

# Clyde Marine Region Topic Sheet Series

## The Ecosystem Approach and Ecosystem Services



### Background

The Clyde Marine Planning Partnership (CMPP) has developed this set of Topic Sheets to help communicate the findings of the Clyde Marine Region Assessment which is available on our website [www.clydemarineplan.scot](http://www.clydemarineplan.scot). The Assessment is used to inform and prioritise the development of policies for the Clyde Marine Plan. If you would like to be kept up-to-date about the development of the marine plan please visit the website and sign up to receive our e-newsletter.



SALTMARSH NEAR BOWLING © CMPP



WINDSURFER, KINTYRE PENINSULA © PETER SANDGROUND

### What is an Ecosystem Approach?

This means working with nature to create or support a healthy environment (or ecosystem) for people and nature. Nature is essential for human life as it provides us with water, clean air and food, and raw materials for medicines, industry and building. Three key principles guide the use of an ecosystem approach:

- Taking account of how nature works
- Taking account of the benefits that nature provides to people (ecosystem services)
- Involving people in decision-making

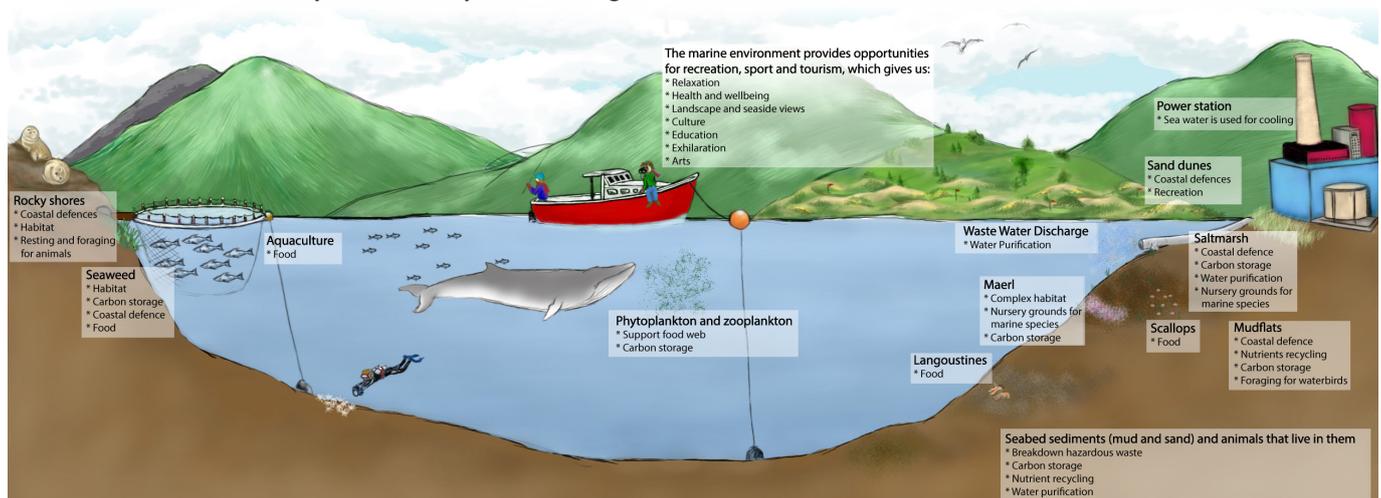
### What are Ecosystem Services?

An ecosystem is a community of interacting living organisms and their physical environment. These exist in the sea and at the coast as well as on land, and are often interconnected. Ecosystems provide services which give benefits to people; these benefits make human life possible and they also add to our quality of life. The services can be divided into the four categories (right).

#### Four categories of ecosystem services

Provisioning	Regulating
<p><b>Products obtained from nature</b></p> <p>For example –</p> <ul style="list-style-type: none"> <li>• Food (e.g. wild and farmed fish, shellfish and seaweed)</li> <li>• Water (storage and supply)</li> <li>• Ornaments and jewellery</li> <li>• Fertiliser and biofuels</li> <li>• Medicines and biotechnology</li> </ul>	<p><b>Nature cleaning up, protecting and controlling</b></p> <p>For example –</p> <ul style="list-style-type: none"> <li>• Coastal protection from storms</li> <li>• Waste breakdown and detoxification</li> <li>• Carbon storage</li> <li>• Climate regulation</li> </ul>
Cultural	Supporting
<p><b>Nature gives us quality of life</b></p> <p>For example –</p> <ul style="list-style-type: none"> <li>• Recreation</li> <li>• Tourism</li> <li>• Seascapes</li> <li>• Education and research</li> <li>• Spiritual and cultural wellbeing</li> </ul>	<p><b>Natural processes which support nature</b></p> <p>For example –</p> <ul style="list-style-type: none"> <li>• Primary production (e.g. plankton and seaweed – plants that are also the basis of food chains)</li> <li>• Nutrient cycling</li> <li>• Water cycling</li> <li>• Formation of habitat (seabed etc.)</li> </ul>

### How we benefit from the ecosystem in the Clyde Marine Region



Provisioning	Regulating
<p><b>Products obtained from nature</b></p> <ul style="list-style-type: none"> <li>• Large cod, haddock and hake are no longer abundant and have been replaced by small whiting which are below the allowed catch size for commercial fisheries. The situation for other non-commercial species is unclear.</li> <li>• There are concerns over the sustainability of the scallop fishery due to lack of official stock assessment and management.</li> <li>• Contamination by hazardous substances in the Clyde estuary and inner Firth means that shellfish may require treatment before being fit for human consumption. Levels of hazardous substances are at unacceptably high levels in several areas.</li> <li>• A changing climate could impact the species of fish and shellfish that can be fished and farmed in the CMR.</li> </ul>	<p><b>Nature cleaning up, protecting and controlling</b></p> <ul style="list-style-type: none"> <li>• Development along the coastline has reduced the extent of saltmarsh, mudflats and sand dunes which provide the benefits of coastal protection, wave energy reduction, waste breakdown and carbon sequestration. This will be further threatened by sea-level rise.</li> <li>• The ecosystem can provide waste breakdown and detoxification services up to a point, although sensitive areas (e.g. lochs as there can be less water circulation here) or areas with a legacy of contamination such as the Clyde estuary and inner Firth can become overloaded.</li> </ul>
Cultural	Supporting
<p><b>Nature gives us quality of life</b></p> <ul style="list-style-type: none"> <li>• Marine litter is an increasing problem on the shoreline and in the sea. This can negatively affect tourism and recreation activities (as well as harming wildlife and impacting other ecosystem services).</li> <li>• There has been an improvement in bathing water quality; however certain parts of Ayrshire are still impacted by run-off from land.</li> <li>• A decline in large, mobile animals such as whales and sharks, as well as seabirds and water birds, may impact the wildlife tourism sector and people's enjoyment of nature and their local area. This may be further exacerbated due to impacts from climate change.</li> </ul>	<p><b>Natural processes which support nature</b></p> <ul style="list-style-type: none"> <li>• The condition of phytoplankton has been of concern in Loch Long and Loch Goil. Recent monitoring shows general improvement.</li> <li>• The condition of small animals (worms etc.) in the seabed from south of Bute to the east of Arran has been of concern. They provide nutrient cycling services. Recent monitoring shows improvement.</li> <li>• Complex habitat is in decline which may limit areas suitable for very young fish and slow the recovery of fish stocks. Some vulnerable areas of seabed have been impacted by fishing activities.</li> <li>• Historic input of hazardous substances may reduce the ability of the mud, sand and gravel on the seabed to provide nutrient cycling, in particular in the Clyde estuary, Garroch Head and Holy Loch.</li> <li>• The number of non-native species found in the CMR is increasing, however impacts have not been as severe as expected.</li> </ul>

## How have humans changed ecosystem services in the Clyde Marine Region?

As in many parts in the world, human activity in the Clyde Marine Region (CMR) has changed ecosystems and the way they function. Generally speaking there is still a functioning marine ecosystem; however, the Assessment identified the issues listed above.

For a full understanding of the status of all of the ecosystem services in the Clyde Marine Region, please refer to the Assessment on our website. Each chapter considers relevant ecosystem services in detail and outlines any known issues.

## Why is this important?

We need to ensure that human activities, either on their own or in combination with other human activities, do not reduce the benefits that we all get from the sea and the coast so that we can all enjoy the benefits provided by nature now and into the future.

## What can we do about it?

The Clyde Marine Planning Partnership is developing a Regional Marine Plan for the Clyde using the Ecosystem Approach. The Assessment has evaluated how well the ecosystem is functioning. Everybody can get involved in giving their views on what is important to them in their local coastal community, on their favourite beach, or for their business. The Regional Marine Plan will consider all views during its development and aim to ensure that the Clyde Marine Region provides ongoing benefits to future generations.



BRITTLESTAR, MAERL AND YOUNG SCALLOP © PAUL NAYLOR



TARBERT FISHING HARBOUR © PETER SANDGROUND

## Where can I find out more?

The National Ecosystem Assessment was the first analysis of the UK's natural environment in terms of the benefits it provides to society and economic prosperity. There is a section on benefits from marine ecosystems. See <http://uknea.unep-wcmc.org/>

The CMPP were involved in public dialogue to discover what the public thinks about the idea of ecosystem services. Film, animation and reports are available at: <http://valuing-nature.net/naturally-speaking>

For more information on an Ecosystem Approach, see [www.snh.gov.uk/about-scotlands-nature/scotlands-biodiversity/an-ecosystems-approach/](http://www.snh.gov.uk/about-scotlands-nature/scotlands-biodiversity/an-ecosystems-approach/)

Keep up to date with the latest news from the Clyde Marine Planning Partnership by signing up for our newsletter at [www.clydemarineplan.scot](http://www.clydemarineplan.scot) and following us on twitter @clydemarineplan. This topic sheet was published February 2018. If you would like to comment on this topic sheet or anything else please email [info@clydemarineplan.scot](mailto:info@clydemarineplan.scot) or call 0131 314 6782.

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