Improvement Programme for England's Natura 2000 Sites (IPENS) Planning for the Future

Site Improvement Plan Solway Firth

Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 sites (IPENS). Natura 2000 sites is the combined term for sites designated as Special Areas of Conservation (SAC) and Special Protected Areas (SPA). This work has been financially supported by LIFE, a financial instrument of the European Community.

The plan provides a high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the site(s) and outlines the priority measures required to improve the condition of the features. It does not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

The SIP consists of three parts: a Summary table, which sets out the priority Issues and Measures; a detailed Actions table, which sets out who needs to do what, when and how much it is estimated to cost; and a set of tables containing contextual information and links.

Once this current programme ends, it is anticipated that Natural England and others, working with landowners and managers, will all play a role in delivering the priority measures to improve the condition of the features on these sites.

The SIPs are based on Natural England's current evidence and knowledge. The SIPs are not legal documents, they are live documents that will be updated to reflect changes in our evidence/knowledge and as actions get underway. The information in the SIPs will be used to update England's contribution to the UK's Prioritised Action Framework (PAF).

The SIPs are not formal consultation documents, but if you have any comments about the SIP or would like more information please email us at IPENSLIFEProject@naturalengland.org.uk, or contact Natural England's Responsible Officer for the site via our enquiry service 0300 060 3900, or enquiries@naturalengland.org.uk

This Site Improvement Plan covers the following Natura 2000 site(s)

UK0013025 Solway Firth SAC

UK9005012 Upper Solway Flats & Marshes SPA

Site description

The Solway Firth SAC is a large shallow complex estuary formed by a variety of historical physical influences including glaciation, river erosion, sea level change and geological barriers from hard rock outcrops. Of the few examples of these estuaries within Great Britain, the Solway is the largest. It is also one of the least industrialised and most natural estuary systems in Europe.

Several rivers flow in to the Solway Firth which results in the presence of migratory fish such as River and Sea Lamprey. However it is perhaps best known for its large areas of intertidal sand and mudflats along with subtidal sandbanks, reefs, saltmarsh, vegetated shingle and fixed dunes. This is the third largest continuous area of intertidal habitat in the UK. This diverse mix of intertidal habitats support internationally important numbers of overwintering Barnacle Geese (the entirety of the Svalbard population), bar-tailed godwit, whooper swan and golden plover as part of an assemblage of wildfowl and waders which regularly contains 130,000 individuals through the winter. This group of passage and overwintering birds are protected by the Upper Solway Flats and Marshes SPA.

The features listed for the sites included in the SIP are those listed on the current Conservation Objectives, and are applicable to the English parts of the sites only. The features list may be revised in the future to reflect any subsequent updates to the SPA's qualifying features.

Plan Summary

This table shows the prioritised issues for the site(s), the features they affect, the proposed measures to address the issues and the delivery bodies whose involvement is required to deliver the measures. The list of delivery bodies will include those who have agreed to the actions as well as those where discussions over their role in delivering the actions is on-going.

Priority & Issue	or Threat		Measure	Delivery Bodies	
1 Changes in species distributions	Threat	A130(NB) Eurasian oystercatcher, A140(NB) Golden plover, A143(NB) Red knot, Waterbird assemblage	Research into the reduction in wintering waders utilising the Solway Firth	Natural England, RSPB, British Trust for Ornithology (BTO)	
2 Energy production	Threat	A038(NB) Whooper swan, A040(NB) Pink-footed goose, A045b(NB) Barnacle goose, A048(NB) Common shelduck, A130(NB) Eurasian oystercatcher, A140(NB) Golden plover, A143(NB) Red knot, A144(NB) Sanderling, A162(NB) Common redshank, A169(NB) Turnstone, Waterbird assemblage	Research whether multiple renewable energy schemes impact on bird populations	Allerdale District Council, Natural England, RSPB, Wildfowl and Wetlands Trust, University(ies), British Trust for Ornithology (BTO), Dumfries & Galloway Council	
3 Energy production	Threat	H1140 Intertidal mudflats and sandflats, H1170 Reefs, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows	Implementation of the National Infrastructure Planning process	Defra, Natural England, Marine Management Organisation (MMO)	

4 Coastal squeeze	Threat	H1140 Intertidal mudflats and sandflats, H1220 Coastal shingle vegetation outside the reach of waves, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2130 Dune grassland	Shoreline management plan implementation	Allerdale District Council, Environment Agency, Natural England, North West and North Wales Coastal Group
5 Water Pollution	Threat	H1110 Subtidal sandbanks, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1170 Reefs, H1220 Coastal shingle vegetation outside the reach of waves, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2130 Dune grassland, S1095 Sea lamprey, S1099 River lamprey	Reduction in Diffuse Pollution through Catchment Sensitive Farming. Reduction in diffuse pollution from rural land use. Priority Catchments and General Binding Rules (Scotland)	Environment Agency, Forestry
6 Air Pollution: risk of atmospheric nitrogen deposition	Threat	H1130 Estuaries, H1220 Coastal shingle vegetation outside the reach of waves, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2130 Dune grassland	Further investigate the impacts of nitrogen deposition	Natural England
7 Public Access/Disturbance	Threat	A037(NB) Bewick's swan, A038(NB) Whooper swan, A040(NB) Pink-footed goose, A045b(NB) Barnacle goose, A048(NB) Common shelduck, A130(NB) Eurasian oystercatcher, A140(NB) Golden plover, A143(NB) Red knot, A144(NB) Sanderling, A156(NB) Black-tailed godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A193(B) Common tern, A194(B) Arctic tern, Waterbird assemblage	Education and public awareness raising	Cumbria County Council, Cumbria Wildlife Trust, Local Authority(ies), Natural England, RSPB, Solway Coast AONB, Wardens, Landowner(s), British Trust for Ornithology (BTO), Recreational user group(s), AONB recreational/ business users
8 Fisheries: Commercial marine and estuarine	Threat	H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1170 Reefs, H1310 Glasswort and other annuals colonising mud and sand, S1095 Sea lamprey	Assessment of impacts on features, and regulation of fishing activity if required	Environment Agency, Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Marine Scotland, Inshore Fisheries Group(s) (IFG)

9 Invasive species	Threat	H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1170 Reefs, H1330 Atlantic salt meadows	Assessment, monitoring and removal of invasive species. Implementation of biosecurity plan for sea users	Environment Agency, Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Solway Firth Partnership, Centre for Environment, Fisheries and Aquaculture Science (Cefas), Scottish Environmental Protection Agency (SEPA), Marine Scotland, Scottish Natural Heritage (SNH)
10 Fisheries: Aquaculture	Threat	A038(NB) Whooper swan, A040(NB) Pink-footed goose, A045b(NB) Barnacle goose, A048(NB) Common shelduck, A130(NB) Eurasian oystercatcher, A140(NB) Golden plover, A143(NB) Red knot, A144(NB) Sanderling, A160(NB) Curlew, A162(NB) Common redshank, H1170 Reefs, Waterbird assemblage	Development of aquaculture biosecurity measures to reduce the potential spread of non-native species	Environment Agency, Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Centre for Environment, Fisheries and Aquaculture Science (Cefas), Scottish Environmental Protection Agency (SEPA), Fish Health Inspectorate
11 Change in land management	Threat	A038(NB) Whooper swan, A040(NB) Pink-footed goose, A045b(NB) Barnacle goose, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1170 Reefs, H1330 Atlantic salt meadows	Maintain existing, and setup new, agri-environment agreements.	Natural England

Issues and Actions

This table outlines the prioritised issues that are currently impacting or threatening the condition of the features, and the outstanding actions required to address them. It also shows, where possible, the estimated cost of the action and the delivery bodies whose involvement will be required to implement the action. Lead delivery bodies will be responsible for coordinating the implementation of the action, but not necessarily funding it. Delivery partners will need to support the lead delivery body in implementing the action. In the process of developing the SIPs Natural England has approached the delivery bodies to seek agreement on the actions and their roles in delivering them, although in some cases these discussions have not yet been concluded. Other interested parties, including landowners and managers, will be involved as the detailed actions are agreed and delivered. Funding options are indicated as potential (but not necessarily agreed or secured) sources to fund the actions.

1 Changes in species distributions

Evidence from British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) counts indicates there has been a drop in numbers of wader species using the site over winter. It is unclear whether this is due to anthropogenic impacts or a reflection of natural changes in the use of the site.

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
1A	Further investigation/research is needed to find out whether the drop in wintering waders is due to site based issues on the one hand, wider environmental factors on the other, the relative role of these and means of mitigating and reversing negative impacts.	Not yet determined	2014-17	Investigation / Research / Monitoring	Not yet determined	Natural England	RSPB, British Trust for Ornithology (BTO)
2 En	ergy production						
Along	the migration routes of the birds protect	cted by the SPA	(both daily feedi	ng and roosting moven	nents as well as lo	nger site migrations) are n	nultiple onshore and

Along the migration routes of the birds protected by the SPA (both daily feeding and roosting movements as well as longer site migrations) are multiple onshore and offshore renewable energy schemes. The cumulative impacts of these schemes, both at a site level or population level, are not yet fully understood. Further schemes around the estuary, including a tidal barrage, are planned and need to be supported by sound evidence of their cumulative impacts.

Actio	n Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
2A	Research is required to build up an overall picture of how birds use the area in order to inform planning decisions, given the potential cumulative effect of multiple energy schemes.	Not yet determined	2014-17	Investigation / Research / Monitoring	Not yet determined	Natural England	Allerdale District Council, RSPB, Wildfowl and Wetlands Trust, University(ies), British Trust for Ornithology (BTO), Dumfries & Galloway Council

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)			
2B	Ensure that new renewable energy schemes do not impact on bird populations through ensuring that the planning process is adhered to.	Not yet determined	2014-20	Advice	Not yet determined	Natural England	Allerdale District Council, Wildfowl and Wetlands Trust, University(ies), British Trust for Ornithology (BTO), Dumfries & Galloway Council			
	ergy production									
Landfa	Il options for cabling of renewable dev	elopments could	impact on intert	idal habitats.						
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)			
3A	Ensure landfall options for cabling connecting renewable developments do not impact on intertidal features.	Not yet determined	2014-20	Mechanism not identified / develop mechanism	Nationally Significant Infrastructure Project (NSIP) planning process	Defra	Natural England, Marine Management Organisation (MMO)			
4 Coa	astal squeeze									
4 Coastal squeeze A combination of sea level rise and a need to protect infrastructure (properties, roads, etc) could lead to loss of protected habitats through the process of coastal squeeze. Predictions for a rise in sea level may necessitate further coastal defence work within the site. Current shoreline management plans address the issue but this must be reviewed in future iterations and implemented in planning decisions to ensure the site is not affected by inappropriate construction. There is pressure to protect coastal										

Action Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
4A Ensure measures to tackle coastal erosion are appropriate for the specific locations where they are required, and take into consideration natural shoreline processes.	Not yet determined	2014-20	Shoreline Management Plan and Strategies	Not yet determined	Environment Agency	Allerdale District Council, Natural England, North West and North Wales Coastal Group

5 Wa	5 Water Pollution										
Diffuse	e pollution and/or uncontrolled release	of pollutants from	n marine or terre	estrial sources could alt	er or damage the	habitats and species found	d within the estuary.				
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)				
5A	Reduction in diffuse pollution from agriculture (England) and wider rural land use (Scotland).	Not yet determined	2014-17	England Catchment Sensitive Farming (CSF)	Not yet determined	Natural England	Environment Agency, Forestry Commission, Scottish Environmental Protection Agency (SEPA), Eden Rivers Trust				
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)				
5B	Ensure that licences and permits are in place and set at appropiate levels based on current evidence.		2014-17	Regulation: Environmental Permits	Not yet determined	Environment Agency	Allerdale District Council, Scottish Environmental Protection Agency (SEPA), North West Coastal Regional Monitoring Group				
	Pollution: risk of atmospheric n										
Nitroge	en deposition exceeds site relevant cri	tical loads. Nutrie	ent enrichment c	of dunes leading to a re-	duction in dune sp	ecies.					
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)				
6A	Further investigate potential atmospheric nitrogen impacts on the site based on application of guidance from the Chief Scientist Group and Nitrogen Task and Finish Group.		2014-17	Investigation / Research / Monitoring	Not yet determined	Natural England	n/a				
7 Pul	olic Access/Disturbance										
The so	ale of disturbance from the public, and	d recreational use	e and its impact	on bird species is curre	ently unknown but	thought to be localised.					
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)				
7A	Investigate what the impact of public access has on breeding and overwintering bird populations, particularly in relation to Open Access and Coastal Access areas.	Not yet determined	2014-17	Investigation / Research / Monitoring	Not yet determined	Natural England	RSPB, British Trust for Ornithology (BTO)				

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
7B	Provide regulation and advice to reduce the impact of disturbance from recreational users.	Not yet determined	2014-20	Regulation: SSSI Regulation	Not yet determined	Natural England	Cumbria Wildlife Trust, RSPB, Solway Coast AONB, Recreational user group(s)
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
7C	Wardening where appropriate, to reduce the impact of recreational disturbance.	Not yet determined	2014-20	Partnership agreement	Not yet determined	Wardens	Cumbria Wildlife Trust, Local Authority(ies), RSPB, Solway Coast AONB, Landowner(s), Recreational user group(s)
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
7D	Provide education and signage where appropriate, to reduce the impact of recreational disturbance.	Not yet determined	2014-17	Partnership agreement	Coastal access budget	Natural England	Cumbria County Council, Cumbria Wildlife Trust, RSPB, Solway Coast AONB, Landowner(s), Recreational user group(s)

8 Fisheries: Commercial marine and estuarine

Fishing activities categorised as 'amber or green' under Defra's revised approach to commercial fisheries in EMSs require assessment and (where appropriate) management. This assessment will be undertaken by NWIFCA. For activities categorised as 'green', these assessments should take account of any in-combination effects of amber activities, and/or appropriate plans or projects, in the site. Fisheries include beam trawling, pump scoop and towed dredging, hand working, netting, lines, crab tiling and bait digging will all be under assessment.

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Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
8A	Assessment of 'Amber & Green ' activities on subtidal boulder and cobble skears. Where these assessments indicate management is required, appropriate measures will be introduced by the NWIFCA. If management measures are established to protect the feature(s), on-going work will be required by the IFCA to ensure compliance and an appropriate level of reporting to ensure sites are well managed. Natural England will provide advice on the condition of features and potential condition threats.	Not yet determined	2016	Regulation: Creation / amendment of byelaws	Not yet determined	North Western Inshore Fisheries Conservation Authority (IFCA)	Environment Agency, Natural England, Marine Scotland, Inshore Fisheries Group(s) (IFG)
9 Inv	asive species						
Sparti	na anglica is present in the Solway but ese skeleton shrimp; wakame, and wir						irt; carpet sea squirt;
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
9A	Survey and monitor areas of <i>Spartina anglica.</i>	Not yet determined	2014-17	Investigation / Research / Monitoring	Not yet determined	Natural England	Scottish Environmental Protection Agency (SEPA), Scottish Natural Heritage (SNH)
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
9B	Use of best practice measures to reduce and prevent the spread of <i>Spartina anglica.</i>	Not yet determined	2014-17	Invasive Control Plan: Other	Not yet determined	Natural England	Environment Agency, Scottish Environmental Protection Agency (SEPA), Scottish Natural Heritage (SNH)

A . C							
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
The us	Implementation of the Solway Biosecurity Plan (created by the Solway Firth Partnership) which provides advice for users of the ports and marinas to reduce the spread of marine non-native invasive species including: carpet sea squirt; Japanese skeleton shrimp; leathery sea squirt, wakame and wireweed. sheries: Aquaculture se of Pacific Oysters (a non-native species al area may cause disturbance to over	cies) for aquacul	2014-17 ture, if poorly m	Bio-security plan	Not yet determined	Local partnership	Environment Agency, Natural England, North Western Inshore Fisheries Conservation Authority (IFCA), Solway Firth Partnership, Centre for Environment, Fisheries and Aquaculture Science (Cefas), Marine Scotland
Action	Action description	Cost estimate	Timescale	Maakaniana	- " "		
10A		e o o c o c a mate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)

10/16

11 Change in land management									
Changes to the management of the saltmarshes could lead to a deterioration in their condition.									
	Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)	
	11A	Maintain existing RDPE schemes and extend schemes to areas not covered, and secure the replacement of expiring agreements.	Not yet determined	2014-17	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Rural Development Programme (RDPE)	Natural England	n/a	

Site details

The tables in this section contain site-relevant contextual information and links

Qualifying features #UK Special responsibility	
Solway Firth SAC	S1099 Lampetra fluviatilis: River lamprey
	H1110 Sandbanks which are slightly covered by sea water all the time
	H1130 Estuaries
	H1140 Mudflats and sandflats not covered by seawater at low tide
	H1170 Reefs
	H1220 Perennial vegetation of stony banks
	H1310 Salicornia and other annuals colonising mud and sand
	H1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
	H2130# Fixed dunes with herbaceous vegetation ("grey dunes")
	S1095 Petromyzon marinus: Sea lamprey
Upper Solway Flats & Marshes SPA	A143(NB) Calidris canutus: Red knot
	A144(NB) Calidris alba: Sanderling
	A160(NB) <i>Numenius arquata:</i> Eurasian curlew
	A140(NB) Pluvialis apricaria : European golden plover
	A162(NB) Tringa totanus: Common redshank
	A169(NB) Arenaria interpres: Ruddy turnstone
	A156(B) Limosa limosa islandica: Black-tailed godwit
	A193(B) Sterna hirundo: Common tern
	Waterbird assemblage
	A038(NB) <i>Cygnus cygnus</i> : Whooper swan
	A040(NB) Anser brachyrhynchus: Pink-footed goose

A045b(NB) Branta leucopsis : Barnacle goose

A048(NB) Tadorna tadorna: Common shelduck

A194(B) Sterna paradisaea: Arctic Tern

A037(NB) Bewick's Swan

A130(NB) Haematopus ostralegus: Eurasian oystercatcher

Site location and links

Solway Firth SAC

Area (ha) 43636.72 Grid reference NY144648	Map link	
Local Authorities	Cumbria; Dumfries and Galloway	
Site Conservation Objectives	European Site Conservation Objectives for Solway Firth SAC	
European Marine Site conservation advice	Solway Firth EMS	
Regulation 33/35 Package	Regulation 33/35 package link	
Marine Management Organisation site plan	<u>n/a</u>	
Upper Solway Flats & Marshes SPA		
Area (ha) 43636.73 Grid reference NY086577	Map link	
Local Authorities	Cumbria; Dumfries and Galloway	
Site Conservation Objectives	European Site Conservation Objectives for Upper Solway Flats and Marshes SPA	
European Marine Site conservation advice	Solway Firth EMS	
Regulation 33/35 Package	Regulation 33/35 package link	
Marine Management Organisation site plan	<u>n/a</u>	

Water Framework Directive (WFD)

The Water Framework Directive (WFD) provides the main framework for managing the water environment throughout Europe. Under the WFD a management plan must be developed for each river basin district. The River Basin Management Plans (RMBP) include a summary of the measures needed for water dependent Natura 2000 sites to meet their conservation objectives. For the second round of RBMPs, SIPs are being used to capture the priorities and new measures required for water dependent habitats on Natura 2000 sites. SIP actions for non-water dependent sites/habitats do not form part of the RBMPs and associated consultation.

Solway Firth SAC				
River basin	Solway Tweed RBMP			
WFD Management catchment	Eden and Esk, Waver-Wampool			
WFD Waterbody ID (Cycle 2 draft)	GB102075073470, GB102076073950			
Upper Solway Flats & Marshes SPA				
Upper Solway Flats & Marshes SPA				
Upper Solway Flats & Marshes SPA River basin	Solway Tweed RBMP			
,	<u>Solway Tweed RBMP</u> Eden and Esk, Waver-Wampool			

Overlapping or adjacent protected sites

Site(s) of Special Scientific Interest (SSSI)		
Solway Firth SAC	Upper Solway Flats & Marshes SSSI	
Upper Solway Flats & Marshes SPA	Upper Solway Flats & Marshes SSSI	
National Nature Reserve (NNR)		
Solway Firth SAC	n/a	
Upper Solway Flats & Marshes SPA	n/a	
Ramsar		
Solway Firth SAC	Upper Solway Flats & Marshes	
Upper Solway Flats & Marshes SPA	Upper Solway Flats & Marshes	
Special Areas of Conservation (SAC) and Special Protection Areas (SPA)		
Solway Firth SAC	Upper Solway Flats & Marshes SPA	
Upper Solway Flats & Marshes SPA	Solway Firth SAC	

Version	Date	Comment
1.0	22/12/14	



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