



Habitat Action Plan

‘Strandline’



Authors – Nicky Davies, Katie Gillham

**Living Shetland Biodiversity Action Plan
May 2004**

Habitat Action Plan.

Strandlines

Habitat Definition

The strandline defines the high water mark at the top of the beach, and its position varies depending on the levels of the tides. They are made up of mostly natural materials and are not only important biologically, but physically by disseminating wave energy that reaches the shore. The strandline offers protection to invertebrates from sunlight and desiccation, as well as from predators. Not all of them are pleasing, some of them do have an odour that can appear to be unpleasant, this is due to the organic vegetation decomposing and this offers an important food source for filter feeding species that occur below the sand, e.g. marine worms as well as predators further up the food chain such as gulls and wading birds.

The strandline is mobile, being shifted by wind and tidal action, and occasionally is swept away in stormy weather conditions. The strandline can in some circumstances act as a stabiliser for the upper shore, as the organic matter bonds together with the sand particles, which then initiate dune formation and colonising plants.

The coastline of Shetland is approximately 900 miles (or 1,450 km) long, and it includes geos, deep and shallow sheltered voes, coastal cliffs, muddy inlets, rocky, shingle and sandy shores.

The strandline occurs on rocky, sandy and muddy shores and consists of organic and inorganic material. It contains seaweed and dead vegetation plus plastics, wood, fishing gear, and other forms of marine litter that is washed ashore by the tides, currents and storms.

The strandline is a microhabitat (a very specific habitat in which a population is found) and of interest to naturalists, as it varies considerably around the British coastline, depending on the shore type, resident coastal breeding birds, marine and land-based litter sources and quantities, invertebrates, and climate. In Shetland it plays host to a wide range of birds and associated species

Culture and Folklore

Traditionally, seaweed was removed from the shoreline to be used on crops and gardens as a natural fertiliser as it is high in nutrients. For centuries this was a way of conditioning the highly acidic soil type that occurs across large areas of Shetland. It was also used as a food source for sheep, and it is claimed that Shetland mutton and lamb has a very distinctive flavour.

Nowadays, it is still used as a fertiliser, mainly on gardens, where seaweed is removed from the shore in small quantities to be applied to vegetable patches. A local organic company processes it into a liquid fertiliser after gathering it, and the product is sold across the UK.

Current Status

All sloping beaches have the potential to develop strandline communities, but they are more likely to form on stretches of sandy or shingle beaches.

Very few detailed surveys have been undertaken to estimate the amount of strandline around the Shetland coastline, due to the transient and inconsistent nature of this habitat.

Sites of Importance

Members of Shetland Bird Club undertake beached bird surveys on a regular basis, and this is possibly the only regular beach survey held in Shetland. Some beaches are also surveyed under the Marine Conservation Society's Adopt-a-Beach Scheme for marine debris.

This summer a trial beach management scheme at Sands of Sound beach, Lerwick will be undertaken. Any area that supports a strandline is of biological importance, particularly sand and shingle beaches

There is no current estimate of the amount of strandline around the Shetland coastline

Ecology & nature conservation importance

The strandline provides an invaluable habitat for invertebrates, and in turn, shoreline-feeding birds, some of which also use discarded strandline material to nest in.

Sand dunes are a natural sea defence protecting the land from wind and water inundation. They also act as an invaluable habitat for many plants and animals.

The presence of the strandline is an indicator of the health of the marine environment, by the presence of certain marine species, e.g., sea squirts, goose barnacles. It is also possible to gauge the exposure of a beach by the type and amount of material that is washed ashore, and its freshness.

UK Biodiversity status

There is no UK Habitat action plan for strandlines, but associated UKBAP listings include a broad habitat statement¹ for supralittoral habitats, and within that, priority habitat action plans² are coastal sand dunes, coastal vegetated shingle, and machair. The other associated UK broad habitat is littoral sediment, which includes priority habitats for coastal saltmarsh and mudflats. Each of these habitats occurs in Shetland, and is relevant to the conservation of the strandline.

Current Threats

Many of the invertebrates that occur within the strandline are confined to this habitat, and in some areas of Britain, these scarce species are under threat from local extinction. This is due to removal of the strandline for several reasons: -

Aesthetic purposes at recreational beaches. Less so in Shetland, but as the strandline can contain litter and give off an unpleasant odour, on beaches of high recreational value the habitat is removed to improve its appearance, and also for safety purposes.

Coastline development, e.g., breakwater walls, jettys, coastal defence structures. By removing natural habitats and replacing them with new developments, this has a detrimental impact for two major reasons; it removes the niche habitat used by several species as a food source, nesting material, or shelter from predators. New coastal developments have the potential to alter sediment movement, thus removing the possibility of new habitats re-forming.

Increased awareness about coastal litter/pollution –The increased use of good practice when cleaning beaches at the annual “Redd up” appears to be having a positive impact on the strandline and associated species

Beach and marine litter. Plastic and other forms of waste not only make the strandline unsightly, but it also provides a dangerous habitat for the species that are reliant on the strandline, causing abrasion and entanglement. Some litter may also be polluted. Strandlines that contain large amounts of litter are removed in the beach-clean process.

Motor vehicle access to beaches. The disturbance to the strandline by motor vehicles not only displaces it causing distress to nesting birds, but also exposes the underside to the drying effects of sunshine and wind, killing off invertebrates (an essential food source to some birds). It also damages the beach stability, resulting in loss of habitat for important colonising shoreline plants.

Removal of driftwood. As wood is removed from the shoreline for a fuel source; an invaluable microhabitat is removed, exposing invertebrates to desiccation and predation.

Hand gathering of shellfish. As shellfish is removed from the shore, some hand gatherers have not replaced overturned seaweed and boulders back to their original position, and this can have a damaging effect on invertebrate populations, and in turn, birds. Also, by concentrating efforts on particular areas of the shoreline, rather than evenly gathering from along a stretch of coast, this has had detrimental effects on the shellfish distribution, upsetting the balance of shoreline ecology

¹ Summary of descriptions of 28 natural, semi-natural and urban habitats – the current issues affecting habitats and broad policies to address them

² Detailed descriptions for 45 habitats falling within the broad habitat classification and detailed actions and targets for conserving these habitats.

Seaweed removal for agricultural/horticultural purposes. By gathering large amounts of washed up seaweed from small areas along the shore to be used as fertiliser, this has the potential to remove large areas of important strandline habitat.

Sand extraction. Sand is occasionally used for domestic purposes on crofts and by adjacent landowners for small-scale building work. If too much is removed, this results in altered sediment transport, and less beach for strandline communities to become established.

Sheep grazing along the shore. This needs to be monitored to ensure that grazing levels are not too high, as it can result in damaged and displaced habitats

Disturbance from dogs and associated pollution from defecation.

Pollution from agricultural and sewage run-off.

Oil and tar balls from marine vessels. When oil and tar are washed ashore, they are trapped in the strandline. They are very difficult to remove and have devastating impacts on birds and invertebrates, due to their toxic properties. Tar balls are sourced from the illegal washing of ship tanks. Fingerprints of the tar samples can now be analysed to determine the exact chemical composition and vessel source.

Shoreline erosion As shorelines made up from soft sediment based rock are eroding, this is having a detrimental effect on strandlines as it means that there is less space and time for strandline communities to colonise the land

Potential for oil spills Shetland is famous, not only for the world famous Sullom Voe Oil terminal, but for its offshore oil fields, pipelines, and traffic. As demonstrated in the 1992 Braer disaster, nearly all coastal habitats and species reliant on these habitats around Shetland were adversely affected, not only by the oil itself, but also by dispersants used to break up the oil particles. Strandlines are not only vulnerable to smothering by toxic oil, but by the clean up process afterwards. They are susceptible to removal, remediation, and displacement.

Current Action

Proposed beach management strategy at Sands of Sound. This is a two-year trial managing beach access, cleanup and monitoring of coastal erosion. This scheme is being developed by a number of partners working closely with the various landowners and crofters using the beach.

Annual beach cleans “Redd ups” Organised by Shetland Amenity Trust, this annual event helps local communities and volunteers remove large amounts of litter from along shorelines and roadsides

Adopt a Beach scheme –This project involves voluntary stewardship of local beaches, and litter surveys are done to determine sources and amounts of litter. Further information can be obtained from the Shetland co-ordinator based at Shetland Amenity Trust.

Proposed Coastal Zone Management Plan for Shetland A draft CZMP has been written by Shetland Islands Council, focussing on one area, so that in future, a whole plan can be produced for all of the different zones

Sandy Beach Access Report. Available from SIC and Shetland Amenity Trust. This plan was prepared listing all beaches in Shetland on a tiered basis, with reference to nearby facilities and accessibility to the beaches, although is in need of updating.

An oil spill contingency plan is in place for Shetland that covers all aspects of what to do in case of an oil spill – covering who is responsible for what actions, environmental cleaning, press and media release, etc. Available from Scottish Natural Heritage

Promote Redd up and Birds leaflets. SBRC has in association with Shetland Amenity Trust published a leaflet promoting good practice to participants of the Redd up in order that the nesting birds are not disturbed and nests not damaged

Save the North Sea Project. A European project aiming to reduce the amount of litter in the North Sea. Raising awareness of this problem is of particular relevance to this plan.

Action Plan Objectives, Targets and Actions

Habitat maintenance and protection.

Promote awareness of the ecological importance and fragility of this habitat in Shetland.

Promote research and monitoring of the strandline to gain greater understanding of strandline communities and their health around the shores of Shetland.

Maintain existing strandline habitats in as natural condition as possible.

Increase awareness through education at schools, youth clubs and also field visits. SNH

Encourage local ecological studies of this habitat. Many local people have an extensive knowledge of wildlife in Shetland. SFSG

Work with relevant sectors to produce appropriate codes of conduct for activities that could impact strandlines, e.g. seaweed gathering, winkle picking etc.

Production of a publication educating the public about the fragility of this habitat

Promote the importance of this habitat to schoolchildren by assisting with SNH during schools week (ensuring that there is appropriate educational material within the marine chest) and the production of informative posters for schools, youth clubs, etc. Discourage vehicular access to beaches for recreational use. (Note access laws.) Promote to Landowners, SIC, SAT, SNH, crofters rights.

Promote Shetland's beaches as an economic asset and encourage people to take their litter home after visiting the beach. Ensure appropriate provision of facilities – e.g. toilets etc. also include monitoring of the strandline as part of a trial beach management scheme. SIC.

Incorporate information on the strandline into inventories of coastal habitats. Identify most important strandline habitats in Shetland This could be forwarded to planners, SBRC, SFSG

Work with the Shetland Amenity Trust Ranger Service to promote the biological importance of this habitat, and its sensitivity to disturbance on guided walks along the shore. Again could combine as a general education point with two of the above. SAT

Encourage local amateur naturalists to steward certain parts of the shoreline and survey those species most vulnerable to disturbance – could combine with a point about local ecological studies? SBRC, SFSG

Work with SAT during the Shetland Redd-Up i.e. to support it as it is such a good initiative but also to ensure that appropriate clean up methods are used and that it doesn't have any adverse impacts on the strandline or strandline species. SAT More information on SAT's pro-active encouragement of good practice is available from SAT.

Promote the importance of this habitat to schoolchildren by assisting with SNH during schools week (ensuring that there is appropriate educational material within the marine chest) and the production of informative posters for schools, youth clubs, etc.

Associated plans

Oysterplant, Waders (grouped), Farmland birds (grouped), Community Action Plans (Bigton, Bressay, Fetlar, Sandwick, Yell)

Other associated species

Sandhoppers species, algae (seaweed species), marine worms, kelp flies & their larvae, strandline nesting birds, e.g., eider duck, ringed plover, oystercatcher, arctic tern, common tern, ringed plover, dunlin, turnstone, purple sandpiper, redshank (and numerous migrant waders for short periods), plus rock pipit, Shetland wren ssp, twite, and at times starlings. Associated plant species include scentless mayweed, early orache, sea rocket and sea sandwort, as well as the scarce oysterplant, silverweed, curled dock, and shore dock. Most of these are situated above the strandline.

Key Contacts

- Living Shetland Officer
C/o SIC Infrastructure Services
Grantfield,
Lerwick
ZE1 0NT
Tel:01595 690832
Email: livingshetland@fwag.org.uk
- Shetland Amenity Trust
Litter Officer (Mick Clifton)
Garthspool,
Lerwick
Tel: 01595 694688
Email:mick@shetlandamenity.org
- Scottish Natural Heritage
Stewart Building
Lerwick
ZE1 0LL

- Tel: 01595 693345
Fax: 01595 692565
Email: northern_isles@snh.gov.uk
Website: www.snh.gov.uk
- Shetland Biological Records Office
Centre Manager
Shetland Amenity trust
Garthspool,
LerwickTel: 01595 694688
Fax: 01595
Email:sbrc@zetnet.co.uk
Website: <http://www.nature.shetland.co.uk/>
 - Shetland Island's Council (SIC)
Austin Taylor (Conservation Manager) Shetland
Island's Council
Infrastructure Services, Grantfield, Lerwick
Tel: 01595 744833
Fax: 01595 695887
Email: austin.taylor@sic.shetland.gov.uk

References

- Conservation of strandlines Countryside Council for Wales (CCW) Publication 1999.
- <http://www.ukbap.org.uk/UKPlans.aspx?ID=29>

Actions table

Action	Meets Objective	Target Date	Leaders
Maintain existing strandline habitats in as natural condition as possible.	1 3	2008	
Increase awareness through education at schools, youth clubs and also field visits.	2	Ongoing/ Annually	SNH
Encourage local ecological studies of this habitat. Many local people have an extensive knowledge of wildlife in Shetland.	3	Ongoing	SFSG, SBRC
Work with relevant sectors to produce appropriate codes of conduct for activities that could impact strandlines e.g. seaweed gathering, winkle picking etc.	2	2005	SBRC, SNH
Production of a publication educating the public about the fragility of this habitat and perhaps drawing attention to the most important strandline-dependent species in the Islands? Speak to SNH, although this is already being partially addressed by the SBRC leaflet on beach nesting birds	2	2005	SBRC, SNH
Work with Bød Ayre products to create a code of practice for seaweed gatherers	2	2005	SBRC
Discourage vehicular access to beaches for recreational use. (Note access laws. Promote to Landowners	1	2005	SIC
Promote Shetland's beaches as an economic asset and encourage people to take their litter home after visiting the beach. Ensure appropriate provision of facilities – e.g. toilets etc. SIC	1 2	Ongoing	SIC, Shetland Tourism
Incorporate information on the strandline into inventories of coastal habitats. Identify most important strandline habitats in Shetland?	3	2006	SBRC, SNH
Work with the Shetland Amenity Trust Ranger Service to promote the biological importance of this habitat, and its sensitivity to disturbance on guided walks along the shore. SAT	2	Ongoing	SAT
Encourage local amateur naturalists to steward certain parts of the shoreline and survey the species most vulnerable to disturbance – could combine with point about local ecological studies?SBRC, SFSG	3	Ongoing	SAT
Work with SAT during the Shetland Redd-Up i.e. to support it as it such a good initiative but also to ensure that appropriate clean up methods are used and that it doesn't have any adverse impacts on the strandline or strandline species. SAT	1 2	Ongoing/ Annually	SAT
Promote the importance of this habitat to school children by assisting with SNH during schools week, ensuring that there is appropriate educational material within the marine chest, and the production of informative posters for schools, youth clubs, etc.	2	Ongoing/Annually	SNH

