

Monitoring Plan: 2017 Update



Project	Objectives	Type	Method	Location	Supporting Data & Evidence	Timescale	Who?	Cost (Incl. In Kind)	Location of Results	Format	Archive Data?
Electrofishing	1. Assess fish populations. 2. Assess fish habitat	Surveillance	Electrofishing surveys	South Cumbria Wide. 3 year rolling programme. Environment Agency. South Cumbria Wide 6 yearly programme	Historic electrofishing data (2016 full monitoring programme, limited data prior to this) and Environment Agency WFD monitoring data. Anglers catch data.	On-going. Yearly surveys between July and September	SCRT Monitoring Officer & Environment Agency	SCRT: 100 hours volunteer time, 150 hours staff time & £5,000 + for electrofishing kit (SCRT own electrofishing kit).	SCRT website, BtoB website, SCRT Office, EA Database	GIS data, PDF report	After 6 years
Riverfly	1. Identify water quality pollution events. 2. Assess trends in invertebrate life	Surveillance	Riverfly surveys	South Cumbria Wide.	Historic riverfly data. National riverfly partnership database. http://www.riverflies.org/riverflies-gis-home	On-going. Monthly surveys between April and September	SCRT: Volunteers overseen by Monitoring Officer	175 hours volunteer time	SCRT website, BtoB website, SCRT Office	GIS data, PDF report	After 5 years
Freshwater Pearl Mussel	1. Increase fish populations to support freshwater pearl mussel populations 2. Improve habitat for Freshwater Pearl Mussels and fish species.	Project Appraisal	Electrofishing surveys	Upper Kent catchment and Upper Windermere catchment. Areas where project work has been undertaken.	Freshwater Pearl Mussel surveys. Historic electrofishing surveys	Yearly (between July and September)	SCRT: project officer and monitoring officer	See above <i>Electrofishing</i>	SCRT website, BtoB website, SCRT Office	GIS data, PDF report	2021: 3 years after end of project
Freshwater Pearl Mussel	1. Assess habitat for juvenile mussel reintroduction	Investigation	Dissolved Oxygen monitoring using piezometers	Kent and Leven catchment at potential reintroduction sites	Historic pearl mussel locations	Monthly 2016-2018	SCRT: Project officer and monitoring officer		SCRT offices	PDF Report	
Freshwater Pearl Mussel	1. Improve water quality to support freshwater pearl mussel populations	Investigation	Metal sampling	Little Langdale catchment	Riverfly and electrofishing surveys	2017	SCRT: project officer and monitoring officer. CEH analysis.		SCRT Office	PDF report	

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Freshwater Pearl Mussel	1. Identify and assess freshwater pearl mussel populations	Surveillance	Walkover surveys, mussel surveys (bathyscope)	Kent Catchment and Windermere Catchment	Historic freshwater pearl mussel populations	2015-2018	SCRT project officer and volunteers		SCRT Office		2021: 3 years after end of project
Natural Flood Management	1. Assess effectiveness of Natural Flood Management Techniques 2. Reduction in flood peak size. 3. Improvement to Habitats	Project Appraisal	Flow gauges, visual assessment, Fixed point photography, water level monitoring stations	Above communities at risk. Catchment wide flood risk evaluation	NFM model (JBA and RT) previous projects/ studies e.g. Pickering and Holnicote	2017-2021	SCRT: project officer and monitoring officer. Catchment Management Groups		Cumbria Floods Partnership website	GIS and PDF report	
Conserving Coniston and Crake	1. Assess improvements to river habitat. 2. Improve spawning gravels 3. Increase Habitat for fish and invertebrates	Project Appraisal	Riverfly surveys and Electrofishing	Coniston and Crake Catchment	EA Water Framework Directive	2016-2021	SCRT project officer and volunteers	<i>See costings for electrofishing and riverfly surveys</i>	Conserving Coniston and Crake website. BtoB website	GIS and PDF reports	
Elterwater	1. Reduce phosphorus concentrations in Elterwater	Project Appraisal	Water quality sampling	Elterwater		2014-2017 (Every two weeks)	SCRT		SCRT Website & United Utilities		
INNS	1. Control the spread of invasive species	Surveillance	Walkover surveys and visual assessment (on-going assessment)	South Cumbria	Historic INNS locations, Cumbria Biodiversity Data Centre	On-going	SCRT and volunteers		SCRT website & BtoB website	GIS mapping. PDF reports	After 5 years
River Restoration	1. Improve fish migration 2. Improve sediment transport and river functions 3. Increase flood/drought resilience	Project Appraisal	Electrofishing surveys, riverfly surveys, fixed point photography, rain gauges and level sensors	Kent Catchment	Feasibility studies and restoration reports	2014-2018	SCRT: Project officer and Monitoring officer. Volunteers	<i>See costings for electrofishing and riverfly surveys. Roughly £1,000 for basic monitoring of water level changes.</i>	SCRT website & SCRT offices	GIS mapping & PDF reports	

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Backbarrow	1. Validate the fish counter	Investigation	Video footage review	Backbarrow	Fish counter data	2016-2017	SCRT		SCRT and Environment Agency	Video footage	
Large Woody Debris	1. Increase in habitat for fish and invertebrates	Project Appraisal	Riverfly. BACI colonisation monitoring	Large woody debris installation sites		1-3years around installation	SCRT project officer and monitoring officer. Volunteers.	£500 sampling and training.	SCRT website	PDF document	After 5 years
Water Quality	1. Initial general assessment of water quality 2. Record water quality of more specific events e.g. slurry spreading	Investigation	Phosphate and Nitrate colour change analysis. Turbidity measure	Kent Catchment	WFD data	2017	Volunteers/ Citizen Science	£5 per kit, £300 for database registration with freshwater watch	Freshwater Watch	Map	N/A
Water Framework Directive Monitoring	1. Assess the current status of our catchments	Surveillance	Fish, chemical, invertebrate, phytobenthos	South Cumbria	Catchment data explorer. CaBA data package.	On-going (until 2027)	Environment Agency		Online: Catchment Data Explorer. Environment Agency	GIS and spreadsheet	
SSSI Condition Monitoring	1. Assess the condition of SSSI's	Surveillance	Habitat Surveys	South Cumbria: SSSI's (River Kent)	Water quality data (Environment Agency)	On-going	Natural England		Online: Designated Sites; Natural England database	webpage, GIS mapping	
Fish Counter	1. Assess fish populations	Surveillance	Fish Counter	Backbarrow (River Leven) <i>N.b. the counter at Basinghyll (R.Kent) currently broken.</i>	EA fisheries data, SCRT electrofishing data.	On-going	Environment Agency		Environment Agency Database		
LiDAR/ Remote Sensing	1. Assess land planform	Surveillance	Remote Sensing and imagery	South Cumbria			Environment Agency		Environment Agency geodata store. SCRT Offices	GIS mapping	
Windermere Reedbeds	1. Protect and restore areas of reedbed habitat	Project Appraisal	Habitat extent surveys, fixed point photography	Windermere	Freshwater Biological Association historic extents/ photographs	2013-2020	SCRT project officer		SCRT Offices and SCRT Website	GIS mapping, photos, PDF	After 2025

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Lakes Tour	1. Assessment of lake condition	Surveillance	Water quality and ecology assessment (including depth profiles of temperature and oxygen, phytoplankton, zooplankton, heavy metals and pesticides)	20 lakes across Cumbria	Historic Lakes tours (one every 5 years)	Every 5 years (last 2015)	Centre for Ecology and Hydrology		CEH website and NERC archive website	PDF	
Tree Planting	1. Assess the impact of tree planting on water quality 2. Assess the visual impact of tree planting	Project Appraisal	Fixed point photography, potentially pH monitoring, turbidity analysis, electrofishing surveys	Upper Duddon Valley	Forest research	2017-2032	Duddon Valley Partnership		SCRT Offices and BtoB website	PDF	