

Benchmarking & Endpoints

Setting benchmarks and end points that are linked to clearly defined project goals is a valuable approach to help determine the measure of success within river rehabilitation. They place a level of quality to rehabilitation that can be used as a standard when comparing other things against which to measure performance.

Benchmarks are measurable targets for restoring degraded sections of river within the same river or catchment as representative sites with similar characteristics that have the required ecological status and are relatively undisturbed. Setting benchmarks draws on the assessment of catchment status and identifies restoration needs before selecting appropriate restoration actions to address those needs.

Endpoints are target levels of restoration, whether this is an ecological (to restore a level of function/species), social (delivery of services to society) or physico-chemical (river morphology, water quality) endpoint and are usually linked closely to project objectives. Given that benchmark standards cannot always be achieved, especially on urban rivers, endpoints will assist in moving restoration effort towards benchmark standards through application of the SMART approach (TOOL BOX 4), to decide what is measurable, achievable and feasible. There is a need to distinguish endpoints for:

- individual measures;
- combination of measures;
- catchment water bodies measures;
- river basin district measures.

There is thus a need to consider not only the procedures for defining benchmarking and endpoints for at the project level but also integrate the outcomes into WFD scenarios related to GES and GEP targets.

Using this example, the process of benchmarking can be broke down into a number of steps:

- "Reference condition": establishing reference conditions of specific river types or river styles as defined by WP2. This may not be the pristine state but should describe the state or value of a defined ecological attribute if the system had not been disturbed by the specific pressure of pressures. It may well be defined by nearby undisturbed (by said pressure[s]) reaches of rivers that is achieving GES or GEP, i.e. an ecosystem with ecological integrity meeting societal aspirations.
- "Expectation": transfer reference conditions to end points for the target system – this will depend on river style/type and river condition (WP2). Establishing endpoints identifies characteristics of concern that reflect the overall restoration goal.
- "Baseline condition": identify what hydromorphological limitations and processes are constraining the recovery of the biota and explore the restoration potential to establish 'endpoint' target conditions.

Once the end points have been established these restoration targets need integration into wider catchment-based activities to deliver win-win scenarios (e.g. flood mitigation, hydropower, agriculture, navigation) and take due account of the cost and benefits, specifically in relation to ecosystem services delivery, to identify the most effective measures to meet specific objective.