**“How to use” guide for the River Restoration Centre’s 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.
* **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?

| **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) |

**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 |
| **Improvement in the river habitat at Stonebridge, Marlborough and Og**  | Improvement in in-channel and riparian ecology as an indicator of improved habitat (cleaning gravels and modifying in stream morphology)  | Red counts | Every 2 weeks between January and March for 3 year project timescale.Across 3 project sites  | Volunteers- 2 seasons experience/ trained by Wild Trout Trust | 2 previous seasons (2011 and 2012) | In kind  | WFD- Raise status to good for Hydro-morphology and fish (specifically middle Kennet) | Priority: High | Y (except aquatic plant survey which is now ad-hoc) | Summarise outcomes in a final project evaluation- report to be completed by project manager at the end of the project (2015) |
| Confidence: High |
| Invertebrate monitoring - Riverfly partnership method | Monthly for project timescale.Across 3 project sites | Volunteers- riverfly partnership trained  | No | Priority: Medium  |
| Confidence: Medium (useful indiciator but would need monitoring to continue beyond project to show reliable change) |
| Fixed Point Photography (as part of a general walkover survey) | MonthlyAcross 3 project sites | Anna Forbes (Action for the River Kennet) | No | Priority: High |
| Confidence: High  |
| Aquatic plant survey  | Likely to be pre and post project(on an ad-hoc basis, as part of general walkover survey)  | Anna Forbes (Action for the River Kennet) | No | Priority: Low (ad hoc but still useful)  |
| Confidence: Medium |
| **Reduction in the growth of Algae at****Stonebridge**  | Success of Barley straw application to reduce Algal growth in channel | Fixed point photography | Pre and post application | Anna Forbes (Action for the River Kennet) | No | In kind | WFD- Raise status to good for Hydro-morphology and fish (specifically middle Kennet) | Priority: Medium  | Y | As above  |
| Confidence: High  |
| Water quality; Phosphates, nitrates, suspended sediments (informal monitoring) | Centre for Ecology and Hydrology | Priority: Medium |
| Confidence: Low (see note below) |
| **Increase fish populations in the upper and middle Kennet** **Modify Town Mill Sluice to make it passable to fish** | An increase in fish populations in the upper and middle KennetTown Mill Sluice is now passable to fish | Electrofishing survey- Depletion catch  | Sites across the Upper and Middle Kennet and the OgPre and post project as a minimum (hope to continue after 2015) | External specialist (Windrush AEC)  | 2010 survey to act as baseline | £2970 | WFD- Raise status to good for Hydro-morphology and fish (specifically middle Kennet)(Upper Kennet not assessed for fish) | Priority: High | Y | As above  |
| Confidence: High  |

Notes: Barley straw was a good “experiment” but generally not very successful in terms of algae growth control. Also very difficult to remove and breaks up easily after a short time in the water. Worked well as a flow deflector in the short term. CEH were unable to carry out “full package” of free monitoring, but some data has been collected which could be useful as an indicator to evaluate technique in a final project evaluation report.