

Authority services

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Swedish Environmental Protection Agency
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Response to Sweden's notification to Finland regarding consultation under Articles 4 and 5 of the Espoo Convention on Environmental Impact Assessment in a Transboundary Context on plans for the construction of an Eystrasalt offshore wind farm in Sweden's economic zone in the Bothnian Sea.

The Finnish Environment Institute hereby acknowledges that Finland has received the notification from Sweden, dated 29 January 2024, in reference to Articles 4 and 5 of the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention). In the notification, Sweden invited Finland to submit comments on Eystrasalt Offshore AB (EYOAB) permit application and environmental impact assessment (EIA) for the plans for the offshore windfarm project "Eystrasalt Offshore" in the Sea of Bothnia in Sweden's economic zone by 29 February 2024. By Finland's request an additional response time was given until 8 March 2024.

According to notification received the project is planned in Sweden's economic zone, and therefore a permit is required according to Section 5 of the Swedish Economic Zone Act (1992:1140) to build and operate the facilities. Permits under SEZ are reviewed and decided by the government. To an application in the case of an SEZ permit, an Environmental impact assessment (EIA) must be drawn up and chapter 2–4 shall be applied for the examination and chapter 5, 3–5 § and 18 § of the Environmental code.

Consultation in Finland

According to the Act on Environmental Impact Assessment Procedure (252/2017), the Finnish Environment Institute is the competent authority and responsible for consultation tasks under the Espoo Convention. In its notification the Swedish Environmental Protection Agency requested Finland to provide comments concerning the assessment of the environmental impacts of the project affecting Finland and to submit any comments that is received from the public and the authorities in Finland. The public and authorities were given the opportunity to comment on the consultation documents from 5 February to 4 March 2024. The consultation documents were available, and statements were asked on the website of Finland's environmental administration and on the website of electronic public consultation. The Finnish Environment Institute received 17 statements.



The response to the consultation

The Finnish Environment Institute wants to point out that based on the response received the transboundary impacts on safe navigation on all seasons, commercial fishing, spawning areas for Baltic herring, migratory fish, and birds are either underestimated or not sufficiently assessed in the environmental impact assessment and the permit application.

We received many strong and important statements which underline the shortcomings and issues for example related to maritime safety or lack of impact assessment related to winter navigation. Especially strong message was received regarding the fishing rights and fish population in general. The fisheries authority estimates that there is a high risk that the impacts of the planned offshore wind park will be disastrous for the Finnish fishing industry. Furthermore, the fisheries authority lists several requirements, which, if implemented, will reduce the impact of the planned project on fisheries.

Due to lack of sufficient consultation time and the lack of access to the appendices of the EIA and the permit application, Finland considers that the environmental impact assessment has not sufficiently complied with the Espoo Convention and demands that the impact assessment be supplemented in accordance with the response received and the feedback given in the context of the environmental impact assessment.

In addition, Finnish Environment Institute notes that the permit granting procedure cannot be completed until Finland's response has been considered and responded and the negotiations under the Espoo Agreement have been concluded.

Finnish Environment Institute wishes to note that planning of offshore wind farms has increased in the Baltic Sea region. This has raised concerns about the need for an overall assessment. At the permit application state, all contributing factors should be known, and their impacts sufficiently and transparently assessed to ensure that the decision on the implementation of the project is based on firm knowledge of its impacts and on the best possible solution to reduce them. As cumulative impacts of several wind farms can potentially be ecologically significant, it is considered important to attempt to assess cumulative impacts as widely as possible. The Finnish Environment Institute states that the EIA documentation and the permit application consulted do not sufficiently address all the transboundary impacts from Finland's perspective and this is reflected also in the comments received during the consultation.

The Finnish Environment Institute has prepared a summary of the original statements in English below, however the original statements, which are enclosed to this letter, include important and detailed remarks which need to take into consideration in its entirety.

[Disclaimer: the text below is largely machine translated from the original statements received, as the time available to answer was extremely short. The original statements in Finnish or Swedish are enclosed to this letter.]



Statements received in Finland

The Ministry of Transport and Communications

In accordance with Articles 4 and 5 of the UN/ECE Convention on Environmental Impact Assessment in a Transboundary Context (Treaty Series 67/1997, Espoo Convention), the Finnish Environment Institute has received from the Swedish Environmental Authority (Naturvårdsverket) environmental impact assessment documents containing an assessment report and an application for a permit. The Finnish Environment Institute (Syke) has requested a statement from the Ministry of Transport and Communications on the project's environmental impact assessment documents.

The project area is located in Sweden's economic zone in the Bothnian Sea. The distance to the exclusive economic zone of Finland is 13 km and the shortest distance to the Finnish coast is 113 km. According to the project evaluation report it is not expected that extending the route to the east of the project area would lead to an increase in travel times. Therefore, the impact on marine traffic during operation has been estimated to be minimal. As traffic volumes on these shipping routes are very low, the impact has been estimated to be low or small, depending on the stage.

According to the project evaluation report, the project manager intends to request the Swedish Transport Agency to decide on closing the work area from other maritime traffic during the construction phase. This means that access by vessels to the project area will be restricted. The impact of the restricted access is considered to be greatest when the work is carried out in the eastern part of the project area, where the planned wind farm overlaps two shipping lanes. Marine traffic outside the project area may also be affected during the construction phase.

In addition, the assessment report estimates that the increase in offshore activities during the operational phase of the offshore wind farm will lead to a reduction in the areas currently accessible to shipping. According to the report, the existence of the wind farm affects the vessels' navigation possibilities in the project area and its immediate vicinity. According to an analysis by the shipping industry, larger vessels will not be able to pass through the wind farm. According to the assessment report, there is plenty of area to navigate to the ports affected by the planned wind farm, and the vessels would travel very little. In addition, the environmental impact is considered to be limited as no increase in time or fuel consumption is expected on the new proposed route in a north-south direction, although the distance will be slightly extended.

The assessment report does not assess the cumulative impacts of other offshore wind plans. Several offshore wind power projects are planned in the immediate vicinity of the planned Eysteras offshore wind farm, in both the Swedish and Finnish exclusive economic zones, which will further accentuate the impact of offshore wind farms on shipping. The flow of shipping has been assessed superficially, and the effects on changes in maritime safety or on shipping in ice conditions have not been sufficiently assessed.



Considering the location of the project area and other offshore wind power projects planned for the area, the projects may also have an impact on shipping to and from Finland, especially in ice conditions. For this reason, the potential combined effects of offshore wind projects on shipping in the entire region should be comprehensively investigated. The construction of numerous offshore wind farms may have a significant impact on the safety and flow of shipping. The impacts may be related at least to changes in traffic routes, fuel consumption, weather observation equipment, spillover effects of radars and winter navigation. A study is also required of the project's effects on the ice conditions in the area, the spillover effects of which on maritime traffic may extend to a significantly larger area than the project area.

When constructing offshore wind farms, the impacts on maritime transport infrastructure must be considered. Smooth and safe maritime traffic on sea lanes and in sea areas outside sea lanes throughout the year is important, as the majority of Finland's foreign trade goods are transported by sea. Taking shipping into account is important in order to secure the operating conditions of Finnish merchant shipping and to ensure safe and smooth shipping. The design of offshore wind power plants must take into account the unhindered use of fairways. Offshore wind farms can change traffic areas and routes, extend travel times and increase vessel emissions as fuel consumption increases. The accessibility of ports and the routes required by shipping must be considered. When delimiting the area of planned offshore wind power projects, it is important to consider the traffic routes used by shipping also outside the reinforced fairways and routing systems, so that the operating conditions and safety of shipping are considered in the planned project area. In addition, special attention shall be paid to the routes used by winter navigation, which differ from those used in open waters.

Offshore wind farms can affect, for example, marine radar systems and safety, weather radars and the use of radio frequencies. The reliable operation of radar systems is an essential part of maintaining the general safety of maritime transport, and it also has an impact on the observation equipment of the Finnish Meteorological Institute. In addition, wind turbines have an impact on the field strength and signal quality of mobile networks. The operation of radio links operating in the sea area, on the other hand, requires a completely unobstructed area between the transmitter and receiver. Since electronic communications services in coastal and maritime areas depend on radio systems, it is important to ensure that mobile services, radars, and radio links operate sufficiently undisturbed, including in maritime areas. Even small changes in the placement of wind turbines can have a decisive impact on the operation of radio systems in an area.

In other respects, the Ministry of Transport and Communications refers to the statement by the Finnish Transport and Communications Agency (Traficom).

Finnish Transport and Communications Agency (Traficom)

Traficom states that from a maritime perspective, wind farms planned for the sea area may affect, for example, the functionality of the transport system, maritime radar and radio systems, and maritime safety, in which Traficom plays a key role (Act on the Transport and Communications Agency (935/2018)). According to the Vessel Traffic Services Act (623/2005), Traficom is the competent VTS authority, and it supervises the VTS service provider, and the maritime situational picture produced and its accuracy.



The trouble-free operation of radars is particularly important to Traficom, as radar is the most important observation tool in traffic control.

When offshore wind farms are located near sea lanes or maritime traffic areas, wind farms may cause harm to ships' radar systems as well as radar monitoring of maritime traffic control or pose a danger to the safety of shipping and the use of sea lanes or harm the operating conditions of shipping, especially during ice-covered periods. The unhindered use of sea lanes also requires a free passage for shipping in the sea area between the outer sea and the sea lane (maritime traffic area). Large-scale offshore wind farms may also have an impact on the accessibility of ports and the operating conditions of shipping more broadly, as offshore wind farms may have significant impacts on the routes used by shipping, the need for icebreaking assistance for merchant ships and the routes of winter shipping, which are realised according to the current ice situation. In accordance with Article 60(7) of the United Nations Convention on the Law of the Sea (50/1996), artificial islands, installations or installations located in the exclusive economic zone may not be built, or protection zones established around them in an area where they may impede the use of generally recognised sea routes essential for international shipping.

Several offshore wind power projects are planned in the immediate vicinity of the planned Eysterasalt offshore wind farm in both the Swedish and Finnish exclusive economic zones, which will further accentuate the impact of offshore wind farms on shipping. However, the EIA report on the Eysterasalt offshore wind farm plan states that the assessment of cumulative effects is speculative and could reveal much more impacts than is possible. Traficom considers that the chosen approach, which completely ignores projects planned in the vicinity of the project area – except for the project developer's own projects – does not allow for an appropriate environmental impact assessment of the project. Taking into account the impacts of offshore wind farms on shipping, it would have been at least desirable to assess the impacts of offshore wind power construction on shipping around the planned project area in general terms from the perspective of maritime safety and smoothness, as the planned project area is located in the vicinity of the most central north-south marine traffic area in the Bothnian Sea, around which a significant number of offshore wind power projects are planned. Therefore, any potential future changes to the above-mentioned traffic routes will inevitably also have an impact on the surroundings of the Eysterasalt offshore wind farm. Leaving aside the other planned projects, the Maritime Spatial Plan for the Gulf of Bothnia in Sweden, and the alternative clearing areas for energy recovery in the immediate vicinity of the Eysterasalt offshore wind farm are also ignored. In addition, considering the strong need to increase the number of energy capture areas (offshore wind energy areas) identified in the Swedish Maritime Spatial Plan compared to the current plan, which has been drawn up within the framework of the government's mandate, shows that the corresponding vision of the project – which only takes into account its own offshore wind plans – is quite unsustainable.

As other offshore wind plans have not been considered in the assessment report, the safety change caused by offshore wind farms compared to the current situation, such as the concentration of maritime traffic in narrower traffic areas and the diversion of traffic to corridors between offshore wind farms, which has an impact on maritime safety and increased environmental risks, is not assessed. In addition, wind power structures can



cause either shading or spillover effects on marine radars. The reliable operation of radar and radio systems is an essential part of maintaining maritime and public safety, but the potential impacts of a wind farm on the systems are only described very superficially in documents submitted to the Finnish Environment Institute.

In addition, the assessment report has only examined the smooth flow of shipping very superficially regarding the Eyrasalt offshore wind farm. The assessment report presents an alternative route for maritime traffic – as the Eyrasalt offshore wind farm is located in the operating area currently used by shipping – but another offshore wind power area is planned for the proposed alternative traffic area, which in turn borders several planned offshore wind power areas on the Finnish side. In addition, the alternative route has been designated for an area marked as an offshore wind farm (energy recovery clearing area, alternative) in the Swedish maritime spatial plan. In addition to smooth navigation, the special characteristics of winter navigation are also overlooked in the assessment report. As offshore wind farms are built and the operating space for shipping decreases, the flow of winter navigation may deteriorate compared to the current situation, causing the transport system to be sensitive to disturbances, especially in difficult winter conditions. Offshore wind power projects in the Bothnian Sea would also increase the need for assistance in winter shipping, as vessels cannot be left waiting for their turn in the area of moving ice or to navigate in the vicinity of offshore wind farms without assistance to ensure maritime safety.

Traficom considers that the coverage of the assessment report regarding impacts on maritime transport is inadequate, and therefore the assessment should be supplemented so that it considers the offshore wind plans surrounding the project area and their cumulative impacts on shipping more comprehensively than at present. The pending amended maritime spatial plan for the Gulf of Bothnia in Sweden states that due to the strong increase in offshore wind power both in Sweden and neighbouring countries, the risk of cumulative impacts must be considered primarily in the further planning and permit process for offshore wind power, but also for other activities. In addition, the Maritime Spatial Plan recognises that the risk may be particularly high in areas with a high concentration of energy areas and cross-border cooperation in assessing such cumulative impacts is desirable. The Eyrasalt offshore wind farm project is located in an area of this kind, where large offshore wind power areas have been planned for both Swedish and Finnish sea areas, and the area is crossed by the main north-south traffic route of the Gulf of Bothnia, which carries a significant amount of traffic from both Swedish and Finnish ports.

Centre for Economic Development, Transport, and the Environment of Southwest Finland

The Centre for Economic Development, Transport and the Environment of Southwest Finland has studied the consultation documents and states the following:

The Finnish translation of the consultation document, which corresponds to the evaluation report, was partly difficult to understand and contained incorrect expressions. Attention should be paid to the quality of the translation work. The ELY Centre states that cross-border impacts should also consider the potential warming effects of cooling waters on the Baltic Sea. At present, it is not clear from the consultation documents to



what extent the impact of cooling waters can reach and how much temperature increase they cause. It is noted that information obtained from interviews with fishermen, for example on the spawning area of Baltic herring, should also be considered in further planning.

As regards the likely impact on traffic, traffic volumes have been measured in 2020, which should consider whether the COVID-19 pandemic has had an impact on the volume and frequency of shipping. Two major shipping lanes run along the eastern edge of the project area. The effects on these must also be considered in terms of accident risks.

Bat monitoring is planned for the project area after the completion of the offshore wind farm. The ELY Centre points out that there is uncertainty in the assessment of likely cross-border impacts on bats due to lack of information, and an assessment of the effects on bats is missing from both documents. It is possible that some bat species may also migrate along the migration route across the Baltic Sea due to a lack of information on their migratory behaviour. In the more detailed planning phase of monitoring, the guidelines for bat surveys of offshore wind projects should be followed in accordance with the Agreement on the Conservation of Populations of European Bats (Rodrigues et al., 2014) and the latest available information and research methods should be utilised.

Regarding bird populations, the ELY Centre states that only lesser black-backed gulls can be expected to move to the area affected by the planned wind farm. The ELY Centre notes that there are shortcomings in the results of migration monitoring because autumn migration has been monitored too late. Since the wrong time had been noticed, the matter could have been corrected by monitoring at the right time the following year. Migratory monitoring should be planned through weather forecasts and changes in wind conditions and assess how these affect bird migratory behaviour. In addition, monitoring should be carried out on a sufficient number of days throughout the migration season or other monitoring methods should be used in addition to visual observation. It is not clear from the consultation documents why radar migration monitoring of nocturnal species was carried out in the spring, but not in the autumn. Synergies, i.e., other wind farms planned for nearby areas, should also be considered in the impacts on migration routes. The impacts on bird populations have been estimated to be minor in the consultation documents, but due to the failed migration monitoring and assessment of synergies, this involves considerable uncertainty.

The joint impact assessment considers projects located in Sweden's economic zone. However, the assessment of synergies should be developed by also considering other offshore wind projects in the Baltic Sea region, even with a map review, although the next steps of these projects are uncertain. Offshore wind farms at various stages are planned to the east of the project area in question, just within Finland's exclusive economic zone, i.e., approximately 10 km away. These should be considered in the assessment of synergies, for example for fish, marine mammals, and birds.

The Centre for Economic Development, Transport, and the Environment of Southwest Finland – Fisheries Authority



[Disclaimer by the Fisheries Authority: the text below is largely machine translated from the Finnish original. This is due to lack of time caused by a process error, where Finland was not given the possibility to comment on the project on time; and the given additional time was not sufficient for ordering translations. Specific questions on the comments can be requested from the fisheries authority in Swedish and English.]

The Centre for economic development, transport and the environment in Southwest Finland is the competent fisheries authority in all areas of Finland affected by the impacts of this project. The fisheries authority has consulted the consultation document, the EIA report, the permit application, and its relevant attachments concerning fisheries matters and states following:

The consultation document contains a number of factual errors and erroneous conclusions partly resulting from these errors. In particular this is true in relation to fish and fisheries. That is why, in our view, the document draws a wrong picture of magnitude and significance of the environmental impacts. The consultation document is a shortened copy of the Swedish EIA report which is based on at least 25 attachments. The document also lacks an attachment list. In the consultation document is mentioned that attachments may be requested but there is no indication from whom. In practice, this means that the attachments were not available to all parties in Finland. The consultation document is therefore incomplete. The quality of the attachments varies, but they contained many answers to questions from the Fisheries Authority which have not been answered in the consultation document. Serious deficiencies were found in the herring spawning study which is in a key role for this EIA from a fisheries point of view.

In accordance with Article 5(1) of Regulation EU 1380/2013 of the European Parliament and of the Council, Finnish fishing vessels have a fishing right in the Swedish exclusive economic zone (EEZ) where the planned wind power production area is located in. The quota (TAC) for Baltic herring (in the following called only herring; Finland does not fish other herring stocks) in the Gulf of Bothnia is divided between Finland and Sweden, of which approximately 82 % belongs to Finland. The Bothnian Sea is Finland's most important fishing area and a large part of all herring for human consumption comes from Sweden's EEZ. The catches from the Bothnian Sea play a key role in the Finnish fisheries industry. Finnish vessels have been fishing regularly in the area of interest for at least 30 years. The project area and its adjacent areas (area of interest in the following) are in a key role and irreplaceable for Finnish fisheries on herring for human consumption. The consultation document and the report on the economical impacts on commercial fishing (Attachment M12) attached to the permit application give a false impression. The impacts are significant.

The fisheries authority estimates that the impacts of the proposed project on fish stocks will probably be large (construction phase) and moderate or large (operational phase). With the changes proposed below, the impacts can be reduced to moderate (building) and small (operational phase). The fishing impact is estimated to be high (construction phase) and very high (operational phase). There is a high risk that the impacts will be disastrous for the Finnish fishing industry. With the changes listed in our requirements, the project can be implemented with small (construction and operational phases) impacts on fisheries.



The fishing authority primarily demands changes to project plans as well as further studies. Alternatively, the permit application shall be rejected as a whole or, full compensation must be paid for the loss suffered by the entire value chain and society.

List of problems and shortcomings in the consultation document:

Fishing activities in the energy production area and impact of the project on adjacent fishing areas

The reports on commercial fishing show that there are important trawling corridors within the peripheries of the planned energy production area and in particular in its immediate vicinity. These corridors cannot be relocated and the catches from this area cannot be obtained from anywhere else in the same quality. Nonetheless, the attached reports do not recognise the significance of the catches from the area of interest for the Finnish fisheries industry. The documents do not take account of the fact that the turbines built on the boundary of the production area affect fishing even up to tens of kilometres outside the boundary line. The report on commercial fishing (Attachment M11A) states that there are significant fishery activities within 30 km from the production area, and in particular less than 5 km of the boundary of the production area. Within this 5 km zone, there will certainly be fishing restrictions, in the form of bans or technical obstacles. These obstacles may also include dumping sites for dredging materials at the very boundary of the production area, which may alter the shape of the bottom and the behaviour of the fish.

The consultation document refers to the fact that there are very few fishing activities within the boundaries of the production area. Fishing is defined here on the basis of spatial data, i.e., the instantaneous positions of fishing vessels. In fact, these points are parts of trawl corridors that cannot not be interrupted. A trawl is typically towed between 10 and 25 hours, i.e., tens of kilometres, with no interruption along a specific route or corridor. Deviation from this corridor is generally not possible because the bottom profile will cause damage to the trawl gear or escapement of the catch. It is also not possible to interrupt trawling because it reduces the profitability, and it may not be possible to find suitable hauling places nearby. Some of the mentioned vessel positions within the production area are hauling positions, which cannot be moved either, as hauling against a slope is usually most efficient. The map provided (Figure 7-12) clearly identifies several trawl corridors within the boundaries of the production area, most of which are touching the area only for a short distance, particularly at the western edge of the area. If the data used for that map were in line with common standards, there would be even more corridors visible. In practice, cutting off these corridors would cause cessation of fishing activities over a large area, even far outside the production area. Counting fishing activity percentages is not an appropriate way of analysing fishing in the area of interest.

Percentages also give a wrong picture of the fisheries in the area of interest. In the document is stated that 65 % of Finnish fishing in the closest statistical rectangles takes place more than 30 km from the boundaries of the production area, but no qualitative differences are identified: fish fished further away is probably low-value catch, fished for



animal feed, while high-value food fish is caught precisely in the vicinity and within the boundaries of the production area.

It is also stated in the consultation document that the fishing grounds indicated in the interviews with fishermen are incorrect because they do not overlap with the spatial data sets. This is partly true because actual fishing activity of the interviewed fishermen have not been taken into account. The data should therefore have been statistically weighted before the analysis. Fishing activities in the centre of the production area is truly rare and of low significance. The trawl areas drawn on the peripheries, in particular bottom trawling, coincide well with our VMS data, taking into account safety distances. These facts can easily be observed, and the EIA report should objectively highlight them.

The critical export cable is insufficiently addressed in the consultation document: no spatial information is provided, and the writers refer to a separate licence application. The list of expected impacts does not identify any impact on fisheries. The location of the production area suggests that export cables are likely to be dragged through important trawl grounds. Even a trawl-protected cable can prevent trawling with the same consequences as placing a production area in trawl corridors. If no further studies are carried out on export cables within the current licence application process, a separate EIA process must be established for the cables, where Finland could participate in accordance with the Espoo Convention.

As a summary, in most of the planned production area there are no relevant trawl corridors, but in its peripheral and adjacent areas there are highly important, unchangable trawl corridors. The importance of these corridors causes a need to shift the boundaries of the production area and the dumping sites. It is difficult to determine the exact need for boundary shift on the basis of the material provided, as trawl corridors have not been identified on a map. The routes of the export cables should be located outside of any trawl grounds.

Right of transit for fishing vessels

Direct routes of Finnish vessels to and from landing ports are leading through the planned production area. A traffic closure of the production area would mean an additional voyage of up to three hours for Finnish vessels, which will have a significant impact on fishing profitability, as well as quality and value of catches and emission levels. Regardless of what is stated in the consultation document, fishing vessels must be guaranteed free and safe transit through the production area under all circumstances. Transit possibilities must be investigated and, if necessary, technical means must be sought, such as corrections of turbine locations.

Impact on the Finnish fisheries economy

The fisheries report (Attachment M12) does not sufficiently highlight the significance of the loss of fishing grounds in the area of interest for the Finnish fishing industry, and it is estimated that fish can be fished elsewhere, and that the economic impact would be only SEK 3.1 million. The same attachment does not recognise that herring as a raw material cannot be replaced by other fish. The license application completely ignores



the identified problems and evaluates the effects of the project as negligible. The economic figures in the consultation document and the attachments are based on outdated fish prices, the added value of the value chain is ignored, as are the dependence of fishing in other fishing grounds on this main fishing ground and the importance for the Finnish emergency supply. Furthermore, they do not take into account the impact resulting from the cut-off of trawl corridors.

The Fisheries Authority confirms the information provided by fishermen on the importance of the area of interest and emphasises that the project area plays a very important role in the Finnish fisheries sector. Trawl corridors cannot be relocated and catches of similar quality cannot be caught with the same efficiency elsewhere. Large herring from the area is the base of the herring-based food fish industry in Finland. If fish for human consumption have to be fished elsewhere, cost-effectiveness will decrease, quality will suffer, and fuel use will increase. The resulting loss of profitability may threaten the value chain for herring for human consumption, at least in the port of Kaskö, where major investments have just been made to shift the value chain from animal feed to human consumption. The Fisheries Authority considers that the financial impact of the project may be in the order of tens of millions of euros per year and the environmental impact may also be significant if domestic food fish is replaced by meat or imported fish and domestic herring is diverted to the production of animal feed. In addition, the collapse of the value chain of herring for human consumption has an impact on emergency supply security and Finland's crisis resilience. The currently market-funded food fish value chain would have to be financed with public money if security of supply in crisis was to be maintained.

Both the consultation document and the attachments state that the quota system allows fishing to move elsewhere if it becomes more difficult or obstructed in a certain area. This may also be the case here, but high-value fish for human consumption would then be replaced by fodder fish. The argument is based on too simple assumptions and the example used in attachment M11A is based on the movements of vessels fishing for fodder fish. The area is irreplaceable to Finnish fisheries and the use of the TAC elsewhere does not compensate for lost fish for human consumption.

In addition to the outstanding role of the area of interest, every single fishing ground is important for the whole industry: fishermen choose for each trip from traditional fishing grounds based on weather conditions, market situation and fish behaviour. When access to a fishing ground is restricted, there will sometimes be no alternatives, which in turn affects the total number of fishing days of a vessel and the security of fish supply and thus the profitability of the entire value chain. The closure of one fishing ground can also reduce the profitability of fishing in other areas. This is particularly true in the case of fisheries for human consumption. In the vicinity of Eysrasaltbanken there are at least three very different fishing areas used at different times and for different needs (Attachment M11A). Therefore, the project threatens Finnish trawl fishing on a wide base.

In addition to fishing restrictions, there is concern about the insufficiently studied spawning of herring in the project area and the impact of construction works on spawning success and juvenile survival. Noise and sediment emissions during construction and demolition most likely deter spawning aggregations of herring from the



project area and adjacent areas, including main trawl grounds. The reported heat emissions can also affect the environmental balance by allowing invasive alien species to establish in the area.

The fishing authority considers that construction and demolition, and possibly operation, will result in immediate income losses for the fishing industry, which must be compensated. If the project is implemented in its proposed form and the export cables are dragged through trawl grounds, this could lead to the collapse of an important sector of Finnish fisheries, which must be fully compensated to operators in the sector and to the Finnish fisheries economy and society. If the licence is granted in its proposed form, the project owner must be obliged to set up a fund with annually two million euros to finance the development of the Finnish fishing economy (to promote the green transition of fishing), thus compensating for the permanent disadvantages to the fishing economy.

Herring spawning in Eystrasaltbanken, its importance for the Bothnian Sea stock and the impact of the project

Spawning of herring in the area of Eystrasaltbanken has been claimed by fishermen but has not been investigated. The project has ordered a study (Attachment M5) which employed eDNA to investigate possible spawning. eDNA is a rather new and comparatively rarely used method, the application of which requires accurate information on environmental conditions and the research objects. According to fishermen, spawning is likely to occur in the area of interest after Midsummer. The authors of the study state that the necessary water samplings for summer have been taken in June 2020, the exact dates are missing. According to another report (Attachment M2), the area was visited between 13.-16.6.2020, slightly before the assumed spawning time. They note that the herrings were aggregated in shallow areas close to the sea bottom, which is in line with the observations of fishermen. However, their eDNA study (which recognises the presence of milt in the water column) was not able to reveal signs of spawning. In the consultation document is mentioned that "only few herring with ripe gonads" were caught in field studies, but the attached reports do not provide any detailed information. This suggests that spawning has not yet started at the time of sampling. When looking at the results, it emerged that there are no results from any of the shallowest sampling points from June, from which possible spawning could have been proved. The shallowest site was 29 m, the sampling depth is not mentioned. Measurement points for the most critical areas (001, 011-015) are missing from all results. The spawning is likely to occur at a depth of 12-20 m, not more than 25 m. At that time, the thermocline can effectively prevent DNA from sinking into depths from which measurements have been made. The field study report shows such a thermocline at a depth of 20-25 m (Attachment M2). The study hypothesis expects a changed DNA ratio at 0-20 m depth. There are no results for this depth zone, but this is not accounted for in the report, and it is concluded that there are no signs of spawning. In fact, in the studies' analysis, two deep depth zones (i.e., zones unsuitable for spawning) have been compared with each other instead of comparing a shallow zone to them. The result gained is worth as much as the methods.

We conclude that either the potential herring spawning in the area of interest has not been scientifically studied using appropriate methods or that comparable results have not been presented. Thus, the precautionary principle must be applied: the project area



is likely to be a herring spawning area, as concluded from HELCOM modelling and field observations made by fishermen and scientists. The location of the area suggests that the spawning stock is likely to be differentiated and potentially highly important for the future of the Bothnian Sea herring stock as sea warming and salinity decrease of coastal spawning grounds accelerate. Spawning grounds must be mapped using diving and other methods. Until there are no study results areas shallower than 25 m must be excluded from construction and protected from effects thereof.

In the consultation document is stated that the area of interest is not relevant as a spawning ground. A major argument there is that there is no green macroalgae and, according to a certain study, red and brown algae are unsuitable for herring spawning. Herring, however, is a widespread species whose local populations have adapted to different conditions. The species also spawns in the bottom of the Bay of Bothnia, where there is not enough substrate other than bare stones. Herring spawn on red algae is commonly found along the coast of Finland. Assumably, herring is well able to spawn successfully on stone and gravel bottoms of Eysrasaltbanken as well as on mussel banks and red algae. In the production area there is an area of several square kilometres where the spawning could succeed, i.e., it can be a very significant spawning area if the larvae survive.

Local herring stock

In the consultation document is stated that the herring stock in the area of interest is treated as part of the herring stock in the Gulf of Bothnia. This approach is familiar from ICES practice where it is justified because it would be difficult to regulate and organise fishing otherwise. However, there are indications that the Gulf of Bothnia stock is a so-called mixed stock, and Eysrasaltbanken also has its own spawning stock. When considering the regional impact, in particular on spawning and juvenile habitats, the correct approach is to assume that there is a local stock that cannot be replaced by fish from elsewhere until this assumption can be proven wrong. The approach where spawning stocks are regionally taken into account in environmental impacts, but fisheries are organised as a mixed stock, is familiar from Baltic salmon management. The argumentation for a single herring stock is neither credible nor justified and does not serve the impact assessment.

Impacts of construction measures on fisheries and measures to avoid these

The physical effects of construction measures on fish are well identified in the document, but the effects on potential spawning grounds are ignored. The calculated sound levels suggest that piling or explosions in any point of the production area will disturb or prevent spawning in the shallows of Eysrasaltbanken. The calculated sedimentation rates (several centimetres of fine sediment within hundreds of metres of any measure) are also likely to destroy spawning sites for weeks and kill most of the roe present. The analyses show that herring eggs can withstand even high sediment concentrations in the water column, however after sedimentation, a sediment layer of several millimeters will inevitably kill the covered eggs. Suffocation of eggs is more likely if the sediment load comes from oxygen-depleted layers. Clay is a common sediment in the area, which makes oxygen-depletion probable. The problem of sedimentation-driven



suffocation of eggs is even more serious because there are no large macroalgae in the area, such as bladderwrack, which have a certain self-cleaning capacity.

Given this information, we can expect that the planned construction works will prevent spawning and/or destroy most of the spawn in Eystrasaltbanken, given that herring spawns there. The estimated construction time is four years, an extension of the construction time is likely. A four-year interruption in reproduction is presumably fatal for the spawning stock. Total destruction or long-term decline of the presumably locally adapted population is likely.

These problems can be mitigated by following measures: 1. restrictions for construction works under spawning time: the construction must not be carried out during the estimated spawning time during mid-summer. If the project does not examine the exact spawning time, we suggest 10.6-20.7. each year. Dredging may not be carried out until after 20.7. 2. Restriction for construction on estimated spawning sites: dredging or blasting may not be carried out in areas shallower than 25 m. Turbines must not be built in this depth zone if spawning sites cannot be accurately mapped. 3. construction works can be carried out annually only in certain sectors so that effects do not accumulate. Construction within the same sector must be prohibited in consecutive years. 4. technical protection measures: double bubble curtains proposed by the project shall be mandatory for piling and blasting. The use of these or other technical means to prevent spread of sediment shall be investigated and applied as appropriate.

A broad population and spawning site survey would make it possible to assess the actual need for these measures.

Problematic location of dumping sites and consequences thereof

The proposed dumping sites for dredging waste are located in the edge areas of the production area where fishing actually takes place. Dumping dredging masses can prevent fishing at and near the dumping site. The resulting erosion clouds and changes in currents can alter the behaviour of fish even outside the dumping site for years after dumping, as new bottom surfaces will only settle over time. In addition, the proposed dumping sites are situated on the open slopes of a subsea plateau (Eystrasaltbanken), which are highly likely subject to comparatively strong currents. In the long term, erosion of the dumped masses and/or of the surrounding sediments is very likely in these locations. We find no logical explanation for the given location of the dumping sites. Dumping on the proposed sites shall be avoided. We propose that the disposal sites be transferred, for example, on the central plateau in the production area or to deeper basins outside the production area where is no significant fishing activity, however. The use of coarse dredging material for artificial reef construction at the photic zone's limit might be an appropriate measure which does not affect fishing, but with positive effects on marine nature and even fish stocks, if well-planned.

Impact of warm water on the environment

In the consultation document is estimated that at the discharge points of cooling water, water temperature will rise by few degrees on a few hundred square metres. The environmental impact is assessed as negligible in the document, and this is likely to be



the case regarding local fish stocks. However, the risk of invasive alien species has been ignored. This problem is critical because the outflows are planned to be placed in a relatively shallow area (≤ 20 m). A thermal island of a few degrees in a reef area can create source populations for many invasive alien species whose spread can cause environmental problems. Invasive alien species may enter the area with building equipment or maintenance vessels.

The threat of invasive alien species can be addressed by spreading cooling water over a wide area far from the sea bottom and pile structures. The surface materials and paints of close-by structures should also be selected in order to make it more difficult for organisms to establish there.

Conservation area argumentation

The consultation document states that the preventing effect on fishing makes the production area a marine protected area (MPA). The Fisheries Authority points out that the establishment of protected areas without knowing the needs is usually not successful, and sometimes causes even disadvantages. The MPA concept has been developed for multi-species fish communities in the oceans and its effects are particularly visible in demersal and large predatory fish object to fisheries. In the Bothnian Sea, there are neither of these typical objects in significant amounts. The area's fish community consists almost exclusively of pelagic herring and sprat. These species roam on such a large area that the creation of a relatively small protection area is unlikely to benefit them. The only reasonable purpose for setting up such an MPA would be to protect spawning. However, in the assumed spawning season, mid-summer, there is no fishing in the area and spawning aggregations are also protected from trawl fishing by the area's profile. In addition, herring in the Bothnian Sea is regulated by quotas. Thus, we can assume hardly any collateral protection effect. The document also refers to scientific studies which do not support the used argumentation considering a proven conservation effect on herring.

Effects of changes of wind and currents

In the consultation document is stated that the impact of the production area on current conditions will be low, based on modelling results. However, the mentioned modelling study (Attachment M16) only modelled the direct impact of the foundations on water currents. The results seem plausible, but the impact of changes in wind patterns on the water currents has been completely neglected. However, under the conditions of the Bothnian Sea, the largest impact of a wind turbine area on water currents can be expected to happen via changed wind conditions. Wind conditions are probably changed on a wide area, so the maps used in the cited study cover a far too narrow range.

The fishing authority notes that the impact on flow conditions has been insufficiently studied and no conclusions can be drawn on the environmental impacts.

The consultation document also uses the wrong map to support the claim that there are no environmental impacts. A map supporting this claim cannot be found in the document. From attachment M16 can be examined that the claim that erosion will not



increase is likely to be correct, but the impact assessment does not take into account that in some places sedimentation may increase.

Changes in current regime may have very significant impacts on the characteristics of the habitats in the project area, such as the suitability of spawning sites. Changes in current regime may also impact far from the production area, for example on stratification, chemical conditions and fish biomass production. Judging from the common wind directions, a far-reaching impact would particularly affect Finland's side of the Bothnian Sea. The effect of changes in wind conditions on current regimes needs to be studied, as the environmental impact can be significant and far-reaching. Also effects of reduction in current velocity must be assessed, in particular at potential spawning sites.

Summary

The Fisheries Authority considers that the project, as proposed, poses a significant threat to the Finnish fisheries economy, to the common fish resources of Finland and Sweden and to the environment of the Bothnian Sea. However, the implementation of the project with a significantly smaller adverse impact is possible with moderate changes. The required measures include areal changes, re-financing of methods, restriction of construction and further studies. The requirements are listed below.

Requirements

All agreements and promised measures and their funding must be binding and guaranteed even when ownership of the project changes. The project owner must ensure that all responsibility is transferred in connection with ownership change.

Compensation matters may be assigned to a separate process.

Primary requirements

1. Active bottom trawl corridors will be investigated from the past ten years and no turbines or internal lines will be built on them. The location of any turbines shall be at least three kilometres from the edge of any identified trawl corridor. It must be ensured that there are no traffic bans on trawl corridors.
2. The export cables shall be located outside any trawl corridors throughout all their length, or their technical trawl resistance and the accessibility for trawling must be ensured. The liability for the trawl resistance of export cables belongs to the project implementer or owner. If no further reports are conducted on export cables in connection with the current application, the export cables must be subject to a separate EIA process which Finland can participate in in accordance with the Espoo Convention.
3. Safe transit of fishing vessels through the production area as straight as possible must be allowed and technically possible under all circumstances.
4. Construction works may be carried out each year only in a specified sector. Construction in the same sector in consecutive years shall not be allowed. The surface of any sector may not exceed one quarter of the project area.



5. If the project is not able to determine the exact spawning time of herring, each year construction measures shall be prohibited from June 10th till July 20th. Dredging may not be carried out until after July 20th. If spawning is found to occur in the area at a different time, these restrictions must be adjusted.
6. Dredging or blasting may not be carried out in areas shallower than 25 metres. Turbines must not be built in these areas until spawning sites have been mapped.
7. Double bubble curtains are mandatory for piling and blasting. The use of these or other technical measures to prevent spread of sediment shall be investigated and applied as appropriate.
8. The heat emissions from transforming stations shall be diluted to surface water in such a way that the environment does not allow the formation of thermal islands suiting for alien species. The structures for this purpose must be constructed in such a way as to make it more difficult for invasive alien species to establish. The project shall be obliged to start a new EIA process if total heat output exceeds the declared volumes, for example in case of adding hydrogen production to the current project plan.
9. The permit holder shall monitor the impacts on fisheries during construction and use. A monitoring programme for impacts on environment, biota and fisheries shall be set up under the supervision of an independent research institute. This programme must be approved by the Swedish and Finnish fisheries authorities.
10. Fishermen's loss of income must be fully compensated. The assessment of the compensations must be approved by the licensing authority.

Secondary requirements

The license application must be rejected in its entirety;

OR

the project shall fully compensate the loss to the entire value chain throughout the life cycle of the project. Compensation must be paid at least to fishermen, fish processing companies and the Finnish fisheries economy. The loss of income for fishermen and companies must be fully compensated. The assessment of the compensations must be approved by the licensing authority. Common losses to the fisheries economy must be compensated by obliging the project owner to set up a fund receiving two million euros annually to fund the development of the Finnish fisheries and fish processing. The compensation amount is based on the opinion of the Ministry of Agriculture and Forestry of Finland (VN/3304/2024-MMM-2) on the permit application for this project (Gävleborg State Provincial Office, diary number 3786-2023).

The Federation of Bothnian Bay Fishing Communities

The Federation of Bothnian Bay Fishing Communities (PKL) issues the following statement: The construction of the Eystrasalt offshore wind farm in Sweden's exclusive economic zone may have significant adverse cross-border environmental impacts. These impacts affect both local and migratory fish stocks and commercial fishing. The



planned wind farm is located only 13 kilometres from Finland's exclusive economic zone. For this reason, we find it necessary to make a statement on the matter.

Now, massive offshore wind farm projects are being planned in the northern parts of the main basin of the Baltic Sea and in the entire Gulf of Bothnia, including the Bay of Bothnia, both on the Swedish and Finnish sides, and especially in the exclusive economic zones of both countries. The impact of these projects on migratory fish or local fish stocks and commercial fisheries has not been sufficiently studied and assessed. How large sea areas will wind farms completely close off from commercial fishing during the construction and operation phase? In particular, the cumulative synergies of different projects on both the Swedish and Finnish sides have not been assessed at all. The cumulative effects must be assessed objectively and analysed critically so that the maritime area does not have what happened in the past with the construction of free rivers.

The Bothnian Sea and its surrounding areas are very important herring fishing areas for the Finnish fishing industry, and the shallows in the sea area are also important spawning grounds for Baltic herring. Annually, between 5 and 8 million kilos of Baltic herring are caught in the vicinity of planned Eystrasalt offshore wind farm. Most of Finland's herring catches are caught in the Bothnian Sea, and the areas are crucial for the Finnish fishing industry.

In the Bay of Bothnia, most of the annual stocking of migratory fish (Atlantic salmon, brown trout, and Baltic whitefish) is carried out in the estuarine areas of constructed rivers. In addition, the most important rivers for the natural reproduction of Atlantic salmon in the entire Baltic Sea region (Torne River and Simojoki) are in the Bay of Bothnia. The migratory fish mentioned above feed all the way to the main basin of the Baltic Sea, when they move through offshore wind farm areas when they go to feed and return to spawn in their home rivers in the Bay of Bothnia. At present, there is no reliable research data on the effects of offshore wind farms and their cable lines on migratory fish. These must be investigated before wind power is built uncontrollably in marine areas. The studies must be commissioned by an impartial party (e.g., SLU and Luke) at the expense of the party responsible for the project.

With reference to the above, it is imperative that Finland participates in offshore wind power projects planned in Sweden's exclusive economic zone.

Natural Resources Institute Finland (Luke)

The Finnish Environment Institute has requested a statement from the Natural Resources Institute Finland (Luke) on the environmental impact assessment report and permit application for the planned Eystrasalt offshore wind power area in Sweden's exclusive economic zone. A maximum of 286 wind turbines are planned for the project area in the Bothnian Sea, covering an area of 949 square kilometers. The feedback should focus on views on the project's likely significant cross-border environmental impacts for Finland. In its statement, Luke only takes a stand on matters related to its own industry.



The Eystrasalt project area in Sweden's exclusive economic zone, which is much shallower than the surrounding sea area, is not an important fishing area, but the surrounding areas are important Baltic herring fishing grounds for both Swedish and Finnish trawlers. The assessment report states that, according to commercial fishermen, the Eystrasalt area would be an important spawning ground for herring. There are also some hard-bottomed areas less than 20 metres deep in the area, where brown algae are found according to surveys. These shallowest parts of the project area could be important spawning grounds for the autumn-spawning herring of the Bothnian Sea, which is generally known to spawn further out in the Baltic Sea than spring-spawning herring. At the moment, the significance or share of September herring in herring stocks and catches in the Bothnian Sea is unknown. Research into the genetic structure of herring stocks in the Bothnian Sea has only just begun in Sweden. Luke therefore believes that information received from fishermen should be taken seriously and the significance of the shallowest points in the project area as spawning grounds for herring should be carefully mapped, for example, by diving at regular intervals or by other reliable methods. The importance of this is increased by the fact that, apart from Eystrasalt, there are only a couple of other larger shallow areas in the open sea area of the Bothnian Sea, reaching depths of less than 20 metres, all of which are located in Sweden's exclusive economic zone.

The assessment report states that significant numbers of Black-throated Divers, Whooper Swans and geese pass through or near the project area. There are also Lesser Black-backed gulls in the area. It is unlikely that the implementation of the Eystrasalt wind power area alone would cause any noticeable impacts on bird populations extending to the Finnish side. Several large wind turbine areas are planned for the Bothnian Sea in both the Swedish and Finnish sea areas. If several projects are implemented, their combined effects, especially on birds migrating through the area, may, at worst, prove significant for some species. However, synergies are very difficult to predict with the available data. Efforts should be made to anticipate and assess potential impacts in broad transnational cooperation, if necessary, covering the entire habitat of species. At the same time, the clearest information gaps should be identified, and efforts should be made to collect the additional information needed to anticipate synergies.

Finnish-Swedish Transboundary River Commission

Statement of the Finnish-Swedish Border River Commission concerning the environmental impact assessment report and permit application for the planned Eystrasalt offshore wind farm in Sweden's exclusive economic zone

Although the project area is located outside the geographical scope of application of the Finnish-Swedish Transboundary River Agreement (91/2010), the project may have impacts on the Torne River through the impact on migratory fish. Salmon in the Torne River will migrate even to the southern Baltic Sea, probably through the project area or over submarine cables that lead the generated electricity to land. For the purpose of the Transboundary Rivers Agreement, particular attention must be paid to the conservation and sustainable use of fish stocks (Article 2.2.d). The Commission underlines that the Commission is interested in this area, as marine activities such as large-scale offshore wind energy may have a potential impact on migratory fish stocks.



The Finnish-Swedish Border River Commission notes the importance of Finland's participation in the consultation on the offshore wind power project Eystrasalt. The Commission stresses that transboundary effects cannot be excluded, especially regarding migratory fish stocks.

At the time of writing, there is still limited information on the potential impact of marine wind power on migratory fish stocks. In view of the large amount of planned offshore wind power in the Baltic Sea and the Gulf of Bothnia, the Commission stresses the importance of acting according to the precautionary principle. It is important to thoroughly investigate the potential combined and cumulative impacts on migratory fish stocks from all planned wind power projects in the entire Baltic Sea region.

The Federation of Finnish Fisheries Associations

The Federation of Finnish Fisheries Associations would like to thank about the opportunity to comment on the planned Eystrasalt wind farm. The planned park is located in the Bothnian Sea, just 13 kilometres from Finland's exclusive economic zone, and will affect Finnish commercial fishing. Already in January, the Finnish Fishermen's Association submitted a statement to the County Administrative Board of Gävleborg, which we would like to support. The Finnish Fishermen's Association's statement takes a very thorough stance on the impact of the planned Eystrasalt offshore wind farm on fish and fishing.

The area around Eystrasalt is a very important area for Finnish herring fishing. Around 5–8 million kilos of Baltic herring are caught in the area every year. The importance of the area for herring spawning should not be underestimated.

We believe that the conducted environmental impact assessment minimises the impact of the planned project on both fish stocks and fisheries in the area.

A major expansion of offshore wind power is also planned on the Finnish side of the Bothnian Sea and the Gulf of Bothnia. In addition to the local effects on fish stocks and fishing opportunities, we are concerned about the combined and cumulative effects of the Swedish and Finnish wind power projects. The permit processes do not take into account the combined and cumulative impacts of all projects under planning. We believe that there is a need for more coordination and analysis of the combined impact of offshore wind power projects in Sweden and Finland before granting permits for individual projects.

In addition to more regional effects on fish and fish spawning, migratory fish are also affected. There is great concern about, for example, salmon that migrate between the feeding areas in the southern Baltic Sea up to the rivers in the north and which will be greatly affected by all the expansion of offshore wind power that is taking place in the Baltic Sea. Several successive wind farms with associated cabling can disrupt the migration of salmon in the sea and delay migration to the spawning rivers. The problem here is the emphasis on the word can. Currently there is too little data on the impact of offshore wind power on fish stocks.



We need a green transition, but for the transition to be green, research on the impacts of offshore wind power must be done carefully enough to be able to make well-balanced decisions. This applies to the Eystrasalt project as well as all other offshore wind farms.

The Finnish Association of Professional Fishermen (SAKL)

Generally

Eystrasalt Offshore Ltd is applying for a permit for a large offshore wind industrial area in the Bothnian Sea, close to the Finnish exclusive economic zone (13 kilometres away).

The Swedish Fishermen's Association is very critical of offshore wind areas. Offshore wind power in fishing grounds, and where the fish reproduce or have a larger part of their life cycle, negatively affects the ability to engage in commercial fishing. Especially for pelagic fisheries to coexistence with wind power on the same area is currently impossible and wind power areas therefore compete with the fishing industry.

In the development of offshore wind power, large areas of water are transferred to private interests and for exclusive use, which in practice excludes other uses. The public assets are transferred to the private sector.

Right to fish

Firstly, it should be pointed out that Finland, and thus fishing vessels under the Finnish flag, have the right under EU law to access and fish up to four nautical miles from Sweden's baseline in the Baltic Sea. The possible creation of the area would therefore infringe on the right of fisheries to use the area and to carry out economic activities.

The above-mentioned right, which was introduced into EU legislation in connection with Sweden's and Finland's membership of the Union, and which was subsequently renewed, is based on historical fishing in each other's zones.

It should also be pointed out that the area in question is close to the border of Finland's exclusive economic zone. It is therefore inevitable that the industrial area will also have an impact on the environment and activities in Finland's exclusive economic zone. Possible cable installations in Finland's territory will have additional consequences.

Impact on commercial fisheries

The Finnish Fishermen's Association states that the volume of Finnish trawl fishing for Baltic herring and sprat is extensive in the Bothnian Sea, also in the planned industrial area and in its immediate vicinity (= the catch plots around Eystrasalt).

The environmental impact assessment (hereinafter referred to as EIA) reports on fishing in the area and the surrounding area, including Finnish fishing. The material is so deficient that the exact fishing patterns and trawl towing (trawl tracks) do not appear on the material. Fishing is primarily conducted along the depth curves along the western, southern, and eastern edges of the Eystrasalt banks, but it is also clear that the fishing pattern includes trawl tracks across the park. This also means that the value of the



commercial fishing carried out in the area is underestimated, as it may be related to trawl tracks that in some cases extend beyond the area. The analysis of commercial fishing from this point of view should also be redone and supplemented with the actual trawl hauls in order to illustrate the geographical use of the area by the fishery.

It is clear that the area and its surroundings are a particularly important area for trawl fishing for large Baltic herring for the needs of Finnish fish processing (Baltic herring fillet). The Eysterasalt industrial area also affects not only the area but also the opportunities for fishing in the surrounding area.

EIA appendix (M12) analyses the economic impact of the area on commercial fishing, but the analysis is unfortunately deficient in its content, perhaps because the consultants hired do not have sufficient knowledge of the Finnish fishing industry. The analysis in M12 considers that the effects are negligible, and that the fishing industry has the opportunity to move fishing effort within a very large area – from the tip the Bothnian Sea to the Bothnian Bay.

The Finnish fishing industry certainly does not share this assessment. As has been noted, there are specifically large Baltic herring in the area and in the surrounding area, which may not be found in other areas. The price data used do not correspond to the current situation and the more detailed price statistics (fillet herring) that can be found on the website of the Natural Resources Institute Finland www.luke.fi.

Fishing patterns that have arisen over a long period of time and according to the conditions created by nature are also fragmented. Fish stocks and fishing, for example in the Gulf of Bothnia, are of a different nature, and the Bay of Bothnia also restricts the use of larger vessels that are currently used in and around Eysterasalt.

Finland has national targets for increasing the production and use of Baltic herring for human consumption (Programme to Promote the Use of Finnish Fish and Government Programme 2023). The fishing around Eysterasalt is therefore of particular importance for the fishing industry and for the processing industry on land with its investments. The use of Baltic herring for human consumption in Finland is many times higher than in Sweden.

The analysis of commercial fishing and its impact on the Baltic herring value chain needs to be redone from the ground up, preferably by actors who are familiar with Finnish fishing and Finnish fish processing.

In autumn 2023, the Natural Resources Institute Finland (Luke) conducted a report on the fishing areas of the Finnish fishing fleet in the Baltic Sea in 2010–2022, highlighting the importance of Finngrund and Saltbanken in the production of food herring, as well as the impossibility of combining offshore wind and fishing (report https://sakl.fi/wp-content/uploads/luke-luobio_102_2023.pdf, in Finnish, especially Figure 10). The report also contains information on Swedish fisheries.

Spawning areas for Baltic herring

Professional fishermen who have used the area for decades have a clear understanding that Eysterasalt has an impact on the spawning of herring. It is therefore surprising that



the applicant rejects the concerns raised by fishermen, in particular, in surveys and in other contexts. Eystrasalt is one of the largest offshore shallows and if there are parts of the population or even subpopulations that depend on the area, this should be taken into account with the utmost seriousness during the permit process. The issue is further brought to the fore by the fact that the state and future of Baltic herring stocks has been the subject of great discussion and concern in recent years. There is an obvious risk that the construction of a large wind farm on the Eystrasalt bank will cause serious disturbances to the Baltic herring spawning that could have lasting negative consequences for the herring stock in a larger surrounding area.

We believe that the field investigations carried out constitute a particularly poor basis for being able to draw any conclusions about the occurrence of fish and the presence of any herring spawning in the area. A reliable basis must be based on repeated sampling on many different occasions during the year and over several years to provide more than the snapshot that the company now relies on as a basis for its analysis of the fish community. Despite these shortcomings, the eDNA study clearly indicates that herring spawning is likely to occur at Eystrasalt during June. Nevertheless, in its continued analysis of the impact on herring, the company assumes that no spawning takes place in the area.

The fact that herring spawning would occur at the Eystrasalt bank is thus something that the company seems to want to deny or minimize the importance of in several places in, among other things, the EIA, despite the fact that field surveys indicate that herring spawning occurs. The company writes, among other things, in the Cape 9 EIA about fish and the impact on fish: "Since the investigations carried out have not been able to establish spawning in the area of Eystrasalt, there is also no reason to suspect that the area is important for eggs and larvae". "As described above, there is no known spawning area for herring within the planned project area." "Since the assessment is based on the assumption that the herring on the Eystrasalt bank does not belong to a separate subpopulation, the herring population concerned can be assumed to have plenty of spawning areas outside the project area with high potential for spawning on the coast and at certain other offshore banks. Overall, the environmental value is assessed as small."

It can be noted that both SwAM and the County Administrative Board in their previous statements have seen a great need for supplementation from the company when it comes to information about the herring's spawning and genetic affiliation at Eystrasalt. We share the same concern about the great ignorance that exists regarding the herring spawning on Eystrasalt and based on our fishermen's experience that the area is an important spawning area, we believe that the area is highly unsuitable for wind power development. The application should therefore be rejected, or at least an additional and significantly more comprehensive knowledge base should be required before any decision can be made on the application.

Regarding sedimentation of suspended solids, the company writes that herring eggs and larvae can be negatively affected, and that eggs can be buried and die. On the one hand, the company argues that herring spawning does not take place in the area, and on the other hand, that if it does occur, the herring can spawn elsewhere and thus does not matter to the population as a whole. We strongly protest against this approach and



demand that the County Administrative Board of Gävleborg protect the herring's spawning areas and take all necessary measures to minimize the negative impact on the herring's spawning in the event of a wind power establishment. If a permit for wind power is granted, despite the unsuitability of the area, this must be taken into account in the permit conditions, so that turbid construction work cannot risk negatively affecting spawning times for herring, as well as egg and larvae development.

Other

The fishing industry and entrepreneurs are concerned about the impact of offshore wind industrial areas on fish behaviour and reproduction. Changing currents and mixing, chronic low-frequency underwater sounds and vibrations, and electromagnetic fields around coiled cables can all affect fish, including fish migration behaviour. Different fish species can react differently, and each species' unique biology needs to be taken into account. These are areas where a lot of knowledge is still lacking.

The company states that even with protective measures, herring that are within a radius of almost one mile (9.3 km) will suffer hearing damage during piling work for the wind power area. Fatal damage to larvae and eggs is said to occur up to 1.8 km from piling. We believe that this is an unacceptable negative impact on the fish community.

There is a lack of sufficient knowledge and studies on how underwater noise and sediment dispersion in connection with construction and operation can affect different life stages of herring as well as the behaviour of herring in connection with reproduction and foraging. We believe that this is basic and important knowledge that needs to be available before any wind power establishment is carried out.

The company states that it intends to discharge sowing from converter stations 10 meters below the surface at several locations in the area. Knowledge of how local warming can affect the ecosystem and the organisms that are close to the emission points seems to be extremely limited. A detailed modelling of emissions needs to be done and a better knowledge base is needed about how this local warming can affect the ecosystem at different levels.

Recently, the Swedish Meteorological and Hydrological Institute (SMHI) has shown that ocean currents, salinity, and temperature – both at sea level and at the seabed – are some of the parameters affected by offshore wind power. In addition, the sea far beyond the wind farm itself is affected when the wind turbines are in operation (SMHI press release 13.12.2023). This, in turn, affects fish and their behaviour, among other things. This aspect has not been taken into account in the present EIA.

The assessment of the cumulative effect of several offshore wind industrial sites is currently insufficient and should be carried out before a permit is granted for even the first plant in the Gulf of Bothnia Sea area.

It is well known that a huge race is currently underway, with several companies reserving and planning areas for offshore wind power without the effects of the offshore wind industry on the environment and fauna of the Baltic Sea and other activities being sufficiently researched by independent research.



Remarks

According to information, the Finnish authorities have not received information about the permit application. They only became aware of the permit procedure after the Finnish Fishermen's Association informed them of the matter. The requirements of the Espoo Convention must be met. An extension of time should be granted to the parties concerned in Finland.

The summary of the EIA in Finnish contains some clear translation errors.

Position, claims

The Finnish Fishermen's Association's primary demand:

The application submitted by Eystrasalt Offshore Ltd concerning the offshore wind industrial area Eystrasalt Offshore should be rejected, as the offshore wind industrial area at Eystrasalt has a detrimental effect on the Baltic herring stocks in the Bothnian Sea and impairs the opportunities for profitable trawling in the area and its vicinity and reduces the availability of raw materials for the processing industry. The availability of raw materials for food production is part of Finland's self-sufficiency security.

If a permit is granted, the secondary claims of the Finnish Fishermen's Association are as follows:

1. Trawl fishing in the area and its vicinity shall be able to continue with the least possible restrictions and detriment;
2. Piling and turbidity work in the area shall be scheduled for a time of year when there is no risk of disturbing fish spawning;
3. The damage and losses caused by the project to fishing enterprises in Sweden and Finland should be fully compensated – both during the construction phase of the area and during the operational period of the industrial area;
4. Part of the proceeds from production in the industrial sector should be channelled into a fund from which long-term harm is compensated. The fund is used to compensate for long-term activities, but the activities cause fishing, from which funds can be allocated to ensuring the survival of the industry in a changed operating environment, as well as measures aimed at restoring the damage caused to the marine environment;
5. A long-term monitoring programme should be drawn up, data collection on fish and other marine animals, the results of the programme should be available to authorities and researchers for objective evaluation.
6. An in-depth study should be carried out separately on the importance of the Eystrasalt area for the Baltic herring stocks in the Gulf of Bothnia and it should be continuously monitored.
7. Decommissioning should be conditional on the full restoration of the environment to its original stage;



8. Even if cabling (possibly also to the Finnish mainland) is decided later, cabling should be done in such a way that it does not impede or in any way complicate trawling or coastal fishing; And

9. The application may not be approved until all the cabling has been planned and constructed in such a way that paragraph 7 above is met.

In principle, the union is in favour of:

Condition of (condition 19 in the application) for security for decommissioning and restoration of SEK 9 million per turbine. The requirement should be included in the possible permit.

The applicant has stated that it undertakes to initiate and finance a cooperation project with the relevant part of the commercial fishing industry. The commitment should be included as a condition in the possible permit, and the commitment should certainly also apply to the fishing industry and fishing enterprises in Finland. The Finnish Fishermen's Association announces its possibility to be a party to such a possible project.

The Federation reserves the right to submit further notices and demands in the matter.

The Finnish Fishermen's Association (FYFF) represents fishermen and the fishing industry in Finland. Our members account for more than 90 per cent of the total Baltic herring and sprat catch in Finland. Around 30 trawlers account for the majority of the catch. The Bothnian Sea is the main catch area.

Regional Council of Satakunta

The Regional Council of Satakunta thanks the Finnish Environment Institute for requesting comments and for the opportunity to comment on the EIA report of the Eystrasalt offshore wind power project. The Regional Council of Satakunta has already at an earlier stage highlighted themes that are important to Satakunta and the Bothnian Sea region more broadly, such as nature values, fishing, shipping, and migratory birds, and emphasised the importance of an impact assessment concerning them. These have also been discussed extensively in the statement issued to Sweden's updated maritime spatial plan through the coordination group for cooperation in maritime spatial planning in Finland.

The statement and the translated EIA report under discussion have concluded for many sectors that the potential impacts of the Eystrasalt offshore wind farm area will be minor.

The Regional Council of Satakunta continues to highlight a few aspects related to offshore wind power that are particularly important to Finland, which may also be topical when planning the Eystrasalt area. In the Bothnian Sea, it is of utmost importance to coordinate offshore wind power production with shipping and fishing, to safeguard the regeneration of fish stocks and prevent adverse effects on migratory bird populations.

Due to the increase in offshore wind power, it is important to coordinate it with the needs of shipping in the Gulf of Bothnia. The freezing of the Gulf of Bothnia is unique in the whole of Europe, and the development of offshore wind power must take into



account the operating conditions of maritime transport also in the future, as well as during harsh ice winters. The effects of wind turbine structures on freezing and ice are not yet known with sufficient accuracy. Securing maritime transport is also strongly linked to security of supply and maritime safety, which in the prevailing geopolitical situation are particularly important for Finland and certainly also for Sweden.

According to a study completed in 2023 by the Finnish Environment Institute on the fishing areas of the Finnish trawl fleet in the Baltic Sea in 2010–2022 (permanent address of publication: <http://urn.fi/URN:ISBN:978-952-380-813-3>) Finnish fishing vessels fish for significant hours west and north of the Saltbankens shallows. It was not clear from the material submitted to the opinion whether it had been investigated and assessed whether intensive construction activities in the Eystrasalt area could have an impact on the regeneration of fish stocks in the area and thus on catches outside the Eystrasalt area.

Cooperation between Finland and Sweden is important in developing offshore wind power in the Bothnian Sea and the Gulf of Bothnia. When the needs and perspectives of different sectors are discussed together and the planning criteria harmonised, it is possible to form a coherent picture of the development taking place in the Gulf of Bothnia and the combined effects of projects.

Finnish Transport Infrastructure Agency

The Finnish Environment Institute has requested a statement from the Finnish Transport Infrastructure Agency on the environmental impact assessment report and permit application for the planned Eystrasalt offshore wind farm in Sweden's exclusive economic zone. The Eystrasalt offshore wind farm will be located in the Bothnian Sea in Sweden's exclusive economic zone, approximately at the level of Pori and Merikarvia in Finland. The area is 13 km from the exclusive economic zone of Finland.

Wind farms planned for the sea area may have an impact on maritime safety, the use of radar systems and radio equipment, and the smoothness of the transport system. According to the Act on the Finnish Transport Infrastructure Agency (862/2009), the Finnish Transport Infrastructure Agency is responsible, among other things, for organising traffic control and securing the conditions for winter navigation.

During the open water season there is no significant maritime traffic passing through the area heading towards Finland, the maritime traffic area in accordance with the Swedish maritime spatial plan, which overlaps with the eastern part of the area, mainly carries traffic between the South Kvarken and Husum and Örnköldsvik. During the open water season, traffic from Åland to Vaasa and the Bay of Bothnia mainly travels eastwards in Finland's exclusive economic zone.

Sea ice has occurred in the Eystrasalt area during three winters in the last 13 winters, and in addition, in one winter sea ice has been present in the Bothnian Sea so extensively that it could have affected the traffic density in the area. During the harsh ice winter, during which the Bothnian Sea freezes, the area would have an impact on the organisation of winter navigation in the Bothnian Sea. Winter navigation is affected not



only by the reduction in traffic area caused by offshore wind power construction, but also by the reduction of safe waiting places for vessels. During the ice-covered period, traffic does not follow straightforward routes, as in the open water season, but is directed to where ice conditions enable traffic. In addition, the construction of offshore wind power may have an impact on the need for assistance if there are traffic corridors between offshore wind power areas where merchant ships cannot be allowed to enter in ice conditions without icebreaker assistance.

Numerous other wind farm areas are planned in the central parts of the Bothnian Sea. East of Eysterasalt, there is one planned offshore wind power area in Sweden's exclusive economic zone, and large offshore wind power areas are also planned for Finland's exclusive economic zone at the same height.

In addition, four offshore wind power areas are planned in Sweden's exclusive economic zone to the south and southwest of the area. The combined impact of such extensive and regionally concentrated wind power construction on maritime transport in the area would be considerable, and the Finnish Transport Infrastructure Agency considers that the combined impact of different areas, especially on maritime safety and fluency, should be examined in much more detail in the project's EIA assessment report.

Finnish Meteorological Institute

The Finnish Meteorological Institute has studied the proposal and states the following in its statement:

Regarding marine research, the Finnish Meteorological Institute considers the EIA report to be comprehensive. However, we would like to point out that even though there is no environmental monitoring point in the park area, e.g. The Finnish Meteorological Institute makes observations in the Bothnian Sea with free-floating buoys, the movement of which can be controlled to a very limited extent, and thus the wind farm may limit such observations. At the same time, we note that the planned park would be an excellent location for a permanent environmental monitoring measuring station, which could be implemented by the project developer together with environmental monitoring parties.

In addition, we would like to point out that 'wake-effect' is not "aaltovaikutus" in Finnish but a better translation would be "puiston muodostama katvealue", we recommend that this translation error be corrected (or use the English term) as it may cause confusion.

Regarding the weather radar network, the Finnish Meteorological Institute has no comments on the environmental impact assessment report and permit application for the planned Eysterasalt offshore wind farm in Sweden's exclusive economic zone, as the area is more than 20 km away from the nearest weather radar of the plant.

Centre for Economic Development, Transport, and the environment of South Ostrobothnia

The Centre for Economic Development, Transport, and the Environment of the South Ostrobothnia (hereinafter referred to as the ELY Centre) considers that the impact



assessment of Eysterasalt Offshore Wind Park comprehensively explained the potential impacts of the wind turbine in many respects. There is no offshore wind power of this scale in the Bothnian Sea, and therefore no research or monitoring data is available, so the impacts of wind power on nature should be approached with the precautionary principle.

Impacts on the area of influence of the South Ostrobothnia ELY Centre include a possible interconnection cable to Finland and species with extensive territory, both migratory and migratory species. The interconnection cable will not be investigated within the framework of this project application, so there is no comment on it.

In the project application, the impacts on migratory bird populations had been dealt with very narrowly and it remained unclear whether the monitoring and impact assessment carried out had been at a sufficient level. No monitoring methods or quantities have been disclosed in the material delivered to Finland. Based on the impact assessment, it can be concluded that the timing of the monitoring of the move was challenging, and the monitoring may not have been carried out at the optimal time or to a sufficient extent. In addition, no radar data or literature reviews were relied on for migratory bird populations. In offshore areas, radar monitoring and an estimate of the variation in annual migration are important for assessing the overall impact. The assessment of the effect of flight altitude of species-specific migration on the risk of collision also remained general. On this basis, it can be concluded that the effects on bird populations migrating through the area remain unclear. Regarding migratory bird populations, the studies should be supplemented and, as this is a new activity, ways to mitigate the effects during migration should be considered, such as radar monitoring and the shutdown of power plants if there is a risk of collision. The significance of the Gulf of Bothnia as a migratory area for Arctic waterfowl is emphasised by the fact that the breeding population of many endangered species in Finland migrates almost entirely through it.

The assessment of the combined effects of the offshore wind farm was also insufficient. There is no certainty about the actual power plant areas, but the planned projects must be considered in the combined effects. In terms of synergies, only the operator's own projects located in the area have been evaluated in the project. The impact assessment has considered, for example, the effects on lesser black-backed gulls with a large feeding area, and based on the estimate, the impact effect is two lesser black-backed gulls per year in the Eysterasalt power plant area. The assessment should also have considered other power plant areas hitting the flight paths and the additional mortality they may cause and estimated the population impact on the lesser black-backed gull. The lesser black-backed gull is critically endangered in Finland and its population continues to decline.

The project's impacts on water quality and benthic fauna do not extend to territorial waters in the area of the South Ostrobothnia ELY Centre. Section 6.1 of the environmental impact assessment report presents the changing depth and flow conditions. The flow modelling results are not fully visible on the maps, and the reliability/confidence interval of the results is not mentioned. There is a risk that the effects will also extend to Finland, but probably not to territorial waters in the area of the South Ostrobothnia ELY Centre.



The maps in the visibility analysis (Figures 6-12 and 6-13) have been delimited so that the area of influence on the Finnish side is excluded. The presentation is inadequate, as the purpose is to specifically assess the effects on the Finnish side.

The Finnish Heritage Agency

The Finnish Environment Institute has given the Finnish Heritage Agency the opportunity to comment on the significant cross-border environmental impacts of the planned Eyrasalt offshore wind farm project in Sweden's exclusive economic zone and the consultation documents. The Finnish Heritage Agency comments on the matter from the perspective of taking underwater cultural heritage into account.

In accordance with Articles 4 and 5 of the UN/ECE Convention on Environmental Impact Assessment in a Transboundary Context (Treaty Series 67/1997, Espoo Convention), the Finnish Environment Institute has received from the Swedish Environment Agency environmental impact assessment documents containing an assessment report and an application for a permit. Eyrasalt Offshore AB, owned by the German parent company Skyborn Renewables GmbH (Skyborn), is planning an offshore wind farm in Sweden's exclusive economic zone in the Bay of Bothnia in the Eyrasalt Bank area. At its closest, the project area is approximately 60 kilometres from the Swedish coast. The distance to Finland's exclusive economic zone is about 13 km and the shortest distance to the Finnish coast is about 110 km. The area of the planned wind farm area is approximately 949 km². A maximum of 256 wind turbines with a total height of up to 370 metres will be built in the project area.

According to the experience of the Finnish Heritage Agency, the underwater cultural heritage sites that may be affected by a construction project on the open sea are, above all, shipwrecks. The wrecks may have historical links with different states. International exchange of information related to wrecks and their protection and research is common practice, which is a prerequisite for understanding the background of the sites and for their benefit in terms of conservation. However, underwater cultural heritage sites are physical remains located in a limited area for which mapping, conservation and research activities do not have concrete cross-border environmental impacts.

The Finnish Heritage Agency acts as the authority responsible for the protection of underwater cultural heritage in waters administered by Finland. The Finnish Heritage Agency states that the project is not estimated to have an impact on the underwater cultural heritage of Finnish waters. The Finnish Heritage Agency has no comments on the content of the consultation documents.

Finnish Safety and Chemicals Agency, Metsähallitus and the Regional Council of Southwest Finland did not give any comments.



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Ulla Helminen

This document has been electronically signed. The electronic signatures can be verified from the register office of the Finnish Environment Institute.

Appendices

Received statements in Finland

For information

Ministry for the Foreign Affairs of Finland
 Ministry of the Environment
 Ministry of Transport and Communications
 Finnish Heritage Agency
 Regional Council of Satakunta
 ELY Centre of Southwest Finland
 Finnish Meteorological Institute
 Finnish Transport Infrastructure Agency
 ELY Centre of South Ostrobothnia
 Finnish Association of Professional Fishermen (SAKL)
 ELY Centre of Southwest of Finland - Fisheries Authority
 Natural Resources Institute Finland
 Finnish Safety and Chemicals Agency
 Ministry of Agriculture and Forestry of Finland
 The Association of Bothnian Bay Fishing Communities
 Regional Council of Southwest Finland
 Finnish Transport and Communications Agency
 The Federation of Finnish Fisheries Associations
 Finnish – Swedish Transboundary River Commission
 Metsähallitus

