CONSULTATION DOCUMENT FOR
DELIMITATION CONSULTATION

Arkona vindkraftpark

Prior to application for licence in accordance with the Swedish Economical Zone Act and the Continental Shelf Act, etc.

2021-12-19

eolus™

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The consultation document has been prepared by Eolus Vind AB and Sweco Sverige AB in Swedish. Eolus is responsible for the translation to English, and thus is responsible for any errors.

Eolus has the responsibility for the technical description and Sweco for the environmental description. Maps and photos are, unless otherwise stated, produced by Eolus Vind AB.

Digital consultation portal

Information on the project is available on: https://samrad.sweco.se/arkona

LEAVE OPINIONS DURING THE CONSULTATION PROCESS

Consultation opinions should be sent thru email to samrad.arkona@eolusvind.com or through the digital consultation portal on https://samrad.sweco.se/arkona

Alternatively by mail to:

Eolus Vind AB
Att: Arkona vindkraftpark
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Mark the e-mails or letters with Arkona vindkraftpark.
The latest date to send opinions is 31 January 2022.

ABOUT US

Our forward-thinking goes way back

Since the company's inception in 1990, Eolus has become a leading wind power developer in the Nordic region. Today, Eolus is a leading actor within several markets working with development of wind power, solar energy, and energy storage solutions.

The transition to a sustainable society is one of the most critical issues to address today and Eolus wants to make a difference in the future. Eolus is thinking long-term and work hard developing sustainable projects that contributes to the development of local businesses and industries thru the establishment of renewable energy.

Arkona vindkraftpark

The planned wind farm is located just over 22 km south of Skåne within the Swedish economic zone. Within this area, Eolus plans for up to 70 wind turbines with a tip height of between 260 – 330 m.

Skåne consumes 13 TWh of electricity annually, while the regional production amounts to about 3 TWh per year. Forecasts estimate that the electricity consumption is expected to increase to about 16 TWh by 2040. Therefore, there is a great need for establishment of more renewable energy production in the region to minimize the region's deficit in electricity production capacity.

The regional business sector has a great need of electricity in order to maintain their competitiveness and the possibilities to develop their businesses in the ongoing renewable energy transition. Arkona vindkraftpark has the potential for up to approximately 1 200 MW installed capacity, which in turn could add about 5,5 TWh of renewable energy each year. The establishment has thus the potential of more than doubling the current regional electricity production in Skåne.

Arkona vindkraftpark

Table of Content

1 Introduction

1.1 Background

Eolus Vind AB (”Eolus”) plans to apply for permit in accordance with the Swedish Economic Zone Act and the Continental Shelf Act, for the establishment and operation of an offshore wind farm with associated cables in the south and southwest part of the Baltic Sea, called the Arkona Sea. Eolus denominate the planned wind farm *Arkona vindkraftpark.*

This document constitutes Eolus’ documentation for delimitation consultation in accordance with the Environmental Code, prior to the establishment of the Environmental Impact Assessment (EIA) for the planned wind farm. The delimitation consultation aims to delimit the forthcoming EIA and set the appropriate scope and degree of detail necessary of the EIA. The development of Arkona vindkraftpark is still in an early phase, and it is currently not possible to rule out the need for a Natura 2000 permit. Therefore, this consultation also aims for a possible Natura 2000 permit.

The investigation area for the planned establishment is situated in the southern part of the Baltic Sea, within the Swedish economic zone between Ystad and Kap Arkona on the German Island of Rügen. The planned establishment includes construction, operation, and decommissioning of the wind farm, as well as the installation of cables within the wind farm. The investigation area is about 16 km long and just over 14 km wide. The grid connection of the wind farm is not included in this consultation. Eolus is simultaneously investigating the grid connection possibilities for the planned wind farm, which will be addressed in a later phase.

The addressed issues in this consultation document, which will be further investigated, relates to the conditions for, and the impacts and consequences of the planned wind farm. The planned establishment is expected to lead to environmental impacts on various aspects of the marine natural environment and human activities connected to the marine environment, such as fishing, shipping, and recreational activities.

1.2 Presentation of Eolus Vind AB

Eolus is a driving actor in the transition to renewable energy production and has since its inception in 1990 developed into one of leading wind energy developers in the Nordic countries. Eolus’s main activities includes the development and establishment of renewable energy facilities and energy storage. As of today, Eolus has participated in the construction of more than 660 wind turbines with a total capacity of 1410 MW. In addition, Eolus has ongoing projects in Sweden, Norway, and US with a capacity of 476 MW spread across 85 turbines. In total, Eolus has established approximately 13 percent of the wind energy built in Sweden.

Eolus currently operates in the Nordic countries, the Baltics, Poland, and the US. Eolus is involved in the project development of several offshore wind power projects within Eolus current markets.

In addition to development and establishment, Eolus also has an asset management organisation which is contracted to manage more than 1 400 MW for its customers, 921 MW of which is in operation. Eolus provides complete operation and management services, to give investors a worry-free ownership of wind farms, which have been developed by Eolus or other developers.

2 The consultation process and the purpose of the consultation

The planned establishment is assumed to have a significant environmental impact according to 6 § of the Environmental Assessment Regulation, with reference to 21 Ch. 13 § of the Environmental Assessment Regulation. A survey consultation whether the establishment is assumed to cause a significant environmental impact or not has not been conducted, in accordance with 6 Ch. 23 § Environmental Code.

A party planning to apply for a permit for an establishment which is expected to have a significant environmental impact, must conduct a specific environmental assessment, where the applicant must prepare an environmental impact assessment (EIA) for the planned establishment, and before that consult on the delimitation of the EIA (a so-called delimitation consultation).

This consultation document forms the basis for the aforementioned delimitation consultation and elaborate on the location, scope and design of the establishment, the environmental effects that the establishment or operation could introduce either by itself or from external activities, as well as proposing the content and design of the forthcoming EIA. The information has the scope and level of detail which are assessed necessary in order to evaluate for the scope and level of detail of the forthcoming EIA.

The delimitation consultation will be conducted in cooperation with the County Administrative Board (CAB), supervisory authorities, and private entities which are assumed to be particularly impacted from the planned establishment, as well as other governmental authorities, municipalities, and the public which could be assumed to be affected by the establishment. The consultation is initiated with a dialogue with the CAB and will be further conducted by publishing the consultation document online (web consultation) with the possibility for the public to submit opinions on the consultation portal. The authorities and organisations will be contacted by e-mail. Eolus will contact certain stakeholders for individual meetings. A draft for the consultation circle is presented in Appendix 1.

3 Location and site description

3.1 Investigation area for the planned establishment

The investigation area for the planned establishment is situated outside of Skåne's southern coast, about 22 km southwest of Smygehuk and 31 km southwest of Ystad. West of the site, the nearest land is Fyns's eastern most tip (about 56 km), in the eastern direction, Rönne on Bornholm (about 66 km) and south of the site is the Island of Rügen, the north of Germany (about 37 km), see Figure 1.

The size of the investigation area is about 223 km2 (14 km in width and 16 km in length) and it is situated entirely within the Swedish economic zone. The area is delimited to the north by the border to Swedish territorial waters, to the south by the border to the German economic zone, and to the west by the Natura 2000-area *Sydvästskånes utsjövatten*, see section 3.4.9.

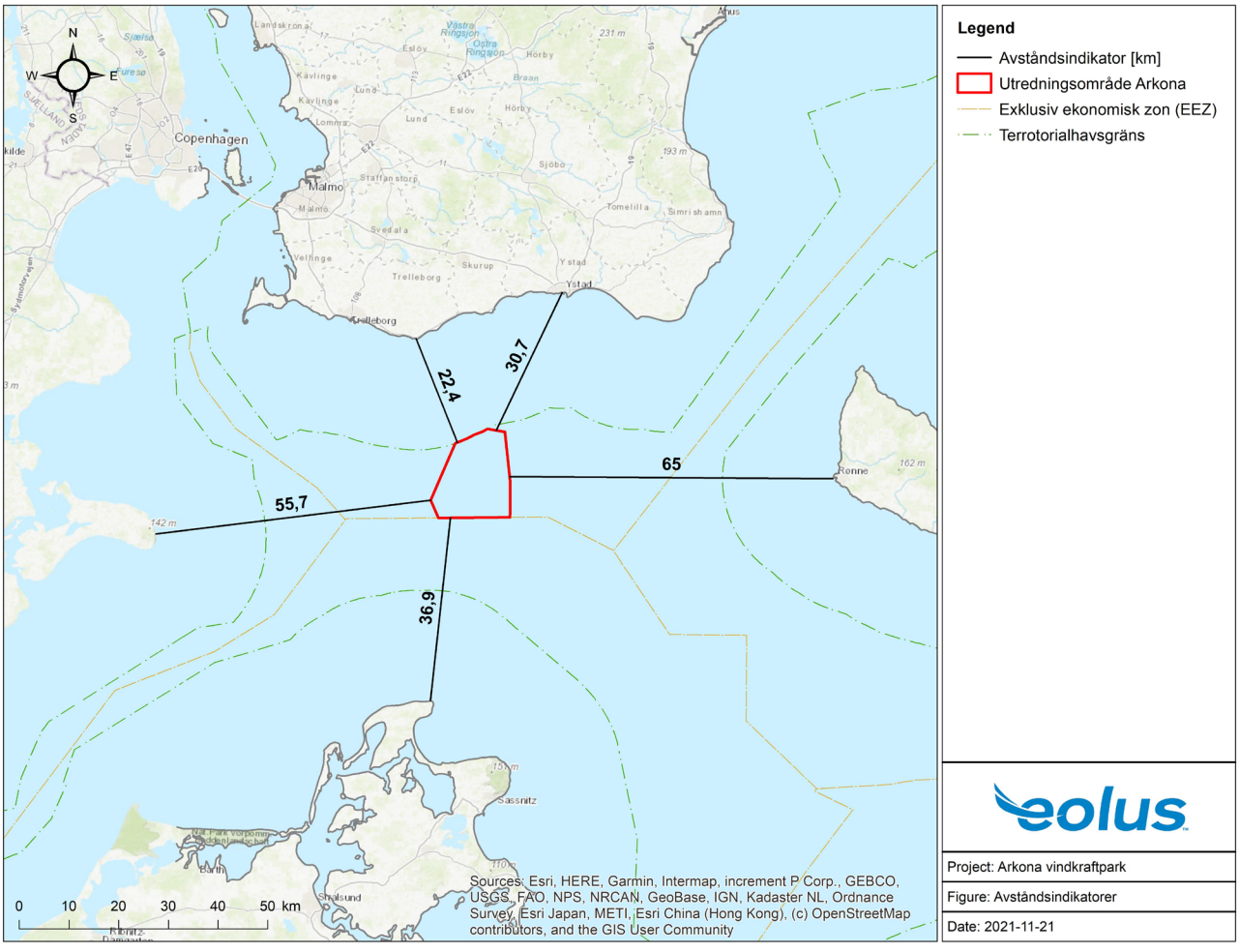

Figure 1: Distance indicators to places of interest for visual impact.

The investigation area consists of open sea with water depth of 40 to 45 m. The area has a very good wind conditions for the establishment of offshore wind power, as the open sea provides stable winds with low turbulence. The average wind speed is approximately 9,5-10 m/s at 100 m above sea level.

The area is specifically interesting for the development of offshore wind energy with the aforementioned good wind resource, water depth which allows for bottom-fixed foundations, few opposing interests, as well as the great need for new electricity generation in southern Sweden.

The investigation area is of sufficient size for the optimization of the planned wind farm and the wind farm's final design and location will be determined depending on the results of forthcoming investigations and surveys. Eolus intends to develop an optimal wind farm within the area and thereby minimizing the space used within the investigation area.

3.2 Geographical limitation of the influence area

The planned establishment's anticipated environmental impact is assumed being able to extend to the marine environments in the south and southwest Baltic Sea, approximately corresponding to the map section shown in the map (see Figure 2) which commonly is referred to as the Arkona Sea. For certain aspects, the nearest coastal areas also need to be taken into consideration. The coordinates of the investigation area are shown in Table 1.

Table 1: Coordinates for the investigation area of Arkona vindkraftpark

Point	SWEREF 99 TM E	SWEREF 99 TM N
A	403 619	6 112 594
B	407 304	6 114 242
C	410 152	6 115 455
D	413 616	6 114 854
E	414 694	6 104 902
F	414 616	6 097 726
G	400 251	6 097 610
H	398 652	6 101 165

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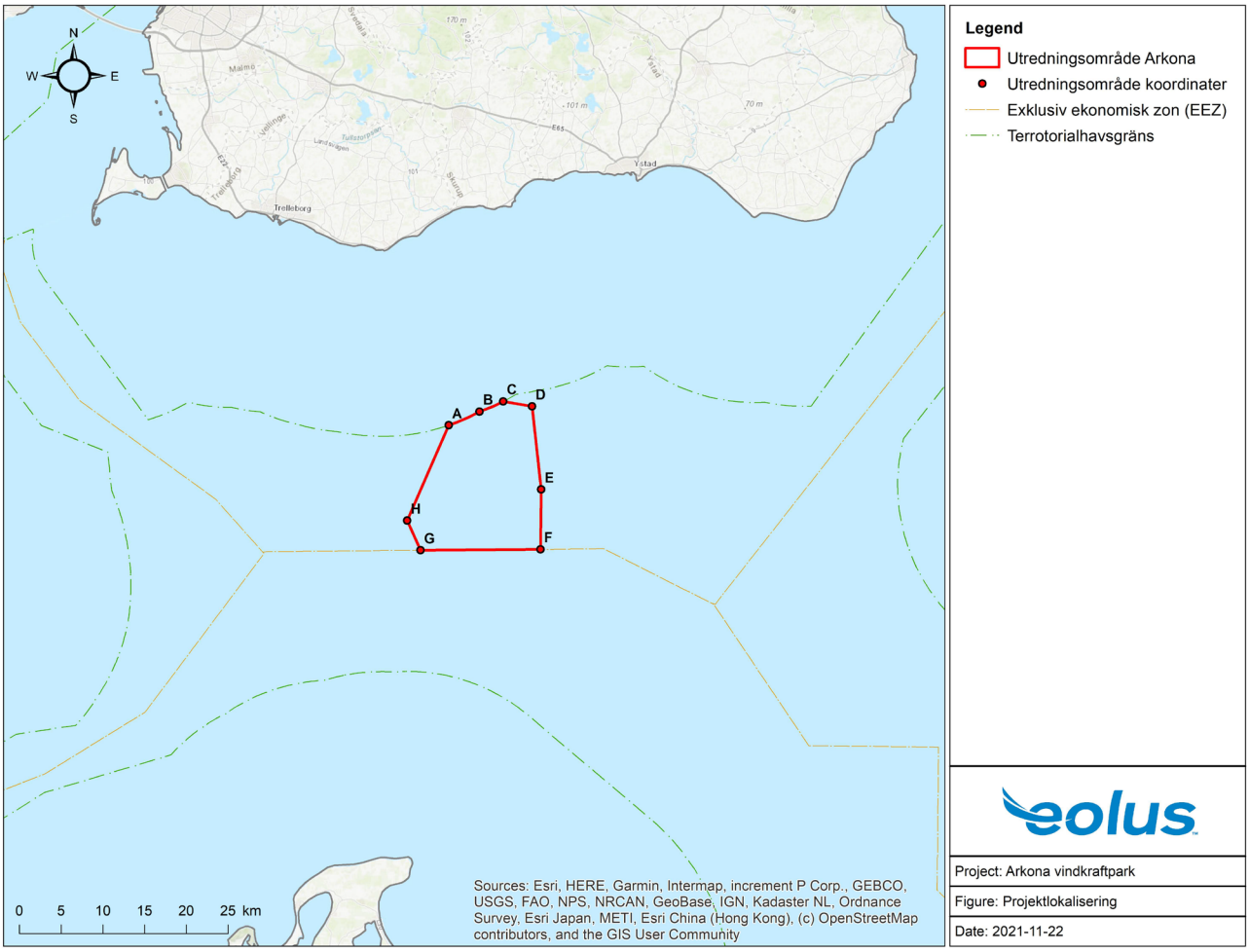


Figure 2: The investigation area of the planned establishment.

3.3 Planning conditions

The investigation aera is located within the marine spatial planning sub-area of Bornholmsgattet, Ö267, see Figure 3. The marine spatial plan marks this whole area for general use. By general use, it is meant that no specific activity has a priority over other activities.

Activities which are delimited by their own geographical limitations has priority where they are marked, see Figure 3. Neither areas marked for usage for fishery, or for shipping overlaps with the investigation area. For Bornholmsgattet, Ö267, it has been stated that defence interests are given priority over energy production.

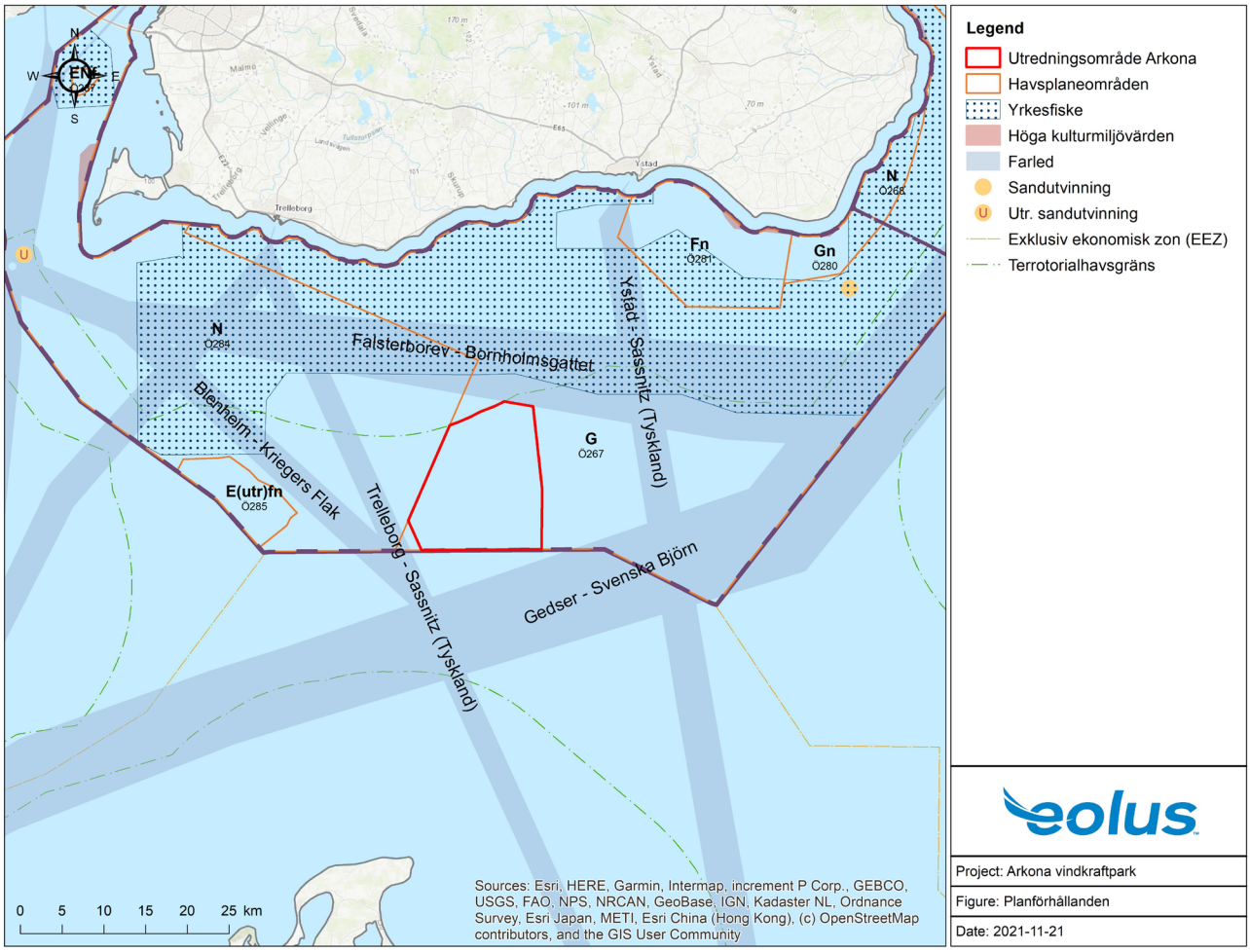


Figure 3: The planned area waters, waterways, and commercial fishery

To the west, the investigation area is bordering the marine planning sub-area *Sydvästskånes utsjövatten till Flintrännan*, Ö284, see Figure 3. This area is designated as an area for nature.

See Table 2 for a summary of the current marine spatial plans, with the area of usage mentioned in Figure 3.

Table 2: Maritime spatial planning compilation of relevant sub-areas.

Sub-area	Usages	Special consideration	Preference or special adaptation for coexistence
Ö267	General usage, Sand extraction, Shipping, Fishery	High cultural environmental values	Defence is given priority over energy production.
Ö284	Nature, Sand extraction (invest.), Shipping, Fishery	High cultural environmental values	Sand extraction is adapted to nature. For example, regarding the time period and location of outlets.

3.4 National interest and protected areas

The relevant national interests and protected areas in the vicinity of the planned establishment are described below.

3.4.1 National interest claims for commercial fishing

The Swedish Agency for Marine and Water Management has, in a decision from 2019-12-10, pointed out the following areas off the south coast of Sweden as areas of national interest for commercial fishing (see Table 3 and Figure 4) in accordance with 3 Ch. 5 § of the Environmental Code. *Falsterbo utsjöområde* (RI YF 12) and *Södra Skånes utsjöområde* (RI YF 13) are assumed to be located within the influence area of Arkona vindkraftpark, whilst other areas are considered outside the influence area.

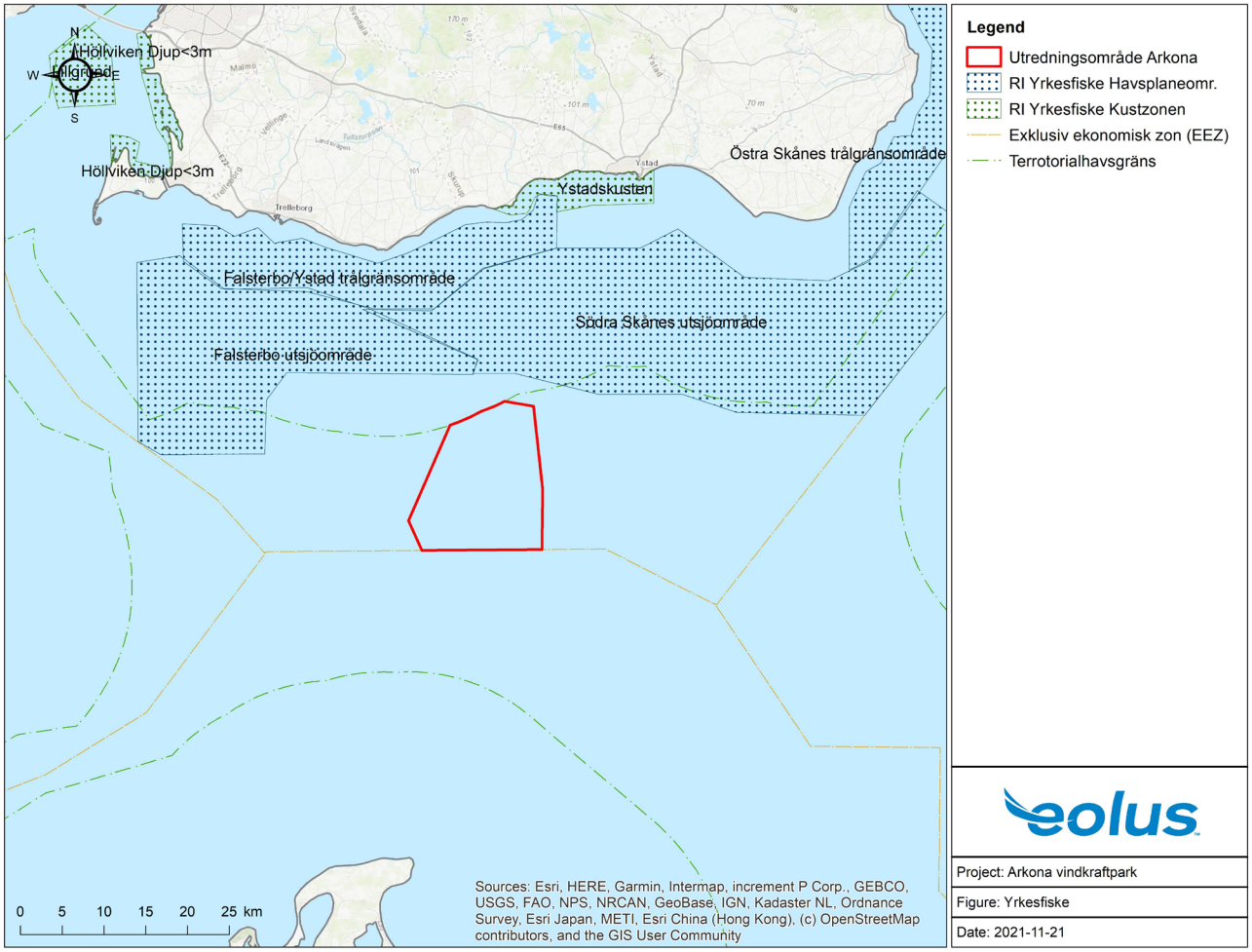


Figure 4: Areas with national interest claims for commercial fishing.

Table 3: National interest claims for commercial fishery, in accordance with 3 Ch. 5 § of the Environmental Code.

Name	Brief description
Södra Skånes utsjöområde (RI YF 11)	. The area is considered as a catchment area and is a revision of area 44 according to the 2006 decision.
Falsterbo utsjöområde (RI YF 12)	The area is considered as a catchment area and is a revision of area 46 according to the 2006 decision
Falsterbo/Ystad trålgränsområde (RI YF 13)	The area is considered as a new catchment area according to the 2019 decision.
Ystadkusten (RI YF 71)	The area is considered as a catchment area and is a revision of area 45 according to the 2006 decision.
Östra Skånetrålgränsområde (RI YF 10)	The area is considered as a catchment area and is a revision of area 43 according to the 2006 decision.

3.4.2 National interest claims for recreational outdoor activities

North of the investigation area, along the coastline, there are two areas that are identified as areas of national interest for recreational outdoor activities (see Table 4 and Figure 5), in accordance with 3 Ch. 6 § of the Environmental Code. National interests located in-land are assumed to be located outside of the project's influence area and therefore will not be further studied in the EIA. The areas of national interest for recreational outdoor activities that are considered outside of the area of influence from the establishment, are marked in grey and titled *RI Friluftsliv Övriga* in Figure 5.

Table 4: National interest claims for recreational outdoor activities along the south coast.

Name	Brief description
FM 17 - Kuststräckan Trelleborg-Abbekås-Sandhammaren-Mälarhusen-Simrishamn	The national interest stretches along the coast from Trelleborg to Simirshamn and consists of a varied coastal landscape with long sand beaches, the dunes area is partly planted with pine, pastureland and agricultural landscape.
FM 16 - Skanör-Falsterbohalvön med kuststräckan Höllviken-Trelleborg	The area with specifically good conditions for rich natural and cultural environment experiences through outdoor and water related activities.

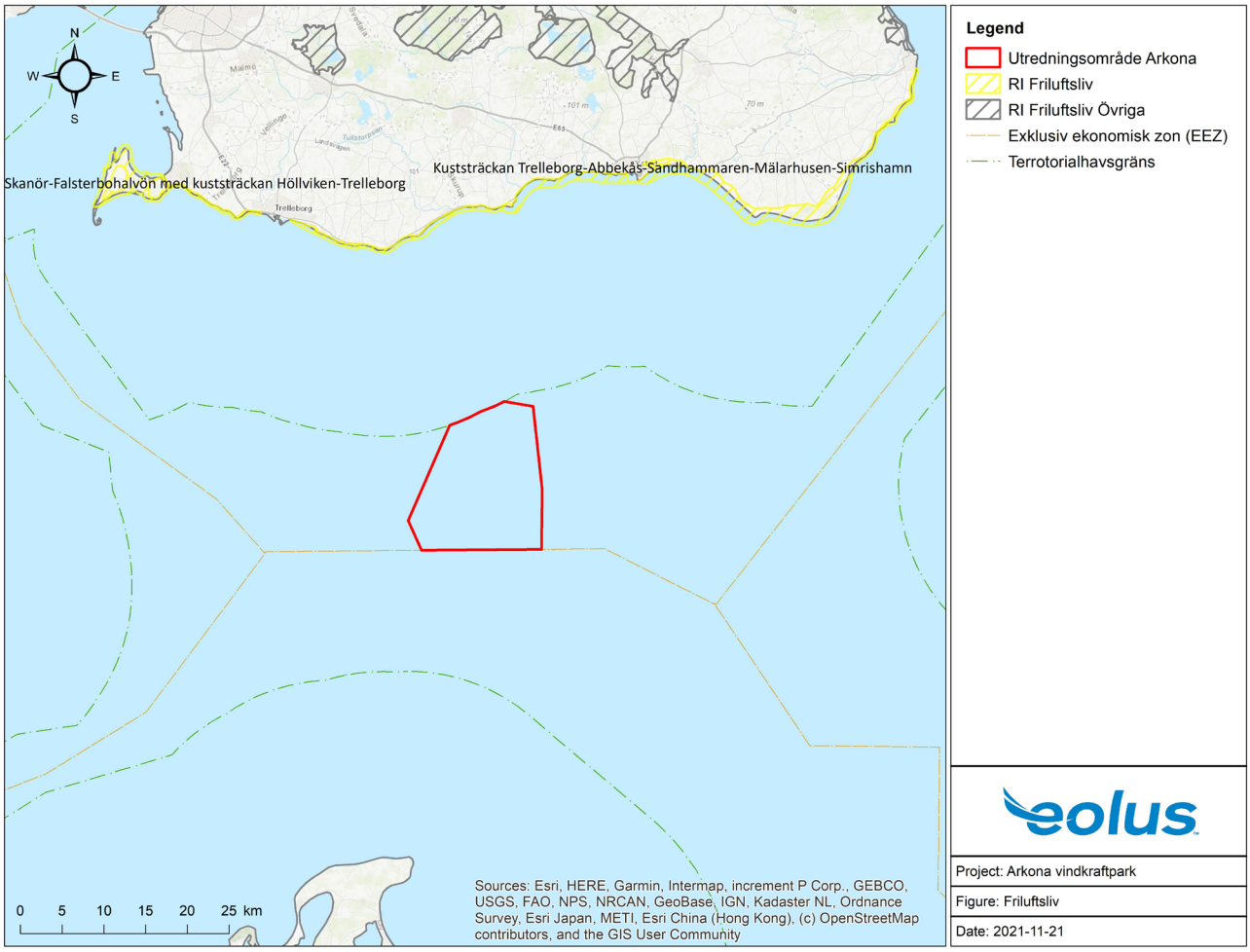


Figure 5: National interest claims for recreational outdoor activities.

3.4.3 National interest claims for cultural environmental protection

Along the coastal area north of Arkona vindkraftpark there are twelve (12) areas of national interest claims for cultural environmental protection (in accordance with 3 Ch. 6 § of the Environmental Code) that are assumed to be located within the planned establishments area of influence (see Table 5 and Figure 6). The national interest areas for cultural environmental protection that are assumed to not being included within the area of influence are marked in grey and titled *RI Kulturmiljö Övriga* in Figure 6.

Table 5: National interest claims for cultural environmental protection along the south coast.

Name	Brief description
Skanör och Falsterbo	The small-town environment of Skanör, in its planning, buildings and surroundings reflects a medieval city, and with the continued development where the city was completely recovered after the city fires in 1874 and 1885, and was designed in accordance with the prescription in 1874 building charter, and implemented on a small scale.
Skanörs ljung	Meadow landscape with ancient monuments on Falsterbonäset, with prehistoric and medieval settlements.
Fuglie – Mellan Grevie mm	Central settlement with the Söderslätt plain landscape characterized by agricultural plots with prehistoric use and settlement continuity and for Sweden a unique concentration of densely situated church villages of at least medieval origin.
Gylle – Dalköpinge	Characterized by open plains with prehistoric use and settlement continuity, as well as medieval churches that shed light on the importance of the area since prehistoric times with preserved and landscape-dominating ancient monuments.
Östra Torp – Smygehamn	Industrial and harbour environment with numerous remnants of limestone production, of which was gradually developed under the 18th century around the fishing village of Smygehamn.
Äspö	Open agricultural land with prehistoric cultivation and continuous settlement, and a church village on the coastal-plain landscape of which is dominated by ancient monuments.
Östra Vemmenhög – Tullstorp	Open and slightly hilly agricultural landscape with prehistoric cultivation and continuous settlement in the area between the plain area and the zone to the north, the landscape and buildings are affluence by the estate management by Dybäcks Castle.
Sjörup – Charlottenlund – Snårestad	Flat castle and coastal landscape with prehistoric use and settlement continuity around Charlottenlund Castle with landscapes and buildings characterized by the estate management through the centuries.
Bjärsjöholm – Balkåkra – Skårby mm	Distinct and extensive castle landscape around the castles Bjärsjöholm, Marsvinsholm and Ruuthsbo with prehistoric use and settlement continuity and of the estates characterized by centuries of cultivated landscape.
Ystad stadskärna	Maritime city that has retained the character of a large and significant medieval and 16th century city that from the end of the 19th century expanded as a result of the development of railways and shipping.
Kåseberga	Archaeological environment with one of the country's most notable and largest ship barrow.
Sandhammaren	Coastal environment and a lighthouse with prehistoric cultivation and continous settlment.

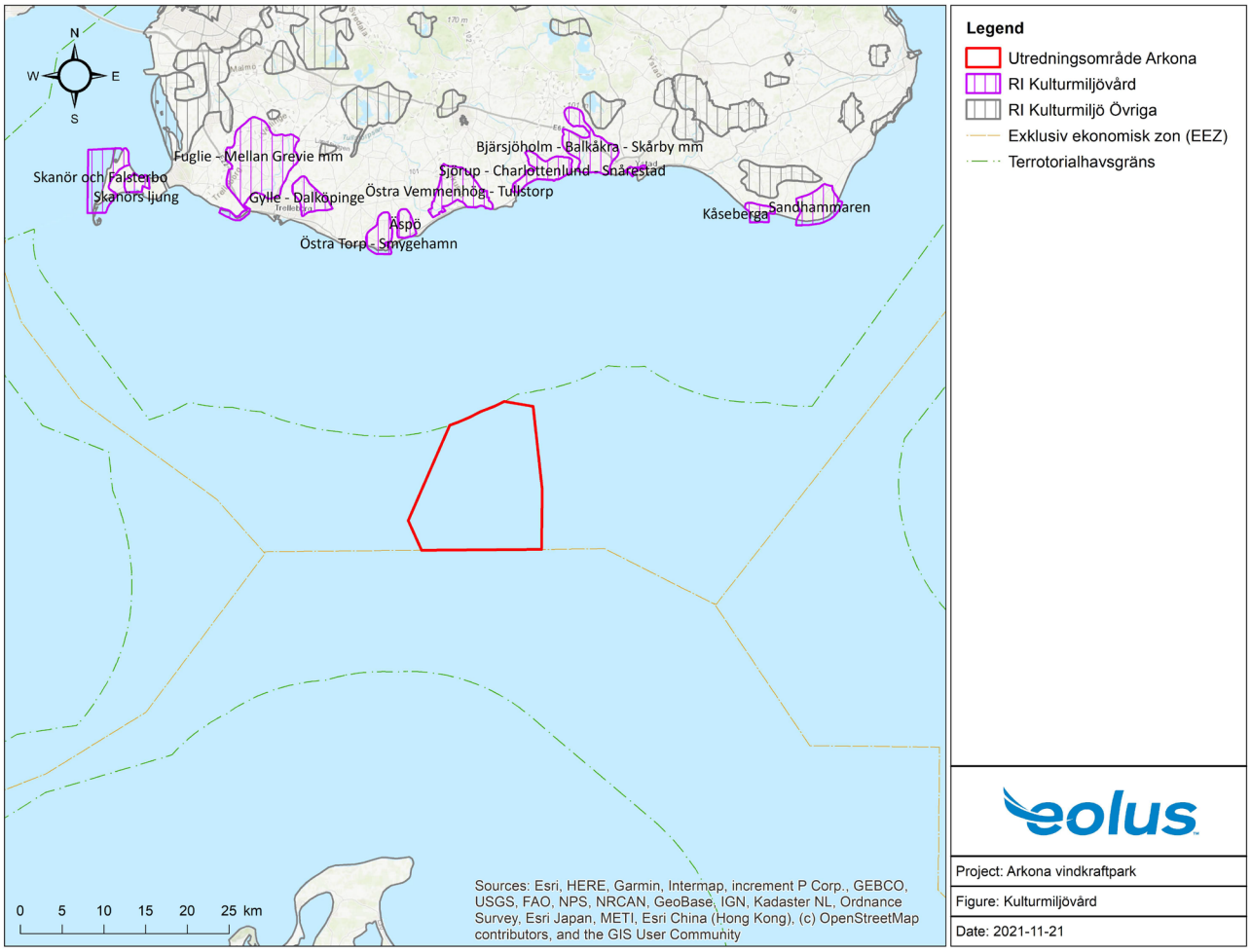


Figure 6: National interest claims for cultural environment protection.

3.4.4 National interest claims for nature conservation

In the nearby Swedish coastal area, there are seven (7) areas of national interest for nature conservation (in accordance with 3 Ch. 6 § of the Environmental code) (see Table 6 and Figure 7). National interest areas that are not connected to the coast, are considered outside the projects area of influence. The areas of national interest for nature conservation that are considered outside of the influence area are marked in grey and titled *RI Naturvård Övriga* in Figure 7.

Table 6: National interest claims for nature conservation along the south coast.

Name	Brief Description
Måkläppen – Limhamnströskeln	A sandmoving area with no equivalent in Sweden. Kämpinge – Stavstensudde, have strandvall (Litorina) och Danienkalksten. The area has larger and smaller areas with eelgrass and species rich and diverse fauna. An important production area for fish and other marine organisms, with importance for many bird species and seals. The area has a large and individual richness of birds.
Dalköpinge ängar	Dalköpinge fields consists of open pasturefileds and long continous wetlands, of which are very important for birds. The nature reserve is one of the few undeveloped and free green fields along the east coast of Trelleborg.
Bingsmarken	The representative agricultural land on the coastal-plain has sandy soils. There are selected natural pastures, Beddinge meadows, of which consists of open pastures. There are partially, species and rich individual plant communities, with favoured species.
Bjärsjöholm – Marsvinsholmsområdet	The Natura-2000 area of Bjersjöholms deciduous forest, consists of a rich deciduous forest with beech, oak, elm, and ash trees in the moist areas. The forest has a long continuous use for grazing and mowing. One of Skåne oldest beech forests, with plenty of burning and dead wood. Here, there is a very valuable fungal flora and insect fauna. The Bjersjöholms area is ranked as the nineth most valuable area in Skåne, in regard to the red listed forest dwelling species.
Ystad sandskog	A typical area with open sand dunes and tree covered fossilised sand dunes, with very high quality for recreation. This place is important to preserve, to showcase the different types of dune areas in southern Sweden and to preserve the typical flora and vegetation, and the different successive stages. The pine forest will be partly transformed into deciduous wood.
Sjöbo Ora - Fyledalen - Nybroån med biflöden	The representative cultivated landscape Baldringe has relict outfield pastures and stubble forest. There are three selected areas with natural pastures, Skogshejdan, Skoghuset and Oxhagen. The wetland at Baldringe meadows is a valuable wetland. The area has botanical values and is an important amphibian site..
Kustområdet Nybrostrand – Simrishamn	Representative agricultural landscape in plains with long continuity and occurrence of natural pastures. Simris beach meadow is a small wetland complex with a valuable limestone-influenced rich topogenic marsh. The natural pasture consists of open pasture and here are partly species and individual rich plant communities with traditionally favoured species such as buckwheat and thyme. Sub-Cambrian sandstone rises on the beach with north-south grooves after ice shifts. The area contains beach embankments, ridge, sandmoving coast and dune formation.

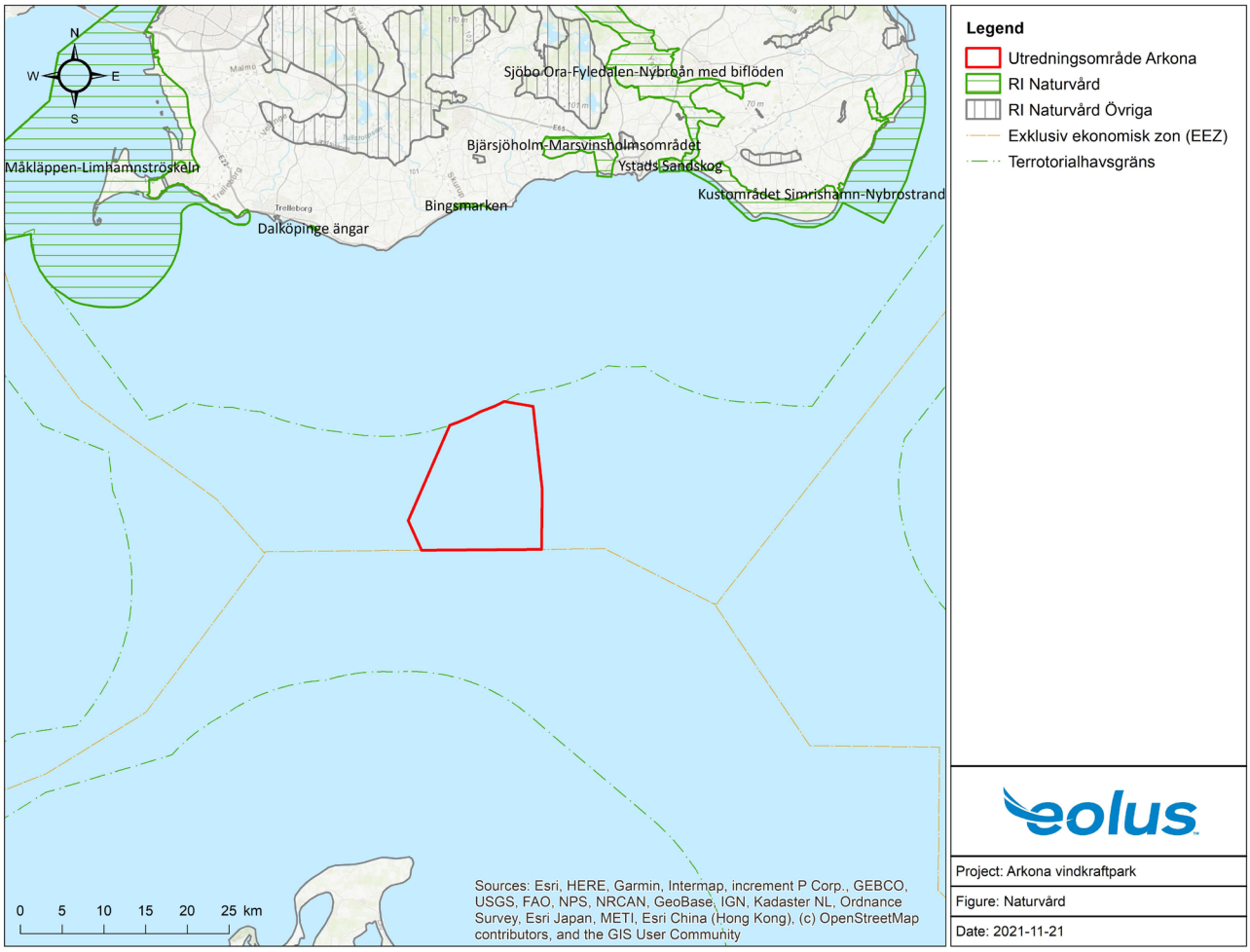


Figure 7: National interest claims for nature conservation adjacent to the coastal area.

3.4.5 National interest claims for infrastructure

Several areas of national interest for communication (in accordance with 3 Ch. 8 § of the Environmental Code) are located or have their end point on the south coast due to the location of ports and the road- and railway connections to these (see Table 7 and Figure 8). This infrastructure is of importance for the construction, operation, and maintenance of the planned wind farm.

In the vicinity of the planned establishment, there are two areas of national interest for energy production, several shipping fairways and an MSA-area for Malmö Airport (see Table 7 and Figure 8).

Table 7: National interest claims for infrastructure along the south coast.

Name	Type	Brief Description
Sträckan Gedser – Svenska Björn	Shipping	Existing shipping fairway of class 1. Coastal traffic, route southern Gotland.
Sträckan Trelleborg – Gedser (Tyskland)	Shipping	Existing shipping fairway of class 2, coastal traffic.
Sträckan Trelleborg – Sassnitz (Tyskland)	Shipping	Existing shipping fairway of class 2, coastal traffic.
Sträckan Anholt – Svartgrund	Shipping	Existing shipping fairway of class 1, coastal traffic.
Sträckan Ystad – Sassnitz (Tyskland)	Shipping	Existing shipping fairway of class 2, coastal traffic.
Flygplats – MSA-area: Malmö Airport	Aviation	MSA- areas (Minimum Sector Altitude), where obstacles could affect aviation procedures from and to Malmö Airport. It covers an area with a radius of 55 km, with a start point in the airport's landing aid.
EM Energiproduktion vindbruk 2013: 294	Energy production	Not considered to have impacts from Arkona vindkraftpark.
EM Energiproduktion vindbruk 2013: 291	Energy production	Not considered to have impacts from Arkona vindkraftpark.

3.4.6 National interest claims for the Swedish total defence

Areas of national interest due to their importance for facilities connected to the total defence must be protected against measures that may significantly impede the creation or utilization of these facilities (3 Ch. 9 § Environmental Code). Two areas of national interest for total defence are situated along the south coast of Skåne (see Table 8 and Figure 8). Both concern aspects of *Kabusa skjutfält*. The planned wind farm is located about 20 km away from *Kabusa skjutfält*.

Table 8: National interest claims for total defence facilities along the south coast.

Name	Brief Description
FM Influensområden riksintressen 2015-02: Kabusa skjutfält	Kabusa firing range is located along the coast, around 8 km easter of Ystad, and covers around 560 ha. The national interest area consist of the firing range.
FM Område med särskilt behov av hinderfrihet: Ystad, Tomelilla	A defined delimited area, outside the national area of interest Kabusa firing range, of which has high risk at affect the function and the access to the area of national interest.

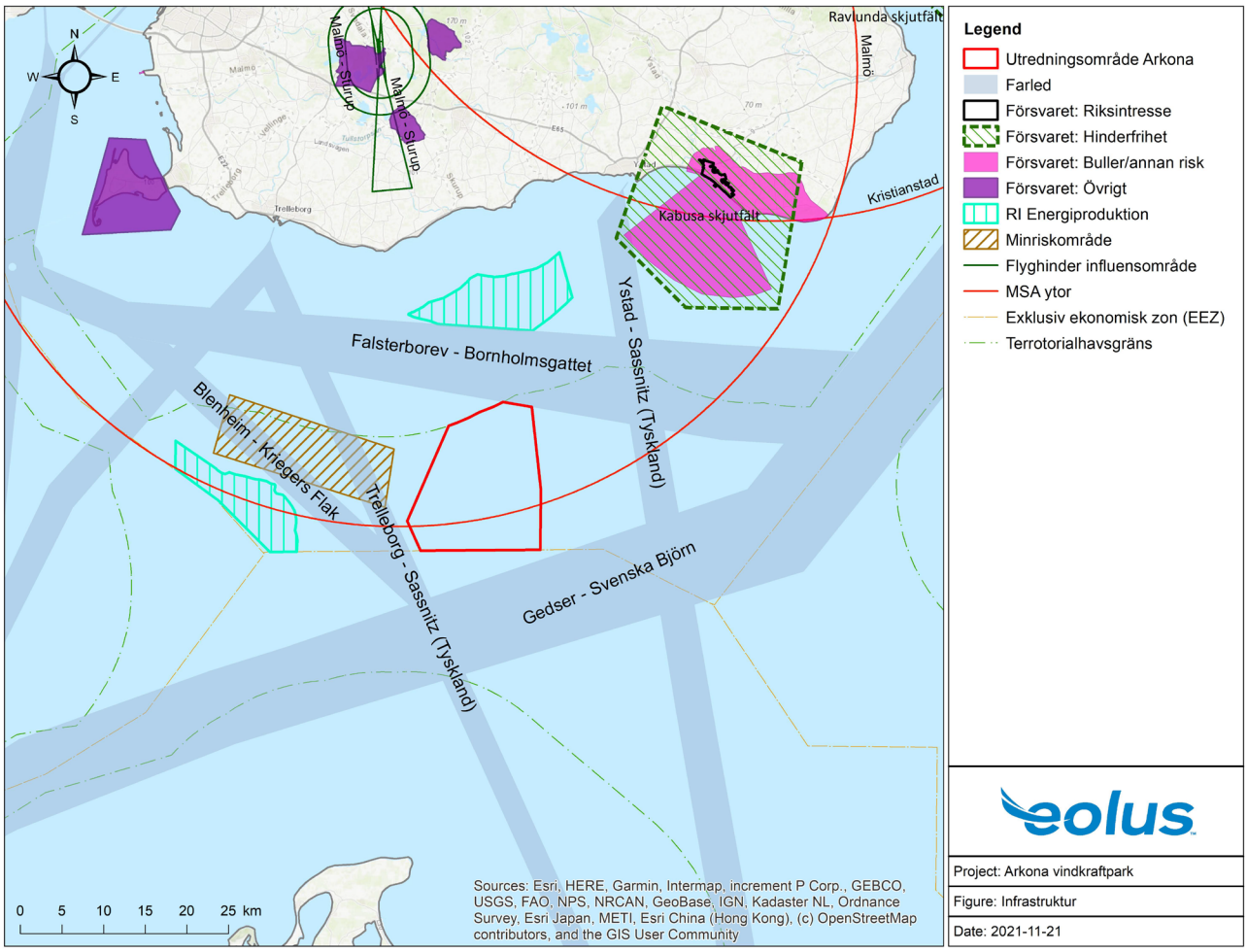


Figure 8: National interest claims for infrastructure (MB 3: 8), the Swedish total defence (MB 3: 9) and more.

3.4.7 National interest in highly exploited coasts

The coastline north of the investigation area is covered by a national interest area for highly exploited coast, in accordance with 4 Ch. of the Environmental Code (see Figure 9). This means that exploitation companies and other activities must ensure that the area's natural and cultural values are not noticeable affected, and certain industries must be coordinated with industrial and recreational buildings to preserve unexploited coastlines.

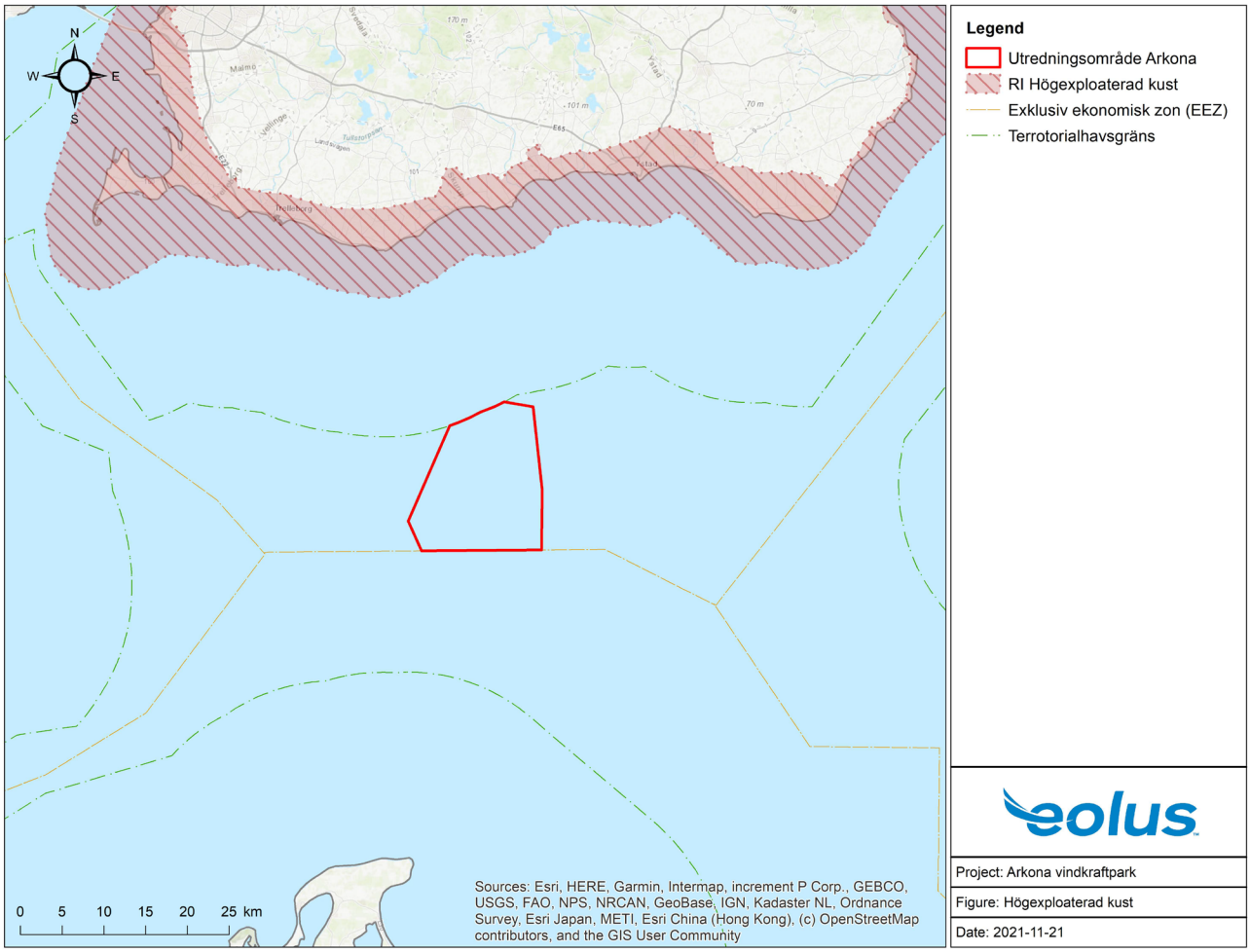


Figure 9: National interest claims for highly exploited coast.

3.4.8 Other protected areas

West of the investigation area there is an area with higher risk of encountering unexploded ordnances (see Figure 8). No investigations or surveys will be carried out within this area.

3.4.9 Natura 2000 areas

Several Natura 2000 areas exist along the coastlines in the southwestern part of the Baltic Sea. Coastal Natura 2000 areas have been delimited from the project's environmental assessment. This is motivated partly due to the relatively long distance between the investigation area and these areas, and partly due to the species that are identified as protected in this area and could be indirectly affected by the wind farm, such as birds and marine mammals, will have allocated chapters in the forthcoming EIA.

Marine Natura 2000 areas in the vicinity of the planned establishment are listed in Table 9 and illustrated Figure 10. Areas which are considered outside the project's area of influence is marked in grey and titled as *Natura 2000 Övriga* in Figure 10.

No Natura 2000 areas overlap with the investigation area for the establishment, but the investigation area is located next to the Natura 2000 area *Sydvästskånes utsjövatten.*

Table 9: Marine Natura 2000 areas in the vicinity of the planned establishment.

Name	Code	Directive	Motive for conservation	Approx. min distance [km]
Sydvästskånes utsjövatten (Även MB 4:8)	SE0430187	Species and habitat	The species of grey seals, harbor seals and harbour porpoise, as well as the sublittoral banks and reefs habitat. The northwestern parts of the area are important as wintering and resting areas for various ducks. During the winter it is believed that the area is used by both, Baltic Sea, and the Belt Sea harbour porpoise populations. Whilst under the summer, most likely only the Belt Sea population moves in the area.	0
Adler Grund og Rønne Banke	DK00VA261	Species and habitat	The species harbour porpoise and the sublittoral banks and reefs habitat.	42
SPA Pommersche Bucht	DE1552401	Bird	Bird species, also harbour porpoise, as well as the sublittoral bank and reef habitat.	45
Adlergrund	DE1251301	Species and habitat	The species grey seals, harbour porpoise and bird species, as well as sublittoral bank and reef habitat.	44
Westliche Rönnebank	DE1249301	Species and habitat	The species long-tailed ducks, gulls and harbour porpoise, as well as reef habitat.	36

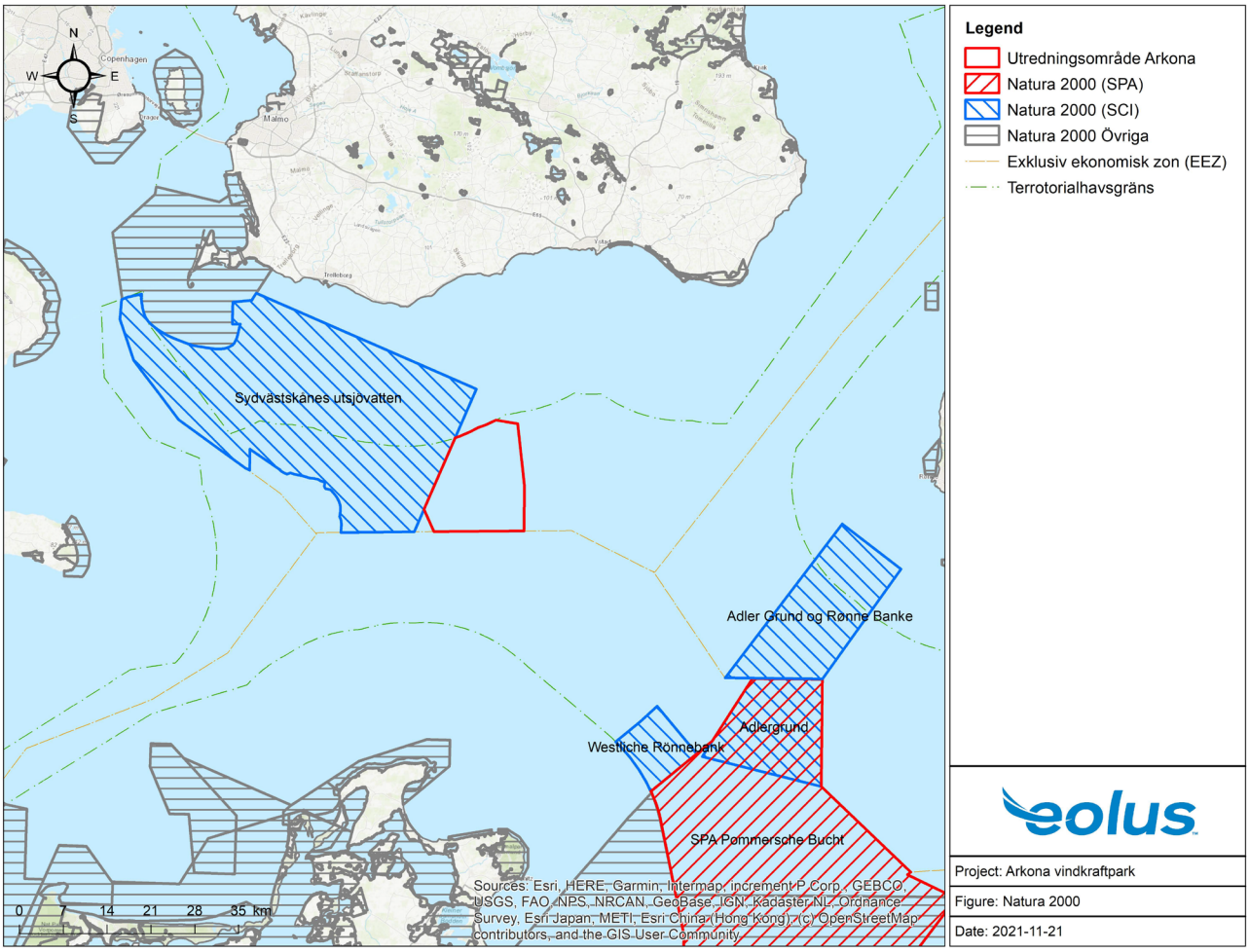


Figure 10: Natura 2000 areas.

3.4.10 Nature reserve and shoreline protection

Nature reserve and shoreline protection areas are occurring and located along the coastline. The coastal nature reserves mainly have terrestrial natural values which are assumed to be outside the planned establishment's area of influence.

Marine species and natural values, as well as birds, are handled in separate sections in the consultation documentation, see sections 3.7, 3.8, 3.9 and 3.10.

3.4.11 Protected areas with international status

The Baltic Marine Environment Protection commission (Helsinki Commission-HELCOM) has identified the coastal area of *Falsterbo Peninsula with Måkläppen* as a MPA area (Marine Protected Areas). The coastal area of *Falsterbo-Foteviken* is a protected area according to the Ramsar Convention (The Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat). The areas are considered outside the projects area of influence, and therefore will not be studied further in the forthcoming EIA.

3.5 Tourism and recreational activities

3.5.1 Overview

Along Skåne's coastline there are several well-attended beaches. Parts of the coastline are interesting for birdwatching, kiting/paragliding and recreational fishing.

3.5.2 Leisure boating and water sports

There are several marinas in the area. The Baltic Sea is an important area for leisure boating, both as a transit area and for local boating activities. Both recreational and competitive sailing is present to a large extent locally, connected to sailing clubs and of bypassing recreational sailors.

3.5.3 Recreational fishing

Recreational fishing has similar methods as commercial fishing but of a smaller scale. Recreational fishing is conducted from both land and boats, and the catch consists of common fish such as cod and herring.

3.6 Marine archaeology

Within the investigation area there are, according to the Swedish National Heritage Board map service, six (6) archaeological remains, see Figure 11.

The archaeological remains consist of ships/boat remains. North and west of the investigation area, archaeological investigations have been conducted for the Hansa powerbridge.

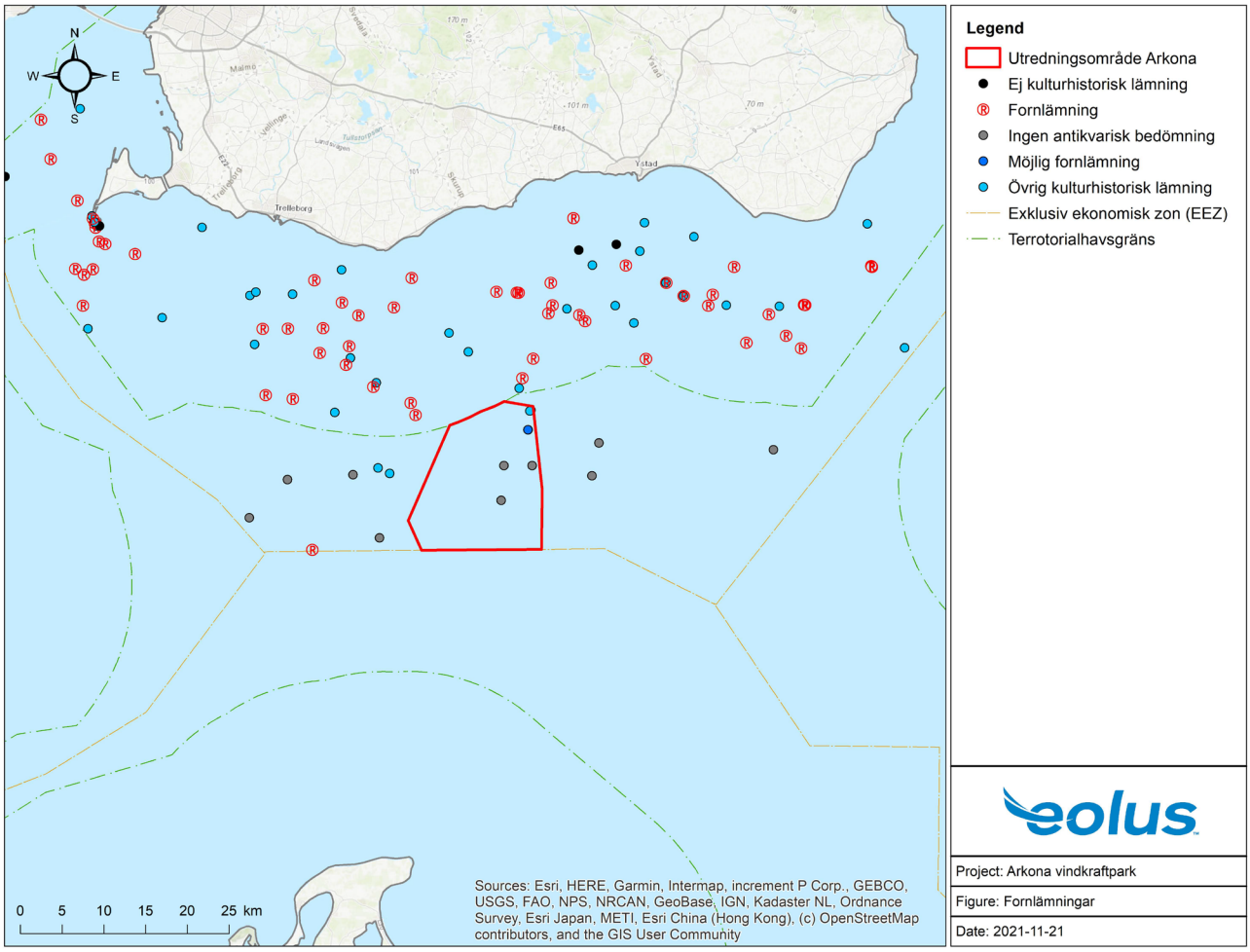


Figure 11: Archaeological remains.

3.7 Fish and fishery

The presented facts on fish and fishing are based on a background report (Tyréns, 2021) that has been produced on behalf of Eolus, see section 8.

The catchment of the Swedish commercial fishing in the surrounding area consists mostly of herring, cod, turbot, plaice, sprat, flounder, and whiting, with a dominance of herring and cod. In a normal year, the catchment of the Swedish commercial fishing within the investigation area is estimated to be; >7 tonnes of herring, 3,5 – 7 tonnes of cod, 0,04 – and 0,7 tonnes of each of, turbot, plaice, sprat, flounder. Catchments of other species are on a much smaller scale.

An extrapolation of the international commercial fishing (including the Swedish commercial fishing) has concluded that normally > 50 tonnes of herring and 20-40 tonnes of cod are caught within the investigated area. For the other species, no extrapolation has been made for the international fishing.

3.8 Marine mammals

The presented facts on marine mammals are based on a background report (Tyréns, 2021) that has been produced on behalf of Eolus. In the surrounding areas of the planned establishment, species such as grey seal, harbor seal and harbour porpoise are expected to be present, see section 3.4.9.

3.8.1 Grey seal

Grey seals (Halichoerus grypus) are present from Falsterbonäset in Skåne to Haparanda in Norrbotten. Grey seals are not mentioned on the 2020 red list of endangered species. Grey seals are protected under The Species Protection Regulation. The major threats to grey seals have been hunting, environmental toxins and pollutants, and by-catchment in fishing gear, and intestinal ulcers. Hunting has been completely banned, nevertheless, regulated hunting in forms of culling or licensed hunt has been allowed again. By-catchment and to a large extent intestinal ulcers are continuous threats for the grey seal.

Grey seals are primarily found further north in the Baltic Sea, however, a colony exists on Falsterbonäset, approximately 50 km northwest from the investigation area. GPS studies of grey seals have indicated that the investigation area is not within the grey seals main areas for migration and foraging. Reproduction takes place on land.

3.8.2 Harbor seal

Harbor seal (Phoca vitulina) exists primarily on the Swedish west coast and down to Öresund, as well as within limited areas on southern Öland and southern coast of Småland.

The harbor seals are protected under The Species Protection Regulation. The major threats to harbor seals have been virus-epizootics, environmental toxins and pollutants, by-catchment in fishing gear, overfishing and bottom death which reduces the food availability.

The harbor seals are listed in appendix 2 of the Species and Habitat Directive. The harbor seals are categorized as least concern (LC) in the Swedish red list, with the exception to the small population situated in Kalmarsund, which is categorised as vulnerable (VU) (Artdatabanken, 2020).

Harbor seals primarily exist in areas close to the coast, where they are resting in groups. The closest area to the investigation area is Falsterbo, which is about 50 km away.

3.8.3 Harbour Porpoise

In the southern part of the Baltic Sea, harbour porpoises (Phocoena phocoena) from both the Baltic Sea population and the Belt Sea population. During the winter period, it is believed that both populations use the area. However, in the summer period, only the Belt Sea population is believed to reside in the area. The Belt Sea population is categorised as least concern (LC), while the Baltic Sea population

consist of only about 500 individuals, of which 100 individuals are considered reproductive. Therefore, the Baltic Sea population is considered critically endangered (CR) in Sweden's red list (SLU Artdatabanken, 2020), the IUCN (Braulik et al., 2020), and the Helsinki Commission for the Protection of The Baltic Sea Environment (HELCOM, 2016).

Major threats for harbour porpoises in Swedish water are, by-catchments in fishing and environmental toxins. Harbour porpoises are also affected by the changes in the availability and quality of prey. Harbour porpoises are sensitive to underwater noise and may be affected by physiological or behavioural impacts.

3.9 Birds and Bats

3.9.1 Birds

This section is based on a background report (Ecogain, 2021) that has been produced on behalf of Eolus, see section 8.

The investigation area for the wind farm, with a water depth between 40 and 45 meters, is estimated to have the conditions, not to be considered an area of importance for wintering or resting birds. Moreover, the investigation area is not considered of high value as feeding areas for birds under the breeding season.

3.9.2 Bats

Preliminarily, it is assumed that the investigation area has no importance for the migration or feeding of bats. This is needed to be verified during the EIA works.

3.10 Seabed, marine benthic fauna and flora

This section is based on a background report (Niras, 2021 and the references in it), that has been produced on behalf of Eolus, see section 8.

3.10.1 Sediment analysis

The seabed in the deepest parts in the Arkona Sea (below 40 m), consist mostly of mud (clay with organic elements). Therefore, the top seabed sediment in the investigation area, with water depth of 40-45 m, probably consist of soft bottom (mud). The investigation area has a relatively uniform depth, and therefore is considered to have a homogeneous sediment type, see Figure 12. The seabed conditions will be further investigated through seabed surveys.

Environmental sampling will be conducted with regards to possible presence of contaminants in the sediment. These contaminants could have been caused by wrecked ships, deposition of dredged materials, or the accumulation of leakage of environmental toxins from the extensive shipping traffic in the area.

The post-war dumping of chemical weapons has taken place in deeper parts of the Baltic Sea, in deep areas such as east of Bornholm and south of Gotland. Therefore, it has been considered not relevant for the investigation area.

3.10.2 Benthic flora

The study area, with depth of just over 40 m, is considered vegetation free. Possible occurring vegetation could be stray fine-grained algae, which has been transported there from shallower areas. No natural values relating to vegetation exists within the investigation area.

3.10.3 Benthic fauna

The benthic fauna in the deeper parts of the southern Baltic Sea (30 – 45 m deep) is characterised by a low number of species, but occasionally rich in individuals.

There are no available data of surveys on the benthic fauna within the investigation area. Some stations, within the national control program, are situated in the vicinity of the investigation area and at a corresponding depth (especially the stations DM107, P204 and P206, see Figure 12).

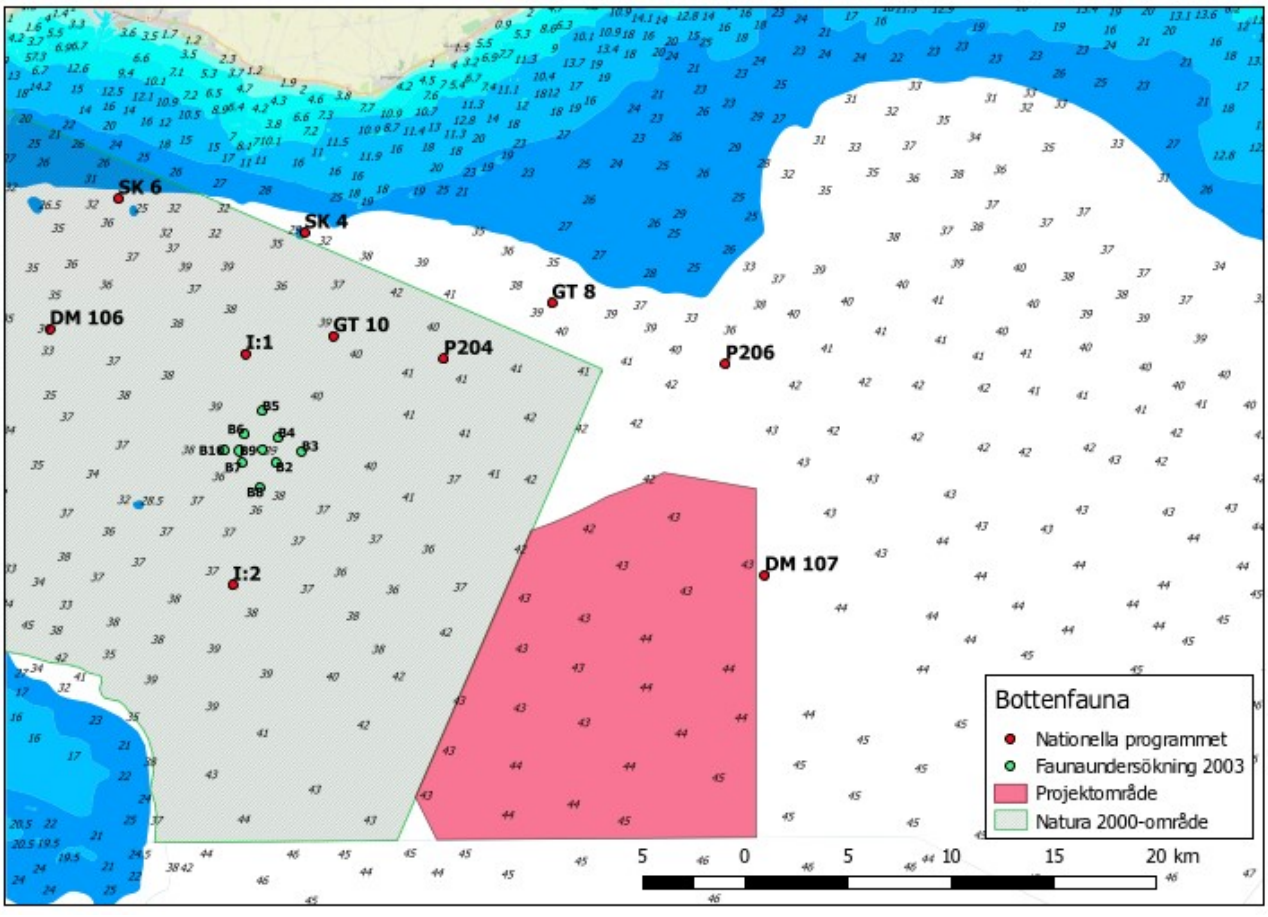


Figure 12: Area map with the investigation area for Arkona vindkraftpark, as well as benthic fauna stations in the area. The sampled benthic fauna stations are marked with dots. The wind farm area is marked as the red polygon.

The result from these stations indicates the type of the benthic fauna communities that can be expected to be present within the investigation area. Generally, the Baltic macoma (Limecola balthica) and a few other species are dominant.

The benthic fauna sampling stations have shown a sparse presence of fauna. Seven out of ten stations had no fauna, and no red listed species were found. The benthic fauna generally has a good re-establishment and spreading ability as the eggs and larvae can be spread in the water mass.

Typically, the benthic fauna in this type of environment has 3 – 17 species, with individual number of 250 – 3 500 individuals/m2. The species and individual count are often lower at the deeper stations. Common species for these depths are shown in Table 10.

Table 10 Typical species for the fauna below the depth of 40m.

Group	Species
Mollusca (Mussels and snails)	*Limecola baltica* (Baltic macoma) *Peringia ulvae* (Mudsnail) *Mya arenaria* (Soft-shell clams)
Bristle worms	*Terebellides stroemi* *Scoloplos armiger* *Bylgides sarsi*
Crustacean	*Diastylis rathkei* (Kommakräfta) *Pontoporeia femorata*

The benthic fauna in the investigation area will examined in accordance with established methods within the framework of the project.

4 Planned establishment

With the aim of producing renewable energy, the planned establishment includes the construction and operation of Arkona vindkraftpark with associated cable installations within the wind farm. Arkona vindkraftpark, has the potential in adding up to about 5,5 TWh to Skåne's energy production, depending on the final installed capacity and selection of technology. The current annual energy production in Skåne amounts to approximately 3 TWh per year, of which 1,7 TWh is made up of wind energy. Table 11 presents preliminary information that describes the planned establishment (the wind farm and associated cable installations within the wind farm).

The planned establishment consists of approximately 45 – 70 wind turbines, mounted on bottom-fixed foundations, with a total installed capacity of about 1 200 MW. The wind turbines are connected with inter-array cables that are connected to one or more transformer stations for the export of the produced electricity.

There are several alternatives for the grid connection and export of the produced electricity from Arkona vindkraftpark, which will be further investigated. These alternatives will be subjected to separate permitting processes.

The operational life of the planned wind farm is expected to be 30 – 35 years.

Table 11: Preliminary information of the planned wind farm.

Characteristic	Dimensions/quantity, preliminary data
Total height above sea level [m]	260 – 330
Rotor diameter [m]	230 – 300
Hub height [m]	145 – 180
Capcaity per turbine [MW]	15 – 20+
Number of wind turbines [n]	45 – 70
Distance between the wind turbiens [m]	1 500 – 2 800
Size of the investigation area [km^2]	Up to around 223
Minimum distance from land [km]	22
Annual electrical production [TWh]	Up to around 5,5
Cables within the wind farm [km]	about 125 – 150
Type of foundation	Likely a gravity, monopile or a jacket foundation.
Total installed capacity [MW]	Up to around 1 200
Operational life expectance [year[	30 – 35

4.1 Wind turbine generator

A bottom-fixed offshore wind turbine consists of nacelle, hub with rotor blades and tower, which is mounted on the foundation, see Figure 13.

The technical development for offshore wind turbines has been rapid, and it is expected to increase rapidly also in the coming years. For offshore wind farms with construction start around 2025, wind turbines with an installed capacity of about 15 MW are currently procured. A conceivable development within the coming ten years

would be a wind turbine with an installed capacity of more than 20 MW and a rotor diameter of up to 270 m (compare with Figure 13 and Table 11).

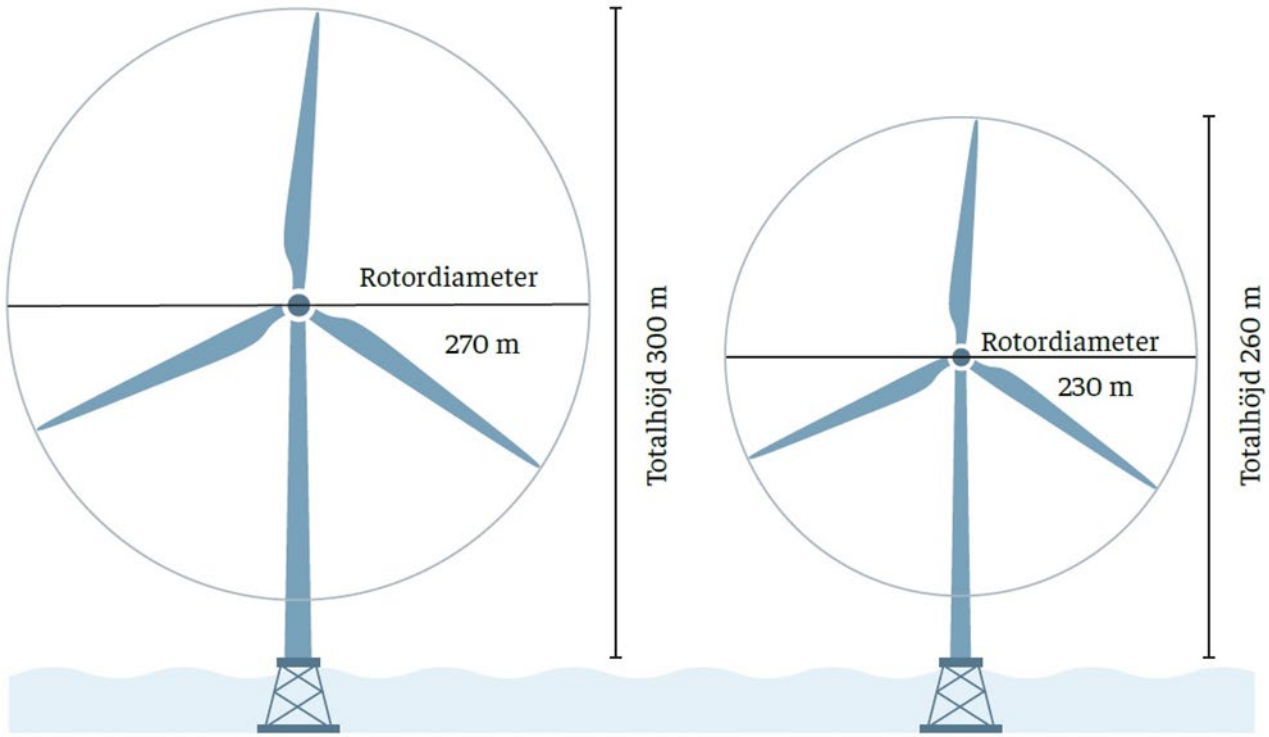


Figure 13: Examples of wind turbines that are considered suitable for Arkona vindkraftpark, their parts and the planned height and width ranges.

The number of wind turbines, wind turbine positions and the final dimensions of the wind turbines will be investigated and adjusted during the forthcoming development of the project. This investigation will partially be based on the conditions of the investigation area, and partially based on the conditions regarding grid connection, both of which are continuously are researched. The selection of wind turbines is possible first when the investigations of the seabed conditions, foundation alternatives, sea and water conditions, environmental impact assessment, wind resource assessment, and more are completed.

4.2 Foundation

Currently, bottom-fixed foundation alternatives are considered relevant for the planned wind farm. Generally, similar foundation alternatives are considered for both transformer station and wind turbines, but in the case of transformer stations, a slightly larger scale foundations are considered.

There are three main types of bottom-fixed foundation alternatives for offshore wind turbines: monopile foundations, gravity base foundations and jacket foundations, see Figure 14.

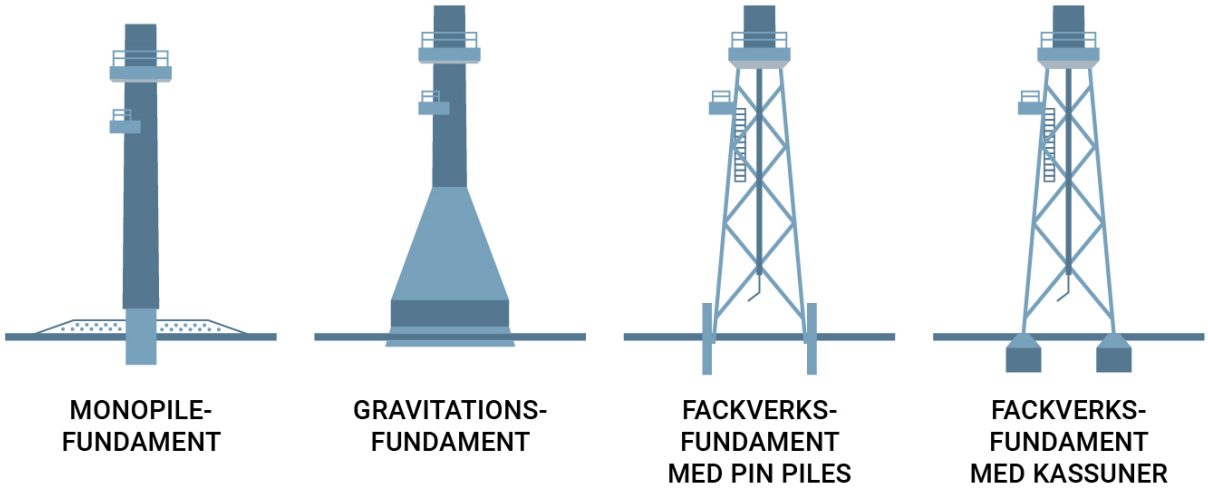


Figure 14: Principal sketch of bottom-fixed foundation alternatives.

Monopile foundations are the most frequently utilised foundation type for the installation of offshore wind farms. The foundation consists of a hollow steel pipe, which is driven into the seabed by piling, vibration, or drilling. Monopile foundations are commonly used at water depths of less than 50 m.

The thickness and length of the monopile foundation depends primarily on the seabed characteristics, loads from the wind turbine, water depth and the wave and current conditions. The embedment depth of the monopile foundation into the seabed depends on the seabed geology for each individual position of the wind turbines.

The installation of the monopile foundation is usually quick and conducted from a floating crane or an installation vessel. The foundation is transported to the project area by ship, barge or by being towed.

Gravity base foundations are a commonly used foundation alternative for water depths of up to 30 – 40 m and have varying designs based on site-specific conditions. Usually, the gravity base foundation consists of a hollow steel-reinforced concrete structure.

Gravity base foundations are placed on top of the seabed, and filled with gravel, sand, or pellets, depending on the design of the structure and the loads that the foundation will be subjected to.

Gravity base foundations are manufactured on land and transported to the project area by an installation vessel, a barge, or by being towed. The foundation is then lowered to the seabed with a crane, winch or by filling the structure with water.

Jacket foundations consists of a truss construction in steel with three or four legs, and are suitable for installation in water depths of more than 40 m. The foundation legs are anchored in the seabed with pin piles which are either piled or drilled into the seabed. The length of the pin piles varies depending on seabed conditions and water depth. The jacket foundation can also be anchored with the help of large steel cylinders which are open at the bottom. The cylinders are sucked down into the sediment by their own weight and the change in pressure, and thus anchored in the seabed.

Jacket foundations are usually transported to the installation site by barges or installation vessels, and then installed from a floating crane or an installation vessel.

Around the bottom-fixed foundation on the seabed, erosion could occur due to the influence of currents or waves. Therefore, scour protection is needed in different extent for all bottom-fixed foundations. Seabed preparation is also needed for all bottom-fixed foundations.

The final selection of the foundation type for the planned establishment depends on various factors, such as the wind turbine's dimensions, water depths, seabed conditions, costs, and the weather and sea conditions. Before the final decision of the foundation type is made, more detailed investigations will be conducted. The forthcoming investigations, as well as the technological development and cost reduction for foundations, could bring interest for other foundation types, than the one mentioned in this document.

4.3 Inter-array cabling and transformer station

The inter-array cabling network connects all the wind turbines together, to one or more offshore transformer stations for export of the produced electricity. The size of the inter-array cables is dimensioned based on the number of wind turbines and the installed capacity.

The inter-array cables are installed by a cable-laying vessel. The approach of the cable installation depends on the seabed conditions and the level of protection that the cables need. For soft seabed conditions, the cables could be buried 1-2 m in the sediment by ploughing, digging, or flushing. For hard seabed conditions, where it is not possible to bury the cables, the cables are laid directly on the seabed and then covered with a cable protection in form of gravel, boulders, or concrete mattresses. In places where cables need to cross over other cables, concrete mattresses or protective masses are used to protect the cables.

The total length of the installed inter-array cables on the seabed, depends on the wind turbines positions and the seabed conditions, as well as the position of the transformer station. It is estimated that roughly about 125 – 150 km of inter-array cables will be used within the planned wind farm.

The inter-array cable network is connected to one or more offshore transformer stations, where the produced electricity is transformed up to a higher voltage level. Initially, it is estimated that one or two transformer stations are placed on a joint platform in the centre of the planned wind farm. The final location of the transformer stations will be determined based on the wind turbines positions and the seabed conditions.

4.4 Obstacle marking

The wind turbines will be equipped with obstacle lights, in accordance with the current legislations. According to The Swedish Transport Agency's regulation (TSFS 2020:88), wind turbines forming the outer border of a wind farm, should be marked with white high intensity flashing lights on the nacelle. Wind turbines that are located within the outer boundary of the wind farm but are not covered by any of the previously mentioned wind turbines, should also be equipped with a high intensity flashing light. For the other wind turbines within the wind farm, a low intensity red light should be installed.

4.5 The phases of the planned development

4.5.1 Preliminary studies

Geophysical and geotechnical seabed surveys and marine natural environmental value investigations will be conducted in order to better understand the conditions of the investigation area. An application for survey permit for the investigation area has been submitted, in accordance with the Continental Shelf Act. The application is currently being processed by the Swedish Ministry of Enterprise and Innovation.

4.5.2 Construction

The construction phase of the planned wind farm includes the seabed preparation for the inter-array cable network, the installation of foundations, wind turbines and offshore transformer stations. The preparation of the seabed could include, dredging, levelling of the seabed around the foundation positions and installation of cables. The installation technique varies depending on the wind turbine model, foundation type and the installation vessel. The construction phase is estimated to take about two years.

4.5.3 Operation

The operation of an offshore wind farm is monitored remotely by an operation centre. Regular maintenance on the wind turbines is needed, and the operation centre should be established in order to ensures easy access to the wind farm. The environmental effects occurring during the operation of the wind farm, will be further investigated within the framework of the EIA.

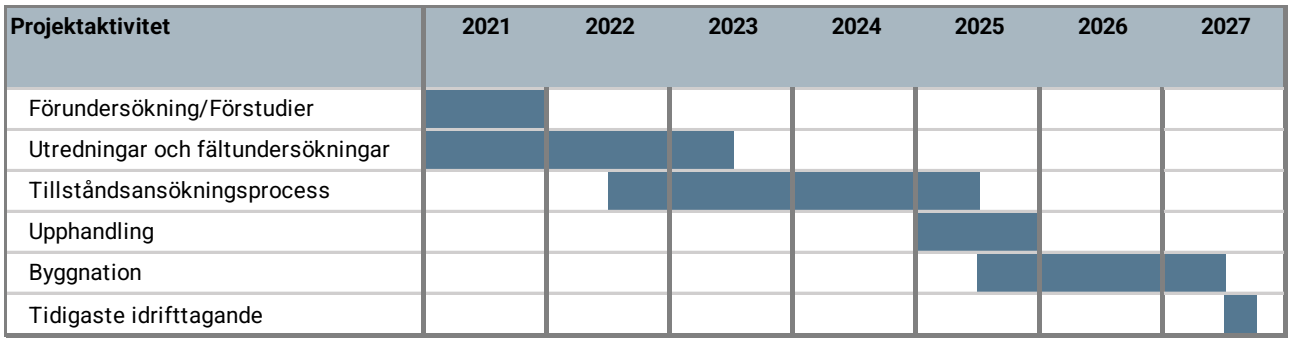
4.5.4 Decommissioning

The operational life of the wind farm is expected to be about 30 – 35 years. Afterwards, the wind farm could either be decommissioned by dismantling the equipment and sending them for recycling, or alternatively life extended by for instance repowering. The latter means that wind turbines and other parts of the wind farm are changed partly or entirely with new or refurbished wind turbines and facilities.

The electrical system, of which consists of the inter-array cable network and export cables, could be left buried in the seabed, if the environmental impact is considered lower than recovering them. The foundation will be removed, and usually that includes cutting them of below the seabed surface. The removal of the foundation and installed cables will be carried out in accordance with the relevant governmental requirements.

4.6 Preliminary schedule for the project

A preliminary schedule for the project development, permitting process and construction of Arkona vindkraftpark is shown below. The timetable is strongly dependent on the development of the permitting process, and the time for the construction is to a great extent dependent on when grid connection is possible.



5 Preliminary assessment of the environmental effects

5.1 National interest claims and protected areas

5.1.1 National interest claims for commercial fishing

The planned wind farm's effect on commercial fishing within *Falsterbo utsjöområde* (RI YF 12) and *Södra Skånes utsjöområde* (RI YF 13), needs to be clarified within the forthcoming EIA work.

5.1.2 National interest claims for recreational outdoor activities

Kuststräckan Trelleborg-Abbekås-Sandhammaren-Mälarhusen-Simrishamn (FM17), and *Skanör-Falsterbohalvön med kuststräckan Höllviken-Trelleborg* (FM16), are not directly affected by the planned wind farm., The same applies for the possibilities to practice outdoor activities in the areas.

The planned wind farm will be visible from the coast. The visual impact is also the one aspect concerning recreational outdoor activities that needs to be further investigated.

5.1.3 National interest claims for cultural environmental protection

The designated areas for national interest for cultural environmental protection are not directly affected by the planned wind farm. However, the wind farm will be more or less visible from the coastal area depending on the visibility conditions, the observers's position, and other factors, which could influence the experience of the cultural landscape. This aspect will be further investigated within the work for the forthcoming EIA.

5.1.4 National interest claims for nature conservation

The area of national interest for nature conservation, *Måkläppen – Limhamnströskeln* encompass marine values and indirect effects on this area therefore needs to be valued in the forthcoming EIA. The other areas designated for national interest for nature conservation are assumed not to be affected by the planned wind farm.

5.1.5 National interest claims for infrastructure

In the forthcoming EIA works, especially risks related to shipping fairways and impacts on the air traffic to and from Malmö Airport needs to be further investigated (Table 7 and Figure 8).

The investigation area for Arkona vindkraftpark has been adjusted so that it does not overlap with shipping fairways. Due to the planned wind farm's proximity to

shipping fairways, a nautical risk assessment will be conducted within the forthcoming EIA. The focus areas will be navigational risks, for example at collisions and breakdowns.

The wind farm affects the MSA-area for Malmö Airport (see Table 7 for a brief description). The Swedish Civil Aviation Administration (LFV) and the Swedish Defence Force are responsible for issues regarding flight obstacles, such masts or wind turbines. The Swedish Transport Agency's regulations provides descriptions on how obstacles shall be marked. The planned wind farm should be marked in accordance with applicable regulations for flight obstacles. The airport and LFV will be consulted in the environmental assessment process and a flight obstacle analysis will be conducted within the framework of the forthcoming EIA.

Arkona vindkraftpark is assumed not to affect the conditions for energy production within any of the designated areas of national interest for energy production (Table 7 and Figure 8). If wind farms are established within these areas, they will cause cumulative effects together with Arkona vindkraftpark, see section 6.

5.1.6 National interest claims for the Swedish total defence

The planned wind farm is not expected to affect the national interests for the total defence facilities of which are connected to the Kabusa firing range.

5.1.7 National interest claims for highly exploited coast

The planned wind farm is not expected to affect the coast or the sea areas close to the coast. Therefore, the establishment is not expected to be in conflict with the national interest areas for highly coast.

5.1.8 Natura 2000 areas

The planned wind farm has been preliminary assessed not to cause negative effects on protected habitats or disturb the protected species in a way that the conservation status deteriorates.

Possible impacts on the protected habitats and species will be further analysed within the EIA, based on the concept of favourable conservation status.

5.1.9 Nature reserve and shoreline protection

No nature reserves or protected shorelines are directly affected by the planned wind fram. Existing nature reserves along the south coast of Skåne primarily have terrestrial natural values. It is assessed that these will not be affected by the planned wind farm.

5.2 Tourism and recreational activities

5.2.1 Overview

The planned wind farm will be visible clearly from the beaches along the south coast of Skåne. However, these areas will not be directly affected and popular activities

asong the coastline, such as bird watching, kiteing/paragliding and recreational fishing, will not be affected.

The visual impact of the planned establishment will be further investigated within the framework of the forthcoming EIA, see section 5.8.

5.2.2 Leisure boating and water sports

Recreational boating and water sports will be affected on a small scale during the construction, operation and decommissioning of the planed wind farm. The impacts will be elaborated in the forthcoming EIA.

5.2.3 Recreational fishing

Some restrictions for shipping in general (see section 5.9), will occur during the construction and decommissioning activities of the planned establishment, and it could have effects on the recreational fishing. Some restrictions could also be applied under the operational phase, which will be investigated in the EIA.

5.3 Marine archaeology

Known archaeological remains, as well as other findings that might emerge during forthcoming surveys, will be avoided during the activities of the planned establishment. Based on the latter, it is assessed that any impact on marine archaeology can be avoided.

5.4 Fish and fishery

In the forthcoming work with the EIA, technical description, and permit applications, it needs to be clarified to what extent and in what way fishing can be conducted within the area during the operation of the planned wind farm, as well as the effects on the commercial fishery. Changes in fishing methods and the extent of fishing might have an impact on the fish stocks. During the construction phase, fishing activities within the wind farm area will be restricted and at times completely banned.

5.5 Marine mammals

5.5.1 Grey seal and harbor seal

The investigation area is of a minor importance for harbor seals and grey seals. The area is far from the coast and is not a part of the seals main areas of migration or foraging. The reproduction takes place on land and their pups are born on land or ice. It has been assessed that the seals will not be affected by the planned establishment. During the construction phase, noise disturbances could affect individuals passing through or near the development area. It is assessed that no specific consideration measures are needed with regards to seals.

5.5.2 Harbour porpoises

It is known from other offshore wind farms that harbour porpoises can co-exists with wind farms during the operational phase (e.g. van Polanen et al 2012, Tougaard & Carstensen 2011). Therefore, it is assessed that no specific measures under the operation of the wind farm are needed with regards to the harbour porpoise.

Since harbour porpoises use sound for orientation, during hunting, and for communication, they are sensitive to noise from for example geophysical surveys and sound from piling operations during the construction phase.

There are proven measures nowadays, that prevent damage on harbour porpoises from underwater noise during the construction phase. Examples of mitigation measures include soft start-up of the noisy activities and seal scares (equipment that has been developed to scare away seals from fishing gear). The purpose of these measures is to scare away individual harbour porpoises in the vicinity to the danger zone. Other sound absorbing measures, such as bubble curtains, are also an option. During the work on the forthcoming EIA, suitable consideration measures for harbour porpoises will be investigated and, if necessary, suggested as a part of the project.

5.6 Birds and bats

5.6.1 Birds

It is unlikely that the planned establishment within the investigation area would have major consequences for any migratory bird species, either through collisions or barrier effects. Continued investigations will be carried out within the work of the EIA in order to ensure sufficient knowledge of the impact on migratory birds from the planned establishment.

5.6.2 Bats

Preliminary, it has been assessed that bats are not affected by the project. This needs to be verified during the work of the forthcoming EIA.

5.7 Seabed, marine benthic fauna, and flora

The seabed sediments will be investigated in the upcoming EIA to obtain a basis for the sediment dispersion analysis for the planned construction phase, and to obtain clarity regarding the eventual presence of environmental toxins in the sediments.

Benthic flora is generally absent within the investigation area, and there are no specific natural values linked to the benthic fauna. The benthic fauna will be further investigated in the forthcoming EIA works.

Loss of habitats caused by the planned establishment are preliminary assessed to have insignificant effect on the marina benthic fauna and flora.

5.8 Visual impact

On a clear day, the planned wind farm will be visible from several parts of the south coast of Skåne. Photomontages will be produced from locations which are assessed to have significant importance for the visual impact, for example well-attended beaches and monuments such as Sandhammaren and Ale stenar. The typical distance to places of interest is around 25 – 45 km (see Figure 1). Within the framework for the delimitation consultation, Eolus is open to receive suggestions of locations suitable for photomontages.

5.9 Risk and safety

When locating and designing an offshore wind farm, considerations should be taken to established shipping fairways and marine traffic in and out of the ports along the coasts. The establishment of a wind farm could pose direct and indirect effects on both shipping accessibility and route selection, as well as direct impacts on shipping safety.

A comprehensive risk assessment has been conducted as part of the investigation for Arkona vindkraftpark's effects and impacts (background report from Sweco 2021, see section 8). The risk assessment is based on offshore wind power and in relation to shipping traffic within the area.

Nearby shipping fairways are presented in section 3.4.5. Figure 15 presents intensity of marine traffic within the sea area around the planned wind farm.

The identified risks, which have been generally assessed, are collisions, tower breakdown, detachable nacelle, blade damage, fires, ice throw, as well as falling parts and breakdowns. The risk assessment of the previously mentioned events is mainly based on previously conducted risk analyses.

Presented measures are suggestions that should be further studied. Risk prevention measures which preliminary are assessed to be appropriate are such as, restriction or completely banning of the wind farm area, restrictions of the marine traffic within the area, the safety zones around the wind farm, as well as obstacle lighting in accordance with the international recommendations from The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).

The impact reduction measures which are considered to be appropriate for an offshore wind power establishment in the Arkona Sea are for instance upgraded emergency preparedness based on the altered risk profile associated with the establishment of wind energy, as well as the possibility of swift and simple shutdown of the wind turbines, in case a ship or vessel is affected by engine failure or loss of control in the vicinity of the wind farm.

In general, the probability of accidents linked to offshore wind farms is very low. However, in comparison with the zero alternative, where no wind farm is established within the area, the probability of accidents is increased since the planned wind farm will constitute a potential obstacle for shipping and other

marine traffic, in the event of engine failure or loss of control in the vicinity of the wind farm.

The conducted risk assessment state that with the mentioned risk and impact reduction measures, it is possible to establish an offshore wind farm within the investigation area.

In the forthcoming work, a maritime risk assessment will be conducted. This will be based on site-specific calculations and simulations of how the visibility and navigation conditions could be affected. Moreover, existing underwater cables shall be taken in consideration.

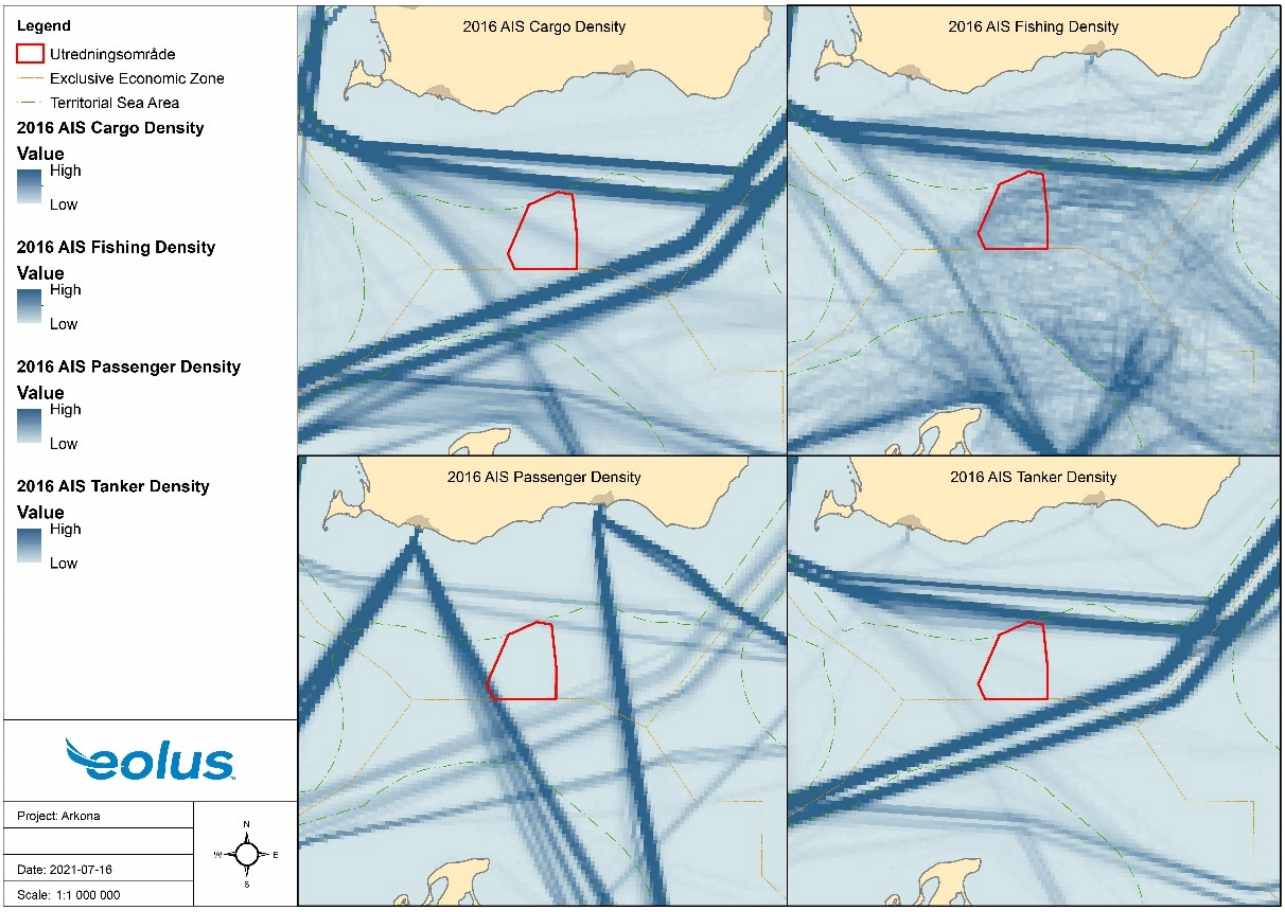


Figure 15: Marine traffic in the area. Data from HELCOM.

6 Preliminary assessment of cumulative effects

Cumulative effects refer to a combination of environmental impacts from several projects within the same area of influence.

6.1 Other ongoing activities in the area

Within the area and the surroundings, shipping and commercial fishery occurs. In the area's vicinity, there are important shipping fairways, see section 3.4.5 and section 5.9.

Shipping and fishery, in combination with the planned wind farm, are not considered to lead to any environmental impact which, together with the planned wind farm's environmental impacts, leads to negative environmental effects in addition to the individual impacts from each activity separately.

In the vicinity of the area there is also air traffic, for instance connected to Malmö Airport, see section 3.4.5. Aviation, in combination with the planned wind farm, is not considered to lead to any environmental impacts which, together with the planned wind farm's environmental impacts, leads to negative environmental effects in addition to the individual impacts from each activity separately.

6.2 Other planned activities in the area

Svenska kraftnät (the Swedish TSO) is planning an electrical power connection (Hansa powerbridge) in the area, in collaboration with a German operator. The power connection is assessed not to lead to any environmental impacts which, together with the planned wind farm's environmental impacts, leads to negative environmental effects in addition to the individual impacts from each activity separately.

6.3 Ongoing and planned wind farms in the area

In the surrounding areas of the planned wind farm, there are other planned, permitted, and operational wind farms. An overview of the latter is shown in Figure 16.

6.3.1 Wind farms in operation or with a permit

In 2006, the government decided to give a permit to Vattenfall, in accordance with the Swedish Economic Zone Act, to build up to 128 wind turbines at Kriegers flak. In recent years, some parts of the wind farm area at Kriegers flak have been classified as a Natura 2000 areas. During the spring of 2021, the project was granted a Natura 2000 permit from the CAB of Skåne to construct the wind farm. Vattenfall has applied to the government for an increased tip height of up to 280 meters, and an extended installation time of up to 10 years.

On the Danish side of Kriegers falk, Danmark's largest offshore wind farm, with 72 turbines, has been inaugurated in 2021. While on the German side, the offshore wind farm Baltic II is located, with 80 wind turbines, and in operation since 2015.

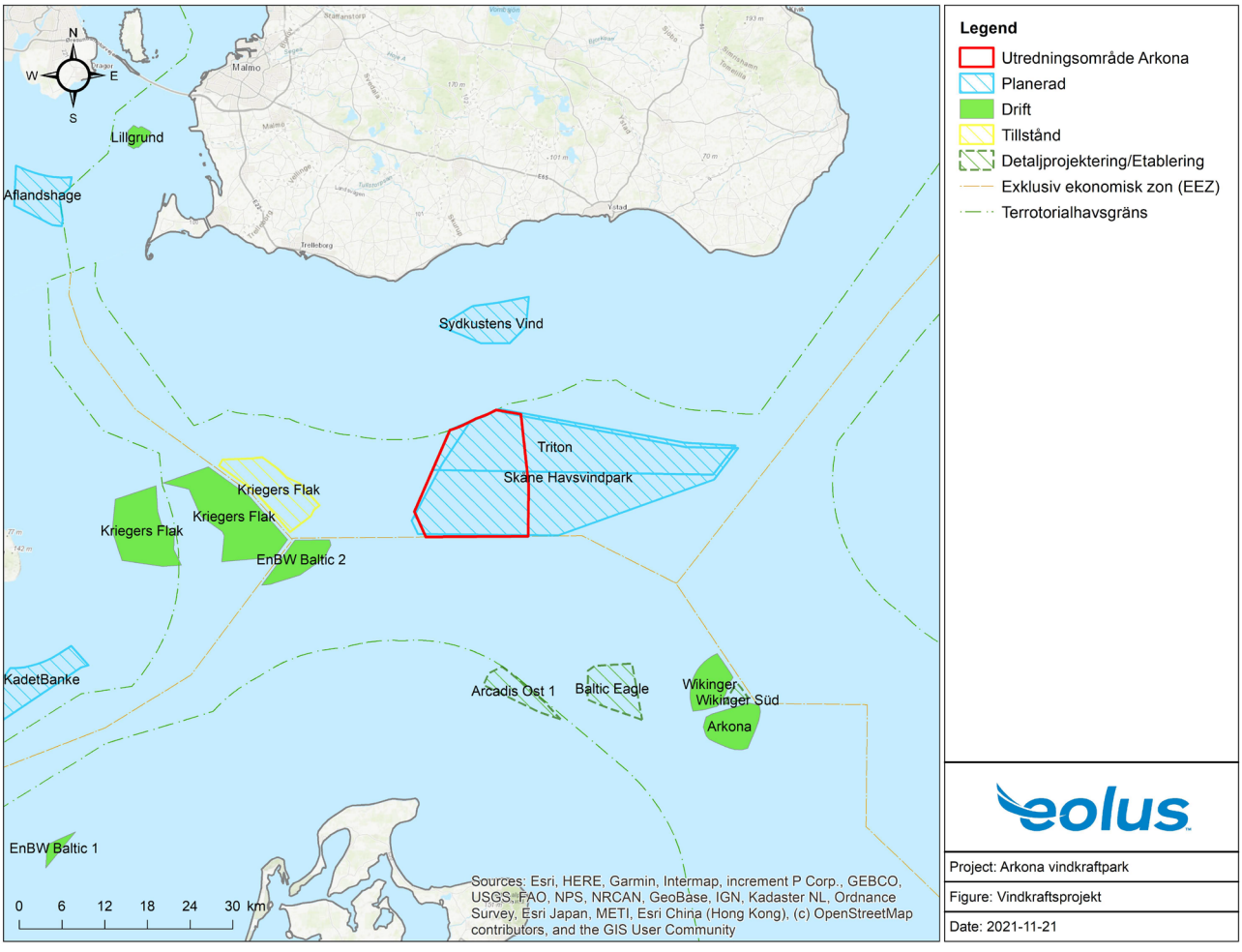
In the German part of the Arkona Sea, additional wind farms are in operation, including Wikinger, Arkona, EnBW Baltic 1 and EnBW Baltic 2.

6.3.2 Planned wind farms

OX2 is planning a wind farm, Triton, outside the coast of Skåne, about 30 km south of Ystad, within the Swedish economic zone. The mentioned area overlaps with the area of which Eolus plans to develop Arkona vindkraftpark.

Ørsted is planning a wind farm, Skåne havsvindpark, outside the the coast of Skåne, around 30 km south of Ystad within the Swedish economic zone. The mentioned area overlaps with the area of which Eolus plans to develop Arkona vindkraftpark.

Kustvind AB is planning a wind farm, Sydkustens vindkraftspark, outside the coast of Skåne, around 8 km north of Arkona vindkraftpark, towards Abbekås. In the German part of the Arkona Sea, additional wind farms are under planning.



Figur 16: Utredningsområde Arkona vindkraftpark samt planerade, drifttagna och tillståndsgivna vindkraftparker.

6.4 Conclusion on cumulative effects

Aviation, together with the planned wind farm, is not considered to create any environmental impacts which, together with the planned wind farm's environmental impacts, leads to cumulative negative environmental effects in addition to the individual impacts of each activity separately.

The electrical power connection Hansa powerbridge, is assessed not to create any environmental impacts which, together with the planned wind farm's environmental impacts, leads to cumulative negative environmental effects in addition to the individual impacts of each activity separately.

The issue of cumulative effects caused by the increased number of wind farms in the area, needs to be addressed in the forthcoming EIA. Important aspects of this are for instance bird migratory routes and foraging areas, risks and safety for shipping. It is of importance to research the existing experience from offshore wind farms in operation.

Within the forthcoming work, only those projects that, at the time of application for Arkona vindkraftpark, has submitted applications, has retrieved a permit, or are in operation will be taken into consideration.

7 Transboundary environmental effects

In addition to Sweden, commercial fishery in the current area is conducted by Danmark, Germany and Poland, all of which dominates the catchment within the area. However, the Baltic States and Finland also appears in the statistics, see section 5.4.

The projects potential transboundary impacts are taken into consideration within the framework of the Esbo-convention, and communication with other countries is managed by the Swedish Environmental Protection Agency.

8 Background reports, prepared prior to the delimitation consultation

A list of the prepared background reports for the delimitation consultation, is shown in the table below.

Author	Title	Date
Tyréns AB **Anders Modig** **Henrik Schreiber** **Fabian Engel**	Vindkraftspark Arkonahavet – Fisk, fiske och marina däggdjur.	2021-05-26
Ecogain **Janne Dahlén** **Kaj Svahn**	PM kring fågellivet vid Arkonahavet	2021-06-02
Sweco AB **Vanja Khairallah** **Lars Grahn**	Arkonahavet vindkraftpark – Övergripande riskbedömning för Arkonahavet vindkraftpark.	2021-07-06
NIRAS Rapport 028-21 (32401274) **Fredrik Lundgren**	Områdesbeskrivning för Arkonahavet vindkraftpark, - underlagsrapport med allmänna beskrivningar av bottentyp, marin bottenfauna och flora i projektområdet.	Juni 2021

9 Content of the environmental impact assessment

The following environmental impact assessments are considered and mentioned in the delimitation consultation document. The report will be structured relatively according to the following layout.

- A non-technical summary
- Administrative information
- Introduction (background and purpose, as well as limitations)
- Methodology
- Description of the planned establishment
- Design, scope, and location
- Alternative locations and zero alternative
- Site conditions
- Environmental effects and consequences
- Cumulative effects
- Environmental quality standards
- Environmental objectives
- Overall assessment
- Suggestions for operational programs
- Consultation report
- Reference list
- Report on expertise that has contributed to the EIA

10 References

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Tougaard, J and Carstensen, J (2011), Porpoises north of Sprogø before, during and after construction of an off-shore wind farm. NERI commissioned report to Sund&Bælt A/S, https://tethys.pnnl.gov/sites/default/files/publications/Tougaard%20and%20Carstensen%202011.pdf

Van Polanen Petel, Geelhoes, Meesters (2012), Harbour porpoise occurrence in relation to the Prinses Amaliawindpark IMARES Report number C177/10, https://library.wur.nl/WebQuery/wurpubs/fulltext/245231

Appendix 1
Proposal for the consultation

In addition to the public, the following entities are considered to be included in the consultation circle.

Private actors

Sturup flygklubb
Söderslätts flygklubb
Sjöbo flygklubb
Eon Energidistribution
Stena Line
TT Line
OX2
Ørsted
Kustvind

Munuipalities and municipal companies

Trelleborg
Trelleborgs hamn
Trelleborgs Energi
Vellinge
Ystad
Ystad hamn
Ystad Energi
Skurup

Government agencies and organizations

Boverket
Energimarknadsinspektionen
Energimyndigheten
Försvarsmakten
Handelskammaren
Havs- och vattenmyndigheten
Institutionen för akvatiska resurser vid Sveriges Lantbruksuniversitet
Kammarkollegiet
Kustbevakningen
Luftfartsverket
Länsstyrelsen i Skåne län
Malmö Airport
Myndigheten för samhällsskydd och beredskap
Naturhistoriska riksmuseet
Naturvårdsverket
Post- och telestyrelsen
Region Skåne
Riksantikvarieämbetet

Sjöfartsverket
Statens maritima och transporthistoriska muséer
Swedavia
Svenska Kraftnät
Sveriges geologiska undersökning (SGU)
Sveriges geotekniska institut (SGI)
Sveriges meteorologiska och hydrologiska institut (SMHI)
Teracom
Trafikverket
Transportstyrelsen

Fisheries stakeholders

Havs- och kustfiskarnas producentorganisation (HKPO)
Malmöhus läns Fiskeförening
Sportfiskarna, Sveriges Sportfiske- och Fiskevårdsförbund, Region Syd
Swedish Pelagic Federation Producentorganisation (SPFPO)
Sveriges fiskares producentorganisation (SFPO)
Sveriges fiskares riksförbund (SFR)
Sveriges Kust- och insjöfiskares Organisation SKIFO
Sveriges Yrkesfiskares Ekonomiska förening (SYEF)
Torskfiskarnas Producentorganisation (STPO)
Turbåtsfiskarna
Öresundsfisk

Interest organisations

BatLife Sweden
BirdLife Sverige
Naturskyddsföreningen
Skånes Båtförbund
Skånes ornitologiska förening
Svenska Turistföreningen
Världsnaturfonden (WWF)
Öresunds vattenvårdsförbund

Esbo-stakeholders

Utländska intressenter genom Naturvårdsverkets kommunikation


eolus
in cooperation with
SWECO