**RRC Catchment Restoration Fund monitoring protocol**

**Key:**

* **Target/why –** What is the overall objective of the works which are to be monitored?
* **What –** What are you trying to observe from your monitoring? E.g. increased sinuosity and habitat heterogeneity through re-meandering and adding large wood / reduction in nutrient inputs by installing SuDS.
* **How –** What techniques are being used to collect data and what assessment methods are you using? E.g. electro-fishing monitoring diversity, abundance, density, length and age.
* **When –** When are you collecting data (month/season)? Duration/length of monitoring period, how many sampling repeats, how regularly?
* **Who –** Who is the individual and/or organisation responsible for monitoring? Will this be done by more than one organisation?
* **Data –** Do you have access to any pre-project data? E.g. monitoring data from the Environment Agency.
* **Cost –** Cost of monitoring. Are all costs in kind, or are there expenditures for e.g. external lab analysis.
* **Which WFD objective is this helping to achieve –** Which WFD quality element will be addressed by your works? If not WFD, does the work/undertaking aim to improve favourable conditions (for designated sites or species, e.g. SSSI/SAC/SPA/BAP) or does it relate to any other policy drivers (e.g. public engagement, socio-economics, flood management, ecosystem services)
* **Priority and confidence:**Priority: High/Medium/Low importance that your monitoring method can show potential improvement of the related WFD quality element; the favourable condition (i.e. designated site or species such as SSSI, SAC, SPA, BAP); and/or other policy drivers (e.g. socio-economics, flood management, ecosystem services).
Confidence: High/Medium/Low confidence that the monitoring is robust, suitable and has the potential to show what you are trying to observe within the CRF project time limit.

| **Target/Why**What is the overall objective of the works which are to be monitored? | **What**What are you trying to observe from your monitoring? | **How**What methods are you going to use? | **When**What periods over the year and how often? (to indicate variability)And where if possible | **Who**Who is going to do this? | **Data**What existing data is available in addition to the monitoring being outlined here | **Cost**(can be in kind) | **Which WFD quality element is this helping to achieve?****If not WFD specify (e.g. SSSI, SAC, BAP or other policy driver)** | **Priority**High/medium/low linked to WFD or other designation  | **On target**Are the monitoring tasks outlined running to schedule?(if no specify)NOTE- can use RRC update questionnaires as a start. | **Key reporting tool and reporting output** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Confidence** High/medium/low robustness of monitoring |
| **Will be different for each project – what is the project aim for the area being photographed?**  | A visual change in (please specify) as a result of (please specify) | Fixed point photography – for methodology, refer to RRC’s Practical river monitoring guidance (2011)X number of photos (state if known) & indicate if RRC have been provided with a map of points (Y/N) | E.g. Before, immediately after and post works recommended (state dates if known, e.g. month and year) | Project team/ Volunteers | State if fixed point photography or any anecdotal/ ad-hoc photography prior to CRF | Through project/ In-kind | State which of the following, the FPP demonstrates: a) WFD targets, b) designated river or c) other e.g. social science targets | Priority: Please state (only grey if High) | Yes/ No | A time-series of fixed point photographsState if any other analysis is being done |
| Confidence: Please state (only grey if High) |

* **On target –** Are the monitoring tasks outlined running to schedule? If no, why not?
* **Reporting tool and reporting output –** How will your collected monitoring data be recorded and the analysis outputs reported?

**Example of Fixed Point Photography:**

| **Target/Why**What is the overall objective of the works which are to be monitored? | **What**What are you trying to observe from your monitoring? | **How**What methods are you going to use? | **When**What periods over the year and how often? (to indicate variability)And where if possible | **Who**Who is going to do this? | **Data**What existing data is available in addition to the monitoring being outlined here | **Cost**(can be in kind) | **Which WFD quality element is this helping to achieve?****If not WFD specify (e.g. SSSI, SAC, BAP or other policy driver)** | **Priority**High/medium/low linked to WFD or other designation  | **On target**Are the monitoring tasks outlined running to schedule?(if no specify)NOTE- can use RRC update questionnaires as a start. | **Key reporting tool and reporting output** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Confidence** High/medium/low robustness of monitoring |
| **A visual improvement in the two brooks after river works** | - Naturalise 400m Mad Brook (restoring historic meandering route)- Increase in flood storage through reedbed creation in the Lyde Brook | Fixed point photography (focus on channel change and vegetation growth) | Before & after works in December 2013 and throughout 2014. | M.Sc. student | Ad hoc historic photography | In-kind | Hydromorphology, ‘Not assessed’ but almost certainly ‘not Good’ in Waterbody ID GB109054050280 (Mad Brook) & Waterbody ID GB109054049530 (Lyde Brook) | Priority: High | Yes | Report including an analysis of the photo results |
| Confidence: High |
| **Detect changes in the biota of Mad Brook and Lyde Brook** | Change in macroinvertebrate communities | Kick-sampling for 1 min, sorted by hand from white tray – asses taxonomic group at each project site2 control sites (SSSI site – 1 site, no works) & 1 site D/S | Baseline survey - February 2013. One kick-sample per month in each brook from March 2013 – March 2014Local group will maintain and monitor the site long-term. | Volunteer monitoring team (trained, local group); M.Sc. student (analysis) | Existing EA macroinvertebrate dataset (separate sample sites, within same waterbodies) | In-kind(trained volunteers) | Invertebrates – Bad in both Waterbody ID GB109054050280 (Mad Brook) & Waterbody ID GB109054049530 (Lyde Brook) | Priority: High | Yes | Report including an analysis of Biological Monitoring Working Party score (BMWP) – to indicate water quality & proxy for river habitat improvements. |
| Confidence: High |
| **Detect changes in the water chemistry of Mad Brook and Lyde Brook** | Change in Nitrate, Ammonia, Phosphate, PH, Temperature, Conductivity, Turbidity and Dissolved oxygen | Standard method of water sampling to be collected by hand from defined points on both brooks (at project sites or strategic). Bankside sampling predominantly. | Baseline survey in February 2013. One visit per month in each brook from March 2013 – March 2014Local group will maintain and monitor the site long-term. | Volunteer monitoring team (trained, local group); M.Sc. student (analysis) | Existing EA water chemistry dataset | In-kind(trained volunteers) sampling and  | Dissolved Oxygen – Moderate in Waterbody ID GB109054050280 (Mad Brook) & High in Waterbody ID GB109054049530 (Lyde Brook) | Priority: High | Yes | Report including an analysis of the water chemistry results |
| Confidence: High |
| **Increase in public awareness of the need to look after rivers** | Active involvement of local communities and school children | 8 community events and school activities;10 volunteer training & activity days in water sampling and biological surveying; Dissemination of materials for local schools & groups | Programme ties in with school year – events throughout 2012-2015 | Shropshire Wildlife Trust staff | None | Through project | Project objective – Encourage aftercare of waterways by local community | Priority: Medium (project objective only) | Yes | Shropshire Wildlife Trust to report on these |
| Confidence: High |
| **Increase in business sector awareness of the need to look after waterways** | Engagement with businesses in local area, specifically, Telford | Reach 120 Telford Businesses by discussing water quality issues and pollution through the local BESST business network, via 2 engagement forums; & 2 employee volunteering sessions | Creation and ongoing running of a network scheme with businesses – real beneficial outcome of the project to date. | Shropshire Wildlife Trust staff | None | Through project (and in-kind from BESST volunteers) | WFD – N/AProject objective – Encourage aftercare of waterways by local businesses | Priority: Medium (project objective only) | Yes | Shropshire Wildlife Trust to report on these |
| Confidence: High |
| **Monitor and demonstrate effectiveness of a new Sustainable Urban Drainage (SUDs) system on the Ricoh business site, Telford** | Retention of water in the drainage basin (SUDSs);Education about SUDs and uptake. | Fixed point photography (at demonstration site) | A programme of monitoring ties in with practical actions being undertaken. | Shropshire Wildlife Trust staff | Halfron technical note and feasibility study (details existing drainage, flow attenuation calculations and the chosen SUDs option | Through project | Project objective – To develop an exemplar Sustainable Urban Drainage system on a business site in Telford | Priority: Medium (project objective only) | Yes | Shropshire Wildlife Trust to report on these |
| Confidence: High |
| **Detect change in ecology of Mad Brook and Lyde Brook using bats and herptofauna as proxy species** | Change in suitability of habitat/ potential for bats and herptofauna (amphibians and reptiles) | Pre-works ecology baseline surveyBat identification using detectors (volunteers trained by bat specialists)Training sessions around how watercourse management affect different ecological species. | Throughout the CRF programme (Mad Brook will tie in with volunteer sessions at the Local Nature Reserve site. On Lyde Brook, it will depend on how proactive the volunteers are). | Volunteer led monitoring programmes | Pre-works ecology survey (Phase 1). SWT utilised the SWT consultants branch & this covered mammals, bats etc. | In-kind(trained volunteers) | Secondary project objective – to improve riparian habitat conditions for fauna in both catchments in a range of different habitats (wet woodland, ponds, reed bed, brooks) | Priority: Low (other ecological surveys) | Yes | Habitat suitability index scoreList of bats identified – there is a species scoring system.Shropshire Wildlife Trust to report on these |
| Confidence: Low (repeat ecology survey not confirmed; other monitoring depends on how proactive volunteers are on Lyde Brook) |