
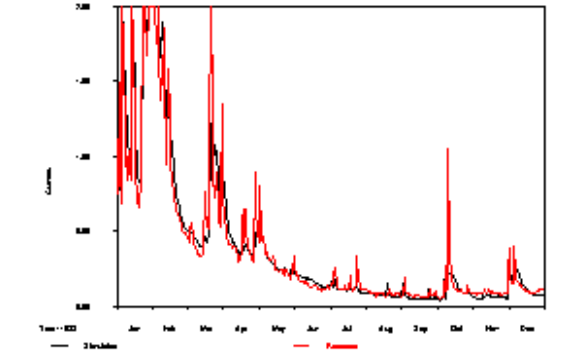


# Water Resource Associates

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

**Project title:** Simulation of flow of Sussex Ouse

**Summary:** Data collation for HYSIM modeling and water resource studies over period 1920-1996.

<b>Client:</b> UK Environment Agency – Southern Region	<b>Financed by:</b> UK Environment Agency
<b>Period of assignment:</b> 1997-1998	<b>Location:</b> West Sussex, UK
<b>Project Value:</b> £ 9,000	<b>WRA services:</b> £ 9,000
 <p>Ardingly Reservoir</p>	<b>Background</b> <p>The River Ouse (Sussex) drains 396 km<sup>2</sup> of the High Weald and Vale of Sussex to the tidal limit at Barcombe. Ardingly reservoir impounds Ardingly and Shell Brooks in the headwaters. South East Water abstract directly from the reservoir and also control releases into the river for compensation and to augment the river flow for a further abstraction just above Barcombe. There are two gauging stations on the main river, one of them at Barcombe, and a further six on the tributaries.</p> <p>Due to difficulties with flow gauging at Barcombe, there has always been some uncertainty in computing the yield of the system. The Environment Agency required calculations to be based on river flow from 1920 so, in addition to checking the discharge record in recent years, it was decided to extend it by rainfall-runoff modelling.</p>
 <p>Cockhaise Brook at Holywell – illustrating HYSIM simulation and recorded flow in 1998</p>	<b>Scope of work by Water Resource Associates Ltd</b> <p>The WRA catchment model, HYSIM, was used with all available rainfall, discharge, PE and artificial influence data. The PE data were available from a separate WRA study ('PE synthesis in south-east England'). The model was calibrated for the 1990-94 period on six subcatchments and used to generate natural flows throughout the system. The effects of various patterns of abstraction and discharge could be simulated as could the consequences of climatic change (by modifying rainfall or PE sequences).</p>
<b>Results</b> <p>The study showed that a physically realistic conceptual model such as HYSIM was the most powerful weapon with which to investigate real world hydrology. A number of scenarios were developed and the client shown how to use their own copy of HYSIM to explore others. The work helped to inform debate about the quality of some flow data and about the movement and partial re-use of water within the Ouse catchment.</p>	

Project Number 000009

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