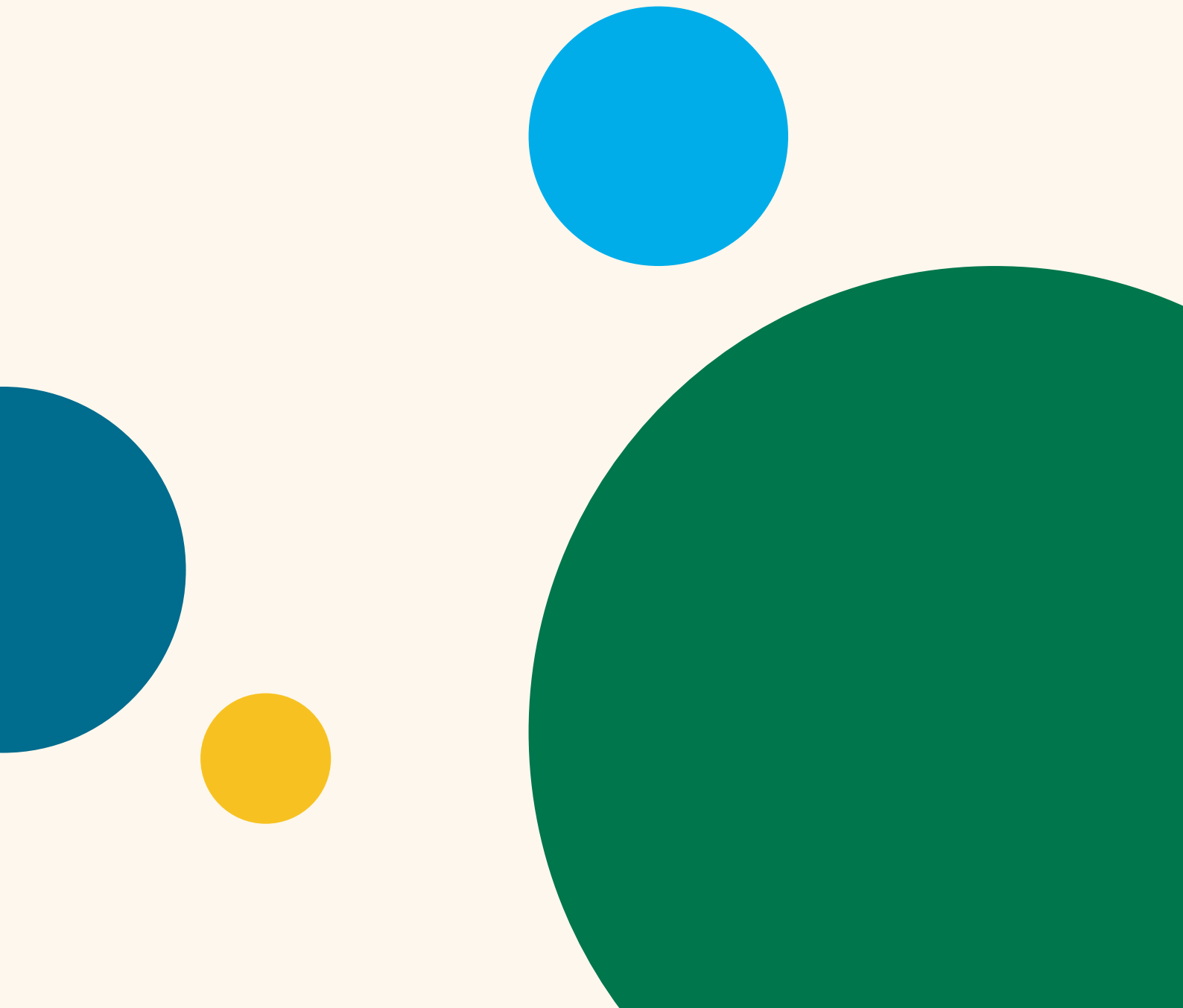


Organisation and governance of Swedish eel management



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Foreword

The European eel is a critically endangered species, with few signs of recovery despite many years of restoration efforts. Conservation work is a long-term endeavour, but there is a need to review the efficacy of past and present management practices. Therefore, Formas has been commissioned by the Swedish government to evaluate the Swedish management of European eel.

Swedish eel management exists in a European context. Management needs to adhere to European law, but also to consider conditions that apply in Sweden and in countries around the Baltic, which also influence the possibilities to identify conservation actions for eel.

In this report, we present an overview of **organisation** and implementation of eel management in Sweden. The report also introduces the most important actors, decisions and policies that have shaped development during the past two decades. The report is intended to present the most important aspects of Swedish eel management to an international audience, and in particular to the scientific panel that Formas has appointed for the evaluation.

Johan Kuylenstierna

Director General, Formas

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Summary

The Swedish Government has tasked research council Formas to carry out an international evaluation of Sweden's management of the European eel. According to the government's remit, the evaluation should be conducted by an independent panel of international scientists. Formas has produced this background report to provide information to the evaluation panel in understanding how Swedish eel management is regulated, organised and governed.

Organisation of eel management

The legal basis of Swedish eel management comes from the European Council's regulation from 2007, known as the Eel Regulation (Council Regulation (EC) No 1100/2007 of 18 September 2007). With the Eel Regulation as a basis, in 2008 the Government approved an eel management plan. Responsibility for the implementation of the measures proposed in the plan rests with the Swedish Agency for Marine and Water Management, SwAM, which is responsible for monitoring results, evaluating and reporting in accordance with the Eel Regulation. To enable follow-up and evaluation of implemented measures, SwAM is primarily supported by the Swedish University of Agricultural Sciences, SLU.

Prior to 2007, work with the European Eel Regulation and the Swedish Eel Management Plan was the responsibility of the Swedish Board of Fisheries. The Board was also tasked with developing the fishing industry and conducting research on fish and fishing. When SwAM was established in 2011, the Board was disbanded. The activities of the Swedish Board of Fisheries were divided between SwAM, which was given responsibility for regulating and supervising fishing, the Swedish Board of Agriculture, which was given responsibility for developing the fishing industry, and SLU, which was given responsibility for research on fish, fisheries and aquatic ecosystems.

Several international organisations work on issues related to eels that indirectly impact Swedish eel management. The International Council for the Exploration of the Sea (ICES) has, through their recommendations, a significant influence over eel management in Europe and Sweden. ICES provides scientific advice to the European Commission on eel stocks, the management of the fishery and other anthropogenic factors affecting stocks.

The Swedish Eel Management Plan

The objective of each national Eel Management Plan, as expressed by the European Eel Regulation "*shall be to reduce anthropogenic mortalities so as to permit with high probability the escapement to the sea of at least 40 % of the silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock*". It is, however, very difficult to accurately estimate the level of silver eel escapement from Swedish coastal and fresh waters without human-caused mortality. This is partly due to a lack of basic data on potential production per area in the coastal waters. Considering this lack of dependable data, the Swedish Board of Fisheries chose to formulate a short-term goal: that 90 per cent of the potential production of silver eels in Swedish waters shall survive and be allowed to migrate to the sea.

The Swedish Eel Management Plan includes four main types of measures:

- reduction of the fishery;
- improved possibilities for downstream migration (reduced turbine mortality);
- stocking of glass eels and elvers;
- control.

The Eel Regulation stipulates that the effects of implemented measures through the national Eel Management Plan must be reported to the Commission every three years. Sweden's latest report is from 2024. SLU carries out these evaluations on behalf of SwAM. In its evaluations, SLU divides eel areas into the West Coast, inland waters and the East Coast.

For the *West Coast*, SLU concludes that there is no mortality from fishing as fishing has been banned since spring 2012.

For *inland waters*, SLU's conclusions are that:

- eel stocks do not reach the Eel Regulation's minimum level;
- human-caused mortality exceeds the minimum threshold for recovery; and
- these negative effects will continue to increase unless additional safeguards are instituted.

Researchers have access to larger and better data sets today compared to when stocks were estimated in the Eel Management Plan of 2008. SLU therefore recommends that the Eel Management Plan for inland waters be reviewed and that the latest stock estimate be incorporated.

For the *East Coast*, the results indicate that the impact of fishing on escapement is decreasing rapidly over time. However, the Swedish fishery is only one of the anthropogenic effects that impact Baltic eel stocks. There is no joint estimate of stocks in the other countries surrounding the Baltic Sea. Thus, estimates of the biomass of silver eels have a high degree of uncertainty. SLU therefore recommends conducting an integrated stock estimate for the entire Baltic Sea.

Criticism of eel management

A prominent criticism of Swedish eel management and the Eel Management Plan is that they do not comply with ICES advice that all fishing should cease. With a lack of reporting and lack of knowledge about stocks and replacement conditions, ICES argues that a precautionary principle should apply, which means that no eel fishing should occur in European waters. This also applies to the fishing of glass eels. Regarding other human impacts, such as hydropower, ICES argues that these should be minimised and eliminated where possible.

Measures aimed at reduction of the fishery

A general ban on eel fishing in the sea and most inland waters has been in place since 2007. However, there are exceptions from this general ban, and limited commercial fishing is permitted both in the sea and in inland waters. In addition to a fishing license, commercial eel fishers must have an eel fishing permit, which is issued by SwAM. Since 2008, no new permits have been granted. This means that the number of permits continuously decreases as fishers leave the industry. It is also permitted to fish for eels in certain inland waters without a permit, but no

catches may be sold. Such fishing involves waters far up in the catchments, where it is considered unlikely that eels will reach the coast through downstream migration.

Prohibition periods for eel fishing

From 2017, the Council of the European Union introduced annual prohibition periods for eel fishing. The prohibition covers eel fishing in all life stages in EU waters and adjacent brackish waters, as well as with Member State fishing vessels in international waters. The prohibition does not apply to eel fishing in inland waters. Up until 2023, each Member State has been required to define a continuous prohibition period of three months between August and February. Prohibition periods are regulated by an EU regulation and are thus directly applicable as law in Sweden. SwAM is responsible for decisions on and implementation of the prohibition.

Up until 2022/2023, the prohibition period was November through January. The 2022/2023 prohibition period was October through December. For 2022/2023, the EU regulation required Member States to ensure that the prohibition period was introduced during the months when the eel migration peaks. This formulation tightened the regulation compared to regulations from previous years.

For the 2023/2024 period, the EU has decided that commercial European eel fishing in all life stages is to be prohibited for one or more periods of at least six months. In the Baltic Sea, the prohibition period may be introduced as a continuous period of six months between 1 March 2023 and 31 March 2024, or as multiple prohibition periods totalling six months.

For the 2023/2024 period, SwAM has decided that all eel fishing in the sea is prohibited during the period 1 October 2023 to 31 March 2024. SwAM states that the current EU regulations allow for greater flexibility compared to the previous year's regulations, as the prohibition period would be introduced during the months when the migration of eels is at its greatest. The regulations now state that the Member States must consider eel migration patterns. SwAM's assessment assumes that the prohibition period should primarily begin during the period when the spawning migration is greatest in areas from which eels have the greatest opportunity to escape from the Baltic Sea. A prohibition period from October to March means that fishing is expected to be affected to the same extent as earlier. This is as eel fishing is not conducted anyhow during the months of January to March.

Measures to improve possibilities for downstream migration

The mortality rate for silver eels when migrating downstream through hydropower turbines is high, over 90 per cent according to the Eel Management Plan.

The Eel Management Plan highlights the voluntary measures that the hydropower industry, in collaboration with the Swedish Board of Fisheries, have undertaken to reduce turbine mortality. A strategy and goals for this were adopted in 2010 in a declaration of intent between the Board and six of the largest hydropower companies.

The declaration of intent specified four methods for reducing mortality:

- building fish passages past dams;
- low-impact operation of turbines or stop of turbines during peaks in silver eel migration;
- assisted downstream migration by trap and transport past one or several dams;
- compensatory measures, such as restocking.

The strategy was to start with quickly implementable measures while working on implementing more permanent solutions, such as fish passages. To implement the measures in the declaration of intent, the *Krafttag ål* programme was started. The programme's measures prioritised downstream trap and transport of silver eels past hydropower facilities and restocking of glass eels and elvers.

In Sweden, the Land and Environment Courts regulate hydropower. There is now a national plan for applying modern environmental regulations to hydropower. In the next twenty years, the intent is for most Sweden's hydropower plants and regulating dams to be issued modern environmental licenses from the Land and Environment Courts. Currently, only a small number of hydropower dams are operated under modern environmental licenses. Many large power plants are still regulated according to the 1918 Water Act.

In January 2023, the Government decided to suspend the relicensing process for one year. The Government justified this decision by saying that Sweden is in an energy crisis with high electricity prices while society's rapid electrification requires increased electricity production. In 2024, the Government prolonged this suspension for another 13 months, until July 1st, 2025.

Restocking of glass eels and elvers

SwAM is responsible for the regulations governing restocking and movement of fish. Eels brought into the country must be quarantined in a manner approved by the Swedish Board of Agriculture. Sweden and Finland are the only EU members states that require eels to be quarantined prior to restocking. The reason for this is that Sweden is free from a few diseases that eels can carry, diseases that might transfer to other species of fish.

The government-funded program for restocking glass eels and elvers was discontinued in 2020. Whether restocking will resume is currently being investigated by the Government Offices. Krafttag ål has continued coordinating the restocking program, funded by the power companies who are members of the program. However, in 2024 eels imported from France were found to be infected with Infectious Pancreatic Necrosis (IPNV), a notifiable disease. As a result, the decision was made by SwAM the eels were not allowed to be used for restocking.

Control measures

SwAM has the overall responsibility for fishery control. The Coast Guard has an operational monitoring mission for the fishery. It is also responsible for implementing fishery controls at sea and in lake Vänern and lake Mälaren. An important difference between SwAM and the Coast Guard is that SwAM is responsible for managing the fishery while the Coast Guard is a law enforcement agency. SwAM and the Coast Guard estimate illegal eel fishing as extensive.

Swedish eel management – a chronological overview

Tabell 1. Significant steps in the development of Swedish eel management.

2007	Sweden introduces a general ban, with some exceptions, on eel fishing at sea and in most inland waters.
2007	The Eel Regulation is adopted by the EU.
2008	The Government adopts the Swedish Eel Management Plan
2009	The EU approves Sweden's Eel Management Plan.
2009	The European eel is included in the CITES Convention's list of threatened species.
2010	Declaration of intent between the Swedish Board of Fisheries and six hydropower companies on voluntary measures to reduce turbine mortality.
2011	The Krafttag ål-programme is formed.
2011	The Swedish Agency for Marine and Water Management is established while the Swedish Board of Fisheries is disbanded.
2012	Eel fishing ban is introduced on the Swedish West Coast.
2012	First report to the European Commission on measures implemented as per the Swedish Eel Management Plan.
2014	The current regulation for the EU common fisheries policy enters into force.
2015	SwAM presents an analysis of the need for revising the Eel Management Plan.
2016	Traceability requirements are introduced for all first-hand recipients and wholesalers who trade in eels from the sea.
2017	The EU decides on annual prohibition periods of three months for eel fishing.
2020	The Government adopts a national plan for modern environmental regulations for hydropower through consideration in the Land and Environment Courts.
2020	Government funded programme for restocking of eels is temporarily stopped.
2021	ICES recommends a total ban on all eel fishing in European waters.
2022	SwAM is tasked with developing a voluntary programme for the purchase, transport and release of eel fishery catches.
2023	The Government decides to suspend hydropower relicensing processes for their environmental regulations for one year.
2023	The EU decides to extend the eel fishing prohibition period to six months.
2024	The government assigns The Swedish Agency for Marine and Water Management with revising the national eel management plan and investigate the conditions for allowing a new generation of eel fishers by enabling the transfer of eel fishing permits.
2024	Sweden's latest report to the European Commission on measures implemented according to the Eel Management Plan.
2024	The government decides to prolong the suspension of the hydropower relicensing processes for their environmental regulations for another 13 months.

1 Sweden and the eels

1.1 Background

The European Council adopted in 2007 a regulation for the recovery of European eel stock, known as the Eel Regulation.¹ Based on the Eel Regulation, Member States have developed national eel management plans. The Swedish management plan was approved by the European Commission in September 2009. The Swedish Agency for Marine and Water Management (SwAM) is the agency responsible for Swedish eel management.

After an external evaluation in 2020, the European Commission concluded that the Eel Regulation is still relevant and a suitable instrument to help recovery of eel stock.² At the same time, the evaluation states that there are no signs of recovery, despite long-term measures. The Commission also believes that implementation of the Eel Regulation needs to focus more on measures that are not related to fishery.

Against the background of the Commission's conclusions and the recommendations of the International Council for the Exploration of the Sea (ICES) aimed at protecting the eel, the Swedish Government commissioned research council Formas to carry out an international evaluation of Sweden's management of the European eel.³

In January 2024 the Swedish government gave a remit to the Agency for Marine and Water Management, SwAM, to revise the Swedish Eel Management Plan to identify and introduce appropriate measures that can simultaneously improve evaluation and follow-up. Furthermore, SwAM should also evaluate the effectiveness of eel restocking and its possible contribution to the spawning population as a continued conservation measure. The report of the assignment shall account for the possibilities of limited small-scale fishing for eel. They should also investigate the conditions for allowing a new generation of eel fishers by enabling the transfer of eel fishing permits. On revising the management plan, SwAM should consider results from the evaluation by Formas.

1.2 Implementation

This report has been produced to provide background to the international panel for the evaluation that they are tasked to carry out by Formas. The main sources are material from SwAM and the Swedish University of Agricultural Sciences (SLU), such as decisions on regulating fishing and support measures, follow-up of results, and evaluations and reporting as per the Eel Regulation. We have also analysed material from the ICES and the Joint EIFAAC/ICES/GFCM Working Group on Eels, WGEEL.

Supplementing information comes from interviews with representatives of SwAM, county administrative boards, the Coast Guard, SLU and Stockholm University. An interview was also

¹ Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel

² European Commission 2020. *Commission staff working document, executive summary of the evaluation of Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for recovery of the stock of European eel SWD (2020) 36 final.*

³ Näringsdepartementet 2022, *Uppdrag att genomföra en internationell utvärdering av svensk förvaltning av europeisk ål*. Dnr. N2022/01282.

conducted with a former employee of the Swedish Board of Fisheries and SLU. An important purpose of the interviews was to gain in-depth knowledge on the historical development of Swedish eel management.

Documents have been chosen to provide an overview of the regulation, organisation and management of Swedish eel management. The material was then sorted based on the Swedish eel management plan's four main areas for measures: reduction of fishery, improved possibilities for downstream migration (reduced turbine mortality), stocking of glass eels, and control.

1.3 Report draft consultation

Representatives of SwAM were given the opportunity to provide comments on a draft of chapters 2 through 7, and representatives of SLU provided comments on relevant sections. A draft of the report was reviewed by Fredrik Larson, Västra Götaland county administrative board.

2 Organisation and governance of Swedish eel management

The legal basis of Swedish eel management is the European Council's regulation from 2007, the Eel Regulation.⁴ Based on the Eel Regulation, the Swedish Government in 2008 approved an Eel Management Plan.⁵ The plan was then approved by the European Commission in September 2009. The Swedish Agency for Marine and Water Management, SwAM, has responsibility for the implementation of the measures proposed in the plan. SwAM is also responsible for following up results, evaluating and reporting in accordance with the Eel Regulation.⁶ Formally speaking, these three bodies – the EU, the Swedish government and SwAM – have the main responsibility for Swedish eel management. As is so often the case, however, reality is more complicated than it may first appear. Relationships can be complex and there are many more stakeholders who want to, and sometimes can, influence Swedish eel management.

2.1 The EU common fisheries policy

Commercial fishing in the sea is regulated through the EU common fisheries policy. The EU has exclusive competence in enacting laws relating to the conservation of the marine biological resources. The EU fisheries policy is based on the basic regulation that regulates fishing in the Union's waters and fishing with Member State vessels occurring in international waters and in third-country waters.⁷ The Member States may only introduce their own regulations after authorisation from the EU or to implement the Union's acts.

The common fisheries policy was established in the 1970s and has been revised several times over the years. The current regulation for the common fisheries policy entered into force on 1 January 2014. The overarching objectives of the current policy include to:

- ensure that fisheries and aquaculture resources are environmentally sustainable and managed in a manner consistent with the objectives of achieving economic, social and employment benefits as well as contributing to food security;
- apply the precautionary approach in fisheries management and ensure that living marine biological resources are used in such a way that the populations of harvested species are restored to, and maintained above, levels that ensure a maximum sustainable yield (MSY). By 2020, MSY must have been achieved for all species;
- implement an ecosystem approach in fisheries management, to ensure that the negative impact of fishing activities on marine ecosystems is minimised, and strive to ensure that fishing and aquaculture do not lead to a deterioration of the marine environment;

⁴ Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel.

⁵ Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Ref. no. Jo2008/3901.

⁶ SSFS: 2021:190. *Förordning om ändring i förordningen (2011:619) med instruktion för Hans- och vattenmyndigheten*.

⁷ Regulation (EU) No. 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No. 1954/2003 and (EC) No. 1224/2009 and repealing Council Regulations (EC) No. 2371/2002 and (EC) No. 639/2004 and Council Decision 2004/585/EC.

- gradually eliminate discards, on a case-by-case basis, taking into account the best available scientific advice, by avoiding and reducing unwanted catches as much as possible and by gradually ensuring that catches are landed;
- promote coastal fishing, while weighing socio-economic aspects.⁸

2.2 Swedish public management system

The Swedish public management system is, formally and organisationally, independent in relation to the Government and the Government Offices. The management system also implies two limitations in the direct political control of the management. One of the limitations follows from the fact that the Government uses collective decision-making. This means that Swedish cabinet ministers cannot decide questions alone, as opposed to their colleagues in other ministry-organised countries. The direct governance of the management therefore takes place via collective government decisions. This occurs formally at weekly government meetings. The second limitation is that the Government may not decide on matters relating to the exercise of authority by agencies or the application of the law. In summary, the Swedish system means that agencies have a high degree of independence.

2.3 The Swedish Board of Fisheries previously responsible for eel management

Before 2007, when work with the Eel Regulation and the Swedish eel management plan began, the Swedish Board of Fisheries was responsible for eel management in Sweden. When the authority structure was reorganised, the Swedish Board of Fisheries was disbanded in connection with the creation of SwAM in 2011. The work of the Swedish Board of Fisheries was divided up, with regulation and control of fisheries assigned to SwAM, the developing of the fishing industry assigned to the Swedish Board of Agriculture, and research on fish, fishing and aquatic ecosystems transferred to the Swedish University of Agriculture (SLU). Unlike the Swedish Board of Fisheries, SwAM is also an administrative authority in environmental issues. The Swedish Environmental Protection Agency's previous responsibility for the protection, conservation, restoration and sustainable use of aquatic environments and species now rests with SwAM.

In some respects, the Swedish Board of Fisheries had a more complicated mission than SwAM has today, as the Board had to balance the wishes from the fishing industry and need for development with the mission of protecting fish stocks. The strong position of the fishing industry on the Swedish Board of Fisheries is evident in the fact that representatives of professional fishing organisations and parliamentarians from fishery-dependent counties were present on the Board already at its founding in 1948 and until the 2000s.⁹

From entry into the EU in 1995, the Swedish Board of Fisheries had to follow the EU's common fisheries policy, which at that time had overall objectives clearly aimed at promoting the fishing industry. Thus, the Board tasked to participate in the work of developing the Eel Regulation and developing the Swedish eel management plan also had the task of developing the fishing industry.

⁸ SwAM2020. *Uppdrag att utreda och föreslå hur fiskerikontrollen kan förstärkas*. Dnr 3792-19, p.11, and written information from Sofia Brockmark, SwAM.

⁹ Ask, L., Gustavsson, T., & Westerberg, H. 2015. *Varför har fiskeriförvaltningen inte varit lyckosam?*. Aqua reports, (2015: 14). p.36.

This mission is today not assigned to SwAM, but rather the Swedish Board of Agriculture. The Swedish Board of Fisheries was also tasked with research within the same organisation, which naturally meant that the research had more direct contact with the management.

2.4 SwAM and SLU

In addition to the responsibility for implementing the Swedish Eel Management Plan, SwAM is also responsible for following up results and evaluation of the plan. Formally, the Government is responsible for reporting to the European Commission.

To enable follow-up and evaluation of implemented measures, SwAM needs support from researchers, primarily contracted through SLU. Thus, SLU has a key role in the work with the management plan.

Within SLU, the Department of Aquatic Resources, SLU Aqua, conducts assignments from SwAM. SLU Aqua reports research results and knowledge advances in two report series – *Aqua reports* and *Aqua notes* – as well as in a service called *The Fish Barometer*.¹⁰ The Fish Barometer describes the state and trends of a large number of fish stocks and shellfish in the sea, along the coast and in the four large lakes Vänern, Vättern, Mälaren and Hjälmaren. The report series includes the evaluations of the Swedish Eel Management Plan conducted by the department on behalf of SwAM. The researchers at SLU Aqua are also regularly active internationally in eel management, including in the working committee WGEEL (further described in section 2.5).

Currently, SLU has four assignments from SwAM on management of eels. One is a comprehensive project called the Eel Management Plan, which is largely linked to the evaluation of the plan conducted every three years. In the intervening years, the researchers work on updating and improving their analysis models, and other research tasks. In 2023, SLU worked on developing supplementary and improved methods for data collection that are independent of eel catches from fishing.¹¹

Another major project is part of the EU-wide Data Collection Framework (DCF).¹² Within the framework of DCF, Member States collect, manage and share data and statistics from commercial fishing, recreational fishing and aquaculture. This programme works with several other commercially important fish species in addition to eels.¹³ The collected material within the framework of DCF is used by ICES, among others.

Two additional assignments task SLU with evaluating the restocking of glass eels and the benefits of artificial downstream migration of silver eels by trap and transport. These assignments are reported in more detail in Chapters 5 and 6.

The division of roles between management and research, which was unclear at the time of the Swedish Board of Fisheries, has been gradually clarified in the relationship between SwAM and SLU. SwAM is responsible for eel management and SLU's role is to provide SwAM with scientific data for the agency's conclusions and reporting. However, work to clarify the separate roles is still ongoing.

¹⁰ Swedish University of Agricultural Sciences, *Fiskebarometern*.

¹¹ SwAM 2023. *Överenskommelse mellan HaV och SLU gällande vetenskapliga råd och underlag för genomförande av nationell förvaltningsplan för ål*. Dnr. 01454-2023.

¹² European Commission, *Data Collection Framework - DCF*.

¹³ Conversation with Josefin Sundin, SLU Aqua.

An example is the annual resource and environmental overview that SwAM presents using data from SLU. Until this year, SLU has submitted proposals for measures. From 2023, SLU only describes the state of knowledge in the digital Fish Barometer, without submitting any proposals.

2.5 International organisations with influence on Swedish eel management

Several international organisations work on issues related to eels that indirectly impact Swedish eel management. Through its recommendations, the International Council for the Exploration of the Sea (ICES) has the greatest influence over eel management in Europe and Sweden. ICES is a network of nearly 6,000 researchers from 20 member countries. The organisation produces research and recommendations aimed at supporting sustainable use of the world's oceans. Information and advice from ICES is requested by various member countries, other international organisations and even international commissions, such as the Oslo-Paris Commission, OSPAR, and the Helsinki Commission, Helcom. OSPAR is a regional convention for protecting the environment in the North-East Atlantic. This includes the North Sea, the Skagerrak and parts of the Kattegatt. Helcom is a regional environmental convention for the Baltic Sea area, including the Kattegat.

ICES provides scientific advice to the European Commission on eel stocks, the management of fisheries and anthropogenic factors impacting stocks. The types of advice from ICES are described in an agreement between the Commission and ICES. According to this agreement, ICES provides the Commission with estimates of catches and recruitment. ICES also explains the quality and availability of the data and whether there are methodological problems and gaps in knowledge.¹⁴

The work within ICES is conducted by several committees and working groups. The Science Committee (SCICOM) oversees the scientific work and the Advisory Committee (ACOM) provides advice on fisheries and marine ecosystems. Both SCICOM and ACOM have expert groups, steering committees, advisory groups and reviewers.

SwAM coordinates the Swedish staffing of ICES expert groups. The agency consults with authorities, organisations, universities, and ministries to find suitable experts. The Ministry of Climate and Enterprise then nominates the Swedish experts. SwAM requests brief meeting reports from all expert groups with Swedish participation.

The Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL) is a joint expert group for the European Inland Fisheries and Aquaculture Advisory Commission (EIFAAC), the General Fisheries Commission for the Mediterranean (GFCM) and ICES. EIFAAC and GFCM are UN agencies under FAO.

WGEEL conducts an annual assessment of the entire stock of European eel. The expert group also reports on new and significant scientific findings related to eels. WGEEL develops the scientific basis for the recommendations that ICES provides. From WGEEL, ICES requests information on stock parameters, landed catches, recruitment and various time series, for example for silver eel escapement.¹⁵ Currently, WGEEL has just over 100 members, of which four are from Sweden.

¹⁴ ICES. 2021. *Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL), and Country Reports 2020–2021*. ICES Scientific Reports. Report. p.3

¹⁵ ICES (2021). *Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL), and Country Reports 2020–2021*. ICES Scientific Reports. Report. p.3.

It is not a given that the conclusions and advice reached by WGEEL will be confirmed by ICES. This is most apparent when it comes to bans on eel fishing, where for many years ICES has recommended a total or almost total ban. WGEEL has not agreed with this recommendation. In recent years, however, WGEEL's conclusions have been in line with ICES recommendations and have been published as advice from ACOM. It should be emphasised that WGEEL participants are nominated as independent eel experts, and not as representatives of a particular country. This means that the researchers' recommendations can differ from the political decisions that are then made in the various countries.¹⁶

¹⁶ Conversation with Josefin Sundin and Håkan Wickström, SLU Aqua.

3 The Eel Regulation and the Swedish Eel Management Plan

3.1 The Eel Management plan as per the Eel Regulation

Although the decline in eel stocks has been both continuous and significant since the 1980s, it was not until the beginning of the 2000s that the EU began working more actively to protect the eel stock and help its recovery. In October 2003, the European Commission presented a recovery plan. The Council of Ministers then asked the Commission to draw up proposals for long-term management of the European eel. In November 2005, the European Parliament adopted a resolution asking the Commission to legislate on measures for the recovery of the eel stock.¹⁷ In 2007, the EU then adopted the Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel.

Introducing similar administrative measures for all EU Member States was considered initially, including common minimum catch sizes and no-fishing periods. However, such measures proved difficult to implement as Member States did not consider management challenges to be the same across countries and areas. EU therefore chose to formulate a common long-term goal, where it was then up to each Member State to implement measures adapted to national needs.¹⁸

The goal that the EU set in the regulation was based on advice produced by ICES in 2000. ICES highlighted the need to implement a protection programme for eels. The Council also recommended that mortality caused by fishing should be reduced to the lowest possible level until a conservation programme had been decided upon.¹⁹ ICES stated two years later the limited scientific knowledge about eel stocks made it impossible to develop specific reference levels. ICES proposed aiming for a spawning biomass equivalent to 30–50 per cent of the original level. The percentage range was presented as an expression of a precautionary principle, based on the uncertainty that existed about eel stocks and recruitment.²⁰

The target as expressed in the Eel Regulation is formulated as follows:

The objective of each Eel Management Plan shall be to reduce anthropogenic mortalities so as to permit with high probability the escapement to the sea of at least 40 % of the silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock. The Eel Management Plan shall be prepared with the purpose of achieving this objective in the long term.²¹

¹⁷ Svedäng, H. and Gipperth, L., 2012. *Will regionalisation improve fisheries management in the EU? An analysis of the Swedish eel management plan reflects difficulties.* *Marine Policy*, 36(3), p 803.

¹⁸ SwAM 2015. *Sveriges nationella älförvaltningsplan. Havs- och vattenmyndighetens analys av behovet att revidera den nationella förvaltningsplanen för äl.* p.11-12.

¹⁹ Ibid. p.12.

²⁰ ICES. 2002. *Report of the ICES Advisory Committee on Fishery Management, 2002.* ICES Cooperative Research Report, Vol. 255. p. 391–399.

²¹ Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for recovery of the stock of European eel. Article 2, p.4.

According to the regulation, Member States may use three different methods to establish the reference level of 40 per cent of original production: data collected during the most appropriate period before 1980, habitat-based evaluation of the potential eel production without anthropogenic mortality factors, or data from similar river system ecologies and hydrologies.²² Today when we talk about an eel stock unaffected by anthropogenic factors, the average production in the 1970s is often used as a reference level, that is, the years before the stock's major decline began.²³

The management plan is to include measures to achieve, monitor and verify the established reference level. Member States decide which measures are taken based on local and regional conditions.²⁴ The regulation gives examples of measures that can be taken, including reduced commercial fishing, restocking of glass eels, improving and creating nurseries, downstream transport of silver eels past migration barriers, and temporary shutdown of hydropower turbines.²⁵ The regulation also notes that each Member State must take appropriate measures as soon as possible to reduce mortality caused by factors other than fishing, such as hydropower turbines, if this is required for the targets of the plan to be achieved.²⁶ The effect of the implemented measures of the plan are to be reported to the European Commission every three years. After the first three reports, the reporting interval is extended to every six years. The first reporting date was June 2012. The reporting for each Member State is to include:

- a) the proportion of the silver eel biomass that escapes to the sea to spawn, or the proportion of the silver eel biomass leaving the territory of that Member State as part of a seaward migration to spawn, relative to the target level of escapement;
- b) the level of fishing effort that catches eel each year, and the reduction effected;
- c) the level of mortality factors outside the fishery, and the reduction effected;
- d) the amount of eel less than 12 cm in length caught and the proportions of this utilised for different purposes.²⁷

The 2012 Swedish report reported estimates of:

- a) Biomass for the current escapement. Current level of silver eel migration with current recruitment and human-caused mortality.
- b) Biomass for potential escapement. Silver eel escapement that would occur with current recruitment but without human-caused mortality.
- c) Biomass for the original escapement. Silver eel escapement that would occur with historical recruitment level but without human-caused mortality.
- d) Biomass for the total human-caused mortality. The human-caused mortality in relation to the potential silver eel escapement.²⁸

²² Council Regulation (EC) No 1100/2007 of 18 September 2007. *European Council 2007. Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for recovery of the stock of European eel.* Article 2 p.5.

²³ SwAM 2019. *Hur ett frivilligt program för återköp av ålfiskerättigheter kan införas i Sverige. Redovisning av Regeringsuppdrag.* Dnr 2584–2019, p.12.

²⁴ Council Regulation (EC) No 1100/2007 of 18 September 2007. *European Council 2007. Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for recovery of the stock of European eel.* Article 2 p.7.

²⁵ *Ibid.* Article 2 p.8.

²⁶ *Ibid.* Article 2 p.10.

²⁷ *Ibid.* Article 9 p.1.

²⁸ Dekker W. 2012. *Assessment of the eel stock in Sweden, spring 2012.* Aqua reports.

3.2 The evaluations from the 2012 reports

The Commission asked ICES to evaluate, based on the 2012 report, what had been achieved within the national eel management plans. In June 2013, ICES presented its evaluation. In the report, ICES emphasises that several countries did not report all the requested data, which means that it was not possible to estimate how the measures contributed to the recovery of the eel stock.²⁹ Sweden was the only country that reported all requested data in relation to the reference level. In general, only a few Member States reported data directly linked to implemented measures and their contribution to increased silver eel escapement relative to the target level. A large part of the reported measures was related to fishing limits. ICES concluded that reporting was generally inconsistent, with great variation in structure, data quality and content. ICES therefore proposed an increased standardisation and coordination of data collection, analysis and reporting prior to the 2015 report. However, at the time, the Commission did not initiate efforts to achieve this.³⁰

In October 2014, the European Commission presented its evaluation of the results reported in the Member State management plans. The Commission found that the implementation of the Eel Regulation was greatly delayed. Several countries submitted their proposed management plans well after the set deadline. Like ICES, the Commission emphasised that the effect of individual measures cannot always be demonstrated because important data is missing or that the measures are expected to have an effect only in the long term. Against this background, the Commission considered that the results of the implemented management plans could not be evaluated in relation to the Eel Regulation's goal of 40 per cent escapement in relation to the original level. Nor was it possible to evaluate the results of measures within specific management areas and their contribution to the recovery of the entire eel stock.³¹

The Commission did not propose a revision of the Eel Regulation. Responsibility for the implementation of the regulation continued to lie with the individual Member States through the work with their national eel management plans. However, the Commission made several recommendations to improve and streamline implementation. This included the recommendation that Member States adopt a precautionary approach in their measures until there is reliable evidence of a continuous increase in recruitment and spawning stock. The Commission also emphasised the importance of continuing to evaluate the impact of restocking and its contribution to silver eel escapement.³²

3.3 The European Commission's latest evaluation of the Eel Regulation

The European Commission also conducted an evaluation of the Eel Regulation for the years 2018–2019.³³ The Commission found that the regulation was still relevant, but that implementation needed to be improved. According to the Commission, mortality caused by fishing had decreased, but further efforts are needed to reduce anthropogenic mortality through factors other than fishing.

²⁹ SwAM 2015. *Sveriges nationella älförvaltningsplan. Havs- och vattenmyndighetens analys av behovet att revidera den nationella förvaltningsplanen för äl.* p.15.

³⁰ Ibid. p.14–15.

³¹ Ibid. p.17–18.

³² Ibid. p.18.

³³ European Commission 2020. *Commission staff working document, executive summary of the evaluation of Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for recovery of the stock of European eel SWD (2020) 36 final.*

3.4 The Swedish Eel Management Plan

It is only possible to give rough estimates of historic silver eel escapement from Swedish coastal and fresh waters without human-caused mortality. An important reason for the lack of exact figures is that a large portion of eels in Sweden today live in coastal waters where there are no fundamental data on potential production per area.³⁴ There is also a lack of common stock estimates for the countries in the Baltic Sea region, which means that estimates of migrating silver eel from the Baltic Sea area in relation to the total potential production have very large uncertainties.³⁵ In the absence of accurate data, the Board of Fisheries used data produced in other contexts and with other purposes. The Board assumed that the catch is proportional to the population size and that fishing mortality was the same now as in the past. In this way, they estimated a total historic silver eel escapement of 10.5 million eels annually. Furthermore, the Board estimated that a reasonable historical recruitment level gave an average silver eel production of 0.8 eels/ha. Based on this estimate, the Board calculated a total silver eel escapement of at least 4.4 million eels, taking into account artificially drained lakes and consequently reduced distribution of fresh water. In summary, the Swedish Board of Fisheries concluded that the historical reference level was between 4.4 and 10 million silver eels. The objective of the Eel Regulation is at least 40 per cent of silver eels likely reaching the sea. Based on the Swedish Fisheries Agency's estimates, this meant between 1.8 and 4 million silver eels. According to the management plan, the total possible silver eel escapement was 2.9 million.³⁶

The above figures were based on rough estimates and plausibility assessments. In the absence of reliable figures, the Swedish Board of Fisheries chose instead to formulate another target in the management plan. The short-term target was 90 per cent of all silver eels that would have naturally been able to be produced in Swedish waters would survive and contribute spawning. This would mean 2.6 million eels.³⁷

The management plan stated that the time for achieving the target depends largely on recruitment of glass eels. Estimates show that a full recovery to historic levels will take approximately 80 years given a complete cessation of all anthropogenic mortality in the entire distribution range.³⁸

The Swedish eel management plan has measures in four main areas:

- reduction of the fishery;
- improved possibilities for downstream migration (reduced turbine mortality);
- stocking of glass eels and elvers;
- control.

³⁴ Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Dnr Jo2008/3901, p.2.

³⁵ Written information from Sofia Brockmark, SwAM.

³⁶ Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Dnr Jo2008/3901, p.2–3.

³⁷ Ibid. p.3.

³⁸ Ibid. p.3.

Measures are intended to allow 90 per cent of all silver eels produced in Swedish waters to survive and contribute to reproduction. A balance equation was formulated to scale, plan and follow up the measures in relation to the goal.³⁹

Tabell 2. Balance equation. The relative size of the measures as per the Eel Management Plan

Balance equation	Number of silver eels	Per cent of production
Natural silver eel production	2,870,000	100
Loss in the fishery before measures 2006	-1,470,000	-51
Loss in hydro turbines before measures	-280,000	-10
Completed stockings	210,000	7
Implemented regulation of fishing	390,000	14
Continued regulation of fishing	550,000	19
Reduction of turbine mortality	140,000	5
Increased stocking	185,000	6
Anthropogenic mortality after measures	-275,000	90

The balance equation assumed potential production and mortality from all influencing factors to be constant over time. In their analysis of the need to revise the management plan from 2015, SwAM stated the balance equation is difficult to apply when the stock is re-estimated. According to SwAM, the original analyses that formed the basis of the target in the management plan were not representative of eels in Sweden as a total. SwAM therefore proposed that the balance equation no longer be used, and the management objective be revised and adapted to nationally updated stock estimates using reference points as per ICES advice.⁴⁰

According to the Eel Management Plan, achieving the 90 per cent target would require an escapement of approximately 550,000 silver eels to allow continued fishing.⁴¹

3.5 SwAM's conclusions about the management plan

The Government tasked SwAM in 2015 with analysing the need for revising the Eel Management Plan. SwAM concluded that the plan did not need a revision. In the analysis, SwAM noted that Sweden had implemented extensive measures since the management plan was adopted in 2009. Meanwhile, the report stated that since there are no stock estimates for the West Coast and several of the implemented measures are expected to have an effect only in the long term, it was currently difficult to determine whether Sweden met the regulation's requirements for the long-term target. SwAM also stated that the eel fishing ban for the West Coast in 2012 achieves the highest possible level of protection for that area. They also argued the impact from Swedish fishing in the Baltic Sea is estimated to be within the scope of the stock's long-term recovery. In inland waters, however,

³⁹ Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Dnr Jo2008/3901 p.5 ; SwAM 2015. *Sveriges nationella ålförvaltningsplan. Havs- och vattenmyndighetens analys av behovet att revidera den nationella förvaltningsplanen för ål*. p.24.

⁴⁰ SwAM 2015. *Sveriges nationella ålförvaltningsplan. Havs- och vattenmyndighetens analys av behovet att revidera den nationella förvaltningsplanen för ål*. p.35–36.

⁴¹ Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Dnr Jo2008/3901 p.50.

the impact from hydropower and fishing is estimated to be far from current minimum levels for the stock's long-term recovery. Because of a lack of international reporting, it is also difficult to determine how nationally implemented measures impact the European eel stock.⁴²

Although SwAM concluded that the management plan did not need a revision, they proposed several measures to strengthen its implementation. SwAM highlighted that the target of at least 40 percent of silver eel surviving downstream passage of hydropower plants was far from being achieved, especially when eels must pass more than one hydropower station. They stated that priority had been given to temporary measures, such as restocking of glass eels and downstream trap and transport of silver eels to the coast. More long-term measures were now needed. SwAM noted that long-term measures should be prioritised in aquatic areas where they are expected to have the greatest possible effect on increased production of migrating silver eels. This includes integrating measures with the continued work within the declaration of intent between SwAM and the hydropower industry (further described in section 5.1). SwAM also suggested that the Government could consider measures to improve the recovery of eel stocks. The agency suggested that the Government could work for regional coordination between Member States around the Baltic Sea to develop joint monitoring programmes, coordinate work with stock estimates and coordinate national protection measures. Against the background of the issues noted about reporting, international coordination and difficulty in determining the effectiveness of national measures at the international level, SwAM also proposed that the Government should consider working to have the Eel Regulation revised. They also proposed the Government to consider streamlining the legal process for renewal of the hydropower plant licenses.⁴³

3.6 The Swedish evaluations of the Eel Management Plan

According to the Eel Regulation, the effects of conducted measures as per the plan are reported to the Commission every three years. After the first three reports, the requirement changes to every six years. However, Sweden has chosen to conduct the fourth evaluation after only three years. SLU provides SwAM with the scientific data used for the report.

Reported development is divided into three geographical areas: the West Coast, inland waters and the East Coast. SLU notes that fishery mortality on the West Coast should be zero (disregarding any illegal catches) since fishing has been banned in this area since spring 2012. The closure of the fishery led to a better survival into larger size classes, and a relative recovery of abundance. However, low intensity of the fishery-independent monitoring programme is insufficient to allow quantified abundance in absolute terms. The current stock biomass is undoubtedly far below the long-term recovery target, and stock surveys indicate that the stock in general is only just recovering after the commercial fishing closure in 2012.⁴⁴

For inland waters, silver eel production has decreased since 1960 from over 500 tonnes per year to less than 300 tonnes. SLU notes that this decrease continues. With the continuous decrease in natural eel recruitment, restocking of elvers has somewhat replaced this source. The inland population now consists of 90 per cent restocked eels. SLU reports that fishing in inland waters

⁴² SwAM 2015. *Sveriges nationella älförvaltningsplan. Havs- och vattenmyndighetens analys av behovet att revidera den nationella förvaltningsplanen för äl.*

⁴³ SwAM 2015. *Sveriges nationella älförvaltningsplan. Havs- och vattenmyndighetens analys av behovet att revidera den nationella förvaltningsplanen för äl,* p.36–43.

⁴⁴ Dekker, W., Van Gemert, R., Bryhn, A., Sjöberg, N. and Wickström, H., 2021. *Assessment of the eel stock in Sweden, spring 2021: fourth post-evaluation of the Swedish eel management.* Aqua reports.

has caught 20-30 per cent of silver eels since the 1980s, while mortality from hydropower has varied from 20 to 60 per cent. SLU summarises: the biomass of the eel stocks in inland waters does not reach the Eel Regulation's minimum level, human-caused mortality exceeds the minimum threshold for recovery, and the negative effects will continue to increase, and the situation worsen if additional protective measures are not introduced. SLU emphasises that, because they now have access to larger and better data sets, the current stock estimate for freshwater differs significantly from the 2008 estimate that was the basis for the Eel Management Plan. According to SLU, the current stock estimate brings into question the suitability of the measures based on the 2008 estimate. SLU therefore recommends that the Eel Management Plan for fresh waters be revised and that the latest stock estimate be incorporated.⁴⁵

SLU states that the results for the East Coast indicate that impacts of fishing are decreasing rapidly, even faster at the end of the 2010s than previously. SLU puts the impact of Swedish fishing on silver eel escapement at 1 per cent. However, the Swedish fishery is only one of the anthropogenic effects that impact Baltic eel stocks. No integrated estimate of stocks in the countries around the Baltic Sea has been made. According to SLU, the current estimate of silver eel biomass is extremely uncertain. It therefore recommends conducting an integrated stock estimate for the entire Baltic Sea eel stock and protective measures coordinated between relevant countries.⁴⁶

3.7 Criticism of the Eel Management Plan

Researcher Henrik Svedäng at Stockholm University has criticised the Eel Management Plan.⁴⁷ The criticism can be summarised as: (1) The plan does not follow ICES advice that all fishing should cease, (2) eel stock estimates are arbitrary and (3) restocking should be stopped and not be a priority measure in the management plan.

ICES' previous recommendations left considerable room for interpretation. They advised that all human activities that cause eel mortality should be reduced or kept as close as possible to zero.⁴⁸ In 2021, however, ICES tightened these recommendations. With a lack of reporting and lack of knowledge about stocks and replacement conditions, the ICES argued that a precautionary principle should apply, meaning that no eel fishing should occur in European waters. This also applies to catching of glass eels. Regarding other human impact, such as hydropower, ICES argues that this should be minimised and eliminated where possible.

Henrik Svedäng has also pointed out that eel stock estimates in the Baltic Sea have not been verified. The size of Baltic Sea eel stocks is uncertain, making it impossible to know fishing mortality as proportion of total mortality rate. Since it is not possible to know whether fishing can be conducted sustainably, the precautionary principle formulated by ICES should apply, according to Svedäng. He argues that SwAM's estimate of how much eel is fished on the East Coast is unreasonably low.

⁴⁵ Dekker, W., Van Gemert, R., Bryhn, A., Sjöberg, N. and Wickström, H., 2021. *Assessment of the eel stock in Sweden, spring 2021: fourth post-evaluation of the Swedish eel management*. Aqua reports.

⁴⁶ Ibid.

⁴⁷ Svedäng, H., 2020. *Fishing ban and more knowledge required to save the European eel*. Policy Brief. Baltic Sea Centre.

⁴⁸ ICES. 2020. *European eel (Anguilla anguilla) throughout its natural range*. ICES Advice: Recurrent Advice. Report.

A 2012 study by Svedäng and Gipperth explores the criticism of Swedish eel management in more detail.⁴⁹ In addition to the above criticisms, the researchers are clear that the conflict between the fishing interests and the conservation and strengthening of eel stocks is unresolved in the management plan because it is written in such a way that the conservation of the eel fishery is seen as just as important as preserving eel stocks.

⁴⁹ Svedäng, H. and Gipperth, L., 2012. *Will regionalisation improve fisheries management in the EU? An analysis of the Swedish eel management plan reflects difficulties*. *Marine Policy*, 36(3), pp.801-808.

4 Measures to reduce fishing

Swedish management of eel fishery rests on the EU common fisheries policy.⁵⁰ The overall Swedish regulation of fishing is found in the Fisheries Act and the Fisheries Ordinance.⁵¹ Fishing can also be regulated through regulations in the Environmental Code.⁵² According to SwAM's guidance for the regulation of fishing in marine protected areas, fisheries legislation should primarily be used to regulate fishing. The Environmental Code could be used when the purpose is to preserve habitats or species and when implementable fishing regulations with the support of the Fisheries Act are not sufficient to preserve these values.⁵³

A fishing license is required for commercial fishing in the sea. Or in the case of commercial fishing without a vessel, a personal license is required.⁵⁴ In Sweden, SwAM is responsible for national regulations for fishing.

4.1 Fishing bans with certain exceptions

Sweden has had a general ban on eel fishing in the sea and most inland waters since 2007, regardless if the water is private or public property.⁵⁵ There are, however, exceptions from this general ban. In addition to a fishing license, professional eel fishers need to have a special eel fishing permit to be annually renewed by SwAM.⁵⁶ Eel fishing without a permit is permitted in certain inland waters, where downstream migration is considered impossible.⁵⁷ In these cases, caught eels may not be sold.⁵⁸

At the time when the Swedish Board of Fisheries was responsible, it was important for the Board that the eel fishing ban was not comprehensive and that continued limited eel fishing would be allowed. If in no other way, this is apparent from a text published on the Board's website in 2007, before the eel fishing ban came into force.

Eel fishing will be banned next year. But only in part. Most professional fishers who are heavily dependent on the eel will be able to continue fishing. This decision is attempted to balance competing interests. In this matter, the interests of the small-scale coastal and inland fishery have been given the greatest weight.⁵⁹

⁵⁰ SFS: 1994:1709. *Lag (1994:1709) om EG:s förordningar om den gemensamma fiskeripolitiken.*

⁵¹ SFS 1994:1716. *Förordning (1994:1716) om fisket, vattenbruket och fiskerinäringen.*

⁵² SFS nr: 1998:808. *Miljöbalk.*

⁵³ SwAM 2013. *Vägledning. Reglering av fiske i marina skyddade områden.*

⁵⁴ SFS 1993:787. *Fiskelag.* Section 29 a.

⁵⁵ FIFS 2004:36. *Fiske i Skagerrak, Kattegatt och Östersjön.* Chapter 3, Section 1; FIFS 2004:37. *Fiske i sötvattensområdena.* Chapter 1, Section 8.

⁵⁶ *Ibid.*

⁵⁷ FIFS 2004:37. *Fiske i sötvattensområdena.* Chapter 1, Section 8. These areas are listed in Annex 6.

⁵⁸ FIFS 2004:37. *Fiske i sötvattensområdena.* Chapter 1, Section 8, item 2.

⁵⁹ SOU 2010:42. *Med fiskevård i fokus - en ny fiskevårdslag.* p.207.

Eel fishing permits are personal and are reassessed annually. The renewal requires the permit holder to have conducted fishing under the permit during the previous year and to have reported all eel catches. There is also an upper limit to how much each any eel fisher may catch, usually 8,000 kg unless otherwise stated in the permit.⁶⁰ Since 2008, no new permits have been granted. Only individuals who already have permits and have used them can be granted a new permit.⁶¹ This means that the number of permits gradually decreases as fishermen retire or choose to stop fishing. However, in the 2024 the government assignment SwAM to consider the possibilities of enabling the transfer of eel fishing permits, which would allow a continuous fishing of eel.

The Baltic Sea

In the Baltic Sea, licensed eel fishing with both static and mobile gear may be conducted either from 1 May to 14 September, or during a continuous period of a maximum of 90 days.⁶² The 90 days must be taken out consecutively and reported to SwAM.⁶³ In southern Kattegat, eel fishing may be conducted for a maximum of 60 days in a continuous period. Just as fishing in the Baltic Sea, the fishing period is to be reported to SwAM.

Like all other commercial fishing in the sea, the catches must be reported according to the current regulations on reporting. Several of these are in SwAM's regulations on the captain's obligations to report and give notice of commercial fishing in the sea (HVMFS 2018:11).

Inland waters

When fishing commercially in inland waters, as with fishing in the sea, a personal eel fishing license is required. This applies regardless of whether the fishing takes place in private or public waters. Like eel fishing in the sea, the permit holder must have used the permit during the previous year to be granted a renewed permit. SwAM can issue exemptions to professional fishers in inland waters when they are engaged in fishing for trap and transport.⁶⁴ Section 6 of the Swedish Board of Fisheries' regulations on fishing in fresh waters FIFS 2004:37 lists the areas exempted from the eel fishing prohibition.

National review groups

With the aim of increasing regional and local participation and the development of an ecosystem-based approach, SwAM has established five national review groups, where the county administrative boards, the Swedish Board of Agriculture and SLU are included together with SwAM. The groups are divided based on appropriate administrative and geographical regions. Their responsibilities include proposing, prioritising and preparing matters related to amending fishing regulations within the

⁶⁰ FIFS 2004:36. *Fiske i Skagerrak, Kattegatt och Östersjön*. Chapter 3, Section 1; FIFS 2004:37. *Fiske i sötvattensområdena*. Chapter 1, Section 8. Annex 7.

⁶¹ SwAM 2015. *Sveriges nationella ålförvaltningsplan*. Havs- och vattenmyndighetens analys av behovet att revidera den nationella förvaltningsplanen för ål.

⁶² FIFS 2004:36. *Fiske i Skagerrak, Kattegatt och Östersjön*. Annex 10.

⁶³ SwAM 2018. *Befälhavares skyldigheter att rapportera och anmäla yrkesmässigt fiske i havet (HVMFS 2018:11)*. Chapter 8, Section 2, item 8.

⁶⁴ FIFS 2004:37. *Fiske i sötvattensområdena*. Chapter 5, Section 2, item 2.

framework of the national fisheries management. They can coordinate revisions of regulations for the areas exempted from the eel fishing prohibition.⁶⁵

4.2 Eel fishers and eel culture

A large portion of sea-based eel fishers have their dominating fishery income from eel fishing. In 2018, two-thirds of eel fishers had at least 95 per cent of their landed value from eels, and about half had 95 per cent eels of their total landed catch measured in weight. Eel fishers in inland waters are not as dependent on eels, as additional species provide profitable catches.⁶⁶

There is a long history of Swedish eel fishing in the Baltic Sea. In SwAM's report on proposing a program for voluntary buyout of eel fishing rights, they discuss the public cultural values connected to eel fishing. According to a 2015 study, the public value of eel fishing is estimated to be higher than the total landing value of eels.⁶⁷ SwAM concludes that eel fishing and its ports have significant value and contribute to increased tourism in coastal municipalities. Hotels, hostels, campgrounds, restaurants and the grocery trade are positively affected by the tourism that results from viable eel fishing.

4.3 Prohibition periods for marine eel fishing

Since 2017, the Council of the European Union has required annual prohibition periods for eel fishing in marine waters. This has been done in connection with the Council's decision on each year's new fishing quotas in EU waters. In 2016 ahead of the Total Allowable Catch, TAC, and quota negotiations, the European Commission proposed a total moratorium on all eel fishing in the EU. However, the proposal did not receive support among Member States, and instead the system of prohibition periods was introduced.⁶⁸

Currently, the prohibition covers eel fishing in all life stages in EU waters and adjacent brackish waters, such as the mouths of rivers, and with Member State fishing vessels in international waters. However, it does not apply to eel fishing in inland waters, since the EU lacks the authority to regulate these fisheries. Until 2023, each Member State had an annual requirement to establish a continuous prohibition period of three months. In the last four years until 2023, the three months had to be during the period of August to February. The conditions of the EU regulations have varied somewhat over the years, which has meant that prohibition periods have also varied.

Prohibition periods are regulated by an EU regulation and are thus directly applicable as law in the Member States. SwAM is responsible for decisions on and implementation of the prohibition. The prohibition period was November through January for the years 2018/2019, 2019/2020, 2020/2021 and 2021/2022. The 2022/2023 prohibition period was October through December. For 2022/2023, EU regulations required Member States to ensure that the prohibition period was

⁶⁵ Written information from SwAM.

⁶⁶ SwAM 2019. *Hur ett frivilligt program för återköp av ålfiskerättigheter kan införas i Sverige. Redovisning av Regeringsuppdrag*. Reg. no. 2584-2019, p.26, 30.

⁶⁷ Stage, J. 2015. *The value of the Swedish eel fishery*. Marine Resource Economics, 30(1).

⁶⁸ Stockholm University Baltic Sea Centre 2021. *Kommissionen följer inte vetenskapens råd om ålfiskestopp*.

implemented during the peak migration period. The formulation tightened the regulation compared with regulations from previous years.⁶⁹

Before the annual prohibition periods were introduced in 2017, commercial eel fishing was conducted from May to December, earlier in the north and later in the south parts of the Baltic Sea.

In preparation for the TAC and quota negotiations, SLU provides SwAM with data as needed. If the Government then requests it, SwAM in turn submits documentation to the Government in preparation for the negotiations.⁷⁰

For 2023/2024, the EU has decided to prohibit commercial fishing for eel in all stages of life during one or more period of at least six months. In the Baltic Sea, the prohibition period may be introduced as a continuous period of six months between 1 March 2023 and 31 March 2024, or as multiple prohibition periods totalling six months. If a country chooses to introduce several prohibition periods, eel fishing must be prohibited between 1 October and 31 December 2023 and for any three additional months during the period 1 March to 31 August 2024. The EU regulation also stipulates that when choosing a prohibition period or periods, the Member States must consider the eel's temporal migration patterns for each life stage in the Member State concerned. The period or periods must be compatible with the conservation objectives set out in the EU Eel Regulation and in the national eel management plans. Since the prohibition applies to all forms of eel fishing activity, keeping eels in a corf is not allowed during the prohibition period.⁷¹

For 2023/2024, SwAM has decided that all eel fishing in the sea is prohibited during the period 1 October 2023 to 31 March 2024. SwAM concludes that the current EU regulations allow for greater flexibility in choosing the prohibition period or periods compared with the previous year's regulations, when the period was to be when the migration of eels is at its greatest. The regulations now state that the Member States must consider eel migration patterns while also considering the conservation objectives set out in the EU Eel Regulation and in the national eel management plans. Against this background, SwAM explains its decision as follows:

The Swedish Agency for Marine and Water Management has made a balanced assessment where consideration has been given to allow migrating silver eels escape through the Sound to contribute to reproduction. Consideration has also been given to the measure's expected effect on European eel stocks, the effect of the extensive measures implemented and conducted within the framework of the national Eel Management Plan to reduce the impact of the national fishery and the effects of previous prohibition periods.⁷²

In contrast to the quote above, SwAM made clear in its press release on the decided prohibition period that the agency had also considered the interests of the fishing industry. According to the press release, the decision is based on an overall assessment of several ecological, economic and social factors. Above all, consideration was given to the fact that silver eels migrating out through the Sound should be able to contribute to reproduction and that limited fishing can continue.⁷³

⁶⁹ SwAM 2023. *Remiss gällande ändrade regler för fiske av ål i havet 2023/2024*. Dnr 00118-2023. p.6.

⁷⁰ Information from individuals working at SLU Aqua and SwAM. See also: Stockholm University Baltic Sea Centre 2021. *ICES rekommenderar totalt ålfiskestopp – HaV avvaktar*.

⁷¹ SwAM 2023. *Remiss gällande ändrade regler för fiske av ål i havet 2023/2024*. Dnr 00118-2023. p.2.

⁷² Ibid. p.7.

⁷³ SwAM 2023. *Stopp för ålfiske i havet oktober till mars*.

The Government was even more clear in its emphasis of the importance of continued eel fishing. In preparation for the negotiations in the Council of Ministers, the responsible minister offered comments in a press release. He considered the EU's proposal to extend the eel fishing prohibition from three to six months as "concerning". He continued:

"Swedish eel fishing is a cultural heritage. We need to ensure that this culture and tradition does not disappear. If these EU rules were to go through, it would be a severe blow, basically making Swedish eel fishing impossible. At the same time, the Government shares the European Commission's view that more efforts are required to protect the eel but thinks there are other measures that are more appropriate."⁷⁴

The Government argued it is more important to amend the EU's Eel Regulation to also include eel fishing in inland waters and other impacts on eel stocks. Such an amendment would allow continued opportunity for careful and sustainable eel fishing, according to the Government.⁷⁵

After the negotiations ended, the minister stated that there will indeed be an extension of the number of months with eel fishing prohibitions, but that the Swedish negotiators have succeeded in building in flexibility regarding when the prohibition is applied. Based on the decision, "we will do everything to implement it as good as possible while we continue to value a careful Swedish eel fishery".⁷⁶

The minister's and the Government's position does not differ in principle from the political line that Sweden followed during previous years' negotiations on prohibition periods. The protection of a limited Swedish eel fishery has been, and is, important to Swedish governments. For example, SwAM expressed this in 2019 as follows:

"Selection of the period is based on an overall assessment of which period is expected to have the greatest impact on silver eels migrating through the Sound and while having the least impact on fishing."⁷⁷

SwAM felt that it had considered fishing when taking extensive measures within the framework of the national Eel Management Plan to reduce eel catches and that the catches have gradually decreased as the number of license holders have decreased.⁷⁸ From what SwAM has presented to the Swedish Parliament Committee on Environment and Agriculture, it appears that the agency attaches great importance to protecting commercial fishing. There, SwAM stated that the 2018/2019 prohibition period, November–January, was moved to the period of the year with the least fishing. The agency's argument for this was that the Swedish eel fishery is already relatively strictly regulated.⁷⁹

According to SwAM, these regulations, together with the annual prohibition periods, have meant that eel catches have decreased by just over 90 per cent since 2006, from 825 tonnes to just under 52 tonnes. The number of sea-based eel fishing license holders fell by just over 74 per cent between 2006 and 2022, from 384 to 99.⁸⁰

⁷⁴ Landsbyggs- och infrastrukturdepartementet 2022. *Fiskekvoter och förbudsperiod för fiske av ål på agendan vid jordbruks- och fiskeministermöte.*

⁷⁵ Näringsdepartementet 2022. *Rådets möte (jordbruks- och fiskeministern) den 11–12 december. Kommenterad dagordning 2022-12-01.* Punkt 4.

⁷⁶ Landsbyggs- och infrastrukturdepartementet 2022. *Fiskekvoter och förbudsperiod för fiske av ål på agendan vid jordbruks- och fiskeministermöte.*

⁷⁷ SwAM 2019. *Hur ett frivilligt program för återköp av ålfiskerättigheter kan införas i Sverige. Redovisning av Regeringsuppdrag.* Dnr 2584–2019., p.20–21.

⁷⁸ Ibid. p.21.

⁷⁹ Riksdagen 2021. *Fiskeripolitik. Miljö- och jordbruksutskottets betänkande 2021/22:MJU17.* , p.23.

⁸⁰ SwAM 2023. *Remiss gällande ändrade regler för fiske av ål i havet 2023/2024.* Dnr 00118-2023, p.8–9.

SwAM emphasised the 2023–2024 fishing prohibition would apply when the eel migration reaches its peak through the Sound. According to the head of SwAM’s Fisheries Policy Unit, the choice of period means that silver eel catches in the Sound “nearly end”.⁸¹ SwAM writes in its comment regarding the 2023–2024 period that the agency has developed the proposal for a prohibition period based on the best available knowledge about silver eel migrations. Before the prohibition period was introduced, fishing in the Sound accounted for approximately 30 per cent of the total landed eel catch in the sea. Of this, an average of 57 per cent was landed in November, while October and December each accounted for approximately 15 per cent of the catch. The average landings in the Sound were twice as high, 1.8 tonnes per person per year, as in coastal areas of the Baltic Sea. According to SwAM, preliminary results from a scientific study showed that silver eel migration out of the Sound takes place from September to March, with the greatest migration intensity during November and December.⁸² The prohibition period for the 2022/2023 period was October through December. According to SwAM, the prohibition led to silver eel fishing in principle ceased in the Sound.⁸³

SwAM’s assessment was that eels migrating through the Sound have good potential of passing through without being caught. This assumes that the two countries would conform to the same prohibition periods.⁸⁴ However, the Swedish and Danish prohibition periods have not always coincided. The 1932 agreement with Denmark regarding fisheries in the waters bordering Sweden and Denmark regulates the right of each country’s fishers to conduct fishing in the other state’s waters. The agreement stipulates that flag state jurisdiction applies, which means that Danish rules apply to Danish fishers even though they fish in Swedish waters and Swedish rules apply to Swedish fishers in Danish waters. If Sweden and Denmark have different prohibition periods, this would allow Danish fishers to fish in Swedish waters during the Swedish prohibition period and, of course, the reverse during the Danish prohibition period.⁸⁵ SwAM reported that the prohibition periods coincide in 2023/24.

In an annex to the consultation on the 2023/2024 fishing prohibition period, SwAM gave grounds for the choice of extended ban from January to March by referring to Swedish implementation of measures to reduce eel fishing. With reference to the evaluation of the Eel Management Plan, the agency assesses that the impact from fishing is within the scope of the stock’s long-term recovery. According to SwAM, the prohibition period from October to March means that fishing is expected to be affected to the same extent as the previous period. This is because no eel fishing has been conducted during the months of January to March. Other prohibition periods affected fishing to varying degrees. If the agency had introduced a prohibition period between July and December 2023, the fishery’s catches were estimated to decrease by 95 per cent compared to 2022, which would have been almost equivalent to a total fishing ban. If instead, the prohibition period was earlier in the year so that fishing would be allowed between October and December, this would be expected to result in catches as large as those recorded in the Sound in the years before 2018, before the first prohibition period was introduced.⁸⁶

⁸¹ SwAM 2023. *Stopp för ålfiske i havet oktober till mars*.

⁸² Written information from Sofia Brockmark, SwAM.

⁸³ SwAM 2023. *Remiss gällande ändrade regler för fiske av ål i havet 2023/2024*. Dnr 00118-2023, p.8.

⁸⁴ *Ibid*, p.8.

⁸⁵ SwAM 2019. *Hur ett frivilligt program för återköp av ålfiskerättigheter kan införas i Sverige. Redovisning av Regeringsuppdrag*. Dnr 2584–2019., p.21.

⁸⁶ SwAM 2023. *Remiss gällande ändrade regler för fiske av ål i havet 2023/2024*. Dnr 00118-2023. Annex 1 p.3–4.

The Government communicated in a press release that Sweden's position is to fulfil the objectives of the EU common fisheries policy to the greatest possible extent. This means, according to the Government, that fishing opportunities must be established at long-term sustainable levels based on scientific advice.⁸⁷ It can then be noted that ICES' scientific point of departure is that the precautionary principle should apply, which would mean no eel catches in 2023. According to ICES, all other anthropogenic mortality should also be zero. Furthermore, the quantity and quality of eel habitats should be restored.⁸⁸ The EU and Sweden did not follow ICES' scientific advice.

For the fishing period 2024-2025 the member states with fishing opportunities in the Baltic Sea, Kattegat and Skagerrak had to agree on a ban period or ban periods according to the terms of the EU regulation. However, no such agreement was reached between the member states, which, in accordance with EU regulation, lead to a prohibition period for fishing eels between September 15, 2024 up to and including March 15, 2025.

4.4 Consultation responses of the prohibition period for 2023/2024

The Baltic Sea Centre at Stockholm University made several critical arguments in their statement of opinion when SwAM's proposal was distributed for consultation. The Centre argued that moving the extended prohibition period to January–March would have no effect since this is a period when eels hibernate, and no fishing is taking place anyway. The proposal from SwAM goes against the expressed argument that the prohibition period must be during eel migration. The Baltic Sea Centre found SwAM's actions remarkable from a species conservation perspective and a disregard of the agency's mandate. According to the Baltic Sea Centre, SwAM's mission is to enforce EU regulations. Not, as it seems, expressing the Swedish Government's view on the matter. The Centre's own proposal was for a national moratorium on all eel fishing. Alternatively, if there was only to be an extended prohibition period, it should be July–December.

The Centre also had opinions on reported decreased eel landings from the Sound and the East Coast as SwAM used the reduction as an argument that the agency's measures to reduce fishing was working. The Baltic Sea Centre argued that the decreases in catches could just as well have resulted from reduced numbers of escaping silver eels and maturing yellow eels. The clear trend of decreased catches per effort that SwAM reports confirmed this assumption, according to the Centre.⁸⁹

SwAM's proposal for a prohibition period was also rejected by the County Administrative Board of Skåne, the Swedish Environmental Protection Agency, the Swedish Society for Nature Conservation, the World Wildlife Fund, and Swedish Anglers Association.

The County Administrative Board of Skåne referred to the wording of the EU Council of Ministers in their rejection of the proposed prohibitions period. The Board interpreted the wording such that periods with fishing prohibitions should be placed when the eel migration is at its peak. The EU proposal also states that the prohibition period should include two months before and two months after the month with peak migration. Based on this interpretation, the County Administrative Board found that the period July 2023 – December 2023 was the only alternative

⁸⁷ Landsbygds- och infrastrukturdepartementet 2022. *Fiskekvoter och förbudsperiod för fiske av ål på agendan vid jordbruks- och fiskeministermöte.*

⁸⁸ ICES 2022. *European eel (Anguilla anguilla) throughout its natural range. ICES Advice: Recurrent Advice. Report.*

⁸⁹ Stockholm University Baltic Sea Centre 2023. *Östersjöcentrums svar på HaV's remiss gällande ändrade regler för fiske av ål i havet 2023/2024.* Dnr SU-484-0003-23.

for a fishing prohibition if the Council's assignment was to be fulfilled. In its statement, the County Administrative Board referred to ICES' advice that all eel fishing should be prohibited. The Board argued that not following the Council's description of how and when the prohibition should be timed would not be compatible with neither ICES' advice nor Swedish and international management principles and targets, such as considering advice from scientific experts, the precautionary principle, Sweden's national environmental objectives, international and Swedish redlisting of species, and the EU Marine Strategy Framework Directive. The County Administrative Board also stated that SwAM's proposal lacked a developed analysis of how consultation had taken place between Sweden, Denmark and Germany. Consultations must be held as per Council Regulation (EU) 2022/109 to agree as far as possible on common prohibition periods where fishing takes place in sounds or transboundary waters.⁹⁰

The Swedish Society for Nature Conservation strongly criticised the fact that SwAM had proposed an extended prohibition period during a period when it would have no effect on mortality from fishing. The Society accentuated that the prohibition period should be placed from July to December, and that eel management that takes the species' threatened state seriously should mean that eel fishing is stopped until there are clear signs of stock recovery, and that the precautionary principle is applied to all decisions concerning eel fishing regulations.⁹¹

The Swedish Anglers Association stated that the extended fishing prohibition had not been implemented when it would result in the best conservation measure. The organisation found it unclear why SwAM proposed this period. They concluded their comment:

“Against the background of the above, Sweden's efforts to water down protections during the Council negotiations in December, the lack of consideration for the last five years' concrete opinions from almost all commenting bodies and Sweden's general lack of ambition to protect an acutely threatened fish species, The Swedish Anglers Association does not intend to invest more time on this matter in its current form.”⁹²

SwAM's proposal was endorsed, or not annotated, by the county administrations in Blekinge and Stockholm counties, the Swedish Board of Agriculture, the Swedish Commercial Fishers' Producer Organisation (SFPO), the Swedish Inland Fishermen's Federation, the Swedish Association of Fishing Water Owners, Ålakademin, Ålakustens kulturarrvsförening, and Ålfonden.

The County Administrative Board in Stockholm County approved SwAM's proposal with the argument that eel fishing has decreased to a large extent and that there is a continuous phasing out of fishing.⁹³ The County Administrative Board of Blekinge County also approved the proposal and concluded that the proposed prohibition period corresponds with the intent to consider eel migration patterns while also considering the conservation objectives set out in the EU Eel Regulation and in the national eel management plans.⁹⁴

⁹⁰ Skåne County Administrative Board 2023. *Yttrande gällande ändrade regler för fiske efter ål i havet 2023/2024*. Dnr 600-2645-2023.

⁹¹ Swedish Society for Nature Conservation 2023. *Yttrande gällande ändrade regler för fiske efter ål i havet 2023/2024*. Dnr 2023/0071.

⁹² Sveriges Sportfiske- och fiskevårdsförbund 2023. *Sportfiskarnas yttrande gällande förslag på ändrade regler för fiske av ål i havet 2023/2024*, Dnr. 00118-2023.

⁹³ Stockholm County Administrative Board 2023. *Yttrande gällande ändrade regler för fiske av ål i havet 2023/2024*. Dnr 101-4015-2023.

⁹⁴ Blekinge County Administrative Board 2023. *Remiss gällande ändrade regler för fiske av ål i havet 2023/2024*. Dnr 621-384-2023.

The Swedish Board of Agriculture wrote in their comment that it is problematic with annual decisions on prohibition periods as this reduces predictability for commercial fishers. For this reason, the Board argued for a long-term approach and focus on predictability when decisions are made on eel fishing. The Board was also concerned about the consequences of the extended prohibition period for professional fishers, but still supported SwAM's proposal. In addition to endorsing the proposal, the Swedish Board of Agriculture addressed the importance of coordinating the fishing prohibition period with Denmark and Germany to achieve the greatest impact. This is particularly important since Denmark and Sweden, via treaties, have several common fishing waters in The Sound and around the coast of Skåne.⁹⁵

The association for protecting cultural heritage of the Swedish eel coast (in Swedish *Ålakustens kulturarvsförening*) supported SwAM's proposal for a prohibition period and added that if the prohibition period were to be extended to make fishing impossible, it would mean a violation of the property rights protected by the European Convention, which applies as law in Sweden. Along the coasts of Skåne and Blekinge, fishing is based on the ownership of eel fishing properties, which only exist as a right to fish for eels within a specific area of the sea. According to the association, a total fishing ban would wipe out these eel fishing properties. The association believes that this is not only against the European Convention but also against the Swedish constitution and could lead to extensive compensation liabilities for the Swedish state.⁹⁶

Often, the advisory bodies that support the proposal, or have no objections to it, discuss other threats to eel stocks and eel fishing than the fishing prohibition. They mention the impact of hydropower, the glass eel fishery in Southern Europe and the threat from seals and cormorants posed to eel stocks.

4.5 Voluntary programme for buying back eel fishing rights

In June 2019, the Government tasked SwAM with investigating how to implement a voluntary programme for buying back eel fishing rights. The assignment was to be conducted in dialogue with the Swedish Board of Agriculture. According to the Government, a voluntary programme could be a possible way to voluntarily reduce eel fishing and thereby speed up recovery of the European eel stock and achieving a biologically and socio-economically long-term sustainable eel fishery. The assignment included analysing socio-economic consequences and possible state aid aspects. SwAM was also to propose financing of the buyback programme.⁹⁷

SwAM reported on the assignment with several objections to the need for a buyback programme. They pointed out that by not allowing any new fishing licenses on the East Coast and not renewing permits on the West Coast, the number of eel fishing permits in Swedish coastal areas had decreased by approximately 60 per cent and catches by roughly 80 per cent between 2007 and 2019. Furthermore, a voluntary buyback programme would only have a marginal effect on eel stocks. SwAM also saw a risk in the Government creating a precedent where the state pays compensation to professional fishers for not using a public resource, which was allocated to them

⁹⁵ Swedish Board of Agriculture 2023. Jordbruksverkets yttrande gällande ändrade regler för fiske av ål i havet 2023/2024. Dnr 3.317-01336/2023.

⁹⁶ Ålakustens kulturarvsförening 2023. *Ålakustens kulturarvsförenings remissvar i ärende 00118-2023 hos Havs- och vattenmyndigheten (HaV) om ändrade regler för fiske av ål i havet.*

⁹⁷ Näringsdepartementet 2019. *Uppdrag om hur ett frivilligt program för återköp av ålfiskerätter kan införas i Sverige.* Dnr N2019/02258/FJR.

by the state at no cost. SwAM pointed out that the agency already has the authority to implement regulations and other administrative measures that involve restrictions on fishing without paying compensation. A buyback programme would also have several socio-economic consequences. A reduction in eel fishing would mean that processing and employment in the fishing and processing industry would decrease while there would be an increase in the price of eel. The report noted that in 2019 there was no option for funding a buyback programme through the European Marine and Fisheries Fund.⁹⁸

Despite SwAM's objections to a voluntary buyback programme, the Government decided to continue work with the proposal. SwAM was tasked with supplementing its report with statute proposals for state aid. The agency presented two regulations: an aid regulation and a de minimis aid regulation.⁹⁹

4.6 Assignment on a voluntary programme for purchasing, transport and restocking of eels

The Government chose not to proceed with the proposal for a voluntary buyback programme. Instead, the Government tasked SwAM in 2022 and 2023 with developing a voluntary programme for the purchase of eel catches. SwAM has received SEK 6 million for such a programme. The funds had also to be used to pay for evaluation and research efforts to streamline the implementation of the programme. The public service agreement states that SLU is to conduct evaluation on the efforts.¹⁰⁰ The voluntary programme for the purchase of eel catches has not started as SwAM's procurement did not result in any tenders.

⁹⁸ SwAM 2019. *Hur ett frivilligt program för återköp av ålfiskerättigheter kan införas i Sverige*. Redovisning av Regeringsuppdrag, Dnr 2584–2019.

⁹⁹ SwAM 2020. *Kompletterande redovisning om hur ett frivilligt program för återköp av ålfiskerättigheter kan införas i Sverige*. Redovisning av författningsförslag, Dnr. 2584-2019.

¹⁰⁰ Miljödepartementet 2021. *Regleringsbrev för budgetåret 2022 avseende Havs- och Vattenmyndigheten. Villkor för anslag 1:11*, ap.2, punkt 14. Miljödepartementet 2022. *Regleringsbrev för budgetåret 2023 avseende Havs- och Vattenmyndigheten. Villkor för anslag 1:11*, ap.2, punkt 12.

5 Improved possibilities for downstream migration

A contributing reason for the decline of European eel stocks is the decreased access to suitable freshwater habitats. Upstream migration in streams is made difficult or impossible by hydropower and regulating dams. When eels migrate downstream, the turbines constitute a death trap. According to the estimates in the Eel Management Plan, turbine mortality is over 90 per cent for the Swedish inland eel stocks.¹⁰¹

Improving eel migration routes can legally be done through reconsideration of water-rights in the Land and Environmental Court. The requirements for hydropower plants are stipulated in court judgements as per the Environmental Code and the previously applicable Water Act. These requirements can apply to measures for facilitating upstream migration of elvers or by creating fish passages that direct silver eels past turbines. The focus has been on the upstream migration to compensate the fisheries upstream the obstacles. Measures for facilitating downstream migration have had low priority. One reason for this may be that most water-rights were written when eels were still abundant.¹⁰²

The Eel Management Plan states that eels are found throughout the entire country and that the number of eels spending their life stage as yellow eels in different streams and lakes varies substantially. The extent of hydropower also varies greatly between the various areas. This results in significantly different effectiveness of measures depending on where they are deployed. Clearly, implementing measures in streams with few eels and multiple migration obstacles would result in very few improvements in total eel escapement and would not be cost-effective.¹⁰³

5.1 Declaration of intent between the Swedish Board of Fisheries and six hydropower companies

The eel management plan highlights the voluntary measures the hydropower industry has undertaken, in collaboration with the Swedish Board of Fisheries, to reduce turbine mortality. A strategy and set of targets were adopted in 2010 in a declaration of intent between the Board and six of the largest hydropower companies. The declaration meant that the power companies undertook to increase the total survival rate at hydropower plant passages to at least 40 per cent by 2014. The declaration defined four primary methods to choose from for achieving this goal:

- building fish passages past dams;
- low-impact operation of turbines or stop of turbines during peaks in silver eel migration;
- trap and transport past one or multiple dams;
- compensatory measures, such as restocking.¹⁰⁴

¹⁰¹ Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Ref. no. Jo2008/3901, p.24. Information on the number of dams is found in SwAM, Swedish Energy Agency, Svenska kraftnät 2019. *Förslag till nationell plan för omprövning av vattenkraft. Med beskrivning av vattenmiljö och effektiv tillgång till vattenkraftsel samt identifierade behov för fortsatt arbete*, p.24. The information on the number of hydropower plants can be found in Government of Sweden 2020. *Nationell plan för moderna miljövillkor*. Government decision, Reg. no. M2019/01769/Nm and others.

¹⁰² Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Dnr Jo2008/3901, p.53-54.

¹⁰³ *Ibid.*, p.54.

¹⁰⁴ The Swedish National Board of Fisheries and six hydropower companies in 2010. *Ansiktsförklaring*. See also Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Ref. no. Jo2008/3901, p.55.

The declaration of intent indicates that the ability to achieve the set target of 40 per cent survival depends on which measure is chosen. The strategy was to start with quickly implementable measures while working on implementing more permanent solutions, such as fish passages. The choice of streams to implement measures would be based on where the greatest effect on escapement can be achieved. The declaration also states that evaluations of target fulfilment were to be conducted in 2012 and 2014. According to the Eel Management Plan, quickly implementable measures must be phased out in favour of long-term measures during the period before and after 2013.¹⁰⁵ No such year is mentioned in the declaration of intent.

5.2 Krafttag ål – programme to implement measures in the declaration of intent

The Krafttag ål programme was started in 2011 to implement the measures in the declaration of intent between the Swedish Board of Fisheries and the power companies. The original targets of the programme were 1) to reduce the average turbine mortality of migrating silver eels by 50 per cent by 2015 in watercourses where the companies operate hydropower facilities; 2) to enable escapement of silver eels to the coast by 100,000 per year. To achieve these goals, the programme prioritised trap and transport of silver eels past hydroelectric plants and restocking of glass eels.¹⁰⁶

Krafttag ål was evaluated in 2015 by two researchers from SLU. The evaluation showed that the target of reducing turbine mortality to 50 per cent had not been achieved. This applied even if contribution from trap and transport of silver eels was included, which was estimated to reduce turbine mortality 11 per cent – thus far from reaching the target. However, the second target, that the measures should result in an increase of 100,000 escaped silver eels per year within a 20-year period from 2013, was estimated to have been achieved as a result of restocking of glass eels at the coast.¹⁰⁷ The conclusion about the achieved target rested on several assumptions, since there are great uncertainties about the survival and spawning migration of restocked eels.

The overall goal for Krafttag ål is formulated as increasing knowledge about hydropower and eels, reducing the impact of hydropower on the eel stock and increasing the escapement of silver eels from Swedish waters.¹⁰⁸

Research financed by Krafttag ål was formally concluded at the end of 2017. However, the programme has continued with trap and transport, and restocking. Since the start of the programme in 2011, a total of 171,134 silver eels have been trapped and transported in selected streams where Krafttag ål members operate hydropower facilities. The goal for 2023 was to trap and transport 15,000 silver eels in the rivers Göta älv, Lagan, Ätran and Motala ström.¹⁰⁹ The eels purchased by the power companies for transport are mainly handled through the Swedish Inland Fishers' Central Association.¹¹⁰

¹⁰⁵ Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Dnr. Jo2008/3901, p.56.

¹⁰⁶ SwAM 2015. *Sveriges nationella ålförvaltningsplan. Havs- och vattenmyndighetens analys av behovet att revidera den nationella förvaltningsplanen för ål*, p.27.

¹⁰⁷ Dekker, W. and Wickström, H., 2015. *Utvärdering av målen för programmet krafttag ål*. Rapport 2015:103.

¹⁰⁸ Energiforsk 2023. *Krafttag ål*.

¹⁰⁹ Ibid.

¹¹⁰ Discussion with Sofia Brockmark, SwAM.

Until 2017, SwAM co-founded the research part of the programme.¹¹¹ After 2017, SwAM only has an adjunct seat on Krafttag ål's board. The reason why SwAM is no longer involved as a funding body is that the agency wanted to separate the research commissioned by SwAM and the research commissioned by the hydropower companies. For the programme period 2023–2025, Krafttag ål has an annual budget of SEK 4.5 million.

5.3 Trap and transport

A fundamental question regarding trap and transport is whether the relocation of silver eels affects their spawning migration. According to SLU, there are currently no studies that have investigated how the transport of eels between different catchments affects behaviour.¹¹² As noted in previous sections, in its public service agreements for 2022 and 2023 SwAM has been given the opportunity to pay for a voluntary programme for the purchase of eel fishing catches for transporting and releasing in coastal areas. The funds may also be forwarded to SLU for work with evaluations and research to strengthen the implementation of the programme. SLU received funding from SwAM in 2022 and 2023 to evaluate the benefit of trap and transport silver eels.¹¹³

In an initial study, SLU has reviewed the handling of eels in connection with trap and transport, including keeping them in a corf. This is because it is important that trap and transport does not damage or otherwise negatively affect the eels' ability to migrate. Mean mortality of eels during handling through trap and transport was 0.78 per cent. But mortality was as high as 10 per cent on some occasions when the water temperatures was high combined with longer keeping in a corf.¹¹⁴ In a second study, SLU will use GPS tracking to study the migration of transported eels.¹¹⁵

5.4 National strategy for improving ecological status in Swedish waters

On 1 January 2019, new legislation went into force in the Environmental Code clarifying the Swedish implementation of the Water Directive and implementing the hydropower-related parts of the Energy Agreement.¹¹⁶ The goal was to achieve 100 per cent renewable electricity production by 2040. The background to the legislation was the European Commission's questioning of Sweden's implementation of the EU Water Directive. The Commission argued that Swedish legislation design made it impossible to consider the objectives of the directive in connection with updating and relicensing.¹¹⁷

¹¹¹ Written information from Sofia Brockmark, SwAM.

¹¹² SwAM 2023. Project application. *Utvärdering av fångst och nedströmstransport (s.k. trap and transport) av vuxen ål som bevarandeåtgärd.*

¹¹³ SwAM 2023. *Beslut om bidrag från anslag 1:11 Åtgärder för havs- och vattenmiljö.* Dnr. 1857-2023.

¹¹⁴ Jacobson, B., & Jacobson, P. 2022. *Faktorer som påverkar dödlighet hos ål vid fångst och transport förbi kraftverk.* Aqua notes, (2022: 5).

¹¹⁵ SwAM 2022. *Beslut om bidrag från anslag 1:11 Åtgärder för havs- och vattenmiljö.* Dnr. 02958-2022. See also SwAM 2022. *Projektansökan för projekt inom SLU Aqua. Verksamhetsåret 2022*, SwAM 2023. Project application. *Utvärdering av fångst och nedströmstransport (s.k. trap and transport) av vuxen ål som bevarandeåtgärd* and SLU 2023. Preliminary project plan. *Utvärdering av fångst och nedströmstransport av vuxen ål som bevarandeåtgärd.*

¹¹⁶ Prop. 2017/18:243. *Vattenmiljö och vattenkraft.*

¹¹⁷ SwAM, Swedish Energy Agency, Svenska kraftnät 2019. *Förslag till nationell plan för omprövning av vattenkraft. Med beskrivning av vattenmiljö och effektiv tillgång till vattenkraftsel samt identifierade behov för fortsatt arbete*, p.1.

For hydropower, the Energy Agreement stipulated:

- Sweden would live up to EU laws and its requirements for water operations.
- Sweden should have modern environmental regulations for hydropower, and the licensing system must be designed in a way to avoid unnecessary administrative and financial burdens for individuals in relation to the desired environmental benefit.
- The rules for relicensing water activities, such as hydropower plants and dams, should be simplified as far as possible, weighing the need to ensure sustainable development where water resources cannot be considered just as any other resource.
- The expansion of hydropower must primarily take place through more effectual use of existing power plants with modern environmental permits.¹¹⁸

An additional point of departure for the new legislation and for the work on developing a national plan was the announcement from the Swedish parliament on the requirements for small-scale hydropower. According to the announcement, the licensing processes must be flexible and allow operators of small-scale hydropower not to incur unreasonable costs during licensing processes.¹¹⁹

Against the above background, it was decided that any operator conducting water operations to produce hydroelectric power is to be issued modern environmental regulations for their operations. This is to be done by relicensing at the operator's initiative. Currently, only a small number of hydropower dams are operated under modern environmental regulations. Historically, hydropower has not had time-limited licenses, which means many large hydropower facilities are still regulated according to the 1918 Water Act. This means that many facilities will have to be relicensed in the coming years. The agencies reported on their proposal to the Government on 1 October 2019.¹²⁰ In June 2020, the Government approved the plan according to the agencies' proposal.¹²¹

5.5 The national plan

The provisions of the Environmental Code are applied when relicensing. The Environmental Code includes provisions on national interests, environmental quality standards for water, and protected areas and species.¹²²

The national plan includes (1) the facilities that produce hydroelectric power today and (2) the facilities not producing hydroelectric power today but intended for such production when constructed. The operators who produce hydroelectricity and are covered by the plan can apply for financial support from the Hydroelectric Environmental Fund.¹²³ The fund was established by nine large power companies and has SEK 10 billion at its disposal to pay out over 20 years for adapting hydropower plants to modern environmental regulations.

According to the national plan, the relicensing must take place in a coordinated manner with the greatest possible benefit for the water environment while maintaining an efficient national access

¹¹⁸ SwAM, Swedish Energy Agency, Svenska kraftnät 2019. *Förslag till nationell plan för omprövning av vattenkraft. Med beskrivning av vattenmiljö och effektiv tillgång till vattenkraftsel samt identifierade behov för fortsatt arbete*, p.1.

¹¹⁹ Ibid. p.1.

¹²⁰ Ibid. p.2.

¹²¹ Miljödepartementet 2020. Nationell plan för moderna miljövillkor. M2019/01769/Nm.

¹²² SwAM, Swedish Energy Agency, Svenska kraftnät 2019. *Förslag till nationell plan för omprövning av vattenkraft. Med beskrivning av vattenmiljö och effektiv tillgång till vattenkraftsel samt identifierade behov för fortsatt arbete*, p.30.

¹²³ Ibid. p.3–4.

to hydroelectric power. The plan also specifies a national benchmark of 1.5 terawatt hours for what can be considered a significant negative impact on power production. This is equivalent to 2.3 per cent of 2014's average annual production. The benchmark is also distributed per main catchment area and should provide support when water authorities classify certain waters as heavily modified and decide on exemptions.¹²⁴

In the Government's adoption of the national plan, they emphasised that the involved agencies are to "monitor and take the necessary measures to ensure that the overall negative impact of the permitting process on effective access to hydroelectric power nationally is minimised and that the greatest possible consideration is given to the benchmark of 1.5 terawatt hours." The Government also emphasises that all opportunities available to set less far-reaching requirements that follow from EU law in favour of societally beneficial operations must be fully utilised when, for example, announcing environmental quality standards and classification of watercourses. Furthermore, through amendments to the Ordinance on Water Management (2004:660), the Government has introduced an obligation for water authorities to use all the possibilities provided by EU law when it comes to declaring waters as heavily modified.¹²⁵

Swedish hydropower plants are usually divided into three classes, where the power plants that are most important for the electricity supply belong to class 1. This group includes 255 hydropower plants, mainly in northern Sweden. These plants produce 98 per cent of all hydropower. There are 78 hydropower plants in class 2. The remaining roughly 1,700 power plants are in class 3. They are small and are not considered significant for the electrical grid.¹²⁶

Only hydropower plants in class 1 can be classified as heavily modified waters. These may require some form of exemption. Smaller power plants are not similarly eligible for exemptions. Here, the owners may be required to build fish passages past obstacles. This can be expensive for smaller operators. Of the roughly 80 smaller hydropower plants that have applied for relicensing up to this point, one in five plans to dismantle the dam, according to the Hydroelectric Environmental Fund.¹²⁷

The national plan identifies licensing groups for facilities that can be impacted in the same catchment so that the facilities can be reviewed for licences together. There is also a timetable for how late operators in the various licensing groups must have submitted their applications for licenses to the court. Several areas with high natural values will be relicensed early. Eels were included among the natural values considered when the plan was drawn up.

According to the national plan, the first applications would be submitted no later than 1 February 2022, and the last no later than 1 February 2037.¹²⁸

The permitting processes need to be preceded by a regional collaborative process to produce consolidated regional data. This collaborative process is to be managed jointly by the county

¹²⁴ SwAM, Swedish Energy Agency, Svenska kraftnät 2019. *Förslag till nationell plan för omprövning av vattenkraft. Med beskrivning av vattenmiljö och effektiv tillgång till vattenkraftsel samt identifierade behov för fortsatt arbete*, p.IV.

¹²⁵ Miljödepartementet 2020. Nationell plan för moderna miljövillkor. M2019/01769/Nm.

¹²⁶ Alpman, M 2023. *Miljön satt på paus*. Forskning & Framsteg (2023:3), p.65.

¹²⁷ Ibid. p.65.

¹²⁸ SwAM, Swedish Energy Agency, Svenska kraftnät 2019. *Förslag till nationell plan för omprövning av vattenkraft. Med beskrivning av vattenmiljö och effektiv tillgång till vattenkraftsel samt identifierade behov för fortsatt arbete*, p.5, 10–12.

administrative boards, affected operators, other authorities, municipalities and special-interest organisations to address various issues affecting the process and effects of various measures.¹²⁹

In the 2020 public service agreements for county administrative boards, the Government tasks them with working to ensure that the national plan is implemented in its entirety and to report how they are working to implement the plan. This includes reporting on which waters have been declared as heavily modified.

5.6 Pause in relicensing

In January 2023, the Government postponed the time for submitting applications by one year for the licensing groups where the time to apply had not yet passed. The change thus means that the date for when an application must be submitted to the court is moved forward one year, i.e. applications that were to be submitted in 2023 must now be submitted in 2024 at the latest, and so on.

The Government explained this decision by a high demand for energy and high prices on electricity at the same time as society's rapid electrification requires increased electricity production. Supply reliability also needs to be improved, according to the Government. Against this background, the effects of relicensing conducted so far needed to be followed up and the current system for licensing based on modern environmental regulations needed to be reviewed. At the same time, the Government emphasised the importance of not having a long pause. Operators have invested resources in application processes and risk losing momentum in their ongoing work. The Government's assessment was that the work on the proposed analysis should be able to be completed in one year. Despite the paused relicensing, the Government argued for the continuation of the county administrative boards' collaboration processes, production of data, and the water authorities' reviews of environmental quality standards in 2023.¹³⁰

In 2024, the Government prolonged the suspension for another 13 months, until July 1, 2025. This was motivated with the Government Offices working on a proposal of measures aimed at hydropower. Measures that according to the Government will ensure that the impact of the reassessments on hydropower is acceptable from an electricity system perspective, improve collaboration and the reassessment processes, and provide hydropower with modern environmental conditions in an orderly, predictable and legally secure manner.

5.7 Comments on the Government's proposal to pause relicensing

Most commenting organisations were positive to the Government's proposal, even though several, including SwAM and trade organisation Swedenergy, point out that it is important the pause is not prolonged or be longer than a year. There are also commenting organisations and authorities that reject the proposal, such as the Swedish Environmental Protection Agency and the Association of Sweden's Fishing Water Owners. WWF also rejects the proposal and mentions the state of eels in its comment. WWF points out that for several vulnerable and threatened species, such as lamprey and eel, it is crucial that hydropower's environmental impact be addressed as soon as possible. Like three Land and environmental courts, WWF is also critical of the way the comment procedure has

¹²⁹ Ibid. p.51–52.

¹³⁰ Miljödepartementet 2022. Paus av omprövning för moderna miljövillkor. Promemoria. M2022/02251.

been conducted. The organisation highlights the tight deadline of only one week for commenting. Three of the Land- and environmental courts noted that the comment request was sent to the commenting bodies on the same day that the Government announced that there will be a pause in relicensing. According to the courts, this sequence appears unclear and inappropriate. It can also give the impression that the commenting procedure is not held with the aim of improving the basis for the decision.¹³¹

¹³¹ Miljödepartementet 2022. *Remiss av promemoria om Paus av omprövning för moderna miljövillkor*. Dnr. M2022/02251.

6 Restocking glass eels and elvers

When restocking of elvers was first practiced in Sweden, the motivation was not to support recovery of the eel stock, but to compensate inland fisheries when barriers inhibited upstream migration and consequently reduced the number of naturally recruited eels. In the Swedish Eel Management Plan, restocking is described as a measure to support recovery even though it is to be considered a temporary conservatory measure.¹³²

6.1 Regulations and responsible agencies

SwAM is responsible for the regulations governing restocking of fish. The special provisions on eels can be found in Section 7 of SwAM's regulations (HVMFS 2021:7). These regulations stipulate that eels brought into the country must be kept in quarantine. Glass eels and elvers caught in Sweden may not be restocked in freshwater areas where eels cannot migrate from the sea and where permission has not previously been granted for restocking. SwAM will review the provisions in Section 7 as part of the work revising the Eel Management Plan in 2025.¹³³

Sweden is the only country in the EU that requires eels to be quarantined before being restocked. The reason for this is that Sweden is free from some diseases imported eels may carry. The Swedish Board of Agriculture, SwAM, the National Veterinary Institute and the county administrative boards also have ongoing consultations about infection control and regulations.¹³⁴

The County Administrative Board is the licensing authority for restocking of eels. SwAM provides regular guidance to the boards through various forums, including at the annual county fishing consultant meetings. SwAM is also working on updated guidelines.¹³⁵

6.2 Changes after 2020

Swedish restocking of elvers with financial support from the government stopped in 2020. Whether restocking will resume is currently being investigated by the Government Offices. One question arising in this investigation is whether Sweden can end restocking permanently, considering that this is one of the four main measures in the Eel Management Plan and that the plan in its original form was approved by the EU.¹³⁶

As noted in Chapter 5, the hydropower companies have prioritised restocking of elvers, and trap and transport of silver eels in the Krafttag ål-program. Even though the government has not financed restocking since 2020, Krafttag ål has continued doing so. In 2023, the plan was to restock approximately 185,000 glass eels along the Swedish West Coast, and since the start in 2011, Krafttag ål has stocked almost 4 million elvers.¹³⁷

¹³² Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Dnr. Jo2008/3901, p.40-41.

¹³³ Written and oral communication from SwAM.

¹³⁴ Written information from Sofia Brockmark, SwAM.

¹³⁵ Ibid.

¹³⁶ Oral information from Sofia Brockmark, SwAM.

¹³⁷ Energiforsk. *Krafttag ål*.

Compensatory restocking of imported elvers also takes place in certain waters based on requirements from water rights.¹³⁸ A smaller number of eels is also restocked by individual fishing water owners in some inland waters. This occurs after approval by the county administrative boards. However, in 2024 eels imported from France were found to be infected with Infectious Pancreatic Necrosis (IPNV), a notifiable disease. As a result, SwAM decided that the eels were not allowed to be used for restocking (SwAM, 2024).¹³⁹

6.3 State funded stocking was administered by the County Administrative Board in Skåne

Until 2020, the County Administrative Board of Skåne, on behalf of SwAM, administered and coordinated restocking. The assignment included administering funding from the European Marine and Fisheries Fund, procuring purchases, quarantining, and coordinating and planning restocking with the county administrative boards in Halland and Västra Götaland counties. In addition to EU funding, the Board also received funding from SwAM for its work on restocking.¹⁴⁰

6.4 The Eel Management Plan for stocking

In the Swedish Eel Management Plan of 2008, extensive restocking of elvers was planned, which was motivated by research that showed positive effects.¹⁴¹ The ambition of the plan was to double the effort. Restocking was planned for watercourses with free, or artificially arranged, downstream migration for silver eels. This meant that catchments that were considered to offer good eel habitat with proximity to the North Sea and areas with limited or no silver eel fishing would be prioritised. The plan estimated the necessary amount of restocked eel to reach 50 per cent of the pristine spawning migration from Swedish coastal waters through restocking alone. Over 100 million glass eels would be needed together with a ban on eel fishing. However, the estimate also showed that restocking on that order of magnitude was not possible since elvers in such large amounts would not be available. Instead, approximately 2.5 million glass eels per year were planned for restocking by 2012. The plan estimated that stocking this number would result in escapement of approximately 185,000 silver eels. The management plan also emphasises that the amount of elvers to be restocked will depend on the available budget and future prices.¹⁴²

In SwAM's 2015 evaluation of the Eel Management Plan, it is stated that 90 to 95 per cent of the current and future production of silver eels in inland waters is estimated to originate from restocking. SwAM's 2022 resource and environmental overview stated that without restocking, many inland waters will be without eels in the future.

¹³⁸ Written information from Sofia Brockmark, SwAM.

¹³⁹ SwAM 2024. *Beslut om utsättning som fattas med stöd av förordning (2006:815) om provtagning på djur*. Dnr. 2024-001996.

¹⁴⁰ See, for example SwAM 2018. *Beslut om bidrag från anslag 1:11 Åtgärder för havs- och vattenmiljö*. Dnr. 3831-18.

¹⁴¹ Wickström, H., Westin, L., & Clevestam, P. 1996. *The biological and economic yield from a long - term eel - stocking experiment*. Ecology of Freshwater Fish, 5(3), 140-147.

¹⁴² Jordbruksdepartementet 2008. *Förvaltningsplan för ål*. Dnr Jo2008/3901., p.4, 34–35, 38, 41.

6.5 SLU evaluates restocking

In 2022, SLU was commissioned by SwAM to evaluate previous restocking of eels from 2009 and onwards.¹⁴³ The study made use of the possibility to differentiate restocked eels from naturally recruited. Elvers restocked in Sweden have been bathed in a strontium (Sr) solution, which gives a detectable mark in their otoliths.

In a 2022 report, SLU also presented an evaluation of eel stocks on the West and South Coasts.¹⁴⁴ Of the 1118 eels included in the study, 9 per cent originated from restocking. These were found in only four locations. The evaluation found no difference in fitness or growth between naturally recruited and stocked eels. This makes it difficult to explain why the number of stocked eels is so low compared with the naturally recruited, even though extensive restocking has taken place. At most capture sites, no eels with strontium were found at all, even though hundreds of thousands of eels have been stocked into waterways that drain into the West and South Coasts. One possible explanation for this, according to the evaluation, is that many of the restocking efforts were carried out in higher parts of the catchments and these eels have not yet matured into silver eels and started their spawning migration.

In 2023, SwAM extended SLU's assignment to evaluate restocking within the framework of the Eel Management Plan.¹⁴⁵

In the government assignment of 2024 SwAM was asked to evaluate the effectiveness of eel restocking and its possible contribution to the spawning population as a continued measure.

¹⁴³ SwAM 2022. *Överenskommelse mellan HaV och SLU gällande utvärdering av tidigare stödutsättningar av åyngel inom ramen för den nationella ålförvaltningsplanen*. Dnr. 02292-2022.

¹⁴⁴ Myrenäs, E., 2022. *Utvärdering av åyngelutsättningar–Svenska väst-och sydkustområden*. Aqua notes.

¹⁴⁵ SwAM 2023. *Projektbeskrivning. Uppföljning, effekter av åyngelutsättningar*.

7 Control measures

Control and supervision are the Eel Management Plan's fourth main set of measures, with a purpose to follow up and ensure that eel fishing regulations are complied with. The management plan does not specify quantitative targets for control activities.

7.1 The EU's control system for fisheries

The EU's fisheries control is primarily regulated by the Controls Regulation¹⁴⁶, the Implementation Regulation¹⁴⁷ and the IUU Regulation¹⁴⁸ with supplementary application regulations.¹⁴⁹ The Control Regulation regulates fishery controls in Member States to ensure compliance with provisions of the common fisheries. The regulation is to ensure that only permitted amounts of fish are caught, that rules and sanctions are applied in the same way to all fishers throughout the EU, and that fishery and aquaculture products can be traced to origin and controlled throughout the supply chain.¹⁵⁰

The IUU regulation includes requirements for the controls Member States must conduct for landings from third-country vessels, for document controls during import and export, and how violations are to be handled.¹⁵¹

7.2 The Swedish control system for eel fisheries

According to its instructions, SwAM has overall responsibility for Swedish fisheries control and responsibility for landing control. The instruction also stipulates that SwAM is responsible for the central supervisory guidance when fishing is regulated based on the Environmental Code. In its supervisory guidance, the agency is to cooperate with the county administrative boards. In addition to these instructions, SwAM's assignment within fisheries control is primarily regulated by the Fisheries Ordinance.¹⁵² The Fisheries Ordinance states that SwAM is responsible for fisheries as regulated in EU regulations. With the support of the authorisations in the Fisheries Ordinance, SwAM can issue supplementary control rules in the form of regulations.

The Coast Guard has an operational monitoring mission with fisheries. It is also responsible for implementing fishery controls at sea and in lake Vänern and lake Mälaren. An important difference

¹⁴⁶ Council Regulation (EC) No 1224/2009 of 20 November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy, amending Regulations (EC) No 847/96, (EC) No 2371/2002, (EC) No 811/2004, (EC) No 768/2005, (EC) No 2115/2005, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007, (EC) No 676/2007, (EC) No 1098/2007, (EC) No 1300/2008, (EC) No 1342/2008 and repealing Regulations (EEC) No 2847/93, (EC) No 1627/94 and (EC) No 1966/2006.

¹⁴⁷ Commission Implementing Regulation (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy.

¹⁴⁸ Council Regulation (EC) No 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing, amending Regulations (EEC) No 2847/93, (EC) No 1936/2001 and (EC) No 601/2004 and repealing Regulations (EC) No 1093/94 and (EC) No 1447/1999.

¹⁴⁹ Commission Regulation (EC) No 1010/2009 of 22 October 2009 laying down detailed rules for the implementation of Council Regulation (EC) No 1005/2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing.

¹⁵⁰ SwAM 2020. Uppdrag att utreda och föreslå hur fiskerikontrollen kan förstärkas. Dnr 3792–19, p.12.

¹⁵¹ Ibid., p.13.

¹⁵² SFS 1994:1716. Förordning (1994:1716) om fisket, vattenbruket och fiskerinäringen.

between SwAM and the Coast Guard is that SwAM is responsible for managing fisheries while the Coast Guard is a law enforcement agency.

The county administrative boards have supervisory responsibility over recreational fishing. In Skåne and Blekinge counties, SwAM oversees recreational fishing and indirectly illegal eel fishing through an agreement with the county administrative boards.¹⁵³ In the event of seizures in connection with inspections, police assistance is requested.

The Customs Office is responsible for controlling cross-border trade, for example that valid permits exist as part of infection control and species protection.

Since 2009, the European eel has been included in the Convention on International Trade in Endangered Species of Wild Fauna and Flora, CITES, list of threatened species. As of 2010, all imports and exports of European eel are prohibited. Trade in eels is permitted within the EU but subject to restrictions. Trade requires documentation showing the legal origin of the eels, which means that it must be traceable all the way back to the fisher.¹⁵⁴ According to Section 26 of the Species Protection Ordinance (2007:845), anyone who professionally trades in live eels must hold a special operator's permit. Since trade in recreationally caught eels is prohibited, an operating permit is required for all trade. The permit is issued by the county administrative board, which is also the supervisory authority according to the Species Protection Ordinance. Operator's permits are usually granted for five years. The Swedish Environmental Protection Agency is responsible for supervisory guidance regarding species protection.¹⁵⁵

SwAM is responsible for accounting controls of eel fishing. Companies that purchase eels directly from an individual or a company with a fishing license and then sell them in their operations must be registered as first-hand buyers with SwAM. As the first-hand buyer, the operator is to send invoices to the agency for all purchases made. These invoices must state the amount of eel that has been purchased. First-hand buyers can be wholesalers, retailers, producers, restaurants, and others who buy eels directly from professional fishers for resell. Only private individuals who buy eels from professional fishers but not for resell are exempt from the requirement to be registered as first-hand buyers. All first-hand buyers and wholesalers who trade in eels from the sea have also been covered by the traceability requirement since 2016. This means that they must be registered and report their purchases and their resale via SwAM's traceability system. With the help of the traceability system, in principle all eels caught in the sea and entering the market, should be possible to be traced back to the fisher.¹⁵⁶

If a professional fisher sells eels to a carrier it is counted as secondary production. In this case, the municipality is to register the company, if it meets the criteria that apply to companies handling food. Buyers of eels from the carriers are also counted as secondary production. The Swedish Food Agency is to approve the buyer's facility.¹⁵⁷

¹⁵³ Conversation with Martin Bjerner, SwAM.

¹⁵⁴ Council Regulation (EC) No 338/97 of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein, article 8.

¹⁵⁵ SwAM 2020. *Uppdrag att utreda och föreslå hur fiskerikontrollen kan förstärkas*. Dnr 3792–19., p.96.

¹⁵⁶ *Ibid.*, p.96.

¹⁵⁷ Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs; Regulation (EC) No 853/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific hygiene rules for food of animal origin (In the case of secondary production, the rules in Regulation (EC) No 852/2004, Annex 2 apply (applies to the carrier) and No. 853/2004 applies for the buyer.)

The Swedish Board of Agriculture is responsible for controlling that the catch meets EU common trade standards. This mainly takes place in the first stage of trade.¹⁵⁸

7.3 Control of fishing at sea

Before the professional fishers begin fishing, they must annually notify SwAM. This is to be done 24 hours before the fishing season begins. Professional fishers must also annually indicate the location of any live storage of eels in a corf. If a corf is moved or if it is retrieved before the end of the season, notification is also required.¹⁵⁹

The Coast Guard conducts fishery inspections at sea with the help of inspection vessels and airplanes. The Coast Guard's inspection of eel fishing mainly consists of inspecting gear. When inspecting fishers, documentation and catches can also be checked.¹⁶⁰ To ensure that fishing is not conducted during the prohibition period or after the fisher's permit period has expired, SwAM conducts inspections with the help of ships and drones. Two smaller ships are stationed in Skåne and Blekinge counties. SwAM also has access to an underwater drone.¹⁶¹

7.4 Landing control

Fishers must give prior notification to SwAM when landing eels. This must be done no later than two hours before arrival at port. The landing control checks that advance notification has been made. Furthermore, it is checked that the coastal fishing journal, quantity and size of the eels are correct. When landing, the eel fishing permit is also checked, and that the holder of the permit is on board. The physical landing control can be supplemented by an administrative control of information from the landing according to logbooks.¹⁶²

7.5 Transport control

If the catch is transported from the landing site before sale, the carrier must provide information about the catch in a transport document. SwAM controls these transports to ensure that only catches that have been registered in the logbook and landing declaration are transported from the landing site. This can be done both physically, either in port or on arrival at the buyer, or administratively by checking documents. If a catch already sold is to be transported, the carrier must be able to show that a sale has taken place. This information can then be verified through an administrative check of, for example, the supplier's traceability information.¹⁶³

SwAM lacks the authority to stop vehicles outside of harbour areas. If it is relevant, the agency can request assistance from the police, or the Customs Office if it concerns border crossings.¹⁶⁴

¹⁵⁸ SwAM 2020. *Uppdrag att utreda och föreslå hur fiskerikontrollen kan förstärkas*. Dnr 3792–19, p.29.

¹⁵⁹ Conversation with Martin Bjerner, SwAM.

¹⁶⁰ County administrative boards of Sweden 2016. *Tillsyns- och informationsprojekt ål. Ål together II*, p.8.

¹⁶¹ Conversation with Martin Bjerner, SwAM.

¹⁶² SwAM 2020. *Uppdrag att utreda och föreslå hur fiskerikontrollen kan förstärkas*. Dnr 3792–19, p.21.

¹⁶³ *Ibid.*, p.22–23.

¹⁶⁴ *Ibid.*, p.23.

7.6 Illegal fishing

According to SwAM and the Coast Guard, illegal eel fishing is widespread. Based on a closer examination of the illegal fishing in the Karlskrona archipelago, the Coast Guard's preliminary assessment is that illegal fishing at least equals legal fishing.¹⁶⁵ Clear evidence of the scale is the large number of unmarked fishing gear and corves that have been seized. Since more active monitoring of illegal fishing began, over 1200 eel fishing gears have been confiscated. Illegal fishing seems to occur along the entire coast, but most seizures have been made in Skåne, Blekinge and Kalmar counties.¹⁶⁶

In addition to searching for illegal fishing gear at sea, SwAM also conducts some checks on land, around harbours and piers. For example, the agency looks for drying fyke nets, corves, anchors and sinkers for indications of illegal eel fishing.¹⁶⁷ However, it is difficult to prosecute individuals who engage in such fishing, since they must be caught in the act or otherwise clearly linked to the illegal fishing.¹⁶⁸

SwAM's and the Coast Guard's view is that even if there is organised illegal fishing, most of the illegal fishing is conducted by individuals who fish for household use or their own financial gain.¹⁶⁹

7.7 Planning of controls

Swedish fisheries control is risk-based, which means control resources are to be used where rule compliance is low and the consequences of rule violations for fish stocks are high.¹⁷⁰ SwAM and the Coast Guard produce an annual supervisory plan for operational fisheries controls. The supervisory plan describes overall focus and special focus areas for controls. The supervision plan's priorities are the result of a balanced assessment of the status of the fish stock, regulatory compliance and the results of controls from previous years. Information on the status of the fish stock is provided by SLU. Using the overall focus in the inspection plan, SwAM and the Coast Guard plan joint control efforts. The agencies have a joint tactical planning group that meets every two weeks. This group includes case managers, lawyers and, when possible, inspectors. SwAM has a follow-up and analysis unit that provides data for these meetings. The planning group plans future controls in detail, follows up on completed controls and develops proposals for improvements to fisheries controls.¹⁷¹

SwAM produces its own risk analysis for control of financial statements that analyses ownership in the companies that purchase eels, what trade occurs with certain species, what stakeholders are involved, tips from informants and information from the Coast Guard.¹⁷²

¹⁶⁵ Conversation with Christian Axelsson, Coast Guard.

¹⁶⁶ SwAM 2015. *Sveriges nationella älförvaltningsplan. Havs- och vattenmyndighetens analys av behovet att revidera den nationella förvaltningsplanen för ål*, p.29.; Conversation with individual at SwAM.

¹⁶⁷ Conversation with Martin Bjerner, SwAM.

¹⁶⁸ SwAM 2020. *Uppdrag att utreda och föreslå hur fiskerikontrollen kan förstärkas*. Dnr. 3792-19, p.97.

¹⁶⁹ Conversation with Christian Axelsson, Coast Guard and Martin Bjerner, SwAM.

¹⁷⁰ SwAM 2020. *Uppdrag att utreda och föreslå hur fiskerikontrollen kan förstärkas*. Dnr. 3792-19, p.27.

¹⁷¹ *Ibid.* p.26.; Conversation with individual at SwAM.

¹⁷² Conversation with Pia Ovik, SwAM.

7.8 Costs and financing of fisheries control

The majority of SwAM's fisheries controls are funded through the agency's administrative appropriation. However, the EU's maritime and fisheries programme funds certain aspects. Funds from the programme are also allocated to the Coast Guard, although the majority goes to SwAM.¹⁷³

In 2019, the cost of fisheries control activities at SwAM totalled SEK 97 million. This year, the agency's budget for fisheries control is approximately SEK 92 million. Only a small part of that sum is used to control the eel fishery.¹⁷⁴

7.9 Collaboration between agencies

Several agencies are involved in achieving effective fisheries control. In SwAM's 2020 evaluation of fisheries control, the agency highlights the need for clearer governance and follow-up when several agencies are involved in control activities.¹⁷⁵

SwAM has overall responsibility for fishery control. These control activities include several follow-up, monitoring and control steps. Primarily, SwAM and the Coast Guard share these steps. SwAM is responsible for most of the requirements from the EU Control Regulation. The agency is also responsible for coordinating the supervisory plan and the associated risk analysis. Furthermore, SwAM is responsible for coordination, reporting and follow-up on Swedish fisheries control with the European Commission.¹⁷⁶

As described in Section 2.2, the Swedish administrative model gives agencies considerable independence. This applies not only in relation to the Government, but also in relation to other agencies. SwAM may not direct the Coast Guard's actions in fisheries control. In SwAM's 2020 investigation of fisheries control, the agency highlights certain difficulties with having overall responsibility, while having little opportunity to influence governance and resource allocation when it comes to existing follow-up, monitoring and control requirements. The collaboration between SwAM and the Coast Guard primarily regulates various forms of cooperation and the exchange of information. The choices each agency make for performing their controls are outside the parameters of the collaboration. According to SwAM, there is no agreed common goal and consensus between the agencies regarding control activities. SwAM also believes that fisheries control implementation and resource allocation have had to take a back seat with the Coast Guard, because the agency has such an extensive and broad mission. There can be difficulties in the relationship when rapid changes occur to regulations or risk patterns and that may result in changes to or increases in control needs at sea. Here, SwAM's view is that the balance of power is unclear between the agency and the Coast Guard.¹⁷⁷

In the 2020 investigation, SwAM presents proposals on clarifying responsibilities and improving collaboration between the agencies. This includes a SwAM proposal for the Government to clarify the tasks of the agencies regarding supervision, monitoring, inspection and control. The

¹⁷³ SwAM 2020. *Uppdrag att utreda och föreslå hur fiskerikontrollen kan förstärkas*. Dnr. 3792-19, p.36.; Conversation with individual at SwAM.

¹⁷⁴ Ibid. p.36.; Written information from SwAM.

¹⁷⁵ SwAM 2020. *Uppdrag att utreda och föreslå hur fiskerikontrollen kan förstärkas*. Dnr. 3792-19, p.4.

¹⁷⁶ Ibid. p.72.

¹⁷⁷ Ibid. p.73.

Government is also asked to clarify what responsibilities the agencies have for providing information and guidance to each other and towards the various stakeholders in the fishery.¹⁷⁸

SwAM also highlights the lack of clarity in the county administrative boards' responsibilities within fisheries supervision. According to the report, this complicates the organisation and long-term implementation of fisheries supervision. It also means that supervision is handled differently in different parts of the country. Furthermore, the lack of clarity makes collaboration between agencies more difficult.¹⁷⁹

In the investigation, SwAM points out that the agency's instructions do not include a law enforcement mission, like is the case with the Coast Guard. Not having a law enforcement mission makes it more difficult for SwAM to exchange information due to confidentiality requirements.¹⁸⁰

7.10 International collaboration

Within the EU, there is ongoing collaboration in matters relating to fisheries control. Collaboration is first and foremost organised by the European Commission and the European Fisheries Control Agency (EFCA). EFCA's main task is to organise coordination and cooperation between the control activities of the member countries, so that the rules of the common fisheries policy are followed and applied effectively. EFCA organises meetings within the framework of the EU's joint control efforts and holds training courses for inspectors and control officers.

Member Countries around the Baltic Sea collaborate in the regional group Baltfish. Baltfish has a control expert group that meets regularly during the year. The mission of the control expert group is to develop joint approaches for fisheries control and documentation. This applies to the implementation and monitoring of the landing obligation.

Sweden has some collaboration with Denmark regarding control activities within the framework of the EU's Joint Development Plans. For example, inspectors from Denmark can come to Sweden and vice versa. However, the national focus applies specifically for the control of the eel fishery.¹⁸¹

¹⁷⁸ SwAM 2020. *Uppdrag att utreda och föreslå hur fiskerikontrollen kan förstärkas*. Dnr. 3792-19, p.74.

¹⁷⁹ *Ibid.*, p.66.

¹⁸⁰ *Ibid.* p.70.

¹⁸¹ Conversation with Martin Bjerner, SwAM.

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