

Strategic Approaches

4 - Data capture, monitoring and evaluation

Monitoring and data aggregation using cost-effective sensors and (ideally) citizen science. The aim is to understand the effects of extreme weather upon watercourses in the catchment. This can assist in calibrating the effects of storms on watercourses and consequential fluvial flooding. Rainfall data will also assist in understanding surface water (pluvial) flooding.

Data capture could/should include:

- Weather (especially rainfall) - reference Wunderground: (<https://www.wunderground.com/dashboard/pws/IENGLAND905>)
- River levels - reference GaugeMap / EA (<https://www.gaugemap.co.uk/>)
- River flow rate?
- Ground water levels?
- Water quality (oxygen, pollutants, biological indicators) - important for Water Environment Improvement Framework
- Others?

West Wolds area has the advantage of many residential/commercial properties close to the becks and ditches across the catchment, usually with decent internet connection. It should, therefore, be possible to avoid problems of poor mobile data signals, vandalism etc. If we can persuade people to 'host' monitors, which are linked to their home wi-fi, it should be possible to overcome the communications issues experienced elsewhere.

There is a good opportunity to engage local schools in using this data within their curricula.

University of Hull has monitoring systems in development and West Wolds is a possible site for deployment. This is based, initially, on water level meters. Could it be expanded to capture other data? Can the comms / software infrastructure be designed to be flexible? Can existing weather data be mapped against past known flood events to form a baseline?

The sooner a system can be established, the sooner we start to gather reliable baseline data against which to:

- Understand how severe weather events are changing;
- Measure effectiveness of proposed interventions in terms of flood mitigation and water quality;
- Potentially provide localised flood warning (e.g. subscription text message if certain rate/level of rainfall exceeded).

