



## Common Standards Monitoring (CSM)

Focus is on habitat integrity

Population monitoring of species features (fish, Desmoulin's whorl snail, southern damselfly etc. is undertaken where the population is considered to be at risk

## Summary of CSM attributes



Indicator group	Indicator sub-group	Attribute	Data source
Hydrological integrity	Flow modification	Deviations from daily naturalised flows	<b>EA – flow data</b> (6 years of time series data of observed and daily naturalised flows 6 years  Flow accretion diagrams to provide a spatial picture of % deviations from naturalised flow
	Planform modification	Artificial changes in planform	<b>Maps, River Avon Hydro-morphological assessment</b> (identifying major constraints to sediment transport/straightening)
Physical integrity	<b>In-channel structures</b>	Effect on hydraulics (impoundment), sediment transport, species movement	<b>EA, maps, River Avon hydro-morphological assessment.</b>
	<b>Aggregated physical modifications</b>	Habitat Modification Score	<b>River Habitat Survey</b> (covering 10% of unit and pick up issues) – <b>EA or additional survey</b>
	<b>Woody debris</b>	Extent	<b>River Habitat Survey</b>
	Bank vegetation	Extent of semi-natural vegetation	<b>River Habitat Survey</b>
	Riparian vegetation	Extent of semi-natural vegetation	<b>River Habitat Survey</b>
Physico-chemical integrity	Organic pollution	Dissolved oxygen, total/un-ionised ammonia, BOD - HES	<b>EA</b>
		ASPT/NTAXA EQR-(Ecological Quality Ratio)	<b>EA</b>
	Nutrient enrichment	Soluble Reactive Phosphorus	<b>EA</b> - growing season and annual means based on 3 years of monthly data
		TDI and RMNI EQRs	<b>EA, plant community survey - LEAFPACS</b>

## Summary of CSM attributes



Indicator group	Indicator sub-group	Attribute	Data source
Physico-chemical integrity	<b>Acidification (acid sensitive units only)</b>	ANC/pH	EA
		AWICS EQR	EA
	Other pollutants	EQS compliance	EA
		Various WFD biological metrics	EA
	Siltation	Silt levels	River Habitat Survey/EA catchment walkover surveys
		PSI EQR	EA
Biological stressors	Non-native species	Presence of species	Various
	Fish stocking	Stocking levels	Stocking authorities - EA
	Exploitation	Rate of exploitation	Fishery authorities - EA
	Weed-cutting	Extent/pattern of cutting	EA/others
Biological community	In-channel community (macro-invertebrates, macrophytes.)	Changes in community composition - WFD metrics and HES class boundaries used as surrogates	LEAFPACS (5 per water body) RICT - (River Invertebrate Classification Tool)- EA or independent survey



- Where no EA data are available for a unit, a subjective judgement will be needed if there is significant pressure on the site/unit

## Limitations of WFD biological metrics



- Restricted to sparse and fixed assessment points – spatial variations in impacts are high and monitoring sites are not located to detect spatially limited impacts
- Do not cover ephemeral and riparian habitats (e.g. exposed riverine sediments)
- Do not assess anthropogenic changes in taxonomic composition (just compare metric values)
- Predictive biological models are limited in ability to predict unimpacted community
- Do not assess impacts on habitat (and biotope) extent – metrics measure quality within remaining aquatic habitat
- Variable levels of robustness in accounting for abundance
- Taxonomic/abundance resolution of macroinvertebrate assessment is low in 'headline' WFD metric (the one that drives ecological status class)
- Multiple pressures have confounding effects on pressure-sensitive metrics (e.g. non-native species, climate change)