



An inventory of UK estuaries

Volume 3 North-west Britain

Compiled by A.L. Buck

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5 The estuaries

A.L. Buck

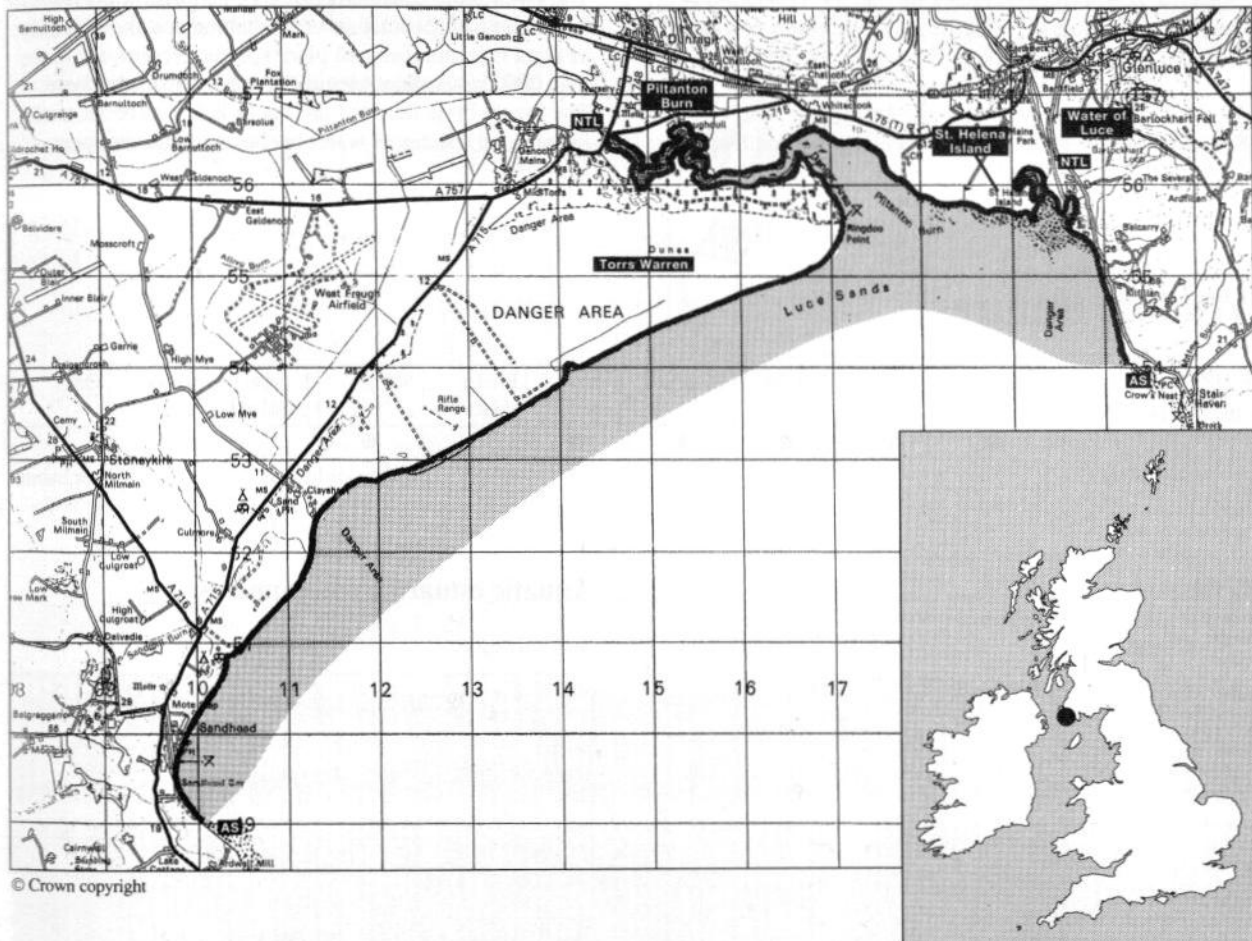


Upper Solway Flats and Marshes. The geomorphology of the saltmarshes within the Solway Estuary is outstanding. (Peter Wakely, English Nature)

Centre grid: NX1855
Region: Dumfries & Galloway

District: Wigtown
SNH region: South-west Scotland

Review site location



Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
1,228	1,196	27.5	8.5	5.3	Linear shore	< 5,000

NTL = Normal tidal limit

AS = Along shore

■ = Core site

Description

Luce Bay is a very shallow, sandy estuary on the south-west coast of Scotland. The two small inflows of freshwater stem from the Water of Luce and Piltanton Burn, which join near the eastern shore close to the sea. The water quality of the estuary has been graded as class 1, except for Piltanton Burn which was class 2.

There are two areas of saltmarsh within the estuary. The larger area stretches along Piltanton Burn and there is a smaller patch where the Water of Luce flows into the estuary. It is within the saltmarshes that the vegetation is most abundant, and the vegetation communities present show a transition to grassland.

At low water a large proportion of the estuary is an 800 metre wide sandflat which extends as far south-east

as Sandhead Bay, and in the east of the estuary at St Helena Island the sand is interspersed with shingle. Behind this large sandflat lies the large and diverse sand dune system of Torrs Warren, the largest acidic dune system in western Scotland. The dunes extend for almost 10 km along the shore, and the system is well-supplied with sand sediments from offshore. There is a contrasting morphology within the site with low, parallel foredunes, high transverse dunes with recent erosion, older dunes on raised beach ridges, and well-developed dune slacks. Torrs Warren is considered to be of national importance for the undisturbed nature of the habitat and the diversity of plant communities and plant species present, for more than 200 higher plant species have been recorded here. The invertebrate fauna of the dunes is also diverse, with uncommon species of water beetles and grasshoppers.

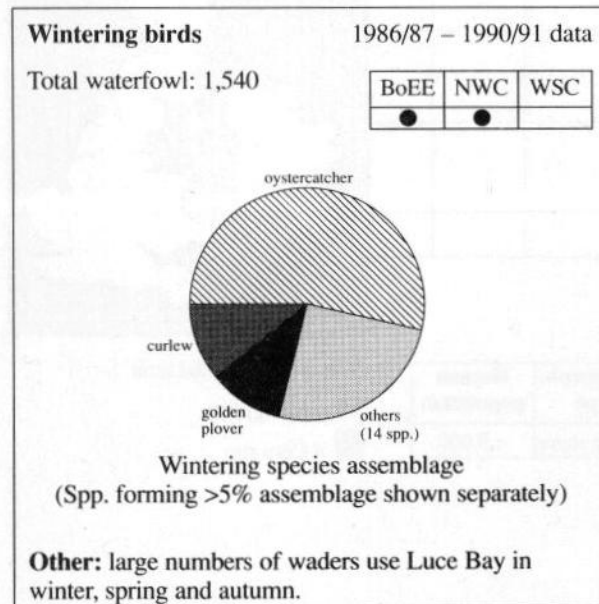
Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●	●		●			
Area (ha)	32	36	1160							

● = major habitat ● = minor habitat

Birds



Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	●											●			

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
	●															

Additional wildlife features

The invertebrate fauna recently recorded on the estuary includes the RDB 3 beetle *Hydrochus brevis* and nine Notable species.

Otters are present on the estuary.

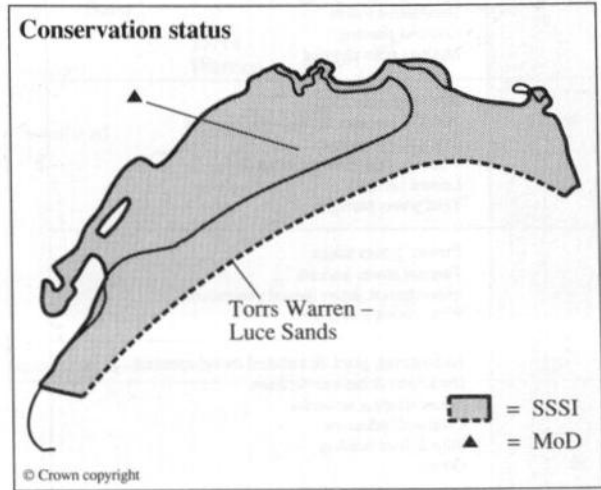
Conservation status

● = designated ● = proposed

No.	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other	
	●	●			●			●	●											●
	1	1			1			1	1											1

Much of the estuary lies within the Torrs Warren-Luce Sands Site of Special Scientific Interest (2,400 ha), which is an SSSI for its biological and geomorphological interest. Torrs Warren is a Nature Conservation Review site and Luce Sands is a Geological Conservation Review site, part of which is owned by the Ministry of Defence.

Lochinch and Torrs Warren are proposed as a Special Protection Area and Ramsar site.



Torrs Warren, the largest acidic sand dune system in Scotland, extends for almost 10km along the shore. (Pat Doody, JNCC)

Human activities

Present	Proposed	
		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
●		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
●		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
●	●	Military activities Overflying by military aircraft Others
●	●	Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
●	●	Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●	●	Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
●	●	Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

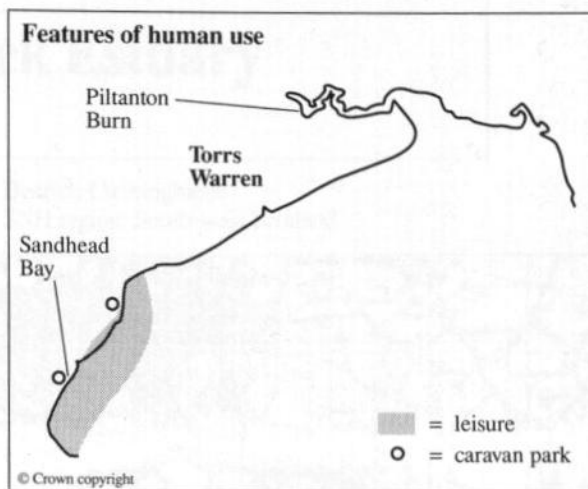
Present	Proposed	
●		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
●		Wildfowling & hunting Wildfowling Other hunting-related activities
●		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
●		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs – Hand-gathering Dredging Hydraulic dredging
		Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
●	●	Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

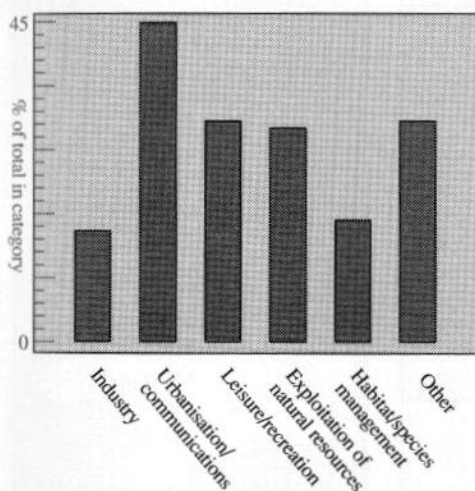
On Luce Bay the human activities present are not intensive. Leisure pursuits are centred on Sandhead Bay in the south-east of the site and include sailing, horse-riding and beach recreation. An agreement exists that trial-biking occurs only within organised events.

Exploitation of the natural resources includes trawling for fish and Crustacea, lobster- and crab-potting, boulder turning for crabs for bait, and bait-digging on the shores of Sandhead Bay. Wildfowling occurs on the foreshore close to Piltanton Burn.

Other activities include the commercial extraction of sediments at the southern end of Torrs Warren, and military exercises.



Categories of human use



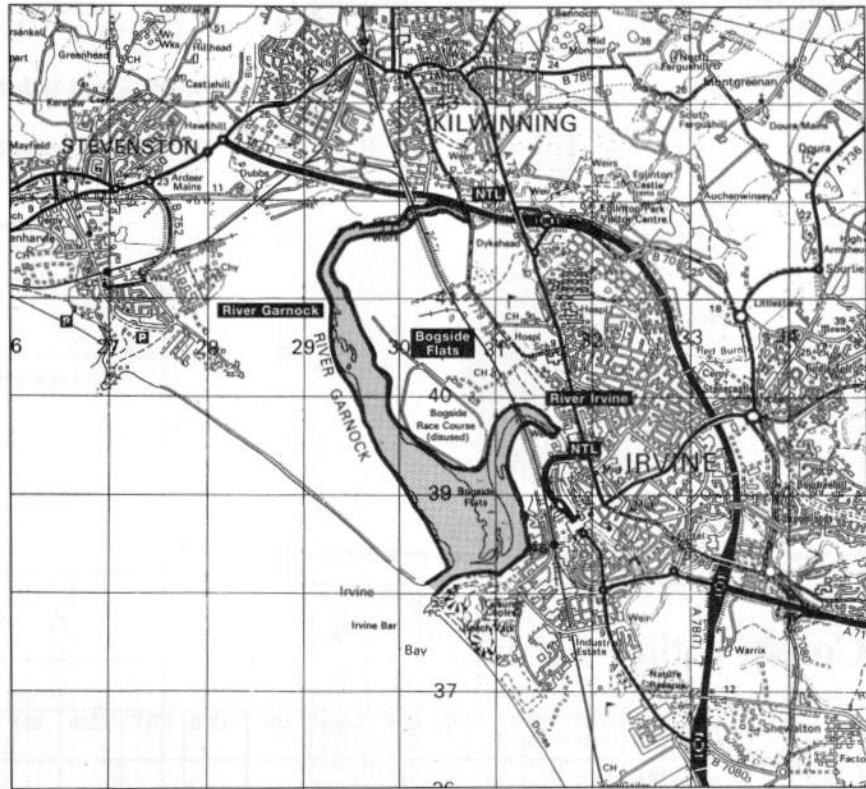
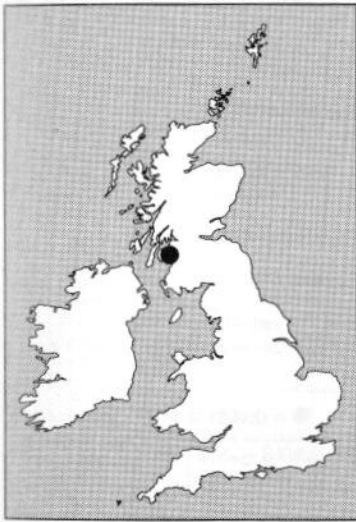
Further reading

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Garnock Estuary

Centre grid: NS3039 District: Cunninghame
Region: Strathclyde SNH region: South-west Scotland

Review site location



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NTL = Normal tidal limit

XM = Across mouth

■ = Core site

Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
204	161	17.4	5.6	3.2	Bar built	49,000

Description

The Garnock is the common estuary of the Rivers Garnock and Irvine, and flows into the sea through a narrow mouth close to the town of Irvine. In the past this estuary has suffered severe industrial pollution from a chemical plant, lowering the pH to 2 and increasing organic nutrients, copper and zinc. Since the construction of a long sea outfall in 1981 pollution in the estuary has decreased, but although the algal flora has shown signs of improvement, the estuary has not yet fully recovered. Water quality within the estuary has been graded as class 2.

The Garnock Estuary has the only large expanse of saltmarsh or merse and mudflats between the Solway Firth and the Clyde Estuary, and is the best example of

this habitat in Ayrshire. The intertidal flats are predominantly muddy, apart from a small area of sandflat which fringes the shore at Irvine. The largest area of saltmarsh is at Bogsides Flats, and narrow strips of saltmarsh extend along the eastern shores of the Rivers Garnock and Irvine. The saltmarsh vegetation present includes a variety of communities which represent different degrees of inundation, and shows a transition to grassland.

The intertidal mudflats, saltmarsh and adjoining pasture are used extensively as a feeding and roosting site by migrant and wintering waterfowl, and nationally important numbers of teal have recently been recorded in the estuary.

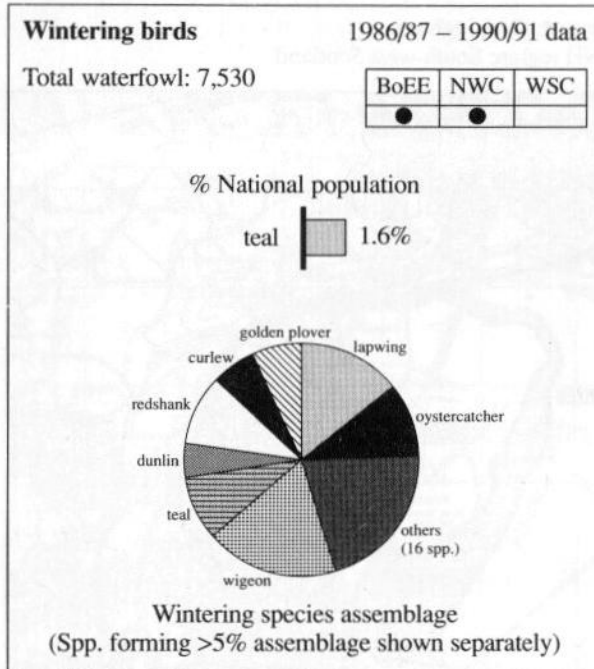
Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●						
Area (ha)	43	30	131							

● = major habitat ● = minor habitat

Birds



Aquatic estuarine communities

Information unavailable.

Additional wildlife features

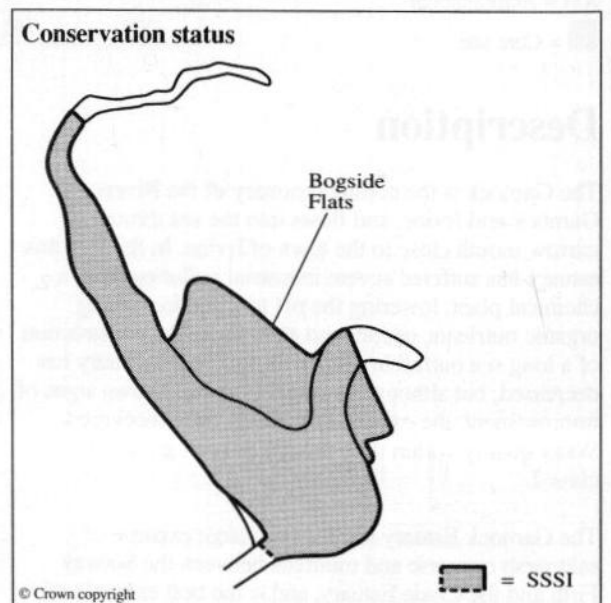
The endemic nationally scarce plant Isle of Man Cabbage *Rhynchosynapis monensis* is found within the estuary.

Conservation status

● = designated ● = proposed

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
No.			●				●												

Much of the estuary lies within the designated Bogside Flats biological Site of Special Scientific Interest (254 ha). There is also an informal proposal to designate the Garnock Estuary as a Local Nature Reserve.



Human activities

Present	Proposed	
●		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
●		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
●	●	Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
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		Military activities Overflying by military aircraft Others
●	●	Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
●		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●	●	Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
●		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present	Proposed	
●		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
●		Wildfowling & hunting Wildfowling Other hunting-related activities
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		Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
	●	Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

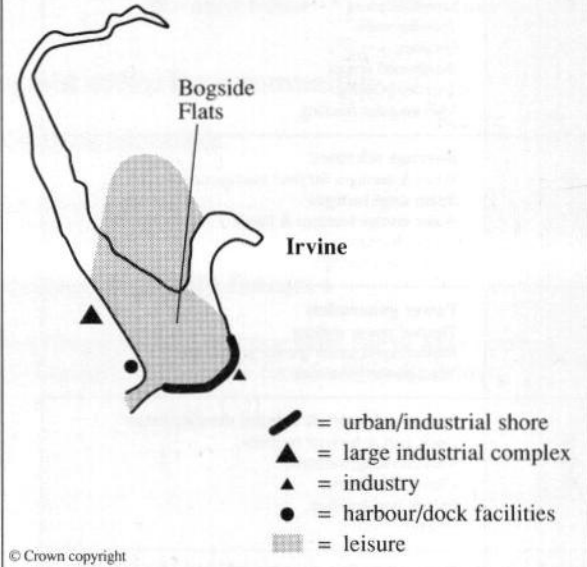
Most activities on the Garnock Estuary are generally not intensive. Leisure and recreational pursuits include sailing in the mouth of the estuary, angling, walking and horse-riding, and the south-eastern shore near the mouth of the estuary is devoted to leisure use.

Industrial activities include a major explosives industry that dominates the western side of the estuary mouth, covering an area of 270 ha of sand dune and saltmarsh. There is also a metal industry adjacent to the estuary at Irvine.

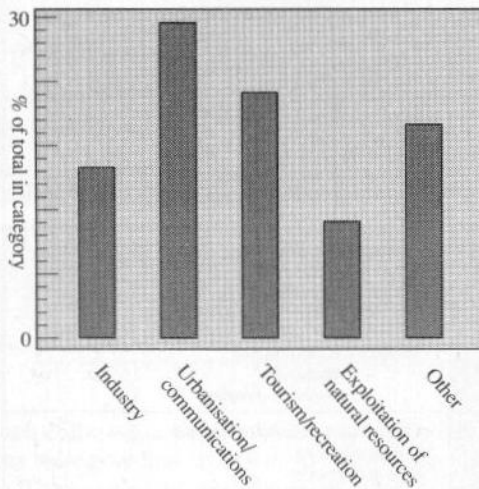
Exploitation of the natural resources is also not intensive, with bait-digging and wildfowling occurring on the Bogside Flats.

In 1989 there were proposals for habitat management of the area occupied by the explosives works. More recently jet-skiers have been using the estuary.

Features of human use



Categories of human use



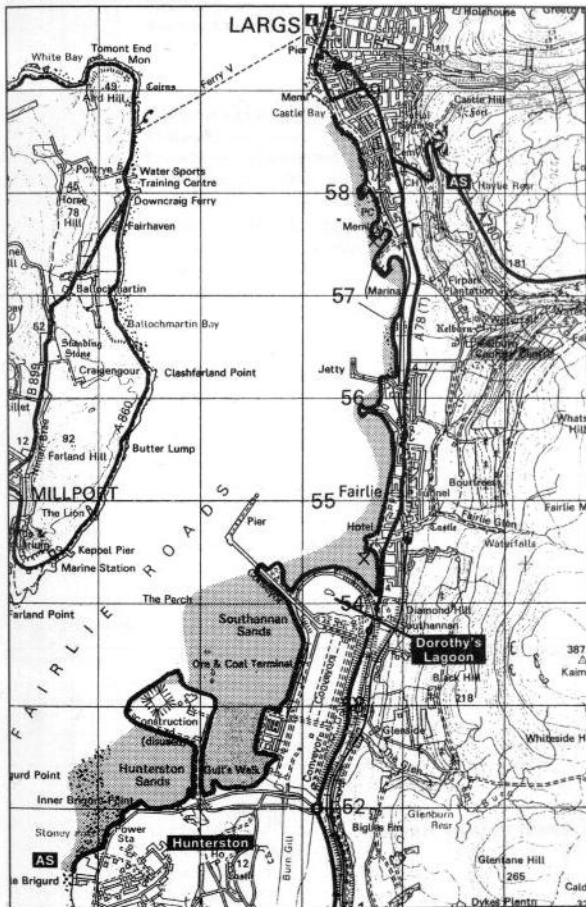
Further reading

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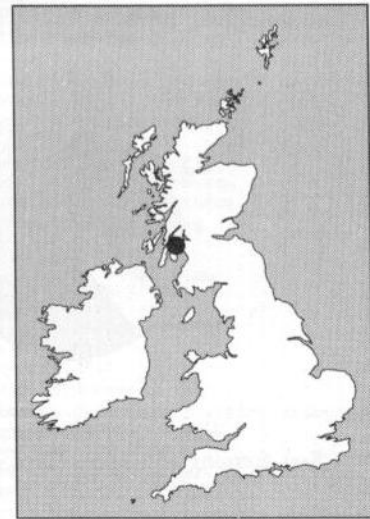
Centre grid: NS1953
Region: Strathclyde

District: Cunninghame
SNH region: South-west Scotland

Review site location



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AS = Along shore

■ = Core site

Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
291	291	16.4	—	2.9	Linear shore	< 5,000

Description

This estuary, also known as Fairlie Flats, is the largest area of intertidal sand on the outer Firth of Clyde. The shore has been greatly modified by the development of industry, and it is estimated that 170 ha of intertidal area has been lost by land-claim since 1970 (37% of the former estuary), with the establishment of the ore terminal, oil rig construction and power stations.

The estuary is a narrow band of intertidal flats stretching from Largs in the north to Hunterston in the south. North of Fairlie the narrow flats are a mixture of sand and

shingle, which become broader and sandier further south. In the shelter of the construction yard at Hunterston, the intertidal flats of Gulls Walk are more muddy. In the extreme south of the site Hunterston Sands is bounded by a small sand and shingle spit.

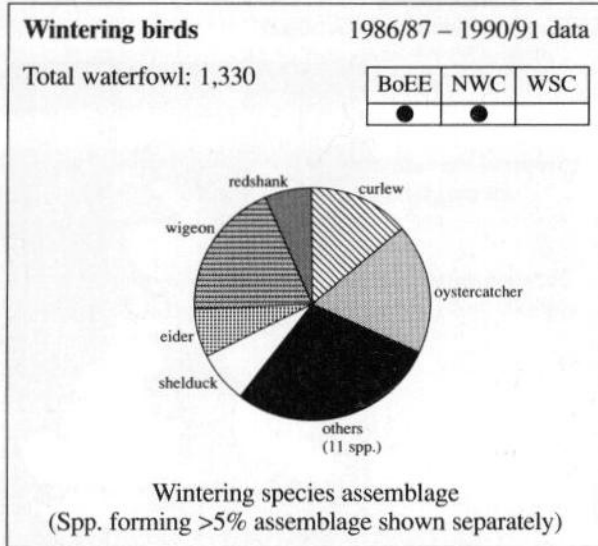
The estuary regularly supports wintering waders and wildfowl, which feed on the Southannan and Hunterston Sands and often use the pool known as Dorothy's Lagoon as a roosting site.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
Area (ha)			●	●		●	●			
	290						● = major habitat		● = minor habitat	

Birds



Aquatic estuarine communities

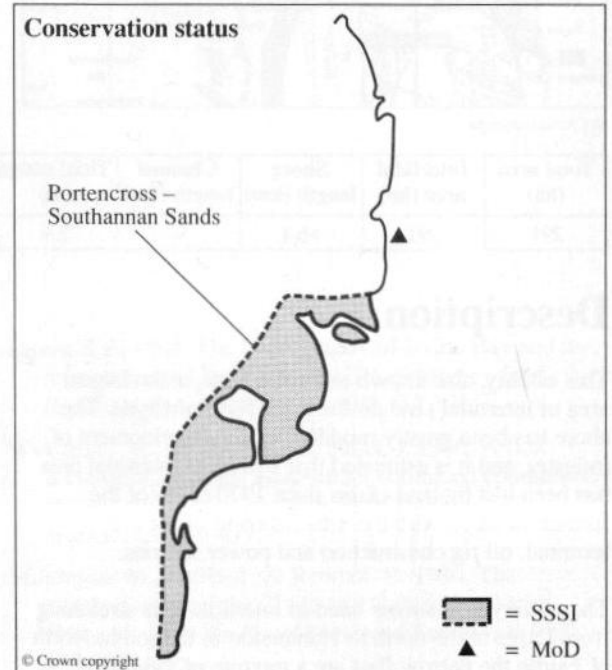
Information unavailable.

Conservation status

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
No.			●																●
			1																2

Portencross – Southannan Sands Site of Special Scientific Interest is awaiting renotification as an SSSI for its biological interest.

The Ministry of Defence own land at Fairlie, and Hunterston Sands falls within Strathclyde Regional Council's Renfrew Hills Regional Scenic Area. Offshore from the estuary the Great and Little Cumbrae Islands are a Marine Consultation Area.



Human activities

Present	Proposed	
●	●	Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
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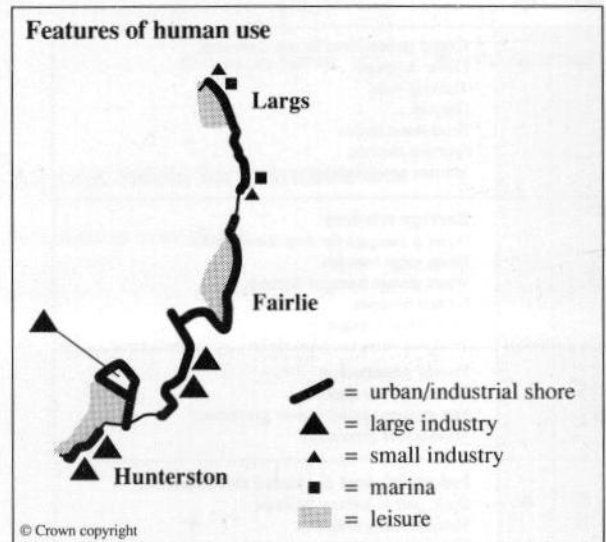
Present	Proposed	
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		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

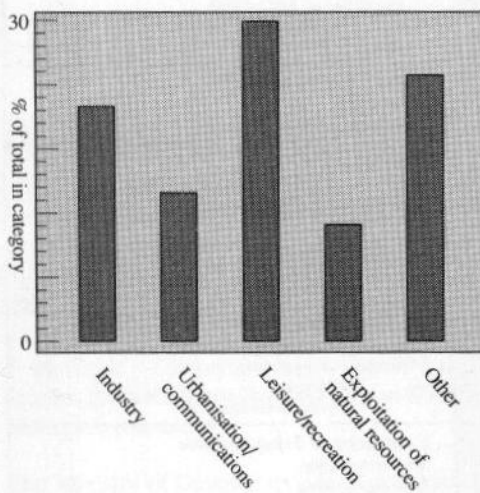
Hunterston Sands is dominated by industry, with a large ore terminal, oil rig construction and a steel metal stripping yard extending along the shore. In addition there are two small boat repair yards at Largs and Fairlie, and at the south end of the site Hunterston A and B power stations emit thermal discharges into the estuary.

Leisure pursuits are not extensive, with wind-surfing focused around the marinas at Fairlie and Largs. Sailing occurs mostly offshore, from the marinas and from the sports centre outside the estuary on Cumbrae Island. Exploitation of the natural resources is not extensive, but includes an established and well-contained turbot fish farm and shellfish cultivation.

In 1989 there were proposals to extend the facilities at the ore terminal and oil rig construction yard, and for mollusc cultivation.



Categories of human use



Further reading

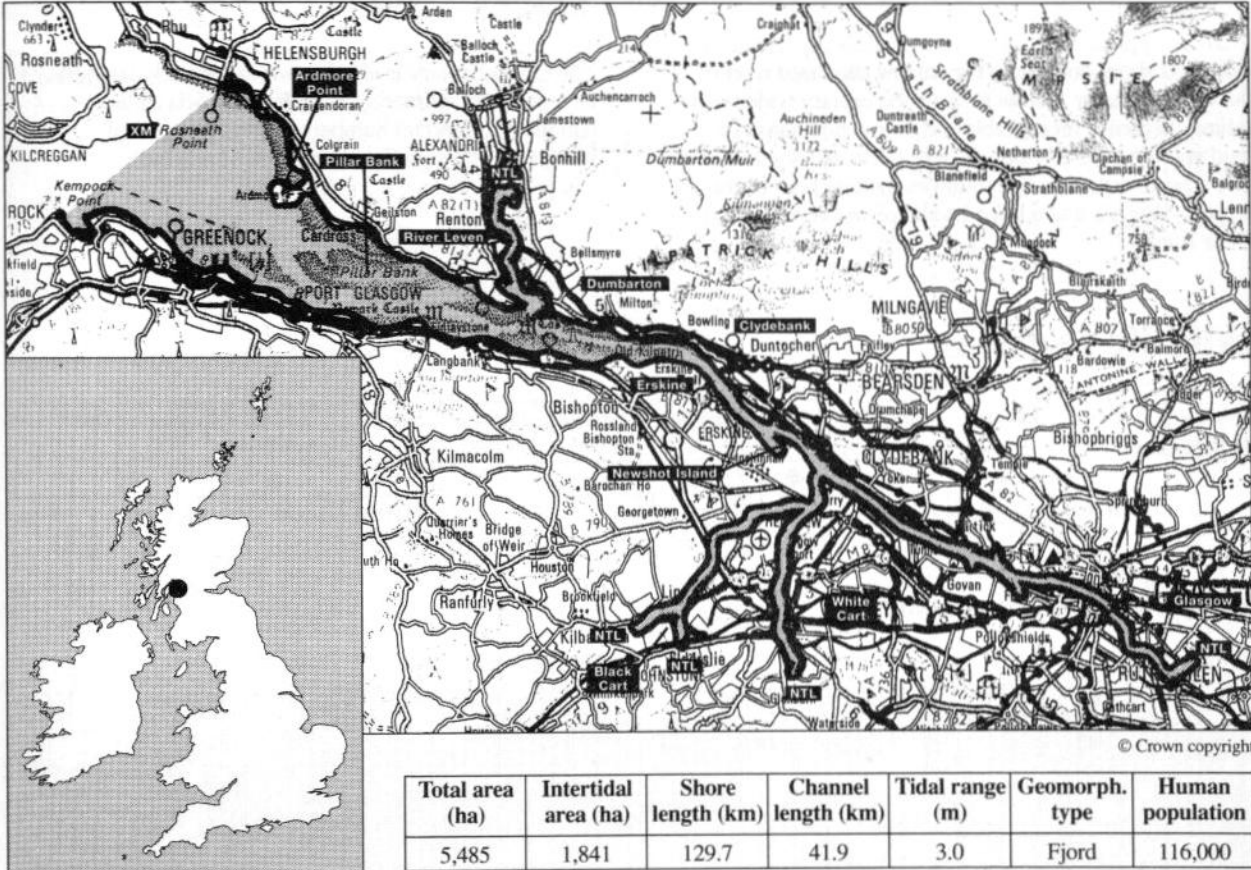
Barnett, P.R.O., & Watson, J. 1986. Long-term changes in some benthic species in the Firth of Clyde with particular reference to *Tellina tenuis* (da Costa). *Proceedings of the Royal Society of Edinburgh*, 90B: 287-302.

Inner Clyde Estuary

Centre grid: NS3675
Region: Strathclyde

Districts: Clydebank, Dumbarton, Glasgow,
Inverclyde, Renfrew.
SNH region: South-west Scotland

Review site location



NTL = Normal tidal limit

XM = Across mouth

■ = Core site

Description

The River Clyde flows through the centre of the city of Glasgow, and is fed from the freshwaters of the White Cart, Black Cart and the River Leven tributaries. The Clyde has suffered from industrial pollution for many years and in parts the estuary is still heavily polluted, with particularly high levels of chromium, lead and organic matter. Water quality within the estuary varies considerably, for the upper limits from Glasgow to Clydebank have been graded as class 4, from Clydebank to Dumbarton as class 3, and the lower estuary as class 2. The water quality of the estuary is beginning to show signs of improvement.

From its upper tidal limit down to Erskine, an urban and industrial shore dominates the narrow canalised river of the Clyde Estuary. Below Erskine the estuary widens, the salinity becomes more stable and at low tide banks of mud and sand are obvious on both north and south shores. The aquatic estuarine communities include beds of the eelgrass *Zostera* and a large bed of common mussels at Pillar Bank.

Only a relatively small proportion of the Clyde is saltmarshes, which lie largely in the upper reaches of the estuary at Newshot Island, west of Dumbarton on the northern shore and east of Erskine on the southern shore. There is also a small patch of saltmarsh at Ardmore Point. The vegetation contains a variety of typical saltmarsh communities with some plant species that are uncommon in Scotland. However the saltmarshes are of particular significance for, despite historical land-claim of intertidal areas for industrial development which usually results in loss of upper saltmarsh, a large proportion of the remaining saltmarshes show transition to freshwater swamps and grassland.

The Clyde Estuary is also known to regularly support almost 20,000 wintering waterfowl, which include nationally important numbers of five species and internationally significant numbers of redshank.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
Area (ha)	3,644	76	1,774							

● = major habitat ● = minor habitat

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				●									●	●	

Hard substrate

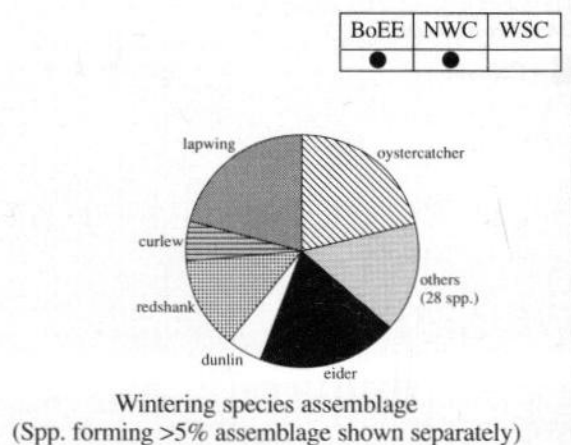
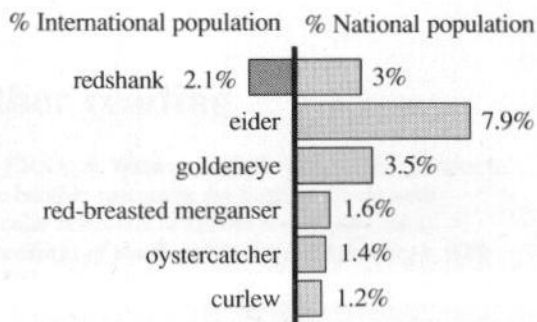
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Birds

Wintering birds

Total waterfowl: 19,600

1986/87 – 1990/91 data



Breeding birds: shelduck, eider and ringed plover are known to breed on the estuary.

Conservation status

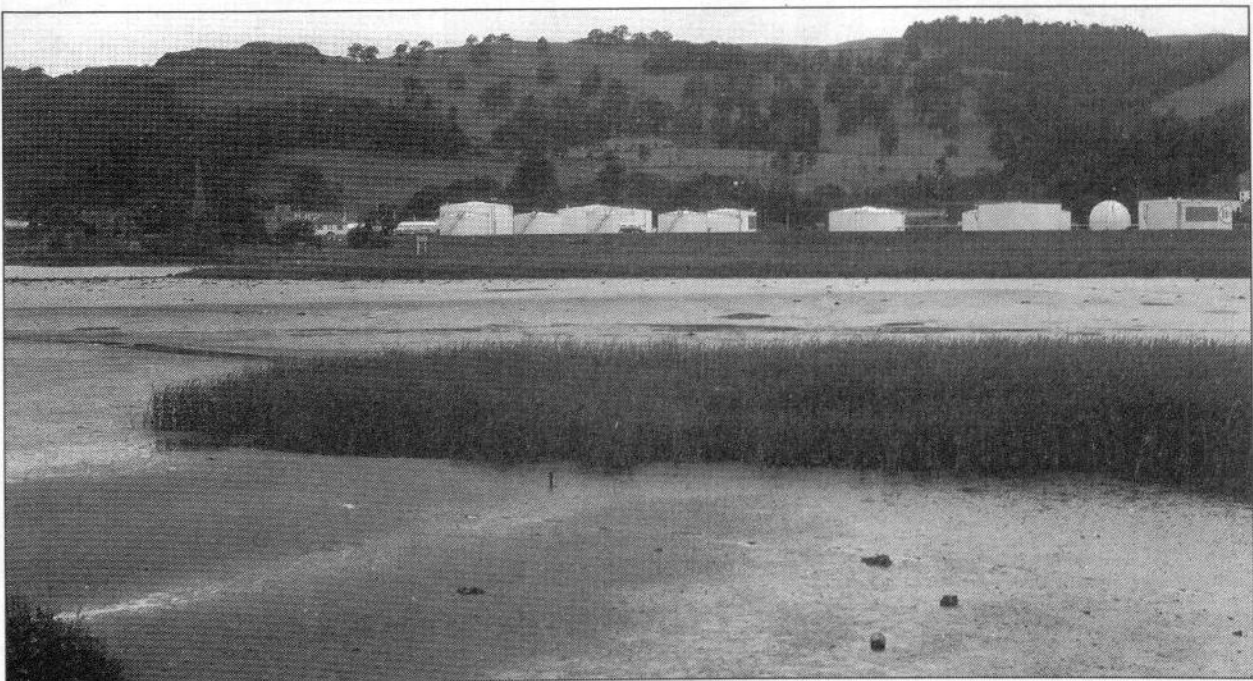
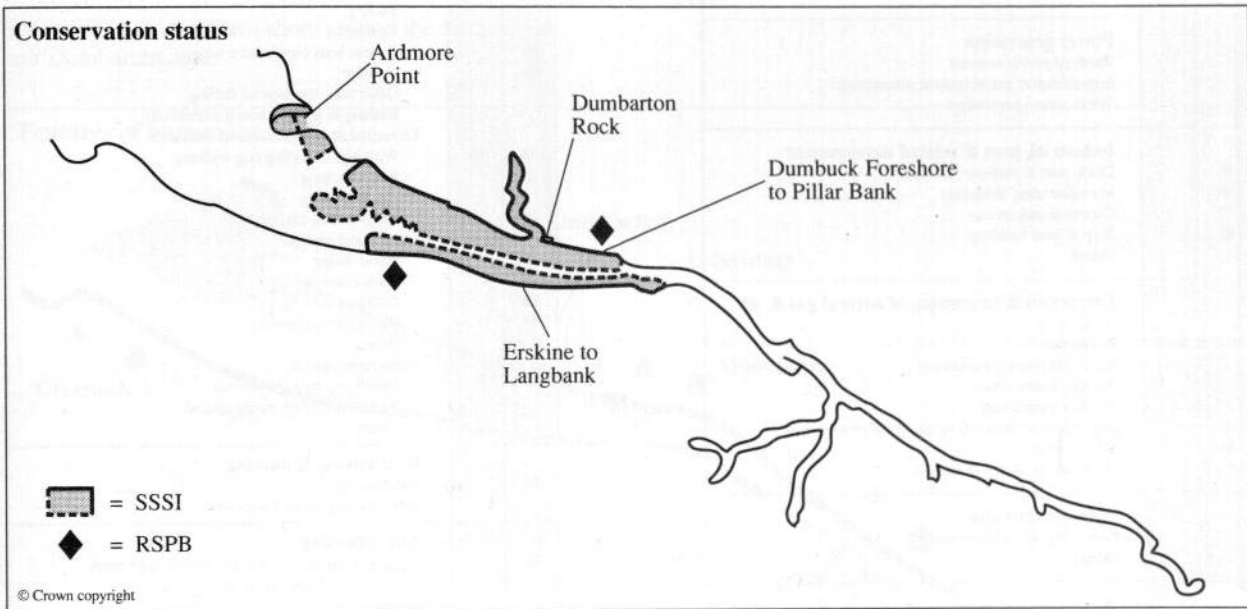
● = designated ● = proposed

No.	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other	
		●	●	●	●			●	●			●								
		2	2	1	1			1	1			2								

The central parts of the estuary are covered by Sites of Special Scientific Interest. Dumbuck Foreshore to Pillar Bank (820 ha) and Erskine to Langbank (545 ha) are biological SSSIs and parts are also RSPB reserves. Dumbarton Rock (4 ha) is a geological SSSI, Ardmore Point (134 ha) is an SSSI for its biological and geological

interest, and both are also Geological Conservation Review sites.

The Inner Clyde is proposed as a Special Protection Area and Ramsar site.



An oil terminal on the shores of the Clyde. The Clyde Estuary is dominated by industry and urban Glasgow. (Pat Doody, JNCC)

Human activities

Present	Proposed	
●	●	Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
●		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
●		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
		Military activities Overflying by military aircraft Others
●		Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
●	●	Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
	●	Urbanisation Land-claim for housing & car parks
●	●	Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present	Proposed	
●	●	Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
●		Wildfowling & hunting Wildfowling Other hunting-related activities
●		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs - Hand-gathering Dredging Hydraulic dredging
		Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

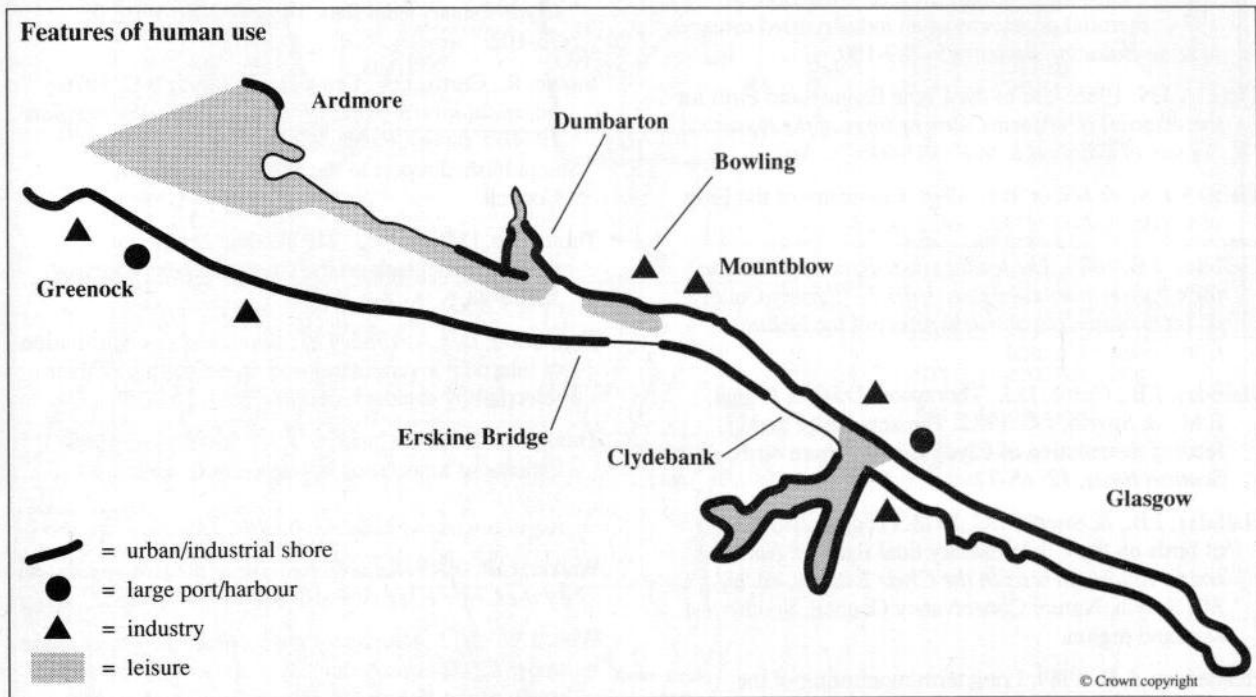
Features of human use

The shores of the Clyde Estuary are dominated by industry with large ports at Greenock and various metal industries in Glasgow, Greenock, Port Glasgow and Clydebank. There are also ship-building yards at Glasgow and oil terminals at Bowling and Mountblow.

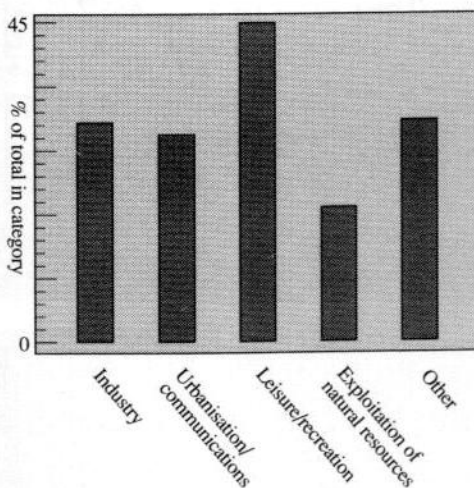
Leisure pursuits are numerous but generally not intensive, and most activities take place close to the estuary mouth. There are moorings on the Rivers Leven and Cart and at Gourock (just outside the estuary mouth) which are a focus for sailing; bird-watching is centred around Ardmore; and 4WD and horse-riding are known to occur occasionally on the north shore around the Pillar Bank and Dumbarton area.

There is little exploitation of the natural resources within the estuary. Bait-digging and wildfowling are known to occur but these are not intensive.

In 1989 there were proposals for capital dredging, a large marina at Bowling, and an interpretative centre at Erskine Bridge. Since that time there have been proposals to improve access to the estuary foreshore, which by 1992 had gone ahead, in part, at Dumbarton. There was also another more recent proposal for the development of light industry at Parklea, which would involve some land-claim.



Categories of human use



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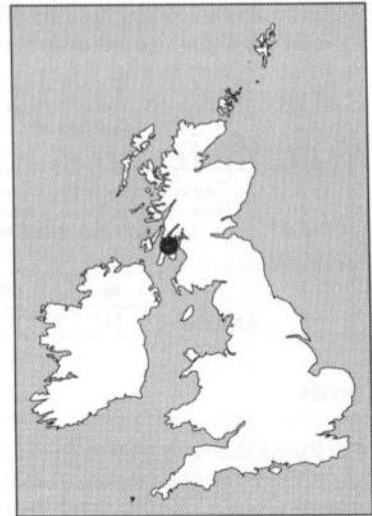
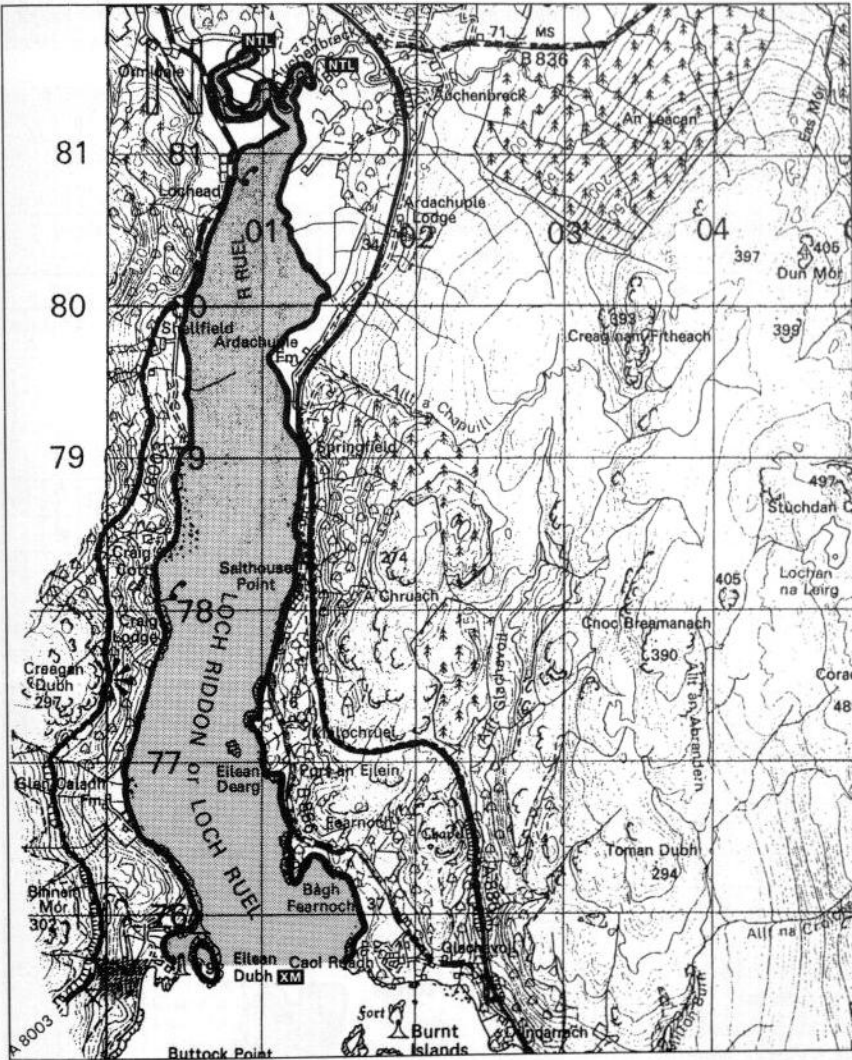
Ruel Estuary

a.k.a. Loch Riddon

Centre grid: NS0079
Region: Strathclyde

District: Argyll & Bute
SNH region: South-west Scotland

Review site location



NTL = Normal tidal limit
XM = Across mouth
■ = Core site

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Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
426	184	15.4	6.7	3.0	Fjord	< 5,000

Description

The estuary of the River Ruel is also known as Loch Riddon, and lies at the northern end of the Kyles of Bute. The upper parts of the estuary are shallow, and at low tide broad silt and sandflats are exposed which overlie shingle deposits. Along both western and eastern shores there are narrow strips of bare shingle. Extensive intertidal flats are a relatively scarce habitat in the west of Scotland, and the very sheltered intertidal flats at the head of the Ruel Estuary are known to support a wide diversity of invertebrates.

At the head of the estuary is a small area of saltmarsh showing transition from saltmarsh to woodland, which is very rare in Great Britain. It is regarded as the most

important saltmarsh in the Firth of Clyde. Close to the tidal limit of the estuary, the vegetation shows gradation from salt to freshwater marsh, and transitions through marsh to woodland, where oak, ash and alder growing on the estuarine silt are subject to occasional flooding with tidal water. The saltmarsh vegetation also displays interesting contrasts due to variations in grazing intensity, for the majority of the saltmarsh on the western shore is heavily grazed, while that on the eastern shore is virtually ungrazed.

In addition there are stretches of rocky shore in the lower parts of Loch Ruel, and much of the estuary is surrounded by woodland on steep slopes.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●		●	●			●
Area (ha)	242	7	177							

● = major habitat ● = minor habitat

Birds

The Ruel Estuary is not a regularly counted site. Casual records indicate that the saltmarsh at the north end of the estuary acts as a small high tide roost, where gulls, shelduck and red-breasted merganser are often seen.

Additional wildlife features

Otters are known to use the estuary.

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				●								●		●	

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
				●												

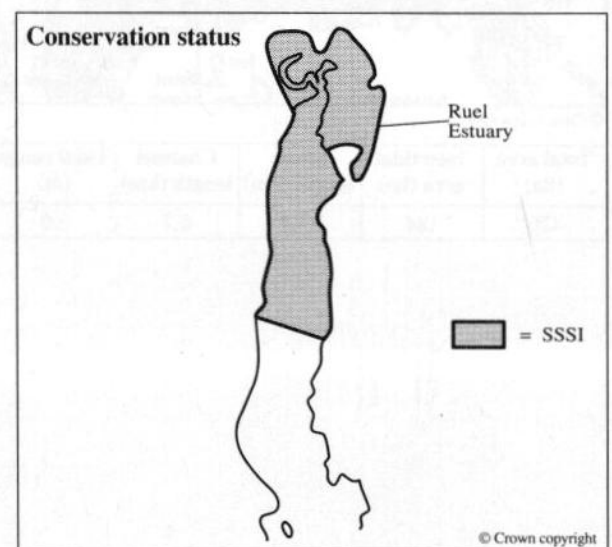
Conservation status

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
	●		●														●		●
No.	1		1														1		2

● = designated ● = proposed

The northern parts of the estuary have been designated as the Ruel Estuary (342 ha) biological Site of Special Scientific Interest, and it is also a Nature Conservation Review site. The estuary forms part of the Kyles of Bute National Scenic Area, and is recognised as a Coastal Conservation Zone.

The estuary has been designated by the EC as a shellfish rearing area.



Human activities

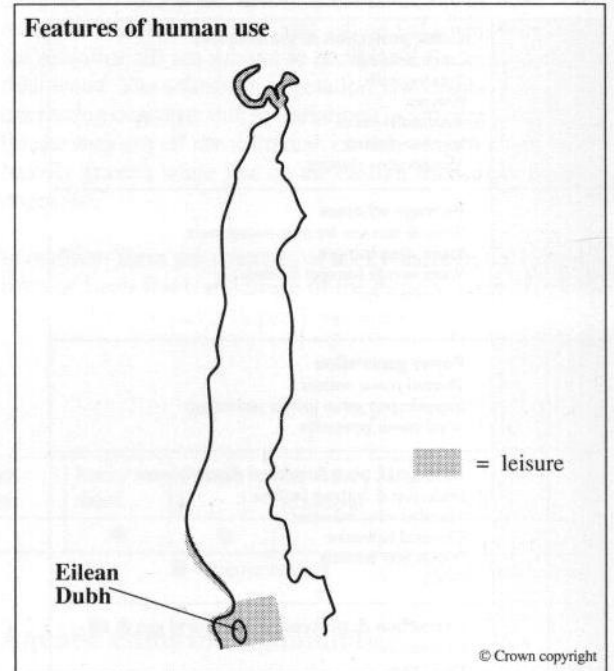
Present	Proposed	
		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
		Military activities Overflying by military aircraft Others
●		Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present	Proposed	
●	●	Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
		Wildfowling & hunting Wildfowling Other hunting-related activities
		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
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●	●	Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
●		Others

Features of human use

In 1989 there were very few human activities present on the Ruel Estuary. Leisure pursuits include canoeing and sailing which are not intensive, and there were a small number of moorings at Eilean Dubh. Anglers fish for salmon and sea trout in the upper reaches of the estuary. Exploitation of the natural resources included intensive grazing over 70% of the saltmarsh, and there was also a rainbow trout fish farm within the estuary.

In 1989 there had been a recent proposal for chalets close to the south-west shore of the site and for a small marina. By 1992 these had both been dropped.



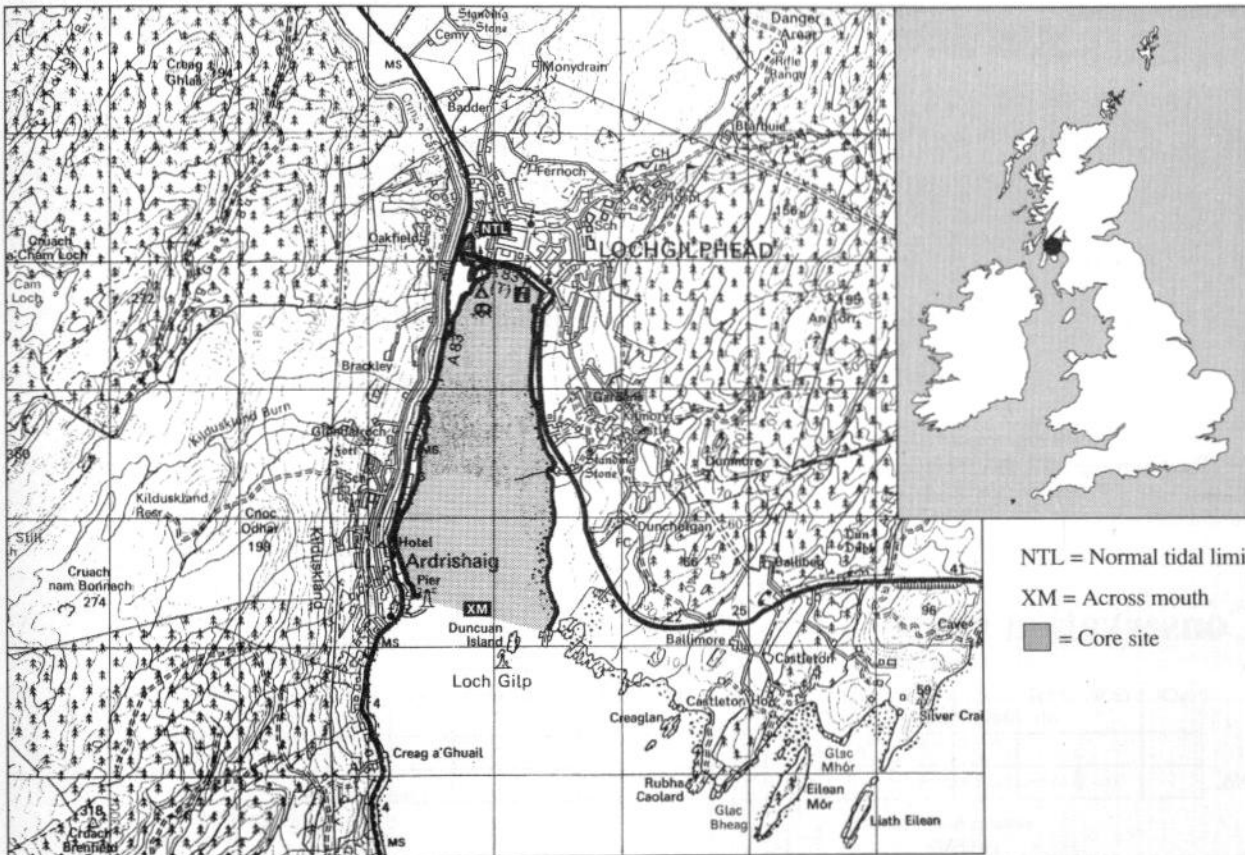
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Centre grid: NS8687
Region: Strathclyde

District: Argyll and Bute
SNH region: South-west Scotland

Review site location



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Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
245	143	6.8	3.4	3.1	Fjord	< 5,000

Description

Loch Gilp lies at the southern end of the geological fault that runs between Crinan and Lochgilphead. It is a shallow estuary at the head of a small tidal sea loch, which deepens gently into Loch Fyne. The estuary receives freshwater inflow from the Bishopston Burn, which runs through the town of Lochgilphead.

At low tide a large proportion of the estuary is exposed as

an intertidal flat of fine sands, which generally become finer towards the head of the estuary. The aquatic estuarine communities within Loch Gilp include the normal/variable muddy sand community, the variable/reduced salinity mud community and beds of the eelgrass *Zostera* in the upper parts of the estuary. On the western shore of the Loch there is strip of shingle, and on the eastern shore there is a stretch of sand and shingle.

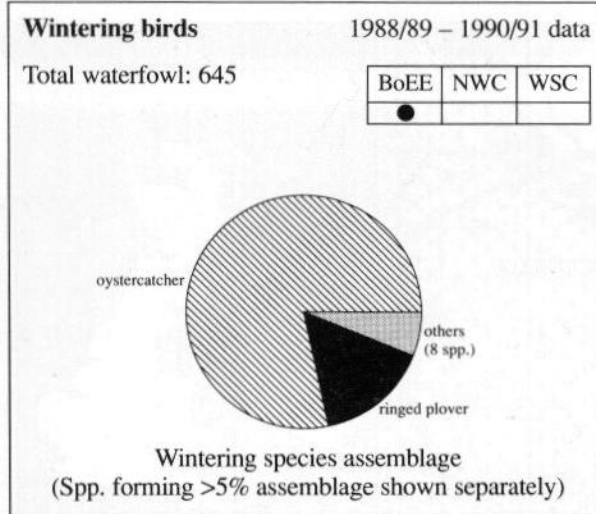
Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●		●	●			●			
Area (ha)	110		140							

● = major habitat ● = minor habitat

Birds



Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												●	●	●	

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Additional wildlife features

Otters are present on the estuary.

Conservation status

● = designated ● = proposed

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
No.																			●
																			2

There are no statutory designations on the estuary, but Loch Gilp forms part of Mid Argyll Local Plan, which includes policies and proposals for the mudflats, and Loch Gilp is recognised as a preferred Coastal Preservation Zone.

Human activities

Present	Proposed	
●		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
	●	Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
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	●	Urbanisation Land-claim for housing & car parks
		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present	Proposed	
●	●	Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
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		Others

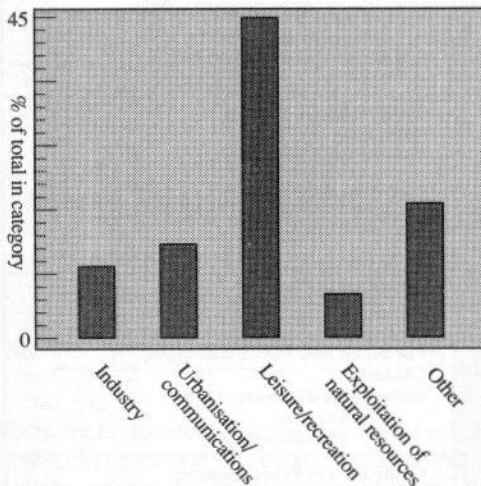
Features of human use

Leisure activities are numerous but are not intensive, and water-based sports are focused on the western shore at Ardrishaig, where there are a few moorings and a sailing club. Beach recreation and bird-watching occur at Lochgilphead.

Industrial activities include harbour facilities and a boat repair yard at Ardrishaig, and there is a pottery and acrylic works at Lochgilphead. Exploitation of the natural resources includes bait-digging and goats grazing on the marsh at Carron.

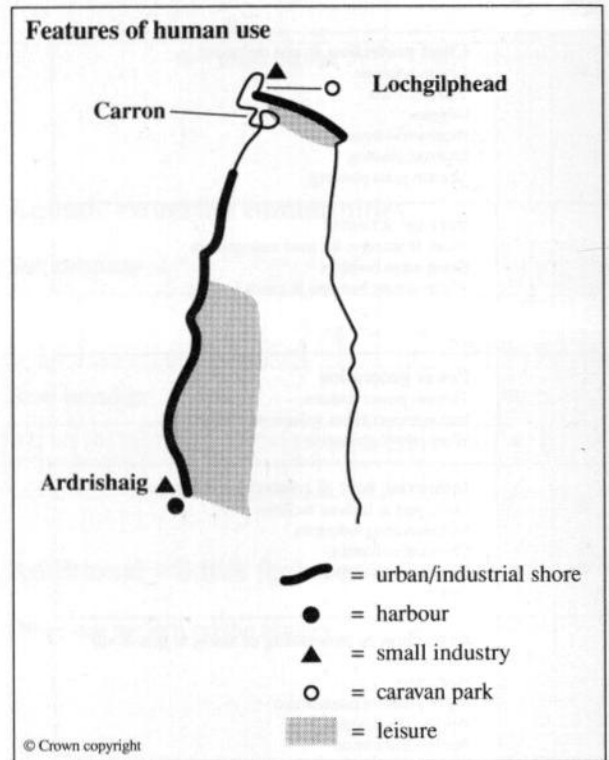
In 1989 there was a proposal for a leisure barrage with housing and marina development, which would involve some land-claim for housing and cause an increase in sailing. By 1992 the proposal for a marina had been dropped.

Categories of human use



Further reading

- McLusky, D. 1986. The intertidal ecology of three west of Scotland estuaries (Loch Crinan, Loch Gilp and West Loch Tarbert). *Bulletin of the Estuarine and Brackish Water Sciences Association*, 43: 15-25.
- Patterson, D.W. 1984. *An investigation into the distribution of the macrobenthos of Loch Gilp, with a detailed study of the bivalve mollusc Cardium edule*. B.Sc. thesis, University of Stirling.
- Stephens, A.C. 1930. Studies on the Scottish marine fauna. Additional observations on the fauna of the sandy and muddy areas of the tidal zone. *Transactions of the Royal Society of Edinburgh*, 56: 521-535.



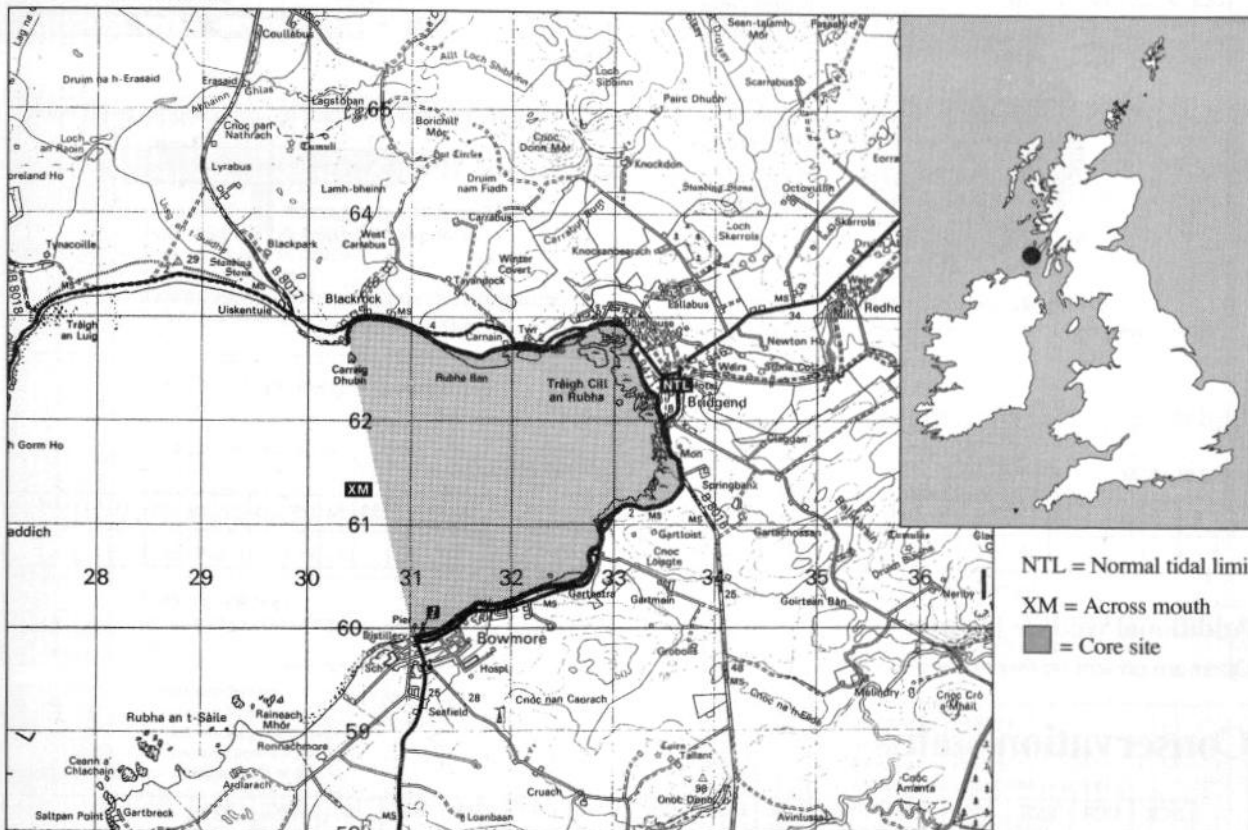
Traigh Cill-a-Rubha

a.k.a. Bridgend Flats

Centre grid: NR3362
Region: Strathclyde

District: Argyll & Bute
SNH region: South-west Scotland

Review site location



Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
639	288	8.6	3.0	1.5	Embayment	< 5,000

Description

Traigh Cill-a-Rubha is the shallow, sandy estuary of the River Sorn which lies sheltered at the head of Loch Indaal on the south-west coast of Islay.

The estuary lies within the Loch Indaal Marine Consultation Area (MCA), which includes subtidal communities which are unusual within both Islay and the west coast of Scotland. The aquatic estuarine communities within the estuary include a normal/variable salinity muddy sand community, a variable/reduced salinity mud community, and beds of the eelgrass *Zostera*. Within Loch Indaal the algal communities growing with or attached to *Zostera* beds are known to include species rarely encountered elsewhere.

The intertidal flats of Traigh Cill-a-Rubha are made up of sand and silt, and include extensive beds of the lugworm *Arenicola marina*. In the upper parts of the estuary the intertidal flats grade into saltmarsh, which although not extensive is one of the largest areas of saltmarsh in this part of Scotland.

Together the flats and saltmarsh are part of a network of roosting and feeding sites on Islay that forms an area of international importance for both wintering waders and geese. Large numbers of Greenland barnacle geese roost and feed on the estuarine sites, but tend to feed more extensively on the agricultural land within Islay.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●			●	●			
Area (ha)	351	40	248							

● = major habitat ● = minor habitat

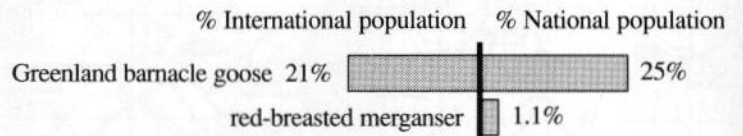
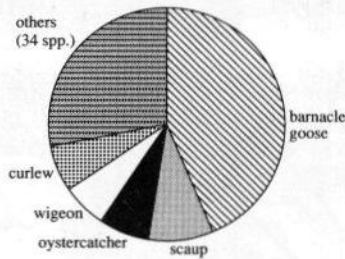
Birds

Wintering birds

1986/87 – 1990/91 data

Total waterfowl: 7,190

BoEE	NWC	WSC
●	●	



Breeding birds: small numbers of arctic tern and little tern breed on the estuary.

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												●	●	●	

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Additional wildlife features

Otters are present on this estuary.

Conservation status

● = designated ● = proposed

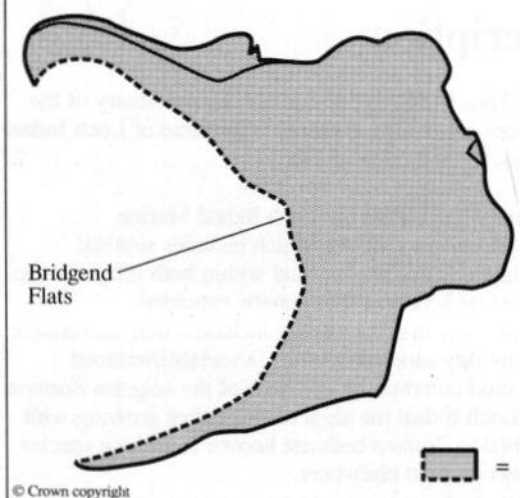
	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other	
No.	1		1					1	1											3

Much of the estuary lies within Bridgend Flats (331 ha) biological Site of Special Scientific Interest, and forms part of the Loch Indaal Nature Conservation Review site. Loch Indaal is also a Marine Consultation Area.

Bridgend Flats have been designated as both a Special Protection Area and a Ramsar site.

The estuary has been designated by the District Council as being of Local Landscape Importance, and over part of the site a formal agreement exists with local farmers for the Islay Goose Sanctuary.

Conservation status



Human activities

Present	Proposed	
		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
●		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
		Military activities Overflying by military aircraft Others
●	●	Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
	●	Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
●	●	Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

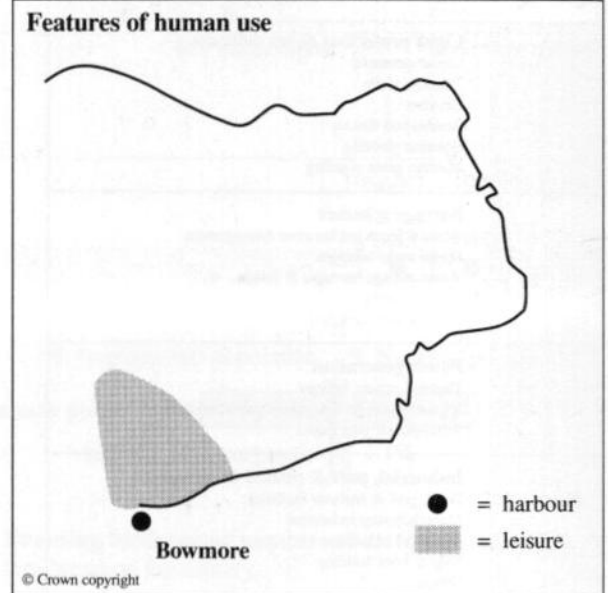
Present	Proposed	
		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
●	●	Wildfowling & hunting Wildfowling Other hunting-related activities
●		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs – Hand-gathering Dredging Hydraulic dredging
●	●	Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
●	●	Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

In 1989 there were few activities occurring within Traigh Cill-a-Rubha and most were not intensive. Leisure pursuits are concentrated around the small harbour and beach at Bowmore and include sailing, wind-surfing, bird-watching and horse-riding.

In addition sheep graze the saltmarsh, there is occasional bait-digging, and small patches of turf are cut sporadically. There is also trial cultivation of manilla clams *Tapes semidecussata*.

In 1989 there were proposals to build a road across the margin of the saltmarsh, and for a nature trail and interpretative facility. By 1992 this latter proposal had been withdrawn.



Further reading

Bignal, E.M., Curtis, D.J., & Matthews, J. 1988. Islay: land types, bird habitats and nature conservation. Part 1. Land types and birds on Islay. *Nature Conservancy Council, CSD Report*, No. 809.

Hiscock, K. 1983. Sublittoral survey of Jura and Islay. June 20th to July 3rd 1982. (Contractor: Oil Pollution Research Unit, Field Studies Council.) *Nature Conservancy Council, CSD Report*, No. 476.

Ogilvie, M.A. 1983. Wildfowl of Islay. *Proceedings of the Royal Society of Edinburgh*, 83B: 473-489.

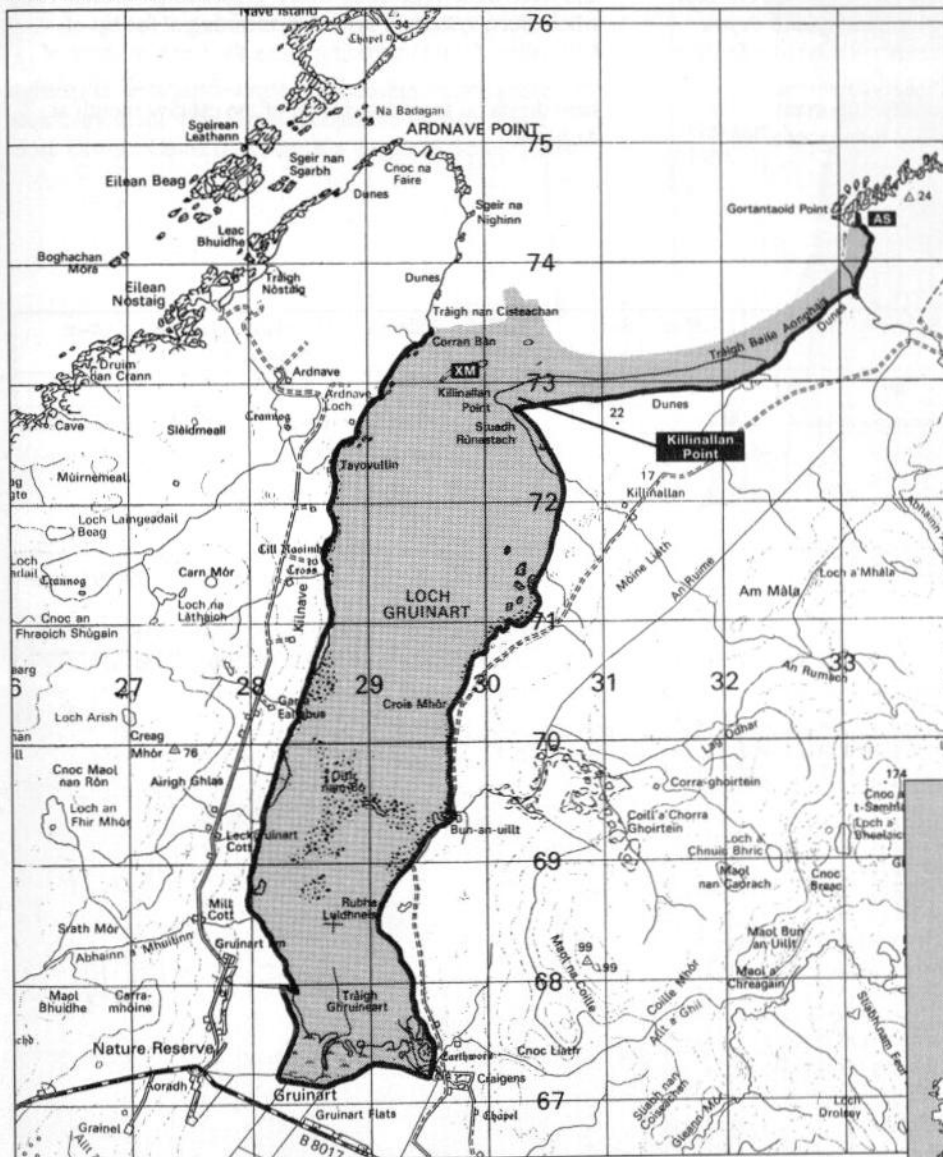
Smith, S.M. 1982. The shores of Jura and Islay: marine flora and fauna. *Nature Conservancy Council, CSD Report*, No. 432.

Stroud, J.M., McKay, J., & Robertson, F. [1984]. *A survey of the intertidal invertebrates at the head of Loch Indaal, Isle of Islay, 20-24 January 1984, and the potential for shorebird feeding*. Unpublished report, Islay Natural History Trust and Department of Biological Science, University of Stirling.

Centre grid: NR2971
Region: Strathclyde

District: Argyll & Bute
SNH region: South-west Scotland

Review site location



AS = Along shore
XM = Across mouth
■ = Core site

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Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
973	876	18.7	8.1	3.1	Fjord	< 5,000

Description

Loch Gruinart lies on the northern shore of Islay in western Scotland, within the shelter of Ardnave Point. Loch Gruinart is a shallow estuary, and low tide exposes a wide sandflat with extensive lugworm beds. Towards the head of the loch the intertidal sandflats give way to mud and shingle. Some areas of the shingle are vegetated, and the flora contains northern elements of a shingle beach flora.

At the head of the loch there is one of the largest areas of saltmarsh in western Scotland, and the vegetation consists largely of mid-upper saltmarsh communities and shows transitions to grassland. The saltmarsh is used as a feeding and roosting area by large numbers of wintering waterfowl, which include a nationally important population of wintering light-bellied brent goose.

The estuary is used also as a feeding and roosting site by internationally important numbers of Greenland white-fronted geese and Greenland barnacle geese, which are particularly attracted by the extensive feeding areas provided by agricultural pasture surrounding the estuary.

The entrance to the estuary is narrowed by the high sand dunes at Killinallan Point. These dunes have developed on the shelf of a raised beach, and have a varied flora with mobile dunes, semi-fixed dunes, blow-outs, wet flushes and fixed dune vegetation which grades to grassland. The whole dune system is dynamic, accreting at the tip of Killinallan Point but eroding along the western shore of the estuary and at Traigh Baile Aonghais. There are also sand dunes on the western side of the estuary mouth at Ardnave.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●	●		●			
Area (ha)	97	51	825							

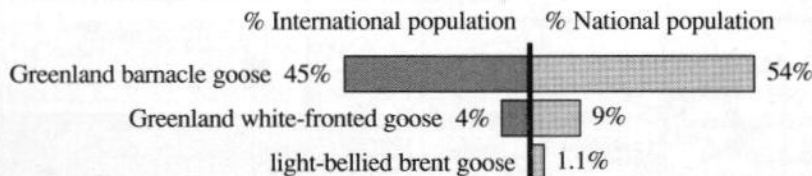
● = major habitat ● = minor habitat

Birds

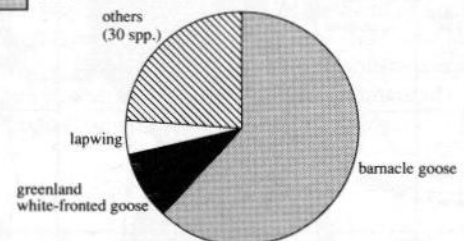
Wintering birds

Total waterfowl: 5,220*

1986/87 – 1990/91 data



BoEE	NWC	WSC
●	●	



Breeding birds: there are small breeding colonies of little tern, arctic tern, herring gull, common gull, lesser black-backed gull, great black-backed gull, fulmar and shag within the estuary.

Other: over 95% of the Greenland population of barnacle geese use Loch Gruinart as a staging post in autumn, before dispersing to more widespread wintering grounds in Britain and Ireland.

* does not include goose counts

Additional wildlife features

Two nationally scarce plants maidenhair spleenwort *Asplenium trichomanes* and Ray's knotgrass *Polygonum oxyspermum* have recently been recorded in the dunes adjacent to the estuary.

Otters are present on Loch Gruinart, and the estuary and Nave Island are used by both common and grey seals.

Aquatic estuarine communities

Information unavailable.

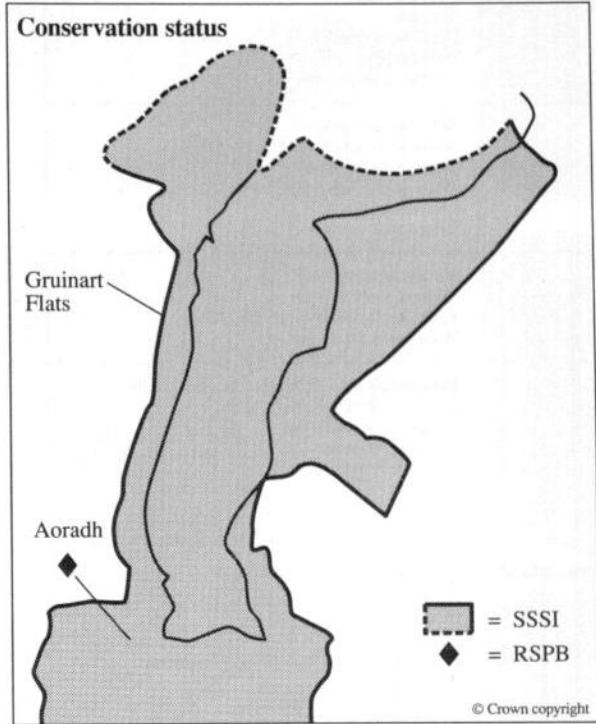
Conservation status

● = designated ● = proposed

No.	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other	
1	●	●	●					●	●			●								●

The estuary lies within Gruinart Flats (3,170 ha) biological Site of Special Scientific Interest, which forms part of the Loch Gruinart-Loch Indaal Nature Conservation Review site. Loch Gruinart Flats has also been designated as a Special Protection Area and Ramsar site.

At Aoradh there is an RSPB reserve, and there is an agreement with landowners and occupiers for a goose sanctuary. Loch Gruinart is recognised by Argyll and Bute District Council as part of a Regional Scenic Coast.



At the head of Loch Gruinart lies one of the largest areas of saltmarsh in western Scotland. (Pat Doody, JNCC)

Human activities

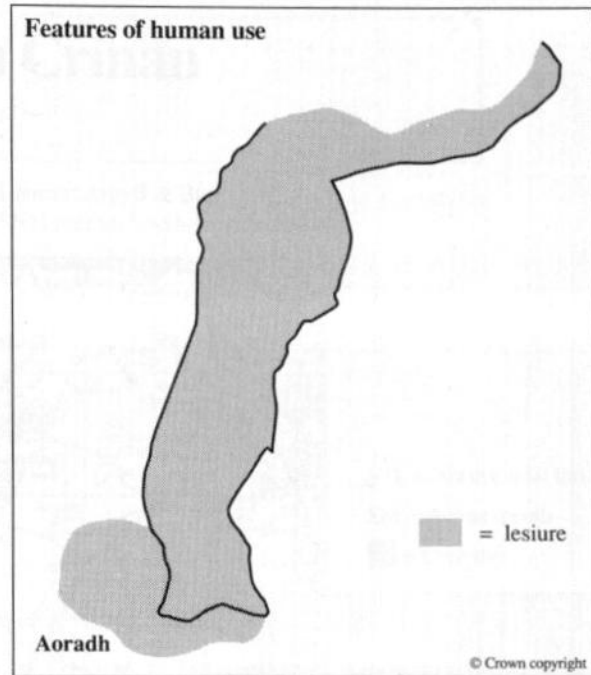
Present	Proposed	
●		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
		Military activities Overflying by military aircraft Others
●		Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
●	●	Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present	Proposed	
		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
●	●	Wildfowling & hunting Wildfowling Other hunting-related activities
		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs – Hand-gathering Dredging Hydraulic dredging
●	●	Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
●		Others

Features of human use

Most activities involve exploitation of the natural resources, with saltmarsh and sand dune grazing by sheep and cattle, lobster- and crab-potting near the mouth of the estuary, and a small shellfishery cultivating manilla clams in trays. Leisure pursuits cover most of the estuary but are not intensive. These include sailing, wind-surfing, beach recreation and walking. Bird-watching is most active around Aoradh.

In 1989 there was a proposal to set up an information centre and bird hide at Gruinart Flats at the head of the estuary. By 1992 this had been built, to cater for an estimated 35,000 visitors annually.



Further reading

Doarks, C., Hedley, S.M., Radley, G.P., & Woolven, S.C. 1991. *Sand dune survey of Great Britain. Site report No. 95, Killinallan*. Peterborough, Nature Conservancy Council. (Contract surveys, No. 201)

Doarks, C., Hedley, S.M., Radley, G.P., & Woolven, S.C. 1991. *Sand dune survey of Great Britain. Site report No. 96, Ardnave*. Peterborough, Nature Conservancy Council. (Contract surveys, No. 201)

Easterbee, N., Stroud, D.A., Bignall, E.M., & Dick, T.D. 1987. The arrival of Greenland barnacle geese at Loch Gruinart, Islay. *Scottish Birds*, 14: 175-170.

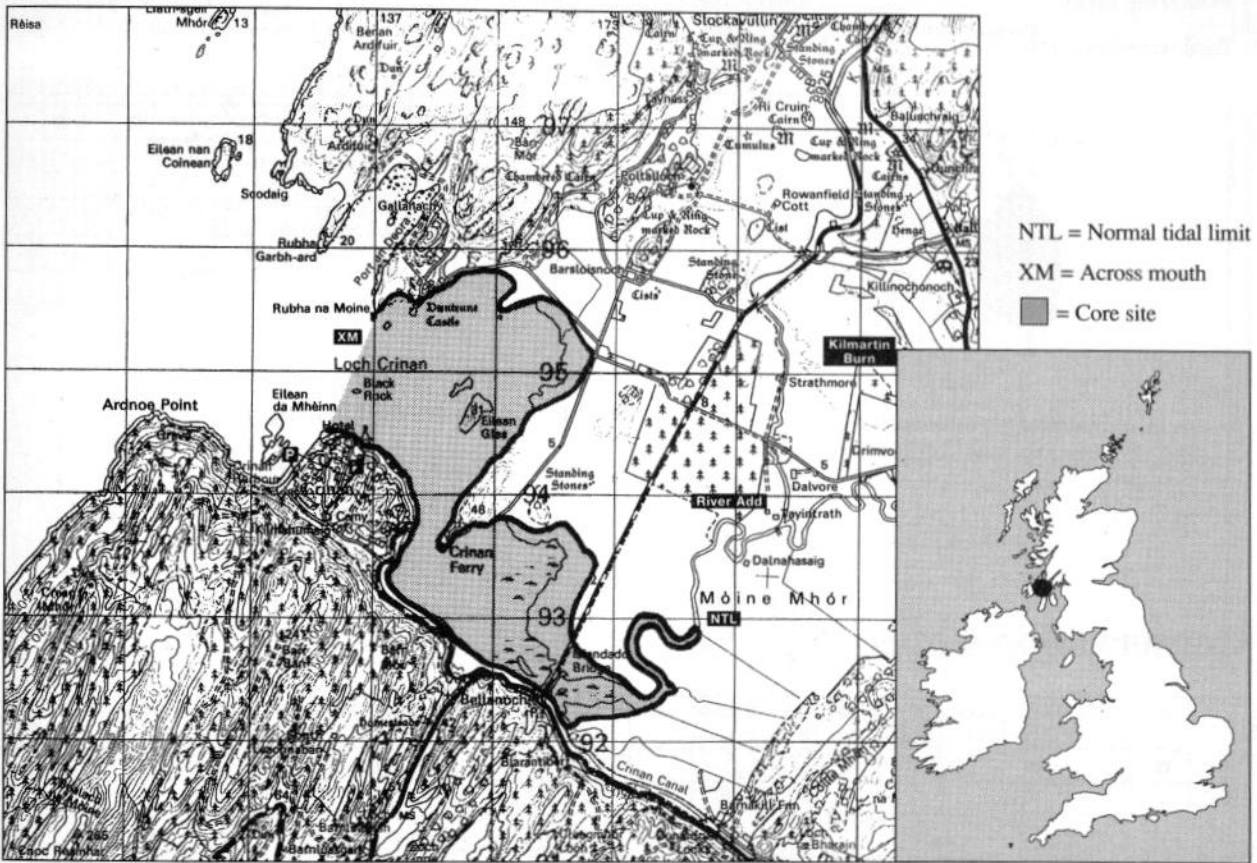
Ritchie, W., & Crofts, R. 1974. *Beaches of Islay, Jura and Colonsay*. University of Aberdeen, Department of Biology. Report to Countryside Commission for Scotland.

Smith, S.M. 1982. The shores of Jura and Islay: marine flora and fauna. *Nature Conservancy Council, CSD Report*, No. 432.

Centre grid: NR7993
Region: Strathclyde

District: Argyll & Bute
SNH region: South-west Scotland

Review site location



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Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
280	168	15.3	6.2	3.7	Fjord	< 5,000

Description

Loch Crinan lies on the west coast of Scotland at the north-western end of the Crinan Canal. Loch Crinan once occupied all the low ground around it (now known as Moine Mhor), but today it is a fairly small estuary fed by the freshwaters of the River Add and Kilmartin Burn. The estuary is shallow from the deposited sediments of the River Add, but deepens quickly just outside the estuary mouth into the Sound of Jura. Water quality has been graded as class 1.

Much of the intertidal area is mudflat, with sand and gravel in the west and fine silt in the east. On the eastern

shore near the mouth of the estuary there are extensive lugworm beds, and there are patches of algae. In the upper parts of the estuary there is a large area of saltmarsh which contains areas of low-mid and mid-upper saltmarsh vegetation, and freshwater transitions. The saltmarsh contains an interesting assemblage of plants, and Loch Crinan is one of the few sites in Britain where the transition from saltmarsh to raised bog can be seen.

The western shores of the estuary are a series of wooded hills, whereas to the east of the estuary there is an expanse of low moorland, which attracts wintering wildfowl.

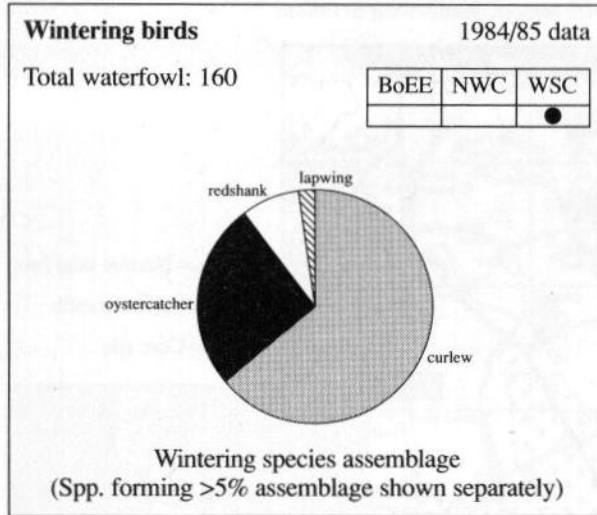
Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●			●			
Area (ha)	112	47	121							

● = major habitat ● = minor habitat

Birds



Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												●		●	

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Additional wildlife features

Otters frequently use the estuary.

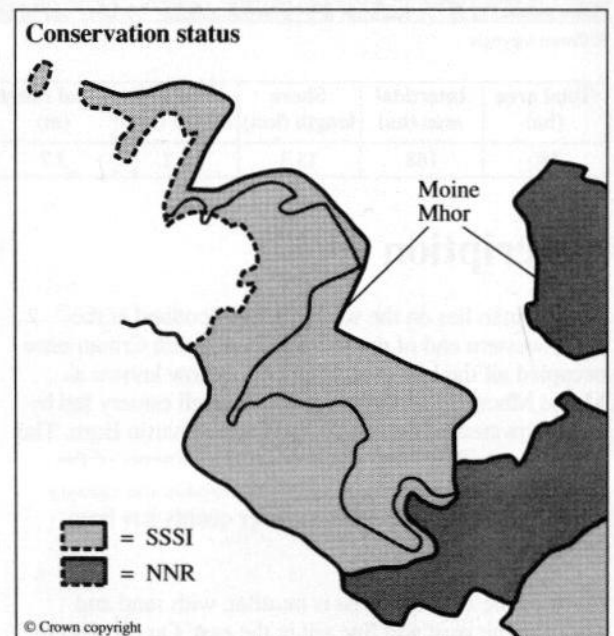
Conservation status

● = designated ● = proposed

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
No.	1		1			1											1		2

Much of the estuary lies within Moine Mhor biological Site of Special Scientific Interest (1,195 ha) which is a Nature Conservation Review site and partly a National Nature Reserve.

Loch Crinan is within the Knapdale National Scenic Area, and also lies within a Regional Scenic Area and Coastal Conservation Zone, as designated by Argyll District Council.



Human activities

Present	Proposed	
●		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
●		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
		Military activities Overflying by military aircraft Others
●		Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

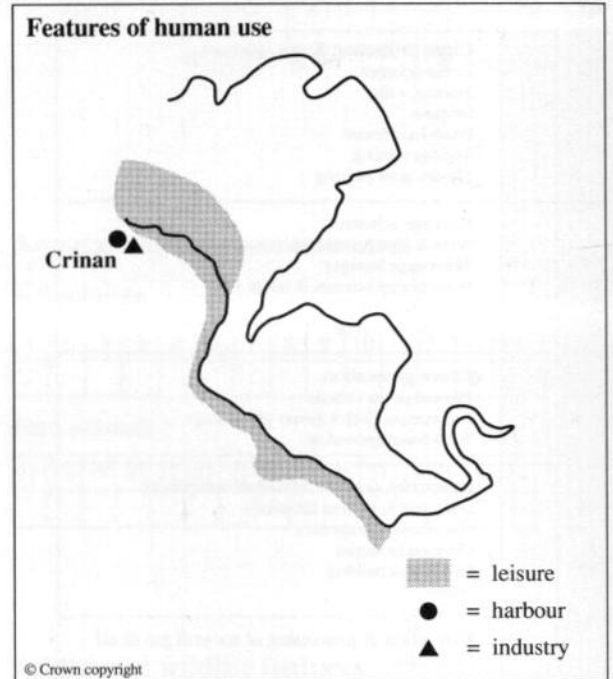
Present	Proposed	
●		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
●		Wildfowling & hunting Wildfowling Other hunting-related activities
●		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
●		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs – Hand-gathering Dredging Hydraulic dredging
●		Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
●		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

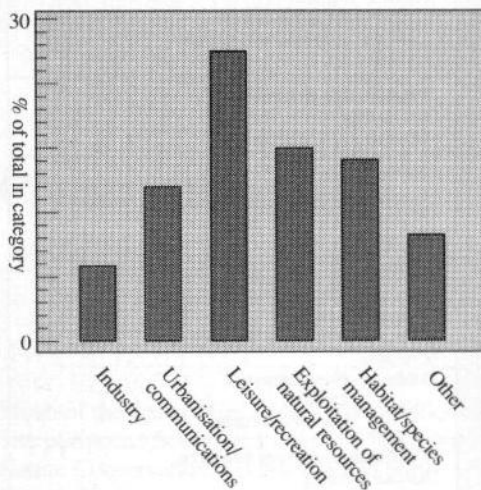
Leisure activities are not extensive, and are concentrated on the western shores of the estuary near the mouth. Canoeing, wind-surfing and sailing are generally not intensive, except during July when two sailing races are held, and boats often moor in Crinan and the Crinan Canal. In addition walking and bird-watching occur along the banks of the Crinan Canal.

Exploitation of the natural resources includes saltmarsh grazing by sheep and cows, and cultivation of manilla clams on an experimental basis over a small part of the intertidal area. Wildfowling occurs on a low level on the Pottaloch Estate from Duntrune Castle, and bait-digging and lobster- and crab-potting take place near the mouth of the estuary.

There are also harbour facilities and a small boat-building/repair yard near the entrance to the Crinan Canal.



Categories of human use



Further reading

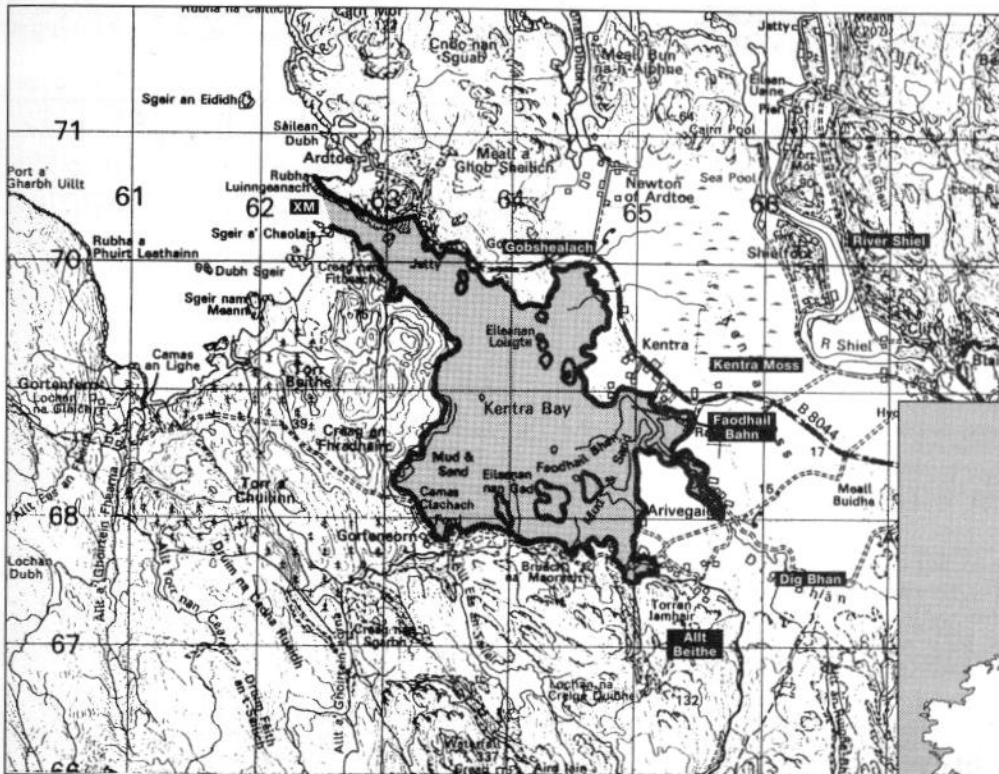
- Burd, F. 1987. *Saltmarsh survey of Great Britain. Scotland regional report - South-west*. Unpublished, Nature Conservancy Council.
- McLusky, D.S. 1986. The intertidal ecology of three west of Scotland estuaries (Loch Crinan, Loch Gilp, West Loch Tarbert). *Bulletin of the Estuarine and Brackish Water Sciences Association*, 43: 15-25.

- Wilkinson, M., & Roberts, C. 1974. Intertidal algae of the estuary of the River Add, Argyllshire. *Western Naturalist*, 3: 73-82.

Centre grid: NM6469
Region: Highland

District: Lochaber
SNH region: North-west Scotland

Review site location



NTL = Normal tidal limit

XM = Across mouth

■ = Core site



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Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
338	313	13.4	4.9	4.3	Fjord	< 5,000

Description

Kentra Bay is a shallow sea loch which flows through a narrow mouth into the southern end of the Sound of Ardrishaig.

The estuary receives freshwater from a number of sources including Dig Bhan and Allt Beithe, which at low tide flow across one of the most extensive areas of intertidal flats in western Scotland. The inner flats are mud and sand, becoming more sandy towards the mouth of the estuary. There are also several small islands scattered over the Bay.

There are three main areas of saltmarsh in Kentra Bay. In the north of the estuary in the sandy bay at Gobshealach, there is a saltmarsh penetrated by tidal creeks with low and mid-marsh vegetation and a landward transition to

peatland on Kentra Moss. In the east where the Faodhail Bahn enters the estuary, there is a saltmarsh with narrow strips of mid-upper marsh and wider expanses of pioneer, low and mid-marsh communities. There is also extensive hummocking of the upper marsh turf, and a vertical transition of 2 to 3 metres from the Moss plateau to the saltmarsh turf. In the south of the estuary the largest area of saltmarsh stretches westwards from the Allt Beithe, and consists of mostly low and mid-marsh vegetation and is penetrated by narrow tidal creeks.

To the east of the estuary on low-lying ground between Kentra Bay and the River Shiel, there is an extensive area of raised mire, while the western, northern and southern shores of the estuary are bordered by steep, wooded slopes.

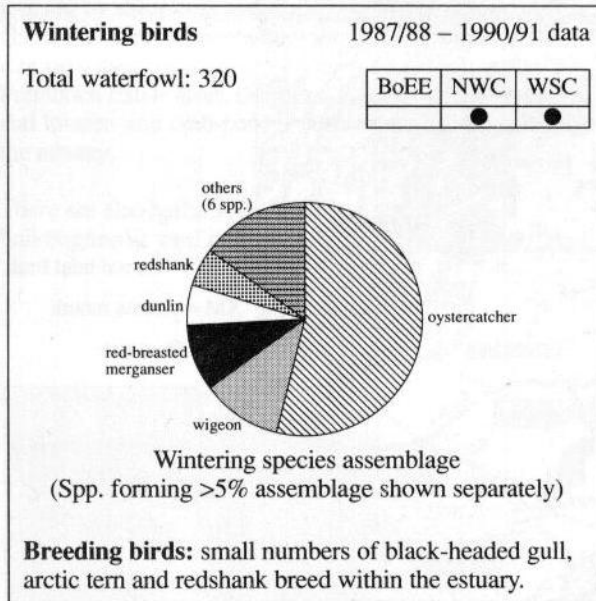
Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●		●				
Area (ha)	25	41	272							

● = major habitat ● = minor habitat

Birds



Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
●			●									●			

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
		●														

Additional wildlife features

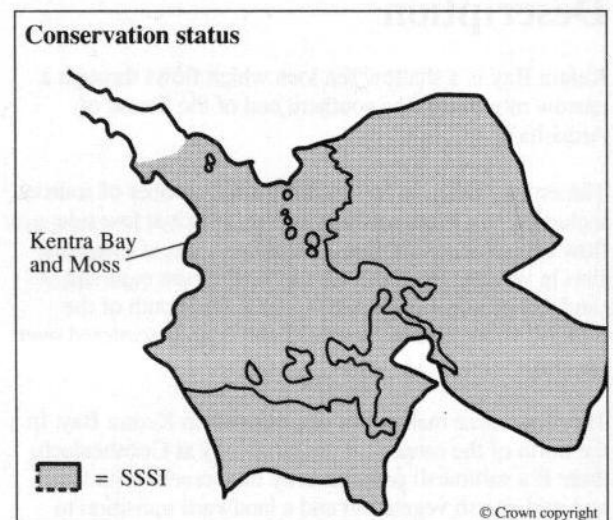
Otters are present on the estuary.

Conservation status

● = designated ● = proposed

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
	●		●														●		●
No.	1		1														1		1

Much of the estuary lies within Kentra Bay and Moss (820 ha) biological Site of Special Scientific Interest, of which Kentra Moss is a Nature Conservation Review site. Kentra Bay is also part of Morar, Moidart and Ardnamurchan National Scenic Area and is a Preferred Coastal Conservation Zone.



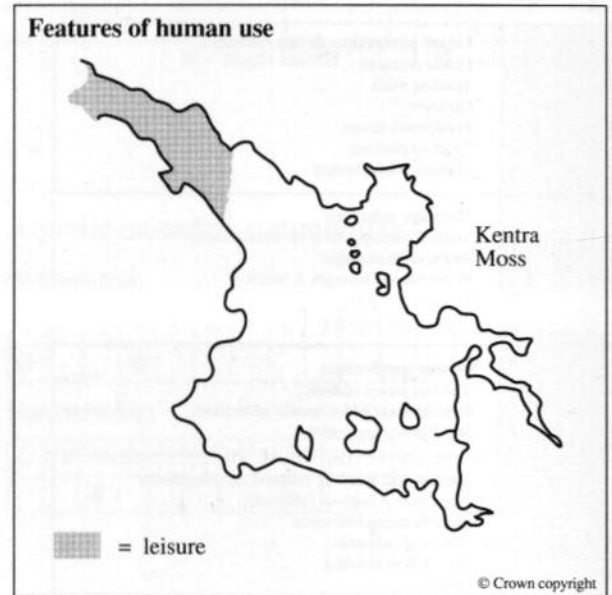
Human activities

Present	Proposed	
		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
		Military activities Overflying by military aircraft Others
●	●	Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
●		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present	Proposed	
		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
●		Wildfowling & hunting Wildfowling Other hunting-related activities
		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs – Hand-gathering Dredging Hydraulic dredging
	●	Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

There are very few activities present on Kentra Bay. Leisure pursuits include sailing from April to October in the lower reaches of the estuary, and bird-watching. Exploitation of the natural resources involves grazing the saltmarsh by sheep and cattle, and sampling for botanical studies and collection of cores for pollen analysis. Other activities include very low-level sewage discharge, and a rubbish tip at the southern end of Kentra Moss. In 1989 there was a proposal to extend the rubbish tip, which by 1992 had been refused.



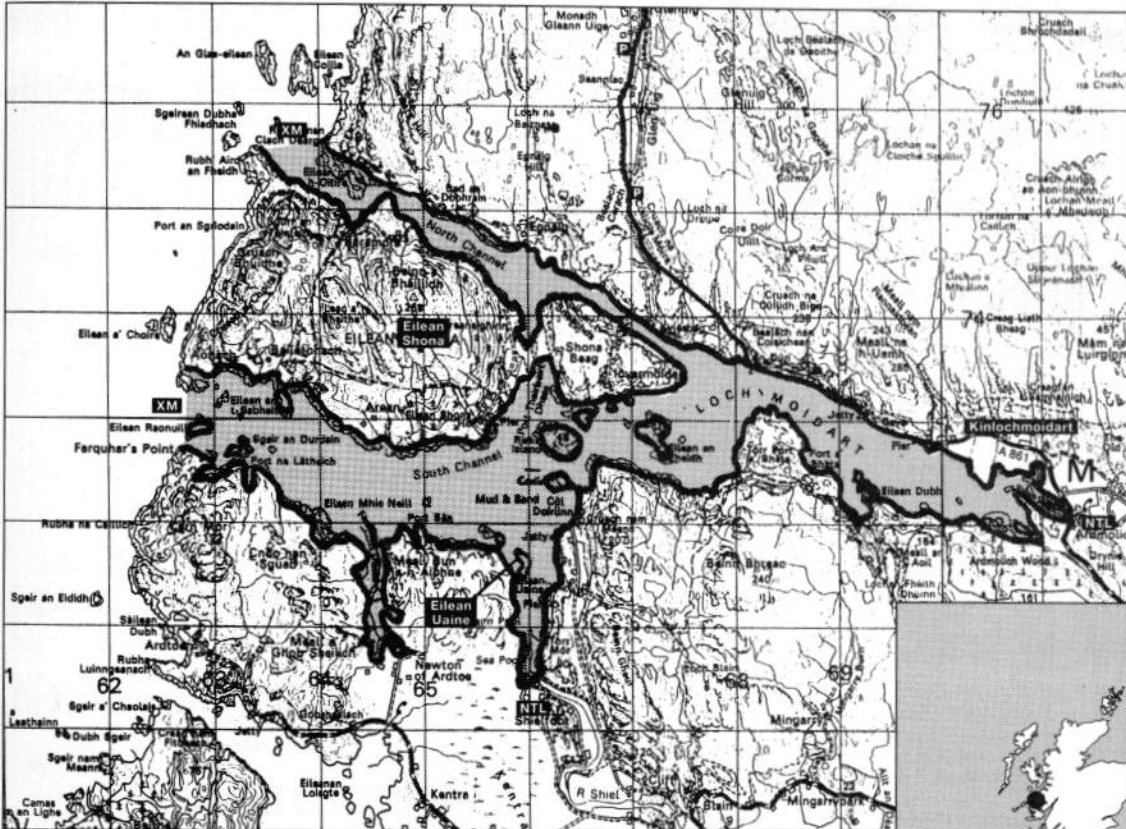
Further reading

- Bishop, G.M., & Holme, N.A. 1980. Survey of the littoral zone of the coast of Great Britain. Final report - Part 1: the sediment shores - an assessment of their conservation value. (Contractor: Scottish Marine Biological Association/Marine Biological Association.) *Nature Conservancy Council, CST Report*, No. 326.
- Howson, C. 1990. Surveys of Scottish sealochs: sealochs of Arisaig and Moidart. *Nature Conservancy Council, CSD Report*, No. 1,086.
- Scott, K. 1984. *Saltmarsh survey of North-west Scotland. Lochaber*. Inverness, Nature Conservancy Council.
- Smith, S.M. 1978. Shores of west Inverness-shire and north Argyll with emphasis on the Mollusca. *Nature Conservancy Council, CSD Report*, No. 358.

Centre grid: NM6873
Region: Highland

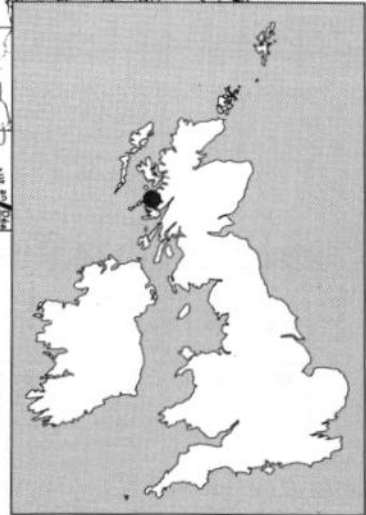
District: Lochaber
SNH region: North-west Scotland

Review site location



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NTL = Normal tidal limit
XM = Across mouth
■ = Core site



Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
881	469	34.9	10.1	4.3	Fjord	< 5,000

Description

Loch Moidart is one of only two predominantly intertidal sea lochs in Lochaber, the other being the Kentra Bay review site to the south. The estuary is fed by the River Moidart which originates from the mountains to the east, and from the river that flows from Loch Shiel. The estuary flows into the Sound of Arisaig through two narrow mouths on either side of the island of Eilean Shona, and for the most part is surrounded by steep, rocky, wooded slopes.

At low tide large areas of the inner estuary are exposed as mudflat, and at the head of the estuary at Kinlochmoidart there is an area of saltmarsh. The vegetation is well developed around the edge of the loch head and lightly grazed, and there are also large detached islands of saltmarsh turf. There is also a small area of saltmarsh at the mouth of the River Shiel, between the island of Eilean Uaine and the coast, in the shelter of a small shingle bar. This area is heavily grazed.

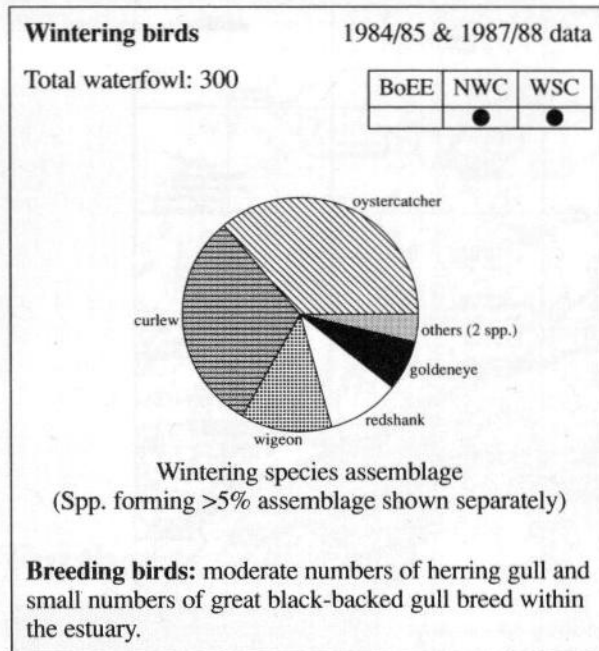
Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●		●	●			
Area (ha)	412	24	445							

● = major habitat ● = minor habitat

Birds



Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												●			

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
		●		●												

Additional wildlife features

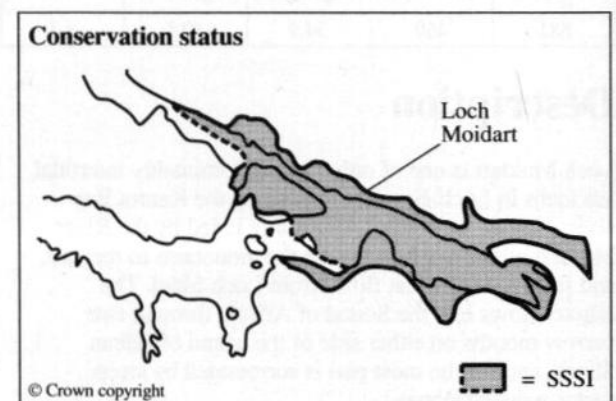
Otters are present on the estuary.

Conservation status

● = designated ● = proposed

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
No.	1	1			1												1		2

Much of the estuary is covered by Loch Moidart Site of Special Scientific Interest (799 ha), which is an SSSI for its biological and geological interest, and is also a Nature Conservation Review site and contains a Geological Conservation Review site. The estuary lies within of the Morar, Moidart and Ardnamurchan National Scenic Area, and is an Area of Great Landscape Value and a Preferred Coastal Conservation Zone.



Human activities

Present	Proposed	
●		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
●		Military activities Overflying by military aircraft Others
●	●	Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
●		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●	●	Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
●	●	Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present	Proposed	
●		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
		Wildfowling & hunting Wildfowling Other hunting-related activities
		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
●		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs - Hand-gathering Dredging Hydraulic dredging
●	●	Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
●		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

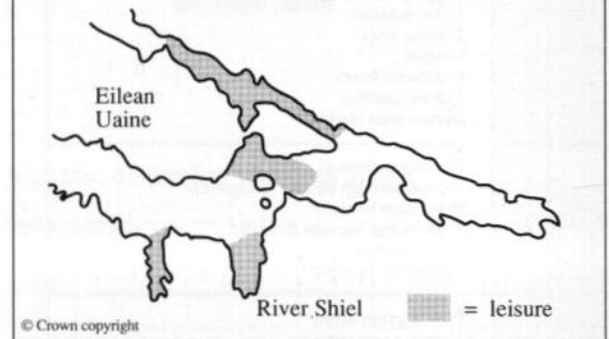
Features of human use

There are few leisure activities on the estuary, and most are on a small scale. There are a small number of moorings and sailing is centred on the north and south channels on either side of Eilean Uaine, and at the mouth of the Shiel. Occasional windsurfing and canoeing also take place. A small number of bird-watchers and anglers use the estuary. The only industrial activity is the very occasional extraction of gravel from the riverbed.

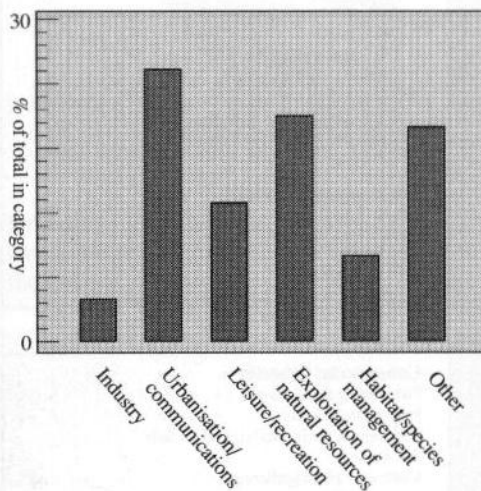
Exploitation of the natural resources includes saltmarsh grazing, small-scale shellfish farming, hand-gathering of molluscs and research into manilla clams. There is also a nature trail along the south side of the loch.

In 1989 there were proposals for a halibut fish farm, and to provide an interpretative display along the nature trail.

Features of human use



Categories of human use



Further reading

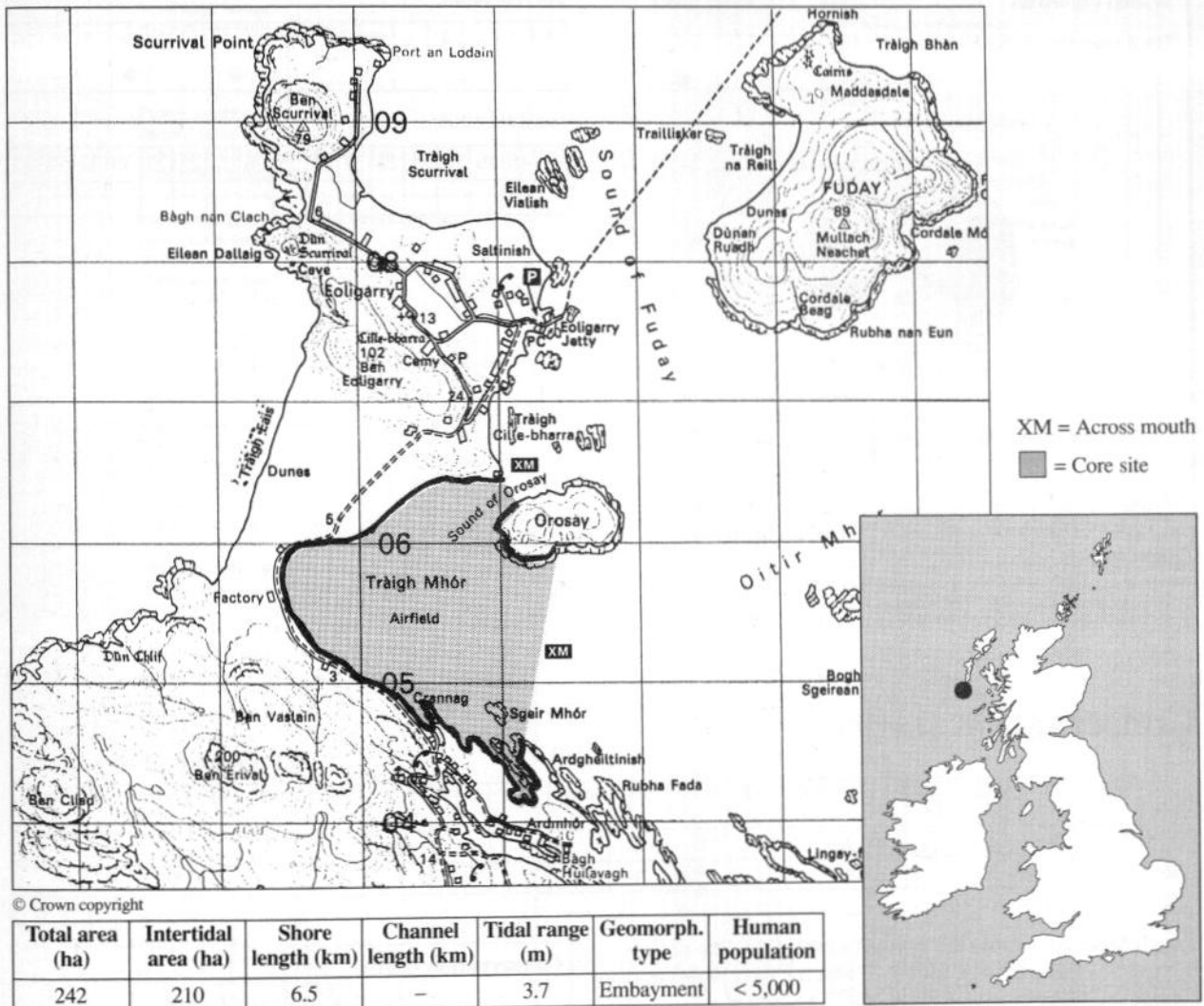
- Howson, C.M. 1990. Surveys of Scottish sealochs: sealochs of Arisaig and Moidart. *Nature Conservancy Council, CSD Report, No. 1,086.*
- Scott, K. 1984. *Saltmarsh survey of North-west Scotland. Lochaber.* Inverness, Nature Conservancy Council.
- Powell, H.T., Holme, N.A., Knight, S.J.T., Harvey, R., Bishop, G., & Bartrop, J. 1980. Survey of the littoral zone of the coast of Great Britain: 6. Report on the shores of North-west Scotland. (Contractor: Scottish Marine Biological Association, Intertidal Survey Unit.) *Nature Conservancy Council, CSD Report, No. 289.*

- Wilkinson, M., & Scanlon, C. 1987. *Survey of Loch Moidart, 28-30th July 1987.* (Contractor: Heriot-Watt University, Edinburgh.) Unpublished report to the Nature Conservancy Council.

Centre grid: NF7005
Region: Western Isles

District: Barra
SNH region: North-west Scotland

Review site location



Description

Traigh Mhor lies on the north-east tip of Barra, a small island in the south of the Outer Hebrides. The site includes the western shore of the islet of Orosay, and rocky shores at the southernmost tip of the estuary. At low tide Traigh Mhor is a vast sandflat with a profusion of intertidal banks of cockle shells. Along the beach there are a series of large-scale intertidal ripples and sandbars, that are probably related to local wave patterns, and on the western shore wave activity has caused undercutting and slumping of the stable machair on the coast edge, producing a 1-2 m vertical sand cliff.

To the west of Traigh Mhor lies the beach, dune and machair system of Eiligarry, which is bounded to the north and south by rocky hills. The machair extends from sea level up the southern slope of Ben Eiligarry, and the dry machair plain is botanically varied. The high marram-covered dunes have spectacular blow-outs and dune slacks.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●		●	●				
Area (ha)	30		210							

● = major habitat ● = minor habitat

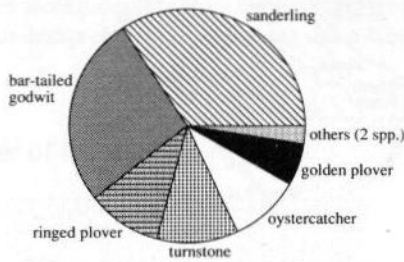
Birds

Wintering birds

1984/85 data

Total waterfowl: 520

BoEE	NWC	WSC
		●



Other: during the Winter Shorebird Count of 1984/85, numbers of sanderling exceeded 1% of the national population.

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
									●			●			

Hard substrate

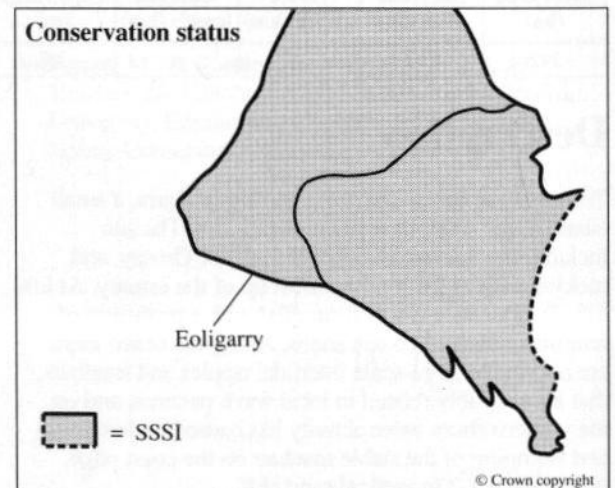
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Conservation status

● = designated ● = proposed

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
No.		●			●			●	●				●						
		1			1			1	1				1						

Traigh Mhor lies within the Eoligarry biological Site of Special Scientific Interest (449 ha), which also contains a Geological Conservation Review site. The area is also within the Machairs of the Uists and Benbecula and Barra Environmentally Sensitive Area, and is part of the West Sound of Barra proposed Special Protection Area and Ramsar site.



Human activities

Present	Proposed	
●		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
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		Military activities Overflying by military aircraft Others
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●		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
●		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present	Proposed	
		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
		Wildfowling & hunting Wildfowling Other hunting-related activities
●		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs – Hand-gathering Dredging Hydraulic dredging
●		Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

There are very few activities occurring on Traigh Mhor. Its main use is as an airfield for scheduled inter-island flights, and to maintain drainage conditions for the aircraft to land 200 m of the shore is embanked. In the south-west of the site some sediment extraction occurs, with removal of grit.

Most activities involve exploitation of the natural resources, with grazing on the sand dunes and on a very small area of saltmarsh, suspended cultivation of mussels, hand-gathering of molluscs, and digging for lugworms. The estuary is also used for geomorphological studies, and sand dunes in the west of the site are undergoing some restoration to prevent the sea breaching the dunes and effectively isolating the north of the island.

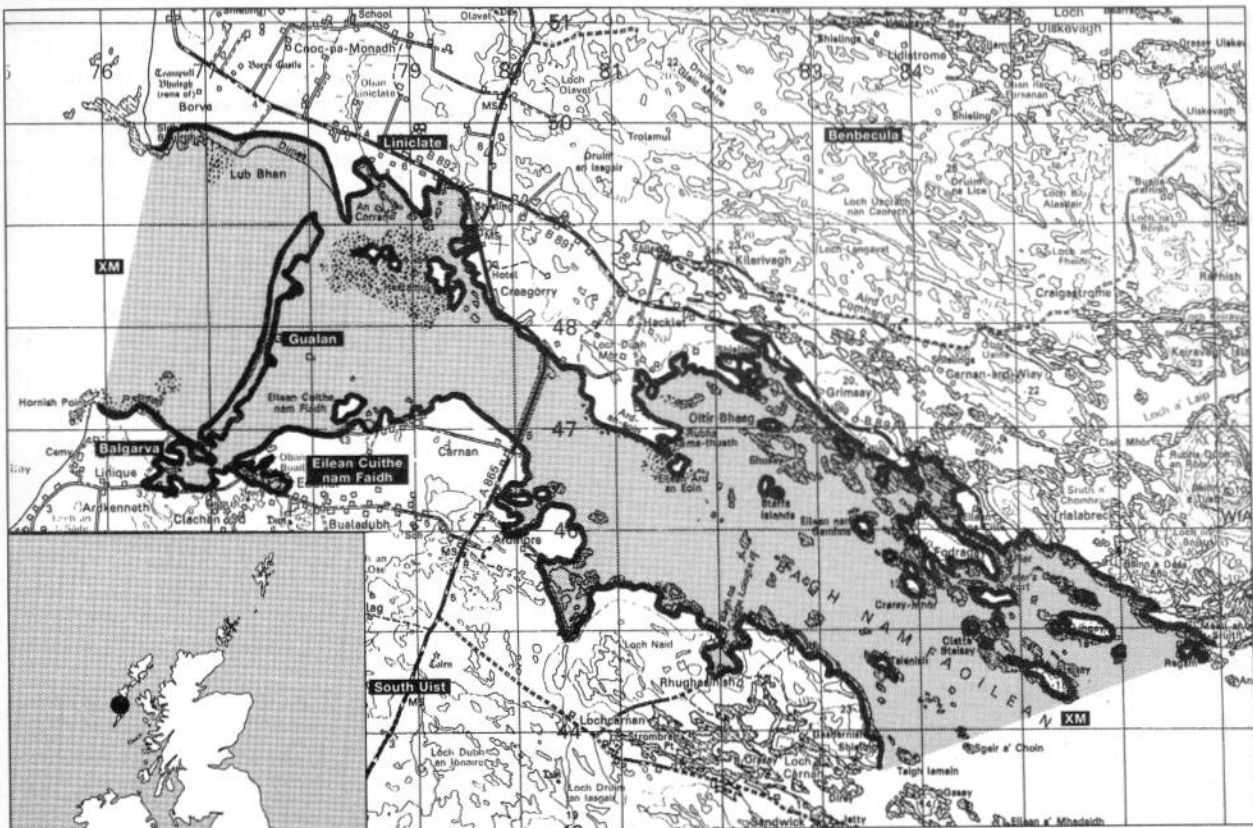
Further reading

- Eleftheriou, A., & McIntyre, A.D. 1976. *The intertidal fauna of sandy beaches - a survey of the Scottish coast*. Aberdeen, Department of Agriculture and Fisheries for Scotland. (Scotland North West Region. Report No. 22.)
- Farrow, G.E. 1974. On the ecology and sedimentation of the *Cardium* shell sands and transgressive shellbanks of Traigh Mhor, Island of Barra, Outer Hebrides. *Transactions of the Royal Society of Edinburgh*, 69: 203-230.
- Fox, A.D., Ogilvie, M.A., Easterbee, N., & Bignal, E.M. East Greenland Barnacle Geese in Scotland, Spring 1988. *Scottish Birds*, 16: 1-10.
- Powell, H.T., Holme, N.A., Knight, S.J.T., Harvey, R., Bishop, G., & Bartrop, J. 1979. Survey of the littoral zone of the coast of Great Britain. 3. Shores of the Outer Hebrides. (Contractor: Scottish Marine Biological Association/Marine Biological Association Intertidal Survey Unit.) *Nature Conservancy Council, CSD Report*, No. 272.
- Stephen, A.C. 1930. Studies on the Scottish marine fauna. Additional observations on the fauna of the sandy and muddy areas of the tidal zone. *Transactions of the Royal Society of Edinburgh*, 56: 521-535.

Centre grid: NF7948
Region: Western Isles

District: Benbecula
SNH region: North-west Scotland

Review site location



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Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
2,144	1,264	37.5	10.9	4.1	Fjord	< 5,000

XM = Across mouth

■ = Core site

Description

Bagh nam Faoilean lies along the stretch of coast south of the island of Benbecula, separating it from South Uist, and is also known as the South Ford. The site is open to the sea to both the west and the east, and as a consequence is influenced by the Atlantic Ocean to the west and the Minch Channel to the east.

There are two main subtidal areas at the western and eastern extremities of the site. That in the east is characterised by many rocky outcrops. The aquatic estuarine communities within Bagh nam Faoilean are considered to be of significance, with a particularly rich example of the sand/muddy sand community, and areas of moderately exposed rocky shore community and sheltered rocky shore community that are considered to be of national importance.

In the west of the site there is the large, narrow, sand-capped spit of Gualan which projects across the width of

the ford, and provides shelter from the Atlantic waves. Behind the spit is a large intertidal sandflat, which has patches of saltmarsh. The largest areas of saltmarsh are found within the small bay at Balgarva, in the shelter of Eilean Cuithe nam Faidh and at Liniolate on the northern shore, and there are smaller areas in the shelter of the Gualan spit. In the west of the site the gentle slopes have facilitated the development of machair, the dune grassland characteristic of the region, and on the northern shore near the mouth at Lub Bhan a small area of sand dunes has developed.

Bagh nam Faoilean supports fair numbers of wintering waterfowl and a number of breeding seabird colonies. There are also a variety of waders breeding on the lowland grassland adjacent to the site, including nationally important breeding populations of ringed plover.



The fjardic landscape of Bagh nam Faoilean, between Benbecula and South Uist. (Julian Bateson, English Nature)

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●	●	●		●		
Area (ha)	880	35	1,229							

● = major habitat ● = minor habitat

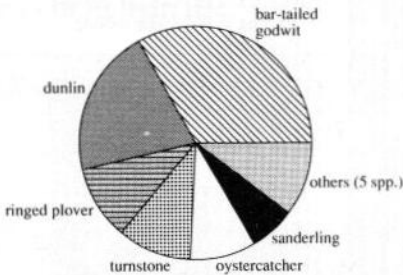
Birds

Wintering birds

1984/85 data

Total waterfowl: 2,160

BoEE	NWC	WSC
		●



Wintering species assemblage
(Spp. forming >5% assemblage shown separately)

Breeding birds: small numbers of black-headed gull, herring gull, common gull, common tern, arctic tern and fulmar breed within the estuary. In addition moderate numbers of snipe, large numbers of oystercatcher, redshank, lapwing and dunlin, and nationally important numbers of ringed plover breed within the grasslands adjacent to the estuary.

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
							●		●			●			

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
	●	●														

Additional wildlife features

One Notable species of invertebrate has recently been recorded from the site, on the dunes at Borve.

There are a good number of otters on the estuary, and common seals often use the western parts of the site for pupping.

Conservation status

● = designated ● = proposed

No.	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
								●	●				●						
								1	1				1						

The western side of Bagh nam Faoilean lies within the Machairs of the Uists, Benbecula and Barra Environmentally Sensitive Area, and parts of the site lie within the South Uist Machair and Lochs proposed Ramsar site and Special Protection Area.

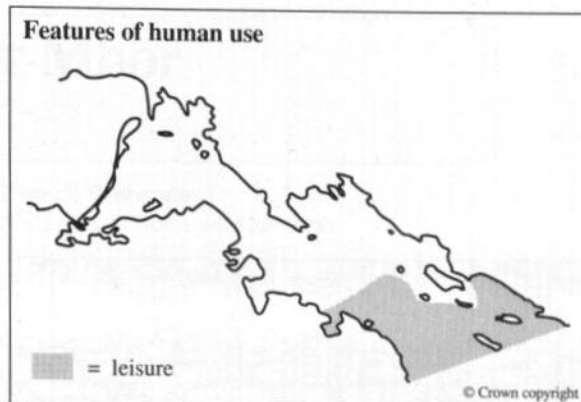
Human activities

Present	Proposed	
●		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
●		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
		Military activities Overflying by military aircraft Others
		Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
●	●	Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

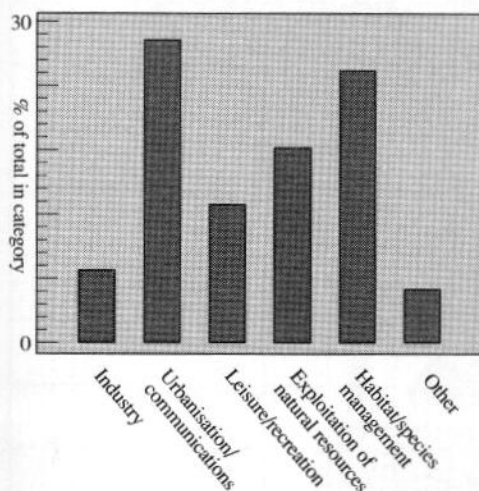
Present	Proposed	
		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
●		Wildfowling & hunting Wildfowling Other hunting-related activities
		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
●	●	Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs - Hand-gathering Dredging Hydraulic dredging
●	●	Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
●	●	Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
●		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

Activities on Bagh nam Failean are not intensive. Leisure pursuits include very infrequent sailing in the east as there are listed anchorages just outside this area, and bird-watching and occasional tourist boat-trips. The only industrial activity is sediment extraction on either side of the causeway, and sporadic sediment extraction by crofters. Exploitation of the natural resources includes heavy grazing of the saltmarsh, grazing of the sand dunes, and wildfowling on the South Uist Estates for greylag geese and ducks.



Categories of human use



Further reading

Bishop, G.M., & Holme, N.A. 1980. Survey of the littoral zone of the coast of Great Britain. Final report – Part 1: the sediment shores – an assessment of their conservation value. (Contractor: Scottish Marine Biological Association/Marine Biological Association.) *Nature Conservancy Council, CST Report*, No. 326.

Buxton, N.E. 1982. Wintering waders on the Atlantic shores of the Uists and Benbecula. *Scottish Birds*, 12: 106-113.

Fuller, R.J., Reed, T.M., Buxton, N.E., Webb, A., Williams, T.D., & Pienkowski, M.W. 1986. Populations of breeding waders *Charadrii* and their habitats on the crofting lands of the Outer Hebrides, Scotland. *Biological Conservation*, 37: 333-361.

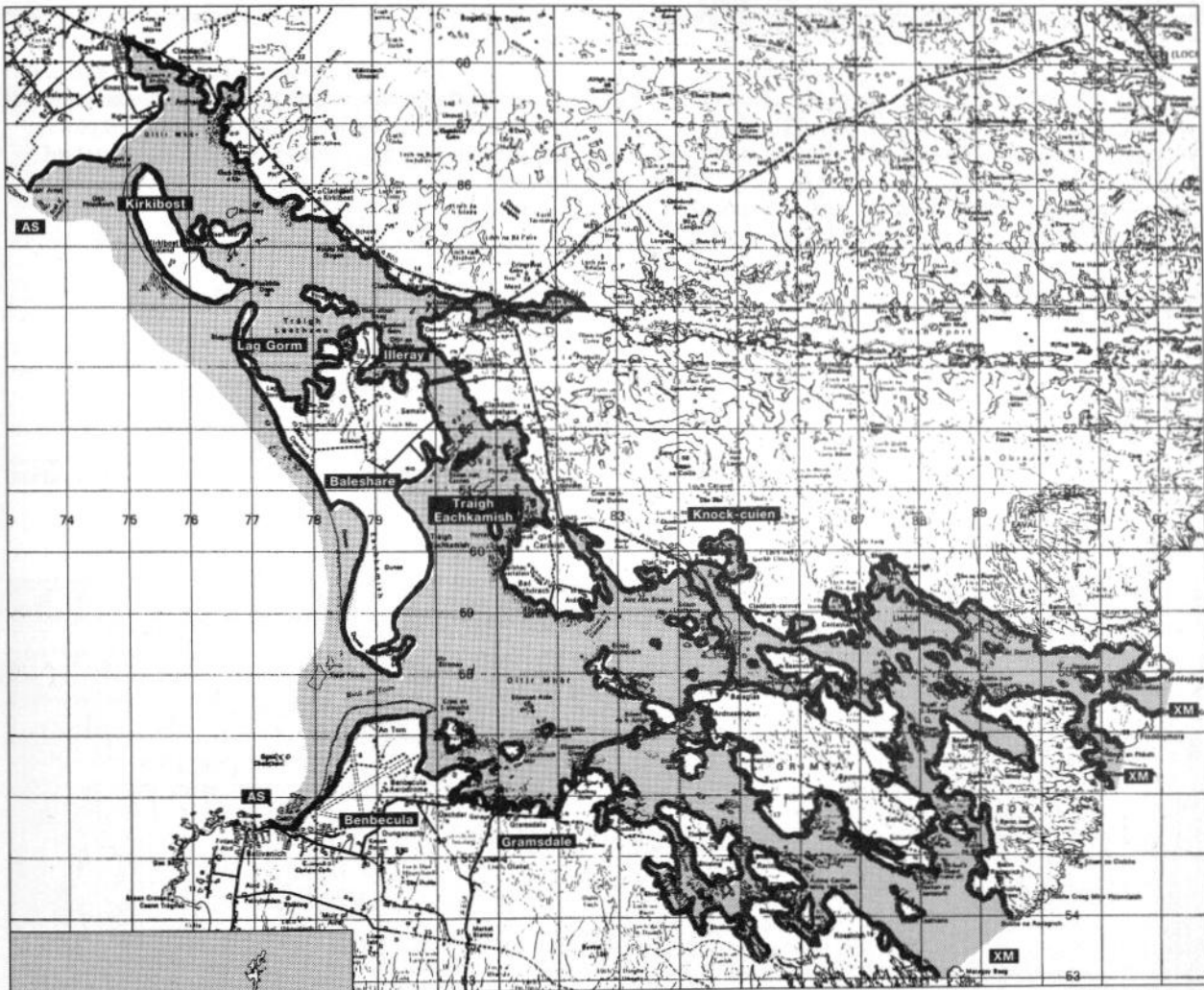
Law, D., & Gilbert, D. 1986. *Saltmarsh survey of North-west Scotland. The Western Isles*. Unpublished, Nature Conservancy Council.

Powell, H.T., Holme, N.A., Knight, S.J.T., Harvey, R., Bishop, G., & Bartrop, J. 1979. Survey of the littoral coast of Great Britain. 3. Report on the shores of the Outer Hebrides. (Contractor: Marine Biological Association/Scottish Marine Biological Association.) *Nature Conservancy Council, CST Report*, No. 269.

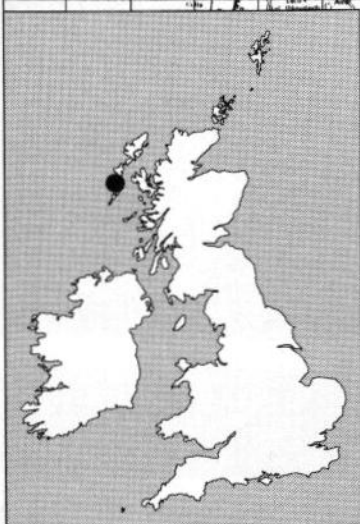
Centre grid: NF8158
Region: Western Isles

District: Benbecula
SNH region: North-west Scotland

Review site location



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Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
5,519	4,028	292.4	13.3	4.1	Fjord	< 5,000

XM = Across mouth

AS = Along shore

■ = Core site

Description

Oitir Mhor separates the island of Benbecula from North Uist, and is influenced by the tides of the Atlantic to the west and by the Little Minch to the east. The western and eastern parts of the site contrast strongly, for in the west are the low-lying islands of Baleshare and Kirkibost which provide shelter from the Atlantic, and in the east there is a myriad of rocky outcrops and small, steep islands.

The aquatic estuarine communities within Oitir Mhor are considered to be of great interest, with a variable/reduced salinity mud community of high regional importance and a sheltered rocky shore community which has a free-living form of the brown alga *Ascophyllum nodosum*. Oitir Mhor is one of only two estuary sites where the *mackaii* variant of *Ascophyllum* occurs, although it is widespread in similar scattered sites in Scotland.

At low tide a large area of intertidal flats are exposed, which are predominantly sandy. There are many patches

of saltmarsh scattered around the shores, with the largest areas at Illeray, Traigh Eachkamish and Lag Gorm on Baleshare, and in the small bays at Knock-cuiein and Gramsdale. In addition, along the islands of Baleshare and Kirkibost lies one of the largest sand dune systems in West Scotland, supporting a range of dune vegetation from calcareous to acidic dune slack communities, often showing brackish influences. The dune slacks grade into machair, and the system has a particularly rich flora with amongst the highest number of plants species recorded on dune slack and wet machair in the Western Isles.

Oitir Mhor is of particular importance for wintering and breeding waders, with large numbers of waders breeding on the grasslands adjacent to the site. It is of international importance for its breeding population of ringed plover, and supports breeding colonies of a number of seabird species.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●	●	●	●	●		
Area (ha)	1,491	144	3,884							

● = major habitat ● = minor habitat

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
									●			●		●	

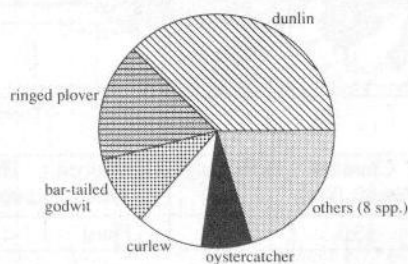
Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
		●		●												

Birds

Wintering birds

Total waterfowl: 2,030



Wintering species assemblage (Spp. forming >5% assemblage shown separately)

1984/85 data

BoEE	NWC	WSC
		●

Breeding birds: there is a moderate-sized colony of black-headed gull, and small numbers of little tern, arctic tern, common gull and fulmar. In addition large number of oystercatcher, lapwing, dunlin, snipe, redshank and ringed plover breed within the grasslands adjacent to the estuary. The numbers of ringed plover exceed 1% of the international breeding population.

Other: during the Winter Shorebird Count of 1984/85, numbers of wintering ringed plover exceeded 1% of the national population.

Additional wildlife features

Otters are present on the estuary, and common seals are often seen on the eastern shores. Small numbers of common seals pup here.

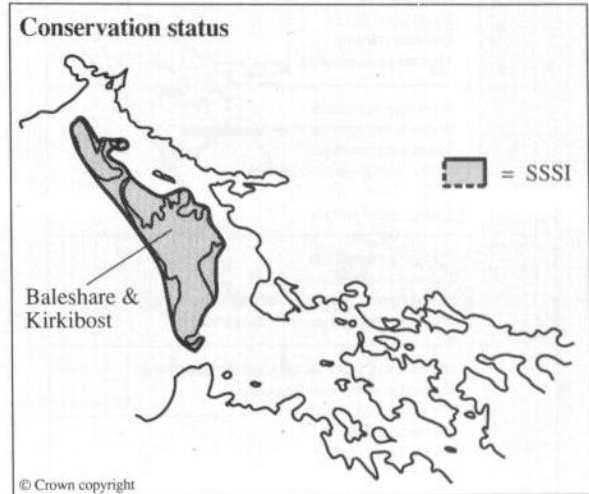
Conservation status

● = designated ● = proposed

No.	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other	
1	●		●					●	●				●							

A small part of Oitir Mhor is covered by Baleshare and Kirkibost biological Site of Special Scientific Interest (1,466 ha), which is also a Nature Conservation Review site. The western part of the site also lies within the Machairs of the Uists, Benbecula, Barra and Vatersay Environmentally Sensitive Area.

Oitir Mhor lies within the proposed Baleshare and Kirkibost Special Protection Area and Ramsar site.



The aquatic estuarine communities of Oitir Mhor are considered to be of great interest. (Pat Doody, JNCC)

Human activities

Present	Proposed	
●		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
●		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
●		Military activities Overflying by military aircraft Others
●		Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
●		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
●		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

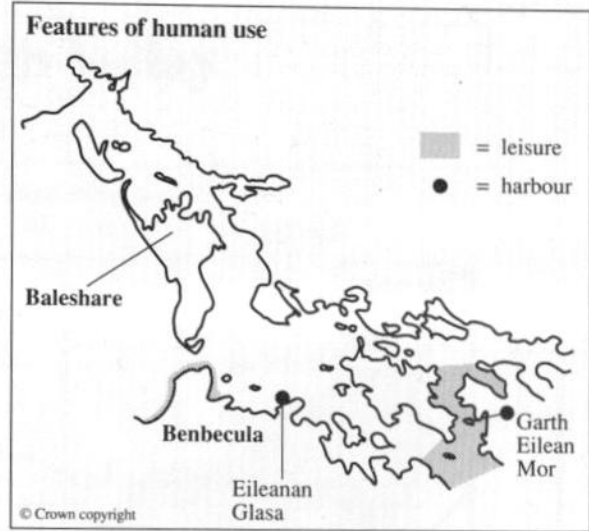
Present	Proposed	
●		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
●		Wildfowling & hunting Wildfowling Other hunting-related activities
		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
●		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs – Hand-gathering Dredging Hydraulic dredging
●		Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
●		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

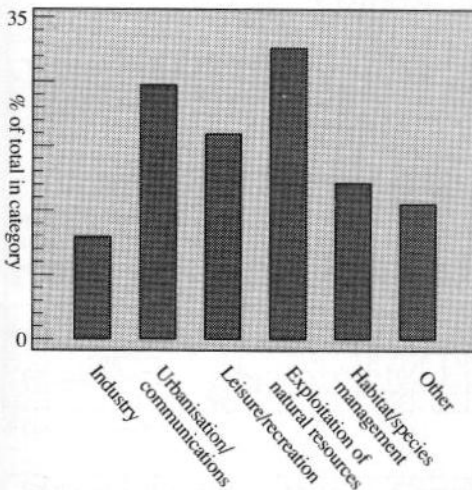
Exploitation of the natural resources are the predominant activities present, and include grazing over the saltmarsh and most of the sand dunes, salmon fish farms, cultivation of mussels, and algal cutting for the alginate industry. Winkles are also gathered by hand, lobster- and crab-potting occurs, and wildfowling shoot over Baleshare. The two small harbour facilities at Eileanan Glasa and Garth Eilean Mor are used by fishing craft.

Recreational activity is not intensive over the site, and includes sailing in the east and south where there is a small number of moorings, horse-riding at Benbecula, and walking and bird-watching.

In addition there is an airport at Benbecula to the south-west of Oitir Mhor, which is the focus for aircraft.



Categories of human use



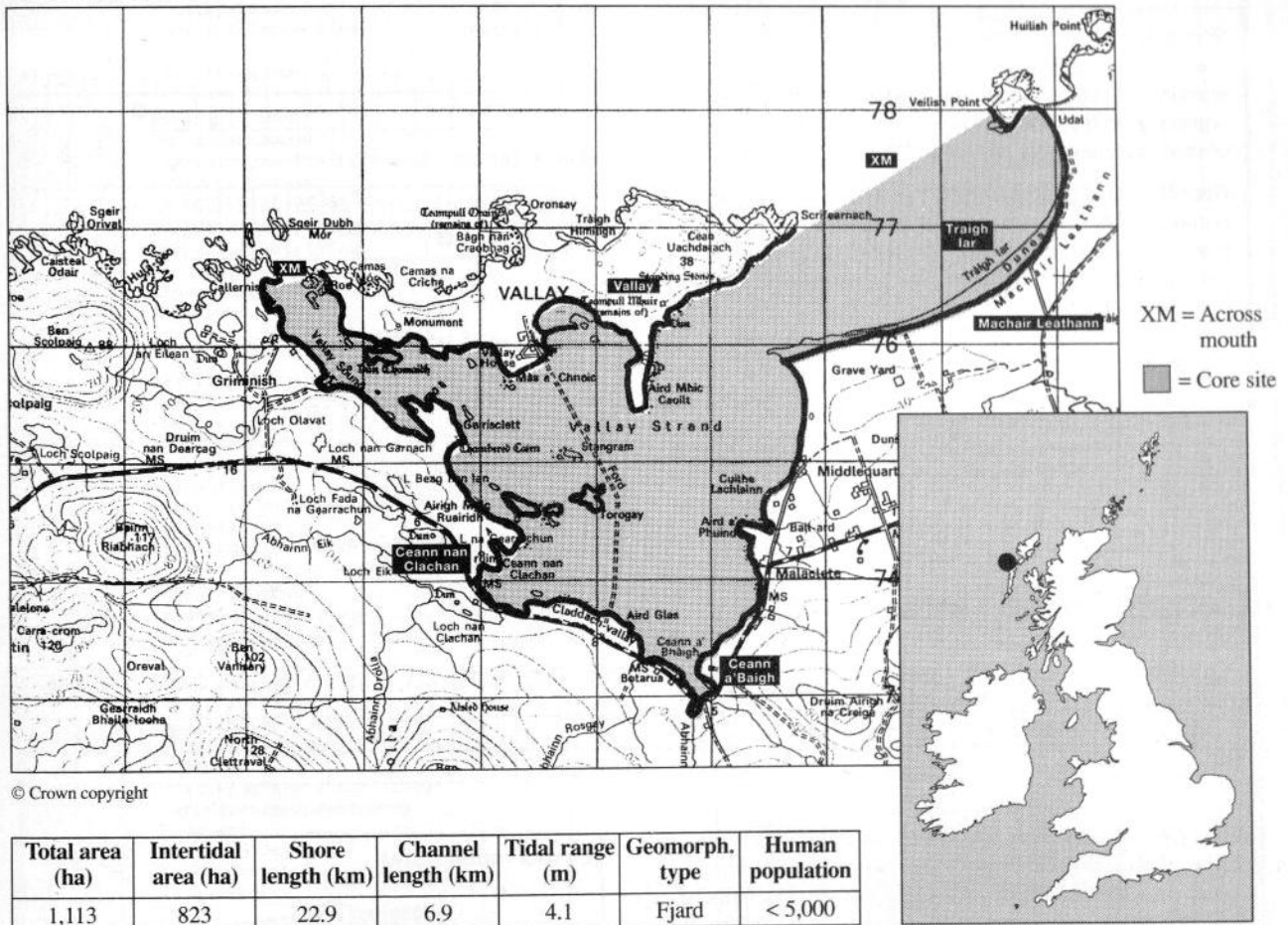
Further reading

- Bishop, G.M., & Holme, N.A. 1980. Survey of the littoral zone of the coast of Great Britain. Final report- Part 1: The sediment shores – an assessment of their conservation value. (Contractor: Scottish Marine Biological Association/Marine Biological Association.) *Nature Conservancy Council, CST Report*, No. 326.
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- Buxton, N.E. 1982. Wintering waders on the Atlantic shores of the Uists and Benbecula. *Scottish Birds*, 12: 106-113.
- Fuller, R.J., Reed, T.M., Buxton, N.E., Webb, A., Williams, T.D., & Pienkowski, M.W. 1986. Populations of breeding waders *Charadrii* and their habitats on the crofting lands of the Outer Hebrides, Scotland. *Biological Conservation*, 37: 333-361.
- Law, D., & Gilbert, D. 1986. *Saltmarsh survey of North-west Scotland. The Western Isles*. Unpublished, Nature Conservancy Council.
- Powell, H.T., Holme, N.A., Knight, S.J.T., Harvey, R., Bishop, G.M., & Bartrop, J. 1979. Survey of the littoral zone of the coast of Great Britain. 3. Report on the shores of the Outer Hebrides. (Contractor: Marine Biological Association/Scottish Marine Biological Association.) *Nature Conservancy Council, CST report*, No. 272.

Centre grid: NF7875
Region: Western Isles

District: North Uist
SNH region: North-west Scotland

Review site location



Description

Traigh Vallay, also known as Vallay Strand, lies on the north-west coast of North Uist in the Outer Hebrides. It is separated from the Oronsay review site to the east by the peninsula of Machair Leathann. The island of Vallay protects the site from the open sea, and shelters a large intertidal sandflat which drains almost completely at low tide. In a small bay on the south of Vallay there is an area of saltmarsh, with largely mid-upper saltmarsh vegetation and grassland transition communities, and on the southern shore of the site at Ceann a' Baigh and Ceann nan Clachan there are smaller, narrow strips of saltmarsh vegetation, marked by small cliffs caused by erosion.

In addition there are stretches of bare shingle along the shores of Traigh Vallay, and on either side of the western

and eastern mouths of the site there are patches of rocky shore.

To the east of the site the narrow, sandy beach of Traigh Iar extends along the Machair Leathann peninsula. Here the extensive system of dune and machair vegetation along the Machair Leathann spit is highly dynamic. The exposed foredunes along the spit are subject to erosion and are retreating, with only the small spit at the south-western end of Traigh Iar showing signs of accretion.

Traigh Vallay supports breeding populations of several species of wader, which includes an internationally important breeding population of ringed plover.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●	●	●	●	●		
Area (ha)	290	15	808							

● = major habitat ● = minor habitat

Birds

Wintering birds: Traigh Vallay is not a regularly counted site, but Buxton (1982) recorded large numbers of ringed plover and bar-tailed godwit wintering on the estuary, along with smaller numbers of oystercatcher, grey plover and dunlin.

Breeding birds: large numbers of lapwing, moderate numbers of oystercatcher and small numbers of ringed plover, dunlin and redshank are known to breed on the grasslands adjacent to the estuary. Large numbers of breeding waders have been recorded on Machair Leathann and Sollas, which lie between the Traigh Vallay and Oronsay review sites, and the ringed plover survey of 1984 recorded a breeding population of international importance.

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												●			

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
				●												

Additional wildlife features

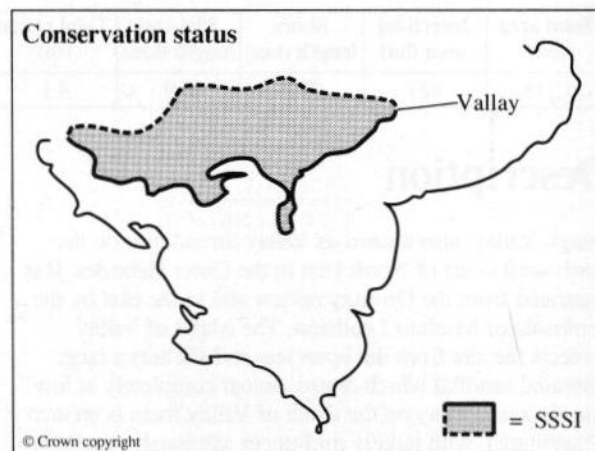
Otters regularly use the estuary.

Conservation status

● = designated ● = proposed

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
			●										●				●		
No.			1										1				1		

Vallay (307 ha) has been designated as a biological Site of Special Scientific Interest. Vallay Strand is a National Scenic Area and the estuary forms part of the Machairs of the Uists, Benbecula, Barra and Vatersay Environmentally Sensitive Area.



Human activities

Present
Proposed

		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
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		Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

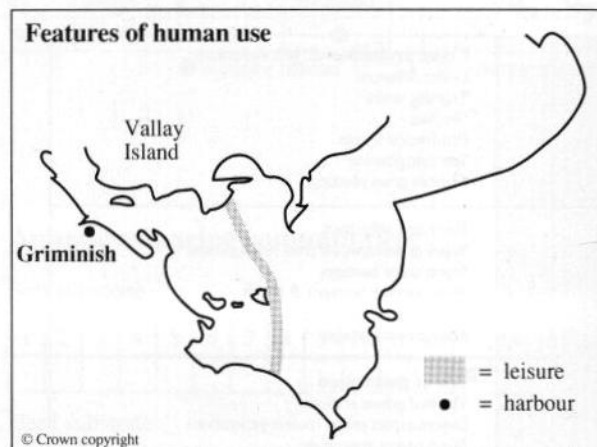
Present
Proposed

		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
●		Wildfowling & hunting Wildfowling Other hunting-related activities
		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs – Hand-gathering Dredging Hydraulic dredging
●	●	Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

There are very few activities occurring on Traigh Vallay. There is a small pier near Griminish in the west for mooring fishing boats, and lobster and crab potting occur in the west channel, but not intensively. The saltmarsh and sand dunes are lightly grazed, and wildfowling occurs from September to February.

The only leisure activity on Traigh Vallay is walking, for tourists walk across the ford to Vallay Island.



Further reading

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Crawford, I. 1989. *National sand dune vegetation survey. Site report No. 67, Sollas, North Uist.* Peterborough, Nature Conservancy Council. (Contract Surveys, No. 117).

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Eleftheriou, A., & McIntyre, A.D. 1976. *The intertidal fauna of sandy beaches – a survey of the Scottish coast.* Aberdeen, Department of Agriculture and Fisheries for Scotland (Scottish Fisheries Research Report, No. 6).

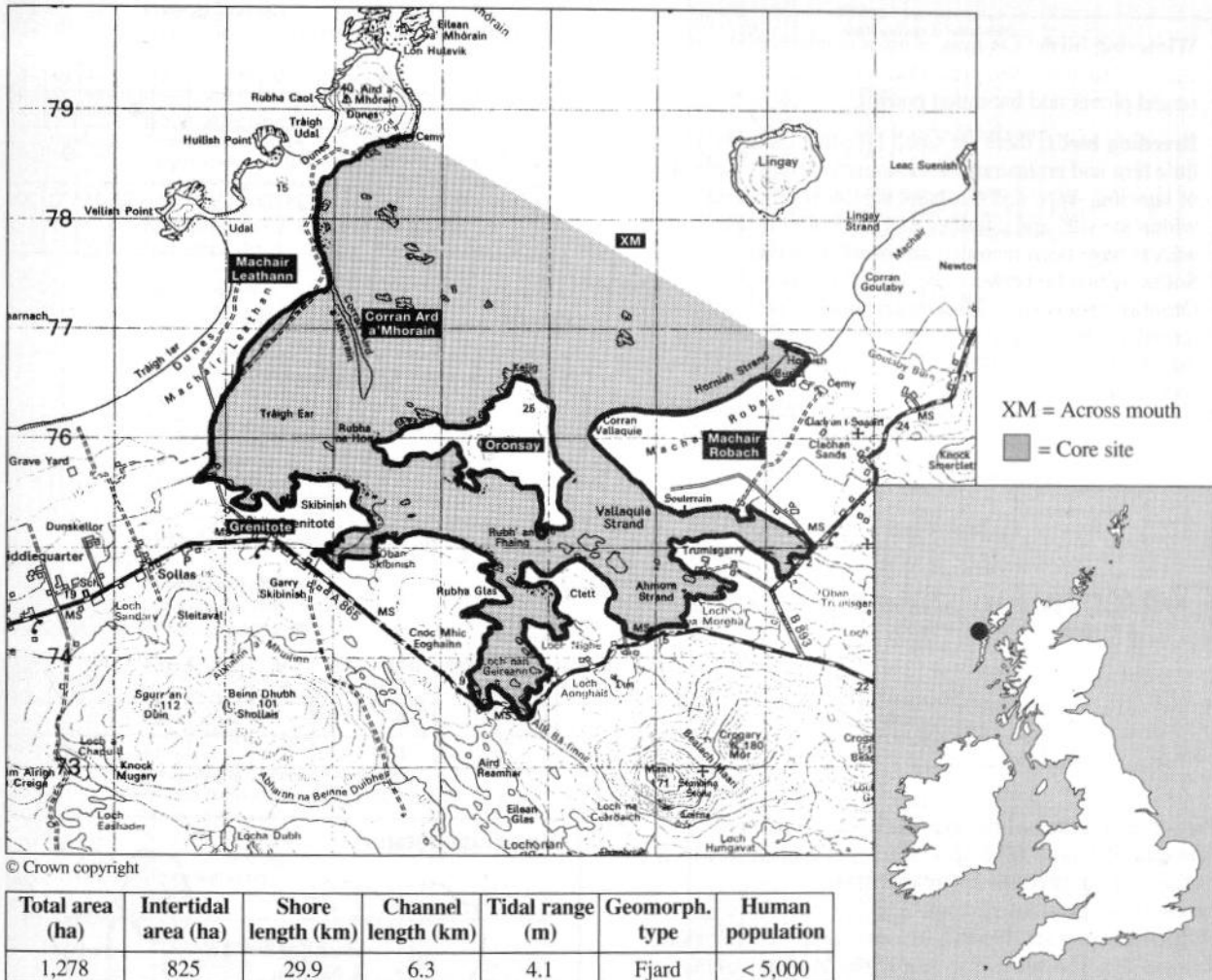
Fuller, R.J., Reed, T.M., Buxton, N.E., Webb, A., Williams, T.D., & Pienkowski, M.W. 1986. Populations of breeding waders *Charadrii* and their habitats on the crofting lands of the Outer Hebrides, Scotland. *Biological Conservation*, 37: 333-361.

Law, D., & Gilbert, D. 1986. *Saltmarsh survey of North-west Scotland. The Western Isles.* Unpublished, Nature Conservancy Council.

Centre grid: NF8575
Region: Western Isles

District: North Uist
SNH region: North-west Scotland

Review site location



Description

Oronsay lies on the north coast of North Uist in the Outer Hebrides, and is separated from the Traigh Vally review site by the peninsula of Machair Leathann. The island of Oronsay lies in the centre of the site. Much of Oronsay is a vast, intertidal sandflat, sheltered and well protected from serious wave attack.

Along the inner shores lie various strips of shingle, and there is a small area of mature saltmarsh at Grenitote in the south-west. To the east of the estuary mouth lies Machair Robach, an important coastal site in the Western Isles for it is the most dynamic and representative dune and machair area in the Uists and demonstrates the effects

of severe wind erosion on mature high machair plateau, with deep blow-outs and ridge retreat. The vegetation is also of importance for it shows a range of vegetation communities, with dune slacks, wet machair and a particularly species-rich uncultivated machair. The site also supports a wide diversity of moss species.

There is a further area of sand dune along the narrow tongue of Corran Ard a'Mhorain, a small peninsula running south-east from Machair Leathann, which at high water forms a strip of marram-covered dunes only a few metres wide. This peninsula is rapidly eroding.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●	●			●		
Area (ha)	453	6	819							

● = major habitat ● = minor habitat

Birds

Wintering birds: Oronsay is not a regularly counted site, but Buxton (1982) recorded a large flock of ringed plover and bar-tailed godwit.

Breeding birds: there are small breeding colonies of little tern and arctic tern on the estuary. Small numbers of lapwing, snipe and redshank are known to breed within the site, and a further 480 pairs of breeding waders have been recorded on Machair Leathann and Sollas, which lie between the Vallay Strand and Oronsay review sites. The ringed plover survey recorded a breeding population adjacent to the site that exceeded 1% of the international ringed plover population.

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												●			

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Additional wildlife features

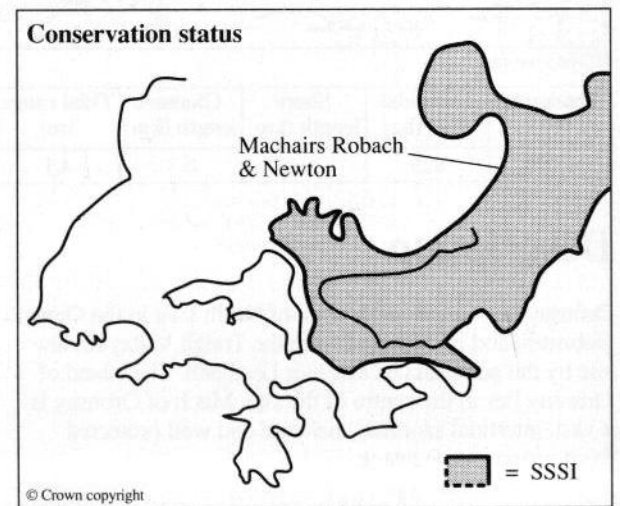
Otters are present on the estuary.

Conservation status

● = designated ● = proposed

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
No.		●			●			●	●				●				●		
		1			1			1	1				1				1		

Part of the site lies within the Machairs Robach and Newton (758 ha) Site of Special Scientific Interest, which has been designated for its biological and geomorphological interest, and contains the Machairs Robach Newton and North Uist Geological Conservation Review site. The site is also part of the Machairs of the Uists and Benbecula, Barra and Vatersay Environmentally Sensitive Area, and Vallaquie Strand is a National Scenic Area. Part of the site lies within the West Sound of Harris proposed Ramsar site and Special Protection Area.



Human activities

Present	Proposed	
	●	Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
		Military activities Overflying by military aircraft Others
		Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
	●	Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
	●	Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
●	●	Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present	Proposed	
		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
	●	Wildfowling & hunting Wildfowling Other hunting-related activities
		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs - Hand-gathering Dredging Hydraulic dredging
	●	Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
	●	Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
	●	Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

There are very few activities occurring on Oronsay. Exploitation of the natural resources includes heavy grazing of the saltmarsh and moderate grazing of the sand dunes, and wildfowling shoot over part of the site in winter mainly for greylag geese. Terrestrial archaeology occurs at Udal and there has been some research into greylag geese.

In 1989 consent had been granted for small-scale sand extraction on Machair Robach, and there was some control of rabbits, rats and greylag geese. In 1989 there was a proposal to restore the dunes, by planting marram grass in the blow-outs in Machair Robach.

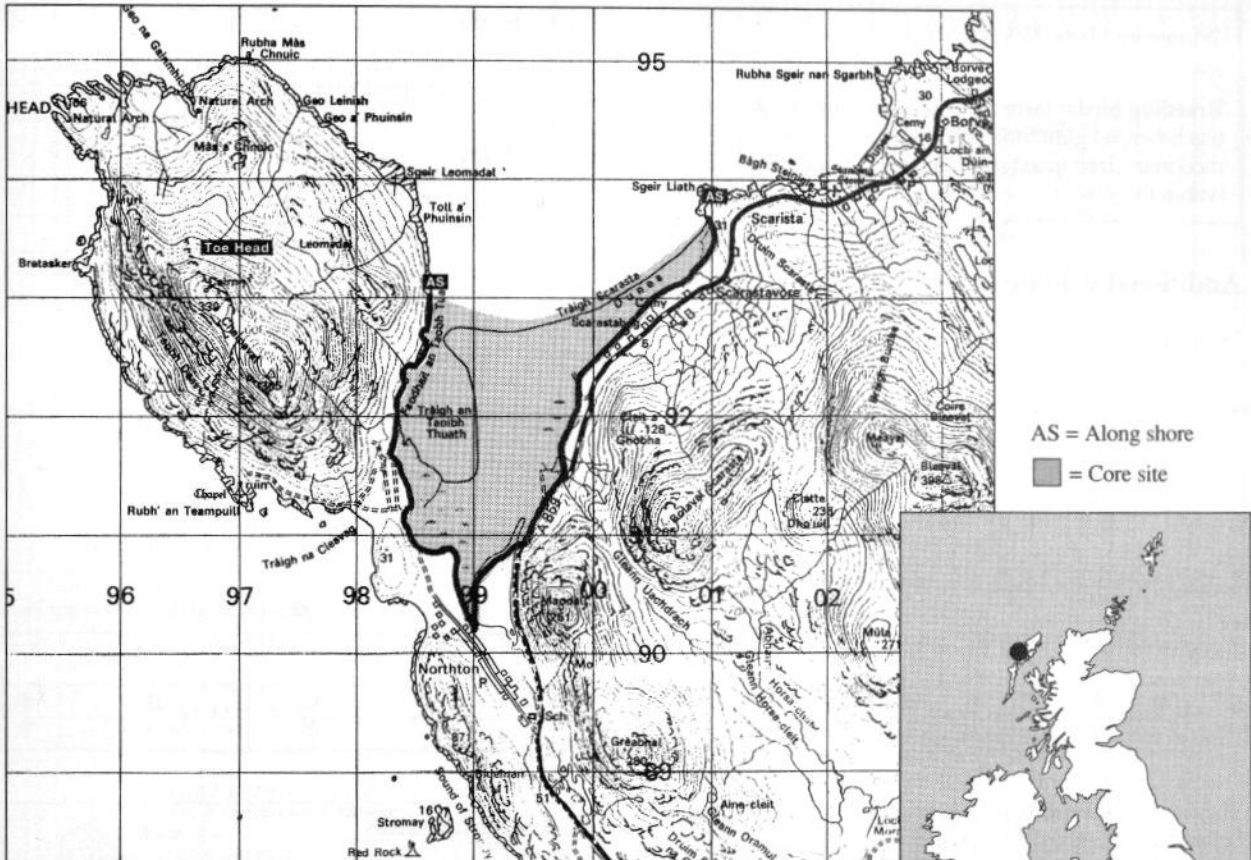
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Centre grid: NF9992
Region: Western Isles

District: Harris
SNH region: North-west Scotland

Review site location



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Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
290	290	7.5	—	3.8	Embayment	< 5,000

Description

Scarista lies on the south-west coast of the Isle of Harris in the Outer Hebrides, sheltered between Toe Head and the mainland. At low water the site is a large beach of intertidal shell sand which grades into saltmarsh and brackish water fen on the shores in the upper reaches of the estuary. Behind this fringing saltmarsh there is an

unusual zone of calcareous machair, with both wet and dry machair, parts of which are cultivated on a rotational basis, and this area supports a diversity of plant species. On the sand dunes the vegetation merges from dry machair into acid moorland.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●	●	●				
Area (ha)		40	250							

● = major habitat ● = minor habitat

Birds

Wintering birds: Scarista is not a regularly counted site.

Breeding birds: there are small breeding colonies of black-headed gull, little tern and arctic tern and a moderate-sized breeding colony of common gull within the site.

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
												●			

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Additional wildlife features

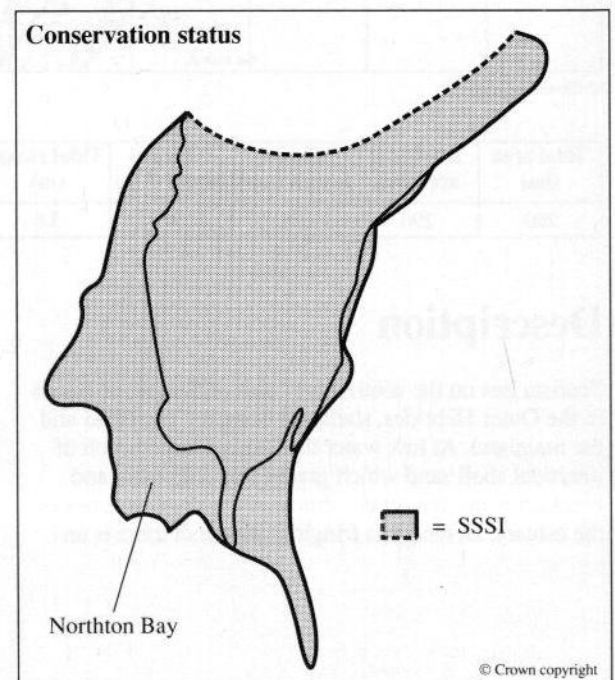
Otters regularly use the estuary.

Conservation status

● = designated ● = proposed

No.	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
	●	●			●												●		●
1		3			1												1		1

The estuary lies within the Northton Bay Site of Special Scientific Interest (415 ha), which was designated for its biological and geological interest and contains three Geological Conservation Review sites: Scarista, Chaipaval Pegmatite and Borve. Scarista is a National Scenic Area and is a preferred Coastal Conservation Zone.



Human activities

Present	Proposed
●	<p>Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting</p>
	<p>Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages</p>
	<p>Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation</p>
	<p>Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others</p>
	<p>Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers</p>
	<p>Military activities Overflying by military aircraft Others</p>
●	<p>Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others</p>
●	<p>Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying</p>
●	<p>Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables</p>
	<p>Urbanisation Land-claim for housing & car parks</p>
	<p>Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting</p>

Present	Proposed
●	<p>Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others</p>
	<p>Wildfowling & hunting Wildfowling Other hunting-related activities</p>
	<p>Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others</p>
	<p>Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs - Hand-gathering Dredging Hydraulic dredging</p>
●	<p>Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others</p>
●	<p>Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese</p>
●	<p>Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management</p>
	<p>Others</p>

Features of human use

In 1989 there were very few activities occurring on Scarista. Sand extraction occurs both commercially and non-commercially but on a very small scale, and the beach has been used in the past for landing aircraft. Leisure activities are widespread but not at all intensive, and include beach recreation, bird-watching and trial-biking. In addition the saltmarsh and the sand dunes are grazed. The sand dunes suffer very serious erosion by rabbits, and so rabbit traps and fences have been erected in an attempt to minimise this.

Further reading

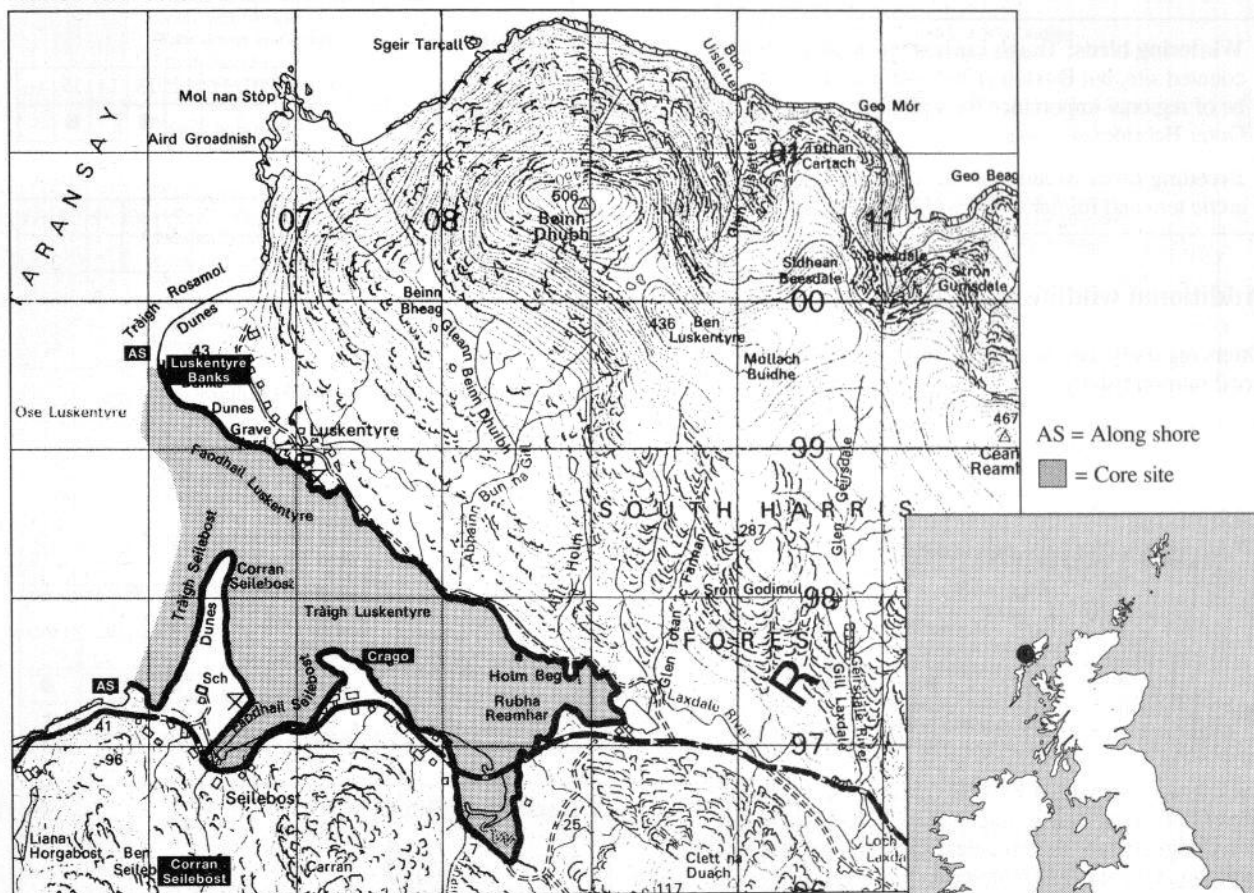
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Traigh Luskentyre

Centre grid: NG0798
Region: Western Isles

District: Harris
SNH region: North-west Scotland

Review site location



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Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
344	344	11.5	4.1	3.8	Fjord	< 5,000

Description

Traigh Luskentyre lies on the south-west coast of the island of Harris in the Outer Hebrides. At low water a wide sandflat is exposed in this sheltered inlet, which is partly protected by the island of Taransay to the north-west. The intertidal flats shows distinct zonation from open shell-sand beach and sandflat through saltmarsh, dunes and machair to rough pasture. There are two main saltmarshes on the southern shore: an area of mid-upper saltmarsh vegetation in the shelter of Corran Seilebost which is dissected by numerous channels, creeks and pans, and the other is sheltered in the small bay to the east of Crago, and is marked by a 1 metre high erosion cliff.

The site is of particular note for its geomorphology. The northward pointing peninsula of Corran Seilebost contains a variety of beach, dune and machair landforms, and is a dynamic spit with vegetation that is representative of Harris dune and machair. Further east is Crago, a north-west pointing promontory which is partly covered by blown sand. In addition there are both erosional and depositional landforms at Luskentyre Banks to the north. The entire system of Luskentyre Banks, Corran Seilebost and the intertidal flats are thought to be the remains of a much larger area of machair which has been fragmented by postglacial flooding.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●	●	●				
Area (ha)		32	312							

● = major habitat ● = minor habitat

Birds

Wintering birds: Traigh Luskentyre is not a regularly counted site, but Buxton (1982) considered the site to be of regional importance for wintering waders in the Outer Hebrides.

Breeding birds: small numbers of black-headed gull, arctic tern and fulmar breed within the estuary.

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			●									●		●	

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Additional wildlife features

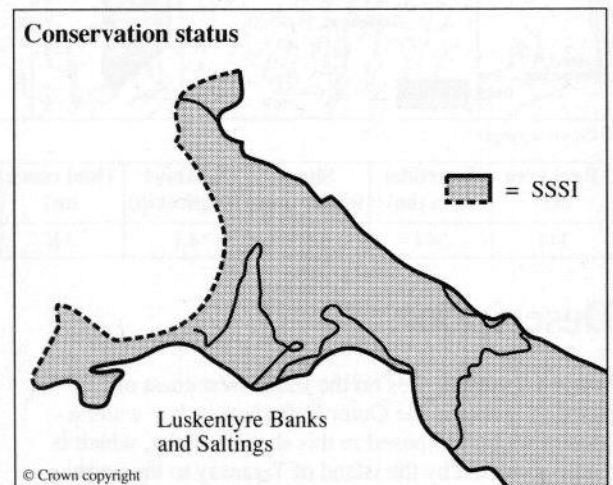
Otters regularly use the estuary, and the river supports a good salmon fishery.

Conservation status

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
		●			●												●		●
No.		1			1												1		1

● = designated ● = proposed

The estuary falls within Luskentyre Banks and Saltings Site of Special Scientific Interest (1,172 ha), which has been designated for its biological and geomorphological interest and contains a Geological Conservation Review site. The estuary also lies within a preferred Coastal Conservation Area and a National Scenic Area.



Human activities

Present
Proposed

●		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
●		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
		Military activities Overflying by military aircraft Others
●		Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
●	●	Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present
Proposed

		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
		Wildfowling & hunting Wildfowling Other hunting-related activities
		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
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●	●	Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

Features of human use

In 1989 there were very few activities occurring on the estuary. Leisure pursuits were not intensive and included beach recreation, angling and bird-watching. Exploitation of the natural resource included grazing of the saltmarsh and the sand dunes, and the only industrial activity present was small-scale sand extraction from the dunes. In 1989 there was a proposal to continue this sand extraction outside the SSSI.

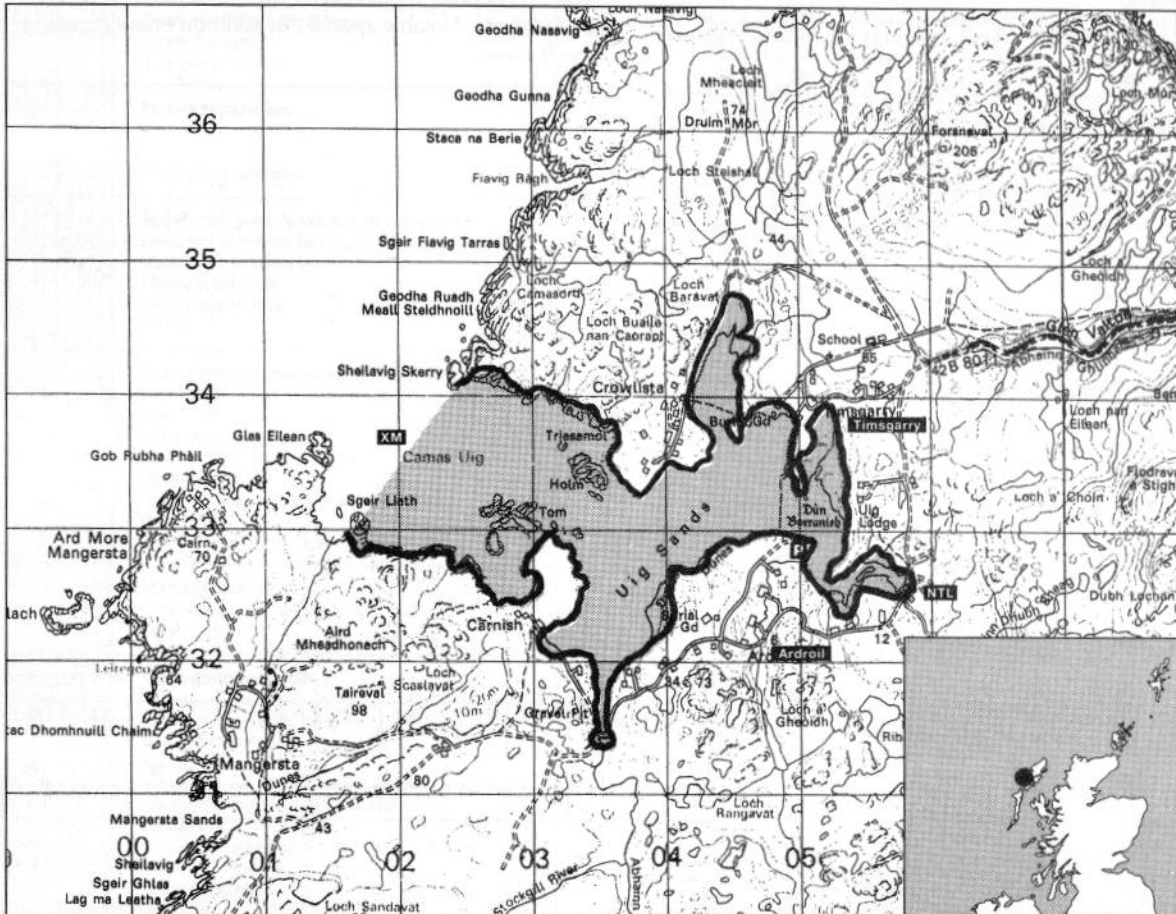
Further reading

- Angus, I.S. 1979. The macrofauna of intertidal sand in the Outer Hebrides. *Proceedings of the Royal Society of Edinburgh*, 77B: 155-171.
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Centre grid: NB0433
Region: Western Isles

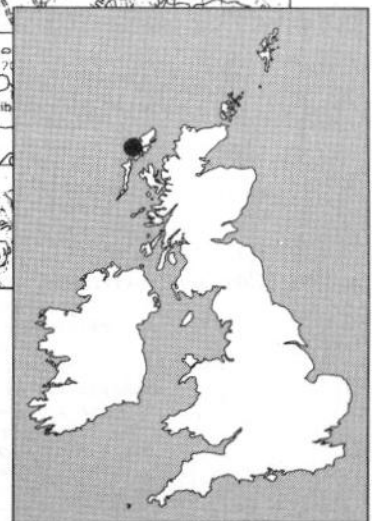
District: Isle of Lewis
SNH region: North-west Scotland

Review site location



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■ = Core site XM = Across mouth NTL = Normal tidal limit



Total area (ha)	Intertidal area (ha)	Shore length (km)	Channel length (km)	Tidal range (m)	Geomorph. type	Human population
438	214	18.0	5.5	3.6	Fjord	<5,000

Description

Camus Uig lies on the north-west shores of the Isle of Lewis in the Outer Hebrides. The innermost parts of this sheltered bay are exposed as sandflats at low water, across which flow two large rivers, dividing the sand into three main areas. There is also a small area of saltmarsh at Timsgary which is moderately grazed.

To the north and west of Ardroll, large areas of blown sand have accumulated which now support machair vegetation. There are also long stretches of rocky shores on either side of the estuary mouth.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●	●	●				
Area (ha)	224	10	204							

● = major habitat ● = minor habitat

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		●	●									●		●	

Hard substrate

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Additional wildlife features

The invertebrate fauna recently recorded on the site includes one Notable species. In addition otters regularly use the site.

Birds

Wintering birds: Camus Uig is not a regularly counted site.

Conservation status

● = designated ● = proposed

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other
No.																	●		●
																	1		1

Camus Uig lies within a National Scenic Area and a preferred Coastal Conservation Zone.

Human activities

Present	Proposed
	<p>Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting</p>
	<p>Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages</p>
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	<p>Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers</p>
	<p>Military activities Overflying by military aircraft Others</p>
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	<p>Urbanisation Land-claim for housing & car parks</p>
	<p>Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting</p>

Present	Proposed
	<p>Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others</p>
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	<p>Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese</p>
	<p>Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management</p>
	<p>Others</p>

Features of human use

There are very few activities occurring on Camus Uig. In summer beach recreation is not intensive. A single craft is used for sand-yachting and angling occurs for sea trout and salmon. The saltmarsh and sand dunes are grazed by sheep.

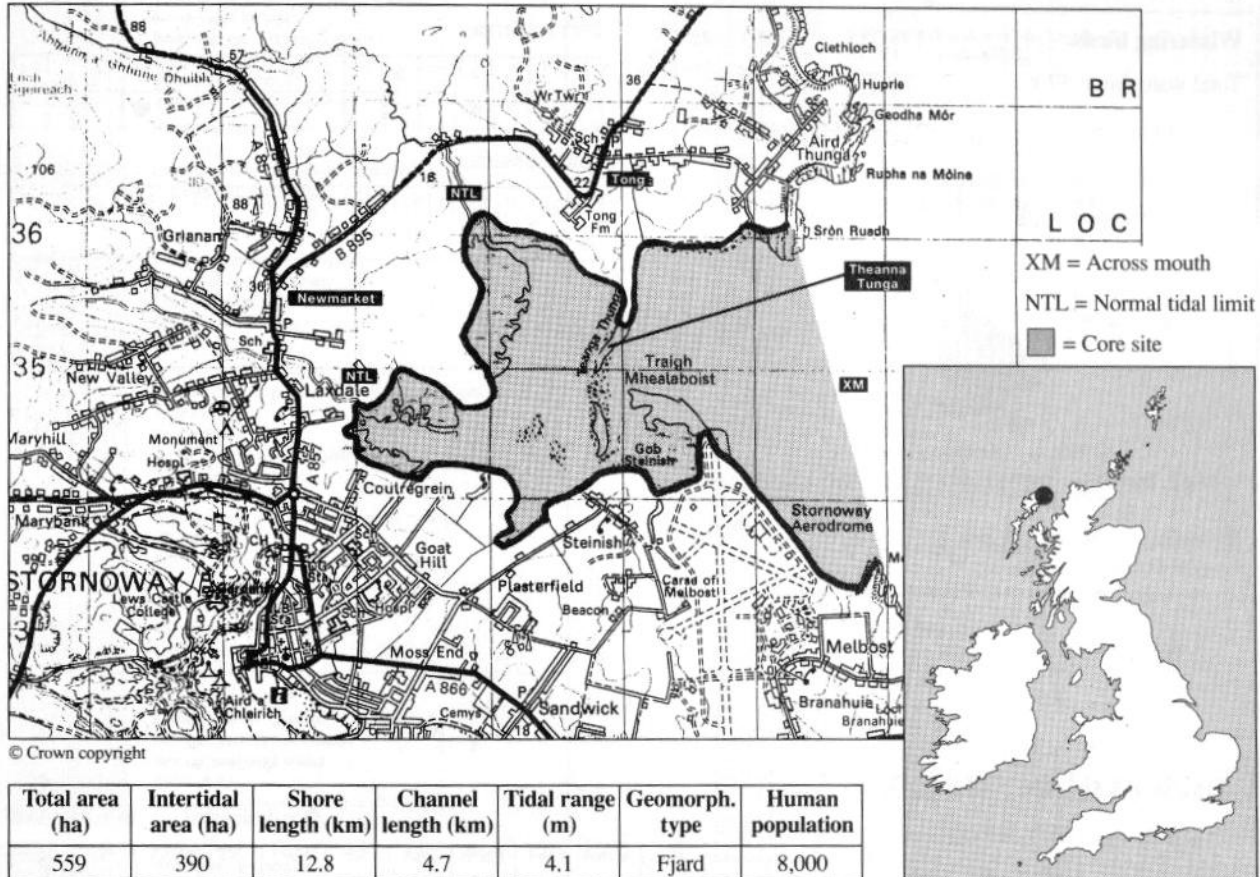
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- Buxton, N.E. 1982. Preliminary estimates of the number of waders wintering in the Outer Hebrides. *Wader Study Group Bulletin*, 35: 6-7.
- Buxton, N.E. 1982. Wintering coastal waders of Lewis and Harris. *Scottish Birds*, 12: 38-43.
- Fuller, R.J., Reed, T.M., Buxton, N.E., Webb, A., Williams, T.D., & Pienkowski, M.W. 1986. Populations of breeding waders *Charadrii* and their habitats on the crofting lands of the Outer Hebrides, Scotland. *Biological Conservation*, 37: 333-361.

Centre grid: NG0798
Region: Western Isles

District: Isle of Lewis
SNH region: North-west Scotland

Review site location



Description

The Laxdale Estuary lies on the eastern coast of the Isle of Lewis in the Outer Hebrides, in close proximity to Stornoway. The estuary is the confluence of two rivers, the Laxdale and Abhainn a' Ghlinne Dhuibh, and has one of the largest areas of tidal flats and saltmarsh in the Western Isles. Saltmarshes and mudflats lie in the shelter of two spits which extend into the estuary, while beyond these spits the intertidal flats are predominantly sandy.

Extending southwards into the main channel is Theanna Tunga, a shingle spit covered with blown sand. The shingle is derived from cliffs to the north of the site. The spit is now suffering erosion, although in places there is accretion, and at the end of Theanna Tunga there is a small grass-covered island. On the southern shore of the estuary is a sand spit. The extension of the airfield in 1983 removed an area of intertidal flats, thereby altering the

coastal configuration and changing sediment distribution. As a result the spit is growing northwards but eroding at its southern end.

In the innermost bay within the shelter of these spits saltmarshes have developed where the rivers flow into the bay. The largest area of saltmarsh is in the northernmost bay that stretches from Tong to Newmarket, where there is an area of largely mid-upper saltmarsh vegetation. The seaward edge of this saltmarsh is marked by a 1 metre high erosion cliff.

In addition the estuary supports aquatic estuarine communities of both soft and hard substrates, and the exposed rocky shore and moderately exposed rocky shore communities are considered to be of national importance.

Wildlife features

Coastal habitats

	Subtidal	Saltmarsh	Sandflats	Mudflats	Sand dunes	Rocky shores	Shingle	Lowland grassland	Lagoon	Other
	●	●	●	●	●	●	●			
Area (ha)	169	96	294							

● = major habitat ● = minor habitat

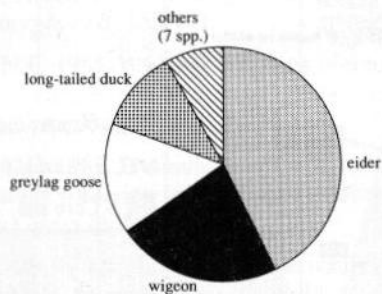
Birds

Wintering birds

1987/88 – 1990/91 data

Total waterfowl: 570

BoEE	NWC	WSC
	●	



Breeding birds: a moderate sized colony of arctic tern breeds within the estuary.

Aquatic estuarine communities

Soft substrate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			●									●			

Hard substrate

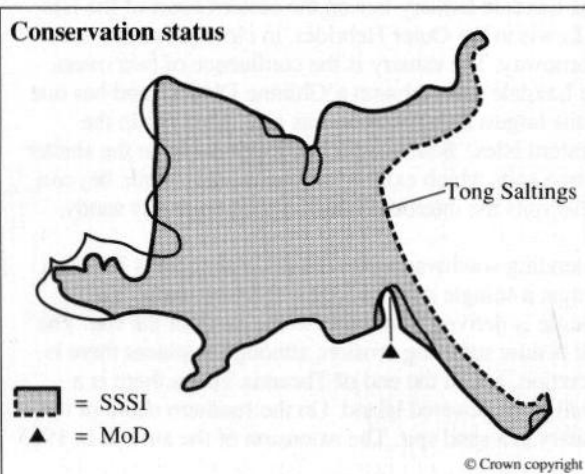
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
●	●															

Conservation status

● = designated ● = proposed

	NCR	GCR	SSSI (B)	SSSI (G)	SSSI (M)	NNR	LNR	Ramsar	SPA	AONB	CWT	RSPB	ESA	NP	WWT	NT	NSA	HC	Other	
No.			●																●	
			1																	3

Much of the estuary lies within the Tong Saltings biological Site of Special Scientific Interest (417 ha), and the Ministry of Defence own land north of the airfield.



Human activities

Present	Proposed	
●		Coast protection & sea defences Linear defences Training walls Groynes Brushwood fences <i>Spartina</i> planting Marram grass planting
		Barrage schemes Weirs & barrages for river management Storm surge barrages Water storage barrages & bunds Leisure barrages Tidal power barrages
		Power generation Thermal power stations Import/export jetties (power generation) Wind-power generation
●		Industrial, port & related development Dock, port & harbour facilities Manufacturing industries Chemical industries Ship & boat building Others
		Extraction & processing of natural gas & oil Exploration Production Rig & platform construction Pipeline construction Pipeline installation Import/export jetties & single-point moorings Oil refineries Mothballing of rigs & tankers
●		Military activities Overflying by military aircraft Others
●		Waste discharge Domestic waste disposal Sewage discharge & outfalls Sewage treatment works Rubbish tips Industrial & agricultural waste discharge Thermal discharges (power stations) Dredge spoil Accidental discharges Aerial crop spraying Waste incinerators Others
●		Sediment extraction Capital dredging Maintenance dredging Commercial estuarine aggregates extraction Commercial terrestrial aggregates extraction Non-commercial aggregates extraction Hard-rock quarrying
●		Transport & communications Airports & helipads Tunnels, bridges & aqueducts Causeways & fords Road schemes Ferries Cables
		Urbanisation Land-claim for housing & car parks
		Education & scientific research Sampling, specimen collection & observation Nature trails & interpretative facilities Seismic studies & geological test drilling Marine & terrestrial archaeology Fossil collecting

Present	Proposed	
●		Tourism & recreation Infrastructure developments Marinas Non-marina moorings Dinghy & boat parks Caravan parks & chalets Leisure centres, complexes & piers Aquatic-based recreation Power-boating & water-skiing Jet-skiing Sailing Sailboarding & wind-surfing SCUBA & snorkelling Canoeing Surfing Rowing Tourist boat trips/leisure barges Angling Other non-commercial fishing Bathing & general beach recreation Terrestrial & intertidal-based recreation Walking, including dog walking Bird-watching Sand-yachting 4WD & trial-biking Car sand-racing Horse-riding Rock-climbing Golf courses Clay-pigeon shooting Others Airborne recreation Overflying by light aircraft Radio-controlled model aircraft Others
		Wildfowling & hunting Wildfowling Other hunting-related activities
●		Bait-collecting Digging & pumping for lugworms & ragworms Hydraulic dredging for worms Others
●		Commercial fisheries Fish-netting & trawling Fyke-netting for eels Fish traps & other fixed devices & nets Crustacea Molluscs – Hand-gathering Dredging Hydraulic dredging
●		Cultivation of living resource Saltmarsh grazing Sand dune grazing Agricultural land-claim Fish-farming Shellfish farming Bottom & tray cultivation Suspended cultivation Crustacea farming Reeds for roofing <i>Salicornia</i> picking Others
		Management & killing of birds & mammals Killing of mammals Killing of birds Adult fish-eating birds Adult shellfish-eating birds Gulls Geese
		Wildlife habitat management <i>Spartina</i> control Habitat creation & restoration Marine Intertidal Terrestrial Habitat management
		Others

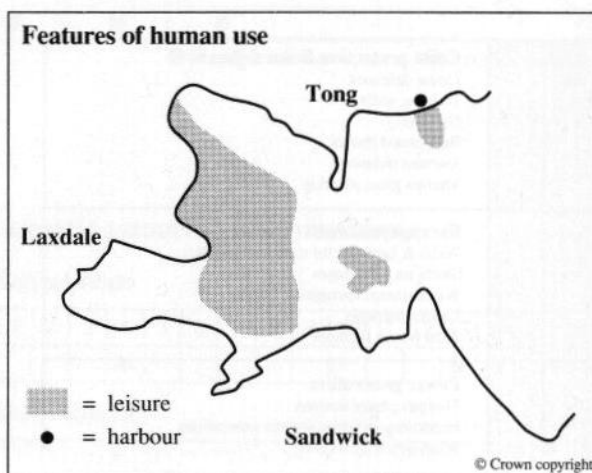
Features of human use

Leisure activities are numerous but generally low-key, and include moorings at Tong pier, canoeing, beach recreation, walking and bird-watching. Trial-biking and sand-racing occur on the north end of the spit, the saltmarsh and intertidal flats.

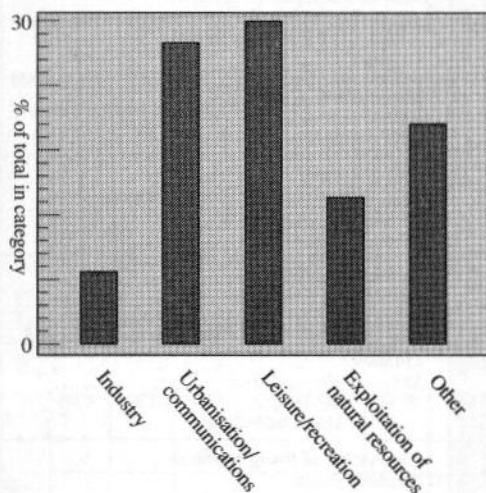
Exploitation of the natural resources includes light grazing of the saltmarsh and sand dunes, mussel collection for bait, and turf-cutting for horticulture. In 1989 there was a lease for a shellfishery on the shore at Tong but by 1992 this had not been taken up.

Industrial activity includes a small harbour for fishing boats at Tong pier, and shingle extraction from the north of the spit (1-2 ha).

In 1989 there were proposals for marram grass planting to stabilise the dunes near the airport, and for a walkway from Laxdale to Sandwick.



Categories of human use



Further reading

- Buxton, N.E. 1981. Wader populations of the soft shores of Lewis and Harris, Outer Hebrides in 1979. *Wader Study Group Bulletin*, 32: 29-33.
- Buxton, N.E. 1982. Wintering coastal waders of Lewis and Harris, *Scottish Birds*, 12: 38-43.
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- Law, D., & Gilbert, D. 1986. *Saltmarsh survey of Northwest Scotland. The Western Isles*. Inverness, Nature Conservancy Council.
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