# Proposed targets and progress goals for River Lambourn SAC and 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 Lambourn Natura 2000 Protected Area / 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 Lambourn SAC/SSSI

| RIVER LAMBOURN SAC/SSSI – MEASUREMENT UNITS | | | |
|---|---|---|---|
| **SSSI UNIT** | **SSSI UNIT NAME** | **WATERBODY ID** | **WATERBODY NAME** |
| 1 | Lynch Wood To Maidencourt Farm | GB106039023220 | Lambourn (Source to Newbury) |
| 2 | Maidencourt Farm To Oxford Road | | |
| 3 | Oxford Road To River Kennet | | |

**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] | | |
| | Units 1-3 | Unit 1 (headwater) | Units 2 & 3 | |
| **LOW FLOWS (<Qn95)** | 5 | 5 | 10 | EA applied modelled impacts of abstraction[3] to historical flows (1990-2007), to give an indication of compliance under actual abstraction rates. Where possible, historical flows at the assessment points were gauged, or validated against gauged, flows.<br><br>The progress goals agreed are targets which CSM sets as the minimum acceptable favourable condition targets for SAC rivers. However, where possible, the more stringent targets (presented here as the favourable condition targets) should be used. We have confidence that the progress goals can be achieved (and for units 2 and 3 the modelling indicates that historically this has been the case), but without further review we cannot be sure that the more stringent targets are achievable in all units.<br><br>**Future review of these targets is required** in light of the following:<br>• Agree tolerance around thresholds for compliance monitoring (to reflect inherent uncertainties in measurement and modelling of low flows);<br>• Consider risks around full licence use and cumulative impacts from smaller abstractions;<br>• Consider what action is feasible (in long term) to address any non-compliance;<br>• Consider risk of failures in the short-term and along length of units. |
| **LOW-MOD FLOWS (Qn95-50)** | 10 | 10 | 15 | |
| **MOD-HIGH FLOWS (Qn50-10)** | 10 | 15 | 20 | |
| **HIGH FLOWS (>Qn10)** | 10 | 15 | 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)[3] (Annual mean and growing season mean) | | COMMENT |
|---|---|---|---|
| | FAVOURABLE CONDITION TARGET | RBMP2 PROGRESS GOAL (MEASURE &/OR TARGET) | |
| 1 | 20 | 30 | EA modelled 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.<br><br>CSM targets were applied as the favourable condition target (unit 1 = lowland headwater; units 2 & 3 = lowland river). For unit 2 (which is influenced by discharge from East Shefford STW), 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 improvements are feasible in the long term.<br><br>Achieving favourable condition targets could take a long time, 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 2-3 will require approximately 25% reduction of diffuse loads by 2021.<br><br>The phosphorus concentration in groundwater in chalk catchments can be high, and this will influence river P levels. The challenge of reducing groundwater P will be particularly influential in meeting the headwater favourable condition target for unit 1.<br><br>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 | 45 | |
| 3 | 30 | 40 | |

[3] 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**[4] | **mg/l NH3-N, as 95%ile**[5] | 0.021 | 0.021 | CSM targets for BOD, NH3 and NH4 are already met. At the top of unit 2, DO is borderline (ranging from 79-84.7 % saturation).<br>The CSM targets for BOD, DO, NH3 and NH4 were accepted in all units. No interim targets required.<br>Note EA does not routinely monitor BOD on the Lambourn anymore. |
| **Total ammonia**[6] | **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

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

[5] 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.

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