



Espoo Consultation report for the Jammerland Bay Offshore Wind Farm

Office/department
Offshore Wind

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Introduction

As part of the Espoo convention, Articles 4 and 5, The Danish Energy Agency has consulted Finland, Germany, Poland and Sweden regarding the Environmental Impact Assessment of Jammerland Bay Offshore Wind Farm located in the Danish Jammerland Bay. Finland, Germany and Sweden have responded in the consultation.

Responses to the consultation have been received with comments from:

- NABU Schleswig-Holstein
- BirdLife Sverige
- The Finnish Environment Institute / Suomen Ympäristökeskus (Syke)
- The Federation of Finnish Fisheries Associations / Kalatalouden Keskusliitto
- Centre for Economic Development, Transport, and the Environment of Southwest Finland (ELY) / Varsinais-Suomen ELY
- Ministry of Transport and Communications / Liikenne – Ja Viestintäministeriön
- Finnish Transport and Communications Agency Traficom / Liikenne – Ja Viestintävirasto

Authorities and stakeholders with no comments:

- Bundesamt für Infrastruktur Umweltschutz und Dienstleistungen der Bundeswehr. Referat Infra I 3 (BAIUDBw)
- Ministerium für Landwirtschaft, ländliche Räume, Europa und Verbraucherschutz (MLLEV)
- Ministerium für Energiewende, Klimaschutz, Umwelt und Natur des Landes Schleswig-Holstein. Referat Landschaftsplanung (MEKUN)
- LBV. Schleswig-Holstein Landesbetrieb Straßenbau und Verkehr. Luftfahrtbehörde
- BNetzA – Bauleitplanung
- Transportstyrelsen, Sverige. Sjö- och luftfart Sektioner för sjötrafik
- Miljöprövningsenheten Havs- och vattenmyndigheten
- Naturvårdsverkets naturskyddsenhet
- Centre for Economic Development, Transport, and the Environment of South Ostrobothnia

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- Finnish Heritage Agency
- The Government of Åland
- Natural Resources Institute Finland
- Finnish Safety and Chemicals Agency
- Finnish Meteorological Institute

This consultation report summarizes the consultation responses received from NABU Schleswig-Holstein, BirdLife Sverige, The Finnish Environment Institute / Suomen Ympäristökeskus (Syke), The Federation of Finnish Fisheries Associations, The Centre for Economic Development, Transport, and the Environment of Southwest Finland, The Ministry of Transport and Communications, and The Finnish Transport and Communications Agency Traficom.

The consultation report is structured by country.

None of the responses gives cause to an adjustment of the Danish Energy Agency's decision, i.e. approval of the Environmental Impact Assessment report for the Jammerland Bay Offshore Wind Farm and the permit to establish the offshore windfarm. With this consultation report, the Danish Energy Agency considers the Espoo process as completed.

The consultation report, and the construction permit is expected to be published *medio October* on the Danish Energy Agency's website: [Havvindmølleprojekter i pipeline | Energistyrelsen \(ens.dk\)](#)



Germany – NABU Schleswig-Holstein

Summary of consultation responses	Developer's remark	The Danish Energy Agency's remark
<p>NABU states that it is unclear why no surveys were carried out at sea during the bats' migration period.</p> <p>Furthermore, they state that the significance of the southern, northern or central sub-area can be determined based on investigations at sea carried out using listening devices on buoys.</p>	<p>The studies on bats were carried out in 2021. At that time, it was not common to conduct surveys at sea using listening buoys (buoys with bat detectors attached).</p> <p>It is true that listening buoys are used in more recent projects (e.g. Energiø Bornholm) and that listening buoys could have provided information on where bats fly at sea after leaving land. However, in the specific case, where there are very prominent headlands on the Zealand side that are likely to attract the migratory bats north and south of the project area, the lack of studies with buoys is not considered to cause significant uncertainty in the assessments and conclusions made regarding the</p>	<p>The Danish Energy Agency acknowledges, that there generally is a lack of knowledge about the presence of bats at sea and the impact of offshore wind turbines on bats. The Danish Energy Agency also acknowledges, that the data collected for this environmental impact assessment is insufficient to precisely determine the magnitude and distribution of bats in the project area.</p> <p>In order to strengthen the general knowledge, the Danish Energy Agency have started several studies, that in the following years will provide a better understanding of bats at sea and the impact of offshore wind turbines on bats.</p>



migration routes and the impact of the project on migratory bats.

Regarding foraging bats, the environmental impact report explains why the investigations at existing wind turbines on Sprogø are considered relevant background for assessing the impacts on foraging bats at sea in the project area for the Jammerland Bay offshore wind farm. The argument is that there is evidence that bat behaviour changes when wind turbines are erected, as bats are attracted to wind turbines, presumably because the air around the wind turbines is warmer than the surroundings at night and therefore attracts insects. The background for this assumption is clear from the environmental impact report.

Only 20 km from the project area of the Jammerland Bay offshore wind farm, there are seven wind turbines north of Sprogø. Therefore, in 2021 it was considered relevant to investigate bats at these wind turbines, which are located in the same waters (Great Belt) and at approximately the same distance from the coast (6-7 km). The advantage of this is that the study takes into account the possible

Before the Danish Energy Agency has a better understanding on how bats ex. migrates and forage at sea in Danish water, the Danish Energy Agency has some precautionary principles that will be introduced to construction permits for offshore wind farms in areas where bats could potentially occur to a significant extent. In this specific project the consequence is, that the construction permit will contain conditions about a cut-in speed (the wind speed at which the turbine blades begin to rotate) at 6 m/s in during periods when bats are expected to be present in the area. The Danish Energy Agency finds, that by this term the risk of bats colliding with the turbine blades will be at a minimum and that the provisions in the habitats directive (article 12) is met. The construction permit will furthermore include a condition to implement a monitoring program for bats.



	<p>attraction of insects and thus foraging bats by offshore wind farms.</p> <p>The studies carried out on both migratory and foraging bats are therefore considered sufficient in this specific case.</p>	
<p>Based on the studies, only very limited conclusions can be drawn about the spatial presence of bats at sea.</p>	<p>It is correct that, based on the study from 2021, no statement can be made about the spatial presence of bats at sea in the project area. However, we think it makes technical sense to assume that bats choose the shortest possible route across the sea, as crossing the open sea is dangerous for bats.</p> <p>It is also true that the study does not provide any technical certainty to assess the importance of the various potential migratory routes in the northern Great Belt. This uncertainty is reflected in the environmental impact report, which is why the report describes possible migration corridors. It is assessed that the study provides a sufficient basis to make a statement about the overall value of the area for migratory bats and to assess the conflict at</p>	<p>[see answer above]</p>



	the chosen location of the offshore wind farm in relation to migratory bats.	
<p>Based on the listening points, the distance at which bat detectors detect bats, and the number of bats recorded, the NABU has calculated a very high number of bats over the entire 8 km extension of the offshore wind farm. Although the reported numbers in the environmental impact report seem very low, there are actually many bats that pass through here. Based on the number recorded in Stavreshoved, there are 650,000 bats passing through the project area. Based on the numbers from Reersø, there are 2.5 million bats. The numbers here show the extraordinary importance the Great Belt has for the bat migration.</p>	<p>We do not believe that NABU's calculation of the number of migratory bats is valid. The locations where the detectors are placed are the locations where the largest concentration of migratory bats is expected, so one cannot assume that the same concentration exists along the entire coast of Jammerland Bay.</p> <p>The calculation also apparently assumes that all recordings of bats at the departure points are migratory bats, which is incorrect. As explained in the environmental impact report and background report, the majority of bats recorded at the departure points are foraging, native bats that do not exhibit migratory behaviour.</p> <p>The bat detectors measure bat activity, measured as the number of five seconds of detection of bats. This means that many of the registrations may come from a single individual flying around the detector for an extended period of time. Bat activity cannot be measured in numbers</p>	<p>[see answer above]</p>



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	<p>of individuals, but can be compared with similar measurements elsewhere. The Assessments of the value of each train location are therefore based on experiences from similar projects in other parts of Denmark and abroad.</p>	
<p>Based on other bat studies at sea, this must also be assumed that bat migration does not take place in clearly defined and narrow corridors, but that the entire Great Belt area is very important for bat migration.</p>	<p>We agree with NABU that the current state of knowledge about bat migration does not suggest that migratory bats generally fly in narrow, clearly defined corridors. However, in the individual areas, especially on the Zealand side, there are very distinctive Headlands that, all other things being equal, lead to migratory bats flocking here.</p>	<p>[see answer above]</p>
<p>Due to the serious errors and inadequacies (surveys are only carried out on land, north and south of the project area and not in the project area itself), the investigations are by no means suitable for ruling out the presence of bats in the project area.</p>	<p>The investigations are not aimed at determining the presence of bats in the project area to exclude bats in the area. They are intended to provide a sufficient knowledge base to assess the impact of the project on foraging and migratory bats. We recognize that further studies will lead to a better knowledge base and that new insights into how best to study the presence of bats at sea are continually being received, as well as new insights into the behaviour of bats at sea.</p>	<p>[see answer above]</p>



	<p>The fact that new knowledge and better methods emerge does not mean that older studies are not valid or useful. In Denmark there are no formal requirements regarding studies on bats in connection with environmental impact assessment of offshore wind farms. Based on the research carried out and knowledge of bat biology (we recognize that knowledge of bat behaviour at sea is limited and that there is a general need to accumulate more knowledge on this topic), it is assessed that there are no migratory routes that cross the project area. It was also assessed that there are only a limited number of bats searching for food near the wind turbines.</p>	
<p>The environmental impact assessment assume that the bats fly either north or south around the wind farm, but not directly through the wind farm. NABU quote that this statement is not valid, since only the north and south of the wind farm were examined and not the project area itself.</p>	<p>The hearing response states that it cannot be ruled out that bats only fly north or south of the project area, and criticizes the fact that none of the departure points at the wind farm was examined. It is assumed that the criticism is based on calculations of the NABU, which are contained in the hearing response (see response above). The reason for this is that there are no suitable departure points along the coast of Jammerland Bay in front of the project area. Only the most</p>	<p>[see answer above]</p>



	<p>suitable departure points were investigated. Due to the relatively low migratory activity, the area in the northern Great Belt is generally considered to be of little importance for migratory bats. It can be added that the southern Great Belt due to the local geography and knowledge about the occurrence of migratory bat populations is considered to be a more suitable migration zone than the northern Great Belt (Christensen and Hansen, 2023).</p>	
<p>NABU states that there is very high risk of bat collision and therefore a high potential for conflict in the operational phase. It is widely accepted that offshore wind turbines pose a major threat to bats.</p>	<p>We agree that during the operational phase of offshore wind farms there is a risk that bats are killed (or suffer barotrauma) by rotating turbine blades.</p> <p>There are studies on offshore wind turbines that were able to quantify how big this risk is and it is expected to vary depending on many factors, including the location of the Wind farms.</p>	<p>[see answer above]</p>
<p>NABU states that the project should not be established at the specific location. And if it does preventive measures on a larger scale has to be</p>	<p>We agree with the hearing response that the majority of bat activity that occurs at sea takes place at low wind speeds.</p>	<p>[see answer above]</p>



implemented. For example, by switching off the wind turbines during times of high bat activity (e.g. in the migration season and also in summer with low wind speeds). In this way bats, be protected without great expense.

This is also seen in the data, where most bats were recorded, below wind speeds at 5 m/s. In the background report on bats, it is also concluded that foraging bats in the summer only is present during low wind speeds.

The recommendation in the hearing response to switch off the wind turbines at night during migration season and in summer at low wind speeds (it is mentioned that the majority of bat activity at sea occurs in wind speeds up to 7 m/s) we have understood to apply to areas with high bat activity, like the northern Great Belt area, which our assessment does not cover.

However, we agree that the risk of collision naturally decreases when the wind turbines operating at low wind speeds are switched off.

It can be added that the Danish Energy Agency in the draft construction permit to protect bats, have included a shutdown demand or a maximum of two rotations per minute for wind turbines, when wind speeds is less than 6 m/s in the period from April 1st to October 31st (the demand does not apply at temperatures below 11 degrees or heavy rain. Heavy rain is defined as more than 1 mm per 10-



	minute interval).	
<p>In addition, when designing wind turbines, care should be taken to ensure that there is as much space as possible between the sea surface and the lower tip of the wind turbine. According to current knowledge, bats mainly migrate at a height of 10 to 30 meters above sea level. Although it has been proven that some of the bats fly along wind turbines to examine them.</p> <p>NABU states that a higher rotor-free zone, preferably, more than 30 m above sea level, would effectively protect bats in addition. This is a clear result of the NABU research funded by the German Nature Authorities and has been presented on national and international (also Swedish) conferences.</p> <p>Most bats obviously just path at low altitude, but our data (height monitoring at FINO 2 in 10m, 33m,66m and 100m) suggests that about 30 % of bats fly in higher altitudes. What is unclear is at what certain height which amount and the bats registered by the</p>	<p>The hearing response states that bats mainly fly at an altitude of 10 to 30 meters above the water when crossing the sea. To further protect the bats, a minimum distance of 30 meters from the wing tip to sea level should therefore be applied.</p> <p>We are not aware of any literature that clearly indicates preferred flight altitudes of bats above sea level. For example, studies on the American east coast show that bats can fly up to 200 meters above sea level (Hatch et al. 2013). In addition, the reference mentioned in the hearing response (Ahlen 2009) describes, that bats usual fly lower over the sea, for example the noctule bat is often observed at heights of less than 10 meters, although there also have been individuals flying at heights of more than 40 meters.</p> <p>The project description in the Environmental Impact Report states that the distance from the wing tip to the sea surface is 20 meters.</p>	<p>[see answer above]</p>



<p>10 m microphone are really flying, it could be up to 35 m.</p> <p>The findings from the FINO 2 are completely in line with international research at offshore wind turbines. Clearly showing that when surveying with only two microphones (one at the ground and one at the nacelle) around 90 % of the activity is detected at the ground microphone and about 10 % at the nacelle microphone (e.g. Brabant et al. 2019). It is therefore not true that there is no data showing that a higher rotor-free zone protects bats. For the majority of passing bats at low altitudes, increasing the rotor-free zone would clearly be an extra protection against collision. The NABU would therefore highly appreciate to slightly increase the rotor-free zone to 30 m.</p>	<p>The draft construction permit by the Danish Energy Agency specifies that a distance of at least 20 meters must be maintained from the lower wing tip to sea level.</p> <p>Based on our knowledge of bat flight heights, the proposed distance of at least 30 meters between the sea surface and the wing tip, will lead to a modification of the current project, which is not considered to be of critical importance for bats.</p>	
<p>NABU states that in addition to structural adjustments and shutdowns demands of the wind turbines, the necessary measures must include at least:</p> <ul style="list-style-type: none">- A preliminary investigation lasting at least two years in the form of a long-term listening period on at least 3-5 buoys	<p>NABU lists 3 points with necessary measures regarding bats. As far as we understand, the first two relate to the monitoring program that the Danish Energy Agency has set as conditions in its draft construction permit. We have no comments on this.</p>	<p>[see answer above]</p> <p>In order to strengthen the knowledge about the project's impact on the marine environment, the construction permit will include requirements for the development of a monitoring program for among others marine mammals, specific bird species and</p>



<p>installed across the direction of migration or at similar locations in the project area (continuous listening in the period from April 1 to November 15).</p> <ul style="list-style-type: none"> - Operational monitoring of at least 5 wind turbines, each with a microphone on both the nacelle and the base of the mast, as well as a complete shutdown according to the precautionary principle at night during migration periods and in summer (at least from April 1 to November 15). - An assessment of the cumulative impacts (since the relevant species migrate widely throughout the Baltic Sea). 	<p>Regarding the third, it is correct that no cumulative assessment of bats has been carried out on other offshore wind turbine projects. This is because the environmental impact assessment found that there is no migration route for bats passing through the Jammerland Bay offshore wind farm. Thus, a cumulative effect of migration routes through other wind farms can possibly also be excluded.</p> <p><i>References</i></p> <p>Ahlén, I, Baagøe, H & Bach, L 2009. Behaviour of Scandinavian bats during migration and foraging at sea. <i>Journal of Mammalogy</i> 90 (6): 1318-1323.</p> <p>Christensen, M. & Hansen, B. 2023. Flagermus og havvind. WSP-notat til Energistyrelsen februar 2023.</p>	<p>bats in the area. The monitoring program will include both the time before and the time after construction.</p>
<p>NABU indicates that appropriate monitoring is essential, to make sure the preventive measures implemented are working, to ensure that international protection provisions regulations for bats are respected.</p> <p>According to the Habitats Directive's conservation guidelines, the conservation status of bat species is</p>	<p>The environmental impact report does not include preventive measures and therefore no monitoring of these measures. However, in the draft construction permit by the Danish Energy Agency's there is included conditions for both preventive measures (operational shutdown at wind speeds of less than 6</p>	<p>The Danish Energy Agency will review the data from the monitoring program to ensure, that the conditions about a cut-in speed fulfils the precautionary principles.</p>



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only relevant in the case of an exemption procedure, as bats are subject to an individual prohibition on disturbance and killing. As these are migratory bats, it is not sufficient, due to this legal status, to refer only to the conservation status in Denmark, but also in other countries.

m/s during the period 1 April to 31 October (one hour after sunset to sunrise) at temperatures above 11 degrees and without heavy rain) and monitoring for at least 3 years, including before the wind turbines are established. The more specific content of the monitoring, for which the Danish Energy Agency sets conditions in its draft construction permit, is not included in the draft.

The assessments in the report refer to bats as Annex IV species, meaning that intentional killing of individuals is prohibited by law. This is described in Section 10 in the environmental impact assessment (Section 10.5.2.1). Since the report does not assess any derogation from the protection of bats as an Annex IV species, it is not necessary to address the conservation status of the individual species in view of the criticism expressed in the consultation response.



Sweden – Birdlife Sweden

Summary of consultation responses	Developer's remark	The Danish Energy Agency's remark
<p>BirdLife Sweden states that it would be reasonable to assume that all the birds that are displaced "disappear" from the respective population (additive mortality in other words). This is, among other things, because the availability of food in the winter is assumed to be one of the likely most important reasons for the reductions of the species in question. It cannot therefore be assumed that the displaced birds can find new foraging areas. BirdLife Sweden claims that the percentages of crowding out that are reported for eiders and lake trout and – after dramatic reductions in some breeding colonies – also herring piglets are of such a magnitude that the bird directive's prohibition rules must come into force in order to eliminate significantly negative effects on especially protected/threatened species. The planned wind</p>	<p>There are no professional sources that either document or make it probable that displacement from offshore wind projects will cause a mortality rate of 100% for the displaced birds. To assess mortality from displacement, WSP has used the key reference "Joint SNCB Interim Displacement Advice Note (2022)", in which experts have assessed that habitat displacement for the concerned species of sea ducks and loons can reasonably translate into a mortality of between 1-10%. For a conservative approach, the maximum mortality of 10% is used as a basis for the assessments. For all species, the realized mortality from displacement as a result of the Jammerland Bay offshore wind farm is well below the PBR limit (Potential Biological Removal framework) for the biogeographic population and well below the PBR limit for the 'local' population.</p>	<p>It is the Danish Energy Agency appraisal that there are several methods to calculate the displacement and the potential mortality off seabirds. The Danish Energy Agency finds, that the method used in the environmental impact assessment is sufficient and find the overall conclusion about the effect on seabirds correct.</p>



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farm in Jammerland Bugt therefore does not meet the requirement for a suitable location.

Bird Life Sweden has afterwards stated that in accordance with the precautionary principle, they believe that it is an incorrect procedure to "count off" of the respective population only 1-10% of the expected displaced birds. The planned wind farm in Jammerland Bugt does not meet the requirement for suitable location according to current nature conservation legislation (including the EU's bird directive). However, neither the company nor the Swedish Environmental Protection Agency are willing to take notice of this.

Since PBR is an expression of how much additional mortality a population can tolerate without going back, the displacement from the Jammerland Bugt wind farm is not estimated to cause a decline in the affected populations of seabirds, either on a biogeographical or on a 'local' level.

The alleged assumption that 100% of the displaced birds will die due to the displacement must be based on an assumption that the birds will not be able to find food anywhere other than inside the project area itself and in the displacement zone. It is recognized that food availability is important for the flocks, but since it is completely normally, that the birds move around between different mussel banks over the winter, the birds will naturally be able to find food elsewhere than in Jammerland Bay, if food is available. The displaced birds from Jammerland Bay will e.g. could forage outside Asnæs, which constitutes the 'locally' most important foraging area, and which lies outside the maximum 4 km buffer zones used to calculate the number of displaced birds as a result of the project. In addition, displaced birds from Jammerland Bay will be able to search for food in Bird Protection Area F94, Sejerø

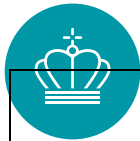


Bay and Nekselø, which have just been designated to secure the food base for the wintering populations of sea ducks.

In addition, several new studies indicate that, among other things, sea diving ducks such as eiders and mergansers are able to coexist with sea turbines and that the birds can roost and forage very close to the turbines if there are available food resources available. The birds will therefore be able to some extent continue to utilize the available food resources even after the establishment of the offshore wind farm (Jacobsen 2022 and Nielsen et al. 2023), which is another good argument that the mortality rate for the displaced birds in practice will be far below 100% and that the recommendation in the key reference of 1-10% mortality due to displacement appears to be on a realistic level.

References:

Jacobsen, E. M. (2022), Ederfugle og vindmøller ved Sprogø 2021 – Kortlægning af mulig sameksistens. Udarbejdet af WSP for Omø South Nearshore A/S.



Nielsen, J. C., Mortensen, M. F., Yasmin, N. A. & Tjørnløv, R. S. (2023), LONGTERM RESPONSE OF OFFSHORE WIND FARMS ON WINTERING BIRDS – Spatial distribution of Long-tailed Ducks (*Clangula hyemalis*) at the Kriegers Flak Offshore Wind Farm 2022 – 2023. Report for Energinet

Finland

Summary of consultation responses	Developer's remark	The Danish Energy Agency's remark
<p><i>The Finnish Environment Institute / Suomen Ympäristökeskus (Syke)</i></p> <p>Researchers from the Finnish Environment Institute state that there is a strong probability that turbines will scare wintering waterfowl away from the project area and its vicinity. That may, and probably has, impacts on the water bird populations in Finland, as, for example, common eiders are known to choose the project area and its vicinity as their wintering ground. The environmental impact assessment</p>	<p>It is a well-known fact that some species of seabirds tend to avoid feeding and resting near offshore windfarms. Such displacement is likely to be related to the combined disturbance from the presence of the turbines, increased vessel activity and/or changes in prey availability caused by the presence of offshore wind farms.</p> <p>The effect of displacement on wintering waterfowl from the project area and its vicinity has been thoroughly analysed and addressed in the Environmental Impact Assessment. Also, the actual</p>	<p>The Danish Energy Agency assesses that the evaluations made in the environmental impact assessment are correct.</p>



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document should take a position on how these possible negative impacts on bird populations could be avoided.

significance of such displacement at population levels has been quantified according to internationally recognized standard methods. The Danish waters are important wintering areas for especially Swedish and Finnish populations of common eider but also Estonian, German, Dutch, Danish and partially southern Norwegian population segments occur. Likewise, red-throated divers and common and velvet scoters from populations in Finland also winter in Danish waters. It is correct that a certain number of individuals originating from these Finnish population segments winter in the survey area for Jammerland Bay Nearshore Wind Farm. However, ringing data show that the Finnish birds do not have a specific preference for the Jammerland Bay area. On the contrary, Finnish red-throated divers, eiders, common and velvet scoters tend to spread throughout their wintering area (Noer, 1991). For example, up until 2002, a total of 1,426 ringed Finnish eiders had been found in Danish waters, primarily in October-February. The Finnish birds are especially found in the southwestern Kattegat, in the South Funen Archipelago and in the Belts including Jammerland Bay, which constitutes a small



wintering area. The Finnish birds also reach the Wadden Sea (Noer, 1991, Bønløkke et al., 2006).

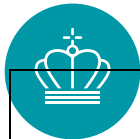
In the environmental impact assessment, the 'local' population of common eider is estimated at 90,000 individuals, mainly originating from breeding areas in Sweden, Finland, Germany, Estonia and Denmark. Hence, the 'local' wintering population used to assess the scale of impact from displacement in the environmental impact assessment is a mix of birds belonging to different population segments.

The 'local' population has been calculated as the number of birds wintering in the survey area itself (including the project area) and the surrounding SPA' s up to 50 km from the project area. The details and assumptions concerning the estimation of a 'local' population size are described in more detail in the environmental impact assessment. During the field surveys in 2014-2015 and 2020-2022 up to 25,000 common eiders were observed in the survey area, which encompasses an area in the Northern Great Belt, which is larger than the project area, 442 km² compared to 31 km², (see Figure 1 in the attached annex 1, that shows the survey



transects in the northern Great Belt. The polygon shows the project area for the Jammerland Bay Nearshore Wind Farm (Figure 8-23 in the environmental impact assessment). As a worst-case scenario, it has been calculated that 1,059-9,325 common eiders will be displaced by the presence of the windfarm. Based on literature between 1 and 10 % of these birds could die due to the displacement. All references and description of methods can be seen in the environmental impact assessment.

In the environmental impact assessment, the increased mortality caused by displacement is compared to the size of the 'local' population (and biogeographic population) and to the increased mortality that the population can withstand without declining (Potential Biological Removal = PBR). The calculations in the environmental impact assessment show that the increased mortality is far below the PBR for both the 'local' wintering population, which only partially consists of Finnish breeding birds, and the biographic population. The scale of impact was also lower for red-throated divers and common and velvet scoters, relative to the biogeographic and 'local' population sizes.

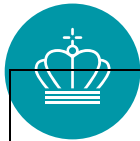


Moreover, the estimated number of displaced seaducks and divers has been calculated based on a 4 km displacement buffer around the project area. This is a conservative approach, as studies indicate that sea ducks such as common eiders and long-tailed ducks to some extent are able to coexist with offshore windfarms and still rest and forage very close to the turbines if food resources are available (Jacobsen, 2022, Nielsen et al., 2022).

Accordingly, it is assessed in the environmental impact assessment that the displacement caused by the Jammerland Bay Nearshore Wind Farm does not have a negative impact on these Finnish breeding populations of redthroated divers and seaducks.

References:

Noer, H. 1991. Distributions and movements of Eider *Somateria mollissima* populations wintering in Danish waters, analysed from ringing recoveries. – Dan. Rev. Game Biol. 14 (3): 1-32.



Bønløkke, J., Madsen, J. J., Thorup, K., Pedersen, K.T., Bjerrum, M., & Rahbek, 2006. Dansk Trækfugleatlas. Rhodus. Humlebæk.

Jacobsen, E. 2022. Ederfugle og vindmøller ved Sprogø 2021-2022.

Nielsen, J.C., M.F. Mortensen, N.A. Yasmin & R. S. Tjørnløv et al 2022. Longterm Response Of Offshore Wind Farms On Wintering Birds Spatial Distribution Of Long-Tailed Ducks (Clangula Hyemalis) At The Kriegers Flak Offshore Wind Farm 2022-2023.

Centre for Economic Development, Transport and the Environment (ELY) of Southwest Finland / Varsinais-Suomen ELY

The Centre for Economic Development, Transport and the Environment of Southwest Finland states that Jammerland Bay Nearshore A/S, an offshore wind farm project planned for Denmark's exclusive economic zone is planned in one of the Danish straits, which are vital for the water quality and marine ecology of the entire Baltic Sea. The project

The Jammerland Bay Nearshore Wind Farm is located in the Jammerland Bay in a relatively shallow area (see Figure 3 in the attached annex 1, which shows the Water depths in the project area. The largest depth in the Great Belt is south west of the project area. The wind turbines will be placed in relatively shallow water and will not block inflow of

The Danish Energy Agency assesses that the hydrodynamic impacts, including effects on water quality and marine ecology have been thoroughly addressed in the environmental impact assessment. The project will have a minor local impact on the hydrodynamics surrounding the wind turbine



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could have a significant impact on the flow of water from the North Sea to the Baltic Sea and vice versa. If water flows change, the project may have significant impacts on the water quality and marine ecology of the Baltic Sea. According to the ELY Centre, the likely environmental impacts of an offshore wind power project should be assessed during the environmental impact assessment procedure, not only regarding the impacts on the project's immediate area, but also regarding the impacts on the marine environment of the Baltic Sea.

The project assessment must consider the other projects that may have or have similar effects.

salt and oxygen to the Baltic Sea. (Figure 8-4 in the environmental impact assessment).

As stated in the environmental impact assessment chapter 8.2 Sea bottom topography and sediment) the depth within the project area varies between 6.5 and 26 meters. The deepest parts of the Great Belt are found south west of the project area.

The wind turbines will be installed in relatively shallow water and will not block inflow of salt and oxygen to the Baltic Sea. The inflow happens primarily in the deeper parts of the Great Belt. Other windfarms in the Danish straits are also located on shallow water and does not affect the inflow of saline and oxygen rich water from the North Sea to the Baltic.

The wind farm will slightly impact water flow in the immediate surroundings of the turbines. The impact is shown and assessed in the environmental impact assessment. The impact is assessed to be minor. More details on the modelling which has been carried out can be seen in the background report "Hydrography and sediment spill". We also refer to figure 5 and 6 in the attached annex 1, showing the bottom layer change in tidal current velocities (m/s)

foundations, but this will not affect the flow of water from the North Sea to the Baltic Sea and vice versa.



due to the foundation layout and the simulated changes in current speed (m/s) at sea surface during operation (Figure 8-10 in the environmental impact assessment).

Because there is no significant impact on water flow in the immediate surroundings, there is also not a significant impact on water exchange to the Baltic Sea.

It is therefore in response to the comment from Finland assessed that there will be no significant impact on the flow of water from the North Sea to the Baltic Sea and vice versa.

Other projects which could work in cumulation with the Jammerland Bay Nearshore Wind Farm are described in chapter 12 of the environmental impact assessment. No projects have been identified, which could work in cumulation with regards to hydrography and flow of water. The windfarm at Sprogø and the Great Belt Bridge were constructed in 2009 and 1998 respectively, and their impact is therefore part of the baseline.

The plans and projects with a potential cumulative impact on environmental factors are shown in figure



*The Finnish Transport and Communications Agency
Traficom / Liikenne – Ja Viestintävirasto Traficom*

From the maritime point of view, 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 if the offshore wind farm is located, for example, in the vicinity of maritime traffic areas.

The project's consultation documents do not indicate the location of the planned Jammerland offshore wind farm in relation to the traffic area used by merchant shipping in the area. When planning the Jammerland offshore wind farm, it is important to consider and ensure the safety and smoothness of international shipping in the area also in the future.

Due to the location of the project area, the project may also have an impact on shipping to and from Finland. Given Denmark's experience in reconciling offshore wind farms and dense maritime traffic in its sea areas, it would have been useful to follow the

12-1 in the environmental impact assessment and in Figure 7 in the attached annex 1.

The project area of the Jammerland Bay Nearshore Wind Farm in relations to shipping routes in the Great Belt is shown in figure 8-68 in chapter 8.13 of the environmental impact assessment. The figure is also seen in the attached annex 1: Figure 13, showing the current shipping routes and the intensity of their use near the project area.

It is stated in the environmental impact assessment that the project area is located in an area dominated by low or moderate traffic intensity. The western part of the project area is located close to a regional and international shipping route (Route T) which is characterizes by a high density of heavy, commercial traffic. The traffic in the project area largely consists of smaller vessels, including fishing vessels and recreational vessels (< 25 m). AIS data from 2019 has been compared to new data from 2022. The overall traffic is the same, but the fishing vessels have been halved, while

The construction permit will include conditions requiring that the developer must follow the conditions laid down by the Danish Maritime Authority regarding safety at sea, including marking of the wind turbines before, during and after establishment, as well as correct placement of foundations and cables.

The construction works must furthermore be coordinated with the Danish Maritime Authority to ensure the dissemination of relevant information to the maritime traffic in the area.

In connection with this, there will also be requirements for the development of an emergency plan for both the construction and operational phase. The emergency plan must include a procedure for contacting and involving the Defense Command in the event of a risk of collision with one or more wind turbines.



Esperitukseen

environmental impact assessment process from a maritime perspective.

From Finland's point of view, it would also be useful to obtain more information on, for example, the studies used to support planning and practices in coordinating shipping and offshore wind power in densely trafficked sea areas.

recreational vessels have increased by 74-106 %.

The risk of collisions has been assessed as low and not significant. Based on the navigational safety analysis, which includes both processing of AIS data from 2019 and 2022, it is concluded that no conditions have been found that are unacceptable from a navigational safety perspective.

Based on the navigational safety analysis, it is assessed that the Jammerland Bay Nearshore Wind Farm does not increase the risk of ship-ship collisions. Rerouting means that the ships will sail a little closer to the routes west of the offshore wind farm compared to the current traffic situation.

However, the return periods are still considered acceptable.

Since the traffic within Route T is assessed to be insignificantly affected by the Jammerland Bay Nearshore Wind Farm, the maritime traffic is also assessed to be insignificantly affected in cumulative interaction with other offshore wind farms in the Great Belt.



*Ministry of Transport and Communications /
Liikenne – Ja Viestintäministeriön*

According to the working document of the project, during the operational phase of the project offshore wind turbines can have an impact on maritime safety and air traffic, the risk of ship collisions, radio and air traffic in the form of interference with radar signals. The western part of the project area is close to a large regional and international shipping corridor (T-route) with dense heavy commercial traffic. However, the overall impacts on shipping during the construction, operation and decommissioning phases of the project have been estimated to be low.

Further, according to the working document, offshore wind turbines can affect radars, aviation equipment and radio links due to shading effects and reflections caused by wind turbine structures, movements, and installation methods. The overall impacts on radars and radio links during the construction, operation and decommissioning phases have been estimated to be low.

In the view of the Ministry of Transport and Communications, it would be justified for Finland to

Reference is made to the above response to the remarks from Finnish Transport and Communications Agency Traficom.

As stated in the remark, the impact on shipping from the wind farm is assessed as low. Whether the location is acceptable from a marine safety point of view is up to the Danish Maritime Authority (Søfartsstyrelsen). The Danish Maritime Authority has provided remarks to the project both during the public consultation and during the pre-hearing of Danish Authorities. The Danish Maritime Authority has not raised concerns about the location.

The construction permit will include conditions requiring that the developer must follow the conditions laid down by the Danish Maritime Authority regarding safety at sea, including marking of the wind turbines before, during and after establishment, as well as correct placement of foundations and cables.

The construction works must furthermore be coordinated with the Danish Maritime Authority to ensure the dissemination of relevant information to the maritime traffic in the area.

In connection with this, there will also be requirements for the development of an emergency plan for both the construction and operational phase. The emergency plan must include a procedure for contacting and involving the Defense Command in the event of a risk of collision with one or more wind turbines.



Environmental

participate in the environmental impact assessment procedure of the planned project. Considering the location of the project area, the project may also have an impact on shipping to and from Finland.

From Finland's point of view, it would also be useful to obtain more information on, for example, the studies used to support planning and practices in coordinating shipping and offshore wind power in densely trafficked sea areas.

Smooth and safe maritime traffic on fairways and in sea areas outside fairways throughout the year is important, as the vast majority of goods flows in Finland's foreign trade 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.

Unobstructed use of fairways must be considered in the design of offshore wind farms. Offshore wind farms can change traffic areas and routes, extend travel times, and increase vessel emissions as fuel consumption increases. 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



Esseinturva

shipping are taken into account in the planned project area.

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

*The Federation of Finnish Fisheries Associations /
Kalatalouden Keskusliitto*

Finns do not have commercial fishing in the planned area of the wind farm. The potential environmental impact of measures in the Danish straits and bay areas on Finland is related to fish migrations from the North Sea to the Baltic Sea. The only fish species that is regularly found in Finland and migrates from the North Sea to Finland is the critically endangered European eel. The environmental impact assessment should evaluate on whether the project will affect eel migration opportunities.

The project area is not situated in the Danish straits but in a Danish fjord leading into the Great Strait. The turbine foundations will be scattered across a larger area causing only minor impacts on water transport and current inside the fjord locally around the foundation. It is not expected that the project will have any negative impact on eel habitats or migrations. Around the windfarm foundations scour protection will be established with stone reefs. Juvenile eels are known to seek shelter in hardbottom habitats which are relatively scarce in Danish waters after several years of stone fishing where boulders were used in harbour constructions. Thus, the project is expected to have a minor and

The Danish Energy Agency assesses that the environmental impact on fish populations from the project will be minor and thereby not affect the eel migration into the Baltic Sea.



Environmental

local positive effect on fish utilizing hard bottom habitats. In addition, fishing with dredging gear is expected to be prohibited in the project area due to the risk of damages to subsurface cables. The fishing ban is also expected to have a small but positive effect on the fish community in the area. In short, it is assessed that the project will not affect eel migration into the Baltic Sea.