Proposed targets and progress goals for River Kennet SSSI (based on revised Common Standards Monitoring Guidance) – Record of decision

Targets for water quality and flows are determined for Natura 2000 sites and non-Natura SSSIs by Natural England with reference to Common Standards Monitoring Guidance (CSMG). Similar targets form the basis for assessments of the ecological status of water bodies under the Water Framework Directive (WFD). (Note that water-dependant Natura 2000 sites are defined as Protected Areas under the WFD.)

Where possible a single target should be set for elements that are common to the water body and coincident Natura 2000 Protected Area / SSSI. However, where achievement of the long term targets based on CSMG is not possible in the next river basin planning cycle (2015-2021) then interim progress goals have been agreed by Natural England and the Environment Agency. These can be in the form of numerical targets or, if inappropriate to set quantitative targets, descriptive measures that will achieve progress by 2021 towards long term targets set using the CSMG. Further review of the technical feasibility and achievability of the long term favourable condition targets will be required.

This document summarises the decisions made by Natural England and the Environment Agency on the standards that need to be achieved for elements of environmental quality that support the achievement of objectives for the River Kennet SSSI. The draft second River Basin Management Plans will be used to consult the public about the locally proposed measures and targets.

RIVER SSSI NAME : River Kennet SSSI

RIVER KENNET SSSI – MEASUREMENT UNITS			
SSSI UNIT	**SSSI UNIT NAME**	**WATERBODY ID**	**WATERBODY NAME**
1	Marlborough To Eddington Bridge	GB106039023172	Middle Kennet (Marlborough to Newbury)
2	Eddington Bridge to Dismantled Railway	GB106039023172	Middle Kennet (Marlborough to Newbury)
3	Dismantled Railway to Thatcham Bridge	GB106039023172 GB106039017420	Middle Kennet (Marlborough to Newbury) Kennet (Lambourn confluence to Enborne confluence)
4	Thatcham Bridge to Woolhampton	GB106039017420	Kennet (Lambourn confluence to Enborne confluence)

TABLE 1: FLOW (Favourable Condition Targets & RBMP2 Progress Goals)

Targets apply to all SSSI units

	Max% deviation from daily naturalised flow (Qn)		COMMENT
	FAVOURABLE CONDITION TARGET[1]	**RBMP2 PROGRESS GOAL (MEASURE &/OR TARGET)**[2]	
LOW FLOWS (<Qn95)	5	10	EA applied modelled impacts of abstraction[3] to historical flows (1990-2007), to give an indication of compliance under actual abstraction rates, including those at Axford and Ogbourne. Where possible, historical flows at the assessment points were gauged, or validated against gauged, flows. The model found that units 1 and 2 have not historically complied with the flow targets. Planned licence changes at Axford and Ogbourne will improve the situation here. Modelled flows in units 3 and 4 indicated compliance with all targets. **Future review of these targets is required** in light of the following: • EA to check whether additive impacts from the Speen abstraction were accounted for in the model; • Review feasibility of flow targets once the Axford and Ogbourne solution has been implemented; • Agree tolerance around thresholds for compliance monitoring (to reflect inherent uncertainties in measurement and modelling of low flows); • Consider risks around full licence use and cumulative impacts from smaller abstractions; • Consider what action is feasible (in long term) to address any non-compliance; • Consider risk of failures in the short-term and along length of units.
LOW-MOD FLOWS (Qn95-50)	10	15	
MOD- HIGH FLOWS (Qn50-10)	10	20	
HIGH FLOWS (>Qn10)	10	10	

[1] This is the SSSI favourable condition target, using Common Standards Monitoring (CSM) guidance as applied in England. Favourable condition tables (FCTs) contain a range of other attributes and targets relevant to management planning (e.g. physical habitat targets, biological targets), but the targets in this document are the most critical to water quality and water resource management.

[2] The 'progress goal' can be expressed in terms of the measures needed to achieve the long term target and not necessarily a numeric target (e.g. complete implementation of a Nutrient Management Plan, or complete an investigation to inform future solution). The purpose of specifying/describing an interim goal is to provide a clear direction of travel, and a useful 'milestone' to measure progress toward the ultimate achievement of long term targets which deliver designated site objectives.

[3] Kennet Valley Groundwater Model, Atkins.

TABLE 2: PHOSPHORUS (Favourable Condition Targets & RBMP2 Progress Goals)

SSSI UNIT	Soluble Reactive Phosphorus (ug/L)[4] (Annual mean and growing season mean)		COMMENT
	FAVOURABLE CONDITION TARGET	RBMP2 PROGRESS GOAL (MEASURE &/OR TARGET)	
1	30	69	EA modelled the phosphorus concentrations at points across the length of the river (using SIMCAT), under a range of scenarios. The scenarios tested involved taking increasingly more rigorous action to reduce phosphorus loads from sewage treatment works (STWs) and from other sources (including diffuse), ignoring for the moment what might be feasible. CSM targets for lowland river were applied as the favourable condition target. This decision will need to be reviewed once results of P stripping trials at STWs are available in 2017, when we will understand better what is feasible in the long term. Achieving favourable condition targets could take decades, so interim progress goals are required. All agreed these should be challenging but realistic, and should require improvement from current conditions. Where STWs are operating beyond permitted levels, we assumed this can continue, with no deterioration. Achieving the progress goals in units 2-4 will require approximately 25% reduction of diffuse loads by 2021. The WFD target for Good Ecological Status at the top of unit 1 is 69 ug/l P. Achieving this will require improvements from Marlborough STW which are not programmed for AMP6, so meeting GES by 2021 may be unrealistic. However, it was agreed that the target for RBMP2 should not be any less stringent than GES, and therefore the target of 69 ug/l SRP for unit 1 was accepted because the river is already compliant with this along most of the unit's length. Compliance will be assessed using a combination of gauged and modelled data across the whole river (detail of method to be confirmed). All points in the river must comply.
2	30	50	
3	30	60	
4	30	55	

[4] Phosphorus – CSM guidance uses Soluble Reactive Phosphorus, which for the purposes of this guidance is equivalent to the EA determinand 'orthophosphate'.

TABLE 3: ORGANIC POLLUTION (Chemical attributes) – AMMONIA, BOD & OXYGEN (Favourable Condition Targets & RBMP2 Progress Goals)

Targets apply to all SSSI units

ATTRIBUTE		FAVOURABLE CONDITION TARGET	RBMP2 PROGRESS GOAL (MEASURE &/OR TARGET)	COMMENT
Un-ionised ammonia[5]	**mg/l NH3-N, as 95%ile**[6]	0.021	0.021	CSM organics targets are largely complied with already in SSSI units 1, 3 and 4. However, the sample point 200m downstream of Hungerford STW (the only monitoring point in unit 2) has consistently failed the ammonia target and occasionally the BOD & DO targets. The sample point might be in the mixing zone of the sewage works' discharge and is probably not representative of the unit as a whole. More data are needed to understand the impact of the sewage works' discharge on the SSSI, the area of river which is failing the CSM target, and overall compliance within unit 2. This will require sampling at additional locations and an analysis of spatial variation. We will try to secure additional monitoring in the Kennet in future years' EA monitoring programme. Further investigation should either conclude that unit 2 is largely compliant with CSM and that non-compliance in the mixing zone is within tolerable levels, or it will trigger action that can feasibly be undertaken before 2021. Therefore, applying the CSM targets for organic measures to unit 2 of the Kennet is appropriate, and an interim progress goal for RBMP2 is not required. Note EA does not routinely monitor BOD on the Kennet any more.
Total ammonia[7]	**mg/l NH3-N, as 90%ile**	0.25	0.25	
Biochemical Oxygen Demand (BOD)	**mg/l (mean)**	1.5	1.5	
Dissolved Oxygen	**% saturation (10%ile)**	85	85	

DECISION AUDIT TRAIL:

A full audit trail of discussions around these targets is recorded in minutes of meetings between the Environment Agency and Natural England on 17 March 2014, 9 May 2014 and 29 May 2014. (Natural England file reference F100/008/002/175/003/0001.)

AGREED BY:

Natural England: Rachel Crabbe and Des Sussex

Environment Agency: Graham Scholey, Paul Davidson, Paul St Pierre, Jon Woodcock and Cath Sefton

Date: 16 Sept 2014

[5] As there are no WFD standards for un-ionised ammonia, it is not a parameter that EA routinely records.

[6] CSM guidance says 0.025 mg/l as NH_3-N, but we have assumed that this should be 0.025 mg/l NH_3 (as per old Freshwater Fish Directive target), which is equivalent to 0.021 mg/l NH_3-N.

[7] Total ammonia is equivalent to EA determinand 'ammoniacal nitrogen expressed as nitrogen'.