

1. Information Sheet on Ramsar Wetlands

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

NOTE: It is important that you read the accompanying *Explanatory Note and Guidelines* document before completing this form.

1. Date this sheet was completed/updated:
September 1997

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Designation date

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Site Reference Number

2. Country: Russian Federation

3. Name of wetland: Kandalaksha Bay

4. Geographical coordinates: 66°46'N, 33°08'E

5. Altitude: 0-80 m a.s.l.

6. Area: 208,000 ha

7. Overview: The north-western extremity of Kandalaksha Bay in the White Sea, with a highly indented shoreline, a great number of small rocky islands ('scarrys') and extensive shallows. The site is of international importance for breeding, staging and moulting water birds. Half the White Sea population of common eider *Somateria mollissima* breed on the islands within the site. Moulting concentrations of thousands of diving ducks and mergansers are observed regularly.

8. Wetland Type (please circle the applicable codes for wetland types as listed in Annex I of the *Explanatory Note and Guidelines* document.)

marine-coastal: A . B . C . D . E . F . G . H . I . J . K
inland: L . M . N . O . P . Q . R . Sp . Ss . Tp . Ts
U . Va . Vt . W . Xf . Xp . Y . Zg . Zk
man-made: 1 . 2 . 3 . 4 . 5 . 6 . 7 . 8 . 9

Please now rank these wetland types by listing them from the most to the least dominant: A,B,G,D,H.

9. Ramsar Criteria: (please circle the applicable criteria; see point 12, next page.)

1a 1b . 1c . 1d ³ 2a . 2b . 2c . 2d ³ 3a . 3b . 3c ³ 4a . 4b

Please specify the most significant criterion applicable to the site: 1(a,b)

10. Map of site included? Please tick *yes* ✓ -or- *no*

(Please refer to the *Explanatory Note and Guidelines* document for information regarding desirable map traits).

11. Name and address of the compiler of this form: V.V.Bianki:

Kandalakshsky Nature Reserve
35 Lineinaya Street
Kandalaksha, Murmansk Oblast 184040, Russia

12. Justification of the criteria selected under point 9, on previous page: 1(a,b) - the site is a representative example of natural marine and coastal wetlands, characteristic of the Russian Arctic and boreal biogeographical regions.

13. General location: In Murmansk Region, northern portion of European Russia.

14. Physical features:

Geology and geomorphology

Kandalaksha Bay is extended along the axis of the White-Sea megantyclinorium of the Baltic shield. The complex is composed of the Riphean rocks: conglomerates, sandstones, argillites, dolomites and clayey schists on the northeast, and the Saamean rocks: gneiss, granites, amphibolites, pyroxene crystalline schists and migmatites. The remains of the primary-volcanic rocks of three billion age are found at the site. There are various glacial landforms, such as fiords and scarrys: long narrow bays with gently sloping shores and small rocky islands (Vareichuk & Ignatov, 1989).

Genesis of the wetland

Kandalaksha Bay is the north-western portion of the White Sea which was developed about ten thousand years ago, during the last Ice Age. The land continues to rise there, and the sea is retreating. Before the Murmansk-Petrozavodsk railway was built in 1915-1916, the area was very sparsely populated. A small local community lived there through traditional fishing, hunting and reindeer breeding. The nature reserve was first set aside in the area in 1932.

Climate

The site is situated within the Atlantic-Arctic climatic zone. The Gulf Stream has some influence on the area, but the climate is more continental than that on the Murman coast. The average air temperature in summer is between +15° and +20°C. The sum of mean daily temperatures above +10°C is 1,000° to 1,200°. Thaws are frequent in winter, snowfalls may occur in June and frosts on August (Agro-climatic reference book, 1961).

Hydrological regime

The level of water in the bay is subject to two-metre tidal variations, which are particularly significant for the ecosystems of the scarrys, small archipelagos and bays. The permanent outward current in the White Sea is anticlockwise-directed and sticks to the Karelian shore. In winter, the bay is covered mainly by fast ice. Location of the boundary of drifting ice and the amount and size of open leads depend on the climatic conditions of the year. Some shallow water areas, especially desalinated waters, freeze in early October and the ice breaks up in late May (Bianki, 1996).

Soils

The soils are very diverse in terms of gley and humus content and genesis. Decomposition of dead foliage is very slow and the forest litter transforms into peat. A 2-15 cm sod contains up to 75% of organic matter. The stone-sandy alluvium and deluvium, mixed with marine deposits, play the major part in soil formation. Immature soils on loose rocks are widespread. These are covered with mosses and lichens (Byzova *et al.*, 1986).

Waters

The waters reach 300 m in depth within the site. The water exchange between Kandalaksha Bay and the White Sea is unobstructed. The water temperature in the top layer is about 0°C in winter, +6° in the end of spring, and up to +14°C in late August, whereas below 50 m it always stays around 0°C. Salinity of water fluctuates from 13-17‰ in the northwestern portion to 24‰ by the southeastern border of the site (Oceanographical Conditions..., 1991). Changes in salinity also occur as a result of ice melt, storms and

currents. For example, in Chupa Bay the salinity fluctuates from 15 to 26 ‰. The deep waters (below 50 m) have a permanent salinity of about 28 ‰ (Babkov & Golikov, 1984).

Catchment area

The catchment area extends west to the Manselkya highland on the border with Finland and north to the Khibiny Mountains.

15. Hydrological values: Kandalaksha Bay plays an important role in the natural functioning of the hydrological and hydrochemical regimes of the White Sea.

16. Ecological features: The White Sea is an arctic sea covered with ice for half a year, but it is inhabited by the Arctic-boreal fauna.

Two major parts with different ecological features are distinguished within the site:

- Marine waters 50-100 m deep are about 120,000 ha in area and are situated in the southeastern portion of the site. There are few islands, which are inhabited by breeding cormorants *Phalacrocorax carbo* and moulting goosanders *Mergus merganser*. Common eiders *Somateria mollissima* occur near the Kandalaksha shore. The bird population density is less than one individual per sq.km.
- Islands and coastal habitats cover about 80,000 ha. There are hundreds of small islands (<100 ha) surrounded by shallow waters down to 10 m deep. The littoral zone, composed of sand and silt with many boulders, is up to 100 m wide. These areas are inhabited by mollusks, copepods and other organisms. The biomass of mussels is up to 50 kg/m² (Naumov, Skarlato & Fedyakov, 1987). The White Sea is poor in schooling fishes and there are few fish-eating sea birds, only red-throated diver *Gavia stellata*, cormorant *Phalacrocorax carbo*, red-breasted merganser *Mergus serrator*, razorbill *Alca torda* and black guillemot *Cephus grylle* breed at the site. Coastal meadows are important staging areas of migrating birds (*Anser fabalis*, *Pluvialis apricaria*, *Numenius phaeopus*, etc.). The density of birds there comprises 50-100 individuals per sq.km.

17. Noteworthy flora: One lichen species and six species of vascular plants, listed in the Russian Red Data Book, occur on the shore and islands within the site. These are: *Bryoria flemontii*, *Carex livida*, *Cypripedium calceolus*, *Calypso bulbosa*, *Epipogium aphyllum*, *Draba insularis* and *Cotoneaster cinnabarinus*.

In addition to these, 4 lichen species, 1 moss species, 4 species of ferns and 28 vascular plants are listed as rare and threatened species in Murmansk Region (Rare and Threatened Plants and Animals in Murmansk Region, 1990).

18. Noteworthy fauna:

Birds

The site is of international importance for breeding, staging and moulting water birds. Half the White Sea population of common eider *Somateria mollissima* breed on the islands within the site. Thousands of males, including common goldeneye *Bucephala clangula*, velvet scoter *Melanitta fusca*, goosander *Mergus merganser* and other diving and dabbling ducks, concentrate for moulting at the Kandalaksha shallows. The wetlands provide staging areas for migrating birds: whooper swan *Cygnus cygnus*, bean goose *Anser fabalis*, various ducks, golden plover *Pluvialis apricaria*, knot *Calidris canutus*, dunlin *C. alpina*, bar-tailed godwit *Limosa limosa*, whimbler *Numenius phaeopus*, other shore birds, and also birds of prey.

Rare and threatened bird species listed in the Russian Red Data book, that occur at the site, include:

- White-billed diver *Gavia adamsi*: an accidental visitor.
- Shag *Phalacrocorax aristotelis*: an accidental visitor.
- Whooper swan *Cygnus cygnus*: a passage migrant (several tens of birds).

- Mute swan *Cygnus olor*: an accidental visitor.
- Barnacle goose *Branta leucopsis*: a passage migrant (hundreds of birds).
- Lesser white-fronted goose *Anser erythropus*: a rare migrant (single individuals).
- Osprey *Pandion haliaetus*: a breeding species (< 5 pairs).
- Golden Eagle *Aquila chrysaetos*: a rare vagrant.
- White-tailed eagle *Haliaeetus albicilla*: a breeding species (< 10 pairs).
- Gyr falcon *Falco gyrfalco*: a passage migrant (single individuals).
- Peregrine falcon *Falco peregrinus*: a breeding species (1 pair).
- Hobby *Falco subbuteo*: a breeding species (1 pair).
- Kestrel *Falco tinnunculus*: a breeding species (< 5 pairs).
- Merlin *Falco columbarius*: a breeding species (< 3 pairs).
- Crane *Grus grus*: a rare breeding species (1-3 pairs) and a passage migrant (several dozens).
- Eagle owl *Bubo bubo*: a rare vagrant.
- Snowy owl *Nyctea scandiaca*: a passage migrant (single individuals).
- Great grey owl *Strix nebulosa*: a rare breeding species.
- Ural owl *Strix uralensis*: a rare vagrant.
- Pygmy owl *Glaucidium passerinum*: single individuals have been recorded; breeding requires confirmation.
- Ring ouzel *Turdus torquatus*: a rare migrant.

Species, which are considered of particular importance for conservation in Murmansk Region, also include greylag goose *Anser anser*, brent goose *Branta bernicla*, Steller's eider *Polysticta stelleri*, dotterel *Charadrius morinellus*, Arctic skua *Stercorarius parasiticus*, wood pigeon *Columba palumbus* and dipper *Ninclus cinclus*.

Other fauna

The site is located on the migration ways of salmon *Salmo salar* and white fish *Coregonus lavaretus* and includes wintering grounds of cod *Gadus morhua* and spawning grounds of herring *Clupea harengus* and other commercially valuable fish species.

Rare and threatened animal species listed in the Russian Red Data book also include: adder *Vipera berus* (several dozens), swallowtail *Papilio machaon* and *Margaritifera margaritifera*.

19. Social and cultural values: The local communities who lived in the area for centuries through traditional fishing, hunting and reindeer breeding, have developed a lifestyle that is part of a cultural heritage. The traditional activities have retained their importance: fishing for herring, salmon and other fish is allowed at the site, as well as collecting of berries and mushrooms. There are several places of archaeological and cultural importance: labyrinths and several sacred objects. A number of natural monuments: the exposures of primary-volcanic rocks of three billion age and other formations of particular geological importance are found on the coast.

20. Land tenure/ownership: The water area of Kandalaksha Bay and the most of the coastal area are state owned (national property). Small areas on the coast are in municipal ownership.

21. Current land use: A number of industrial enterprises are located in the coastal zone: aluminium-producing plants, ship repairing shops, fish factories and canneries, saw-mills and some others. The village of Belaye More is an oil trans-shipping point. Cattle-breeding takes place in the villages; agriculture is small-scaled. The bay of Palkina Guba is used for growing trout *Salmo irideus*. Muds from this bay are marketed for medicinal purposes. The Kandalaksha Bay is an important waterway used for transportation of oil, timber and other cargoes. Local people have thousands of fishing boats.

22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects: The Niva River flowing into the bay carries industrial pollutants and communal wastes from the cities and reservoirs located in the catchment of the river.

A highway to Finland is being built along the coast near the site. When it is completed, the overall traffic and the goods turnover of the Kandalaksha sea port will increase considerably. This will increase the threat of water pollution with oil and other waste.

23. Conservation measures taken: The area was designated as a wetland of international importance by Decree No 1049 of the USSR Government on 25 December 1975.

The site includes the 54,255 ha Kandalakshsky Strict Nature Reserve ('zapovednik'). The reserve was established in 1932 to conserve the population of common eider. In succeeding years, the reserve was extended in area more than once. The last extension was made in 1977, when the sea waters surrounding the protected islands were included in the totally protected area. Practical protection of the reserve is carried out by the staff of 20 guards and rangers. Special permission of the reserve's administration is required to visit the area.

Outside the Kandalakshsky Nature Reserve, the protection of the Ramsar wetlands is conducted by the local Fishery Inspection (six people).

The site also includes four nature monuments located in the coastal zone and on the islands.

24. Conservation measures proposed but not yet implemented: It has been proposed to publish and widely distribute the Regulations of the Kandalaksha Bay Ramsar Site. In this publication, an emphasis should be put on imposing adequate penalties for the violation of the protection regime. A single management structure directly responsible for the protection of the Ramsar site should be identified.

25. Current scientific research and facilities: The first scientific research in the area date back to the 18th century, the period of 'great academic expeditions' (Ozeretskovsky, 1773). A.F.Middendorff made a brief survey of the area in the early 19th century (Middendorff, 1843). More detailed surveys were conducted by the 1867 expedition of M.N.Bogdanov (Pleske, 1887) and by G.F.Gebel in 1902. Regular research into the Kandalaksha avifauna were started in 1932, when the nature reserve was set aside. At first these were rather fragmentary, but in the late 1940s, complete monitoring studies began. Now eight researchers of the Kandalakshsky Nature Reserve are in charge of the ecosystem monitoring in the area. The results have been published in the reserve's collective books and other literature. Regular research on the regional fauna is also conducted at the biological stations, established in the area by the Zoological Research Institute, Russian Academy of Sciences, Moscow University and Saint Petersburg University.

26. Current conservation education: Many students from the Universities of Moscow and Saint Petersburg took part in the biological studies at the site each year. A great number of books, articles of popular literature, posters and television programmes have been produced.

27. Current recreation and tourism: Local people use the area for fishing and collecting of mushrooms and berries. There is a summer camp for school children at the Palkina Guba area. Eco-tourism has been promoted with excursions for students. Lake Kolvitsky and the banks of the Niva River are popular tourist destinations, for boating, canoeing and sight-seeing.

28. Jurisdiction:

Territorial: Administration of Murmansk Region (75 Lenin Street, Murmansk 183006, Russia).

Administration of Kandalaksha (34 Pervomaiskaya Street, Kandalaksha, Murmansk Region 184040, Russia).

Functional: State Committee of the Russian Federation for Environmental Protection (4/6 Bolshaya Gruzinskaya Street, Moscow 123812, Russia).

29. Management authority: Regional Committee for Environmental Protection (28 Profsoyuz Street, Murmansk 183038, Russia).

Administration of Kandalakshsky Nature Reserve (35 Lineinaya Street, Kandalaksha, Murmansk Oblast 184040, Russia).

30. Bibliographical references: Agro-climatic reference book (1961); Babkov & Golikov (1984); Bianki (1996); Byzova *et al.* (1986); Gebel (1903); Karpovich (1984); Middendorff (1843); Naumov, Skarlato & Fedyakov (1987); Oceanographical conditions and biological productivity of the White Sea (1991); Ozeretskovsky (1773); Pleske (1887); Red Data Book of RSFSR (1988); Rare and threatened plants and animals in Murmansk Region (1990); Vareichuk & Ignatov (1989).
