

**Program for supplementary assessments  
to Helgeland Intermunicipal Master Plan for Vega  
Commissioned by Vega Municipal Council**



**Date: 1. July 2020**

**Vega Municipal Council**

## Foreword

The Intermunicipal Master Plan for the Coast of Helgeland (the Intermunicipal Master Plan) covers the Helgeland coastline and is intended to ensure that councils follow a uniform coastal management policy, based on the same requirements and regulations, across the 12 coastal municipalities involved: Bindal, Sømna, Vega, Vevelstad, Herøy, Dønna, Leirfjord, Vefsn, Nesna, Træna, Lurøy and Rødøy. The respective municipal councils make all decisions pertaining to their own coastline. The Intermunicipal Master Plan constitutes each of the municipalities' Coastal Zone Plans and can be included in the Land Use section of their respective Municipal Plans. In 2004, the Vega Archipelago was inscribed on UNESCO's World Heritage List. It was the first Norwegian cultural landscape to be awarded this designation. The World Heritage Site and its associated buffer zone in Vega municipality form part of the area covered by the Intermunicipal Master Plan for the Coast of Helgeland.

In order to strengthen local economic development, Vega municipal council has put forward one existing aquaculture facility and two proposed aquaculture facilities - Hysværet (1815-A6) and Rørskjæran (1815-A3) - for inclusion in a new draft Intermunicipal Master Plan.

An impact assessment has already been carried out for the Intermunicipal Master Plan, but objections were lodged by the County Governor of Nordland and the Norwegian Directorate for Cultural Heritage. The objections were made on grounds of insufficient assessment of the impact that aquaculture activities have on the Vega Archipelago World Heritage Site. Supplementary impact assessments have therefore been requested. The supplementary assessments must take account of the existing requirements and guidelines issued by IUCN and ICOMOS, as well as the provisions imposed by the impact assessment regulations.

The supplementary assessments must address the objections lodged by the County Governor of Nordland and the Directorate for Cultural Heritage, and must comply with the recommendations set out in 'Report on the ICOMOS / IUCN Advisory Mission to Vegaøyen – The Vega Archipelago (C 1143)' as well as the World Heritage Committee's decision of 2004, item 2c, 'Requests the authorities to develop a specific strategic plan for the World Heritage property that will contribute to the overall Master Plan for the archipelago. It should address the interface between conservation and sustainable development in respect of aquaculture'.

The supplementary assessments are intended to provide a basis for decision-making. Impact assessments for World Heritage are required, these are known as Heritage Impact Assessment (HIA) and Environmental Impact Assessment (EIA) to ICOMOS and IUCN respectively. In order to conclude whether aquaculture may pose a threat to the Vega Archipelago's Outstanding Universal Values (OUV), it is necessary to gain sufficient knowledge of the potential impacts.

Any supplementary assessment must include a comprehensive analysis of whether and how aquaculture is compatible with the World Heritage values. The assessments must also examine how and to what extent these values will be affected by the development.

The objecting authorities have put forward certain requirements with respect to the content of the supplementary assessments. The programme of assessments must include:

1. Analysis and assessment of any impact (positive or negative) on the World Heritage values, as defined in the Statement of Outstanding Universal Value and further specified by the directorates, in line with the guidelines issued by IUCN and ICOMOS.

2. Specific assessment of any impact on the World Heritage values caused by existing aquaculture facilities as well as the two proposed facilities at Hysværet and Rørskjæran (A6 and A3).
3. Impact and vulnerability assessments in light of the World Heritage property's capacity/resilience and thresholds for change in relation to the World Heritage values.
4. Cumulative impacts.
5. Assessment of the threats that any specific development may represent to the World Heritage values. When assessing the nature of the threat, the property's authenticity and integrity must be emphasised.
6. Consideration of possible alternative development sites outside and within the World Heritage Site.
7. Reasoned recommendations for choice of location of the proposed developments, clearly stating how considerations to safeguard the OUV have influenced the choice of location.
8. Mitigating measures.

## Content

Foreword .....	2
Content.....	4
1 Introduction.....	6
1.1 Background for the supplementary assessments .....	6
1.2 Purpose of the supplementary assessment programme .....	8
2 Description of the fish farm development plans.....	8
2.1 The Rørskjæran site.....	9
2.2 The Hysvær site .....	10
2.3 Sørvær .....	11
2.4 Skogsholmen .....	11
3 The World Heritage Site .....	12
3.1 World Heritage environmental themes .....	15
3.1.1 Landscape .....	15
3.1.2 Cultural heritage.....	15
3.1.3 Natural diversity .....	16
3.1.4 Natural resources .....	19
3.1.5 Outdoor recreation.....	21
4 Goals and guidance for World Heritage .....	23
4.1 International guidance .....	23
4.1.1 Outstanding Universal Value (OUV) .....	23
4.1.2 Declaration of integrity and authenticity .....	25
4.1.3 Integrity .....	25
4.1.4 Authenticity .....	26
4.1.5 Management requirements .....	27
4.2 Municipal guidelines – Municipal Master Plan .....	28
5 Aquaculture facilities in brief .....	29
6 Proposed programme of supplementary assessments.....	31
6.1 Purpose of the supplementary assessments.....	31
6.2 Description of Vega Archipelago World Heritage Site and the state of the environment....	31
6.3 Description of the zero alternative .....	32
6.4 Impact on the World Heritage.....	32
6.4.1 Landscape.....	32
6.4.2 Cultural heritage.....	33
6.4.3 Natural diversity .....	34

6.4.4	Natural resources .....	36
6.4.5	Outdoor recreation.....	37
6.4.6	Overall impact on the World Heritage .....	37
6.5	Method.....	37
6.6	Social impact.....	38
6.7	Limiting, rectifying and recompensing for adverse effects .....	38
6.8	Schedule .....	39
7	References.....	40

Appendices:

Appendix 1. Directorate for Cultural Heritage, 2018. Identification and description of the Vega Archipelago's World Heritage values.

Appendix 2. ICOMOS 2011. Guidance on Heritage Impact Assessments for Cultural Heritage Properties.

Appendix 3. IUCN 2011. World Heritage Advice Note: Environmental Impact Assessment.

Appendix 4. Report from scoping seminar held 20 August 2018, Vega Havhotell. World Heritage impact assessment and aquaculture.

Appendix 5: Objections lodged by the County Governor and the Directorate for Cultural Heritage

Appendix 6: Report on the ICOMOS / IUCN Advisory Mission to Vegaøyen – The Vega Archipelago (C1143)

Appendix 7: Plans (*not attached*)

Appendix 8: Applications (*not attached*)

# 1 Introduction

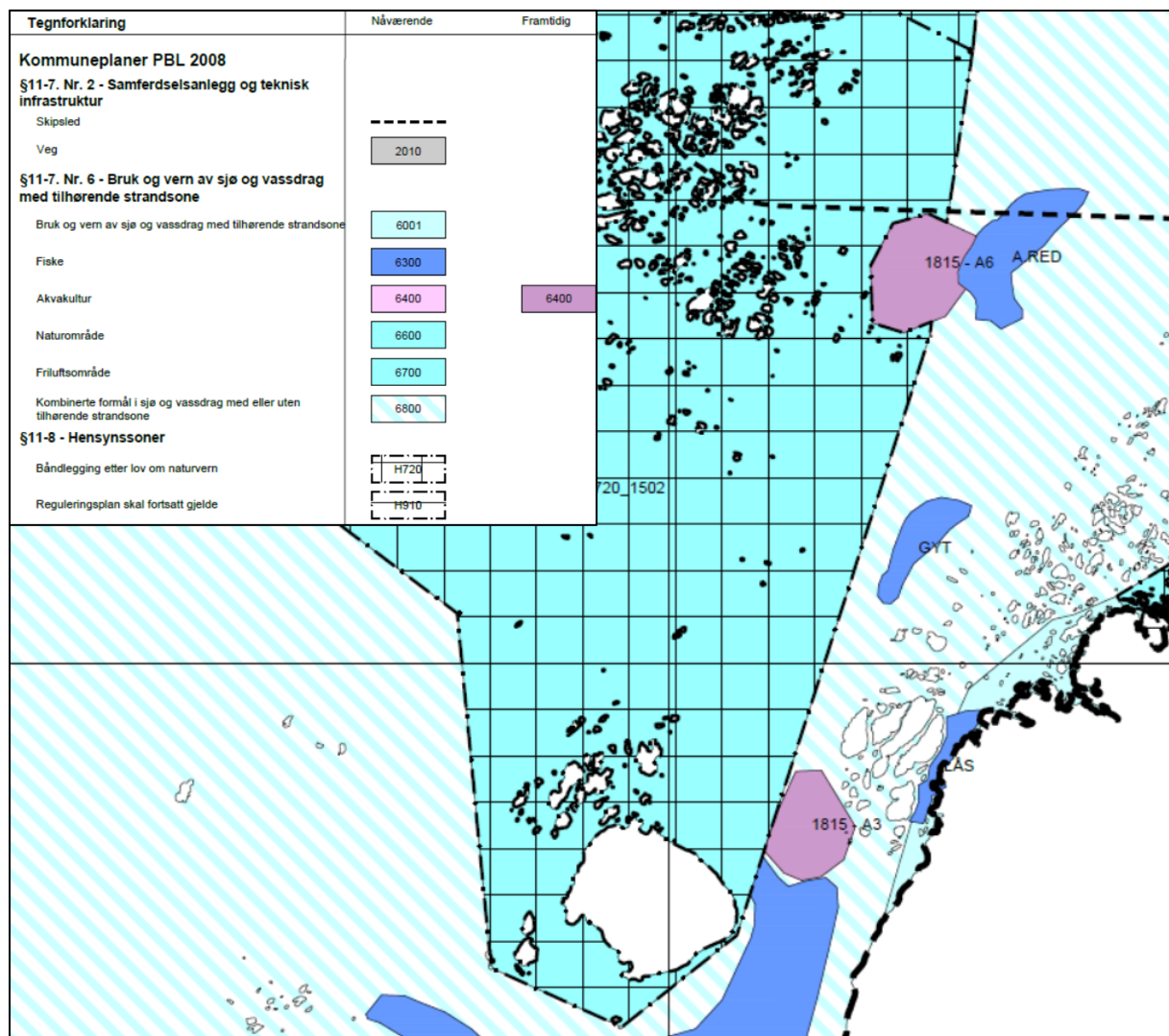
## 1.1 Background for the supplementary assessments

Helgeland Intermunicipal Master Plan for Vega (2018-2022) was considered by Vega municipal council on 20 June 2019. However, the plan cannot be lawfully implemented with respect to two specific locations because objections have been raised. The Norwegian Directorate for Cultural Heritage and the County Governor for Nordland have lodged objections on grounds of insufficient evidence with respect to the planned use of two marine areas. The plan has been submitted to the Ministry of Local Government and Modernisation for consideration. The municipal council decided in the same sitting to commission supplementary impact assessments with respect to the two locations in question.

The objections lodged by the Directorate for Cultural Heritage were upheld on 21 May 2019. In summary, they argued as follows (ref. Appendix 5): Any consent to new developments on the World Heritage Site or within its buffer zone, must in the view of the Directorate for Cultural Heritage be based on a robust assessment and thorough discussion of relevant themes. The supplementary assessments must consider the potential impacts on the property's outstanding universal values if aquaculture facilities were to be established in the Vega Archipelago World Heritage Site.

In her objection of 11 May 2017 (ref. Appendix 5), Nordland's County Governor pointed out that the existing assessment did not support the installation of new aquaculture facilities on the Vega Archipelago World Heritage Site. The County Governor also pointed out that any future introduction of aquaculture facilities on the Vega Archipelago World Heritage Site can only take place once satisfactory impact assessments have been conducted with regard to the World Heritage values. Additionally, it was suggested that as far as possible, alternative sites should be identified for fish farm developments.

The programme must address the demand for assessment of any impact that the plan may have on the World Heritage Site.



**Figure 1.** Hysværet (1815-A6) and Rørskjæran (1815-A3) fish farm sites as proposed in the Inter-municipal Master Plan, identified on the map in pink. Source: Vega Municipal Plan, Helgeland Inter-municipal Master Plan, map dated 12 April 2019. <https://nordlandsat-las.maps.arcgis.com/apps/webappviewer/> (select: *Kommunedelplan* from the map layer list)

Supplementary assessments should therefore be conducted in order to provide a comprehensive appraisal of whether – and, where applicable, how – aquaculture is compatible with the World Heritage values. The Directorate for Cultural Heritage has put forward the following requirements in respect of the assessment programme (Riksantikvaren, 15 March 2018):

1. The assessment must be based on the ICOMOS Guidance on Heritage Impact Assessment for Cultural Heritage Properties (2011) (**Appendix 2**) and IUCN's World Heritage Advice Note on Environmental Assessment (2011) (**Appendix 3**), as well as section 27 of the Norwegian Regulations on Impact Assessments concerning the need for additional assessment of development proposals.
2. Analysis and assessment of any impact (positive or negative) on the World Heritage values, as defined in the Statement of Outstanding Universal Value and further specified by the directorates, in line with the guidelines issued by IUCN and ICOMOS.

3. Specific assessment of any impact on the World Heritage values caused by existing aquaculture facilities (A5 and A&) as well as the two proposed facilities at Hysværet and Rørskjæran (A6 and A3).
4. Impact and vulnerability assessments in light of the World Heritage property's capacity/resilience and thresholds for change in relation to the World Heritage values.
5. Cumulative impacts.
6. Assessment of the threats that any specific development may represent to the World Heritage values. When assessing the nature of the threat, the ~~retention of the property's authenticity and integrity must be emphasised~~ **must be accentuated**.
7. Consideration of possible alternative development sites outside and within the World Heritage Site.
8. Reasoned recommendations for choice of location of the proposed developments, clearly stating how considerations to safeguard the OUV have influenced the choice of location.
9. Mitigating measures.

## 1.2 Purpose of the supplementary assessment programme

The programme is intended to lay the foundation for the supplementary assessments by providing a framework of requirements with respect to content and types of assessment. The purpose of the supplementary assessments is to examine the consequences of aquaculture developments for the World Heritage Site and its buffer zone.

The programme should therefore describe the relevant plans, the area in question, the World Heritage values and the issues that are considered important for examining the planned development's impact on the World Heritage property.

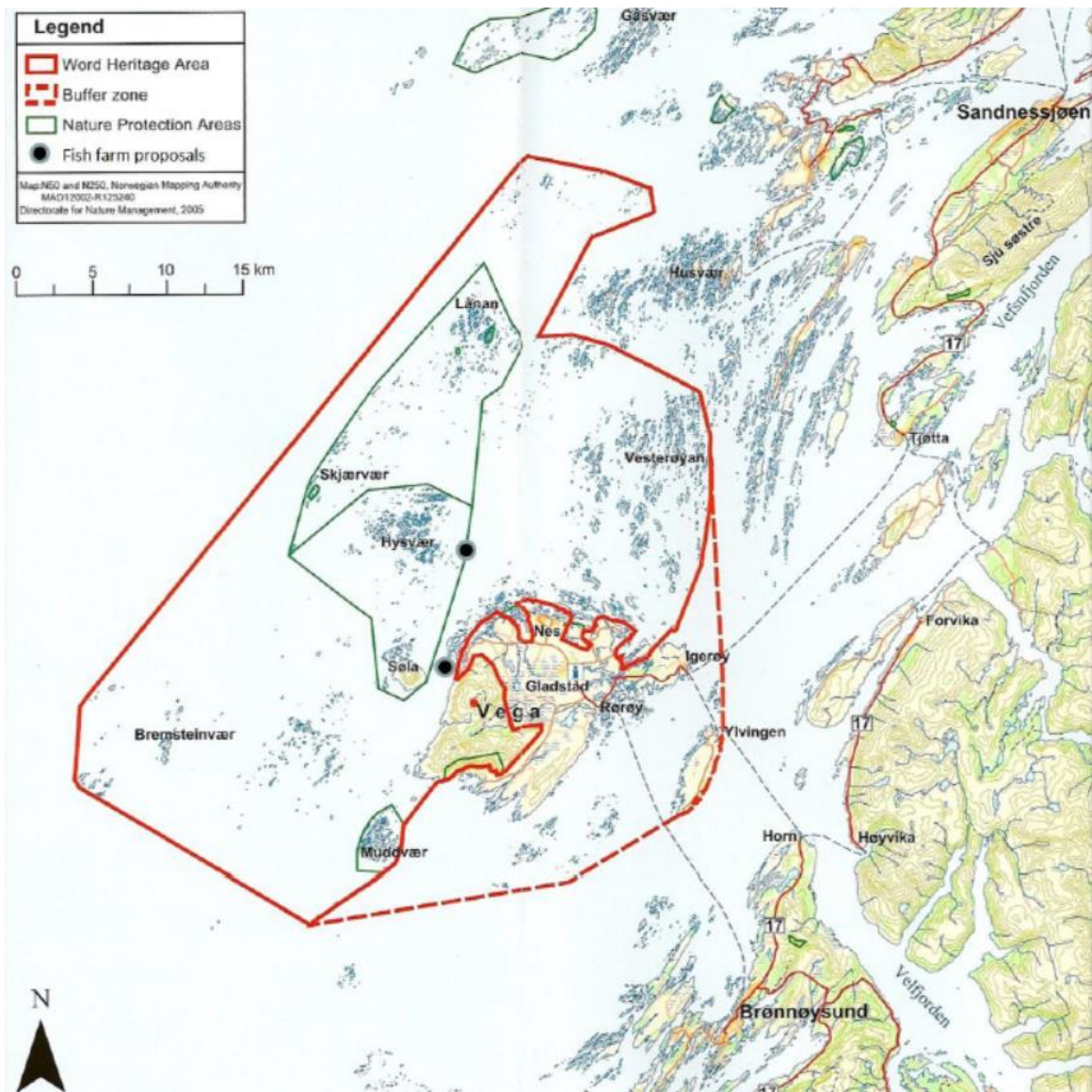
## 2 Description of the fish farm development plans

Helgeland Intermunicipal Master Plan for Vega (2018-2022) opens up the potential for fish farm developments on two specific sites within the World Heritage property (ref. chaps 2.1 and 2.2) in addition to the area's existing facilities. The plan allows for fish farm developments in the buffer zone, but provides no guidance with respect to the siting of facilities within this specified area/buffer zone.

Two applications have recently been submitted for specific new fish farm developments. The applications are thought to be representative of what the industry considers to be appropriate facilities in terms of location, scope and type. According to the applicants, the two identified locations are the only siting options within the World Heritage property.

The assessment programme briefly describes the four sites based on background information provided by the applicants and obtained during the application process.





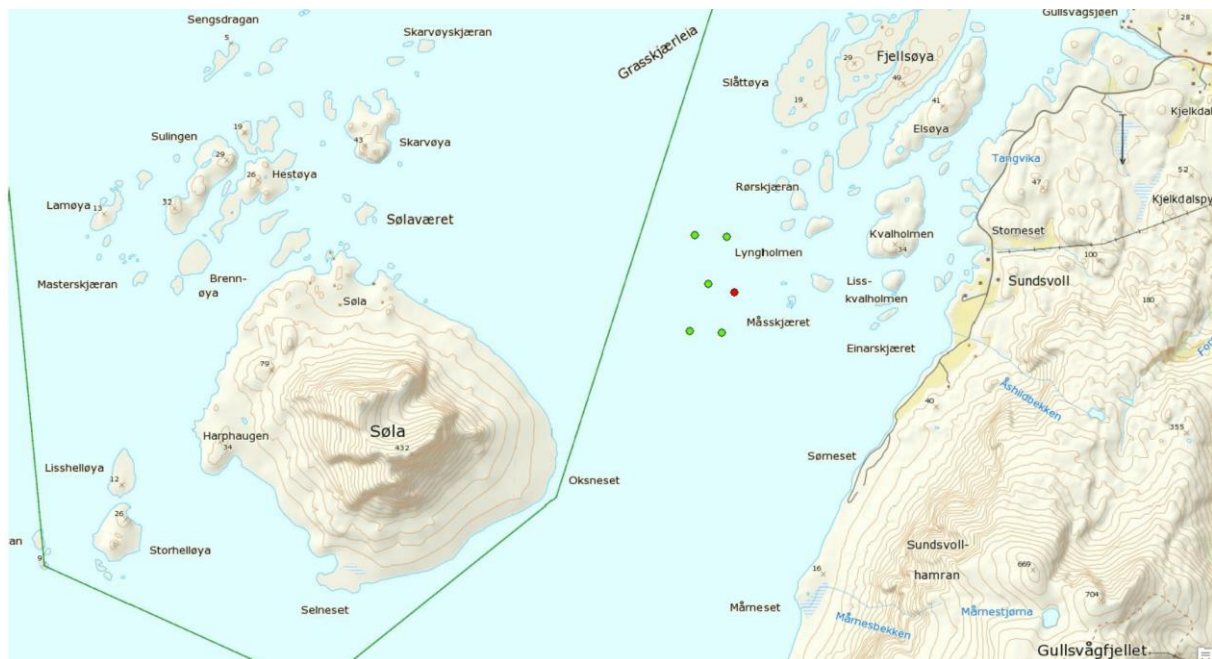
**Figure 2.** Black dots mark the two sites within the Vega Archipelago World Heritage property that are the intended locations for new fish farms. The Hysvær site is located within the Hysvær/Sjøla Landscape Protection Area while the Rørskjæran site is 300 metres east of this area (delineated in green.) Source: ICOMOS, 2017.

## 2.1 The Rørskjæran site

On 24 April 2015, MOWI ASA applied to Nordland County Council for consent to install new facilities for the production of salmon, brown trout and rainbow trout at Rørskjæran in Vega municipality. The plans were for an annual production of 4680 tonnes of biomass, involving an average of 5000 tonnes of dry feed per year. However, under the Pollution Control Act, the County Governor has set the maximum permissible biomass for this location to 3120 tonnes, which is therefore the largest volume of biomass for which consent may be granted for this site. The permission under the Pollution Control Act to produce fish for food was revoked on 4 April 2019 by the Norwegian Environment Agency. The revocation has been appealed and the Norwegian Ministry of Climate and Environment will make a ruling on the matter.

Rørskjæran is located in the sound of Sølundet between the islands of Søla and Vega. The site is within the boundaries of the Vega Archipelago World Heritage property, and only 300 metres from the perimeter of the Hysvær/Søla Landscape Protection Area (Figure 3). Some of the proposed moorings would be abutting the perimeter of the Hysvær/Søla Landscape Protection Area, and the mooring anchors would be just outside the area boundary.

The plans are for a site on the north-westerly side of Vega. The site crosses a hard-bottom slope with sediments of sand and shell, and some bare rock. Depths across the site vary from approximately 135 metres in the westerly section of the planned perimeter, to approximately 40 metres in the eastern section, closest to shore.



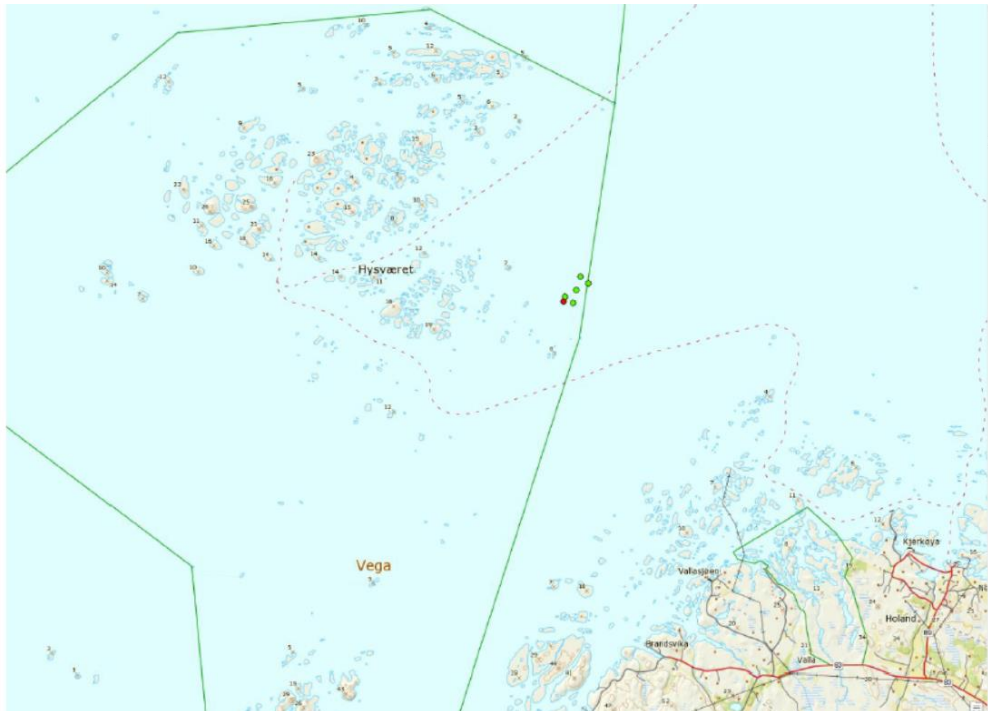
**Figure 3.** Planned site for the fish farm development at Rørskjæran. Green dots mark the perimeter and centre points. The red dot indicates the feed barge centre point. The perimeter of the Hysvær/Søla Landscape Protection Area is outlined in green. Source: Nordland County Governor's office, 29 March 2017.

## 2.2 The Hysvær site

In 2015, Vega Sjøfarm AS applied to Nordland County Council for consent to install a new aquaculture site at Hysvær in Vega municipality for the production of 3120 tonnes of salmon, brown trout and rainbow trout. The plans were for an annual production of 3120 tonnes of biomass, using an average of 3370 tonnes of dry feed per year. The site is located within the perimeters of Hysvær/Søla Landscape Protection Area and wildlife sanctuary and the Vega Archipelago World Heritage Site (**Figure 4**). On 3 July 2015, Vega Protected Area Management Council agreed to waive the preservation regulations for Hysvær/Søla Landscape Protection Area by allowing the installation of fish farms.

The planned site location is on the north-westerly side of Vega, between Vega and Hysvær. The site is in an area of deep waters, encircled by a number of islands and skerries. According to Vega Sjøfarm, depths range from approximately 80 metres in the southern part of the planned facility, to approximately 170 metres in the northern part.

In a letter dated 18 May 2017, the County Governor rejected an application from Vega Sjøfarm AS for permission under the Norwegian Pollution Control Act to commence production of fish for food on the Hysvær site in Vega municipality. Following an appeal by Vega Sjøfarm AS on 8 June 2017, the Norwegian Environment Agency upheld Nordland County Governor's decision on 28 August 2019. This ruling is final and was made on the grounds of insufficient evidence of how a new aquaculture facility might affect the World Heritage values.



**Figure 4.** Planned site for the Hysvær fish farm, with green dots marking the peripheral and centre points. A red dot marks the feed barge centre point. Source: Nordland County Governor, 29 March 2017.

## 2.3 Sørvær

In 2014, Seløy Sjøfarm AS and Bindalslaks AS applied to Nordland County Council for consent to install a new aquaculture facility at Sørvær for the production of 7020 tonnes of salmon, brown trout and rainbow trout. The maximum permissible biomass was set to only 3120 tonnes. Parts of the site are within the perimeter of the Vega Archipelago World Heritage property and approximately 500 metres to the north-east of the Lånan bird sanctuary in Vega municipality.

## 2.4 Skogsholmen

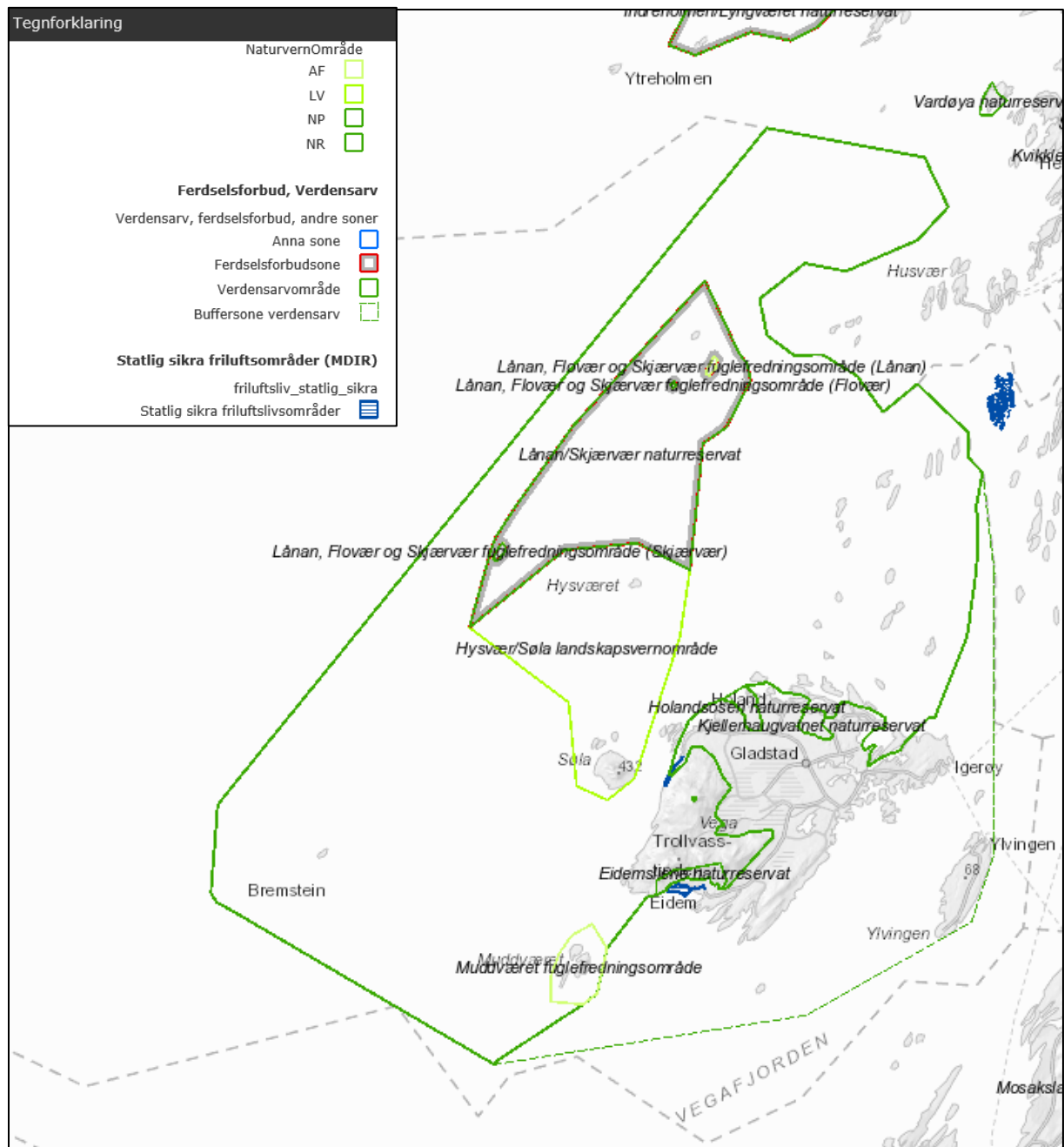
In 2012, Vega sjøfarm AS applied to Nordland County Council for consent to install a new aquaculture facility at Skogsholmen for the production of 3120 tonnes of salmon, brown trout and rainbow trout. The maximum permissible biomass was set to 3120 tonnes. The site is within the perimeter of the Vega Archipelago World Heritage property in Vega municipality.

### 3 The World Heritage Site

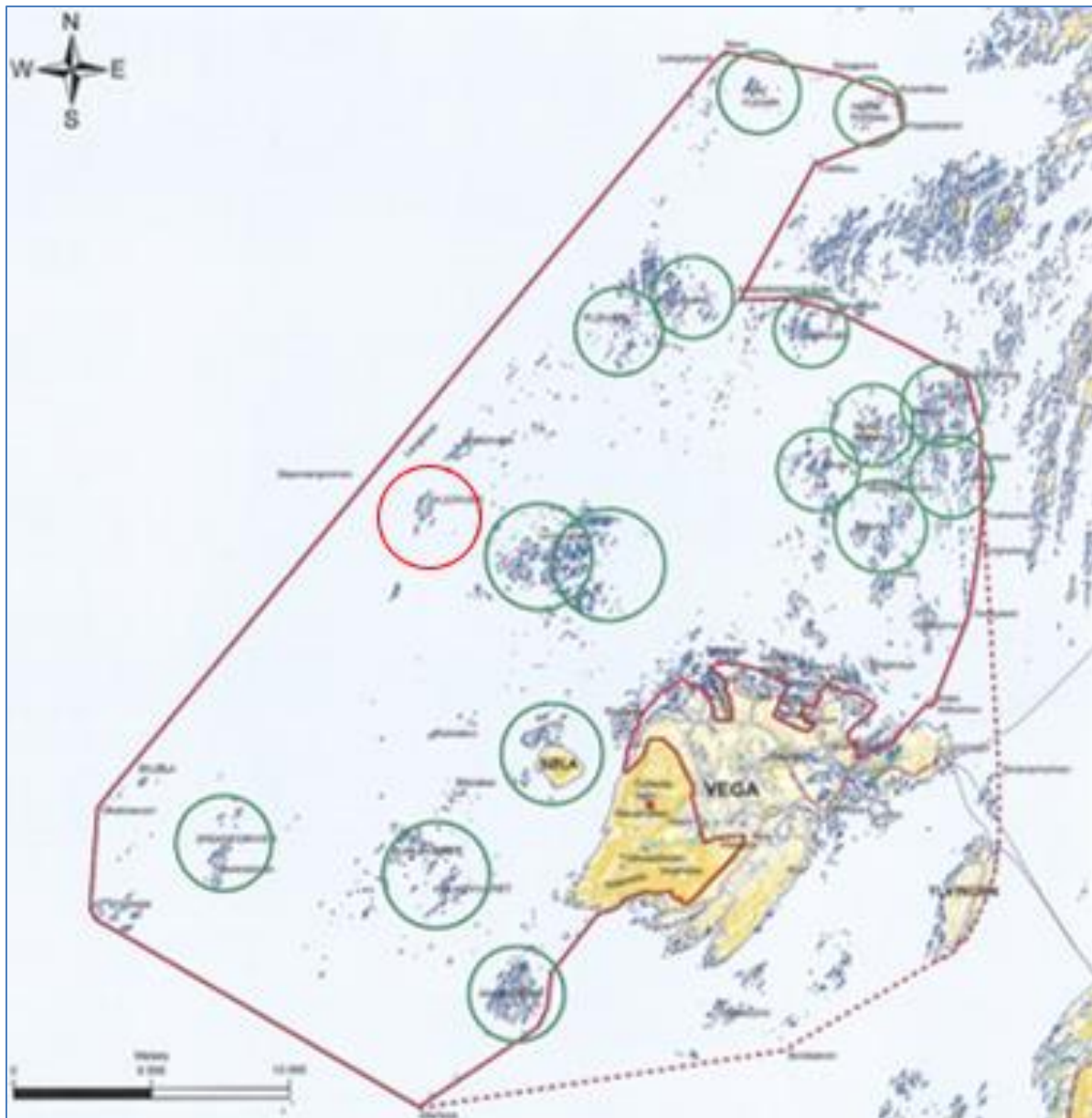
The Vega Archipelago World Heritage Site is located in the Norwegian Sea in the northernmost parts of the Atlantic, just south of the Arctic Circle (**Figure 5**). The property lies in Vega municipality and forms part of the Helgeland coastline. The World Heritage property encompasses 6500 islands, islets and skerries, as well as parts of the main island of Vega. The World Heritage Site forms a cultural landscape of 1072 km<sup>2</sup>, of which 69 km<sup>2</sup> is land. Nature conservation areas make up 22 per cent of the World Heritage property: Lånan-Skjærvær Nature Reserve, Holandsosen Nature Reserve, Kjellerhaugvatnet Nature Reserve, Eidemslie Nature Reserve, Lånan, Flovær and Skjærvær bird sanctuary, Muddvær bird sanctuary and Hysvær-Søla Landscape Protection Area. The [Vega Archipelago World Heritage](#) website provides a more detailed explanation of the rationale behind the World Heritage Site, with descriptions of the cultural landscape, the built heritage, the natural diversity and the protected areas of Vega. [NINA report 1405](#) (Follestad et al. 2017) provides a description of the bird populations, with special emphasis on the population of eider ducks and the tradition of providing nesting and down harvesting sites (**Figure 6**).

The largest part of the World Heritage Site is made up of small islands off the coast of the main island of Vega. The rest of the island of Vega, the island of Ylvingen and the waters between them form the buffer zone of the World Heritage property. The buffer zone can accommodate industry, tourism and other types of developments, and most construction activities, business developments and visitor enhancements are consigned to this zone.





**Figure 5.** Map of the Vega Archipelago World Heritage Site and buffer zone, as well as the nature conservation and recreation areas protected by the central government. Source: <https://nordland-satlas.maps.arcgis.com>



**Figure 6.** Former and current eider nesting and down harvesting sites in Vega. Bird tenders currently look after the following sites, all of which are subject to special protection orders: 1. Muddvær, 2. Halmøy (does not report to the Foundation), 3. Bremstein, 4. Hysvær, 5. Skjærvær, 6. Flovær, 7. Lånan and 8. Kilvær. In 2017, eider duck houses and nests were also being built at Store Emårsøy. Source: Follestad, Moe and Thomassen, 2017.

### 3.1 World Heritage environmental themes

The World Heritage encompasses the environmental themes of landscape, cultural heritage, natural diversity, natural resources and outdoor recreation. It is therefore important to assess the environmental impact on each of these sub-themes when considering how fish farms may affect the World Heritage.

#### 3.1.1 Landscape

This theme deals with the spatial and visual qualities of the landscape, as well as its physical characteristics. When the character of a landscape primarily reflects human use and understanding of the land and its natural resources, this is referred to as a cultural landscape (Statens Vegvesen, 2018 p. 130). The Vega Archipelago is inscribed on the World Heritage List as a cultural landscape. The Operational Guidelines define cultural landscapes as follows:

*Cultural landscapes are cultural properties and represent the 'combined works of nature and of man' designated in Article 1 of the Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal (Operational Guidelines, paragraph 47).*

The proposed development sites are located in an open seascape. The nearest islands are flat and grass-covered, with no buildings. The installation of aquaculture facilities on these sites will have a visual impact on the area's landscape. The SWECO report entitled 'Report on the Vega Archipelago World Heritage – Visual Characteristics' illustrates how the installation of aquaculture facilities brings with it a modern feel and a use of natural resources that may have an adverse impact on the visual character that is considered a World Heritage attribute (SWECO, 2016). The visual impact of any aquaculture facility may diminish the landscape's visual characteristics, including its links to cultural remains and the overall experience of the cultural heritage landscape.

#### 3.1.2 Cultural heritage

This theme deals with manifestations of human activity through time and is associated with cultural remains, cultural environments and cultural heritage landscapes. The theme is defined as tangible and intangible traces of human activity.

The sub-themes are:

- Cultural remains
- Cultural environments
- Cultural heritage landscapes

Cultural remains and cultural environments are defined in the Norwegian Cultural Heritage Act of 1978. The act refers to cultural remains as 'archeological and historical monuments and sites' and defines these as 'all traces of human activity in our physical environment, including places associated with historical events, beliefs or traditions'. Cultural environments are defined as any area where cultural remains 'form part of a larger entity or context'. In this context, cultural heritage landscapes are

large geographic areas that encompass cultural environments in which the cultural heritage aspect is prominent (Statens Vegvesen, 2018 p. 172).

**Brief summary of the current situation and potential impacts:**

No studies have been conducted to explore any under-water cultural remains in the relevant areas. Aquaculture developments must be considered against the cultural landscape values (World Heritage criterion V) that form the basis for the Vega Archipelago's World Heritage status.

The proposed facilities would affect the Hysvær/Søla Landscape Protection Area and wildlife reserve, Lånan bird sanctuary and Lånan/Skjærvær Nature Reserve. There are old buildings in these areas, and many boathouses associated with the fisheries, as well as a large number of eider houses that provide nesting space for eider ducks. Skjærvær and Bremstein Lighthouses are protected under the provisions of the Cultural Heritage Act.

Hysvær and Lånan in the Hysvær/ Søla Landscape Protection Area are both listed as priority landscapes in the national database of valuable landscapes. Valuable cultural landscapes are high-priority management areas of significant biological and heritage value. They include landscapes such as the highest-priority areas recorded in the national database of valuable cultural landscapes.

There may be a visual impact on the cultural environments and cultural remains in the impact area. The visual intrusion of aquaculture facilities may be detrimental to the visual character of cultural environments and the links between cultural remains and the overall experience of the landscape as a whole.

### **3.1.3 Natural diversity**

In this context, natural diversity refers to the biodiversity associated with terrestrial (land-based), limnic (freshwater) and marine (brackish water and sea water) systems. The sub-themes are:

1. Protected areas, see Figure 5.
2. Marine biodiversity
3. Terrestrial biodiversity
4. Species and habitats of particular management interest

Protected areas:

The flora and fauna in the protected areas of the Vega Archipelago enjoy a rich diversity with several rare species and important breeding, moulting and wintering areas for sea birds. It is a particularly important wintering area for eider ducks, but also for other diving ducks and the great cormorant. The archipelago comprises a highly interesting, valuable and complete cultural landscape.

***Marine biodiversity:***

**A) Marine habitats**

There are two surveyed marine habitats within the World Heritage property: eelgrass and kelp forest. These are found in the Lånan-Skjærvær Nature Reserve and Hysvær/Søla Landscape Protection Area and wildlife reserve. The marine kelp forest habitat is important because it generates considerable organic material and provides important nutrition for Vega's moulting greylag geese. The kelp forest



is essential for the flora and fauna in that it provides fish spawning and growing areas, hiding places and grazing. The molluscs and crustaceans of the kelp forests are important prey for fish, crabs, lobsters and several sea bird species.

a) Benthic flora and fauna

In a letter dated 1 July 2015, Nordland County Fishermen's Association stated that installation of the proposed aquaculture facilities will involve increased loads from biological and chemical waste products in the area. Effluents of organic materials and other substances may adversely affect the benthic flora and fauna etc. Feed-based aquaculture facilities in the sea are subject to trend-monitoring of the effects of all effluents and have a duty to reverse conditions if they are found to be unacceptable.

b) Fishing for anadromous salmon

There is salmon in some of Vega's river systems, the most important of them being the Færset watercourse where there is trout as well as salmon. The potential impact of the proposed facilities on these river systems must be assessed.

c) Marine fish species

The Rørskjæran site will be abutting the sound of Sølundet, and this area provides regionally important spawning grounds for cod and is important for cod fishing with passive gear. Proximity to local spawning grounds and the area for passive cod fishing in the sound of Sølundet, to the facility's immediate south, will be partly affected by the physical development of the site. On the basis of the one-directional north-flowing currents, the County Governor considers that effluent from the facility is unlikely to have much negative impact on the spawning grounds to the south. In general terms however, there is a possibility that any effluent from the facility may affect pelagic spawning and flowing eggs.

The Hysvær site also abuts existing prawn trawling areas. The area taken up by the proposed development, including moorings and surface facilities, will not conflict with the fishing grounds. Fish net-cage sites have been registered in the surrounding area, the nearest of which is 3.6 kilometres to the north-west of the Hysvær site. Three kilometres to the south, there are overlapping passive fishing grounds and spawning grounds. Nordland County Fishermen's Association is of the opinion that both the spawning grounds and the growing area, as well as the area designated for passive fishing gear, may be harmed by the installation of aquaculture facilities in terms of space and pollution.

The Sørvær site is approximately 500 metres to the south-east of important cod spawning grounds.

The Skogsholmen site is approximately 600 metres to the south-west of important cod spawning grounds.

***Terrestrial biodiversity:***

**Brief summary of the current situation and potential impacts:**

a) Birds and mammals

The protected areas are important for a number of bird species, and Hysværet and Lånan are considered to be part of Vega's core area for eider ducks. The breeding populations of eider ducks and several other sea birds, particularly in the area between Central Norway and the Lofoten Archipelago, are in

rapid decline (see ref. in Follestad et al. 2017). The same applies for the wintering populations of eider ducks, long-tailed ducks etc.

The limited number of studies conducted in Norway and abroad show that any disturbance caused during the installation and operating phase of a facility can have an adverse effect on birds and marine mammals (see Figure 4.2 for moulting greylag goose in Follestad, 2015). The NINA review of drivers and their effects on common eider and the harvesting of eider down in Vega Archipelago World Heritage Area (Follestad et al., 2017) shows that eider ducks and other sea birds react negatively to being disturbed by boats, particularly during the moulting season. The report also refers to studies that show an adverse effect on grazing eider ducks. Aquaculture facilities will cause disturbance in the installation phase, but also during the operating phase due to the transporting of staff, feed and slaughter-ready fish. Effluents such as uneaten food, excreta, de-lousing agents and other drugs may impact on the birds' grazing areas.

#### b) Culture-specific species and habitats

The farmer/fisherman cultural landscape encompasses habitats such as tilled fields, hayfields, coastal heathland and rough grazing. Due to the depopulation trend that started in the 1960s, the cultural landscape and its integral cultural remains from farming activities became increasingly overgrown. Today, however, just under 1000 sheep and some young cattle are grazing on 50-60 of the islands to the north and west of the main island.

Species and habitats of particular management interest

#### **Brief summary of the current situation and potential impacts:**

Under the Norwegian Nature Diversity Act, special measures can be put in place to protect threatened priority species. Similar measures are available for designated habitats. Many of the species and habitats that are prioritised in this manner are found along the coast. The supplementary assessments must describe these species and habitats and consider how they will be impacted by the proposed fish farm developments at Hysvær and Rørskjæran. Briefly summarised, this refers to:

- Any of the species for which Norway has special responsibility because 25 per cent or more of the European population of the species is found in Norway. All such species have been listed by the Norwegian Biodiversity Information Centre (searchable list of species).
- Threatened species, categorised as critically endangered (CR), endangered (EN) or vulnerable (VU) in the Norwegian Red List for Species (Norwegian Biodiversity Information Centre).
- Other particularly demanding species, which are not covered by any other criteria but deserve particular attention.
- Priority species under the Nature Diversity Act. These are species that are considered to be in need of special safeguarding measures (further information about (<https://miljostatus.miljodirektoratet.no/tema/arter/>)). There are similar provisions made for designated habitats.
- Species that were given protection under earlier nature conservation legislation. A full list is available from 'State of the Environment Norway' (list of protected species).
- Near-threatened species (NT); information available in the Norwegian Red List for Species.
- Alien species (information about alien species in Norway) and high-impact invasive alien species (black-listed by the Norwegian Biodiversity Information Centre).
- Habitats designated for protection, as listed here:  
<https://miljostatus.miljodirektoratet.no/tema/naturomrader-pa-land/vernet-natur/>

### 3.1.4 Natural resources

This theme deals with the traditional use of natural resources associated with fishing, eider down harvesting, agriculture and livestock farming. Traditional uses of resources form a part of the outstanding universal value of the Vega Archipelago. These are associated with the farmer/fishermen's building traditions, eider duck houses and hayfields/grazing, in addition to knowledge of local resources and practices associated with eider down harvesting. The World Heritage assets associated with fishing are linked to the farmer/fisherman lifestyle and activities, of which physical evidence remains.

The natural resources sub-themes are:

- Eider down harvesting and eider tending
  - Fisheries
  - Grazing/agriculture
  - Harvesting of kelp
- a) **Eider down harvesting and eider tending:** The tradition of eider down harvesting and eider tending is the main reason why the Vega Archipelago was awarded World Heritage status. This tradition lies at the heart of the property's 'Outstanding Universal Value'. The principal responsibility and duty to protect this value rests with Norway. However, the area was inscribed on the World Heritage List as a cultural landscape, with its natural assets forming a part of the recognised universal values. UNESCO's advisory bodies, IUCN and ICOMOS, have in particular asked for clarification of the potential impacts of aquaculture facilities on the Vega Archipelago World Heritage Site with respect to 1) the cultural landscape and 2) birds generally, but eider ducks in particular.
- b) **Fishing:** The World Heritage property encompasses important spawning grounds and fish resources which traditionally were harvested by local farmer-fishermen in order to eek out a living. The planning and impact area includes registered halibut grounds for fishing with passive gear and registered prawn fishing areas (see the map below).



**Figure 7.** Registered grounds for halibut fishing with passive gear (greyish brown hatched area) and registered prawn fishing areas (pink hatched area). Source: Yggdrasil.no

- c) **Grazing/agriculture:** There are currently three active farms within the area of the World Heritage Site, but some of the World Heritage property is being used for rough grazing by farmers operating in the buffer zone. In the current year (2018), almost 1000 sheep (Old Norwegian Short-tailed Landrace and Norwegian White Sheep) and some young cattle are grazing on 50-60 islands to the north and west of the main island of Vega. A further two protected areas (Holandsosen and Kjellerhaugvatnet) on the main island of Vega are also used for grazing, and these are also included in the World Heritage property.

**Harvesting of seaweed:** The harvesting of seaweed used to be an integral part of traditional eider down harvesting. Seaweed was gathered and dried before it was used to make nests inside the eider duck houses, thereby enabling the down to be cleaned to the desired quality. Dried seaweed is used for eider duck nest-making to this day at the active down harvesting stations within the World Heritage property. There is insufficient knowledge about the effects of seaweed harvesting associated with local seabird populations such as eider ducks. The bird tenders, who are engaged in traditional eider down harvesting on the World Heritage property, are demanding cessation of all industrial-style seaweed cutting/trawling which is not associated with traditional eider down harvesting. According to observations made by the bird tenders, the eider ducks suffer from a shortage of food in areas where this type of harvesting of marine algae is going on. This seaweed vegetation also serves as a good hiding place for the chicks.

### 3.1.5 Outdoor recreation

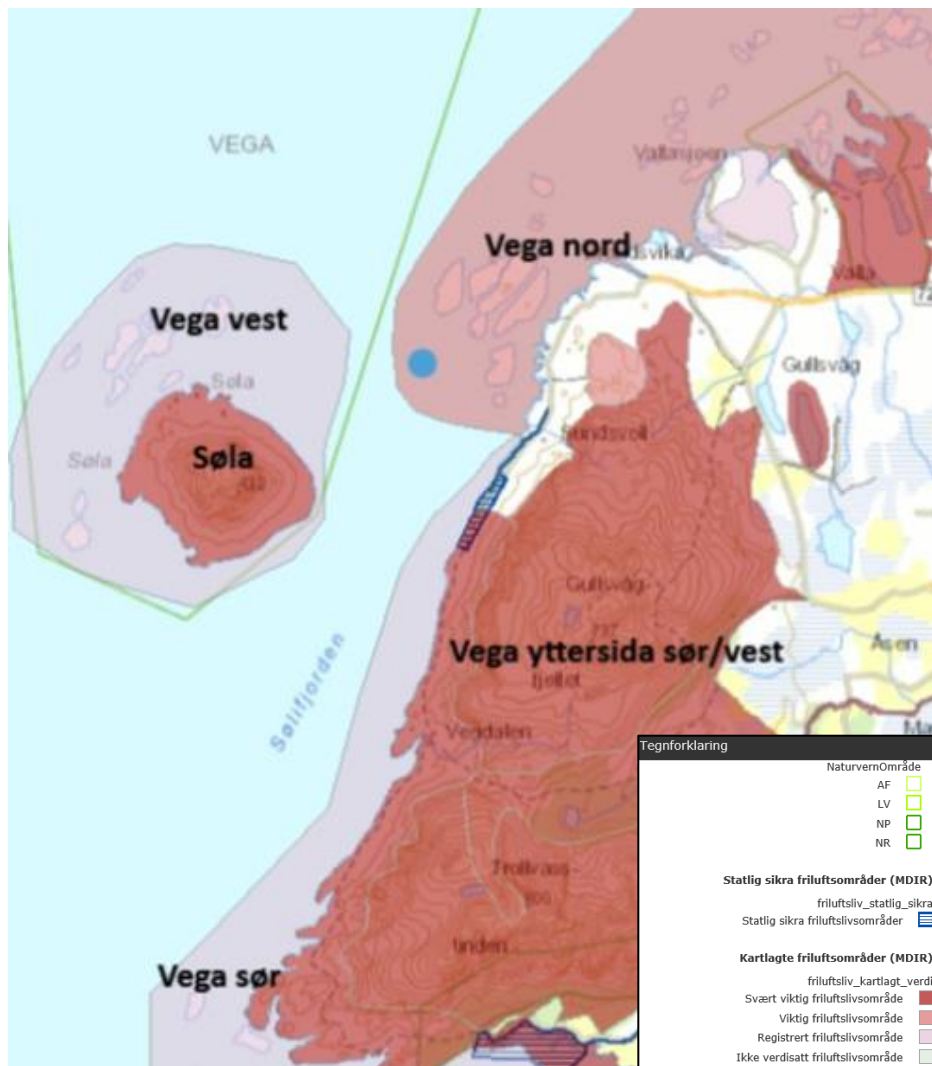
This theme deals with all issues that affect the general public's access to outdoor recreation as an activity that promotes health and well-being undertaken within local communities and in areas of natural beauty. Outdoor recreation is defined as recreational visits to and physical activity in the open air for the purpose of experiencing nature and a new environment. (Meld. St 18 (2015-2016) Friluftsliv – Naturen som kilde til helse og livskvalitet).

These are the sub-themes:

- Outdoor recreation at sea
- Outdoor recreation on land

#### **Briefly on the current situation and potential impacts:**

The Vega Archipelago is a popular area for outdoor recreation and it is expected that this activity will increase in the future as a consequence of growth in the Vega tourism market. A number of visitor attractions operate within the World Heritage property. These are businesses of varying sizes based on tourist fishing activities and marine adventure tourism. All four localities about Vega Archipelago's surveyed outdoor recreation areas, which are recorded by the Environment Agency's Naturbase mapping service as either very important, important or locally important recreation areas (**Figure 8**). While some of the physical facilities encroach on parts of the recreation areas, pollution is not expected to affect recreational activities.



**Figure 8.** Recreation areas within the planning and impact area. The Rørskjæran site is identified by a blue dot. Source: <https://nordlandsatlas.maps.arcgis.com>

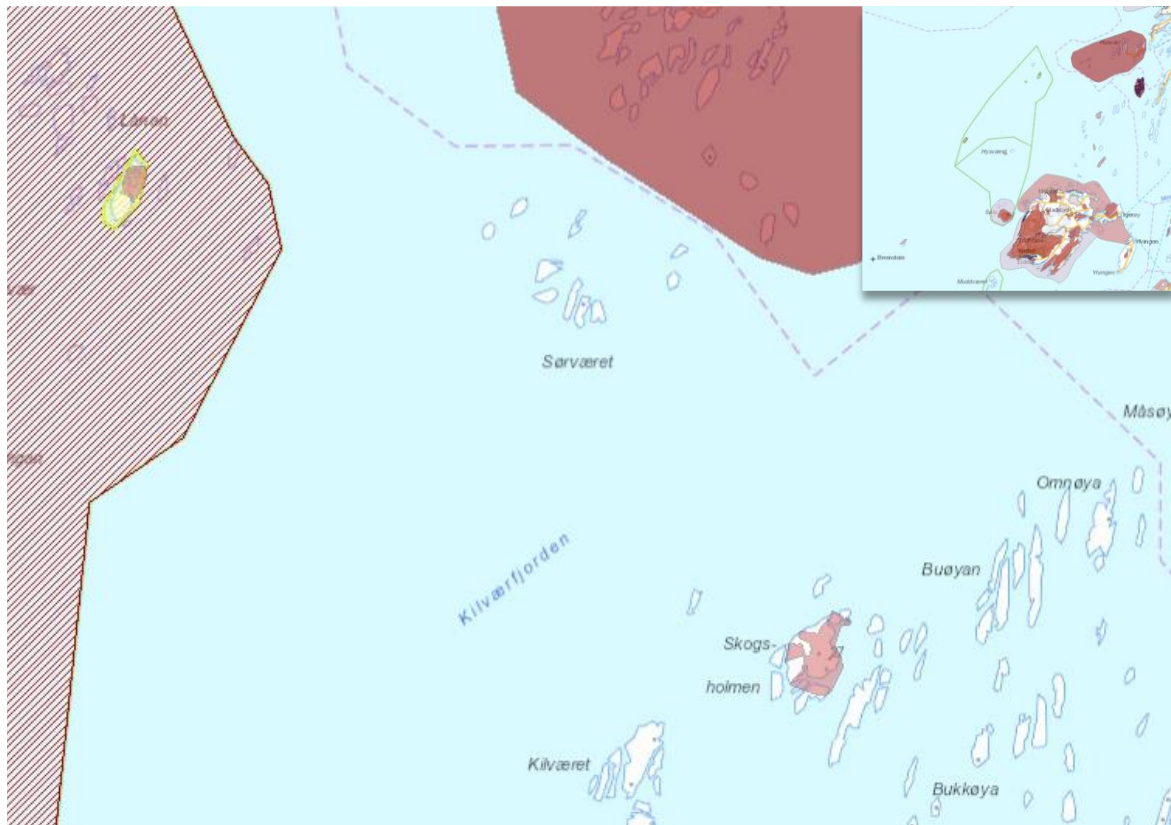


Figure 9. Map of recreation areas at Lånan (important) and Skogsholmen (important) in Vega municipality (Source: Naturbasen).

## 4 Goals and guidance for World Heritage

### 4.1 International guidance

UNESCO's Convention concerning the Protection of World Cultural and Natural Heritage is a global agreement that commits each State party to the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage situated on its own territory.

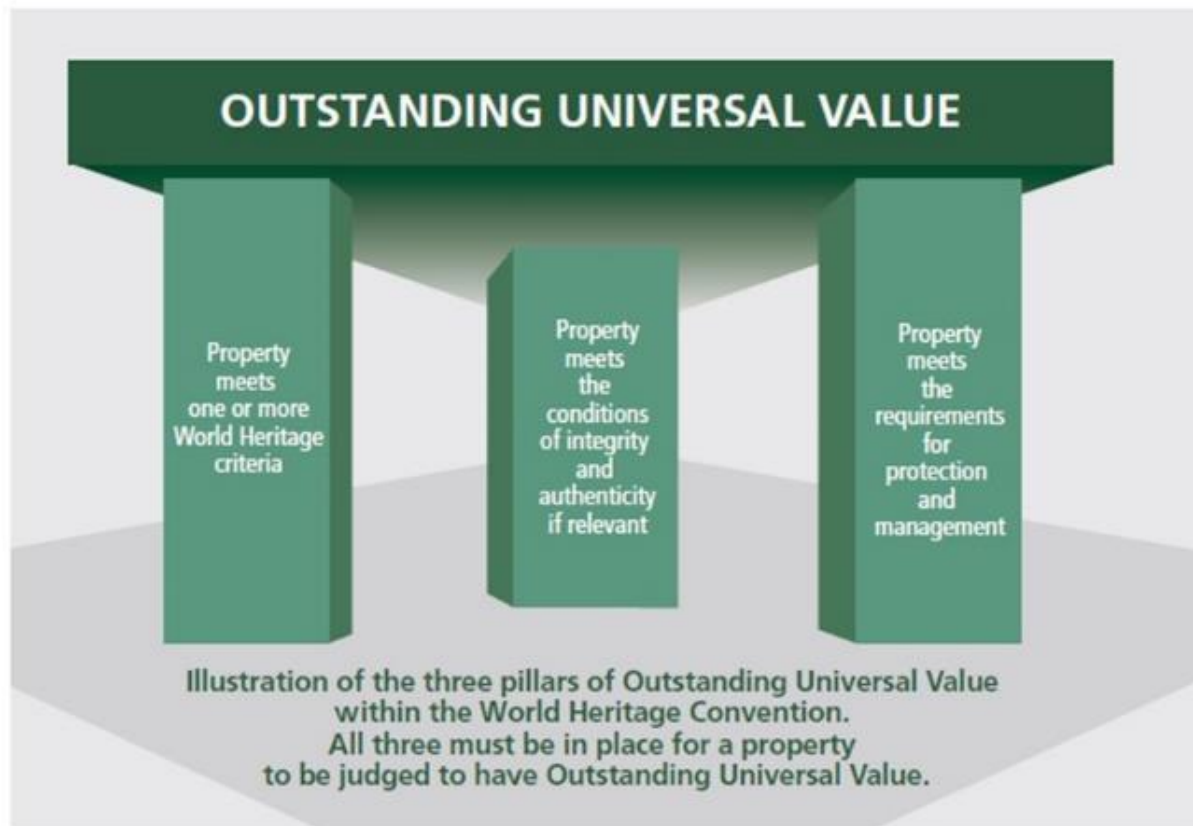
#### 4.1.1 Outstanding Universal Value (OUV)

*Outstanding Universal Values (OUV)* are the unique features of a property or an area inscribed on the World Heritage List. The term is defined in the Convention's Operational Guidelines as follows:

*Cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole. (Operational Guidelines, paragraph 49).*



In order to operationalise the OUV term, the World Heritage Committee has defined criteria for inscription on the World Heritage List based on the pillars that collectively constitute the OUVs of a World Heritage Site, as shown in figure 10:



**Fig. 10.** The three pillars of Outstanding Universal Value. Source: IUCN, 2013

Vega is inscribed on the World Heritage List under criterion (v), which stipulates that inscribed areas must:

*be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change (Operational Guidelines, paragraph 77)*

The reasoning behind the Vega Archipelago's 2004 inscription under criterion (v) is as follows:

*The Vega Archipelago reflects the way generations of fishermen-farmers have, over the past 1500 years, maintained a sustainable living in an inhospitable seascape near the Arctic Circle, based on the now unique practice of eider down harvesting, and it also celebrates women's contribution to the eider down process. (Decision 28 COM 14B.45)*

When the character of a landscape is primarily traced back to human use and understanding of the land and its natural resources, the landscape is known as a cultural landscape. The Vega Archipelago is inscribed on the World Heritage List as a cultural landscape. In the Operational Guidelines, cultural



landscape is defined as follows: *Cultural landscapes are cultural properties and represent the ‘combined works of nature and of man’ designated in Article 1<sup>1</sup> of the Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal* (Operational Guidelines, paragraph 47).

#### 4.1.2 Declaration of integrity and authenticity

A World Heritage Site must also meet the conditions of integrity and authenticity in order to be deemed a site of Outstanding Universal Value (Operational Guidelines, 2019, paragraph 78ff).

#### 4.1.3 Integrity

The Operational Guidelines describe integrity as follows:

*Integrity is a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes. Examining the conditions of integrity therefore requires assessing the extent to which the property:*

- a. includes all elements necessary to express its Outstanding Universal Value;*
  - b. is of adequate size to ensure the complete representation of the features and processes which convey the property’s significance;*
  - c. suffers from adverse effects of development and/or neglect.*
- (Operational Guidelines, paragraph 88).

The following guidelines also apply to criterion (v) under which the Vega Archipelago is inscribed:

*For properties nominated under criteria (i) to (vi), the physical fabric of the property and/or its significant features should be in good condition, and the impact of deterioration processes controlled. A significant proportion of the elements necessary to convey the totality of the value conveyed by the property should be included. Relationships and dynamic functions present in cultural landscapes, historic towns or other living properties essential to their distinctive character should also be maintained* (Operational Guidelines, paragraph 89).

Vega’s integrity is described as follows in the Statement of Outstanding Universal Value:

*The boundaries of the World Heritage property encompass 6,500 islands, islets and skerries, as well as the waters north and west of Vega and parts of that main island and its coastal strip. The rest of the island of Vega forms part of the buffer zone of the World Heritage property.*

*The World Heritage property showcases the diversity and interaction of the natural features and cultural heritage of the Vega Archipelago, forming a unique cultural landscape. This diversity ranges from the islets where down was gathered to the fishing settlements and traditional farming complexes with characteristic field patterns, forming a mosaic in the landscape. Most of the old buildings are intact, from dwellings to boathouses, warehouses and sheds, beacons and lights; most of them have been renovated, making the area as a whole representative of settlements on the strandflat. Within the boundaries of the property, the interaction between characteristic natural and cultural elements of the cultural landscape allow for the long-term conservation of the area’s Outstanding Universal Value.*

---

<sup>1</sup> The term ‘cultural heritage’ is defined in Article 1 of the Convention.

*In areas where grazing and haymaking are no longer practiced and where no appropriate management strategies are in place, some of the cultural landscape is becoming overgrown or eroded. The bird life in the area is vulnerable to human disturbance in the breeding season, and the landscape may show signs of wear and tear if too many people visit the area. The large radio mast on Vega Island also has an impact on the main perspectives to and from the property. (<https://whc.unesco.org/en/list/1143>)*

#### 4.1.4 Authenticity

The Operational Guidelines describe authenticity as follows:

*Depending on the type of cultural heritage, and its cultural context, properties may be understood to meet the conditions of authenticity if their cultural values (as recognized in the nomination criteria proposed) are truthfully and credibly expressed through a variety of attributes including:*

- *form and design;*
- *materials and substance;*
- *use and function;*
- *traditions, techniques and management systems;*
- *location and setting;*
- *language, and other forms of intangible heritage;*
- *spirit and feeling; and*
- *other internal and external factors.*

(Operational Guidelines, 2019, paragraph 82)

*The ability to understand the value attributed to the heritage depends on the degree to which information sources about this value may be understood as credible or truthful. Knowledge and understanding of these sources of information, in relation to original and subsequent characteristics of the cultural heritage, and their meaning as accumulated over time, are the requisite bases for assessing all aspects of authenticity (Operational Guidelines, 2019, paragraph 80).*

*Attributes such as spirit and feeling do not lend themselves easily to practical applications of the conditions of authenticity, but nevertheless are important indicators of character and sense of place, for example, in communities maintaining tradition and cultural continuity (Operational Guidelines, 2019, paragraph 83).*

Vega's authenticity is described as follows in the Statement of Outstanding Universal Value:

*The cultural landscape of the Vega Archipelago continues to be managed in a traditional manner, using time-honoured management techniques. The eider down tradition and the cultural landscape are taken care of by landowners and the local community in cooperation with the Vega Archipelago World Heritage Foundation and the management authorities. Bird tenders maintain the, more than 1,000-year-old, tradition of making houses and nests for the eiders on several of the 'down islets', protecting the birds through the breeding season, gathering the down and making it available for use or sale using traditional methods. (<https://whc.unesco.org/en/list/1143>).*

#### 4.1.5 Management requirements

UNESCO's World Heritage List contains areas and objects of irreplaceable cultural or natural value in a global context. One of the requirements for attaining World Heritage status is that the area has a management system that, through suitable national law and practice, ensures effective protection of the OUVs. In order to monitor that the OUVs are not harmed, the authorities of the countries responsible for the respective World Heritage sites must report developments to UNESCO every six years. The Convention concerning the Protection of World Cultural and Natural Heritage contains no clear obligations for site protection, but generally requires the States Parties to identify and preserve their cultural and natural heritage (Articles 3 and 5). The Convention says little about what legal protection the World Heritage sites should have under national law, but the Operational Guidelines for the Implementation of the World Heritage Convention set out several criteria for sites to be inscribed on the World Heritage List. These include the areas having adequate long-term legislative, regulatory, institutional and/or traditional protection. This means that measures implemented under national law should form the basis for an effective management system that ensures the preservation of the universal values and ensures that these are protected against development and changes that can have a negative impact on the properties.

## 4.2 Municipal guidelines – Municipal Master Plan

The **Municipal Master Plan – Strategy Section 2007–2020** was adopted by Vega Municipal Council (on 19 April 2007) as a tool to steer the development of the municipality, including preserving its World Heritage status.

The **Municipal Master Plan – Land Use Section 2010–2020** was adopted by Vega Municipal Council (on 17 June 2010) with the aim of safeguarding the areas and values of the Vega Archipelago World Heritage Site in line with the nomination and the inscription on UNESCO's World Heritage List. Future land use in the buffer zone to the World Heritage Site must be highlighted in order to facilitate the preparation of detailed plans and expedite decision-making processes in line with municipal goals and land use policy.

The Municipal Master Plan – Land Use contains the following guidelines for the Vega World Heritage Site:

- *New development in the buffer zone adjacent to the World Heritage Site must pay special attention to the visual impact of the facility to ensure that the value of the landscape is not diminished.*
- *The built environment within the World Heritage Site shall maintain its quality, value and significance as an element of the cultural landscape, as it appeared at the time of nomination, 1 February 2003 (except for structures protected by the Cultural Heritage Act, the guidelines govern the management of all built heritage within the boundaries of the World Heritage Site).*
- *Important cultural landscape values carry a continuous tradition of development, settlement and traces of human activity, grazing and hayfields with biodiversity values, nesting sites for eiders, sites for tending eider, fishing villages etc., and this particularly applies within the Vega Archipelago World Heritage property.*
- *Applications for development within the Vega Archipelago World Heritage Site are subject to section 8 of the Municipal Master Plan – Land Use 2010–2020.*

## 5 Aquaculture facilities in brief

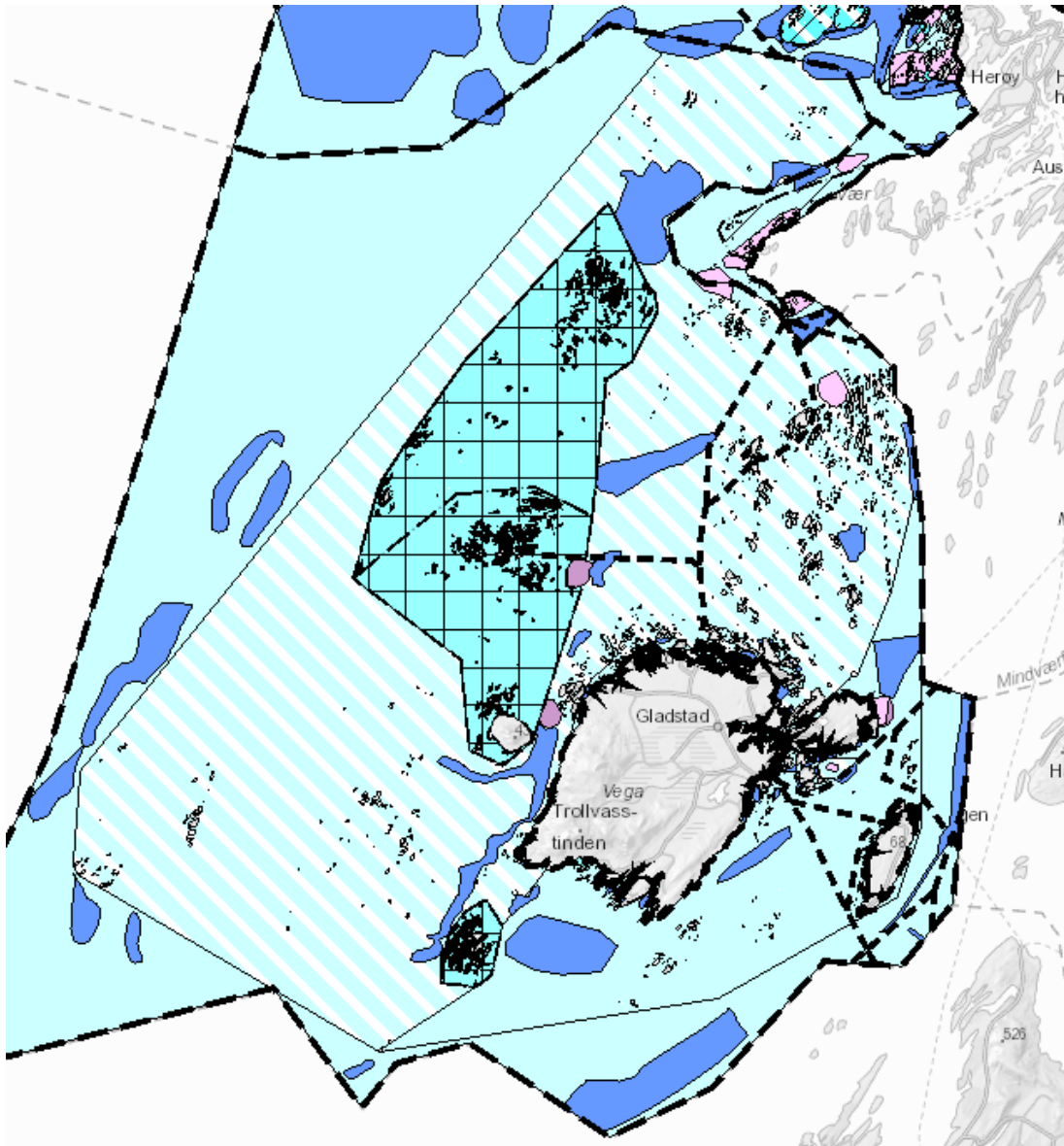


Fig. 11 Helgeland Intermunicipal Master Plan – Vega (incl. Herøy municipality in the north) showing planned and existing aquaculture areas within the World Heritage Site, including the buffer zone

The landscape will be impacted by the introduction of net cages and feed barges along with the associated installations and activities. These must be clearly visible, and the feed barges in particular must be easy to spot from far away. Aquaculture facilities are subject to requirements imposed by the Norwegian Coastal Administration.

Mooring/anchor buoys must be placed inside the perimeter of the facility, and stay ropes must be securely submerged. Sink-ropes must be used for moorings outside the perimeter of the facility. Alternatively, weights can be fitted so that the ropes do not float up to the surface under any circumstances. The facility must be marked in accordance with the Regulations of 19 December 2012 relating to Fairway Markings and Navigational Aids.

A common stipulation in permits granted by the Norwegian Coastal Administration is that mooring/anchor buoys that drift into areas with maritime traffic must be pulled back into the floating part of the facility. In addition, requirements have been set for marks and lights for aquaculture facilities. Marking requirements include synchronised lights, a minimum uptime, and range stipulations etc.

If production is ceased, either in whole or in part, the proprietor must clear away the facilities and equipment at the site and in adjacent marine areas. Installations can only be stored at the site if they are part of the operation. In the event of permanent cessation of operations at a site, a complete clean-up, including removal of installations above and below water, must be carried out and completed within 6 months of winding up the operation.

When dropping anchor, existing installations, such as cables and pipelines, must be secured. This can be done by, for example, divers assisting with the dropping of the anchor. Owners of relevant installations must be able to participate in the anchoring of the facility.

In order to ensure the safety of maritime traffic, aquaculture facilities must be marked in a way that makes them clearly visible to seafarers at all times. The owner, or the person responsible for the facility, is responsible for ensuring that the marking complies with regulatory requirements at all times and with any special conditions stipulated in the owner's permit to operate aquaculture facilities. Upon cessation of operations at the site, either due to relocation, closure or otherwise, markings must remain in place until all traces of the facility have been removed.

IALA Special Marks must be used to mark the perimeter of an aquaculture facility. The distance between marked perimeter points must be a maximum of 150 metres. Buoys for anchoring or mooring an aquaculture facility must be the same shade of yellow as for IALA Special Marks. These buoys can also be used to simultaneously mark the perimeter points of the facility. Special Marks must have a panel with daylight-fluorescent yellow sign sheeting. The panel should be visible in daylight at a distance of 2 nautical miles. Special Marks must give a yellow flashing light in 2-second cycles (1.25 seconds of light / 0.75 seconds of dark, i.e. an operating cycle of 62.5%). The luminous range must be 3 nautical miles.

Light signals must be synchronised and must be documented in accordance with IALA recommendations and guidelines. In special cases, the Norwegian Coastal Administration may grant exemptions from the luminous range requirement and the requirement for synchronisation. This requires a detailed assessment of safety and navigability for vessels and other relevant factors.

Special Marks must have a radar reflector with a minimum radar cross-section of 7.5m<sup>2</sup> in the X-band and 0.5m<sup>2</sup> in the S-band. The radar reflector should be mounted as high as practically possible on the Special Mark.

The position of feed barges at a facility must vary according to the design and positioning of the net cages as well as local conditions such as the prevailing wind direction, current, proximity of shipping lanes etc. The photograph below shows an example of the positioning of a feed barge. The exact design and positioning of the feed barges in the two planned facilities will be given further consideration at a later stage.





**Figure 12.** Example of the design and positioning of a feed barge. The photo was provided by Marine Harvest AS.

## **6 Proposed programme of supplementary assessments**

### **6.1 Purpose of the supplementary assessments**

These supplementary assessments are limited to aspects that are considered to be inadequately covered in previous impact assessments. The supplementary assessments are intended to address how the establishment of new aquaculture facilities within the World Heritage property in addition to existing facilities will impact on the World Heritage.

The supplementary assessment report should take the form of a single document and must be drawn up in accordance with the stipulated programme of assessments. The report headings must correspond to the headings in this chapter (Chapter 6).

### **6.2 Description of Vega Archipelago World Heritage Site and the state of the environment**

The supplementary assessments must include a description of the planning area and the current state of the environment, with the emphasis on its status as a World Heritage Site.

### 6.3 Description of the zero alternative

In the context of World Heritage, it is important to emphasise that the reference point is the time of inscription and the OUVs that were recognised by the World Heritage Committee at that time. Impacts must be measured against the values as they existed at the time of inscription.

### 6.4 Impact on the World Heritage

The theme of the assessment is the World Heritage, and the underlying themes are: landscape, cultural heritage, natural diversity, natural resources and outdoor recreation.

The assessments must be based on existing evidence, supplemented by new knowledge as specified under each sub-theme below.

#### 6.4.1 Landscape

The 'landscape' theme concerns the visual qualities of the surroundings and how these change as a result of development. The landscape qualities of the planning area and the value and vulnerability of the surroundings must be mapped. The overall visual experience of values associated with World Heritage (integrity, authenticity, intactness and wholeness) must be assessed.

#### **Assessments needed:**

- In accordance with the management plan for the World Heritage Site, and at the request of UNESCO, the impact on the visual aspects of a cultural landscape with World Heritage status must be assessed, as well as the extent to which the aquaculture industry will impact on the eider down harvesting and the experience of the authentic nature of the World Heritage Site in terms of integrity, authenticity,
- intactness and wholeness.
- An overarching description of the area's history and landscape character must be given in order to define visual and functional aspects of significant natural and cultural heritage value. The impact of development on the immediate vicinity and further afield must be described and visualised from different perspectives.

#### **Method:**

ICOMOS and IUCN guidelines, Chapter 5 and Appendices 3A and 3B; Norwegian Public Roads Administration Manual V712, Chapter 6.6 Landscape.

Expertise: Landscape expertise with an emphasis on cultural heritage and documented experience and knowledge of World Heritage and World Heritage-specific assessments of cultural landscapes.

#### **Acquisition of knowledge and data sources:**

- The impact of visual intrusions from aquaculture activities on OUVs must be described in detail. The SWECO report *Vega Archipelago World Heritage – Visual Characteristics* (SWECO 2016) is an important source document that must be drawn on in the assessments.
- Review of existing knowledge, including relevant databases, plans, reports, etc.



- A plan for necessary visualisations must be prepared in consultation with the cultural heritage authorities.
- More detailed knowledge must be obtained from site visits and interviewing people who have good local knowledge, etc.

#### 6.4.2 Cultural heritage

The cultural heritage theme is defined for these purposes as tangible or intangible traces of human activity.

The following areas within cultural heritage should be considered:

- Archaeological and architectural monuments and sites
- Cultural environments
- Cultural heritage landscapes

##### **Assessments needed:**

- An assessment of the plan's direct and indirect impact on and consequences for cultural remains, cultural environments and cultural heritage landscapes in the planning and impact areas.
- An assessment of the visual impact on cultural remains, cultural environments and cultural heritage landscapes in the planning and impact areas.

##### **Method**

ICOMOS and IUCN guidelines, Chapter 5 and Appendices 3A and 3B; Norwegian Public Roads Administration Manual V712, Chapter 6.7 Cultural heritage.

Expertise: Cultural heritage expertise and documented experience and knowledge from World Heritage and World Heritage-specific impact assessments.

##### **Acquisition of knowledge and data sources:**

- Review of existing knowledge, including relevant databases, plans, the Vega Archipelago World Heritage nomination document, impact assessments, etc. The regional cultural heritage administration can provide information on the area in question, including subterranean cultural remains.
- More detailed knowledge to be obtained from site visits etc.
- Protected cultural remains: *Askeladden* – the Norwegian Directorate for Cultural Heritage's official database of protected cultural remains and cultural environments in Norway, covering cultural remains that are automatically protected as well as those subject to decision-based protection.
- Modern era cultural remains, such as war memorials, etc. have been mapped, see the book by Nordland County Council on the cultural remains at South Helgeland: *Kulturminner på Sør-*

*Helgeland. Utvalgte nasjonalt og regionalt viktige kulturminner i kommunene Vega, Vevelstad, Brønnøy, Sømna og Binda* (Nordland fylkeskommune, 2013).

- Eider houses (mapping of eider houses carried out by the Vega Archipelago World Heritage Foundation in the period 2010–2012).

### 6.4.3 Natural diversity

This theme deals with natural diversity related to terrestrial (land-based), limnic (freshwater) and marine (brackish and sea water) systems, and the conditions of life (aquatic environment, terrestrial environment) associated with these.

The following sub-themes within natural diversity should be considered:

- Protected areas
- Marine biodiversity
- Terrestrial biodiversity
- Species and habitats of particular or priority management interest

#### 1. Protected areas:

##### **Assessments needed:**

- An assessment of the consequences of the plan for the protected areas within the World Heritage property in the planning and impact areas.

##### **Method**

ICOMOS and IUCN guidelines, Chapter 5 and Appendices 3A and 3B; Norwegian Public Roads Administration Manual V712, Chapter 6.6 Natural diversity.

##### **Acquisition of knowledge and data sources:**

- Establish the basis for the areas' protected status in order to assess the impacts of the development on the natural values on which the protection is based.

#### 2. Marine biodiversity:

##### **Assessments needed:**

- Potential impact of the aquaculture facilities, including operations and transport, on the natural diversity must be assessed, see sections 8-12 of the Nature Diversity Act.
- Potential impact on salmon and sea trout in the Færset watercourse must be assessed when it is known what effects various effluents will have on individual specimens and fish populations.
- Modelling of effluent from facilities in the form of pathogens and escaped farmed fish.
- A brief description must be given of important areas for marine mammals, benthic fauna, fish and crustaceans in the area. Any impacts of salmon production on these species must be elucidated.
- A brief overview must be given of important habitats and spawning and fish growing areas, and any impacts of salmon production on these areas must be elucidated.
- Investigation of bird feeding options near the aquaculture facilities, and consider measures to mitigate harm caused by birds to salmon in aquaculture cages.
- Assess threat factors such as pollution, especially in the form of microplastics.

### **Method**

Norwegian Public Roads Administration Manual V712, Chapter 6.6 Natural diversity

#### **Acquisition of knowledge and data sources:**

- Obtain existing data on seabed conditions and the kelp situation in the surrounding areas of the two planned facilities, some of which is based on many years of research by the Norwegian Institute for Water Research (NIVA).
- Obtain knowledge on current whelping areas for seals.
- Obtain knowledge on the current eelgrass situation in Vega municipality, both to assess the impact of the facilities on species grazing in this type of habitat near the planned facilities, and as a basis for identifying possible alternative grazing areas.

### ***3. Terrestrial biodiversity:***

#### **Assessments needed:**

- Potential impact of the facilities, including operations and transport, on natural diversity, must be assessed, see sections 8-12 the Nature Diversity Act.
- Study the changes in the populations of moulting greylag geese and eider ducks in areas with heavy leisure craft traffic.
- A vulnerability chart for seabirds should be drawn up during the periods they are most vulnerable to disturbances in different parts of the year.
- Assess how sheep grazing impacts on habitats in World Heritage Areas (see Hatten et al. 2001).
- Map the existing knowledge on the occurrence of sea trout.

### **Method:**

Norwegian Public Roads Administration Manual V712, Chapter 6.6 Natural diversity

Norwegian Standard NS 9410 describes two surveys: the B-survey and the C-survey. The B-survey is a mandatory trend survey that monitors the environmental conditions in the immediate vicinity of the site where the risk of impact is greatest. The C-survey monitors conditions in the area extending seawards from the facility and out towards the deepest part of the recipient environment. Both surveys are risk-based. The frequency of the B-survey intensifies as the impacts increase and the C-survey is carried out following a specific risk assessment based on the size and characteristics of production in the recipient environment.

The mapping of seabirds must be carried out according to standard counting methodology (see Follesstad & Lorentsen, 2011).

#### **Acquisition of knowledge and data sources:**

- Overwintering populations of seabirds in the municipality of Vega in the winter of 2019 must be mapped in order to shed light on changes since the previous count in the mid-1980s.
- Identify where the tourist fishing boats depart from, where they stop to fish, and how extended stays in the same area can affect the birds in such areas. This is important for being able to assess the cumulative effects.
- Study where the female eider ducks go when they leave the nesting and down sites after hatching. It is important to identify the areas where the ducklings grow up as they are extremely vulnerable

to disturbances during this period; if they are separated from their mother due to a disturbance from boats they can easily be targeted by seagulls.

#### **4. Species and habitats of particular or priority management interest:**

##### **Assessments needed:**

- Potential impact of the aquaculture facilities, including operations and transport, on the natural diversity must be assessed, see sections 8-12 of the Nature Diversity Act.
- Clarify with the management authority what should be taken into consideration and what guidelines are relevant.

##### **Method**

ICOMOS and IUCN guidelines, Chapter 5 and Appendices 3A and 3B; Norwegian Public Roads Administration Manual V712, Chapter 6.6 Natural diversity.

Expertise: Biology and natural ecosystems.

#### **6.4.4 Natural resources**

The assessment must consider the impact of aquaculture facilities on tradition-based resource use in relation to fishing, eider down harvesting, agriculture and livestock farming.

##### **Assessments needed:**

- Aquaculture facilities can impact on the size of the eider duck population, which is crucial for maintaining and reviving the tradition-based eider down harvesting. This in turn affects the cultural landscape and how it can be experienced. Impact assessments should therefore consider the development within this context.
- Existing fishing locations and the potential impact of the aquaculture facilities on these must be mapped.
- Grazing is covered in management plans for protecting the cultural landscape of the World Heritage Site. Consideration must be given to whether aquaculture facilities might impact on grazing and the management of the World Heritage Site.

##### **Method:**

Norwegian Public Roads Administration Manual V712, Chapter 6.8 Natural resources. ICOMOS and IUCN guidelines, Chapter 5 and Appendices 3A and 3B.

Expertise: Expertise in intangible cultural heritage/landscapes and in primary industries as culture bearers must be involved in the natural resource impact assessments.

##### **Acquisition of knowledge and data sources:**

- Review of existing knowledge, including relevant databases, plans, reports and existing research.
- Obtaining more detailed knowledge through site visits and interviewing people with good local knowledge.

- Report by the World Heritage Council of the West Norwegian Fjords and Vega municipality (15 June 2007): *Tiltaksplan for kulturlandskapet i verdsarvområdet Vestnorsk Fjordlandskap og Vegaøyen*.

#### 6.4.5 Outdoor recreation

Outdoor recreation is defined as recreational visits to and physical activity in the open air for the purpose of experiencing nature and a new environment.

The following sub-themes in outdoor recreation must be considered:

- Outdoor recreation at sea
- Outdoor recreation on land

##### **Assessments needed:**

- The impact of the facilities on outdoor recreation (both at sea and on land) must be assessed.
- In order to make a comprehensive assessment of land use, it is necessary to identify the most important and most used marine outdoor recreation sites within the impact area.
- Identify important areas for angling and other outdoor activities (e.g. popular kayaking areas).

##### **Method:**

Norwegian Public Roads Administration Manual V712, Chapter 6.5 Outdoor recreation.

##### **Acquisition of knowledge and data sources:**

- Review of existing knowledge, including relevant databases, plans and reports.
- Information on the current use of the area to be obtained from local and regional authorities, relevant NGOs and the local population.

Expertise: Expertise in assessing outdoor recreation.

#### 6.4.6 Overall impact on the World Heritage

The analysis will form the basis of an overall assessment of the impact of aquaculture facilities on the environmental themes.

### 6.5 Method

Assessments and field surveys must follow recognised methods and be carried out by suitably qualified personnel. An overview of recognised methods can be found in 'Environmental impact assessments; acknowledged methods and databases for data storage' (Miljødirektoratet, updated 1.4.2019) <https://www.miljodirektoratet.no/globalassets/publikasjoner/m1324/m1324.pdf>

The assessment of the environmental impact of the aquaculture facilities on OUVs and the World Heritage Site and its buffer zone must be based on manual V712. The manual must be used in conjunction with the ICOMOS Guidance on Heritage Impact Assessment for Cultural Heritage Properties (2011)

(Appendix 2) and the IUCN World Heritage Advice Note: Environmental Assessment (2013) (Appendix 3) in a methodological approach to World Heritage.

The assessment report must include a description of the methods used to examine the impact on the environment and society. The description must include the challenges, technical shortcomings and knowledge deficiencies that have had a bearing on the compilation of the information, and the main elements of uncertainty in the assessment.

The report must also include details of the sources used in the descriptions and assessments.

The analyses of the five environmental themes will form the basis for an overall assessment of their combined effect. This process will bring to light the overall impact of aquaculture facilities on the Vega Archipelago World Heritage, as defined by the UNESCO Convention (Operational Guidelines, paragraph 47).

The report must describe the impact and consequences, and must follow the criteria and methodology in the Norwegian Public Roads Administration Manual V712 for impact assessments of non-monetised consequences. By definition, World Heritage assets are in the highest value category.

## **6.6 Socio-economic impact**

The socio-economic impact of Hysværret and Rørskjæran aquaculture facilities on OUVs and other values is covered in the overarching theme 'Employment and value creation'. The report must map the potential impact of aquaculture in the form of employment effects and value creation effects for the World Heritage property and its buffer zone. The impact on tourism, the fishing industry, aquaculture and other affected industries must be presented. Socio-economic impact is covered in a separate report (ref./in production) and is included as a separate theme in this programme. The theme must be incorporated into the final supplementary assessment report.

## **6.7 Limiting, rectifying and recompensing for adverse effects**

The supplementary assessments must describe relevant measures for avoiding, limiting, rectifying and, if deemed appropriate, providing recompense for any significant harm to the World Heritage property in both the construction and operational phases.

The report must provide a brief assessment of the need for future environmental monitoring.

## 6.8 Schedule

The proposed schedule shown below may change as the work progresses.

Activity	TID
Public procurement, 6 weeks	Aug 2020
Supplementary assessments begin	Sept 2020
Completion of supplementary assessment report	April 2021
Political processing of the relevant areas in the Helgeland Intermunicipal Master Plan	Mai 2021

## 7 References

EPA. 1999. Consideration of cumulative impacts in EPA review of NEPA documents. U.S. Environmental Protection Agency, Office of Federal Activities (2252A).

Follestad, A. 2014. Effekter av kunstig nattbelysning på naturmangfoldet - en litteraturstudie. - NINA Rapport 1081, 89 s. <http://hdl.handle.net/11250/2388109>

Follestad, A. 2015. Effekter av forstyrrelser på fugl og pattedyr fra akvakulturanlegg i sjø - en litteraturstudie. - NINA Rapport 1199. 44 s.

Follestad, A., Evju, M. & Ødegaard, F. 2011. Effekter av klimaendringer for havstrand. - NINA Rapport 667: 74 pp.

Follestad, A. & Lorentsen, S.-H. 2011. Takseringsmanual for måker, terner, skarv, teist, ærfugl og grågås. - NINA Rapport 716. 28 s.

[Follestad, A., Moe, B. & Thomassen, J. 2017.](#) Sammenstilling av eksisterende kunnskap om påvirkningsfaktorer og effekter på ærfugl og ærfugldrift i Vegaøyen verdensarvområde. NINA Rapport 1405. Norsk institutt for naturforskning. <http://hdl.handle.net/11250/2472642>

Fylkesmannen i Nordland 2011. FylkesROS Nordland 2011, Risiko og sårbarhet for Nordland fylke.

Hatten, K., Follestad, A. & Norderhaug, A. 2001. Utmarksbeite på Helgelandskysten - en løsning på flere problemer. - Høgskulen i Sogn og Fjordane. Rapport fra forprosjekt R-NR 2/200: 58pp.

Fylkesmannen i Nordland 2015. Forvaltningsplan for Vegaøyen Verdensarv (2015 –2022). [http://www.nasjonalparkstyre.no/Documents/Vega\\_dok/Forvaltningsplan%20for%20Vega%C3%B8yan%20verdensarvomr%C3%A5de%20\(2015%20-%202022\).pdf](http://www.nasjonalparkstyre.no/Documents/Vega_dok/Forvaltningsplan%20for%20Vega%C3%B8yan%20verdensarvomr%C3%A5de%20(2015%20-%202022).pdf)

ICOMOS 2011. Guidance on Heritage Impact Assessments for Cultural World Heritage Properties. A publication of the International Council on Monuments and Sites. [https://www.icomos.org/world\\_heritage/HIA\\_20110201.pdf](https://www.icomos.org/world_heritage/HIA_20110201.pdf)

ICOMOS 2017. Report on the ICOMOS / IUCN Advisory Mission to Vegaøyen – The Vega Archipelago (C 1143). Mission 19<sup>th</sup> to 23<sup>rd</sup> February 2017. [https://www.fylkesmannen.no/contentassets/404d4879456e4813a8b2b72221340c20/2017-icomos-iucn-advisory-mission-vega\\_report.pdf](https://www.fylkesmannen.no/contentassets/404d4879456e4813a8b2b72221340c20/2017-icomos-iucn-advisory-mission-vega_report.pdf)

IUCN 2013. World heritage advice note: Environmental Assessment. [https://cmsdata.iucn.org/downloads/iucn\\_world\\_heritage\\_advice\\_note\\_environmental\\_assessment\\_draftfinal\\_060613rev.pdf](https://cmsdata.iucn.org/downloads/iucn_world_heritage_advice_note_environmental_assessment_draftfinal_060613rev.pdf)

Miljødirektoratet 2019. Konsekvensutredninger: anerkjent metodikk og databaser for innlegging av data. [https://www.regjeringen.no/contentassets/08e10203a0b14617852fb2ba68b0dd8b/veileder\\_konsekvensutredning\\_metodikk\\_08072015.pdf](https://www.regjeringen.no/contentassets/08e10203a0b14617852fb2ba68b0dd8b/veileder_konsekvensutredning_metodikk_08072015.pdf) 2019 utgaven <https://www.miljodirektoratet.no/publikasjoner/2019/april-2019/konsekvensutredninger-anerkjent-metodikk-og-databaser-for-innlegging-av-data/>



Lindblom, I. & Jerpåsen, G. 2009. Visuell innvirkning på kulturminner og kulturmiljø - Vindkraftanlegg og kraftledninger. Norges vassdrags- og energidirektorat  
[http://publikasjoner.nve.no/veileder/2008/veileder2008\\_03.pdf](http://publikasjoner.nve.no/veileder/2008/veileder2008_03.pdf)

Miljødirektoratet 2016. Effekter av utslipp fra akvakultur på spesielle marine naturtyper, rødlista habitat og arter. Rapport fra havforskningen M-504/2016.

Riksantikvaren 2016. Kulturminne, kulturmiljøer og landskap. Planlegging etter plan- og bygningsloven <https://www.riksantikvaren.no/wp-content/uploads/2020/01/Kulturminner-kulturmiljøer-og-landskap.-Planlegging-etter-plan-og-bygningsloven-tekst.pdf>

RPS 2007. Environmental Impact Assessment. Practical guidelines toolkit for marine fish farming. RPS Planning and Development Ltd. SGP5555 EIA Practical Guidelines.

Riksantikvaren 15. mars 2018. Kystsoneplan – Kystplan Helgeland, Vega kommune – tilleggsutredning.

Statens vegvesen 2018. Håndbok V 712 Konsekvensanalyser.  
[https://www.vegvesen.no/\\_attachment/704540/binary/1273191?fast\\_title=H%C3%A5ndbok+V712+Konsekvensanalyser.pdf](https://www.vegvesen.no/_attachment/704540/binary/1273191?fast_title=H%C3%A5ndbok+V712+Konsekvensanalyser.pdf)

Svåsand, T., Boxaspen, K.K., Karlsen, Ø., Kvamme, B.O., Stien, L.H. & Taranger, G.L. 2015. Risikovurdering norsk fiskeoppdrett 2014. Fisken og havet, særnummer 2015. 171 s.

SWECO 2016. Vegaøyen Verdensarv – visuell karakter.  
<https://www.fylkesmannen.no/contentassets/1fbc385a200d4891b07e0cf75bbac9ff/vegaoyen-verdensarv--visuell-karakter--SWECO-rapport-2016.pdf>

UNESCO 2008. The 14 primary threats affecting the Outstanding Universal Value of World Heritage properties. <https://whc.unesco.org/en/factors/>