

# Using science to create a better place

## Ecosystem services case

This report considers ecosystem services – the multiple benefits provided to society by ecosystems – using a catchment-scale case study (the River Tamar on the Devon/Cornwall border) and a site-scale case study (the Alkborough Flats managed realignment scheme on the Humber Estuary) to help the Environment Agency learn about the applicability of an ecosystems approach to its policies and other activities.

The first section introduces the idea of ecosystem services and describes how the two case studies were selected before summarising the results from the two studies grouped according to the standardised set of ‘services’ in four categories (provisioning services, regulatory services, cultural services and supporting services) drawn up by the UN’s Millennium Ecosystem Assessment (MA). This section then concludes by summarising learning from the case study process and the recommendations and policy issues arising from the case studies and discussions of them.

The second and third sections go into more detail on each of the case studies in turn. They include assumptions and methods from which monetary values were derived for each of the services, and where it was not possible to derive such a value (including identifying research gaps).

The Annex sections give details of the case study workshop held in December 2008, expand on information about the Tamar 2000 and Cornwall Rivers Project, and finish with a copy of a presentation summarising the project findings made available to decision-makers.

The report concludes that:

- Although not perfect, the suite of ecosystem services classified by the MA is helpful for comparing benefits.

- Analysis of ecosystem services can help optimise the value of environmental management decisions across a broad range of stakeholders, and also help to identify opportunities and avert unforeseen negative consequences.

- The ecosystems approach is compatible with economic valuation methods. However, ecosystem valuation should be an aid to decision-making, not a substitute.

- The ecosystems approach is also invaluable for engaging stakeholders around commonly understood benefits, and can help to identify novel and equitable solutions through participative decision-making.

- There remain significant research needs to enable more robust implementation of the ecosystems approach. Three primary research needs identified within the case studies discussed in this report were procedural bases for assessing: (1) the net contribution to climate change regulation arising from a complex set of saltmarsh/floodplain processes; (2) the contribution of saltmarsh/floodplain to fish recruitment; and (3) the net contribution to air quality regulation from intertidal and freshwater river habitats.

- There is major benefit to be gained from application of ecosystem services into ongoing programmes (such as the wider Humber Estuary Strategy or river restoration schemes), uptake into tools and processes (including Strategic Environmental Assessment), informing land use policies (e.g. Environmental Stewardship subsidies or Catchment Sensitive Farming), and informing planning processes (such as flood risk management initiatives and River Basin Management Plans).

Ecosystem services provide a common, outcome-based language which helps different organisations communicate, both together and with a broad spectrum of stakeholders benefiting from services.

- Optimising delivery of ecosystem services of benefit to wide constituencies can help maximise value from public (and other) investment, even where funding streams are currently tied to issue-specific initiatives.

- Ecosystem services help demonstrate the value of biodiversity as a source of multiple societal benefits, and hence the critical importance of the maintenance or enhancement of ecosystems for securing future wellbeing.

- It is necessary to integrate the ecosystems approach within operational tools for use by non-specialists if it is to be taken up.

- As a society, we are at the very earliest steps in uptake of the ecosystems approach; its logical culmination is full market internalisation.

- Ideally, the ecosystems approach should be embedded in inclusive and deliberative stakeholder engagement processes, with the framework of ecosystem services providing a transparent basis to support the stakeholder dialogue process.

- Many perceived weaknesses are, in reality, related to current shortfalls in knowledge and tools in the ecosystems approach.

Although the investigation of ecosystem services in the two case studies was undertaken primarily as a learning exercise for the Environment Agency, the information presented in this report is also likely to be of interest and relevance to staff in other partner organisations including public sector bodies and academia.

**This summary relates to information reported in detail in the following output(s):**

**Title:** Ecosystem services case studies

**ISBN:** 978-1-84911-042-6      April 2009

**Report Product Code:** SCHO0409BPVM-E-P

Internal Status: Released to all regions

External Status: Publicly available

**Project manager:**

Dr Mark Everard, Forecasting Science, Reading

**Research Collaborator:**

Supported by Bill Watts, Senior Economist, Environment Agency

**Research Contractor:**

In-house study conducted by Dr Mark Everard

This project was funded by the Environment Agency's Science Group, which provides scientific knowledge, tools and techniques to enable us to protect and manage the environment as effectively as possible.

Further copies of this summary and related report(s) are available from our publications catalogue on or our National Customer Contact Centre T: 08708 506506 or E: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk).

© Environment Agency