

Designation date: 24/07/84 Ramsar Site no. 306

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 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:

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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:

Kurefjorden
(International No. 306, National No. 3)

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:

This Ramsar sites was threatened by a planned airport development (pollution to be dropped into a small creek - draining into the site), but plans were changed and influence avoided. No major changes last years.

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 Ramsar site border is the same as for the Kurefjorden Nature Reserve

8. Geographical coordinates (latitude/longitude):

59° 20'00" N 10° 44'30" E

9. General location:

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

Kurefjorden is situated on the east side of the Oslofjord in Østfold county, about 10 km south-east of the town of Moss and 20 km from the town of Fredrikstad. Moss has about 26 000 inhabitants, and Fredrikstad around 70 000.

10. Elevation: (average and/or max. & min.)

0 m.a.s.l.

11. Area: (in hectares)

392 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.

Kurefjorden is a very important migration and feeding site for a number of species, especially for ducks

and waders. The area is also a moulting site for wildfowl, as well as a breeding site for a number of species. Kurefjorden is a small, shallow fjord arm with large mudflats in the inner parts which are exposed at low tide. *Salicornia*, *Zostera* and *Ruppia* grown on the mudflats. Spread around the reserve are areas of *Phragmites australis*, *Scirpus maritimus*, and *Carex spp.* A few nationally red-listed vascular plants are recorded from the saltmarshes: *Carex hartmanii* (EN), *Centaurium littorale* (EN) and *Centaurium pulchellum* (VU). A total of around 250 bird species are recorded in the reserve and many of these breed in the area. Typical species include great crested grebe *Podiceps cristatus*, Slavonian grebe *Podiceps auritus*, common teal *Anas crecca*, mallard *Anas platyrhynchos*, ruff *Philomachus pugnax* and dunlin *Calidris alpina*. The area is the most important site in the Oslofjord for migratory waterbirds and is considered to be the best wetland site in the county of Østfold for birdwatching.

13. Ramsar Criteria:

Circle or underline 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).

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8

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. Large areas with saltmarsh have become scarce as the result of infilling for industrial or other economic developments.
- Criterion 2. Large numbers of waterbirds use the area as a staging site during migration, although the area is also important as a wintering site and breeding site for a range of species. Species on the national red-list that are regular in winter include greater scaup *Aythya marila* (VU) Nationally Red-listed species regularly seen on passage include Ruff *Philomachus pugnax* (VU) A few nationally red-listed vascular plants are recorded in the saltmarshes: *Carex hartmanii* (VU), *Centaurium littorale* (EN) and *Centaurium pulchellum* (VU) See also criterion 8 and point 22. Red list status is given according to the national red list 2010.
- Criterion 3. The large mudflats and shallow waters at Kurefjorden are special. None of the areas are deeper than five metres, and most of the area is shallower than two metre. Large mudflats therefore are exposed at low tide despite the small tidal range in the area. The exposed areas are very good feeding sites for birds such as ducks and waders for much of the year. The shore at Kurefjorden used to have the largest saltmarsh in the Oslofjord, but much of this has been cultivated. The flora and fauna of Kurefjorden includes both rare species as well as species that are typical or representative for the biogeographical region like seagrass *Zostera marina* and European Eel *Anguilla anguilla*.
- Criterion 4. Kurefjorden is a very important migration and feeding site for a number of species, especially for ducks and waders. The area is also a moulting site for wildfowl, as well as a breeding site for a number of species. See also point 22 and justification of criterion 2.
- Criterion 8. The two streams Kureåa and Heiabekken that flow into Kurefjorden support populations of Sea Trout *Salmo trutta* and European Eel *Anguilla Anguilla* (CR-norwegian red-list and IUCN red-list). The Ramsar site has a function as migration and feeding ground for Sea Trout and migration route for European Eel.

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. Boreal

2. Boreonemoral vegetation zone, slightly oceanic section (Bn-O1).

b) biogeographic regionalisation scheme (include reference citation):

1. Biogeographical regions of Europe, European Environment Agency, 2005

2. 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).

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	Deep fine-grained alluvial deposits over bedrocks in the Østfold complex, mainly Precambrian gneiss.
Geomorphology	Shallow coastal bay which is relatively sheltered from the elements. Two streams flow into the inner part, The mudflats are rather even with only a few gulleys. A few rocks stick up to form islets in the shallow waters.
Origins	Natural
Substrate/soil type	The soils are of marine clay, as well as some marine sludge, seaweed remains and shellsand which create nutrient-rich earth.
Water quality	Water quality is relatively good, although water quality in the Kureåa stream pollutes the ground water especially during periods of high precipitation and flooding.
Water depth/fluctuations	Large areas are very shallow and are exposed at low tide. The tidal range in the Oslofjord is small, normally 0.5 m. Nowhere in the site is the water more than five m deep.
Climate	The area has a coastal climate and average temperatures measured at Rygge airfield in the period 1961-1990 are -3.7°C in January and 16.0°C in July, and annual precipitation in the same period was about 880 mm. In winter winds are predominantly northerly, with south-western in the summer months.

17. Physical features of the catchment area:

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

The catchment area of the Kureåa stream which flows into Kurefjorden is 12.5 km² and comprises farmland (7,3 km²), woodland (1,9 km²) and built-up areas (3,3 km²). Also another minor stream, Heiebekken, drains part of the area. The agricultural landscape is flat former seabed which rides at Raet in the north, a moraine end with mighty sand and gravel deposits. Soils are of marine clay and farming is predominantly corn production. The climate is typically coastal with warm summers and mild winters.

18. Hydrological values:

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

The area functions as a sediment trap for eroded material carried along the streams flowing into the shallow waters.

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

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

A typical transect from the outer part towards the inner starts in the permanently submerged parts with dense populations of *Zostera* and some *Ruppia* which form important feeding sites for birds such as swans *Cygnus sp.* Farther in the bottom regularly dries up at low tide and in the outer part of this zone one finds tight mats of *Salicornia europea* mixed with *Spergularia salina*. These areas are over fertilised from the sea with sludge, algae and nutrients, and from suspended material from agriculture via the streams. This leads to a high production of snails, mussels and other prey species which are utilised by wetland birds. The shallow waters are of greatest importance for ducks and waders. Farther in, where the tide doesn't cover the area are saltmarshes. The outer parts of the saltmarshes are dominated by *Puccinellia maritima* which is extremely salt-tolerant. A little farther toward land are other salt-tolerant species such as *Aster tripolium*, *Plantago maritima*, *Glaux maritima* and *Triglochin maritima*. It is in this zone that the red-listed vascular plants are found. Scattered in the area are stands of *Phragmites australis*, *Schoenoplectus maritimus* and *Carex paleacea*. There is a common alder wood in the south with species such as *Solanum dulcamara* and *Lycopus europaeus*.

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. 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.*

Apart from a few red-listed vascular plants which are strongly associated with saltmarshes, no other rare species of mosses, fungi or lichens have been found. The red-listed vascular plants are mentioned under point 12 (above).

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. 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.*

Fish:

The two streams Kureåa and Heiabekken that flow into Kurefjorden support populations of sea trout *Salmo trutta*. Artificial barriers, pollution and lack of water during periods of drought, when water is used for irrigation of farmland, are all threats towards these populations.

Birds:

Kurefjorden is most important as a grazing and staging site for wetland birds. Wildfowl dominate in spring, and waders in autumn. Over 2 000 duck have been counted at one time in spring and in total 30 species of wildfowl have been recorded. dabbling ducks dominate with Mallard, *Anas platyrhynchos*, Eurasian Wigeon *Anas penelope* and Common Shelduck *Tadorna tadorna* the most abundant. 35 species have

been recorded in autumn, many in high numbers, such as 1000 Ruff *Philomachus pugnax*, 350 Dunlin *Calidris alpina* and 500 Knot *Calidris canutus*. Five species of wader are regular breeders, the most common being Oystercatcher *Haematopus ostralegus*, Northern Lapwing *Vanellus vanellus*, and Common Ringed Plover *Charadrius hiaticula*. Common Crane *Grus grus* occasionally rest in the area, and Osprey *Pandion haliaetus* fish here throughout the summer months. Gulls and terns forage in the whole area and most species breed on the islands within the site. This includes the county's largest greater black-backed gull *Larus marinus* colony. A total of 252 species have been recorded.

Invertebrates:

No detailed studies have been carried out, although the mudbanks and shallow waters are probably species-rich.

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:

Considered one of the very best birdwatching site in the county due to the species diversity and easy viewing.

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?

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 and municipality
- (b) in the surrounding area: Private and municipality

25. Current land (including water) use:

(a) within the Ramsar site:

The area is much used for birdwatching as well as some commercial fishing with nets in some of the deeper parts out in the fjord.

(b) in the surroundings/catchment:

The area is mainly surrounded by intensive agricultural areas as well as some holiday houses. The agricultural land is mainly used for production of cereals and fodder.

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:

Ornithologists have reported breaches of the reserve boundaries by hunters during the open season, and that birds have drowned in fishing nets. Watersports are also a problem, previously by surfboarders but now from kiting (2005).

(b) in the surrounding area:

The largest saltmarshes and productive coastal plains in the Oslofjord were formerly a natural part of this wetland system, but in 1973-74 seawalls were built and large areas of coastal plain were cultivated. This cultivation has greatly reduced the site's natural values, not only botanically and in terms of the vegetation, but also as important breeding areas for wetland birds have been lost. Land masses are currently rising at a rate of 3 – 3.5 mm and this slowly, but surely, recreate some saltmarsh.

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.

Kurefjorden was designated a nature reserve on 22nd December 1978 and its boundaries were extended from 380 ha to 392 ha in 2010. The boundary of the Ramsar site has been extended accordingly and corresponds to the new boundary of the nature reserve.

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: -

28. Conservation measures proposed but not yet implemented:

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

Adjustments to the boundaries are in process, mainly to increase the amount of valuable saltmarsh included in the reserve.

A management plan is being developed 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 are no formal scientific studies, although local ornithologists monitor the bird life at Kurefjorden on a voluntary basis. The management authorities have plans to produce a report with bird observations.

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.

The fjord is rather wide, and there are several good observation points. A bird observation tower has been erected on the west side, and is a good observation point during the afternoons and evenings, when the sun is behind the observer. The tower is a little to far from the best wader sites, and waders are therefore best viewed from Kanaholmen in the inner part of Rosnesbukta. Nordre Ovenbukta is also a good point from which to watch wildfowl and waders. In late autumn, winter and early autumn the outer part can be good for watching divers, auks and diving duck such as velvet and common scoter. The County Governor of Østfold, Environment Dept. has produced an information folder about the reserve. There are a number of active local ornithologists, and updated species lists can be found on the internet.

31. Current recreation and tourism:

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

The area is much used for birdwatching, Access is forbidden between 1st April and 10th July and from 20th August to 1st October. Only boats to and from the holiday huts and boats used for commercial fishing are allowed access during these periods.

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.

This site is managed by the County Governor of Østfold, which is under the instruction of DN.
Address: County Governor of Østfold, P.b. 325, 1502 Moss, Norway. Phone +47 69247000. E-mail: postmottak@fmos.no

34. Bibliographical references:

scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

Botnemyr, R. 1993. Ornitologiske registreringer i Kurefjorden 1989-91. *Østfold-Natur 33*: 5-38. (In Norwegian – Bird observations in Kurefjorden 1989-1991).

Hovda, J.R. & Aasgaard, K. 1993 Floraen i Rosnesbukta 1972. *Østfold-Natur 33*: 39-45. (In Norwegian – On the Flora of Rosenbukta).

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

Lundberg, A. & Rydgren, K. 1994. Havstrand på Sørøstlandet. Regionale trekk og botaniske verdier. *NINA Forskningsrapport 47*: 142-144. (In Norwegian – On Seashores and botanical importance in SE Norway).

Lågbu, Ø. & Rosnes, A. (red). 1980. Kurefjorden 1973-78. Ornitologiske undersøkelser og utviklingen i området. *Østfold Natur 10*: 1-84. (In Norwegian – On Bird studies at Kurefjorden 1973-1978).

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