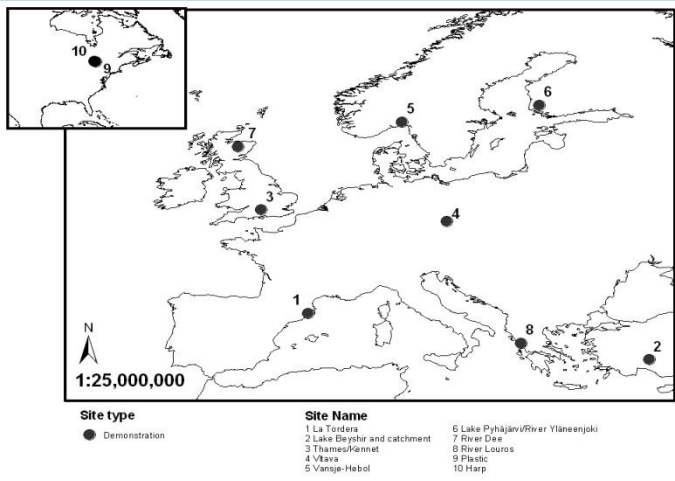
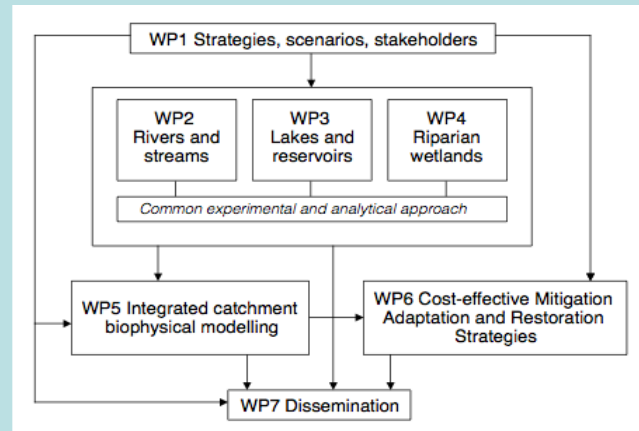


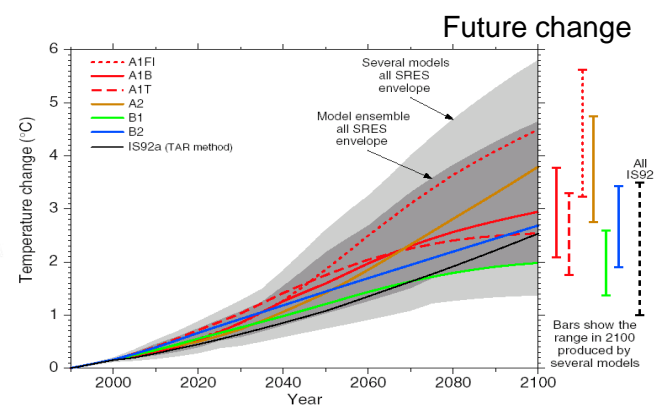
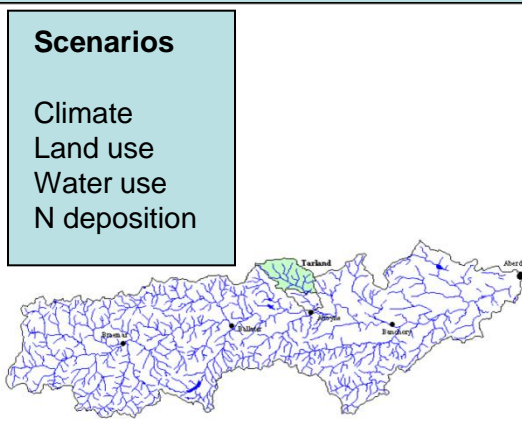
Adaptive strategies to Mitigate the Impacts of Climate Change on European Freshwater Ecosystems EU 7th Framework Collaborative Project

The specific objectives of REFRESH are:

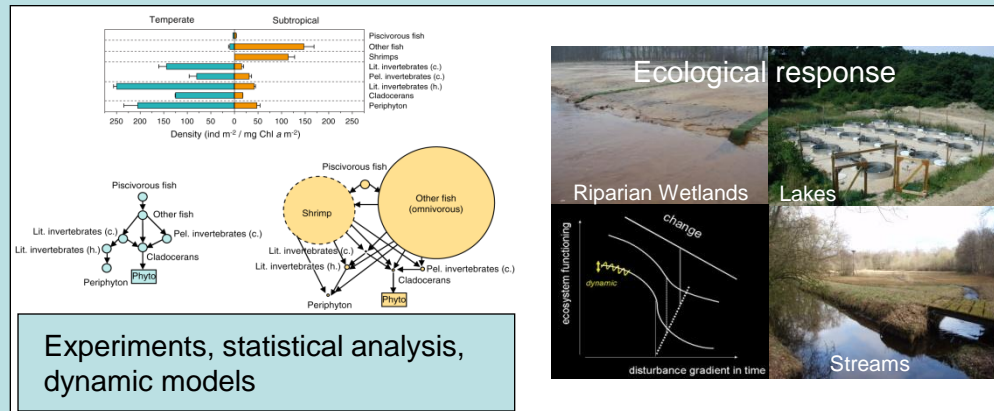
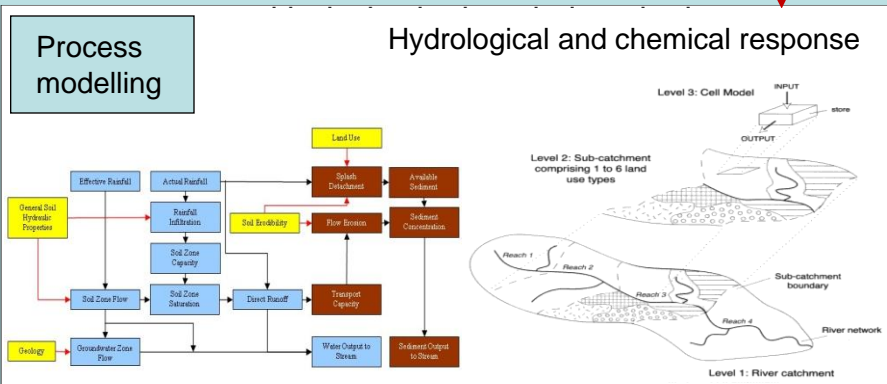
- to generate scenarios for future climate, land-use/land management, nutrient loading and water resource demand;
- review measures that can be taken to mitigate the effects of temperature, changing hydrology and increased nutrient and organic matter loading in future;
- to understand the processes governing relationships between temperature, hydrology and nutrient/organic matter loading and the structure, function and biodiversity of freshwater ecosystems;
- to develop methods for identifying thresholds and reference conditions for systems facing climate change;
- to develop new indicator systems and vulnerability assessment methods for systems facing climate change;
- to assess how climate change will alter species distribution patterns, especially those prioritised in the HD, at the European scale;
- to develop and demonstrate effective methodologies to assess the cost-effectiveness of alternative adaptation/mitigation strategies in freshwaters;
- to develop and improve the performance of models for simulating the ecological response of freshwater ecosystems to climate, land-use/management and pollution change; and
- to use the models to explore the ecological and cost-effectiveness of alternative adaptation, mitigation and restoration strategies at the catchment scale to ensure long-term sustainable management.



CASE STUDIES



Scenarios drive process based models



Integrating ecological and process based models

Adaptive strategies included in integrated models

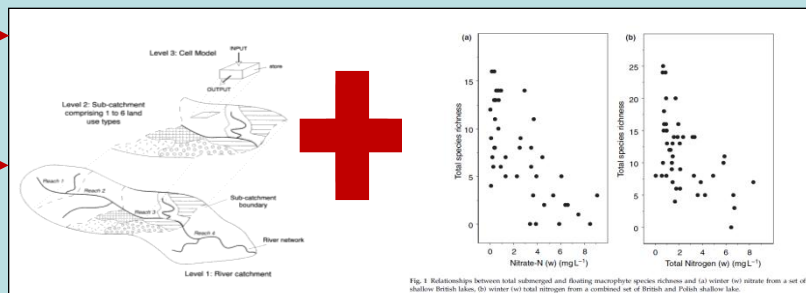
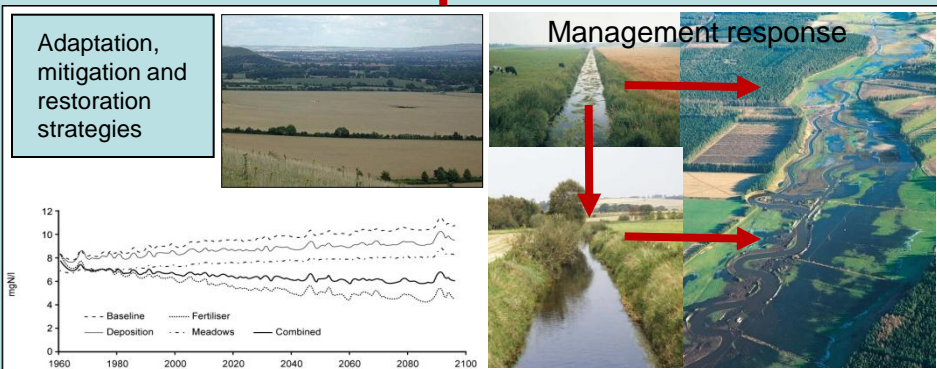


Fig. 1 Relationships between total submerged and floating macrophyte species richness and (a) winter (w) nitrate from a set of shallow British lakes, (b) winter (w) total nitrogen from a combined set of British and Polish shallow lakes.



Cost effectiveness of compliance included iteratively in models

