



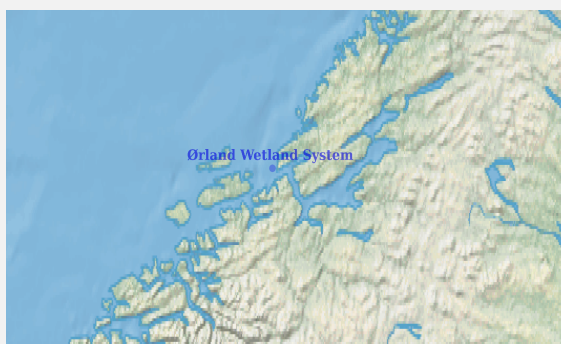
# Ramsar Information Sheet

Published on 9 March 2018

Update version, previously published on : 1 January 2012

## Norway

### Ørland Wetland System



Designation date	24 July 1985
Site number	310
Coordinates	63°40'48"N 09°28'52"E
Area	3 168,00 ha

## Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

## 1 - Summary

### Summary

Ørland Wetland System is part of a large area of shallow marine waters and inter-tidal flats, playing an important role in the Norwegian coastal system. The Site consists of four sub-sites, Kråkvågsvaet, Grandefjæra, Hovsfjær and Innstrandfjæra characterised by extensive mudflats with shallow waters and skerries outside. The mudflats and shallow tidal flats host large amounts of invertebrates, mussels and eelgrass on which seabirds, ducks and waders feed. These waters also contain shell sand beds which function as important spawning and nursery grounds for fish species, and as an areas for mating and for moulting of the cuticle for larger crustaceans, providing food for divers, mergansers and other fish-eating birds.

This wetland system is especially important as feeding and staging area for migrating birds, moulting area for ducks, breeding area for waterfowl and as overwintering location, with more than 200 different bird species registered.

The site constitutes an important part of the chain in the main migration pathway for birds to and from their respective breeding locations in Greenland, Svalbard, Iceland and Siberia that runs along the Norwegian coast. A mosaic of mudflats, large and small ponds and skerries, different sand- and stone tidal flats and seaweed forests make this wetland attractive, both as a staging, feeding and breeding area.

Generally, high numbers of species such as the red knot (IUCN: NT, NRL: EN), the curlew sandpiper (IUCN: NT), the common snipe, the Eurasian curlew (IUCN: NT, NRL: VU), the greylag goose, the Eurasian wigeon, the common teal, the mallard, the red-breasted merganser, the mew gull (NRL: NT) and the snow bunting are present.

## 2 - Data & location

### 2.1 - Formal data

#### 2.1.1 - Name and address of the compiler of this RIS

##### Compiler 1

Name	Pernille Kvernland
Institution/agency	Norwegian Environment Agency
Postal address	Post box 5672 Torgarden, N-7485 Trondheim, Norway
E-mail	post@miljodir.no
Phone	+47 73580500

#### 2.1.2 - Period of collection of data and information used to compile the RIS

From year	1974
To year	2016

#### 2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Ørland Wetland System
Unofficial name (optional)	Ørland Våtmarkssystem

#### 2.1.4 - Changes to the boundaries and area of the Site since its designation or earlier update

(Update) A. Changes to Site boundary Yes  No

(Update) B. Changes to Site area No change to area

#### 2.1.5 - Changes to the ecological character of the Site

(Update) 6b i. Has the ecological character of the Ramsar Site (including applicable Criteria) changed since the previous RIS? No

## 2.2 - Site location

### 2.2.1 - Defining the Site boundaries

b) Digital map/image  
<5 file(s) uploaded>

Former maps 0

Boundaries description

The boundaries are the same as for the Grandefjæra Nature Reserve and the three Bird Sanctuaries Kråkvågsvaet, Innstrandfjæra and Hovsfjæra.

### 2.2.2 - General location

a) In which large administrative region does the site lie? Sør-Trøndelag

b) What is the nearest town or population centre? Trondheim, approx pop. est. 190 000 (2016)

### 2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes  No

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes  No

### 2.2.4 - Area of the Site

Official area, in hectares (ha): 3168

Area, in hectares (ha) as calculated from  
GIS boundaries 3164.34

### 2.2.5 - Biogeography

#### Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
EU biogeographic regionalization	2. Atlantic
Other scheme (provide name below)	1. Southern boreal vegetation zone, strongly oceanic section (SbO3)

#### Other biogeographic regionalisation scheme

1. Zonal division showing the variation in vegetation from south to north and from the lowlands to the mountains, and sectional graduation showing the variation between the coast and inland (In: Moen, A. 1998. Nasjonalatlas for Norge; vegetasjon. Statens kartverk, Hønefoss).
2. EU Habitat directive 92/43/EEC

### 3 - Why is the Site important?

#### 3.1 - Ramsar Criteria and their justification

- Criterion 1: Representative, rare or unique natural or near-natural wetland types

Other reasons

The Ørland Wetland System is part of a large area of shallow marine waters and inter-tidal flats and are perhaps the best example in southern Norway for this kind of marine wetland.

- Criterion 2 : Rare species and threatened ecological communities

- Criterion 3 : Biological diversity

Justification

A mosaic of mudflats, large and small ponds and skerries, different sand- and stone tidal flats and seaweed forests make this wetland attractive, both as staging, feeding and breeding areas for a large number of waterfowl. Some species also utilize this wetland during winter season. More than 200 different bird species are registered.

- Criterion 4 : Support during critical life cycle stage or in adverse conditions





- Criterion 6 : >1% waterbird population

- Criterion 8 : Fish spawning grounds, etc.

Justification

This wetland area contains shell sand beds which function as important spawning and nursery grounds for fish species, and as mating area and area of ecdysis (moulting of the cuticle) for larger crustaceans.













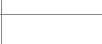















#### 3.2 - Plant species whose presence relates to the international importance of the site



































Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
<i>Dactylorhiza purpurella</i> 	Northern marsh orchid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	National Red List: Considered as EN	
<i>Gentianella uliginosa</i> 	Dune gentian	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	National Red List: Considered as EN	
<i>Pedicularis sylvatica hibernica</i> 		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	National Red List: Considered as VU	
<i>Pseudocrossidium hornschuchianum</i> 	Hornschuch's beard-moss	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	National Red List: Considered as EN	































Capitalized letters shows the species' status on the National Red List 2015.

Ørland municipality is, in addition to Jæren and Karmøy, amongst the most important locations for the Northern marsh orchid in Norway. Common sea buckthorn is a pioneer species which can displace the rare orchid, and thinning of buckthorn could be necessary in certain years to prevent overgrowing of breeding locations for birds and important habitats for the Northern marsh orchid.

















3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Common name	Species qualifies under criterion			Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence <sup>1)</sup>	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification	
			2	4	6	9	3	5	7									8
<b>Birds</b>																		
CHORDATA/AVES	 <i>Alauda arvensis</i>	Eurasian Skylark; SkyLark	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	155	2008		LC 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU, Ann. III Berne Convention	155 ind. Criterion 4: The site is important as wintering and breeding grounds for this species.
CHORDATA/AVES	 <i>Alle alle</i>	Dovekie; Little Auk	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	640	2008		LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: Little Auk can be numerous during migration in late autumn, e.g. 640 ind in 2008).
CHORDATA/AVES	 <i>Anas clypeata</i>	Northern Shoveler	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU	Criterion 4: This is a rare species found in small numbers during breeding season.
CHORDATA/AVES	 <i>Anas crecca</i>	Green-winged Teal; Eurasian Teal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	390	2015		LC 	<input type="checkbox"/>	<input type="checkbox"/>		390 ind. observed in 2015. Criterion 4: This species occur in large numbers during migrations.
CHORDATA/AVES	 <i>Anas penelope</i>	Eurasian Wigeon	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1000	2010			<input type="checkbox"/>	<input type="checkbox"/>		Ca. 1000 ind. observed in 2010. Criterion 4: This species occur in large numbers during migrations.
CHORDATA/AVES	 <i>Anas platyrhynchos</i>	Mallard	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1700	2010			<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species occur in large numbers during migration season.
CHORDATA/AVES	 <i>Anser anser</i>	Greylag Goose	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4000	2007		LC 	<input type="checkbox"/>	<input type="checkbox"/>		4000 individuals observed at once(2007) Criterion 4: The site is breeding area for a number of seabirds and shorebirds like this species. The species also occur in large numbers during migrations.
CHORDATA/AVES	 <i>Arenaria interpres</i>	Ruddy Turnstone	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 3 & 4: The site is breeding area for a number of seabirds and shorebirds like this species. This species also occur in lagre number during migrations, and some also overwinter in this area.
CHORDATA/AVES	 <i>Aythya marila</i>	Greater Scaup	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU, Ann. III Berne Convention	Criterion 4: For this threatened species, the Ramsar Site is important as a staging and/or wintering area.
CHORDATA/AVES	 <i>Bucephala clangula</i>	Common Goldeneye	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species occur during winter season
CHORDATA/AVES	 <i>Calidris alba</i>	Sanderling	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU, Ann. II Berne Convention	Criterion 4: This is one of the Arctic waders that utilize this area during migrations
CHORDATA/AVES	 <i>Calidris alpina</i>	Dunlin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention	Criterion 4: This species occur here during migrations, 0-5 pairs breed on the site.
CHORDATA/AVES	 <i>Calidris canutus</i>	Red Knot	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT 	<input type="checkbox"/>	<input type="checkbox"/>	Svalbard Red List: Considered as EN	Criterion 2: This species is not yet evaluated by the National Red List, but is considered as EN on the Svalbard Red list. Criterion 4: This is one of the Arctic waders that utilize this wetland during migrations. This species occur in large numbers.
CHORDATA/AVES	 <i>Calidris ferruginea</i>	Curlew Sandpiper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	80	2007		NT 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention	80 individuals Criterion 4: This is one of the Arctic waders that utilize this wetland during migrations.
CHORDATA/AVES	 <i>Calidris maritima</i>	Purple Sandpiper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	230	2007		LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention	230 individuals in 2007. Criterion 4: This species stage and breed wthin the site.

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/AVES	 <i>Calidris minuta</i>	Little Stint	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention	Criterion 4: This species occur during migration season.
CHORDATA/AVES	 <i>Cepphus grylle</i>	Black Guillemot	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU	Criterion 4: This species utilize this wetland during breeding and winter season.
CHORDATA/AVES	 <i>Charadrius hiaticula</i>	Common Ringed Plover	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	600	2011		LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention	600+ individuals. Criterion 3 & 4: The site is breeding area for a number of seabirds and shorebirds like this species. During migrations this species occur in large numbers.
CHORDATA/AVES	 <i>Chroicocephalus ridibundus</i>	Black-headed Gull	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU	Criterion 4: This species can be found during breeding season.
CHORDATA/AVES	 <i>Clangula hyemalis</i>	Oldsquaw; Long-tailed Duck	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	300	2011		VU 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as NT	200-300 ind. late winter/early spring. Criterion 4: This species utilize this wetland during winter season.
CHORDATA/AVES	 <i>Cygnus cygnus</i>	Whooper Swan	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	400	2014		LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention, Emerald Network	400 ind. in 2014 Criterion 4: This species use the site during winter.
CHORDATA/AVES	 <i>Gallinago gallinago</i>	Common Snipe	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species occur in large numbers during migration season.
CHORDATA/AVES	 <i>Gavia adamsii</i>	Yellow-billed Loon	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16	2005		NT 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as NT, Ann. II Berne Convention, Emerald Network	16 individuals Criterion 4: This species uses the site as a wintering area.
CHORDATA/AVES	 <i>Gavia arctica</i>	Black-throated Loon; Arctic Loon	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12	2011		LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention, Emerald Network	12 ind. Criterion 4: This species occur during winter season.
CHORDATA/AVES	 <i>Gavia immer</i>	Great Northern Loon; Great Northern Diver; Common Loon	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30	2010		LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention, Emerald Network	30-50 individuals. Criterion 4: This species overwinter in this wetland system.
CHORDATA/AVES	 <i>Gavia stellata</i>	Red-throated Loon; Red-throated Diver	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention, Emerald Network	Criterion 4: This species overwinter in this wetland.
CHORDATA/AVES	 <i>Haematopus ostralegus</i>	Eurasian Oystercatcher	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 3 & 4: The site is breeding area for a number of seabirds and shorebirds like this species.
CHORDATA/AVES	 <i>Haliaeetus albicilla</i>	White-tailed Eagle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Criterion 4: This species is a common wintering species at the site, especially on Storfosna/Kråkveg.
CHORDATA/AVES	 <i>Larus argentatus</i>	Herring Gull	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species occur during migration and winter season. Some also breed here.
CHORDATA/AVES	 <i>Larus canus</i>	Mew Gull	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species occur in large numbers during migration season.
CHORDATA/AVES	 <i>Larus marinus</i>	Great Black-backed Gull	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species stage here, some also breed here.
CHORDATA/AVES	 <i>Limosa limosa</i>	Black-tailed Godwit	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as EN	Criterion 4: This species occur during the migration season.
CHORDATA/AVES	 <i>Linaria flavirostris</i>	Twite	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20	1997			<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as NT	5-15 pairs (as many as 1000 ind. observed at once in Criterion 4: These wetlands and shallow marine waters are important mainly as staging, moulting and wintering area for this species.

Phylum	Scientific name	Common name	Species qualifies under criterion			Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7								
CHORDATA/AVES	 <i>Melanitta fusca</i>	Velvet Scoter; White-winged Scoter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	300	2011		VU 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU	200-300 ind. late winter/early spring Criterion 4: The site is breeding and staging area, however Grandefjæra is one of the most important moulting grounds for this species.
CHORDATA/AVES	 <i>Melanitta nigra</i>	Black Scoter	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	250	2011		LC 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as NT	250 ind. Criterion 4: This species use this area as an overwintering site.
CHORDATA/AVES	 <i>Mergus serrator</i>	Red-breasted Merganser	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1750	2011		LC 	<input type="checkbox"/>	<input type="checkbox"/>		1500-2000 ind (2009-2011). Criterion 3 & 4: The site is breeding and wintering area for a number of seabirds and shorebirds like this species. The species also occur in large numbers during the migration season.
CHORDATA/AVES	 <i>Numenius arquata</i>	Eurasian Curlew	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	50	2007		NT 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU	15-29 pairs (ca. 150 ind. observed at once) Criterion 4: These wetlands and shallow marine waters are important mainly as staging, moulting and wintering area for this species. This species also occur in large numbers during migrations.
CHORDATA/AVES	 <i>Phalacrocorax carbo</i>	Great Cormorant	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2500	2008	2.1	LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species occur during breeding season. Criterion 6: Biogeographic Region - carbo, North-west Europe
CHORDATA/AVES	 <i>Philomachus pugnax</i>	Ruff	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	800	2001		LC 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as EN, Ann. II Berne Convention	0-5 pairs, 800 ind.(2001) Criterion 4: For this threatened species, the Ramsar Site is important as a staging and/or wintering area.
CHORDATA/AVES	 <i>Plectrophenax nivalis</i>	Snow Bunting	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention.	Criterion 4: This species occur in large numbers during migration season.
CHORDATA/AVES	 <i>Pluvialis apricaria</i>	European Golden Plover; European Golden-Plover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species uses this wetland as a staging area during migrations.
CHORDATA/AVES	 <i>Pluvialis squatarola</i>	Grey Plover; Black-bellied Plover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species stage here during migrations, some also breed here.
CHORDATA/AVES	 <i>Podiceps auritus</i>	Horned Grebe	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	100	2013	1.8	VU 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU, Ann. II Berne Convention	30-60 (2013), more than 100 ind. in March/April some years. Criterion 4: This species utilize this wetland during winter season. Criterion 6: Biogeographic Region - auritus, North-west Europe (large-billed)
CHORDATA/AVES	 <i>Podiceps grisegena</i>	Red-necked Grebe	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	50	2014		LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention	30-70, more than 100 ind. in March/April some years. Criterion 4: This species overwinter in this wetland system.
CHORDATA/AVES	 <i>Somateria mollissima</i>	Common Eider	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2000	2010		NT 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as NT	1000-3500 ind. Criterion 3 & 4: The site is breeding area for a number of seabirds and shorebirds like this species. However, Grandefjæra is one of the most important moulting areas for this species, where up to 3500 ind. gather.
CHORDATA/AVES	 <i>Somateria spectabilis</i>	King Eider	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention	Criterion 4: King eiders spends the winter in these waters.
CHORDATA/AVES	 <i>Stercorarius parasiticus</i>	Parasitic Jaeger	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as NT	Criterion 4: Small numbers of this species breed within Kråkvågsvaet Bird Sanctuary.
CHORDATA/AVES	 <i>Sterna hirundo</i>	Common Tern	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as EN, Ann. II Berne Convention, Emerald Network	Criterion 4: Small numbers of this species breed within Kråkvågsvaet Bird Sanctuary.



Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/AVES	<i>Tadorna tadorna</i> 	Common Shelduck	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	200	2001		LC 	<input type="checkbox"/>	<input type="checkbox"/>	Ann. II Berne Convention, Emerald Network	150-200 ind. Criterion 3 & 4: The site is breeding area for a number of seabirds and shorebirds like this species.
CHORDATA/AVES	<i>Tringa totanus</i> 	Common Redshank	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species occur during migration and winter season.
CHORDATA/AVES	<i>Vanellus vanellus</i> 	Northern Lapwing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	650	2001		NT 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as EN	28-58 pairs, 600-700 ind. (2001) Criterion 4: These wetlands and shallow marine waters are important mainly as staging, moulting and wintering area for this species.
<b>Fish, Mollusc and Crustacea</b>																		
CHORDATA/ACTINOPTERYGII	<i>Gadus morhua</i> 	Poor john; Winter fish; Logy fish; Swallow tail; Straits fish; Summer cod-fish; Swallow; Trap fish; Baccalao; Summer fish; Thirids; Baccalo; Snig; Bacaleau; Trap cod; Bank fish; Bank cod; Eating fish; Fall fish; Christmas fish; Cut-tail; Bastard; Salt-bulk; Baccale; Snub; Soft cur	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species spawn in this area.
CHORDATA/ACTINOPTERYGII	<i>Hippoglossus hippoglossus</i> 	Flitch; Fletch	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				EN 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4 & 8: Both kelp forests and shell sand areas are important for this fish species.
CHORDATA/ACTINOPTERYGII	<i>Salmo trutta</i> 	Brown trout	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: This species spawn in this area.
<b>Others</b>																		
CHORDATA/MAMMALIA	<i>Lutra lutra</i> 	European Otter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU, Ann. II Berne Convention, Emerald Network	The Eurasian Otter breeds at Storfosna, inside Kråkvågsvaet Bird Sanctuary, and probably also at Grandefjæra Nature Reserve.
CHORDATA/MAMMALIA	<i>Phoca vitulina</i> 	Harbor Seal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	National Red List: Considered as VU, Ann. III Berne Convention, Emerald Network	

1) Percentage of the total biogeographic population at the site

Common Ringed Plover - 600+ individuals occur in this wetland, the 1%-criteria for this species is 730 (for the Europe (win) population) according to the 5th ed. of waterbird population estimates. It is possible that the wetland host more than 1% of this population.

Great Northern Loon - 30-50 individuals occur in this wetland, the 1%-criteria for this species is 50 (for the hiaticula, Northern Europe/Europe & North Africa population) according to the 5th ed. of waterbird population estimates. At times this wetland host 1% of this population.

Anser anser, Greylag Goose, additional information: In April 2007 a total number of 4000 greylag geese was counted between Garten and Hoøya at Grandefjæra, the 1 % level for the North-Western population is 6100 (according to 5th edition of waterbird population estimates).

Capitalized letters shows the species' status on the National Red List 2015.

### 3.4 - Ecological communities whose presence relates to the international importance of the site

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
Shell sand beds	<input type="checkbox"/>	Shell sand beds function as important spawning and nursery grounds for fish species, and as mating area and areas of ecdysis (moulting of the cuticle) for larger crustaceans, providing food for divers, mergansers and other fish-eating birds.	
Eelgrass meadow	<input type="checkbox"/>	Seagrass meadows are highly productive ecosystems, recognized as nursery areas for many marine and anadromous species. Eelgrass provides food, shelter and protection from predators for many fish/shellfish and play an important role for waterfowl.	

[Optional text box to provide further information](#)

Even though these habitat types are not considered to be threatened, they do form the basis of which waterfowl associated with this wetland can feed.

## 4 - What is the Site like? (Ecological character description)

### 4.1 - Ecological character

All four sub-sites are characterized by large inter-tidal flats and shallow marine waters, with small islands and skerries at some of the sites (Kråkvågsvaet and Grandefjæra). Generally, only small areas of land and seashore vegetation are included in the protected areas. The sites have many saline-tolerant vegetational communities, including salt meadows, salt marshes, swamps, and seagrass beds. Some dry land areas are included in Kråkvågsvaet Bird Sanctuary, mostly on Storfosna, and the vegetation type here is mainly herb-rich shell sand meadows and grazed coastal meadows with different heather species. The remains of a larger brackish pond with regionally rare submerged plants is situated inside the bird sanctuary Innstrandfjæra (Kråktjern) and comprise one of the few remaining freshwater areas found in Ørland municipality.

The sand- and mudflats and shallow marine waters host large biomasses of benthic animals and mussels, especially blue mussels, supplying food to large populations of diving ducks and waders. These waters are also spawning and nursery grounds for a lot of fish species, providing food for divers, mergansers and other fish-eating birds.

Grandefjæra Nature Reserve comprises the largest continuous inter-tidal area in Norway. The shoreline is 10 km long, where 500-600 ha of sand- and mudflats are exposed during low tide. This area is important as a staging location during migrations for waders and ducks. Additionally, the area functions as moulting (ducks), overwintering, breeding and feeding area.

Innstrandfjæra Bird Sanctuary is a varied tidal flat, constituting important staging and feeding area for waders and ducks. The brackish pond "Kråka" is a distinctive biotope.

Hovsfjæra Bird Sanctuary is situated within Trondheimsfjorden, while the two other mainland sub-sites are on the ocean-side of the peninsula Ørlandet. Hovsfjæra is a shallow tidal flat which constitutes an important staging and feeding area as well as being an important overwintering location.

Kråkvågsvaet Bird Sanctuary comprises the shallow strait between the islands Storfosna and Kråkvåg, and northern part of Storfosna, with tidal areas, small islands, skerries and bays. The strait is shallow and has extensive tidal sand- and mudflats. The site is important as staging area during migrations and for wintering seabirds, waterfowl and shorebirds, and for moulting ducks. The seashores also provide breeding sites for shorebirds.

### 4.2 - What wetland type(s) are in the site?

#### Marine or coastal wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
A: Permanent shallow marine waters		1		Representative
B: Marine subtidal aquatic beds (Underwater vegetation)		3		
D: Rocky marine shores		4		
E: Sand, shingle or pebble shores				
G: Intertidal mud, sand or salt flats		2		Representative
H: Intertidal marshes				

### 4.3 - Biological components

#### 4.3.1 - Plant species

##### Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
<i>Catabrosa aquatica</i>	Whorl-grass	Some regionally rare plants grows at all sub-sites, including this near threatened species
<i>Dactyloctenium aegyptium</i>	Early marsh-orchid	Some regionally rare plants grows at all sub-sites, including this near threatened species

##### Invasive alien plant species

Scientific name	Common name	Impacts	Changes at RIS update
<i>Acer pseudoplatanus</i>	Sycamore	Potentially	No change
<i>Barbarea vulgaris</i>	Winter cress	Potentially	No change
<i>Impatiens glandulifera</i>	Policeman's helmet	Potentially	No change
<i>Picea sitchensis</i>	Menzies spruce	Potentially	No change
<i>Reynoutria japonica</i>	Asian knotweed	Potentially	No change
<i>Reynoutria sachalinensis</i>	Giant knotweed	Potentially	No change
<i>Rosa rugosa</i>	Rugosa rose	Potentially	No change

Optional text box to provide further information

*Picea sitchensis*, *Rosa rugosa*, *Acer pseudoplatanus*, *Reynoutria sachalinensis*, *Impatiens glandulifera*, *Reynoutria japonica*, *Barbarea vulgaris* - SE (severe).  
*Senecio viscosus* - HI (high).  
 Capitalized letters shows the species' status in the Alien Species in Norway - the Norwegian Black List 2012.

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/AVES	<i>Limosa lapponica</i>	Bar-tailed Godwit				Rare wintering wader
CHORDATA/MAMMALIA	<i>Halichoerus grypus</i>	Gray Seal				Only seen occasionally.
CHORDATA/MAMMALIA	<i>Phocoena phocoena</i>	Harbor Porpoise				

Invasive alien animal species

Phylum	Scientific name	Common name	Impacts	Changes at RIS update
CHORDATA/AVES	<i>Branta canadensis</i>	Canada Goose	Actually (minor impacts)	No change
CHORDATA/MAMMALIA	<i>Neovison vison</i>	American Mnk	Potentially	No change

Optional text box to provide further information

Both American mink and Canada goose are considered as SE (severe), capitalized letters shows the species' status in the Alien Species in Norway - the Norwegian Black List 2012.

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
D: Moist Mid-Latitude climate with cold winters	Dfc: Subarctic (Severe winter, no dry season, cool summer)

The site has a strongly oceanic climate with mild winters and wet summers. The area receives precipitation 220-240 days in a year, and the amount of precipitation ranges from 50mm (May) to 131mm (September), with an annual precipitation of 1048mm. The temperature ranges from -0.7°C (January) to 12.9°C (August), with an annual average of 5.8°C.  
 Because Ørland is flat and open towards the ocean, the wind speeds can reach a fairly high speed. The low-lying skerries do not provide protection against the oceanic winds and the wind is strongest during autumn and winter months.  
 Steady high winter temperatures combined with relatively heavy precipitation contribute to snow and ice cover being present only for short periods.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- Entire river basin
- Upper part of river basin
- Middle part of river basin
- Lower part of river basin
- More than one river basin
- Not in river basin
- Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

Norwegian Sea

4.4.3 - Soil

Mneral

(Update) Changes at RIS update No change  Increase  Decrease  Unknown

No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes  No

Please provide further information on the soil (optional)

Large parts of the municipality consist of a crystalline basement covered by thick layers of marine deposits, mainly silt and clay. Clay and silt dominates the tidal zone, whereas sand predominates the shores – forming small sand dunes at certain areas. At some sites pebble and shingle predominates the outer part of the tidal zone. At Kråkvågsvaet shell sand is an important shoreline substrate. On northern part of Storfosna one can find small mires with peat soil.

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Marine water	<input type="checkbox"/>	No change
Water inputs from rainfall	<input type="checkbox"/>	No change

Water destination

Presence?	Changes at RIS update
Marine	No change

Stability of water regime

Presence?	Changes at RIS update
Water levels fluctuating (including tidal)	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

Large areas of shallow water, less than 3 meters depth. The variation between high and low tides averages annually 162 cm measured at Trondheim and 143 cm at Heimsjø – Ørland located between these two stations.

On Storfosna one can also find coastal meadows and marshes/mires. The sites are surrounded mainly by shallow marine waters, though some deeper areas can be found east of Storfosna.

4.4.5 - Sediment regime

Sediment regime unknown

4.4.6 - Water pH

Unknown

4.4.7 - Water salinity

Euhaline/Eusaline (30-40 g/l)

(Update) Changes at RIS update No change  Increase  Decrease  Unknown

Unknown

4.4.8 - Dissolved or suspended nutrients in water

Unknown

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar  ii) significantly different  site itself.

Surrounding area has greater urbanisation or development

Surrounding area has higher human population density

Surrounding area has more intensive agricultural use

Surrounding area has significantly different land cover or habitat types

Please describe other ways in which the surrounding area is different:

Extensive farmlands neighbouring the mainland sub-sites, especially east of Grandefjæra. The surrounding marine waters are used for fishing, both leisure and commercial.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Wetland non-food products	Other	Medium
Wetland non-food products	Livestock fodder	Medium

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Hazard reduction	Coastal shoreline and river bank stabilization and storm protection	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Picnics, outings, touring	Medium
Recreation and tourism	Nature observation and nature-based tourism	Medium
Recreation and tourism	Recreational hunting and fishing	Medium
Scientific and educational	Major scientific study site	Medium
Scientific and educational	Educational activities and opportunities	Medium
Scientific and educational	Long-term monitoring site	Medium

## Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Nutrient cycling	Carbon storage/sequestration	Low

## Other ecosystem service(s) not included above:

The shallow waters reduce the impact of waves coming from the open sea, and no particular erosion problems have been noted. The deposit of piles of seaweed on the contrary helps stabilizing the shoreline. The coastal meadows at Storfosna are grazed by sheep, including the small land areas in the bird sanctuary Kråkvågsvaet. Parts of the seashore at Hovsfjæra are grazed by livestock. The areas are used for fishing and bird-watching.

Trondheimsfjorden (including the three mainland sites) is one of 10 areas in the national monitoring programme for wintering seabirds and waterfowl.

For Kråkvågsvaet there have been comprehensive investigations concerning the effects of a road link between Storfosna and Kråkvåg (with stone fillings across the shallows) on the benthic fauna, being the main food source for diving ducks and waders in the strait.

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes  No  Unknown

## 4.5.2 - Social and cultural values

- i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland
- ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland
- iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples
- iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland

<no data available>

## 4.6 - Ecological processes

<no data available>

## 5 - How is the Site managed? (Conservation and management)

### 5.1 - Land tenure and responsibilities (Managers)

#### 5.1.1 - Land tenure/ownership

##### Public ownership

Category	Within the Ramsar Site	In the surrounding area
National/Federal government	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

##### Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

Within the Ramsar site: Private/State (marine area)

In the surrounding area: Private/State (marine area)

#### 5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

County Governor of Sør-Trøndelag

Postal address:

Statens Hus, N-7468 Trondheim

E-mail address:

postmottak@fmst.no

## 5.2 - Ecological character threats and responses (Management)

### 5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

#### Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Unspecified development	Medium impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

#### Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Drainage	Medium impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change

#### Energy production and mining

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Renewable energy	unknown impact	High impact	<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

#### Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Roads and railroads	Medium impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change
Shipping lanes	Low impact	High impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

#### Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Fishing and harvesting aquatic resources	Medium impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change

#### Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Invasive non-native/ alien species	Low impact	High impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change
Problematic native species	Medium impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change

#### Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Garbage and solid waste	Medium impact	Medium impact	<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change
Industrial and military effluents	Medium impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Please describe any other threats (optional):

**Within the site:**  
 Before Grandefjæra received legal protection, large areas of salt marshes and salt-influenced meadows were drained for agricultural use. Only small remains of these extensive seashores are present in the nature reserve, outside a 2 km long dike, built to prevent seawater to flood into the farmland on an extreme high tide. Also at the two other mainland sites encroachments have reduced the size of seashore vegetation communities before they were legally protected.

The permitted cutting of seaweed is thought to have a negative effect on avian food sources at the site.

In 2003 a 1,5 km road link over the strait between Storfosna and Kråkvåg was built, including a 400 m bridge and rock fills across the shallows on the Storfosna side. The project was preceded by extensive studies, including modelling and simulations of currents and water flow, to investigate the effect on the rich benthic fauna in the strait, highly dependent on the strong tidal current – and thereby also on the large concentrations diving ducks and waders using the wetland.

Ørland airport effluents empty out into Grandefjæra through 3 different channels which drain the Ørland air station (The air station for the Royal Norwegian Air Force).

Common sea buckthorn is a pioneer species which can displace the rare orchid.

Activity from local hikers can be of disturbance for the breeding bird species. Overgrowing can also reduce the available nesting spots for these species.

Mink, as an alien species, is observed within the wetland, however the scope of negative consequences in relation to this is uncertain. On a general term, alien species are not a big problem inside the protected area, especially where vegetation is grazed upon. However, some areas are affected by overgrowing, which could result in alien species becoming problematic.

**In the surrounding area:**  
 Run-off from farming and agriculture could cause pollution that might alter the species composition of the soft seabed, which could have an indirect effect on foraging opportunities for avian species.

A refuse deposit is situated close to the border of Innstrandfjæra Bird Sanctuary, causing increased predation by crows and gulls on eggs and chicks of breeding ducks and waders at this site.

Just outside Ørland one finds the main shipping lane, and the Norwegian coast is characterized by oil extraction and refinery - oil spill could become an acute pollution problem resulting from this activity which could become detrimental for Ørland Wetland System.

The planned building of Ørland military air force station will likely cause noise pollution and increased air traffic. How this will affect the wetland ecosystem is uncertain, but it is suspected that certain avian species might avoid this wetland as an effect.

There are 3 wind power plants (with a total of 5 wind turbines) in proximity of Hovsfjæra.

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Bird Sanctuary	Hovsfjæra		whole
Bird Sanctuary	Innstrandfjæra		whole
Bird Sanctuary	Kråkvågsvaet		whole
nature reserve	Grandefjæra		whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Ørland Wetland System		whole

5.2.3 - IUCN protected areas categories (2008)

1a Strict Nature Reserve

1b Wilderness Area: protected area managed mainly for wilderness protection



II National Park: protected area managed mainly for ecosystem protection and recreation

III Natural Monument: protected area managed mainly for conservation of specific natural features

IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention

V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation

VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

### 5.2.4 - Key conservation measures

#### Legal protection

Measures	Status
Legal protection	Implemented

#### Habitat

Measures	Status
Habitat manipulation/enhancement	Partially implemented

#### Human Activities

Measures	Status
Research	Implemented

#### Other:

Management plans for all sub-sites are under preparation by the management authority. Common sea buckthorn is a pioneer species which can displace the rare orchid, and thinning of buckthorn could be necessary in certain years to prevent overgrowing of breeding locations for birds and important habitats for the Northern marsh orchid.

### 5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes  No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes  No

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

An information booklet is produced by the management authorities, comprising all the Ramsar sites in Trøndelag. A wetland information center has been established within the new house of culture in Brekstad. Bird observation towers/ observation hides have been built.

### 5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No need identified

### 5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Birds	Implemented

Trondheimsfjorden (including the three mainland sites) is one of 10 areas in the national monitoring programme for wintering seabirds and waterfowl. For Kråkvågsvaet there have been comprehensive investigations concerning the effects of a road link between Storfosna and Kråkvåg (with stone fillings across the shallows) on the benthic fauna, being the main food source for diving ducks and waders in the strait.

## 6 - Additional material

### 6.1 - Additional reports and documents

#### 6.1.1 - Bibliographical references

Henriksen, S., Hilmo, O., 2015. Norsk rødliste for arter 2015 (red). Artsdatabanken, Norge - 2015 Norwegian Red List. Artsdatabanken, Norway

Lindgaard A, Henriksen S (eds) (2011) Norsk rødliste for naturtyper 2011. Artsdatabanken, Norge - 2011 Norwegian Red List for Ecosystems and Habitat Types. Artsdatabanken, Norway

Ørland Kommune <https://www.orland.kommune.no/>

Bygdeforskning, Rapport nr. 06/2012 - Ramsarområdene i Frøya, Hitra og Ørland - rammebetingelser og muligheter for bruk og vern. Katrina Rønningen Svein Frisvoll

Norsk Ornitologisk Forening - Fosen lokallag <http://www.noffil.no/>

Biologisk mangfold i Ørland kommune. Norsk institutt for jord- og skogkartlegging, NIJOS rapport 12/2002.

Follestad, A., Aarrestad, P.A., Myklebost, H. & Reitan, O. 2013. Naturtypekartlegging og forekomst av fugler i Brekstadfjæra, Innstrandfjæra og Neslandfjæra i Ørland og Bjugn kommuner. - NINA Rapport 1004. 71 s.

Forvaltningsplan for Hovsfjæra fuglefredningsområde. Fylkesmannen i Sør-Trøndelag, 2014.

Forvaltningsplan for Innstrandfjæra fuglefredningsområde i Ørland kommune 2014-2024, Fylkesmannen i Sør-Trøndelag.

Forvaltningsplan Kråkvågsvaet fuglefredningsområde i Ørland kommune, 2016. Fylkesmannen i Sør-Trøndelag.

See further bibliographical references under 6.1.2 Additional reports and documents

#### 6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

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vi. other published literature

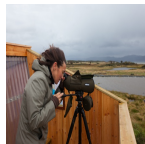
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#### 6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Ørland Wetland System ( Gunnar Kjørstad/Norwegian Environment Agency, 13-09-2012 )



Ørland Wetland System ( Gunnar Kjørstad/Norwegian Environment Agency, 13-09-2012 )



Ørland Wetland System ( Gunnar Kjørstad/Norwegian Environment Agency, 13-09-2012 )

#### 6.1.4 - Designation letter and related data

Designation letter

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Date of Designation