

# Ramsar Information Sheet

Published on 9 March 2018 Update version, previously published on : 6 August 2002

# **Norway**Balsfjord Wetland System



Designation date 6 August 2002 Site number 1186 Coordinates 69°27'09"N 18°59'30"E Area 1 795,00 ha

https://rsis.ramsar.org/ris/1186 Created by RSIS V.1.6 on - 18 May 2020

# 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

Balsfjorden Wetland System consists of three large marine tidal areas located within a fjord with the same name: Sørkjosleira in the inner part of Balsfjorden, Kobbevågen in the outer part and Grindøysundet in the Tromsø strait. At a low tide they reveal large areas of mud- and sandflats, while wet coastal meadows are found between the tidal areas and cultivated land outside the site boundaries. Gallery forests outline the site in some locations. Several rivers and streams discharge into the fjord through the tidal flats within Kobbevågen and Sørkjosleira. Grindøysundet contains some small ponds important for the birdlife.

The fjord has high densities of intertidal invertebrates (notably Macoma and Mytilus) and fish populations which support large numbers of shorebirds and seabirds. Balsfjorden, and perhaps Sørkjosleira in particular, is important as being one of only two resting sites in northern Norway for large numbers of spring migrant knots, which fly direct to Balsfjord from early spring staging areas in the United Kingdom and the Wadden Sea. They stay in Balsfjord for 2-3 weeks in May, and build up substantial fat reserves, before being believed to fly non-stop to their breeding grounds in Greenland and Arctic Canada. Balsfjord is one of only two fjords in the region used by this population.

The site has also a great importance as a staging, moulting and wintering area for a number of other waterfowl species, including swans, divers, grebes, ducks and waders including the black-throated diver Gavia arctica and the Slavonian Grebe Podiceps auritus.

# 2 - Data & location

# 2.1 - Formal data

2.1.1	<ul> <li>Name</li> </ul>	and	address	of the	compiler	of this	RIS
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Name	Ellen Haakonsen Karr
Institution/agency	Norwegian Environment Agency
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Postal address	P.O. Box 5672 Torgarden, N-7485 Trondheim, Norway
E-mail	post@miljodir.no
Phone	+47 73 58 05 00

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

From year 2002

To year 2017

#### 2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)

Balsfjord Wetland System

#### 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 O
(Update) The boundary has been delineated more accurately ☑
<sup>(Update)</sup> The boundary has been extended ✓
<sup>(Update)</sup> The boundary has been restricted □
(Update) B. Changes to Site area the area has increased
(Update) The Site area has been calculated more accurately □
(Update) The Site has been delineated more accurately □
(Update) The Site area has increased because of a boundary extension ✓
(Update) The Site area has decreased because of a boundary restriction □

#### 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?

(Update) Optional text box to provide further information

There have been a decrease in the migrating population of Red Knots in the area. This is due to the fact that the population of Red Knots have declined in general. The site still supports such a variety and high quantity of birds each year that for now we do not consider the ecological character of the site changed.

#### 2.2 - Site location

# 2.2.1 - Defining the Site boundaries

#### b) Digital map/image

<4 file(s) uploaded>

Former maps 0

### Boundaries description

The boundary is the same as the existing nature reserves Grindøysundet, Sørkjosleira and Kobbevågen.

#### 2.2.2 - General location

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

Troms county

b) What is the nearest town or population Tromsø centre?

# 2.2.3 - For wetlands on national boundaries only

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

b) Is the site adjacent to another designated Ramsar Site on the Yes O No (9) territory of another Contracting Party?

# 2.2.4 - Area of the Site

Official area, in hectares (ha): 1795

Area, in hectares (ha) as calculated from 1795.9 GIS boundaries

# 2.2.5 - Biogeography

#### Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
EU biogeographic regionalization	Arctic
Other scheme (provide name below)	1- Middle boreal vegetation zone (Kobbevågen borders northern boreal zone), slightly oceanic section (Mb – O1).

#### 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- Biogeographical regions, Europe 2005, European Environment Agency, (http://www.eea.europa.eu/data-and-maps/figures/biogeographicalregions-europe-2005-with-national-bo undaries)

# 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 Site is representative in this region of northern Norway. Fjords with shallow sea bays and large intertidal zones (mudflats and sandflats) occur in particular in the inner parts of the fjords and where rivers discharge into the fjord. Balsfjord is a particularly good example of this type of system in the region, with high densities of intertidal invertebrates (notably Macoma and Mytilus) and fish populations which support large numbers of shorebirds and seabirds.

Sørkjosleira, the nature reserve in the innermost part of the fjord, has international value as stop-over site for large numbers of water birds.

- ☑ Criterion 2 : Rare species and threatened ecological communities
- ☑ Criterion 3 : Biological diversity

Justificatio

Balsfjord supports significant numbers and diversity of waterfowl, waders and passerines, particularly in spring, notably being one of only two sites in northern Norway for large numbers of sping migrant Knots Calidris canutus islandica. It is also unusual for the region in supporting one of the most northerly breeding populations of Shelduck Tadorna tadorna in Europe. Balsfjord also supports a very northerly wintering population of Purple Sandpiper Calidris maritima, although these occur mostly outside the designated site.

- ☑ Criterion 4 : Support during critical life cycle stage or in adverse conditions
- ☑ Criterion 7 : Significant and representative fish

Justification

The local and separate population of Herring Clupea herengus is totally confined to this area throughout its annual cycle. Whether the population constitutes a separate subspecies or only a population remains to be seen, however studies shows that it is genetically separate from other populations. Normally the entire stock spawns inside the site. The herring population is particularly important for breeding birds in the area, during winter the stock is also preyed upon by Killer Whale Orcinus orca (usually at other sites than the Ramsar site).

☑ Criterion 8 : Fish spawning grounds, etc.

Justification

A local separate population of herring spawned only at a limited area of 70.000m2 inside the site as showed by studies in 1988. Normally the population will use this limited area as a spawning site.

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

<no data available>

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

Phylum	Scientific name	Common name	Species qualifies under criterion	Specie contribu under criterio 3 5 7	Pop. Size	Period of pop. Est.	% IUC occurrence Rec 1) Lis	Appendix	CMS Appendix I	Other Status	Justification
Birds											
CHORDATA/ AVES	Anas clypeata	Northern Shoveler					LC Gi			National red list status: VU	Criterion 4: This rare species breeds in small numbers in the area.
CHORDATA/ AVES	Anas penelope	Eurasian Wigeon									Criterion 4: Important feeding/moulting area for this species. 580 individuals counted in 2013
CHORDATA/ AVES	Aythya marila	Greater Scaup	9900				LC			National red list status: VU	Criterion 4: this species use the small ponds in Grindøysundet as staging area in spring and autumn
CHORDATA/ AVES	Calidris canutus islandica	Knot			3250						Criterion 3: Balsfjord is one of only two sites in northern Norway for large numbers of spring migrant Knots. However, the number of birds resting here have been decreasing in the last years.
CHORDATA/ AVES	Calidris maritima	Purple Sandpiper			500		LC ●数 ●服			Annex II, Bern Convention	500 ind. Criterion 3: Balsfjord supports a very northerly wintering population of Purple Sandpiper Calidris maritima, although these occur mostly outside the two designated areas. Criterion 4: Balsfjord also has importance as a staging and wintering area.
CHORDATA/ AVES	Clangula hyemalis	Oldsquaw; Long- tailed Duck			650		VU © CSS			National red list status: NT	Criterion 4: Important wintering area for this species.
CHORDATA/ AVES	Gavia adamsii	Yellow-billed Loon					NT			Annex II, Bern Convention	Criterion 4: Wintering site for this species.
CHORDATA/ AVES	Gavia arctica	Black-throated Loon; Arctic Loon					LC ●鈴			Annex II, Bern Convention	Criterion 4: This is an important wintering site for this species.
CHORDATA/ AVES	Haematopus ostralegus	Eurasian Oystercatcher					NT Star				Criterion 4: Important breeding site for this species.
CHORDATA/ AVES	Limosa limosa	Black-tailed Godwit	2200				NT • \$\$			National red list status: EN	Criterion 3: Balsfjord supports a significant diversity of waterbirds, including rare species like the Black-tailed Godwit Criterion 4: Balsfjord has importance as a staging and wintering area for this species.
CHORDATA/ AVES	Melanitta fusca	White-winged Scoter; Velvet Scoter	220C		450		VU © CR			National red list status: VU	Criterion 4: Important wintering ara for this species.
CHORDATA/ AVES	Philomachus pugnax	Ruff								National red list status: EN	Criterion 4: Breeding site for the Ruff Philomachus pugnax
CHORDATA/ AVES	Plectrophenax nivalis	Snow Bunting					LC Sign				Criterion 4: Important staging area for this species.
CHORDATA/ AVES	Podiceps auritus	Horned Grebe			100		VU ##   0 (%)			National red list status: VU	Criterion 4: Important staging area for this species.
CHORDATA/ AVES	Tadorna tadorna	Common Shelduck			10		LC ● \$\$			Annex II, Bern Convention	10 breeding pairs Criterion 3: one of the most northerly breeding populations of Shelduck in Europe. Criterion 4: Balstjord also has importance as a staging and wintering area for this species.
Fish, Mollusc	and Crustacea										
CHORDATA/ ACTINOPTERYGI	Clupea harengus	Matje cured herring			3000000		LC ● 数 ● 開				Criterion 8: Alocal separate population of herring spawned only in a limited area of 70.000m2 inside the site as showed by studies in 1988. The population numbers ca. 3 millions spawning individuals.

Phylum	Scientific name	Common name	criterion	Species contributes under criterion 3 5 7 8	Size	Period of pop. Est.	% occurrence 1)		CITES Appendix I	CMS Appendix I	Other Status	Justification
Others												
CHORDATA/ MAMMALIA	Lutra lutra	European Otter						NT	1		National red list status: VU	Criterion 4: This species breeds in all three sub-sites.

<sup>1)</sup> Percentage of the total biogeographic population at the site

Matje cured herring, Clupea harengus, justification for criterion 7: The local and separate population of Herring Clupea herengus is totally confined to this area throughout its annual cycle. Whether the population constitutes a separate subspecies or only a population remains to be seen, however studies show that it is genetically separate from other populations. Normally the entire stock spawns inside the site. The herring population is particularly important for breeding birds in the area, during winter the stock is also preyed upon by Killer Whale Orcinus orca (usually at other sites than the Ramsar site).

#### Molluscs:

A high production of mollusks (especially Macoma and Mytilus) is the main attraction for the migratory birds. The tiny mollusks numbers millions pr. m2.

# 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
Mud- and sandflats		Extensive mud- and sandflats that conta high densities of intertidal invertebrates (notably Macoma and Mytilus)		These areas support large numbers of migrant waterbirds, such as the Red Knot
Eelgrass meadows		Zostera spp. beds in the shallow water	rs .	Eelgrass Meadows is Associated With a high biodiversity. This is an important nursing ground and Source of Food for various species of Fish.

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

#### 4.1 - Ecological character

Situated in the northern boreal zone, characterized by: Coastal forests of Betula pubescens and Alnus incana.

Besides the dominant ecological feature of extensive mudflats, smaller areas of wet meadows occur along the shorelines.

The extensive mudflats that support high densities of invertebrates like mussels, is important to large numbers of different waterbirds and waders in critical stages of their life cycle.

The shorelines and wet meadows have been mapped and six different plant communities have been described all quite typical for the northern regions and mostly dependent/influenced by salt or brackish waters. Zostera spp and Najas spp beds in the shallow waters, wet and salt influenced foreshores with eg Puccinella spp, and salt tolereant Carex subspathacea meadows is a dominant feature and biogeographically typical.

Sørkjosleira is characterized by brackish waters and a high production of molluscs. At Kobbevågen a small mire constitutes part of the protected site.

Gallery forests (Betula, Alnus and Salix) occur along rivers and shorelines. They are not extensive, but an important feature for flora and fauna.

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

#### Marine or coastal wetlands

Wetland types (code and	Wetland types (code and								
name)	Local name	Ranking of extent (1: greatest - 4: least)	of wetland type	Justification of Criterion 1					
A: Permanent shallow marine waters		2							
G: Intertidal mud, sand or salt flats		1		Representative					

#### Inland wetlands

illianu wellanus				
Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils		3		
Fresh water > Marshes on peat soils >> U: Permanent Non- forested peatlands				
Fresh water > Marshes on inorganic soils >> Xf: Freshwater, tree-dominated wetlands		4		

# 4.3 - Biological components

#### 4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
Najas affinis		
Puccinellia maritima		
Ruppia maritima		

#### Optional text box to provide further information

Gallery forests (Betula, Alnus and Salix) occur along rivers and shorelines, although not extensive, it is an important feature for flora and fauna.

#### 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
CHORDATAAVES	Charadrius hiaticula	Common Ringed Plover				
CHORDATAVAVES	Fringilla montifringilla	Brambling				
CHORDATA/AVES	Gavia stellata	Red-throated Diver;Red- throated Loon	56			(56 individuals)
CHORDATA/AVES	Falco columbarius	Merlin				Grindøysundet: hunting site for this species
CHORDATA/AVES	Falco peregrinus	Peregrine Falcon				Grindøysundet: hunting site for this species
CHORDATA/AVES	Haliaeetus albicilla	White-tailed Eagle				Grindøysundet: hunting site for this species
CHORDATAMAMMALIA	Orcinus orca	Killer Whale				Regularly seen in the inner part of Balsfjord, preying upon the local Herring Clupea harengus stock.
CHORDATAMAMMALIA	Phocoena phocoena	Harbor Porpoise				Regularly seen in the fjord, feeding on stocks of herring and capelin.
CHORDATA/AVES	Somateria mollissima	Common Eider	400			Grindøysundet: About 200 pairs breed on the island Grindøya each year
CHORDATA/AVES	Somateria spectabilis	King Eider				Grindøysundet: important winter area for this species

# 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 climate is coastal and northern, with relatively warm and short summers, long, but relatively mild winters in coastal areas. Annual precipitation is >1000mm.

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4.4.2 -	Geom	orphic	settina

a) Mnimum 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.

Sørkjosleira: Three watercourses and some smaller creeks enter the site. By full ebb the mudflats stretches 700m out.

Kobbevågen: Two larger rivers enter the site. Some places the mudflats are replaced by harder surfaces.

Grindøysundet: part of the Tromsø strait and Malangen fjord system

Norwegian Sea

#### 4.4.3 - Soil



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

Please provide further information on the soil (optional)

#### 4.4.4 - Water regime

#### Water permanence

Water permanence	
Presence?	Changes at RIS update
Usually permanent water present	
Usually seasonal, ephemeral or intermittent water present	

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from surface water		No change
Marine water		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.

Sørkjosleira: Three watercourses and some smaller creeks enter the site. By full ebb the mudflats stretches 700m out. Kobbevågen: Two larger rivers enter the site. Some places the mudflats are replaced by harder surfaces.

	_				
4.4.5	- 56	dim	ent.	regi	me

Sediment	regime u	nknown L
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<no data available>

#### 4.4.6 - Water pH

Unknown

<no data available>

#### 4.4.7 - Water salinity

Fresh (<0.5 g/l) 🗹

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

Mxohaline (brackish)/Mxosaline (0.5-30 g/l) ✓

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

Euhaline/Eusaline (30-40 g/l) ✓

Unknown

 $^{ ext{(Update)}}$  Changes at RIS update No change oldot Increase O Decrease O Unknown O

#### 4.4.8 - Dissolved or suspended nutrients in water

Unknown

<no data available>

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

Please describe whether, and if so how, the landscape and ecological  $% \left( 1\right) =\left( 1\right) \left( 1\right$ 

characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar O ii) significantly different  $\odot$  site itself.

Surrounding area has greater urbanisation or development  $\square$ 

Surrounding area has higher human population density

Surrounding area has more intensive agricultural use

Surrounding area has significantly different land cover or habitat types  $\ \square$ 

# 4.5 - Ecosystem services

## 4.5.1 - Ecosystem services/benefits

#### Provisioning Services

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Ecosystem service	Examples	Importance/Extent/Significance
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	Water sports and activities	Medium	
Scientific and educational	Major scientific study site	Medium	
Scientific and educational	Long-term monitoring site	Medium	

#### Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Soil formation	Sediment retention	Medium
Nutrient cycling	Carbon storage/sequestration	Low

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

Some grazing of the wet meadows by husbandry, gravel digging for local use occurs, some leisure activities as horse-riding and swimming also occur. In general little impact and low traffic.

No facilities erected. High international interest in research on the migration of waders in the area, cf. a number of publications. The birds in the area are annually monitored and research on birds by Norwegian Institute for Nature Research continues.

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site?

#### 4.5.2 - Social and cultural values

<ul> <li>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</li> </ul>	
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 $\mathfrak l$ 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

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	<b>2</b>	<b>2</b>

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

Within the site: Private In the surrounding area: Private

# 5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for	
managing the site:	
Postal address:	Statens Hus, N-9291 Tromsø
E-mail address:	fmtrpostmottak@fylkesmannen.no

# 5.2 - Ecological character threats and responses (Management)

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

Please describe any other threats (optional):

at the site: Little impact today	
around the site: Little impact today.	

# 5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Nature Reserve	Balsfjord Wetland System		whole

## 5.2.3 - IUCN protected areas categories (2008)

ia Strict Nature Reserve L
Ib Wilderness Area: protected area managed mainly for wilderness protection
II National Park: protected area managed mainly for ecosystem protection and recreation
Ill 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

<no data available>

# 5.2.4 - Key conservation measures

Legal protection

Logar protocion		
	Measures	Status
	Legal protection	Implemented

# 5.2.5 - Management planning

Is there a site-specific management plan for the site? No

Has a management effectiveness assessment been undertaken for the site?

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning Yes O No 

processes with another Contracting Party?

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

Posters have been erected in both areas, no other educational facilities have yet been produced.

There is also a comprehensive book on the Balsfjord Wetland System.

# 5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Please select a value

#### 5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Birds	Implemented

No facilities erected. High international interest in research on the migration of waders in the area, cf. a number of publications. The birds in the area are annually monitored and research on birds by Norwegian Institute for Nature Research continues.

# 6 - Additional material

#### 6.1 - Additional reports and documents

#### 6.1.1 - Bibliographical references

#### Botany

Fjelland, M., Elven. R. & Johansen, V. 1983. Botaniske verneverdier på havstrand i troms. Miljøverndepartementet. Rapport T-551. 291pp. (in Norwegian - on marine wet meadows and botanical values).

#### Birds:

Davidson, N.C. & Evans, P.R. 1986. The ecology of migrant knots in North Norway during May 1985. Report SRG86/1, Shorebird Research Group, University of Durham.

Strann, K.B. 1990. The status of breeding Shelducks Tadorna tadorna in North Norway. Fauna norv. Ser. C. Cinclus 14:1-5.

Strann, K.B. 1992. Numbers and distribution of Knot Calidris canutus islandica during spring migration in North Norway 1983-1989. Wader Study Group Bull. 64, Suppl.: 121-125.

Summers, R.W., Strann, K.B., Rae, R. & Heggås, J. 1990. Wintering Purple Sandpipers Calidris maritima in Troms county, northern Norway. Ornis cand. 21:248-254.

Lurås, I.J. 1994. Gytebiologi hos Balsfjordsild og betydningen av gytebiotopens sammensetning for eggenes fordeling og tetthet.

Hovedfagsoppgave i marin økologi. Norges fiskerihøgskole, Universitetet i Tromsø. (in Norwegian - on the local population of Balsfjordherring)

Oug, E. 1999. Polychaetes from intertidal rocky and sedimentary habitats in the region of Tromsø, northern Norway. Norwegian Institute for Water Research. Short note.

Study on the distribution and densities of Mytilus and Macoma molluscs.

Henriksen S. og Hilmo O. (red.) 2015. Norsk rødliste for arter 2015 - 2015 Norwegian Red List. Artsdatabanken, Norway Moen, A. 1998. National Atlas of Norway: Vegetation. Norwegian Mapping Authority, Hønefoss Wartena, E.M.M. 1998.

#### 6.1.2 - Additional reports and documents

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

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

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

#### iv. relevant Article 3.2 reports

<no file available>

# v. site management plan

#### vi. other published literature

<no data available>

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

# Please provide at least one photograph of the site



Balsfjord ( Gunnar Kjærstad,



Balsfjord ( Gunnar Kjærstad, 04-06-2017 )

#### 6.1.4 - Designation letter and related data

#### **Designation letter**

<1 file(s) uploaded>

Date of Designation 2002-08-06