

Water Resource Associates

A network of consultants in hydraulics, hydrology, groundwater & environmental issues

Project title: Catchment Sensitive Farming Measures to reduce water pollution- an INCA modelling Study.

Summary: The impacts of new catchment sensitive farming techniques have been investigated using the INCA model for N, P and Sediments and applied to the Rivers Test, Wensum and Lugg.

Client: Environment Agency	Financed by: Environment Agency
Period of assignment: 2011	Location: UK
Project Value: £9k	WRA services: £9k
In co-operation with:	

Background: INCA has been applied to the Rivers Test, Wensum and Lugg to simulate flow, nitrate, ammonia, total and soluble phosphorus, sediments and ecology (macrophytes and epiphytes). The objective of the Catchment Sensitive Farming Strategy is to reduce the inputs of diffuse pollution from land and agricultural sources over a period of time. To this end a number of measures have been considered for nitrogen, phosphorus and sediment reduction. The INCA Model simulations have been undertaken assuming a set of N, P and Sediment input reductions provided by the EA. Input reductions were extracted from the catchment sensitive farming database and linked to WFD Catchments. The following scenarios were considered

Current Reductions - based on an assessment of CSF activities covering the period 2005 - May 2010; **Scenario 1 (S1)** - based on extrapolating reductions and activities from current scenario to all remaining farms in the catchment; **Scenario 2 (S2)** - an optimised assessment based on applying the same number of measures to the same number of farms as S1; **Scenario 3 (S3)** - an attempt to represent a maximum reduction achievable through the DPI manual measures based on the rules of combining measures within our assessment. The figure below shows the effects of these scenarios on nutrient and sediment reductions, suggesting that reductions are possible but they will take considerable time to have an effect in the catchments.

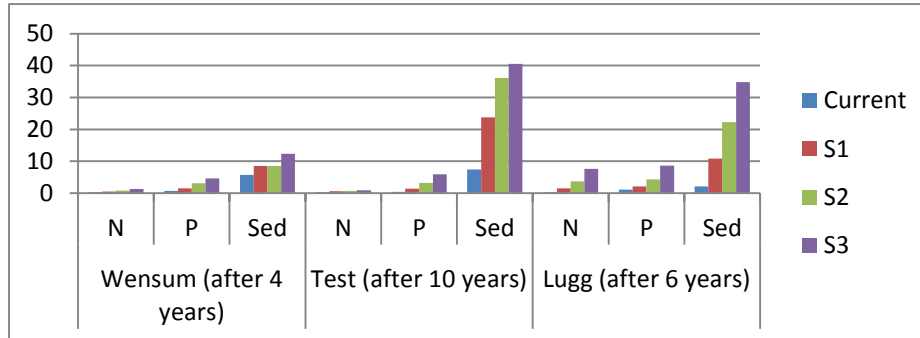


Figure Percentage Reductions from the Baseline Conditions for the Rivers Wensum, Test and Lugg assuming Current Controls and 3 Future Scenarios

Scope of work by Water Resource Associates Ltd Applications of the INCA Model to assess Catchment Sensitive Farming strategies

Results Report to EA :- Catchment Sensitive Farming: Impacts on River Systems. Contact Paul Whitehead for further information.

Project number 367

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