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

Planning for the Future

Site Improvement Plan

River Tweed

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)

UK0012691 River Tweed SAC

Site description

Scottish partner organisations have contributed to the development of the Plan and it has therefore been written to cover both English and Scottish parts of the SAC.

The River Tweed is the most species-rich example of a river with *Ranunculus* (sub-type 2) in the north-eastern part of its range. The river has a high ecological diversity which reflects the mixed geology of the catchment. Stream water-crowfoot *Ranunculus penicillatus ssp. pseudofluitans*, a species of southern rivers and streams, here occurs at its most northerly location as does fan-leaved water-crowfoot *R. Circinatus*, along with river water-crowfoot R. *Fluitans*, common water-crowfoot *R. Aquatilis*, pond water-crowfoot *R. Peltatus* and a range of hybrids.
The river is also designated for Atlantic salmon *Salmo salar*, Otter *Lutra lutra*, Sea lamprey *Petromyzon marinus*, Brook lamprey *Lampetra planeri* and River lamprey *Lampetra fluviatilis*.

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	Pressure or Threat	Feature(s) affected	Measure	Delivery Bodies
1 Water Pollution	Pressure/ Threat	H3260 Rivers with floating vegetation often dominated by water-crowfoot, S1095 Sea lamprey, S1096 Brook lamprey, S1099 River lamprey, S1106 Atlantic salmon, S1355 Otter	Implement a range of measures to address diffuse and point source pollutants	Environment Agency, Forestry Commission, Natural England, Northumbrian Water Ltd, Scottish Environmental Protection Agency (SEPA), Tweed Forum, Scottish Natural Heritage (SNH)
2 Invasive species	Pressure/ Threat	H3260 Rivers with floating vegetation often dominated by water-crowfoot, S1095 Sea lamprey, S1096 Brook lamprey, S1099 River lamprey, S1106 Atlantic salmon, S1355 Otter	Secure funding to fully implement control and bio-security plans. Research Signal crayfish.	Natural England, University(ies), Consultant, Tweed Forum, Tweed Commissioners
3 Physical modification	Pressure/ Threat	H3260 Rivers with floating vegetation often dominated by water-crowfoot, S1095 Sea lamprey, S1096 Brook lamprey, S1099 River lamprey, S1106 Atlantic salmon	Secure funding, and develop and implement river restoration projects	Environment Agency, Natural England, Landowner(s), Scottish Environmental Protection Agency (SEPA), Tweed Forum, Scottish Natural Heritage (SNH)

4	Water abstraction	Threat	H3260 Rivers with floating vegetation often dominated by water-crowfoot, S1095 Sea lamprey, S1096 Brook lamprey, S1099 River lamprey, S1106 Atlantic salmon	Regulate abstraction, evaluate impacts and encourage winter storage	Defra, Environment Agency, Natural England, Northumbrian Water Ltd, Scottish Environmental Protection Agency (SEPA)

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 Water Pollution

1. Phosphate levels downstream of the Wooler STW outfall: Evidence shows that a revised phosphate target recently agreed with the Environment Agency is being breached, however evidence of biological impact needs to be resolved.
2. Pollution (phosphate, biological oxygen demand) resulting from many local small treatment plants and household sewage soakaways: These are regulated but little is known about their efficacy of treatment.
3. Freshwater acidification resulting from nitrification of rivers is a general issue across much of the catchment. Where rocks and soils are base-poor, base-cation depletion and soil acidification occurs, leading to low pH runoff and increased concentrations of aluminium and other metals in surface waters. This impacts invertebrate taxonomic composition and may reduce fish populations, notably salmonids.

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
1A	Within the Scottish part of the catchment, continue to enforce the Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2013 where appropriate, to address diffuse agricultural sources of pollution.	Not yet determined	2014 onwards	Regulation: Environmental Permits	Not yet determined	Scottish Environmental Protection Agency (SEPA)	

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
1B	Adapt the English Diffuse Water Pollution Plan (Till-Tweed) in the light of new evidence.	Not yet determined	2014 onwards	Diffuse Water Pollution Plan	Not yet determined	Natural England	Environment Agency

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
1C	Continue to provide advice and targeted funds for capital works to address diffuse agricultural sources of pollution (ongoing 'CSF' type work).	Not yet determined	2015-21	England Catchment Sensitive Farming (CSF)	Not yet determined	Natural England	Environment Agency, Scottish Environmental Protection Agency (SEPA)

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
1D	Ensure the Site Improvement Plan is linked to the second round Solway-Tweed River Basin Management Plan (RBMP) as the basis for Natura 2000 Protected Area targets for the English River Tweed SAC. The Site Improvement Plan will be revised annually to reflect the priorities for the Natura 2000 site from year to year whilst the link to the RBMP will ensure that synergies and co-ordination occurs as actions are delivered within the river basin.	Staff time	2015-21	Advice	Not yet determined	Natural England	Environment Agency, Scottish Environmental Protection Agency (SEPA)

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
1E	Seek funding for improvements to Wooler sewage treatment works to improve downsteam river water quality.	Not yet determined	2014-19	Water Industry Asset Management Plan (AMP): Implement Plan Scheme	Not yet determined	Northumbrian Water Ltd	Environment Agency

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
1F	Seek ongoing funding for peat restoration projects within the Tweed catchment to benefit water quality and flows.	Not yet determined	2014 onwards	Habitat creation / restoration strategy: Habitat restoration	England Rural Development Programme (ERDP)	Natural England	Scottish Natural Heritage (SNH)

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
1G	Work with Forestry authorities to improve guidance and to enforce when there is breach, in order to reduce the impacts of forestry activity on watercourses.	Staff time	2014 onwards	Enforcement	Not yet determined	Forestry Commission	Environment Agency, 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)*
1H	Complete development, secure funding and implement the '*Haining Loch: management options and water quality*' Project, to benefit water quality in the SAC reach downstream of the loch.	Not yet determined	2016-20	Lake Restoration Project	Not yet determined	Tweed Forum	n/a

2 Invasive species

The impact of invasive plant species (Giant hogweed, Japanese knotweed & Himalayan balsam) is associated with bank stabilisation along with loss of plant species associated with the river.
White clawed crayfish are not present in the River Till (the main tributary of the River Tweed in England), so interaction with invasive Signal crayfish is not an issue for this site. However, Signal crayfish are an omnivorous species and will consume fish fry, predated mainly by adult crayfish in the summer and autumn. This poses a threat to designated fish species. Burrowing by Signal crayfish may also affect bank stability

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
2A	Continue implementation of the Tweed Invasive Project including ongoing management of Japanese knotweed, Giant hogweed and Himalayan balsam.	£60,000 per year	2014 onwards	Invasive Control Plan: Invasive Species Control Programme	Natural England, Water Framework Directive (WFD), Grant in aid	Tweed Forum	n/a

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
2B	Fully implement the Tweed Bio-Security Plan.	£250,000	2011-16	Bio-security plan	Not yet determined	Tweed Forum	n/a

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
2C	Research the Signal crayfish population and investigate bio-control measures, with the aim of reducing predation of fish fry and risks to bank stability.	£90,000	2015-20	Investigation / Research / Monitoring	Research project	Local partnership	Natural England, University(ies), Consultant, Tweed Commissioners

3 Physical modification

The river is subject to physical constraints including weirs, which impede passage of migratory fish. Physical constraints also lead to sub-optimal hydromorphological conditions in the river. These need to be addressed to achieve favourable condition and meet Water Framework Directive objectives.

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
3A	Continue implementation of the River Till Restoration Project.	£450,000	2017-22	River Restoration Plan: Restoration Project	Not yet determined	Local partnership	Environment Agency, Natural England
3B	Implement the Eddleston Water Project.	£600,000	2012-18	River Restoration Plan: Restoration Project	Not yet determined	Local partnership	Scottish Environmental Protection Agency (SEPA), Scottish Natural Heritage (SNH)
3C	Implement the Ale Water: Working Wetlands project.	£150,000	2013-15	River Restoration Plan: Restoration Project	Not yet determined	Tweed Forum	n/a
3D	Develop and seek funding for physical restoration on the Upper Teviot.	£100,000	2016-20	River Restoration Plan: Restoration Project	Not yet determined	Tweed Forum	n/a

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
3E	Develop and seek funding for physical restoration on the Leet and Eden.	£50,000	2016-20	River Restoration Plan: Restoration Project	Not yet determined	Tweed Forum	n/a

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
3F	Develop and seek funding for physical restoration on the River Bowmont on both sides of the border.	£350,000	2016-20	River Restoration Plan: Restoration Project	Not yet determined	Tweed Forum	Environment Agency, Natural England, Landowner(s)

4 Water abstraction

Water abstraction for agricultural use and drinking water supply is an important issue. The river had unregulated surface water abstraction (agricultural use) before 2000, and since 2005 a process of licensing by Natural England under the guidance of EA has been underway to reduce water take to sustainable levels at low flows. These levels have been set using the EA general model but the site has limited data on water flow due to the EA not regulating Tweed abstractions until 2000. Natural England issue consent under SSSI legislation, but under the Water Act this will be transferred to EA in the coming years. This will mean all the licences will be renewed and based on a 3-5 year mean model of take rather than from the original basis. If improved evidence demonstrates that abstractions are too great, the impacts of low flows will be primarily impacting on the all fish species notified for the site and for the range of water crowfoot supported by the river. The Northumbrian Water licence for drinking water supply is regulated by the Environment Agency and is currently going through a licence review.

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
4A	Continue to regulate water abstraction for irrigation of agricultural land, whilst protecting the river interest features. Transfer regulation from Natural England consent to Environment Agency licence.	Not yet determined	2015-16	Regulation: Abstraction Licence	Not yet determined	Natural England	Environment Agency

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
4B	Evaluate the impacts of drinking water abstraction on the SAC and agree new sustainable levels where appropriate.	Not yet determined	2014-15	Water Industry Asset Management Plan (AMP): Abstraction Licence - Revoke/Amend	Not yet determined	Northumbrian Water Ltd	Environment Agency, Natural England

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
4C	Incentivise and encourage landowners to construct winter storage reservoirs to reduce water take at low flows.	£500,000 per reservoir	2014-20	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Not yet determined	Defra	Environment Agency, Natural England

Action	*Action description*	*Cost estimate*	*Timescale*	*Mechanism*	*Funding option*	*Delivery lead body*	*Delivery partner(s)*
4D	Evaluate further the Fell Sandstone groundwater catchment and improve river surface water monitoring, including the development of an integrated model at a catchment scale for the River Till.	£150,000	2014-20	Investigation / Research / Monitoring	Not yet determined	Local partnership	Environment Agency, Natural England, Northumbrian Water Ltd, Scottish Environmental Protection Agency (SEPA)

Site details

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

Qualifying features

#UK Special responsibility

River Tweed SAC	H3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation
	S1095 *Petromyzon marinus*: Sea lamprey
	S1096 *Lampetra planeri*: Brook lamprey
	S1099 *Lampetra fluviatilis*: River lamprey
	S1106 *Salmo salar:* Atlantic salmon
	S1355 *Lutra lutra*: Otter

Site location and links

River Tweed SAC

Area (ha) **3795.88** *Grid reference* **NT503338**	Map link
Local Authorities	Northumberland; Scottish Borders
Site Conservation Objectives	European Site Conservation Objectives for River Tweed SAC
European Marine Site conservation advice	n/a
Regulation 33/35 Package	n/a
Marine Management Organisation site plan	n/a

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.

Additional information is provided on targets for flow and some water quality parameters, in order to meet the conservation objectives for certain Natura 2000 sites. The relevant targets are identified in the revised conservation objectives document (see link to PDF below).

These targets have been revised for a number of Natura 2000 rivers and lakes, following a review by the conservation agencies of Common Standards Monitoring Guidance. For rivers, this is done through local discussions between Natural England and Environment Agency staff. For lake sites, the only parameter where alignment of standards was reviewed was phosphorus and so this work was undertaken jointly at a national level.

The linked PDF documents include the proposed target values, and also set out an 'interim progress goal', that will need to be achieved by 2021. Where sufficient information is available the document also identifies a timescale for achievement of the longer-term target. For any sites where it has not been possible to agree specific targets, usually because further technical work is required, these will be indicated in the documents by an asterisk. For further information please see Part 2 of the River Basin Plan

River Tweed SAC

River basin	Solway Tweed RBMP
WFD Management catchment	Till, Tweed
WFD Waterbody ID (Cycle 2 draft)	GB102021072830, GB102021072840, GB102021072860, GB102021072870, GB102021072880, GB102021072890, GB102021072900, GB102021072910, GB102021072930, GB102021072940, GB102021072950, GB102021072960, GB102021072970, GB102021072980, GB102021072990, GB102021073010, GB102021073041, GB102021073042, GB102021073050, GB102021073060, GB102021073070
Locally revised Conservation Objectives	Moving towards common standards monitoring guidance targets for SAC rivers
Additional information on locally revised Conservation Objectives	n/a
EA/ NE agreed RBMP lake SAC targets	n/a

River Restoration Plan

Source of information on river restoration plans for SAC rivers where these are in place or planned, with links to documentation where this is available.

Webpage link: Restoring Designated Rivers	Restoring Designated Rivers
River Restoration Plan document	Tweed (Till) SSSI

Overlapping or adjacent protected sites

Site(s) of Special Scientific Interest (SSSI)	
River Tweed SAC	Tweed Catchment Rivers - England: Lower Tweed and Whiteadder SSSI
	Tweed Catchment Rivers - England: Till Catchment SSSI
	College Valley Woodlands SSSI
	Till Riverbanks SSSI

National Nature Reserve (NNR)	
River Tweed SAC	n/a

Ramsar	
River Tweed SAC	n/a

Special Areas of Conservation (SAC) and Special Protection Areas (SPA)	
River Tweed SAC	n/a

Other relevant documents and links	
River Tweed SAC	Scottish Environment Protection Agency (SEPA) Diffuse Pollution information
	Scottish Environment Protection Agency (SEPA) River Basin planning information
	Scottish Natural Heritage (SNH) Peatland Action information

Version	*Date*	*Comment*
1.0	11/11/2014	