

Foss Sub-Catchment Evidence Pack for the Water Framework Directive

Executive Summary of suggested EA priorities:

- *Investigate and remediate sewage disposal arrangements particularly upstream and around Farlington village. Prioritise properties not served by Yorkshire Water's sewer. Review the existing Yorkshire Water Services STW. Environment Officers could carry out a none mains drainage campaign.*
- *Investigate the impact of sewage disposal from Crayke WwTW, Stillington WwTW & Sheriff Hutton WwTW.*
- *Liaise with the IDB and FCRM regarding land management practices and discuss possible implementation of mitigation measures such as appropriate vegetation control and sediment management.*

Headline characteristics of the sub catchment:

Protected Areas –

- *Strensall Common is within a Special Area of Conservation (SAC) and is a SSSI.*
- *This sub catchment is also designated as protected surface water Nitrate Vulnerable Zone.*

Additional Information –

- *Largely a rural flat and drained catchment upstream but further downstream tributaries and the Foss feed into the urbanised City of York.*
- *Reference should be made to City of York's Local Flood Risk Strategy*
- *Populations of water voles exist in Strensall, though numbers are dwindling. Presence of some otters in York show may show signs of good pockets of ecosystems & habitat in the Foss.*
- *This sub-catchment was failing for Hydrology but this designation should change to good in 2015 based on a study carried out in 2010.*

Significant Water Management issues (SWMI):

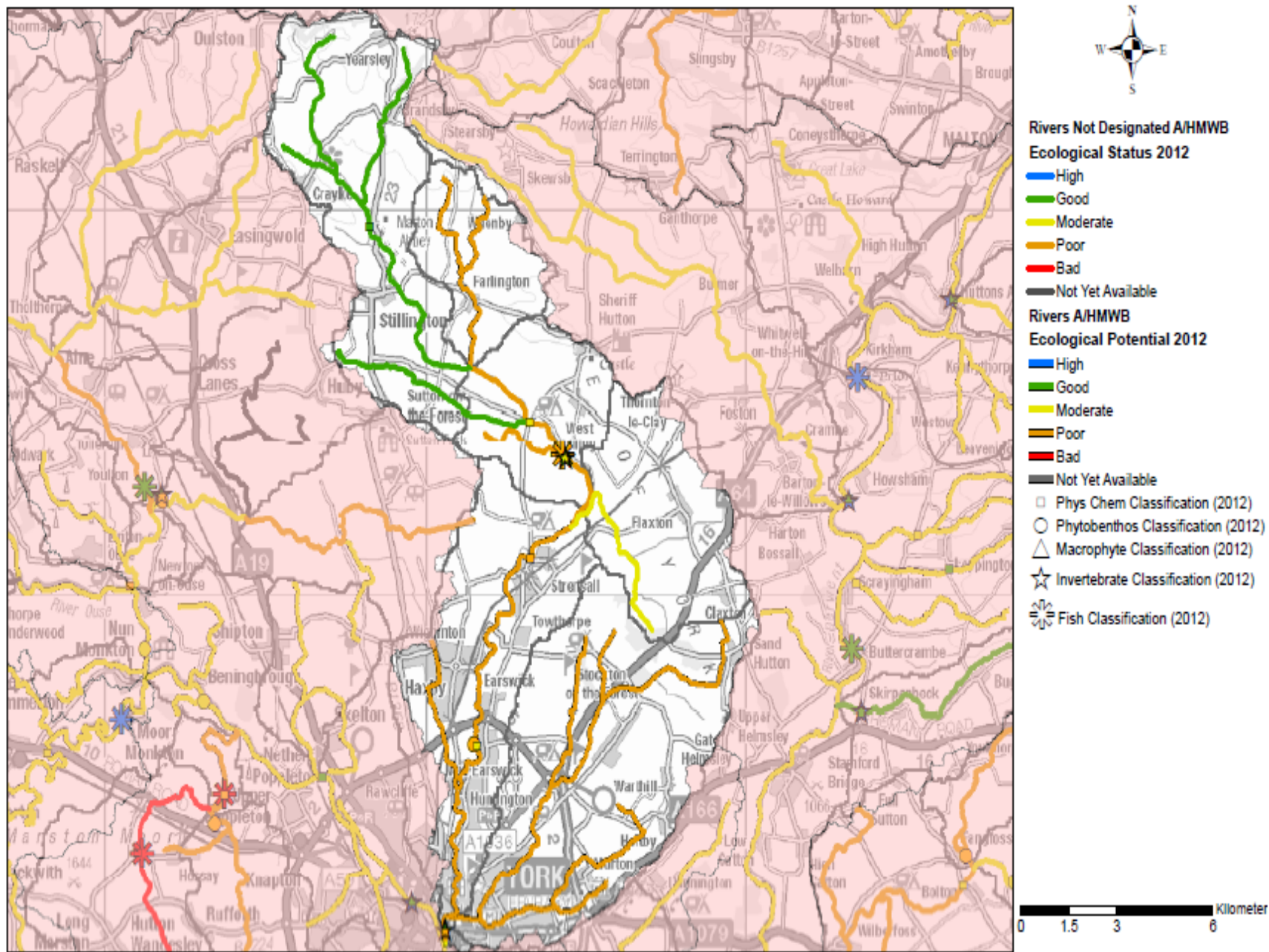
- *Physical modifications*
- *Point source pollution – mainly sewage*
- *Diffuse source pollution – rural*

Risk of deterioration: *Diatom ecological status of Tang Hall Beck is poor with a high level of confidence. Ammonia and dissolved oxygen also fail at new sample site on Tang Hall Beck. Foss to Farlington Beck may fail from Macrophytes in 2014 as sampling is due for routine ESI programme. This may result in us finding further failures as we gain better information.*

Groundwater issues: *The Foss Sub Catchment contains part of the SUNO Sherwood Sandstone and the SUNO Mercia Mudstone and Redcar Mudstone groundwater bodies. The Sherwood Sandstone fails the Drinking Water Protected Area test for nitrate. Whilst there are no specific drinking water protected area failures in this sub-catchment, there should be no deterioration of groundwater quality. This could be maintained by ensuring that where appropriate farm inspections and NVZ visits are made, and landowners follow the Code of Good Agricultural practice.*

Upstream and downstream considerations / influences / impacts: *Any actions to further mitigate diffuse pollution in this catchment may be best focussed on the upper reaches for the biggest impact.*

The Foss Catchment has an agricultural start & the very top of the catchment is at good ecological status. The Foss then begins to encounter phosphate failures near Farlington where we believe it is affected primarily by private septic tanks & run-off from arable land. On its journey to the Syke, further failures are noted due to phosphate from sewage/wastewater treatment works discharge & land drainage activities. The Foss then becomes a main river downstream in York where it merges with main river tributaries known as Tang Hall Beck/Old Foss Beck & Osbaldwick Beck. These tributaries drain land to the north-east of York including Murton Industrial Estate which contributes to industrial discharge into the watercourse. These water bodies slowly flow through a busy residential area, where parts of them are physically modified and in culvert. Many of the water bodies in York have been heavily modified by riparian owners, the Environment Agency and Local Authority for essential flood defence purposes. The whole sub catchment is a pumped system due to the presence of the Foss Barrier at its confluence with the Ouse which has protected the Foss basin from flooding since 1982.



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Baseline situation as of 13/02/14

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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	Potential Action	Delivery mechanism	Potential partners	Progress	EA Team Contact
1 = High	Excess phosphate impacts from suspected unsewered properties.	Assess need for installation of nutrient reduction, & investigate options of connecting to the foul sewer or install other treatment	GB104027063560 GB104027063540	Investigate and remediate sewage disposal arrangements. Prioritise properties not served by Yorkshire Water's sewer. Review the performance of Yorkshire Water Services STW. Environment Officers could carry out none mains drainage campaign. Aim to include STW in AMP5, confirm sampling required for simcat modelling & devise a sampling programme.	Project NEP WQ	YWS, Farlington Parish Council		EM – Land and Water
1	Phosphate from point source sewage discharge	Install nutrient reduction & change timing or frequency of discharge	GB104027063540 GB104027063520	Investigate sewage disposal from Small waste water treatment works.	NEP WQ	YWS	Started – PR14	EM – Land and water
			GB104027063540 GB104027063530	AMP Programme includes – Sheriff Hutton STW, West Lilling IWO, Haxby SPS and Flaxton STW.	NEP WQ	YWS	Complete	EM – Land and Water
			GB104027063520	PR09 - Haxby Walbutts WWTW included in PR09.	NEP WQ	YWS	Complete	EM – Land and Water
1	Land management pressures from land drainage	Protect existing vegetation, change vegetation management practices & surface run-off & drainage management	GB104027063540 GB104027063520	Appropriate vegetation control and sediment management required to mitigate the impact of morphological changes and land management practices on WFD.	Day job	Kyle & Upper Ouse IDB, APEM		FCRM – Asset Performance
2 = Medium	Raise awareness of WFD	Surface run-off & drainage management (Protected area measure)	GB104027063560	Current project working on a pilot to introduce 50% ferric Phosphate and 50% metaldehyde to replace slug pellets to help protect safeguard zones though there is no direct risk to SgZs in the Foss basin.	Project	CSF FAS YWS	Started	EM – Land and Water
2	Excess phosphate	Surface run-off & drainage	GB104027063560 GB104027063520	Investigate & remediate sources of phosphate using EA Officers &/or Catchment Sensitive	Project	CSF	Started	EM – Land and

	from suspected agricultural run-off.	management		Farming Officer / Yorkshire Farming & Wildlife Partnership. Assess adequacy of slurry handling, spreading & storage as necessary at livestock farms where this may be an issue. Undertake visits to these farms to discuss & assess slurry, manure and/or phosphate fertiliser spreading practices possibly through an APEM workshop. Target advice to landowners with elevated soil erosion risk (sloping land/connectivity to watercourses). Use SCIMAP to assist targeting. The EA are funding ongoing walkovers surveys by APEM on Farlington Beck.		YFWP, APEM		Water
2	Urbanisation of river channels in York.	Channel maintenance strategy & Increase in-channel morphological diversity. Remove or modify structures.	GB104027063520 GB104027063500	Alteration of channel beds within culverts & re opening of culverts where feasible. Implementation of soft engineering approaches & mitigation measures. EA to ascertain whether any benefits will be gained for WFD through the eel pass project on the Foss Barrier & whether any improvements can be made to existing culverts.	Project	CYC Drainage Engineers	Not started	FCRM - P&SO
3 = Low	Pollution prevention		GB104027063500 GB104027063520	Pollution prevention- intermittent resulting from pumping station failures or foul sewer blockages. Environment Officers to carry out non mains drainage campaign and visit industrial units. Need to liaise with YWS regarding maintenance & blockages in combined sewers in Osbaldwick & Tang Hall.	Day job	YWS	Not started	EM – Land and Water

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	Waterbody	Action/activity	Progress
Analysis & Reporting	GB104027067760 GB104027063530	Further investigation, evidence and data required - A&R to clarify what is ESI routine monitoring and what is additional 'targeted investigation' required. Macrophytes to be sampled 2013 in River Foss from Source to	Started

Baseline situation as of 13/02/14

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Potential Partners

- **Yorkshire Water Services** Hold information on which properties are currently on mains drainage and capacity of existing sewer & STW.
- **Farlington Parish Council** Conduit to disseminate info about availability of sewer access (if appropriate) or of need to maintain / upgrade existing septic tanks / package STWs where appropriate.
- **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.
- **Kyle and Upper Ouse (Foss) IDB** This catchment is managed by the IDB to improve drainage for agricultural purposes. A lack of buffer zones and lack of winter ground cover may cause nutrient rich sediment to flush into the drainage ditches.
- **York Consultancy of Drainage Engineers** Ascertain whether they can support the EA in delivering WFD improvements in waterbodies in their district.
- **Ministry of Defence** A major landowner at Strensall
- **APEM Ltd** Consultants employed by the EA to carried out Agri projects. they are currently focussing on farlington Beck in this Catchment.

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