

Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX.22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Bjørn Harald Larsen, Miljøfaglig Utredning AS commissioned
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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

March 2012

3. Country:

Norway

4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Ørland Wetland System; Kråkvågsvaet
(International No. 310, National No: 8)

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site ; or
b) Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged:

or

If the site boundary has changed:

- i) the boundary has been delineated more accurately ; or
- ii) the boundary has been extended ; or
- iii) the boundary has been restricted**

and/or

If the site area has changed:

- i) the area has been measured more accurately ; or
- ii) the area has been extended ; or
- iii) the area has been reduced**

** **Important note:** If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

None

7. Map of site:

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) a **hard copy** (required for inclusion of site in the Ramsar List): ;
- ii) an **electronic format** (e.g. a JPEG or ArcView image) ;
- iii) a **GIS file providing geo-referenced site boundary vectors and attribute tables** .

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The boundaries are the same as for the Kråkvågsvaet Bird Sanctuary.

8. Geographical coordinates (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

63° 39' N 09° 21' E

9. General location:

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

Situated in the municipality of Ørland, Sør-Trøndelag county. The nearest town being Trondheim, approximately 50 km to the southeast.

10. Elevation: (in metres: average and/or maximum & minimum)

0 m – 21 m.a.s.l.

11. Area: (in hectares)

1352,6 ha

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Kråkvågsvaet Bird Sanctuary comprises the strait between the islands Storfosna and Kråkvåg, and northern part of Storfosna, with large tidal areas (sand- and mudflats mainly), small islands, skerries and bays. The strait is shallow and has a strong tidal current. The site is very important to wintering and staging seabirds, waterfowl and shorebirds (especially divers, grebes and diving ducks in early spring), and not least for moulting diving ducks.

13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1. The Ørland sites with their huge tidal mudflats and large areas of shallow marine waters are perhaps the best example in southern Norway for this kind of marine wetland.

Criterion 2. The Eurasian Otter *Lutra lutra* (VU, Ann. II, Berne Conv.) breeds at the site, while Harbour Seal (VU, Ann. III Berne Conv.) may breed at the skerries within or just outside the protected area, but is regularly seen at the site just as Killer Whale *Orcinus orca* (Ann. II Berne Conv.). Small numbers of Common Tern *Sterna hirundo* (VU, Ann. II Berne conv.) breeds at the small islands in the strait. It is referred to the national red list 2010. See also point 22.

Criterion 3. Breeding area for a number of seabirds, waterfowl and shorebirds like Common Shelduck *Tadorna tadorna*, Common Eider *Somateria mollissima*, Red-breasted Merganser *Mergus serrator*, Eurasian Oystercatcher *Haematopus ostralegus*, Ringed Plover *Charadrius hiaticula*, Turnstone *Arenaria interpres*, Arctic Skua *Stercorarius parasiticus*, and Arctic Tern *Sterna paradisaea*, all characteristic species for this kind of marine wetlands in the biogeographic region.

Criterion 4. The site has large moulting populations of Greylag Geese *Anser anser*, Common Eider *Somateria mollissima*, Velvet Scoter *Melanitta fusca* (NT), and Red-breasted Merganser. The site is also important for wintering, staging and breeding waterbirds. See also justification of criteria 2, 3 and point 22.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

1. Southern boreal vegetation zone, strongly oceanic section (SbO3)
2. Atlantic

b) biogeographic regionalisation scheme (include reference citation):

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. Biogeographical regions of Europe, European Environment Agency, 2005

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Geology	The small islands in Kråkvågsvaet Bird Sanctuary are mainly outcrops of conglomerate (southern part) and granite (northern part).
Geomorphology	The area consists of extensive tidal sand- and mudflats, sheltered bays and large areas of shallow marine waters, formed by raising landmasses. The site is part of a large-scale, flat coastal landscape.
Substrate/soil type	Clay and silt dominates the tidal zone, whereas sand is predominate on the shores – somewhere forming small sand-dunes and shell-sand tongues. Pebble and shingle shores locally. On northern part of Storfosna small mires with peat soil.
Water depth/fluctuations	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 lying in between these two stations.
Climate	The site has a strongly oceanic climate with mild winters and wet, but rather warm summers. Annual precipitation is approx. 1030 mm, and the area receives precipitation 220-240 days in a year.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The catchment area is small, comprising mostly grazed coastal meadows and marshes/mires. The site is surrounded by shallow marine waters, though some deeper areas east of Storfosna. The geomorphology, soil types and climate is similar to those described within the sub-sites.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

There are practically no freshwater inside the protected area. 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.

19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar “Classification System for Wetland Type” present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area. A, G, B, D, E, H

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Kråkvågsvaet is characterized by large tidal sand- and mudflats and shallow marine waters with a strong tidal current going through the strait. Scattered small island and skerries are found outside both Storfosna and Kråkvåg. The site has a lot of different seashore vegetation types; including salt meadows, salt marshes and swamps, and seagrass *Zoostera* beds. Some dry land areas are included in the protected area,

and the vegetation type here is mainly herb-rich shell-sand meadows and coastal meadows with different heather species.

The shallow waters in the current-rich strait have especially large biomasses of mussels, mainly *Mytilus*, 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 to divers, mergansers and other fish-eating birds.

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Some regionally rare plants grow at the site, e.g. *Avenula pratensis*, *Briža media* and *Primula veris*. Kråkvågsvaet has the largest numbers of seashore vegetation types recorded in this part of Norway, some of them being rather rare in the region.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Mammals:

Small whales, mainly Harbour Porpoise *Phocoena phocoena* and Killer Whale *Orcinus orca*, are regularly seen at the site. Harbour Seal *Phoca vitulina* (VU) is a possible breeder, while Grey Seal *Halichoerus grypus* (NT) is less common. The Eurasian Otter *Lutra lutra* (VU) breeds at the site.

Birds:

Nationally rare or internationally rare or interesting species: Kråkvågsvaet has relatively large wintering populations (with raising numbers in early spring) of Great Northern Diver *Gavia immer* (10-25 individuals), Red-necked Grebe (20-40 ind.), and Slavonian Grebe *Podiceps auritus* (10-15 ind.). Also a few White-billed Divers *Gavia adamsii* (NT) and King Eiders *Somateria spectabilis* spends the winter in these waters (the King Eider sometimes more numerous – maximum recorded number being 32 ind. in late winter).

Nationally common species: These shallow marine waters and tidal areas are important mainly as staging, moulting and wintering areas for divers, grebes, diving ducks, geese and waders. Though, some seabirds breeds at the small islands and skerries in the strait and on the northern part of Storfosna, e.g. Common Shelduck *Tadorna tadorna* (2-5 pairs), Common Eider *Somateria mollissima* (15-30 pairs), Turnstone *Arenaria interpres* (a few pairs), Arctic Skua *Stercorarius parasiticus* (NT) (a few pairs), Common Tern *Sterna hirundo* (VU) (a few pairs), and Arctic Tern *Sterna paradisaea* (up to 200-250 pairs).

Wintering site for 1500-3000 waterfowl, waders and seabirds, including Whooper Swan *Cygnus cygnus*, Common Eider (500-1000 ind.), Long-tailed Duck *Clangula hyemalis* (200-250 ind.), Velvet Scoter *Melanitta fusca* (NT) (250-750 ind.), White-tailed Eagle *Haliaeetus albicilla*, Purple Sandpiper *Calidris maritima* (up to 260 ind.) and Turnstone *Arenaria interpres* (up to 110 ind.). Also more rare wintering waders like Grey Plover *Pluvialis squatarola* and Bar-tailed Godwit *Limosa lapponica* are recorded.

Important staging site, especially in early spring for divers, grebes and diving duck, and for migrating waders. Examples of species recorded in high numbers (mostly recordings from 1996, covering 80 % of the protected area): Long-tailed Duck (1170 ind.), Black Scoter *Melanitta nigra* (NT) (100 ind.), Velvet Scoter *Melanitta fusca* (NT) (650 ind.), Black-throated Diver *Gavia arctica* (21 ind.), Eurasian Oystercatcher *Haematopus ostralegus* (284 ind.), and Ringed Plover (113 ind.). Little Auk *Alle alle* can be numerous in late autumn, e.g. 1000 ind. in November 1986.

Moulting area for Greylag Goose *Anser anser* (400-500 ind.), Common Eider (up to 1300 individuals in 1986, less numerous now), Velvet Scoter *Melanitta fusca* (up to 1415 individuals in 1986, less numerous now), and Red-breasted Merganser *Mergus serrator* (100-200 ind.).

The island Storfosna, including the areas inside the bird sanctuary, is also famous for rare passerines, especially in autumn. Also a lot of other rare birds have been recorded at this island.

23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

None in particular.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, tick the box and describe this importance under one or more of the following categories:

- i) sites which provide 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) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where 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:

24. Land tenure/ownership:

a) within the Ramsar site: Private/State (marine area)

b) in the surrounding area: Private/State (marine area)

25. Current land (including water) use:

a) within the Ramsar site:

Cutting of seaweed is permitted on a small scale. The coastal meadows at Storfosna are grazed by sheep, including the small land areas in the bird sanctuary. The area is used for fishing, both leisure and commercial.

b) in the surroundings/catchment:

As inside the bird sanctuary, the sea is used for fishing, both leisure and commercial, and the coastal meadows are grazed by sheep.

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:

The permitted cutting of seaweed is thought to have negative effect on avian food sources at the site. A 1,5 km road link over the strait between Storfosna and Kråkvåg has been built, including a 400 m bridge and rock fills across the shallows on the Storfosna side. This after 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.

b) in the surrounding area:

None in particular.

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

Kråkvågsvaet was established as a bird sancturay at December 23rd 1983.

Part of IBA Ørland wetland system

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ; Ib ; II ; III ; IV ; V ; VI

c) Does an officially approved management plan exist; and is it being implemented?:

No

d) Describe any other current management practices:

None in particular.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

A management plan is under development by the management authority.

29. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

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.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

An information booklet is produced by the management authorities, comprising all the Ramsar sites in Trøndelag. A wetland information center is being planned within the new house of culture in Brekstad.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The site is to a low degree used by residents (both leisure and commercial) and tourists for fishing. Increased bird-watching activities the last 10-20 years, especially in autumn looking for rare passerines.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Norwegian Directorate for Nature Management (DN), Tungasletta 2, 7485 Trondheim

Ph +47 73580500

Fax +47 73580501

Email: postmottak@dirnat.no

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The site is managed by the County Governor of Sør-Trøndelag, which is under the instruction of DN.
Address: County Governor of Sør-Trøndelag, Statens Hus, N-7468 Trondheim (phone: +47 74 16 80 00).
E-mail: postmottak@fmst.no

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Kålås, J.A., Viken, Å., Henriksen, S. and Skjelseth, S. (eds.). 2010. The 2010 Norwegian Red-list for Species. Norwegian Biodiversity Information centre, Norway.

Flora:

Kristensen, J. N. 1988. Seashore in Trøndelag. Site descriptions and conservation proposals. Økoforsk Rapp. 1998, 7B: 1-139. (In Norwegian with English abstract, including all four sub-sites)

Birds:

Bevanger, K. & Frengen, O. 1979. Ornitologiske verneverdier i Ørland kommune, Sør-Trøndelag. K. norske Vidensk. Selsk. Mus. Rapport Zool. Ser. 1979-1: 1-93. (In Norwegian – on important bird areas in Ørland municipality)

Follestad, A., Larsen, B. H. & Nygård, T. 1986. Seabird investigations along the coast of Sør- and Nord-Trøndelag and southern parts of Nordland 1983-86. DN-viltrapport 41: 1-113. (In Norwegian with 7 pages English summary)

Størkersen, Ø. 1993. Guide til fuglelokaliteter ved Trondheim og andre nærliggende lokaliteter. Vår Fuglefauna 16: 34-40. (In Norwegian – sums up the ornithological qualities of Ørland Wetland System)

Thingstad, P. G. & Hokstad, S. 1997. Aquatic birds and marine demersal fauna at Kråkvågsvaet, Ørland, Sør-Trøndelag. Consequences of a possible bridge and rock fill across the shallows. Vitenskapsmuseet Rapp. Zool. Ser. 1997, 2: 1-50. (In Norwegian with English abstract)

Please return to: **Ramsar Convention Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
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