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## Implementation of an assignment to test the implementation of fisheries management measures that correspond to a relocation of the Swedish trawl border in the Central Baltic Sea and the Gulf of Bothnia.

Report on government assignment, progress report #2.

By a government decision of 19<sup>th</sup> of May 2022, the Swedish Agency for Marine and Water Management (SwAM) has been assigned to implement a time-limited scientific project that corresponds to a relocation of the Swedish trawl border for vessels fishing for small pelagic species in the Baltic Sea, in order to evaluate effects on the biomass of the herring stocks, as well as their size, stock and age structure. The project is to be carried out in several designated study areas in the management areas for herring in the Central Baltic Sea and the Gulf of Bothnia and involve all vessels, regardless of flag, that have fishing rights in these areas. SwAM must therefore, within the framework of the project, carry out the necessary consultations with the concerned EU Member States, relevant stakeholders and, if necessary, with the European Commission.

The assignment is a priority at the agency and has brought together the administration of fisheries management and marine environmental management, which contributes to strengthening the implementation of an ecosystem-based marine management and supporting the goal of “a marine environment in balance and flourishing coastal areas and archipelagos” as well as sustainable use in accordance with the Swedish maritime strategy.

According to the government assignment, the agency must submit a progress report on the implementation of the assignment to the Government Offices of Sweden (Ministry of Rural Affairs and Infrastructure) no later than the 30<sup>th</sup> of November 2022, and annually from April 2023. SwAM must then present a final report on the assignment to the Government Offices of Sweden no later than 30<sup>th</sup> of April 2027. SwAM hereby submits a second progress report on the implementation of the assignment.

The work has been intensified since the first progress report reported on the 30<sup>th</sup> of November 2022. Ongoing and planned work has been put into concrete actions in this second progress report. The work of collecting and analysing scientific data has to a large extent been finalized. A scientific report for further internal preparation of proposals for fishery management measures

within designated study areas is will be delivered the 5<sup>th</sup> of May 2023. The scientific report has been compiled based on a comprehensive data call for fisheries data to all EU Member States around the Baltic Sea. Finland, Estonia, Lithuania, Poland and Denmark have provided data in accordance with the data call. In total, the data received corresponds to 100 percent of the fishing opportunities for herring in the Gulf of Bothnia and 96.7 percent of the fishing opportunities for herring in the Central Baltic Sea.

SwAM has informed all the EU Member States around the Baltic Sea about the government assignment. A scientific committee has been established within the assignment and each Member State around the Baltic Sea have been given the opportunity to propose suitable national candidates for participation in the committee. The scientific committee consists of researches from Sweden, Denmark and Poland with a background in various scientific disciplines and aims to assist the agency with expert knowledge in relevant scientific disciplines during the implementation of the assignment.

During the months of May and June 2023, the work enter an intensive phase with internal preparation of proposals for fisheries management measures in appropriate study areas, as well as the formulation of proposals for scientific design and ongoing follow-up. In parallel, SwAM is preparing to carry out initial consultations with the scientific committee, with concerned EU Member States and with national stakeholders. The plan is still that the implementation of the scientific project is to be decided for implementation by the end of 2023 and that implementation will commence with the fishing season in 2024.

The decision in this case has been taken by Director General Jakob Granit after consultation with the senior analyst Jens Persson. Head of department Mats Svensson, head of unit Inger Dahlgren and Fredrik Lindgren, senior analyst Max Vretborn, Fredrik Palm and Norbert Häubner and process manager Viktoria Johansson have also participated in the final processing.

Jakob Granit

Jens Persson

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## 1 Summary

The implementation of the time-limited scientific project, corresponding to spatial management for vessels fishing for small pelagic species in the Baltic Sea, is being performed by the Swedish Agency for Marine and Water Management (SwAM) in accordance with the assignment description from the government. Since the delivery of the first progress report on the 30<sup>th</sup> of November 2022, the ongoing work has been intensified and the planned work has been put into concrete actions and to some extent adjusted. The work of collecting and analysing scientific data has to a large extent been finalized. A scientific report for further internal preparation of proposals for fisheries management measures within designated study areas is planned to be delivered the 5<sup>th</sup> of May 2023. The work has been delayed by approximately two months compared to the original time plan. The delay is mainly a consequence of the process of formulating the data call and collect fisheries data from relevant Member States that required more time than expected. In some cases, additional processing of incoming data was required in direct communication with the Member States concerned. As a consequence, the subsequent analysis and compiling the evaluation based on received data was delayed. The agency does not consider this to affect the implementation and time plan as a whole and still have high ambitions for an effective implementation and that the scientific project will be decided by the end of 2023, to be implemented prior to the fishing season in 2024. During the months of May and June 2023, the agency will work intensively on internal preparations to analyse potential proposals for designated study areas and subsequent fisheries management measures within these areas, as well as proposals for the scientific design and continuous monitoring and evaluation of the scientific project. As the process is partly dependent on international and national consultations, these processes are planned to be carried out partly in parallel.

Implementation will make use of ongoing work in related processes and assignments, including the pilot areas in the Stockholm archipelago and the southern Gulf of Bothnia within the project for ecosystem-based marine management in Sweden (measure number 44 in the Action Programme for the marine environment 2022-2027 in accordance with the Marine Environment directive), implementation of the joint strategy between the Swedish Board of Agriculture and SwAM for future fishing and aqua culture as well as other projects and assignments that are relevant for the assignment.

The Implementation will be carried out in 5 phases, with phases 1 to 3 covering:

- a) preparing and sending a data call to the EU Member States concerned and to collect and compile data and knowledge to support the analyse of proposals for designated study areas, including subsequent fisheries management measures in time and space as part of the scientific project.
- b) decide on a Scientific Committee to support the design and follow-up of designated study areas.
- c) nominate and decide on designated study areas including relevant fisheries management measures, as well as determining the scientific design for follow up and evaluation of these measures based on deliveries specified in the assignment. This work will be taken place in parallel with an ongoing consultation in the form of ad hoc meetings with the concerned EU Member States, to achieve a general agreement on drafting and implementation of the scientific project.

Phase 4 will comprise the operational implementation of the scientific project, including monitoring and follow up, while phase 5 will comprise analysis of the data collected and evaluation of deliveries specified in the assignment, including recommendations for fisheries management measures and measures that are non-fisheries related.

A detailed description of the scope of the phases with a tentative time plan for their implementation is described in section 3.1.

## 1.1 Current progress

- As part of the assignment, the agency has decided on an agreement with the Swedish University of Agricultural Sciences, Department of Aquatic Resources (SLU Aqua). The aim of the assignment is to assist with scientific support. The deliveries will include compilation and analysis of landings from vessels, regardless of flag, that have fished for herring in the Swedish exclusive economic zone in the Central Baltic Sea (SD 25-27, 28.2, 29, 32) and the Gulf of Bothnia (SD 30-31). These deliveries will represent part of the basis for further analyses of proposals of fisheries management measures in appropriate designated study areas.
- In accordance with article 17.3 of the Regulation (EU) No 2017/1004 of the European Parliament and of the Council<sup>1</sup>, the agency has sent a data call to all EU Member States around the Baltic Sea to collect scientific data on vessels that have fished for small pelagic species in the Baltic Sea (ICES area 25–31 excluding the Gulf of Riga) during the period 2012–2021. The request was motivated by the fact that Sweden is planning a time-limited scientific project to develop and test spatial management in the Swedish part of the Central Baltic Sea and the Gulf of Bothnia. Since the seabed topography is complex and possible spawning aggregations are expected to be associated with changes in bathymetry, the request concerned a comprehensive datacall, i.a. including anonymised detailed VMS data for vessels fishing for small pelagic species in the Baltic Sea. Finland, Estonia, Lithuania, Poland and Denmark provided data in accordance to the request. This corresponds to 100 percent of the decided fishing opportunities for herring in the Gulf of Bothnia and 96.7 percent of the decided fishing opportunities for herring in the Central Baltic Sea. Latvia and Germany have not provided data in accordance with the request, partly due to provisions regarding data protection and difficulty to ensure confidentiality due to small number of vessels. Latvia and Germany together account for 3.3 per cent of the total quota for herring in the Central Baltic Sea and the fishery is expected to be of minor importance for the analyse of potential designated areas. There is also a certain amount of herring fished by Russian vessels in the Central Baltic Sea within Russian territorial waters. Russian catches are not included in the joint EU quota, but an autonomous quota for Russian catches, corresponding to 9.5 percent is deducted from the total fishing opportunities before the joint EU quota is decided.
- All the EU Member States around the Baltic Sea have been informed about the assignment from the Swedish government to the agency by means of a written procedure. The information indicated, among other things, that Sweden intends to

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<sup>1</sup> Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008

implement the project in designated areas in the Swedish EEZ within the management areas for the Central Baltic Sea and Gulf of Bothnia, with the intention of including all vessels regardless flag. Furthermore, SwAM explained the background and purpose of the assignment and that the project also must consider, among other things, geographical and regional differences with the aim of continuously evaluating the extent to which the herring stocks are affected by other environmental and climate-related factors, as well as predation from fish, birds and seals to strengthening knowledge about various causal relationships to support an adaptive ecosystem based management.

- Together with information about the assignment, each EU Member State concerned were given the opportunity to propose appropriate national candidates for participation in the scientific committee established by the agency within the project. The committee consists of independent national and international experts from various scientific disciplines. Proposals for candidates to participate in the committee were received from Denmark and Poland. The candidates from Denmark and Poland have confirmed their participation in the scientific committee in conjunction with the formal establishment of the committee.
- The scientific committee has been formally established and consists of scientists from Sweden, Denmark and Poland with backgrounds in various scientific disciplines that relate to the implementation of the assignment. The primary purpose of the committee will be to assist the agency with expert knowledge in relevant scientific disciplines in accordance with the terms of reference (see section 4.1). A first introductory meeting with the scientific committee is planned in May 2023. The introductory meeting will be followed up by a workshop to discuss the scientific basis and possible proposals for experimental areas for the implementation of the scientific project. The workshop is planned to take place in Gothenburg, 14–15 June 2023.
- SLU Aqua is currently working on completing the first scientific report, which will represent an important part of the basis for the continuing preparation of proposals for suitable designated study areas with subsequent fisheries management measures. The delivery will be presented as an update of the scientific report (SLU.aqua.2022. 2022.5.5-46) which was delivered as a basis for the reporting of the 2021 governmental assignment to investigate how fishing regulations can be developed to protect stocks of coastal spawning herring in the northern Central Baltic Sea (serial no. 1:2021). The delivery will thus include supplementary information that relates to all parts of the management areas for herring in the Gulf of Bothnia and Central Baltic Sea. Based on the data call to the concerned EU Member States, the scientific report will include compilation and analysis of fishing operations in 2012-2021 for all vessels, regardless flag, that fished for pelagic species within the Swedish EEZ. The scientific report will also include information about a number of biological criteria that is assumed to be potentially important in the analyse and preparation of proposing fisheries management measures in the designated study areas, including information about the fishing pressure in different areas, potentially important over-wintering areas, knowledge about migration from previous marking studies, genetic population structure, areas indicating accumulation of herring, as well as the possibility to monitor and evaluate the outcome of the scientific project.

Delivery of the scientific report from SLU Aqua is planned to the 5<sup>th</sup> May 2023. The agency will then organise a seminar to inform national stakeholders about the ongoing

and planned processes of the assignment. During the seminar stakeholders will be given the opportunity to receive information about data and analyses that will form the basis for the continued preparation of proposals for fisheries management measures in designated study areas.

- In addition to biological criteria, the agency is also working on identifying and defining other criteria that may affect the implementation of the project. Including economic, social and socio-economic effects, as well as the possibility of monitoring all of the deliveries defined in the assignment, including effects of climate, environment, seals and birds and the effects of other fish species. Together with the delivery from SLU Aqua, the work will form the basis for the internal preparation of designing proposals for fisheries management measures in the defined study areas as part of the scientific project. In the work, the agency uses other ongoing processes, projects and assignments to strengthen the implementation of the scientific project regarding ongoing data collection, follow-up and evaluation of defined deliveries.
- To ensure an effective implementation of the assignment, it will be essential to establish consultations with concerned EU Member States, other stakeholders and, where relevant, the European Commission. Consultations with concerned EU Member States has been partially initiated by sending written information about the assignment as well as the background and purpose. For the Gulf of Bothnia, SwAM has had an initial communication with Finland regarding forms of consultation and national efforts for scientific monitoring of the development of the herring stocks. To ensure an open and transparent process, the agency plans to invite the EU Member States that are expected to have a direct management interest in the potential study areas to a first pre-consultation meeting. SwAM then expects to continue the consultation as needed in the form of ad hoc meetings, with the aim to reach an agreement on the implementation of the scientific project, including scientific design and legal basis for a decision on designated study areas with subsequent fisheries management measures. In the Gulf of Bothnia, where only Sweden and Finland have fishing opportunities for herring, the processes are expected to be carried out primarily through bilateral dialogue with Finland. In the Central Baltic Sea, where all the EU Member States have fishing opportunities, the consultation will involve more Member States. Consequently, SwAM does not exclude that the work may be handled as separate processes for the Gulf of Bothnia and the Central Baltic Sea. Legal basis to implement the project and thereby regulate vessels that fish for pelagic species in the proposed designated study areas will be adapted after consultation and dialogue with the concerned EU Member States, based on the process that is expected to be most effective, according to the assignment and the implementation of the scientific project. Prior to the consultations, reconciliations will be made with the Government Office of Sweden (see section 2.4.1). The process is expected to run partly in parallel with the internal work of preparing proposals for fisheries management measures in potential study areas and is described in more detail in section 3.1. During this process, supporting documents will be prepared as a basis for the proposals and stakeholders will be given the opportunity to provide input.
- A new agreement with SLU Aqua has been initiated to provide the agency with area-specific scientific data linked to proposals for designated study areas with subsequent fisheries management measures, including analyses of fisheries data from all Member

States concerned. These analyses will be necessary to provide information prior to the national and international consultations in order to describe proposals for fisheries management measures in suggested study areas, including the reasons for these measures with the best available scientific advice as support, as well as analyses of consequences and planned monitoring and evaluation of effects within the scientific project.



## 2 The assignment and its preparation

### 2.1 Background

Herring is one of the most important species in the Baltic Sea food web and for a functioning ecosystem. To ensure both sustainable fishing and a healthy ecosystem it is important to implement measures to reverse the negative development that has been observed in Swedish coastal areas, including declining trends in age and size structure, as well as in biomass and abundance of herring. The negative trends have been most evident during the last decade and are particularly pronounced for herring over 18 cm in the Bothnian Bay. The decline of mainly large herring in these areas is also supported by a significant decline in herring catches reported by coastal fishermen<sup>2</sup> since the coastal fishery mainly target larger individuals.

Stocks of herring in the Baltic Sea are managed in accordance with the Common Fisheries Policy. EU has exclusive competence when it comes to the conservation of marine resources under the Common Fisheries Policy e.g. with respect to TAC and quotas, multiannual plans and technical regulations. Each Member State has the possibility to decide on more stringent national measures and allocate available fishing opportunities according to certain criteria.

In 2021 SwAM decided on analyses and subsequent measures regarding increased protection of herring in the Central Baltic Sea and in the Gulf of Bothnia (serial no. 301–2021). The background to the analysis and measures taken was the declining trends that had been observed in the stock of herring in the Central Baltic Sea. This applied primarily to a decline in condition and growth, but also to reduced catches and a reduction in numbers of herring in coastal areas. In the analysis, SwAM decided on a number of measures that included both increased scientific knowledge and concrete management measures. Part of this work has been included in the government assignment that was reported by SwAM to the Swedish government in spring 2022 aiming to investigate how measures can be developed to protect coastal spawning herring stocks in the northern Central Baltic Sea (Ices subdivision 27 and 29). In the report, the agency summarized three types of proposed measures regarding; fisheries management measures that result in reduced fishing mortality, fisheries management measures in time and space, as well as an overview of measures targeting the Baltic Sea ecosystem as a whole. Even though the assignment specifically referred to Ices subdivision 27 and 29, the agency assessed that the proposals were relevant also to other parts of the Baltic, including the Gulf of Bothnia<sup>3</sup>.

SwAM has worked in all of the areas that have been identified regarding improved scientific knowledge. During 2022, the agency has continued an assignment on genetic analysis of the herring stocks to identify occurrence of different genetic spawning components along the Swedish Baltic Sea coast. Further, agreements have been decided to analyse and compile scientific knowledge on the effects of pharmaceuticals on growth and production, as well as climate effects on the commercial fish stocks. In addition, legal investigations have been ordered and also carried out internally, to investigate possibilities for implementing national measures as well as joint EU measures within the framework of the marine environment directive and the

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<sup>2</sup> PO Gulf of Bothnia coastal fishing. 13 February 2022. Report on the decline of Baltic herring fishing in the Gulf of Bothnia.

<sup>3</sup> Report on government assignment to investigate how fishing regulations can be developed to protect the coastal population of herring in the northern Baltic Proper, serial no. 1-2021

Common Fisheries Policy. This knowledge is of great relevance for the implementation of this assignment.

## 2.2 Assignment description

By the government decision of the 19<sup>th</sup> of May 2022, SwAM has been assigned to implement a time-limited scientific project that corresponds to a relocation of the trawl border for vessels that fish for pelagic species in the Baltic Sea, with the aim to evaluate effects on the biomass of herring stocks as well as their age, size and stock structure along the Swedish coast. The project is to be carried out in several designated study areas within the Swedish economic zone (EEZ) in the management areas for herring in Central Baltic Sea and Gulf of Bothnia. The aim is to include all vessels with fishing rights in these areas, regardless of flag. SwAM must therefore, within the framework of the project, carry out the necessary consultations with the concerned EU member states, stakeholders and, if necessary, with the European Commission.

For these areas, SwAM should scientifically monitor and analyse the effects of the fisheries-related management measures on the herring stocks in terms of the development of biomass, stock and population structure. The designation of the areas shall take into account geographical and regional differences in order to continuously evaluate how and to what extent the development of herring stocks is affected by other environmental factors, as well as predation from fish, birds and seals. This will be performed to strengthen the knowledge of causal relationships in accordance with an adaptive ecosystem-based management. Further, the evaluation shall include effects on other fish species, socioeconomic effects, as well as the economic and social consequences for the fisheries and the fish processing sector. The analyses shall also take into account other management measures and other causal relationships that may influence the outcome and evaluation of the project.

Fisheries management measures within the designated study areas shall be evaluated during the implementation of the project and cease no later than 30<sup>th</sup> of April 2027. Based on these analyses, the final report should contain proposals for any subsequent fisheries management measures or measures that are non-fisheries related. In each of the designated study areas, SwAM should be able to allow some limited commercial fishing. Such fishing opportunities could be given in regards to research activities, small-scale fishing and fishing that is of local or regional importance and fishing for direct human consumption. However, fishing is only to be permitted if it is not considered to jeopardize the purpose of the scientific project. The final report should include analyses of the consequences of such fishing.

In 2023, the government extended the implantation of the ongoing assignment to include the remaining parts of the Swedish territorial sea. The area shall include Ices subdivision 25 to include all management areas for herring in the Baltic Sea, but exclude Halland and Västra Götaland from the assignment. The agency should also continue to carry out the necessary consultations with the concerned EU Member States and, if necessary, with the European Commission. The assignment should include reporting on any consequences. A progress report should be sent to the Government Offices of Sweden (Ministry of Rural Affairs and Infrastructure) no later than April 2023, then annually in April, with a final report no later than 30<sup>th</sup> of April 2027.

Before the Swedish government extended the assignment, SwAM intended to consider all management area for herring along the Swedish coast in the Central Baltic Sea (ICES areas 25–

27, 28.2, 29, 32). The extended assignment is therefore not considered to affect previous performed or planned work within the assignment.

### 2.3 Purpose and objectives

In order to enhance stock development of herring in the Central Baltic Sea and the Gulf of Bothnia as well as promote increased food production and protect coastal spawning stocks of herring, the following impact targets are defined for the project.

Increase knowledge about:

- Fisheries-related management measures that corresponding to spatial management for vessels fishing for small pelagic species in the Baltic Sea as a measure for achieving a positive effect on the herring stocks regarding biomass, as well as their size-, age- and stock structure.
- To which extent the development of herring in terms of biomass and stock structure is affected by environmental factors and predation by fish, birds and seals and in this way increase knowledge of causal relationships.
- Effects of management measures on other fish species and economic and social consequences for the fisheries and fish processing industries.

Provide proposals for:

- Potential fisheries management measures or other non-fisheries related measures based on the results from the scientific project that may lead to permanent measures and long-term sustainable stocks.
- Other national management measures to develop an adaptive ecosystem-based marine management and achieving the goal of a marine environment in balance and flourishing coastal areas and archipelagos.

## 2.4 Dependence and external factors

### 2.4.1 Dependence

A direct prerequisite for the implementation of the assignment, in accordance with the decision from the Swedish government, is that the agency reaches an agreement with concerned EU Member States on the implementation of the scientific project. The process implies that the agency can present supporting documents and sufficient information for the concerned Member States as a basis for consultations. Partly to justify the actual need for implementing a time-limited scientific project as the assignment is formulated, but also to justify proposals for the study areas in which the spatial measures of pelagic fishing in time and space is a part of the implementation and scientific design. Since a number of unforeseen factors may affect these processes, it is currently difficult to predict the time needed, work effort and outcome for these stages.

The implementation is dependent on the available resources and support from researchers to ensure robust scientific support as a basis for arguments and agreements on sufficient information and the scientific design and implementation in the context of national and international consultation.

A successful implementation of the assignment requires stable funding to create good conditions for ongoing follow-up and evaluation within the framework of the scientific project.

#### 2.4.2 External factors

##### Legal framework

The size and age distribution of the stock represent an important indicator for a healthy stock, where presence of large and old individuals contribute to maintaining important ecosystem functions, promoting spawning stocks and recruitment and countering genetic changes of size and age at sexual maturity. According to the objectives of the Common Fisheries Policy (CFP), the CFP shall apply the precautionary approach to fisheries management, and shall aim to ensure that exploitation of living marine biological resources restores and maintains populations of harvested species above levels which can produce the maximum sustainable yield. Furthermore, the CFP shall be coherent with the Union environmental legislation, in particular with the objective of achieving a good environmental status by 2020 as set out in Article 1(1) of Directive 2008/56/EC. Accordingly, Sweden also considers the criteria in the directive regarding age and size structure of the stocks as a target indicator for proposed measures, which also has been incorporated into Swedish legislation through HVMFS 2012:18<sup>4</sup> and the environmental quality standard C3.3<sup>5</sup>.

If EU Member States are to suggest conservation and management measures to be adopted outside their territorial waters, or within their territorial waters that are liable to affect fishing vessels of other Member States, such measures shall be adopted only after consulting the concerned EU Member States. Before an EU Member State proceed with a proposal for conservation and management measures that affects other EU Member States, it is practise that the EU Member State inform about the need for the measure together with supportive scientific documentation on the anticipated effect of the proposed measures. In order introduce measures that are liable to affect fishing vessels of other Member States, SwaM has primarily assessed that regionalisation is preferred, for example by introducing delegated acts according to Article 15 of the technical regulation (EU) 2019/1241. A procedure according to Article 15 results in a joint EU regulation that is available in all EU languages. At the same time, the procedure allows for an adaptive management if new scientific evidence emerges that shows that fisheries management measures need to be changed. In the Baltic Sea, this process is initiated via the regional forum Baltfish, which is represented by all EU member states with fishing opportunities in the Baltic Sea. The work takes place through the development of joint recommendations, which also contributes to a transparent process. Based on previous experience, it is difficult to predict the time required for consultations. Any requirements for new scientific data, together with the formal process before approval of a joint recommendation, can take time as a result of political priorities and changes within individual Member States.

Regarding the legal framework, the agency also has to consider that the implementation of the government assignment refers to a time-limited scientific project, where proposed measures

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<sup>4</sup> The Swedish Agency for Marine and Water Management's regulations (HVMFS 2012:18) on what characterises good environmental status, as well as environmental quality standards and indicators for the North Sea and the Baltic.

<sup>5</sup> Environmental quality standard C3.3 Sustainable use of nationally conserved species; C3 The populations of all naturally occurring fish species and shellfish that are affected by fishing have and age and size structure and a population size that guarantees their long-term sustainability.

target vessels fishing for pelagic species in time and space is a consequence of the scientific design. Lack of scientific data that demonstrates the anticipated effects of the measure complicates the possibility of presenting scientific documentation that supports the anticipated effect of suggested measures. This deviates from the normal procedure when formulating a joint recommendation and adopting delegated acts. Since the scientific project has a limited time frame, it is also important to handle the process efficiently, to decide on the implementation as soon as possible. The application of legal frameworks to implement the project and thereby limit vessels fishing for pelagic species within proposed study areas, may therefore be adapted following the outcome of the consultation with concerned EU Member States, based on the process deemed most effective in relation to the purpose, design and implementation.

A first pre-consultation meeting with concerned EU Member States is expected for the second quarter of 2023, to present supporting information about the background and aims of the scientific project and to exchange knowledge and experience. After that, SwAM anticipates that a number of ad hoc meetings will be needed, to reach an agreement on the implementation of the scientific project. In the Gulf of Bothnia, where only Sweden and Finland have fishing opportunities, the process is expected to be carried out primarily through bilateral dialogue with Finland. In the Central Baltic Sea, where all the EU Member States in the Baltic region have fishing opportunities, the consultation will involve more Member States. In the Central Baltic Sea, Finland and Denmark have access to Swedish territorial waters between 4 to 12 nautical miles outside the Swedish baseline, and therefore have a direct management interest in these areas. Other Member States that have access to areas outside Swedish territorial waters may have a direct or indirect management interest in the proposed study areas, depending on the geographical location of areas, as well as reallocation of fishing efforts and changes in fishing patterns as a direct consequence of suggested measures within each study area. SwAM therefore not exclude that the work may be handled as separate processes for the Gulf of Bothnia and the Central Baltic Sea. Prior to these consultations, reconciliation will be done with the Government Office of Sweden.

#### Situation analysis and sufficient information based on best possible knowledge

Regardless of the process, the agency considers that the establishment of measures have to be in accordance with the best available scientific advice to support an agreement on sufficient information between relevant Member States. Partly to justify and agree on the actual need to carry out a time-limited scientific project according to the assignment, but also to justify and agree on proposals for study areas where measures to restrict vessels fishing for small pelagic species in time and space is a consequence of the implementation and scientific design.

Prior to both national and international consultations, documentation needs to be prepared to describe and justify proposed study areas as well as proposals for fisheries management measures in each area together with anticipated consequences of these measures based on historical fishing activity. In this context, the agency needs to make an assessment of proportionality in relation to the implementation of the scientific project, analyse the need for control measures to ensure compliance and analyse the possibility of conducting certain fishing within each study area without jeopardizing the possibility to monitor and evaluate results of the scientific project. Analysis of the consequences also needs to account for potential effects of changes in fishing patterns and possible relocation of effort to other areas as a direct consequence of proposed measures within each study area.

Since the implementation corresponds to a time-limited scientific project, the presentation of scientific design, monitoring and evaluation will justify the implementation of the project. Based on proposed study areas and measures within each area, the documentation needs to clearly describe the experimental design for scientific evaluation as well as ongoing follow-up and data collection in order to evaluate the possible effects of measures within each area based on all designated deliveries within the government assignment. The following deliverables have been identified and therefore need to be described and considered in the ongoing follow up and evaluation of measures within the scientific project:

- Effects on biomass
- Effects on population structure
- Effects on age and size structure
- Effects of seals and birds
- Effects of climate and the environment
- Effects on other fish species
- Effects of any fishery being performed in the areas
- Effects of other management measures and causal relationships, e.g. the development of fishing mortality within the management areas for herring as a result of annual decisions on TAC and quotas
- Socio-economic effects
- Economic and social effects for the fishing and the processing industry

The implementation will make use of the ongoing work in the two pilot areas in the Stockholm archipelago and the south Baltic in the *Pilot project for ecosystem-based marine management in Sweden* (measure number 44 in the Action Programme for the marine environment 2022-2027) in accordance with the Marine Environment directive. In the pilot project, local parties and researchers are working on various methods to produce site-specific ecosystem analyses in the Stockholm archipelago and the south Baltic Sea. Local interests and researchers have together developed a conceptual model to describe the role of the herring in the ecosystem of the Stockholm archipelago, while a different methodology has been used in the southern Baltic Sea, in which cognitive models of the relationship between different ecosystems have been produced with the support of local interests. These documents will contribute to an increased understanding of proposed management measures and potential effects on the ecosystem and its ability to produce ecosystem services. The validity of these studies will be assessed by the scientific committee.

An extensive knowledge base has been produced within the framework of the initial assessment of the status of the marine environment in 2024, decisions on analyses and measures regarding increased protection for herring in the Baltic Sea and the Gulf of Bothnia, and within previously submitted government assignments to investigate how fisheries management measures can be developed in order to protect coastal spawning stocks of herring in the northern part of the Central Baltic Sea (Ices SD 27-29). Among other things, this includes genetic sampling of herring in both coastal and in offshore fisheries, assessment of bycatch, species composition, climate impact and possible impact from pharmaceuticals on growth and reproduction. There is also ongoing work in the action programme for the marine environment and the jointly decided strategy between SwAM and The Swedish Board of Agriculture for future fishing and aquaculture. Documentation and analyses that are already available at SwAM will be evaluated and relevant information will be taken into account in the further work with the government assignment.

In parallel, several processes, projects and assignments are ongoing within the agency which are of direct relevance to the implementation and follow-up of designated deliveries within the

government assignment. Among others, these include projects on genetic monitoring of the stock structures of herring, pelagic sampling and interactions between coastal and off shore areas. SwAM and the Swedish Environmental Protection Agency are working to monitor effects from ongoing seal hunting and to improve knowledge about the effects of seals and cormorants on the food web and the ecosystem. In work with the marine environment directive assessment of environmental conditions, methods are being developed to assess the size distribution of commercial fish stocks and methods for describing the food web in a more holistic manner. Initial results confirm that the size distribution of herring in the Central Baltic Sea and Gulf of Bothnia is at a historically low level. There are also clear indications for large-scale systemic effects in the Baltic food web, which are reflected in annual variations in the condition of herring, as well as observations of emaciated seals in certain parts of the Baltic Sea.

SwAM integrates the work within related processes, projects and assignments for a broad and cost-effective follow-up and evaluation of the scientific project to develop an ecosystem-based marine management. At the same time, SwAM investigating possibilities for alternative funding to support the implementation of the assignment in the form of ongoing data collection and evaluation of fisheries related measures in relation to defined deliverables.

In the work of implementing the scientific project, the agency will follow the development of the joint statement adopted by the European Commission, Finland, Poland, Latvia, Lithuania and Sweden in connection with the 2022 meeting in the Council (Agrifish) on determining available fishing opportunities for stocks in the Baltic Sea in 2023. Through the joint statement, the European Commission committed to send a request to the ICES to carry out scientific analyses to investigate the reasons for the declining size and age structure of the stocks in the management areas of the Gulf of Bothnia and Central Baltic Sea, as well as identify possible measures to address these problems.

SwAM has also noted information from the European Commission that new calls for scientific studies in fisheries management are planned within the Commission 2022-2023 work program for direct management under the EMFAF. Referring to the joint statement adopted during the meeting in the Council (Agrifish) in October 2022, the European Commission is encouraging scientific institutions within each Member States to submit proposals that particularly relate to herring in the Gulf of Bothnia and Central Baltic Sea, as additional scientific evidence for these stocks is deemed to be very relevant and urgent. The national research institutes are asked to coordinate their applications as far as possible to avoid possible overlaps. SwAM will contribute to disseminate the information when the call is published and use the time-limited scientific project as a platform to encourage and coordinate applications between different research institutions.

In the ongoing work on the time-limited scientific project, the agency will encourage and strive for international collaboration with relevant Member States within planned or ongoing scientific projects. In this context, i.a. Finland has started a scientific project for herring in the Gulf of Bothnia with the aim to investigate interactions between stock dynamics and changes in the food web.

### 3 Plan for implementation

#### 3.1 The project's five phases, as well as completed, ongoing and planned work

The implementation is planned in 5 different phases which are described in more detail in sections 3.1.1 - 3.1.5. After reporting of the first progress report in November 2022, implementation within each phase has been put into concrete actions and adjusted on the basis of completed, ongoing and planned work. As certain stages of the process may be affected by a number of unforeseen factors, it is currently difficult to predict time required to finish each phase. However, the agency presents a tentative time plan for the implementation of each phase in Figure 1. To give an understanding of implementation rate in each phase, completed work is shown as green in the image. Furthermore, it is specified after each point in sections 3.1.1 - 3.1.5 whether the work is completed, ongoing or not started.

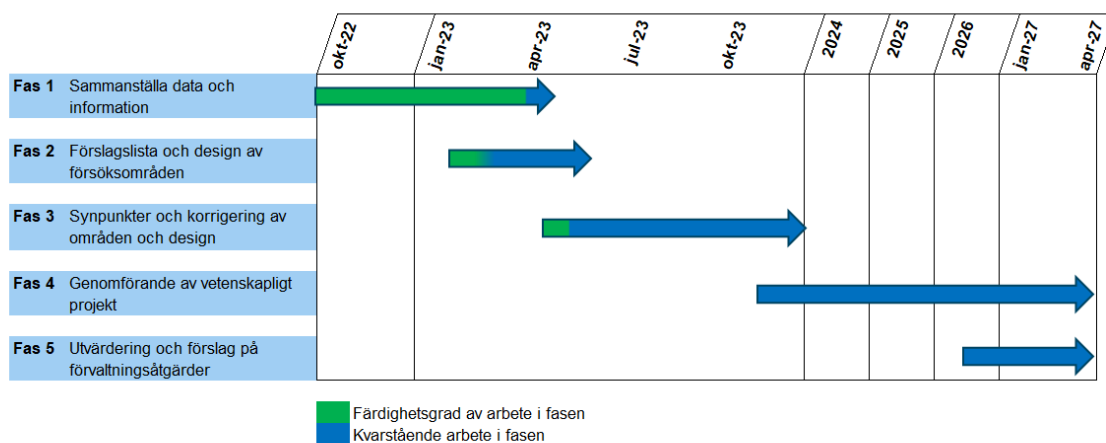


Figure 1. Schedule for implementation of the project's phases with the degree of completion of each phase.

Since the previous progress report, phases 1 and 2 have been postponed in time by about two months. The delay is mainly a consequence of the process of formulating the data call and collect fisheries data from concerned EU Member States that required more time than expected. In some cases, additional processing of incoming data was required in direct communication with the Member States concerned. As a consequence, subsequent analysis and compilation of scientific data based on requested data was delayed. However, the agency does not consider this to affect the implementation and time plan as whole and still have high ambitions for an effective implementation and that the scientific project will be decided by the end of 2023 (phase 3), to be implemented prior to the fishing season in 2024 (phase 4 and 5). During May and June 2023, intensive work is planned with phases 2 and 3. Since work on phase 2 (preparation and formulation of proposals for areas, fishing regulation and scientific design) is partly dependent on processes in phase 3 (consultation on proposed areas, fishing regulation and scientific design), this process is expected to be carried out partly in parallel.

##### 3.1.1 Phase 1

Establish a scientific committee and compile data and information.



## Scope:

- Formulate an agreement with SLU Aqua for delivery of scientific data to be used as a background document to assess and formulate proposals for appropriate designated study areas. *Completed*
- Preparation of datacall and sending the datacall to the relevant Member States. *Completed*
- Delivery and processing of data from other Member States. *Completed*
- Information to all EU Member States around the Baltic Sea about the assignment from the Swedish government to SwAM regarding implementation of a fixed-term scientific project that corresponds to spatial management for vessels fishing for small pelagic species in the Baltic Sea. *Completed*
- Request to all EU Member States around the Baltic Sea to submit proposals for appropriate national candidates for participation in the scientific committee. *Completed*
- Delivery of a scientific report for further preparation of proposals for suitable designated study areas. Updating of the scientific report delivered prior to the reporting on the 2021 government assignment to investigate how fisheries management measures can be developed to protect the coastal stocks of herring in the northern Baltic Proper (serial no. 1:2021). The delivery will include supplementary information that relates to all management areas for herring in the Gulf of Bothnia and Central Baltic Sea. Summary and analysis of landings and fishing operations during the period in 2012-2021 for all vessels, regardless of flag, that fished for small pelagic species in the Swedish EEZ. The scientific report will also include information about a number of biological criteria that is assumed to be potentially important in the analyse and preparation of proposed fisheries management measures in the designated study areas, including information about the fishing pressure in different areas, potentially important over-wintering areas, knowledge about migration from previous marking studies, genetic stock structure, areas indicating accumulation of herring, as well as the possibility to monitor and evaluate the outcome of the scientific project. *Ongoing, delivery planned 05/05/2023*
- Seminar where interested stakeholders are given the opportunity receive information about SLU Aqua's data and analyses. *Ongoing, planned for 17/05/2023*
- Formally establish the scientific committee of national and international experts and formulate terms of references for their work. *Completed*
- Collect and compile data and documentation that is available at SwAM with the aim of using knowledge about e.g., environment, climate, seals and cormorants already generated at the agency. *Ongoing*

## 3.1.2 Phase 2

Prepare and formulate proposals for designated study areas including proposals for fisheries management measures and scientific design for the implementation of the scientific project as well as monitoring, data collection and evaluation based on all designated deliveries within the assignment.

## Scope:

- SwAM prepares and processes proposals for appropriate fisheries management measures within designated study areas based on analyses and documents produced during phase 1. *Not started*
- Drafting of an agreement with SLU Aqua to providing the agency with area-specific scientific data relating to the proposal on designated study areas and subsequent fisheries management measures within each area covering all vessels that fish for small pelagic species, regardless of flag. Data and analyses will represent a subset of knowledge needed for national and international consultation aiming to describe proposed study areas and measures, including justification for these measures in accordance with the best available scientific advice, as well as describing consequences and necessary monitoring and data collection to evaluate effects within the scientific project. *Ongoing*
- Producing supporting background documents for each area as a basis for national and international consultation with relevant stakeholders and EU Member States. This information is needed to describe background and purpose, legal framework, knowledge already available, justification in the form of anticipated/desired effects, area-specific description of the areas (including bathymetry), historical fishing activity within the areas, proposed fisheries management measures, impact assessment, assessment of proportionality and possibility to carry out certain fishing within the areas, potential effects of changes in effort allocation, need for control measures as well as description of scientific design and follow up, including plans for monitoring and data collection to evaluate the outcome of the scientific project according to the assignment. The material also needs to include analyses of anticipated socio-economic effects and economic and social effects for the fishery and processing industries. *Ongoing*
- The scientific committee scrutinises available analyses and data and comments on proposals for areas. *Not started*
- The scientific committee scrutinises and comments on proposals for scientific design, as well as plans for how the study will be scientifically monitored and evaluated. *Not started*

### 3.1.3 Phase 3

National and international consultations and possible correction of areas and scientific design based on proposed study areas including proposals for fisheries management measures and scientific design for the implementation and follow-up of the scientific project.

Scope:

- Pre-consultation meeting with the concerned EU Member States that are expected to have a direct management interest within potential study areas to ensure an open and transparent process. The meeting aims, among other things, to inform about the assignment in detail and present supporting information about the background and purpose as well as exchange knowledge and experiences. *Not started*
- Ongoing consultation in ad-hoc meetings with concerned EU Member States to reach agreements on sufficient information as well as the implementation and design of the scientific project based on the proposals and documents that are prepared and presented as a basis for the scientific project. *Not started*
- Ongoing information and consultation with relevant stakeholder groups (including the Baltic Sea Advisory Council, BSAC) and, if necessary, with the European Commission to

obtain opinions based on the proposals and documents that are prepared and presented as the basis for the scientific project. *Ongoing*

- Formal process both nationally and for the EU Member States concerned based on the legal framework applied to implement fisheries management measures within each study area as a part of the scientific project. *Not started*
- Formal decision and adoption of the scientific project implementation based on the legal framework that is applied. *Not started*

#### 3.1.4 Phase 4

Implementation of a time-limited scientific project that corresponds to spatial management for vessels fishing for small pelagic species in the Baltic Sea.

Scope:

- Implement the scientific project based on established scientific design and decided plan for scientific follow-up, including ongoing collection of information and data with the aim of evaluating management measures in the areas based on all designated deliveries within the assignment. The identified deliveries are shown in section 2.4.2 - *Situation analysis and sufficient information based on best possible knowledge*. *Not started*

#### 3.1.5 Phase 5

Evaluation and proposals for further management measures.

Scope:

- Process, analyse and evaluate the collected data and compile results and knowledge from evaluation of fisheries management measures in the areas on the basis of designated deliveries within the assignment. *Not started*
- Final reporting with proposals for any fishing regulation and/or other non-fisheries related measures based on the results of the above analyses and compilations. *Not started*

### 3.2 Project deliveries

The project will run until April 2027 and a progress report on the implementation of the assignment must be submitted annually in April to the government office of Sweden. The final report should include analyses and results from the scientific project to be submitted to the government office of Sweden no later than 30<sup>th</sup> of April 2027. Based on these analyses, the final report should include proposals for any subsequent fisheries management measures or measures that are non-fisheries related.

## 4 Organisation

The process manager and project managers will form the management and control of the project. The project managers are responsible for three different work teams (consultation and dialogue, scientific basis and stakeholder collaboration). Decisions are made after presentation to the steering group and director general.

### 4.1 Scientific committee

As part of the implementation of the assignment, the agency has appointed a scientific committee with representation from national and international independent experts from various scientific disciplines related to the project. SwAM has sent a request to all the EU Member States around the Baltic Sea and given them the opportunity to submit proposals for national candidates to support the work within the committee. Proposals were received from Poland and Denmark and these candidates have also confirmed their participation before the formal establishment of the committee. The committee consists of eight scientists from Sweden, Denmark and Poland with competence primarily in fish ecology and system ecology.

The purpose of the scientific committee is to create a transparent process to continuously provide the agency with collective expert assessments based on a broad scientific competence in accordance with the terms of reference during the implementation of the assignment.

According to the established terms of reference, the scientific committee is tasked with:

- a) Scrutinise working documents and scientific material that is used to justify and issue proposals for fisheries management measures in the proposed study areas
- b) Scrutinise, analyse and comment on proposals for the spatial measures
- c) Scrutinise and comment on proposals for monitoring programs and/or programs to follow up the scientific project
- d) Discuss and propose improvements in the monitoring programme and/or follow up programmes during the course of the project
- e) Discuss, scrutinise and comment on the final recommendations and proposals for any subsequent fisheries management measures or measures that are non-fisheries related, based on the results of the scientific project

A first start-up meeting with the scientific committee is planned during the month of May 2023 to inform about the assignment, background and purpose, as well as the terms of reference that has been decided by the Swedish government. The start-up meeting will include both civil servants from SwAM and the appointed experts in the committee. SwAM will assist the committee as secretariat, while the work within the committee is planned to be led by an appointed chairman decided by SwAM. The chairman is responsible for providing the committee members with available documents deemed necessary to carry out the work in accordance with the terms of reference. The documents and recommendations that the committee submits must be based on the committee's overall assessment and presented together with supporting information as the basis for the committee's considerations and positions. The next step is a workshop planned for the end of June in which the committee is expected to scrutinise the study areas that SwAM will propose and the data on which the proposal is based.

## 5 Stakeholder involvement

The implementation of the project requires significant collaboration with all relevant stakeholders. SwAM will carry out the government assignment in a transparent process aiming to clearly describe the process, communicate how the work is developing and give relevant stakeholder organisations opportunity to submit their views on the proposed areas as well as relevant scientific data and impact assessments as a basis for these proposals.

SwAM will organise a first meeting on the 17<sup>th</sup> of May 2023 to present a detailed description of completed, ongoing and planned work within the assignment. At the same time, stakeholders will be given the opportunity to receive information about the scientific data that will form the basis for the work in appointing proposals for study areas and subsequent fisheries management measures. When the agency has formulated its proposals for measures within each study area, further stakeholder meetings will be arranged with the aim of informing about the proposals and giving all concerned stakeholders the opportunity to submit their views. After that, it is anticipated that there will be a need for further ad hoc meetings to inform stakeholders about the consultation with the relevant EU Member States and any adjustment of the areas and measures that may arise during the work before the implementation is decided.

SwAM has carried out a stakeholder analysis and has compiled a list of stakeholders who are expected to be affected by the project and/or have an interest in the implementation of the project:

- The scientific committee
- Member States concerned (EU)
- The European Commission
- The Swedish Government (Ministry of Rural Affairs and Infrastructure)
- Baltic Sea Advisory Council (BSAC)
- Swedish Pelagic Federation PO (SPFPO)
- Sveriges Fiskares Producentorganisation (SFPO)
- Producentorganisationen Kustfiskarna i Bottenhavet (PO Kustfiskarna)
- Norrbottens kustfiskares PO
- Sveriges fiskares PO
- Fiskbranschens Riksförbund (FR)
- Local fishing organisations
- Sportfiskarna
- Swedish Coast Guard
- National scientific institutions with research related to fisheries management, environment and climate.
- International scientific institutions with research related to fisheries management, environment and climate, including DTU Aqua in Denmark and Luke in Finland
- Swedish University of Agricultural Sciences (SLU)
- The Swedish Board of Agriculture
- County administrative boards along the Baltic Sea coastline
- Municipalities in relevant areas
- Swedish Armed Forces
- World Wildlife Fund (WWF)
- Swedish Society for Nature Conservation (SNF)
- The media and the general public
- Other fishing organisations that do not have any activities in the Gulf of Bothnia or Central Baltic Sea

## 6 Communication and reporting

The scope and subject matter of the assignment are of great interest to several different stakeholders. It is important that the agency keep all interested parties informed about the progress and the implementation of the project. There is also great public interest in the assignment. It is therefore important to reach a well-established dialogue with relevant stakeholders and EU Member States about the background, purpose, proposals of areas and methods. The agency has appointed a part-time communicator for the project and has drawn up a communication plan to keep this work going. It is important that SwAM has an ongoing communication with stakeholders to ensure that relevant information is obtained and that all interested parties are informed about the implementation of the project.

SwAM has established an external website where information about the assignment, implementation and relevant documents can be found. This page will also be continuously updated. Information of particular importance or interest will be published on SwAM's website. Links to these sites:

- SwAM's external website for the government assignment:

<https://www.havochvatten.se/om-oss-kontakt-och-karriar/om-oss/regeringsuppdrag/regeringsuppdrag/uppdrag-att-pa-prov-genomfora-fiskeriforvaltningsatgarder-som-motsvarar-en-utflyttning-av-tralgransen-2022.html>

- SwAM's website:

<https://www.havochvatten.se/en>