

## Middle & Lower Ure Sub-Catchment Evidence Pack for the Water Framework Directive

### Executive summary of suggested priorities:

- Investigate fish passage over weirs in this Catchment and progress the easement of fish over Mallorie Weir.
- Support the Yorkshire Dales Rivers Trust in their Laver Restoration Project to remove five weirs on the Laver.
- Reduce siltation problems on the River Laver & reduce silt coming down from Moor. Trees could be planted up to edge of river & poaching and erosion could be reduced possibly through CSF.
- Hydrology in these water bodies is failing due to abstraction and this should be investigated. There is specifically a need to secure a sustainable flow in the River Skell.

### Headline characteristics of the sub catchment:

**Protected Areas – SSSI:** Marfield Fen (just north of Masham) is partly on the floodplain and is spring fed. Hack Fall Wood (just upstream of West Tanfield) includes parts of the river plus side streams and springs. River Ure & Ripon Parks (section of Main River & surroundings just upstream of Ripon) - the designation includes geological, geomorphological and ecological features of special interest. Bishop Monkton Ings (south of Ripon on Holbeck) is a lowland fen on a major floodplain. Cow Myers (just north-west of Ripon on Kex Beck) is a spring fed fen and wet woodland & is monitored for impacts from Ripon FAS. Much of the moorlands in the upper reaches of the middle Ure are designated SACs and SPAs. The water body that flows through York is designated under WFD as a Drinking Water Protected Area (DrWPA) and has been identified as being at risk of non-compliance with Drinking Water standards for a pesticide (metaldehyde – slug pellets), some of which may originate from applications made to arable land within this sub-catchment. Parts of this sub-catchment are therefore included within a safeguard zone to protect those downstream abstractions and reduce that risk of non-compliance. Yorkshire Water is bidding for PR14 funding of a catchment management scheme to deliver actions within the SgZ but funding has yet to be confirmed. Some reservoirs within this sub-catchment have also been identified as DrWPAs at risk of non-compliance for colour. Yorkshire Water are bidding for PR14 funding of a catchment management scheme looking at peat land restoration to reduce that risk & parts of this sub-catchment may form a future SgZ.

**Additional Information –** The restoration of moorland by the blocking of grips may reduce the acid flushing, however the majority of the ongoing studies do not consider pH. The results of Stean Moor Project (Leeds University) and the YPP work will provide the evidence to confirm the effect of blocking grips on sediment, as part of the latter pH data may be available. These are likely to be long term projects as moorland will take time to stabilise.

**Significant Water Management issues (SWMI):** Diffuse Pollution – rural; Flow problems; Physical modifications; Natural Conditions.

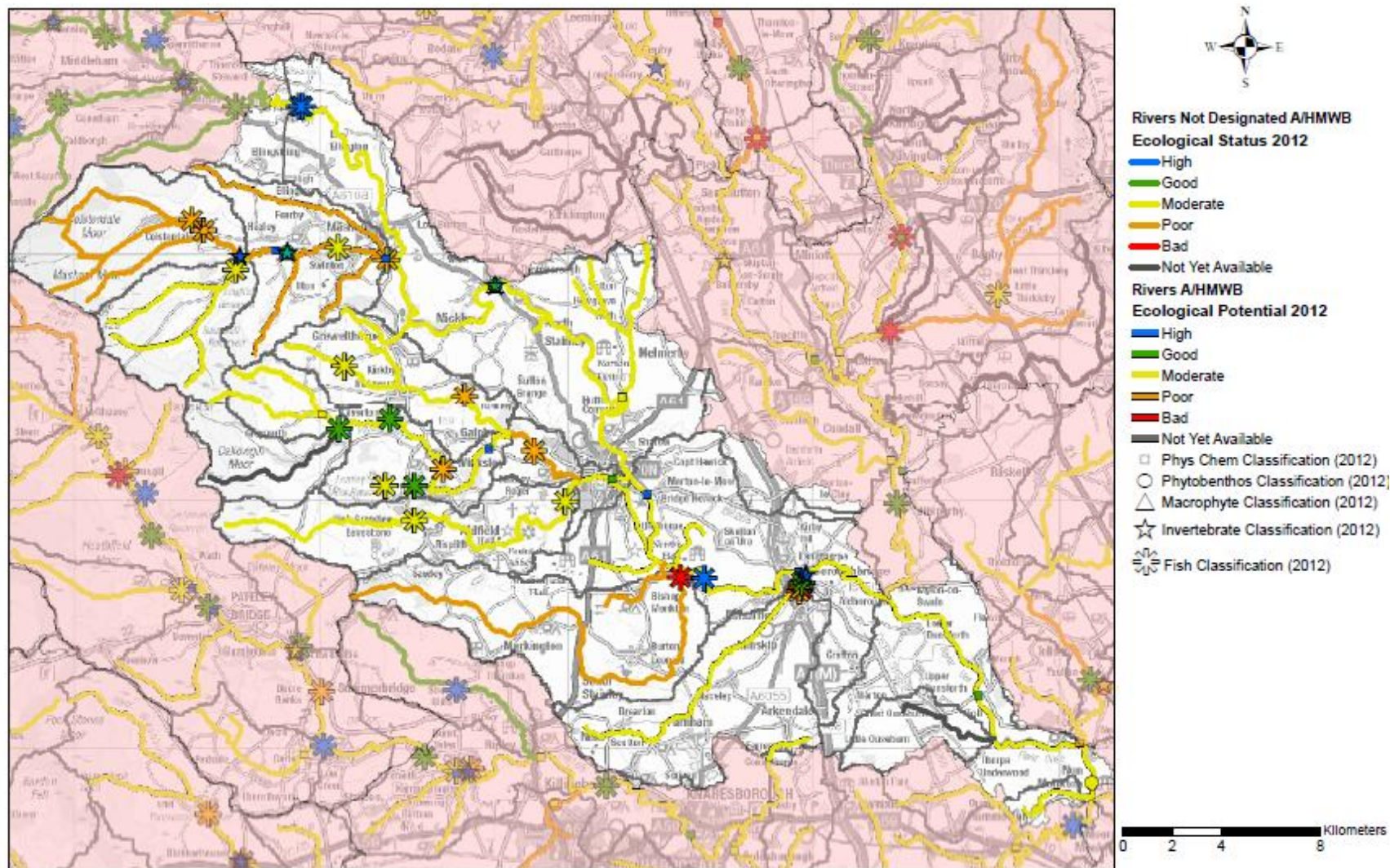
**Risk of deterioration:** Fish in Carlesmoor Beck from Source to River Laver are shown decline to moderate in 2010, although data is good. Further information required. There is a localised impact on hydrology/biology in the River Skell at the Ripon Canal off take. EA can't effectively model the off take. The Canal and Rivers Trust don't need a licence to abstract at present as navigation is an exempt activity. Flows over Alma Weir have significantly dropped and lampreys have been seen on the weir top. All exempt licences are due to become licensable from approximately October 2013. However it could take up to 5 years for this licence to be granted and there is a risk that during a dry summer, the lack of flow in the Skell will cause deterioration of a biological element.

**Groundwater issues:** The Middle Ure sub-catchment contains the SUNO Millstone Grit and Carboniferous Limestone, SUNO Magnesian Limestone and the SUNO Sherwood Sandstone groundwater bodies. There are no groundwater body failures within this catchment however within the Magnesian Limestone nitrate has been found to be elevated and there is an upward trend in nitrate at one site within the Sherwood sandstone. There should be no deterioration of groundwater quality. This should be maintained by ensuring that where appropriate farm inspections and NVZ visits are made, landowners follow the Code of Good Agricultural practice and private sewage treatment disposal should follow the guidelines in PPG4 (Pollution Prevention Guidelines 4: Treatment and disposal of sewage where no foul sewer is available). The Lower Ure sub-catchment contains the SUNO Millstone Grit and Carboniferous Limestone, SUNO Magnesian Limestone and the SUNO Sherwood Sandstone groundwater bodies. There is a Drinking Water Protected Area test failure for nitrate at a site in the Sherwood sandstone. This will be investigated further by the groundwater and contaminated land team.

**Upstream and downstream considerations / influences / impacts:** The natural swallow holes and barriers within Fountains Abbey world heritage site prevent salmon migration but it would be infeasible to prevent this. Please note that any fish pass or weir removal needs assessing against national policy of crayfish migration before any works are planned. Fish migration over Tanfield Weir would be beneficial to increase fish numbers upstream however this water body is not failing WFD for fish so it has not been identified as a priority measure. The Ure Salmon Trust installed a non-technical fish pass solution on Swinton Weir (in particular, a baulk). This should improve fish passage to the upper reaches of the River Burn.



The River Burn at the top of the sub catchment starts on moorland and is heavily influenced by the peatlands. Several small tributaries join the river along this stretch. The area is rural and farming is mainly livestock with improved grassland. The River Burn runs through a steep tree lined valley with a mix of deciduous and coniferous trees. This water body has been heavily modified for drinking water, water regulation and water storage due to the presence of Roundhill, Leighton and Spruce Gill reservoirs in upstream water bodies. Leaving the moorland, the River Skell runs through deep narrow valleys surrounded by wooded areas. In many places both the main river and its tributaries have been dammed to create lakes. The river then winds its way through scrub land, improved grassland and arable land to the water gardens of Fountains Abbey. Kex Beck starts as Wreaks Beck at Low Langwith on Grewelthorpe Moor (part of the East Nidderdale Moors SSSI) North West of Ripon. It flows south east and merges with the other main tributary, Crimble Dale which flows from the North at Grewelthorpe, just upstream of Kirkby Malzard.



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The lower section of the Ure starts below Ripon and the discharge from Yorkshire Waters Waste Water Treatment Works (WwTW). In Boroughbridge, there is a discharge from another WwTW and the watercourse is joined by the River Tutt, before reaching the confluence with the River Swale. In the Lower River Ure Sub Catchment there are a number of impoundments including both weirs and locks. Lamprey migration at both Boroughbridge and Westwick are at times compromised dependant on river flows. The Ure from River Skell to the Swale starts below Ripon flowing through agricultural land and onto Boroughbridge. Land use is 61% arable and 15% improved grassland.

The table below highlights some suggested measures that could have big WFD benefits for the sub catchment based solely on data and information collected by the Environment Agency:

Priority	Summary of Issue	Bundles of Tier 3 Measures	Affected water bodies	Action Needed	Delivery mechanism	Potential partners	Progress	EA Team Contact
1 = High	Fish passage restricted	Enable fish passage & Modify structures	GB104027069300	It is not technically feasible to consider the removal of the main impounding dam wall. Our Stage 2 investigation has confirmed that the dam wall at Spruce Gill reservoir is causing an impact on fish migration and action is needed to improve passage. Yorkshire Water assessed fish passage over dam walls at an initial feasibility stage which gave a low cost benefit ratio and this measure has therefore not been included in YW's NEP.	Project	YWS		IEP
			GB104027064170	Progress installation fish passage over Mallorie Park Gauging Weir which is in the Regional Fish Passage Priority Programme and has funding allocated	Project	YDRT		F&B
			GB104027069260 GB104027069190 GB104027064170	Yorkshire Dales Rivers Trust carrying out a project on the Laver to remove several mini weirs to improve fish passage.	Project	YDRT	Started	F&B
			GB104027064160	Lamprey & Eel passage need to be addressed at both Boroughbridge and Westwick weirs.	Project	YDRT		F&B
1	Flow problems	Change abstraction location	GB104027069210 GB104027069200 GB104027064170 GB70410110	Hydrology in these water bodies is failing due to abstraction and this should be investigated. Additional biology evidence is required to prove flow deficit is having an impact.	Project	Landowners, YWS		Water Resources
			GB104027064140	Need to negotiate with CRT to secure a sustainable flow in the River Skell.	Project	CRT		IEP
1	Metaldehyde and colour impact in safeguard zones	Protected area measure	GB30429612 GB30429636 GB104027064140 GB104027069190 GB104027069260 GB104027069310 GB104027064100 GB104027064130 GB104027064161 GB104027064162 GB104027069464	Review and implement SgZ action plan for metaldehyde. Actions to include awareness raising best practice advice, targeting of actions within catchment. Investigation and then production of SgZ action plan for Leighton and Roundhill. PR14 NEP funding bid for both metaldehyde and colour. Action plan in place for metaldehyde but needs to be refined. No action plan currently for Leighton & Roundhill; awaiting outcome of PR14.	Day job/project	YW, NE, Landowners/farmers, NFU, Moorland Association	Ongoing	EM, REP
2 =	High level	Increase in-	GB104027069461	Nutrient within sediment is causing failure. We need to		CSF,		EM –



Medium	of sediment	channel morphological diversity		understand the relationship between nutrient uptake, flow, temperature and algal - CSF related project required steered by results of investigation		NFU		Land and water
			GB104027069260 GB104027064100	Catchment Sensitive Farming Project could address requirement for best practice land management. CaBA Partnership identified the need for better management of horse pastures close to this water body and the impact of muck heaps where there are concentrations of non agricultural equestrian holding eg. At Kirkby Malzeard.	Project	CSF, YDRT, NFU		EM – Land & Water
			GB30429612	Further work required to evaluate potential solutions to address identified sediment issues. This measure has been added to YW's NEP as a potential adaptive management scheme.	Project	YWS		IEP
			GB104027064100	Fluvial audit of catchment required, to give greater understanding of the sources and pathways of silt on the catchment. Work alongside IDB who maintain the WB.	Project	IDB		FCRM
2	Mitigation measures for morphological changes	Enable fish passage & modify structures, Water level management strategy	GB104027064140 GB104027064160	Look into replacing flap valves with fish friendly versions where appropriate. The following flap valves should be replaced with fish friendly alternatives; <ul style="list-style-type: none"> <li>1221301880501L02001 (Private)</li> <li>1221301880601R02001 (Private) NFCDD states that this structure is redundant; if this is the case then it should be removed to allow natural flows.</li> <li>1221301880601L02003 (Private) This structure dries out and therefore may not be worth replacing</li> </ul>	Project	N/A		FCRM - AP
			GB104027064100	Pumping station valves to be assessed and remedial measures identified. Fish passage should be looked at in the context of habitat degradation. Identify weirs and other barriers in the water body and if fish passes are required or investigate to if they could be removed: <ul style="list-style-type: none"> <li>St Helena's Weir GR SE 39536 66616 – Removal may be an option.</li> <li>Un-named weir at SE 39487 66402 – Removal may be an option.</li> <li>Pen stock for Boroughbridge Flood Relief Channel GR: SE 39026 65951– the pen stock forms a temporary barrier, functioning only during extreme high flow events.</li> <li>Pen stock at Confluence with main River Ure GR SE 39681 66924 –Since the pen stock is still in use, its removal is not an option</li> </ul>	Project	Landowners, IDB YDRT		FCRM and F&B

				<ul style="list-style-type: none"> <li>Staveley Weir GR: SE 35762 62654 – Removal may be an option.</li> </ul>				
2	Mitigation measures for morphological changes	Change vegetation management practices, Increase in-channel morphological diversity, Channel maintenance strategy	GB104027069190	To be addressed by EA's operational/regulatory role. EA will review best practice and alter our maintenance activities as appropriate on the Laver FAS dam and downstream. Tree works to be carried out.	Day job			FCRM-AP
			GB104027064100	Much of the River Tutt exhibits degraded bank-side habitats as a result of channel modification – this modification has resulted in widening and deepening of the channel cross section and unnaturally steep banks with little habitat diversity. Continued maintenance by has prevented the river from returning to a more natural channel form. Improvements to riparian and marginal habitats may be achieved through: <ul style="list-style-type: none"> <li>- Bank re-profiling</li> <li>- Channel widening</li> <li>- Creation of aquatic ledges</li> <li>- Tree planting</li> <li>- More sympathetic, environmentally-sensitive maintenance practices.</li> </ul>	Project	IDB		F&B
			GB104027064160	There may be the opportunity to improve connectivity by settling EA assets back or removing them. Steep cliffs along this river are sand martin habitat so investigate appropriate opportunities for bank stabilisation within this water body with this in mind.	Project			FCRM – AP and Geomorphologist
2	High pH causing fish failure	Surface runoff & drainage management	GB104027069300 GB104027069210	The restoration of moorland by the blocking grips may reduce the acid flushing. Review the results of Stean Moor Project (Leeds University) and the YPP work to confirm the effect of blocking grips on pH.	Project	YPP	Ongoing	EM land and Water FCRM
3 = Low	Sediment	Increase in-channel morphological diversity	GB104027064130	Hungate Dike could benefit from coppicing and stock fencing.	Project	CSF		EM Land & Water
			GB104027069260	Although not officially Reason For WFD Failure there is a substantial amount of sediment in the beck and this is a pressure on fish spawning. Sediment reduction is required through CSF project.	Project	CSF		EM – Land and Water
3	Mitigation measures	Increase in-channel morphological diversity, Vegetation	GB104027064140	To be addressed by EA's operational/regulatory role. Mitigation could include working with operating authorities and riparian owners on sensitive land management practice where appropriate for example; through our planning and flood defence consenting role	Day job	Riparian landowners		FCRM - PSO

	control & Protect existing vegetation		and by promoting guidance on best practice maintenance. Those already showing best practice may help us promote methods to neighbours.				
		GB104027064160	Giant Hogweed at Newby Hall and Millby Island should be managed. INNS are a CaBA partnership priority.	Project	Landowners		F&B

**CRITERIA / DEFINITION of EA priority:**

- 1 = High** EA believe these actions are essential to enable the water body / sub catchment to meet GES / GEP based on professional judgement / monitoring evidence.
- 2 = Medium** EA believe these actions will make a difference: improve an element or contribute to achieving GES / GEP.
- 3 = Low** These actions should have a cumulative impact and should make a change within class or locally

**Further evidence required by internal EA Teams to confirm existing WFD status or any potential improvement in status.**

Team	Water body	Action/activity	Progress
<b>A&amp;R</b>	GB104027069260	Fish survey needed at appropriate time of year to confirm failure.	
	GB104027069300	Investigation has confirmed flow deficit within these water bodies. Additional biological evidence is required to determine whether the flow deficit in this water body is impacting on flow sensitive elements. No actions can be progressed until we have evidence to show that flow sensitive biological elements are being impacted by the flow deficit.	
	GB104027069200		
	GB104027064170		
<b>EM</b>	GB104027069461	Very low level of phosphate in a highly sensitive area, further investigation to understand the trigger for an algal bloom causing macrophyte failure.	
	GB104027069300	A sonde has been placed at the routine monitoring point to provide more detailed data regarding the duration and severity of acid flushes. Simon Hildon is the project manager.	Started
<b>IEP</b>	GB30429769	Lumley Moor and Leighton Reservoir - further investigation is required to determine if flow regime from the reservoir is impacting downstream flows.	
	GB104027069310		
<b>F&amp;B</b>	GB30429612	Catchment walkover report required to assess suitability of catchment upstream for fish and determine if any barriers present.	
	GB30429634		
	GB30429769		

## Potential Partners

- **Yorkshire Water Services** Work together to understand the impact of Treatment Works, abstraction and Safeguard Zones.
- **Catchment Sensitive Farming Officer / Yorkshire Farming and Wildlife Partnership** Advice to farmers regarding farming techniques aimed at limiting phosphate losses e.g. Using phosphorus fertiliser and manures according to the results of soil testing and nutrient balance assessments of inputs and off-takes, preventing soil erosion by growing cover crops in winter, maintaining grass buffer zones/riparian zones on field boundaries or fencing water courses to prevent animal access.
- **Yorkshire Peat Partnership** Provide the evidence to confirm the effect of blocking grips on sediment.
- **Leeds University** Assessing the results of the Steam Moor project to block moorland grips - potential to extend this project based on evidence.
- **National Trust** Major landowners and owners of Grantley Hall and Fountains Abbey.
- **Landowners/Farmers** Vital in supporting us and our partners to deliver and implement projects on the ground.
- **Forestry Commission** Regional EA have been working with FC to map opportunities for tree planting along waterbodies where they would have greatest benefit for flood risk and WFD. Working together and with landowners to deliver the project would be essential.
- **Yorkshire Dales Rivers Trust** Investigating the feasibility of weir removal or easement in the Laver catchment and aiming to deliver projects to ease fish passage in the area.
- **Internal Drainage Board** Maintain parts of the River Tutt
- **Canal And Rivers Trust** Abstract flow from River Skell for navigation in Ripon Canal. We need to liaise with CRT to ensure adequate sustainable flow is available in the Skell itself.
- **Yorkshire Wildlife Trust** The loop at Ripon is a Nature Reserve under their jurisdiction. Ripon Quarry Nature Reserve is also managed by them. They are working with the minerals industry to develop wetland creation schemes at Ripon City Quarry and Ladybridge Quarry near Nosterfield.
- **Ure Salmon Rivers Trust** Interested in fish passage projects in the Ure
- **Hansons gravel companies Aggregate companies operating in this sub catchment to abstract gravel**
- **Black Sheep Brewery & Theakstons** Influential Landowners at the top of the sub catchment
- **Lower Ure Conservation Trust** Interested in participating in projects on the Lower Ure
- **NFU** May be able to support delivery of some agriculture projects and/or provide data and information.

The Evidence Packs are not statutory Environment Agency published documents. The Evidence Packs have been written by the Environment Agency's Water Framework Directive Catchment Coordinator for the Swale, Ure, Nidd, Ouse and Wharfe. The information within the Packs has been derived from Environment Agency monitoring, investigations and catchment walkovers. The aim of the packs is to summarise this data and information for use as an engagement tool and ultimately to help inform the next River Basin Management Plan which will be published in 2015. If you have any feedback on the documents or the information within please contact [Claire.Tunningley@environment-agency.gov.uk](mailto:Claire.Tunningley@environment-agency.gov.uk)