

# Site Improvement Plan

## River Ehen

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](mailto: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](mailto:enquiries@naturalengland.org.uk)

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

**UK0030057 River Ehen SAC**

## Site description

The River Ehen SAC is a relatively small, oligotrophic river in West Cumbria flowing out of Ennerdale Water. The main river channel, between Ennerdale Water and the confluence with the River Keekle, supports the largest freshwater mussel *Margaritifera margaritifera* population in England and the third largest in Britain. Atlantic Salmon *Salmo salar* are also a qualifying species and are important in the parasitic stage of the freshwater mussel life cycle.

Revocation of the abstraction licence on Ennerdale Water has been agreed following the Review of Consents. This is supported by a compensatory measures package, which is in place until revocation can feasibly be achieved. The compensatory measures package remediates against current abstraction levels from Ennerdale Water, and is designed to protect the river throughout and beyond the revocation of the licence; some actions within this Site Improvement Plan are wholly or partially included within the package. Although actions within this Site Improvement Plan have been prioritised it is recognised that they act in combination on the interest 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	Pressure or Threat	Feature(s) affected	Measure	Delivery Bodies
1 Water abstraction	Pressure	S1029 Freshwater mussel	Revocation of abstraction licence, and restoration of natural hydromorphology	Environment Agency, Natural England, United Utilities Water Plc
2 Low breeding success/ poor recruitment	Pressure	S1029 Freshwater mussel	Research, and targeted activities to protect the distributions of native species	Defra, Environment Agency, Forestry Commission, Natural England, United Utilities Water Plc, Woodland Trust, Centre for Environment, Fisheries and Aquaculture Science (Cefas), West Cumbria Rivers Trust, Wild Ennerdale, Derwent Owners Association, Angling Trust(s), International Council for the Exploration of the Sea (ICES), North Atlantic Salmon Conservation Organisation (NASCO)

3	Siltation	Pressure	S1029 Freshwater mussel, S1106 Atlantic salmon	Reduction of siltation levels, and maintenance of natural processes.	Environment Agency, Forestry Commission, Natural England, United Utilities Water Plc, Woodland Trust, Local partnership, South Cumbria Rivers Trust, West Cumbria Rivers Trust, Cumbria Invasives Forum, PiP Life + Project
4	Water Pollution	Pressure	S1029 Freshwater mussel, S1106 Atlantic salmon	Reduce diffuse pollution from agriculture	Environment Agency, Forestry Commission, Natural England, United Utilities Water Plc, Woodland Trust, West Cumbria Rivers Trust, Wild Ennerdale
5	Water Pollution	Pressure/ Threat	S1029 Freshwater mussel, S1106 Atlantic salmon	Reduce pollution from point sources	Environment Agency, Forestry Commission, National Trust, Natural England, Bardon Aggregates, Aggregate Industries
6	Inappropriate weirs dams and other structures	Pressure	S1029 Freshwater mussel, S1106 Atlantic salmon	Removal of obstructions to fish migration	Environment Agency, Natural England, United Utilities Water Plc
7	Agricultural management practices	Pressure/ Threat	S1029 Freshwater mussel, S1106 Atlantic salmon	Manage and control the impacts of agriculture	Environment Agency, Forestry Commission, Natural England, Rural Payments Agency (RPA), United Utilities Water Plc, Woodland Trust, West Cumbria Rivers Trust, Wild Ennerdale, Derwent Owners Association, Angling Trust(s)
8	Invasive species	Pressure/ Threat	S1029 Freshwater mussel, S1106 Atlantic salmon	Monitor extent and control, and eradicate invasives	Environment Agency, Natural England, Local partnership, South Cumbria Rivers Trust, West Cumbria Rivers Trust, Cumbria Invasives Forum

9 Forestry and woodland management	Threat	S1029 Freshwater mussel, S1106 Atlantic salmon	Licences, grants and mitigation measures	Forestry Commission, Natural England, Woodland Trust, PiP Life + Project
10 Public Access/Disturbance	Pressure	S1029 Freshwater mussel, S1106 Atlantic salmon	Education programme and management of recreational use	Lake District National Park Authority, National Trust, West Cumbria Rivers Trust, Wild Ennerdale
11 Transportation and service corridors	Pressure/ Threat	S1029 Freshwater mussel, S1106 Atlantic salmon	Maintenance of infrastructure	Cumbria County Council, Environment Agency, Lake District National Park Authority, 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 Water abstraction

Abstraction from Ennerdale Water has a major impact on flow levels and velocities in the River Ehen including reduced flow variability with additional risks associated with drought events. This can affect feeding, respiration and recruitment in the mussel population and can be particularly damaging to juvenile mussels. Low flow impacts are also associated with increased sedimentation and siltation of the river substrates, as well as increased flocculant material and growth of algae, which can smother mussel beds. These effects can lead to increased stress levels and mortality of adult and juvenile mussels. Flow impacts can also affect the atlantic salmon population which are also important as the host on which the life cycle of the mussels depend, through effects on juvenile salmon habitat and both upstream and downstream migration. The infrastructure associated with abstraction can also provide a barrier to fish migration as well as requiring the provision of compensation flow through reliance on pumping.

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
1A	<p>Restoration of natural hydromorphology between Ennerdale Water and the River Ehen</p> <ul style="list-style-type: none"> <li>• revocation of the abstraction licence for Ennerdale Water</li> <li>• replacement water source</li> <li>• investigations into future weir removal</li> <li>• Ben Ghyll reconnection</li> </ul> <p><i>Some of these actions are currently partially included within United Utilities River Ehen SAC compensatory measures package.</i></p>	Not yet determined	2014-25	Restoring Sustainable Abstraction Programme: Abstraction Licence - Revoke/Amend	United Utilities	United Utilities Water Plc	Environment Agency, Natural England

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>1B</b>	<p>Implement interim measures to maximise protection for SAC species and habitat, and progressively reduce the level of abstraction from Ennerdale Water.</p> <ul style="list-style-type: none"> <li>• compensation flow provision</li> <li>• progressive reduction in abstraction from Ennerdale using alternative sources and increased demand management</li> <li>• research and monitoring</li> <li>• amend abstraction licence.</li> </ul> <p><i>Some of these actions are currently partially included within United Utilities River Ehen SAC compensatory measures package.</i></p>	Not yet determined	2014-22	Restoring Sustainable Abstraction Programme: Abstraction Licence - Revoke/Amend	United Utilities	United Utilities Water Plc	Environment Agency, Natural England
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>1C</b>	Secure a package of Compensatory Measures under Article 6(4) of the Habitats Directive in revocation of the Ennerdale abstraction licence and additional impacts on the SAC as a result of drought plan actions (Ennerdale Drought Order).	Not yet determined	2015-25	Regulation: Article 6(4) of the Habitats Directive	Environment Agency, Natural England, Staff time, United Utilities	United Utilities Water Plc	Environment Agency, Natural England
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>1D</b>	Achieve and act upon a decision between statutory authorities and United Utilities as to whether the fish pass on Ennerdale Water weir should be implemented as an immediate measure. <i>This may be partially covered by the River Ehen SAC compensatory measures package.</i>	Not yet determined	2014-25	Restoring Sustainable Abstraction Programme: Abstraction Licence - Revoke/Amend	United Utilities	Local partnership	Environment Agency, Natural England, United Utilities Water Plc

## 2 Low breeding success/ poor recruitment

There is limited freshwater mussel recruitment on the Ehen to sustain the population in the long-term. Factors include degradation of river habitat from diffuse pollution (fine sediments and nutrients) caused by changes in land management practices and the abstraction of water from Ennerdale Lake impacting on river flows. Salmon angling, combined with poor salmon survival at sea could have an effect on the salmon population which the freshwater mussel relies on as a host species. This has been observed but the cause is currently unknown.

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
2A	<p>Continued research &amp; monitoring into habitat quality and population dynamics/ status in regards to freshwater mussels on the River Ehen</p> <ul style="list-style-type: none"> <li>• population size/ demographics</li> <li>• breeding, stress levels</li> <li>• distribution</li> <li>• flow, velocity and water quality impacts</li> <li>• habitat condition and suitability</li> </ul> <p>Includes UU Environmental Monitoring Plan associated with proposed Ennerdale Drought Order and the Ben Ghyll PhD. <i>Research on flow, velocity and water quality impacts are currently included within United Utilities River Ehen SAC compensatory measures package, other research may be partially covered.</i></p>	£300,000	2015-21	Restoring Sustainable Abstraction Programme: Abstraction Licence - Revoke/Amend	Environment Agency, Natural England, Water Framework Directive (WFD), United Utilities	Local partnership	Environment Agency, Natural England, United Utilities Water Plc
2B	See Action 4B: Implement actions identified within the Diffuse Water Pollution Plan.	Costs are covered under Action 4C	2014-21	Diffuse Water Pollution Plan	New Environmental Land Management Scheme (NELMS)	Natural England	Environment Agency, Forestry Commission, United Utilities Water Plc, Woodland Trust, West Cumbria Rivers Trust, Wild Ennerdale

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>2C</b>	See Action 4C: Implement actions identified within the Diffuse Water Pollution Plan.	Costs are covered under Action 4C	2014-21	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Defra, Catchment Sensitive Farming (CSF)	Natural England	Environment Agency, Catchment Sensitive Farming (CSF)
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>2D</b>	See Action 5A: Problem point source discharge pollution investigation and remedy to identify and target areas of pollution e.g. Combined Sewer Overflows (CSOs).	Costs are covered under Action 4C	2014-21	Investigation / Research / Monitoring	Environment Agency, Natural England	Environment Agency	Forestry Commission, National Trust, Natural England, United Utilities Water Plc
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>2E</b>	Project co-ordinator to implement works on river restoration and protection of SAC features. <i>This is currently included in the River Ehen SAC compensatory measures package.</i>	£600,000 over 5 years	2016-21	Existing Local Project	Environment Agency, EU Life, Natural England, Water Framework Directive (WFD)	Local partnership	Environment Agency, Natural England, United Utilities Water Plc



<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>2F</b>	Write and implement a Riparian Habitat Management strategy to increase riparian cover and connectivity.	£80,000	2014-21	Habitat creation / restoration strategy: Improvements to habitat connectivity	EU Life, Natural England, Grant in aid	Local partnership	Environment Agency, Natural England, Woodland Trust, West Cumbria Rivers Trust
<b>2G</b>	Investigate an extension of the SSSI boundary on the River Ehen downstream of the confluence with the River Keekle to protect Freshwater Mussels as part of Natural England's detailed notification review.	Not yet determined	2015-17	Designation strategy (SSSI)	Staff time	Natural England	Environment Agency
<b>2H</b>	Education of farmers/ land management advisers on appropriate management to support the SAC, including riparian management to protect SAC	Not yet determined	2014-21	Advice: Education & awareness raising	Staff time	Natural England	West Cumbria Rivers Trust
<b>2I</b>	Undertake artificial encystment of freshwater mussel glochidia on salmon (the parasitic phase of the mussel's life cycle) in the River Ehen SAC to enhance mussel recovery. <i>This is currently included within United Utilities River Ehen SAC compensatory measures package.</i>	£15,000 over 6 years	2014-21	Existing Local Project	Environment Agency, EU Life, Natural England, Water Framework Directive (WFD)	Local partnership	Environment Agency, Natural England, United Utilities Water Plc, West Cumbria Rivers Trust

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>2J</b>	Promotion/ education & increase in 'catch and release' for anglers to protect salmon stocks.	£20,000	2014-21	Advice: Education & awareness raising	Environment Agency, Natural England, Water Framework Directive (WFD)	Local partnership	Environment Agency, Derwent Owners Association, Angling Trust(s)
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>2K</b>	Investigate poor returning adult salmon numbers.	Not yet determined	2017-20	Investigation / Research / Monitoring	Defra, International Council for the Exploration of the Sea (ICES), North Atlantic Salmon Conservation Organisation (NASCO)	Defra	International Council for the Exploration of the Sea (ICES), North Atlantic Salmon Conservation Organisation (NASCO)

### 3 Siltation

Siltation from tributaries, bank erosion, runoff from fields and road drains are all contributing to siltation. Fine sediment settles over mussel beds and gravels suitable for juvenile mussel and salmon spawning habitat. This causes stress in adult mussels and a lack of available oxygen for juvenile mussels living within the gravels, which can lead to mortality. The area of available spawning habitat for salmon is reduced and increases mortality of eggs and fry.

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>3A</b>	See Action 4A: Re-write Diffuse Water Pollution Plan to reflect new water quality targets for the SAC interest features.	Not yet determined	2014-15	Diffuse Water Pollution Plan	Staff time	Natural England	Environment Agency

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>3B</b>	See Action 4B: Implement actions identified within the Diffuse Water Pollution Plan.	Costs are covered in Action 4C	2014-21	Diffuse Water Pollution Plan	New Environmental Land Management Scheme (NELMS)	Natural England	Forestry Commission, United Utilities Water Plc, Woodland Trust, West Cumbria Rivers Trust, Wild Ennerdale
<b>3C</b>	See Action 4C: Implement actions identified within the Diffuse Water Pollution Plan.	Costs are covered in Action 4C	2014-21	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Defra	Natural England	Environment Agency, Catchment Sensitive Farming (CSF)
<b>3D</b>	See Action 8C: Control programme including organising and training volunteers to undertake annual Invasive Non-Native Species (INNS) surveys and control.	Costs are covered in Action 8C	2015-21	Invasive Control Plan: Invasive Species Control Programme	Staff time	Local partnership	West Cumbria Rivers Trust

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>3E</b>	See Action 2E: Project co-ordinator to implement works on river restoration and protection of SAC features. <i>This is currently included in the River Ehen SAC compensatory measures package.</i>	£600,000 over 5 years	2016-21	Existing Local Project	Environment Agency, EU Life, Natural England, Water Framework Directive (WFD)	Local partnership	
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>3F</b>	Catchment Sensitive Farming advice and capital works as part of New Environmental Land Management schemes to reduce erosion and thereby siltation. Extension of Action 4C.	£300,000	2015-21	Restoring Sustainable Abstraction Programme: Abstraction Licence - Revoke/Amend	Environment Agency, Natural England, Water Framework Directive (WFD), United Utilities	Local partnership	Environment Agency, Natural England, United Utilities Water Plc
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>3G</b>	See Action 9A: Promotion and increased uptake of NELMs woodland options. Supported by promotion of the UK Forestry Standard in relation to forestry operations, woodland owners and landowners who are intending to create woodland.	Costs are covered in Action 4C	2014-21	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Rural Development Programme (RDPE), United Utilities	Forestry Commission	Natural England, Woodland Trust, PiP Life + Project

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>3H</b>	Review the consultants findings regarding the issues associated with landslides into the River Ehen and investigate/ implement potential follow up works.	£1,000,000	2015-21	Investigation / Research / Monitoring	Environment Agency, Natural England, Heritage Lottery Fund (HLF), Water Framework Directive (WFD)	Natural England	Environment Agency, West Cumbria Rivers Trust
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>3I</b>	Undertake a geomorphological survey to further understand the processes occurring along the river. <i>This is currently partially included within United Utilities River Ehen SAC compensatory measures package.</i>	£25,000	2015-17	Investigation / Research / Monitoring	Environment Agency, Natural England, Water Framework Directive (WFD)	Local partnership	Environment Agency, Natural England, United Utilities Water Plc
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>3J</b>	Expert advice on sedimentation issues and best practice to enable prioritisation of management, particularly in line with protection of SAC features.	£2,000	2015-17	Advice	Defra, Natural England, Heritage Lottery Fund (HLF), BIFFA	Natural England	Environment Agency, West Cumbria Rivers Trust

## 4 Water Pollution

Diffuse Water Pollution from Agriculture (DWPA) is adversely affecting the SAC interest features. Silt and fine sediment from DWPA can enter the river, smothering mussel beds, juvenile mussel habitat and spawning gravels. Nutrient enrichment from slurry and fertilisers can accelerate plant growth, decreasing oxygen levels and habitat suitability for mussels and salmon. Additionally, Ennerdale Water has been showing increased phosphorus levels in recent decades.

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>4A</b>	Re-write the Diffuse Water Pollution Plan to reflect new water quality targets for the SAC interest features.	Not yet determined	2014-15	Diffuse Water Pollution Plan	Not yet determined	Natural England	Environment Agency
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>4B</b>	Implement actions identified within the Diffuse Water Pollution Plan	£8,000,000	2014-21	Diffuse Water Pollution Plan	New Environmental Land Management Scheme (NELMS)	Natural England	Environment Agency, Forestry Commission, United Utilities Water Plc, Woodland Trust, West Cumbria Rivers Trust, Wild Ennerdale
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>4C</b>	Implement actions identified within the Diffuse Water Pollution Plan	£1,200,000	2014-21	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Defra (ECSFDI grant)	Natural England	Environment Agency (CSF)

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>4D</b>	Review the need for further monitoring sites on the River Ehen to monitor the water quality targets outlined within the favourable condition table (FCT) for the SAC interest features. Ensure that detection limits are sufficient to be able to monitor water quality targets. <i>This is currently partially included within United Utilities River Ehen SAC compensatory measures package.</i>	£5,000	2015-21	Mechanism not identified / develop mechanism	Environment Agency, Water Framework Directive (WFD)	Environment Agency	n/a

## 5 Water Pollution

Discharge from septic tanks, sewage overflow and road drains are adversely affecting the SAC interest features. Silt and fine sediment from road drains can enter the river, smothering mussel beds, juvenile mussel habitat and spawning gravels. Nutrient enrichment from septic tanks can accelerate plant and algal growth, decreasing oxygen levels and habitat suitability for mussels and salmon. Tipping of rubbish also occurs along the river banks.

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>5A</b>	Problem point source discharge pollution investigation and remediation, targeting areas of pollution e.g. Combined Sewer Overflows (CSOs).	£50,000	2014-21	Investigation / Research / Monitoring	Environment Agency, Natural England	Environment Agency	Forestry Commission, National Trust, Natural England

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>5B</b>	Increase awareness of rural sewage treatment options; offer grants for the input of package treatment plants and soakaways, supported by enforcement.	£200,000	2015-21	Advice: Education & awareness raising	Environment Agency, Natural England, Rural Development Programme (RDPE), Water Framework Directive (WFD), Catchment Sensitive Farming (CSF), United Utilities	Natural England	Environment Agency
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>5C</b>	Continue to develop partnership working regarding Eskett Quarry, and the potential de-watering of Rowrah Quarry.	Not yet determined	2015-21	Major Landowner Group land ownership activities : Other	Not yet determined	Aggregate Industries	Natural England



## 6 Inappropriate weirs dams and other structures

The main Ennerdale weir associated with the United Utilities abstraction fundamentally alters the natural hydromorphology of the lake - river system. In addition there are several weirs along the River Ehen. These affect the natural geomorphological functioning of the river and can have a negative impact on the upstream and downstream migration of salmon. Freshwater mussels rely on healthy salmonid populations to sustain their life cycle. Weirs and dams also affect the sedimentary regime, in particular the River Ehen has been shown to have insufficient large bed material, which is currently being addressed by United Utilities, through the reconnection of Ben Ghyll. The lack of a natural sedimentary regime inhibits the formation of in-channel variability.

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
<b>6A</b>	Investigate options for the removal of the main Ennerdale Weir following revocation of the United Utilities abstraction licence (See Action 1A) . <i>This is currently included within United Utilities River Ehen SAC compensatory measures package.</i>	Not yet determined	2015-25	Investigation / Research / Monitoring	Environment Agency, Natural England, United Utilities	United Utilities Water Plc	Environment Agency, Natural England
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
<b>6B</b>	Look at potential removal of other existing weirs on the River Ehen, where these are having a damaging impact on the SAC features. <i>This may be partially covered by United Utilities River Ehen compensatory measures package.</i>	£260,000	2014-25	Partnership agreement	Environment Agency, Water Framework Directive (WFD)	Environment Agency	Natural England
Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
<b>6C</b>	Identify additional barriers to migration and impacts on sedimentary processes (See action 3I Geomorphological survey). <i>This is currently partially included within United Utilities River Ehen compensatory measures package.</i>	Costs are covered in Action 4C	2015-17	Investigation / Research / Monitoring	Environment Agency, Natural England, Water Framework Directive (WFD)	Environment Agency	Natural England

## 7 Agricultural management practices

Unmanaged riparian woodland can cause blockages and obstacles in the river damaging mussel beds, and fallen/falling trees may exacerbate bankside erosion. Unfenced bankside habitats are damaged by overgrazing and poaching by livestock, causing bank erosion, siltation and an increase of nutrients from dunging. There are occasional incidents where fields are ploughed too close to the river edge, slurry or farmyard manure spread in close proximity and debris such as hay bales being washed into the river causing physical damage to mussels. Inappropriate ditch and drainage management delivers point source pollution. Often this is fine sediment that settles over mussel beds or gravels suitable for juvenile mussel and salmon spawning habitat.

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>7A</b>	See Action 2F: Write and implement a Riparian Habitat Management strategy to increase riparian cover and connectivity.	Costs are covered in Action 4C	2014-21	Habitat creation / restoration strategy: Improvements to habitat connectivity	LIFE, Natural England, Grant in aid	Local partnership	Environment Agency, Natural England, Woodland Trust, West Cumbria Rivers Trust
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>7B</b>	See Action 4B: Implement actions identified within the Diffuse Water Pollution Plan.	Costs are covered in Action 4C	2014-21	Diffuse Water Pollution Plan	New Environmental Land Management Scheme (NELMS)	Natural England	Forestry Commission, United Utilities Water Plc, Woodland Trust, West Cumbria Rivers Trust, Wild Ennerdale
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>7C</b>	See Action 4C: Implement actions identified within the Diffuse Water Pollution Plan.	Costs are covered in Action 4C	2014-21	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Defra (ECSFDI grant)	Natural England	Environment Agency (CSF)

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>7D</b>	Increased on-ground Single Farm Payment/ Basic Payment Scheme cross compliance/ SSSI enforcement, and practical education to ensure that land owners are complying.	Not yet determined	2014-21	Enforcement	Rural Development Programme (RDPE)	Natural England	Environment Agency, Rural Payments Agency (RPA)
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>7E</b>	See Action 2J: Promotion/ education & increase in 'catch and release' for anglers to protect salmon stocks.	Costs are covered in Action 4C	2014-21	Advice: Education & awareness raising	Environment Agency, Natural England, Water Framework Directive (WFD)	Local partnership	Environment Agency, Derwent Owners Association, Angling Trust(s)
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>7F</b>	Explore opportunities for changes in land management to use marginal land for greater benefit i.e taking land out of agricultural production. This is partially covered by United Utilities River Ehen compensatory measures package.	£250,000	2016-21	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Rural Development Programme (RDPE), New Environmental Land Management Scheme (NELMS)	Natural England	Forestry Commission, Woodland Trust, West Cumbria Rivers Trust, Wild Ennerdale

## 8 Invasive species

Himalayan balsam and Japanese knotweed are found along the lower reaches of the river. An abundance of these species will dominate the vegetation and leave bare soil susceptible to erosion in the winter months. There is also a risk from new invasives being introduced and from existing ponds within the flood plain.

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>8A</b>	Implement the Cumbria Freshwater Biosecurity Plan to prevent, control and eradicate Invasive Non-Native Species (INNS); including Species Action Plan for high impact species.	Costs are covered within the River Derwent and Bassenthwaite Lake SIP	2015-21	Bio-security plan	Environment Agency, Natural England, Grant in aid	Natural England	Environment Agency, South Cumbria Rivers Trust, Cumbria Invasives Forum
<b>8B</b>	Promote biosecurity for all invasives and ensure all partners take responsibility. Includes running school events.	Costs are covered within the River Derwent and Bassenthwaite Lake SIP	2015-21	Bio-security plan	Environment Agency, Natural England, Grant in aid	Natural England	Environment Agency, South Cumbria Rivers Trust, Cumbria Invasives Forum
<b>8C</b>	Control programme including organising and training volunteers to undertake annual Invasive Non-Native Species (INNS) surveys and control. <i>Includes £100,000 staff costs covered within the River Derwent and Bassenthwaite Lake SIP.</i>	£200,000	2015-16	Invasive Control Plan: Invasive Species Control Programme	Environment Agency, Natural England, Grant in aid	West Cumbria Rivers Trust	Local partnership

## 9 Forestry and woodland management

Forestry operations have the potential to cause run off into Ennerdale Water, thereby threatening water quality and the SAC features.

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
9A	Encourage improvement in woodland management in relation to forestry operations, woodland owners and landowners intending to create woodland, by encouraging the uptake of NELMS, support by promotion of the UK Forestry Standard.	£100,000 over 6 years	2014-21	Rural Development Programme for England (RDPE): Common Agricultural Policy 2014-20 (New Environmental Land Management Scheme)	Rural Development Programme (RDPE), United Utilities	Forestry Commission	Natural England, Woodland Trust, PiP Life + Project

## 10 Public Access/Disturbance

Disturbance by the general public using the river for recreation, has a detrimental effect on the interest features through trampling, disturbance and pollution incidents.

Action	Action description	Cost estimate	Timescale	Mechanism	Funding option	Delivery lead body	Delivery partner(s)
10A	Manage recreational use of the river by the general public through signage and increased awareness.	£200,000	2014-21	Advice: Signage	Environment Agency, Natural England, Rural Development Programme (RDPE), Water Framework Directive (WFD)	Local partnership	Lake District National Park Authority, Natural England, Wild Ennerdale

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>10B</b>	Manage recreational use of the river by the general public through education, enforcement and byelaws.	£200,000	2014-21	Advice: Education & awareness raising	Environment Agency, Natural England, Rural Development Programme (RDPE), Water Framework Directive (WFD)	Local partnership	Lake District National Park Authority, Natural England, Wild Ennerdale
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>10C</b>	Promotional education programme for local community and schools to highlight the impact of public disturbance upon interest features. Encourage land owners to take a lead as well.	£20,000	2016-21	Advice: Education & awareness raising	Environment Agency, Natural England, Water Framework Directive (WFD)	Local partnership	West Cumbria Rivers Trust

## 11 Transportation and service corridors

Maintenance of access tracks, roads, pipelines and drainage need to be carried out on a regular basis to prevent collapse and erosion causing silt and fine sediment to enter the SAC. Lack of infrastructure maintenance on private access tracks, public roads and service pipelines can lead to erosion or collapse causing silt and fine sediment to enter the SAC harming the interest features.

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>11A</b>	Audit and mapping of road drainage within the catchment, extending the data collected for flood risk mapping.	£150,000	2015-17	Investigation / Research / Monitoring	Environment Agency, Natural England, Water Framework Directive (WFD)	Local partnership	Cumbria County Council, Environment Agency, Natural England

<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>11B</b>	Better practice on maintenance of infrastructure to be addressed with local authorities/agencies i.e. ditches and upgrading silt traps, use of sustainable drainage systems where appropriate, and following the SuDS Code of Practice.	£500,000	2014-21	Advice: Negotiation	Not yet determined	Cumbria County Council	n/a
<i>Action</i>	<i>Action description</i>	<i>Cost estimate</i>	<i>Timescale</i>	<i>Mechanism</i>	<i>Funding option</i>	<i>Delivery lead body</i>	<i>Delivery partner(s)</i>
<b>11C</b>	Maintain footpaths and public rights of way to mitigate against siltation issues.	£100,000	2014-21	Advice: Negotiation	Not yet determined	Lake District National Park Authority	Natural England

## Site details

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

### Qualifying features

#UK Special responsibility

<b>River Ehen SAC</b>	S1029 <i>Margaritifera margaritifera</i> : Freshwater mussel
	S1106 <i>Salmo salar</i> : Atlantic salmon

### Site location and links

#### River Ehen SAC

Area (ha) <b>24.39</b>	Grid reference <b>NY031144</b>	<a href="#">Map link</a>
Local Authorities	Cumbria	
Site Conservation Objectives	<a href="#">European Site Conservation Objectives for River Ehen SAC</a>	
European Marine Site conservation advice	<a href="#">n/a</a>	
Regulation 33/35 Package	<a href="#">n/a</a>	
Marine Management Organisation site plan	<a href="#">n/a</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 (RBMP) 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.*

### **River Ehen SAC**

<i>River basin</i>	North West	<a href="#">North West RBMP</a>
<i>WFD Management catchment</i>	South West Lakes	
<i>WFD Waterbody ID (Cycle 2 draft)</i>	GB112074070010, GB31229062	

## Overlapping or adjacent protected sites

Site(s) of Special Scientific Interest (SSSI)	
River Ehen SAC	River Ehen (Ennerdale Water to Keekle Confluence) SSSI

  

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

  

Ramsar	
River Ehen SAC	n/a

  

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

<i>Version</i>	<i>Date</i>	<i>Comment</i>
1.0	07/10/2014	

[www.naturalengland.org.uk/ipens2000](http://www.naturalengland.org.uk/ipens2000)

