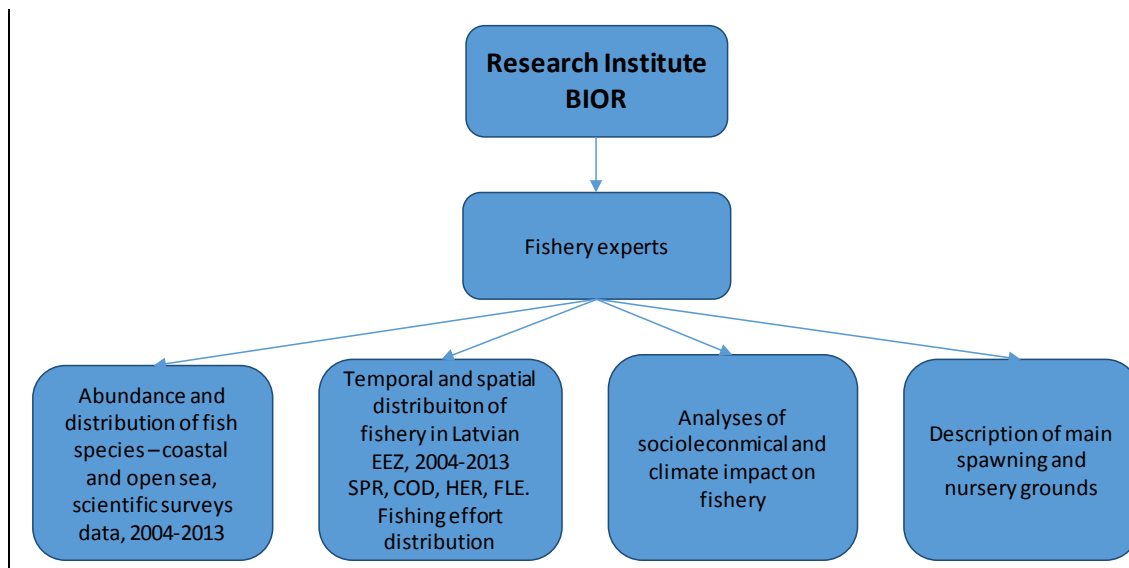
ESTMSP geoportal is based on a concept of collaborative (participatory) process with objectives: (1) to capture the knowledge for later use (identifying and mapping spatial resources and competing human uses), (2) to communicate the knowledge captured so it is easy to understand for other stakeholders, (sense-making, communication), and (3) to connect different social groups in the construction of new localized social arrangements while the negotiation of differences between different groups is fundamental to the construction of GIS technology based solutions.

First, the ESTMSP geoportal is used to view and overlay the map layers according to the spatial problem to be solved and in collaboration with the stakeholders concerned. As soon as the suitable map layers overlay composition is reached the “real” map layer is produced using the ArcGIS software relevant module. Based on this methodology it is possible quickly produce e.g. the fishing areas of national importance/interests place and time based map layers to be used in the real MSP processes. To avoid misuse of the system the ESTMSP geoportal access is password protected

## **4.2 Latvia**

### **4.2.1 Introduction**

MSP project development began on January 1, 2015 when Ministry of Environmental Protection and Regional Development (hereinafter - VARAM) outsourced the consortium led by the foundation "BalticEnvironmental Forum Latvia" (hereinafter-BEF). Fisheries experts from Institute of Food Safety, Animal Health and Environment "BIOR" were involved in Marine Spatial Planning to represent a fisheries interests and rights in national MSP and Environmental Report. Time period from 2004 to 2013 was included in the plan to cover a spatial and temporal distribution of the data. For the description data from BIOR scientific surveys, international surveys, commercial fishery logbooks and literature were used to describe fish abundance, main fishing, spawning and nursery grounds (Figure 9, Table 1). In the national MSP data from Latvian EEZ only were included. The detailed description of fisheries interests is presented in Environmental Report what was presented for interested parties.



**Figure 12: Fishery data used in national Marine Spatial Planning**

#### **4.2.2 Areas of national interest**

National interests areas for fisheries were appointed using available information from Institute of Food Safety, Animal Health and Environment BIOR, ICES public databasis (DATRAS) and available scientific literature. The main focus was on most commercially important fish species (sprat, herring, cod and flounder), aquaculture and biodiversity of fish communities. In national MSP an important fishing ports were defined based on landings. The most important fishing grounds were calculates using landings and efforts from national logbooks from 2004 to 2013. Important areas of spawning and recruitment were defined using available literature sources and survey data from research institute BIOR. recognised as a difficult task due to lack of scientific knowledge and resulted in small number of spawning and nursery areas.

#### **4.2.3 Process of mapping fisheries for Marine Spatial Plan**

Maps regarding national interest of fishing activities will contain data from Latvian EEZ:

- 1) Main fishing grounds by species (sprat, herring, cod, flounder) – annual maps from 2004-2013 and summary map for whole period
- 2) Main fishing grounds by fishing gear (pelagic trawls, demersal trawls, demersal gillnets) - annual maps from 2004-2013 and summary map for whole period
- 3) Distribution of main commercial fish species (sprat, herring, cod, flounder) - annual maps from 2004-2013 and summary map for whole period
- 4) Landings in the coastal fishery (herring, other fish species, invasive round goby) - - annual maps from 2004-2013 and summary map for whole period
- 5) Areas for aquaculture –

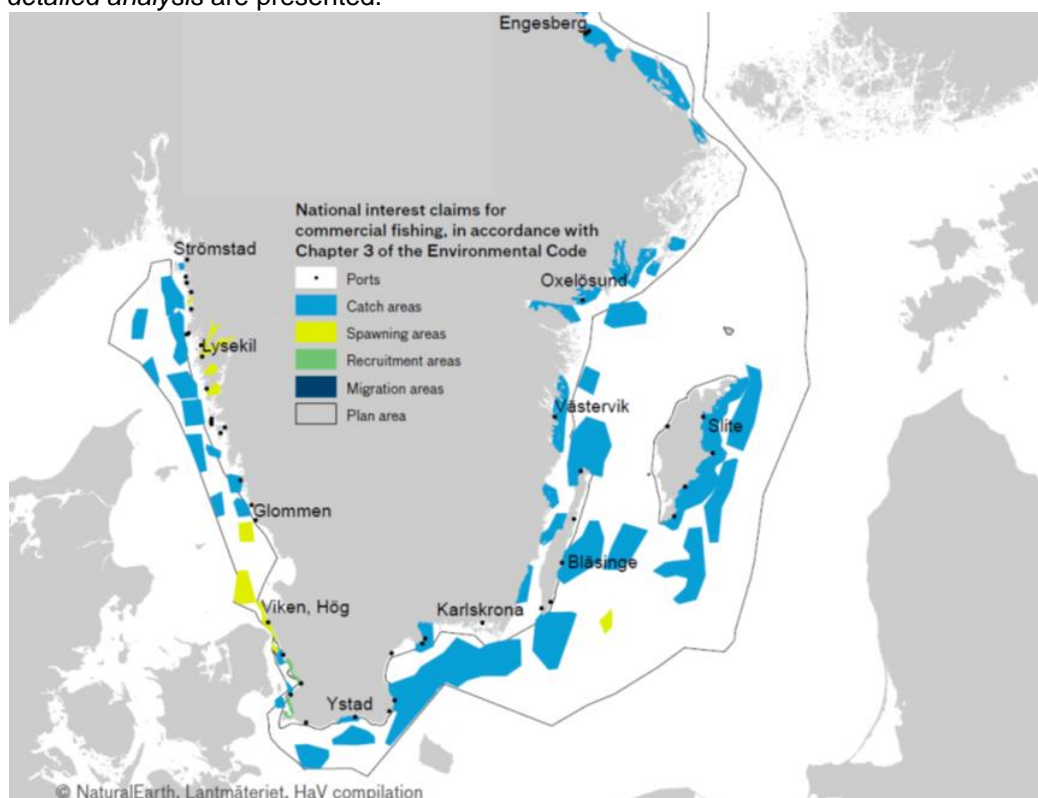
- 6) Spawning grounds for main commercial fish species
- 7) Nurseries grounds for main commercial fish species

Several traffic light plots were produced to describe biodiversity in the open part and coastal zone of Latvian EEZ

## 4.3 Sweden

### 4.3.1 Areas of national interest

The Swedish has defined areas of national interest is a central planning tool to secure the development in different sectors. Current MSP process implies that, for the first time, the national interests areas from different sectors are compiled and spatially analysed. The results of this can be viewed in the Current Status report where *potential areas for more detailed analysis* are presented.



**Figure 13: Swedish National interest areas for fishing (Current Status Report 2014)**

National interests areas for fisheries were appointed in accordance with national environmental legislation and were last updated in 2006. These areas are focused on

economic aspects regarding catch areas for certain species as well as commercial fishing ports. Due to huge spatial variability regarding fishing activities and catch numbers, the definition of ports of national interest for fisheries separated the coast into three areas to secure a regional distribution. Important ports are defined upon the calculation to represent a minimum of 10 % of the total landings in each of the three coast areas. Important areas of spawning, recruitment and migration are recognised as a difficult task due to lack of scientific knowledge and resulted in small number of spawning and nursery areas.

#### **4.3.2 Current Process of mapping fisheries for upcoming Marine Spatial Plan**

Swedish Agency for Marine and Water Management (SWaM) has recently started a process of defining the data call for the Swedish University of Agricultural Science (SLU). A updated map regarding fisheries will help the national MSP process by distinguish the interest of the sector and motivate the approach towards different areas defined as "*potential areas for more detailed analysis*"

Regarding the Baltic Scope project, SWaM initially asked for presented results by the end of March which SLU viewed as a bit too optimistic deadline for delivery of qualitative maps for MSP. Therefore, in this topic paper, Sweden will present the criteria of the upcoming maps that are yet to be produced for the national MSP process.

Key motives behind the new data call and upcoming mapping is to improve the ability to make spatial projections of future fisheries by strengthen knowledge regarding historic fishery activities and the spatial dynamics that has occurred in the past. In accordance to an ecosystem based approach, SWaM wants to distinguish areas of interest for different fisheries e.g. small-scale, large scale and also defined after a certain type of fishing gear. The new information will play a vital role in defining new and update current areas of national interest which is an ongoing discussing at the fishery unit in SWaM

In detail, maps regarding Swedish interest of fishing activities will contain:

- a. Catch activities in different areas over a long period of time (Total amount as well as separated into different segment of the fisheries)
- b. Economic value of catch per segment (Presented in numbers and percentages). Ambition to present this in seasonal variations and different time periods)
- c. Dynamics in evaluation of specific fishing grounds over time
- d. Important steaming routes for access to ports and landing places

Regarding fish habitats the data call will show important areas based on the sustainability of species of economic interest for the fishing sector. With this approach habitat areas will improve the representation of different stages of the life span of species compared to present definitions of spawning and nursery areas of national interest.

#### ***4.3.3 Description of (present) map in Topic Paper – Flow Chart***

The maps submitted in this topic paper combines layers of landing weights of pelagic fisheries with a presentation of roughly sketched areas of potential national interests outside Swedish EEZ. These areas are one of the outcomes from the thematic meetings of fishery in the national MSP process.

The data on landing weights are derived from SLU Aqua and presents the spatial concentration of catches in kilograms based on landed weight. Data is collected from logbook (Electronically or manually, reported by the fishermen) where set-positions are reported with an accuracy of 925 x 1850 meter. Based upon set-positions the grid is 5x5 km in a raster format. The choice of grid is the result of a compromise between the expected accuracy, representative variation of reported position and the ability to create clear spatial patterns of activity. In relation to normal trawling speed the vessel can potentially move up to a distance of 18 km which could motivate a grid of 20X20. However, the choice of to narrow grid system is strengthen by the quality in logbook positions as well as the possibility to identify specific hot spots within areas of intensive fishing by distinguish distribution of set positions into different grids.

The method of set-positions as a base is preferable for active gears while the passive gear in the maps are characterized by lack of reported positions. Standards of logbook reports also leads to an overestimated value for a certain grid when the logbook reports a middle position of the passive gear and not the full length of it. This is amplified by the fact fishing standards with passive gear almost constantly fish in the same area.

## 5. Who is involved in representing fisheries in your marine plan?

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### 5.1 Estonia

According to Directive 2014/89/EU establishing a framework for maritime spatial planning “The management of marine areas is complex and involves different levels of authorities, economic operators and other stakeholders. In order to promote sustainable development in an effective manner, it is essential that stakeholders, authorities and the public be consulted at an appropriate stage in the preparation of maritime spatial plans”.

Estonian Ministry of Finance is the authority/planner responsible for spatial planning in general and for the Maritime Spatial Planning (MSP) in particular. Accordingly, the MSP related stakeholder participatory processes are initiated and steered by Estonian Ministry of Finance.

Estonian Ministry of Rural Affairs as authority responsible for sustainable use of fishery resources and for management of the Baltic Sea trawl fishing and the small scale coastal commercial fishing is actively involved into the MSP related processes. The Ministry of Rural Affairs is also representing the potential interests of Estonian fish farmers in the MSP processes.

Estonian Ministry of the Environment, Fishery Resources Department is also actively involved into the MAP processes representing the responsibility for the status of fish resources in general and for the management of recreational fishing in Estonia in particular. Estonian Environmental Board is also actively involved as the authority issuing the recreational fishing cards.

Estonian Baltic Sea commercial trawl fishing interests and rights are represented by the Estonian Fishermen's Association and the related fish processors interests are represented by Estonian Association of Fishery.

The interests/rights of the small scale commercial coastal fisheries are represented by the association “Liivi lahe kalanduskogu”.

Estonian recreational fishers are represented by the Estonian Recreational Fishing Association.

The Estonian fish farmer's interests are represented by Estonian Fish Farmers Association.

Estonian Fund for Nature is actively participating in discussions on issue of Essential Fish Habitats and the fishing related environmental topics.

## **5.2 Latvia**

Throughout the MSP and Environmental Report development process active public participation was ensured. Interested parties (Fisheries Department of Ministry of Agriculture, The Ministry of Environmental Protection and Regional Development, State Environmental Bureau, Nature Conservation Agency) have been informed about the current situation assessment and identified fisheries and environmental problems. Industry representatives and other stakeholders are also involved in evaluation of alternative sea use scenarios and in defining the conditions of marine space use during several regional meetings (Figure 10)

Public consultation of draft Environmental Report was organised simultaneously with Public consultation on MSP. During the time period from December 18, 2015 until January 31, 2016, everyone can get acquainted with the Environmental Report and MSP materials at the internet site [www.jurasplanojums.net](http://www.jurasplanojums.net). MSP Environmental Report was sent for consultation with the responsible authorities and the target groups of neighbouring countries (Lithuania, Estonia and Sweden) as well. MSP and Environmental Report was updated and clarified according to the results of the public consultation.

## **5.3 Sweden**

The planning phase of Marine Spatial Planning in Sweden has started in the autumn 2015. The start of the process is a series of thematic meetings in order to get more detailed information for planning, in addition to the current status report 2014. The thematic meetings are divided into seven different themes where fisheries is one of them. Five meetings for each topic have been held by SWaM and the findings from the meetings will be compiled into a thematic report.

The aim of the thematic work on fishery was to clarify the spatial implications of fishing activities and fish habitats in the marine spatial planning to provide a better understanding of the interest of fisheries and identify the need for new data for the creation of solid planning evidences for the MSP process.

The thematic work was initially carried out to government agencies responsible for managing key interests of fisheries in the marine area and representatives from the county



administrative boards. As a government agency, SwAM plays a dual role here as different units of the agency is responsible for the MSP process, as well as representing the national interest of fisheries. Representatives from SwAMs fishery units participated in the thematic meetings together with

The representation at the thematic meetings in fishery was restricted to fishery management representatives. The thematic process was finalized with a bilateral meeting in Stockholm 6th April 2016 where representatives from fishing industry were added and discussed the findings in all seven themes.

The participation of non-governmental organizations (NGOs) has been restricted to comment on the draft versions of *Current Status Report 2014* and the first draft of *Proposal for the direction and scope of Marine Spatial Planning in Sweden (2015)*. In addition to their participation in the bilateral meeting in April, SWaM's intention to take more active measures to involve a broader fishing sector when the first drafts of the three Marine Spatial Plans are presented. Potential actors from the commercial fishing sector contains one central organization which is a collaboration of different producer organizations which are mainly structured geographically.

SWaM applied a similar method at all thematic meetings. The thematic groups studied the whole Swedish coastline based on GIS layers with information of *national interest* areas for different sectors. Certain areas of overlapping interest where discussed from a thematic perspective and classified as either *conflict*, *co-existing* or *competing* status.

## 6. How would you like to present your fishing interests in other countries EEZ?

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### 6.1 Estonia

The accounting for fishing data is used as the official source of information to present and protect the fishing rights and interests in a course of national and the transboundary MSP processes.

According to Regulation (EU) No 1380/2013 on the Common Fisheries Policy the fishing vessels registered in the EU fishing fleet register have equal access to all the EU waters and resources that are managed under the CFP. Access to fisheries is normally authorized through a fishing license. In the waters up to 12 nautical miles from baselines under their sovereignty or jurisdiction, Member States are authorised to restrict fishing to fishing vessels that traditionally fish in those waters from ports on the adjacent coast.

According to CFP regulation the Estonian fishing vessels have the equal rights to fish in the Baltic Sea Exclusive Economic Zones (EEZ) of other EU countries based on appropriate fishing licenses and to land the fish in designated fishing harbours/ports of other EU countries.

Estonian national Electronic Reporting System (ERS) data based map layers presenting the trawling tracks (time, coordinates), corresponding catch composition by species (kg) and landing in the other EU countries fishing harbours/ports (in tons) can be regarded as Estonian planning evidence to present fishery interests of Estonia in Baltic Sea EEZ areas of the other EU countries.

Estonian interest is based on understanding that fishing activities as such are regulated by CFP and the national Fishing Acts and the role of MSP is to allocate the marine space suitable for environmentally sustainable and economically feasible fishing operations based on a CFP principle of equal access to the fishing waters. That means non-restricted access to the equal access fishing grounds and the designated fishing harbours/ports.

It is important to note that in this case it is not only about the fishing interests but it is about the fishing vessels' rights for license based non-restricted fishing in the equal access fishing sea area. At the same time the coastal states concerned have the obligation to properly

enforce these EU fishing vessels equal access rights under the EU CFP regulation in a course of their national MSP processes

## **6.2 Latvia**

The commercial fishery logbook data from sprat, herring, cod and flounder outside of Latvian EEZ is available from Research institute BIOR. Latvian fishery interests in other countries EEZ could be presented by landings by fish species (herring, sprat, cod, flounder) and by effort (pelagic trawlers, demersal trawlers and demersal gillnets)

## **6.3 Sweden**

The compiled map from Sweden (Figure 9) show Swedish fishing activities in other countries EEZ. This will be updated by the current process described in section 4.3.2. In this current process there is a similar ambition to map Swedish fishery interest beyond the Swedish EEZ. To fulfill the criteria A-D presented in section 5.1.2, the economic aspects of catch value highlights the need to map fishing activities outside Swedish EEZ where especially Swedish fishing activities in Norwegian waters is crucial for the Swedish fishery sector.

## **7. How would you like other countries to present their fishing interests in your marine plan?**

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### **7.1 Estonia**

According to Regulation (EU) No 1380/2013 on the Common Fisheries Policy the fishing vessels registered in the EU fishing fleet register have equal access to all the EU waters and resources that are managed under the CFP. Access to fisheries is normally authorized through a fishing license. In the waters up to 12 nautical miles from baselines under their sovereignty or jurisdiction, Member States are authorised to restrict fishing to fishing vessels that traditionally fish in those waters from ports on the adjacent coast.

According to CFP regulation the fishing vessels of other EU countries have the equal rights to fish in the Estonian Exclusive Economic Zone (EEZ) based on appropriate fishing licenses and to land the fish in Estonian designated fishing harbours/ports.

The other EU countries national Electronic Reporting System (ERS) data based map layers presenting the trawling tracks (time, coordinates), corresponding catch composition by species (kg) and landing in Estonian fishing harbours/ports (in tons) can be regarded as the EU other country planning evidence to present fishery interests of that country in Estonian EEZ.

It is important to add that fishing is regulated by CFP and the national Fishing Acts and the role of MSP is to allocate the marine space suitable for environmentally sustainable and economically feasible fishing operations based on a CFP principle of equal access to the fishing waters. At the same time Estonia has the obligation to properly enforce these EU fishing vessels equal access rights under the EU CFP regulation in a course of actual MSP processes.

### **7.2 Latvia**

The data format to present other countries fishing interest in Latvian MSP will preferably follow the national process where a sample representing 70% of the landings is selected within the timeperiod 2004-2013. In the current status of national MSP data from four main fish species catches (sprat, herring, cod and flounder) and fishing fleets (demersal trawlers,

pelagic trawlers, demersal gillnetters) from other countries could be included to identify the main fishing grounds.

### **7.3 Sweden**

Based on the current process of updating maps of Swedish fishery sector, SWAM view the criteria presented in 4.3.2 as the ideal structure also for neighboring countries to contribute their fishery interest in the Swedish MSP. The criteria (Listed from A-D in 4.3.2) includes spatial aspects of fishing methods, economics and logistic needs in the sector and aims to put a flexible strategic perspective for the future based on historic patterns of Swedish fisheries. With a coherent approach from all countries around the Baltic in representing their fishery interest will help the MSP process in all countries to identify important common fishing grounds and ports for different segments and improve the ability to secure and develop fishery in the Baltic Sea for a future fleet regardless of national distribution.