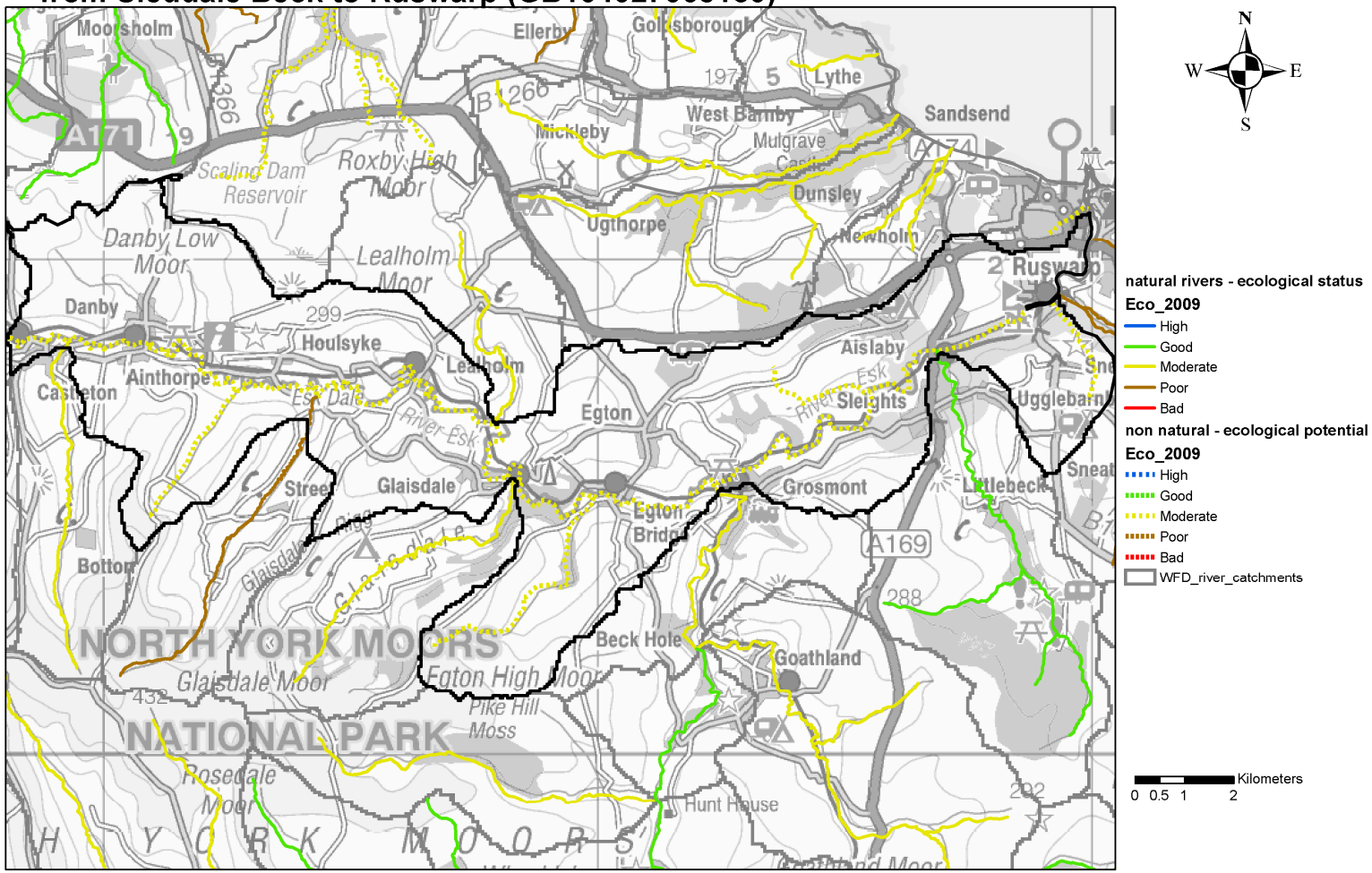
GB104027068150 **River Esk from Sleddale Beck to Ruswarp (Esk and Coast)**

Ecological Potential: Moderate

Failing Elements: Fish, Benzo (ghi) perelyene and indeno (123-cd) pyrene

Waterbody Ecological Status/Potential for River Esk from Sleddale Beck to Ruswarp (GB104027068150)



Issues identified	Solutions / work required	Responsibility/Lead	Costing's (High/Medium/ Low)	Timings
1) Barriers to fish migration (Man-made structures - Weirs, fords and culverts) 9 x Structures identified Esk Mill Weir (NZ68353 08277) Danby Weir (NZ70729 08309) Crag Farm Culvert (NZ72720 07341) Lealholm Weir (NZ75996 07411) Egton Bridge Weir (NZ80143 05234) Glaisdale Weir (NZ78377 05820) Sleights Weir (NZ86586 08139) Ruswarp Weir (NZ88697 09022) Butter beck ford (NZ79889 05072)	• Walkover surveys to identify problem structures	NYMNPA (Lead) / Yorkshire Esk Trust	Low	2013
	• All barriers mapped on GIS	NYMNPA (Lead) / Yorkshire Esk Trust	Low	2013
	• Liaison with adjacent land owners and owners of structures • NYCC contacted (regarding Butter beck ford) and are open to working with partners to improve fish passage. NYCC are unlikely to have funds to assist with any schemes. • Meeting with owners of Danby Weir to discuss fish pass options	Environment Agency / NYMNPA / Yorkshire Esk Trust	Low	2013
	• Assessment of structures (scale of problem to migratory fish)	Environment Agency (Lead) / NYMNPA / Yorkshire Esk Trust	Low	2013-2014
	• Prioritisation of structures for improvement (removal of problem structure/fish pass required/fish easement required)	Environment Agency (Lead) / NYMNPA / Yorkshire Esk Trust	Low	2013-2014
	• Feasibility studies and designs	Environment Agency (Lead) / NYMNPA / Yorkshire Esk Trust	Medium	2013 - 2015
	• Implementation/construction phase	Environment Agency (Lead) / NYMNPA / Yorkshire Esk Trust	High	2014 - 2021

2) Water quality – Fine Sediment + Nutrients **Agriculture** Whole Farm Appraisals ~ 90 farm holdings	• One to one visits with farmers in catchment. "Whole farm appraisals" through Catchment Sensitive Farming Scheme. Identification of any issues. Walkover surveys of farm holdings	Catchment Sensitive Farming Officer (Lead) / NYMNPA	Medium	2013 - 2021
	• Development of appropriate solution/s to problems (follow up advice and grants) and delivery of improvement work (if required) • Group events (advice and training for farmers) • Environment Agency Catchment Restoration Fund, other external funding source, NYMNPA grant schemes and/or CSF grant.	Catchment Sensitive Farming Officer / NYMNPA	High	2013 - 2021
	• Sediment and Nutrient Monitoring Work. Identify hotspots of sediment and nutrient supply. Distribution of water quality data to local farmers.	University of Durham and Environment Agency monitoring network CSF/NYMNPA/EA	Low	2013 - 2021
3) Water quality – Nutrients **Septic tanks**	• Registration of all septic tanks in catchment	Environment Agency (Lead)	Low	2013
	• EA to raise awareness of issues and offer best practice guidance	Environment Agency (Lead)	Low	2013 - onwards
	• Records of maintenance	Environment Agency (Lead)	Low	2013 – onwards
	• Monitoring of maintenance and quality of discharges	Environment Agency (Lead)	Medium	2013 – onwards

4) Water quality – Nutrients **Yorkshire Water Infrastructure** Danby Sewage Works (NZ70906 08322) Lealholm Sewage Works (NZ76512 07565) Glaisdale Sewage Works (NZ77977 05540) Egton Sewage Works (NZ80888 05057) Grosmont Sewage Works (NZ82631 05463) + Pumping stations	• Liaison with Yorkshire Water	Environment Agency (Lead) / NYMNPA	Low	2013
	• Development of appropriate solution/s to problem (separate sewer systems, tertiary treatment, storage systems)	Yorkshire Water/ Environment Agency / NYMNPA	Medium	2014 - 2027
	• Improvement work	Yorkshire Water	High	2015 - 2027
5) Water quality – Fine Sediment and other pollutants from roads **Highways**	• Liaison with NYCC highways department • Contact with NYCC – possibility to install silt traps and other pollution control measures (i.e. increased use of salt bins).	Environment Agency (Lead) / NYMNPA	Low	2013
	• Development of appropriate solution/s to problem (silt traps, ponds, swales)	NYCC / Environment Agency / NYMNPA	Medium	2013 - 2027
	• Improvement work	NYCC	High	2013 - 2027

6) Peatland Restoration **Danby Low Moor** **Lealholm Moor** **Danby High Moor** **Egton Low Moor** **Sleights Moor** **Egton High Moor** **Glaisdale Moor** **Ainthorpe Rigg**	• Liaison with land owners and land managers	Yorkshire Peat Partnership / Natural England / NYMNPA	Low	2013 - 2014
	• Walkover surveys to identify problem areas (grips, gullies, bare peat and problem tracks)	Yorkshire Peat Partnership / Natural England / NYMNPA	Medium	2013 - 2021
	• Development of appropriate solution/s to problems (grip and gully blocking, peat stabilisation, re-profiling and re-vegetation) and delivery of improvement work.	Yorkshire Peat Partnership / Natural England / NYMNPA	High	2014 - 2021
	• Training day for estates staff (water management) – tracks, cross drains	Catchment Sensitive Farming (Lead)	Low	2013
7) Woodland Measures **Potential for riparian woodland planting from Danby to Ruswarp**	• Liaison with land owners and land managers	Forestry Commission / NYMNPA	Low	2013 – 2027
	• Identify suitable sites for native woodland creation	Forestry Commission / NYMNPA	Low	2013 – 2027
	• Carryout woodland creation through the Forestry Commission (English Woodland Grant Scheme) or NYMNPA schemes/grants (NYMNPA connectivity project and Esk Pearl Mussel and Salmon Recovery Project)	Forestry Commission / NYMNPA	Medium	2013 - 2027
8) Non-native invasive plant species **Himalayan balsam (*Impatiens glandulifera*), Japanese knotweed (*Fallopia japonica*) and New Zealand Pigmyweed (*Crassula helmsii*)**	• Walkover surveys to identify distribution of invasive plants and severity of problem	NYMNPA (Lead)	Low	2013 - onwards
	• Liaison with land owners and land managers	NYMNPA (Lead)	Low	2013 - onwards
	• Control/eradication of non-native invasive plants	NYMNPA (Lead)	Medium	2013 - 2021

9) Land Management **Agri-environment schemes through Natural England** **Entry Level Stewardship** **Upland Entry Level Stewardship** **Higher Level Stewardship**	• Liaison with Natural England staff • Promotion of resource protection measures in expiring Entry Level Stewardship agreements and new Upland Entry Level Stewardship agreements. • Promotion of farms in the Esk valley for the Higher Level Stewardship scheme.	NYMNPA (Lead)	Low	2013 - 2021
	• Incorporation of resource protection measures in expiring Entry Level Stewardship agreements and new Upland Entry Level Stewardship agreements. • New HLS agreements signed in the Esk valley (incorporating resource protection measures)	Natural England (Lead) / NYMNPA	Medium	2013 - 2021
10) Fisheries monitoring **Fish counter on Sleights or Ruswarp Weir** **Long term data set of returning Adult Salmonids required**	• Feasibility of installing a fish counter on Sleights or Ruswarp Weir	Environment Agency (Lead) / Yorkshire Esk Trust	Low	2013
	• Implementation/construction phase	Environment Agency (Lead) / Yorkshire Esk Trust	Medium	2013
	• Maintenance of fish counter, data collection and data analysis	Environment Agency (Lead) / Yorkshire Esk Trust	Medium	2013 - onwards
11) Fisheries monitoring **Smolt trapping at Ruswarp Weir** **Long term data set of salmonid smolts going sea.**	• Carry out smolt trapping at Ruswarp weir to help determine changes in salmonid populations.	Environment Agency (Lead) / Yorkshire Esk Trust	Low	2013 - onwards

12) Fisheries monitoring **Acoustic tracking of adult Salmonids at Ruswarp Weir**	• Continued acoustic tracking at Ruswarp weir • Information regarding migratory behaviour of adult salmonids to be shared with all stakeholders	Environment Agency (Lead)	Medium	2013 - onwards
13) Invertebrate monitoring **Long term data set and regular (monthly) monitoring of invertebrate populations**	• Network of invertebrate sampling points on the Esk which are monitored by volunteers. • Co-ordinated by NYMNPA	Esk Riverfly Partnership / NYMNPA	Low	2013 - onwards
14) Water quality monitoring **Chemical and Biological Monitoring of River Esk and its tributaries**	• Expand current network of chemical and biological monitoring sites to include all main tributaries of the Esk	Environment Agency (Lead)	Medium	2013 – onwards
15) Pollution monitoring	• Angling Clubs to continue to monitor the river for sources of pollution and report any pollution problems to the Environment Agency via incident hotline • CSF officer, Natural England staff, NYMNPA staff to report any pollution problems to the Environment Agency via incident hotline	Esk Fisheries Association, Glaisdale Angling Club, Guisborough Angling Club, Natural England, NYMNPA, Yorkshire Esk Trust	Low	2013 - onwards
16) Fish stocking **Yearly programme of stocking Atlantic Salmon (*Salmo salar*) as fed-fry to Esk.** **~80,000-90,000 per year**	• Continued stocking of Atlantic Salmon into the Esk • Maintain and improve hatchery facility • Develop a stocking strategy for the River Esk catchment	Yorkshire Esk Trust (Lead) / Environment Agency / all angling clubs who carry out stocking	Medium	2013 - onwards

17) Bank stabilisation **Bio-engineering** **Use of live willow to help stabilise small sections of badly eroding riverbank**	• Bank stabilisation using live willow in appropriate locations, using live locally obtained willow. • Map of location showing potential areas to harvest live willow for river works. • Carry out a training course for local angling clubs in bio-engineering works	All NYMNPA (lead)	Low	2013 – onwards
18) Tree management work **Thining (to prevent tunnelling) in appropriate locations. Alder coppicing.**	• Tree management work (thining) in areas with tunnelling. • Only in appropriate locations (not in areas with Freshwater Pearl Mussel population).	Local Angling Clubs / NYMNPA / FC (felling licence where required) / Natural England (SSSI`s)	Low	2013 – onwards
19) Declining freshwater pearl mussel population	• Continue to carry out habitat restoration work to restore the Esk. • Monitor freshwater pearl mussel population • Monitor re-introduction sites	NYMNPA (Lead) / Environment Agency	Medium	2013 - onwards
	• High Status (Water Framework Directive) - **High status target required for the survival of the Freshwater Pearl Mussel population in the Esk.** • EA to review all waterbodies upstream of the FWPM population. Consider revising the target for these waterbodies to "**High Status".**	Environment Agency (Lead)	Low	2013 – onwards
	• Continue to work with Freshwater Biological Association Ark project. • Captive breeding of Esk freshwater pearl mussels. • Re-introduction of freshwater pearl mussels to Esk.	Freshwater Biological Association / NYMNPA	Low	2013 - onwards

20) Declining water vole population	• Carry out habitat improvement work to restore sections of the Esk.	NYMNPA	Medium	2013 – onward
	• Monitor mink rafts and trap mink where necessary.	Volunteers / NYMNPA	Low	2013 – onwards
	• Potential re-introduction of water vole in areas with suitable habitat.	Volunteers / NYMNPA	Low	2013 – onwards
21) Fisheries enforcement **Enforcement to continue on Esk (prevent poaching of migratory fish)**	• Resource available on Esk for fisheries enforcement work • Potential resource for enforcement work utilising Esk Fisheries Association River Keeper.	Environment Agency (Lead) / Yorkshire Esk Trust / Esk Fisheries Association	Low	2013 - onwards
22) Hydropower development	• All new schemes to be fully assessed and have no impact on migratory fish populations. Any new hydro schemes should have: • A full environmental impact assessment carried out in the context of the whole river catchment. • No impediment to upstream and downstream migration of fish and other freshwater biota. • Minimal impact on water flows, maintaining natural flow variability. • Vulnerable species and life stages should be screened from entering the turbine(s). • Post project monitoring should be conducted to check for environmental damage which, if proven, should result in the generator ceasing to operate until a solution is found. • All schemes should have an exit strategy.	Environment Agency (Lead)	Low	2013 - onwards

23) Predator research **Determine scale of problem of predation** **Seals, cormorants, mergansers, mink and otters**	• Research required on the effect of predators on fish populations.	University research project / Yorkshire Esk Trust	Low	2013 - onwards
24) Protection of fish in the tideway **Tideway Byelaw**	• Support renewal of the River Esk Tideway Byelaw. • Input into future reviews of netting licence order. • Engagement of netsmen in long term interest of the river.	All	Low	2013 - onwards
25) Continued promotion of catch and release of adult salmonids on the River Esk	• Continued promotion of catch and release to angling clubs. • Monitoring of catch and release on Esk	Environment Agency (Lead) / Yorkshire Esk Trust / Esk Fisheries Association	Low	2013 - onwards
26) Spawning habitat improvements **Lack of suitable spawning habitat and poor quality spawning habitat (siltation)**	• **Address siltation problems (priority)** • Walkover surveys to identify potential improvements to spawning habitat in the upper catchment. • Investigate potential improvements to spawning substrate i.e. cleaning gravels. • Investigate addition of spawning substrate i.e. gravels/cobbles. • Investigate tributaries to make sure that spawning areas are accessible to migratory fish i.e. sensitive beck debris clearance.	Yorkshire Esk Trust / Environment Agency / NYMNPA	Medium	2013 - onwards

27) Maintenance of fish passes **Removal of debris from structures** **Ruswarp Fish Pass** **Ruswarp Baulk Pass** **Sleight Fish Pass**	• Programme of maintenance (removal of debris from fish pass structures). • Volunteers from Angling Clubs to monitor and help with debris removal	Environment Agency / Yorkshire Esk Trust / Esk Fisheries Association	Low	2013 - onwards
28) Engaging the local community **Education and engagement with the community in the Esk valley** **Why Esk is important (drinking water, aesthetics, recreation and biodiversity)** **Highlight economic benefits of a healthy river to local communities and businesses (B+Bs, hotels, shops)**	• Newsletters • Salmon in classroom project • Agricultural shows – River Esk stall • River walks • "Get hooked on fishing" • Attendance at open farm events • Website • Village noticeboards • Utilise local press • "Adopt a stream" • Educational access through agri-environment schemes	All	Low	2013 - onwards