

# Science for Environment Policy

## A human-focused approach to measuring ocean health

**A new index** for measuring the health of oceans considers the benefits of the sea to humans, as well as the status of natural components, such as biodiversity. According to the researchers who developed the index, it provides a powerful tool for allocating resources and improving policy in the management of marine ecosystems.

**From an ecosystem services** perspective, the oceans provide specific benefits that humans can gain from the oceans, in terms of goods and services, such as food and tourism. However, the researchers argue that the human population is still seen as an external force, which typically affects ocean ecosystems negatively. Their method of coupling human systems with natural systems provides an alternative perspective on ocean health, which balances what we can gain from the ocean with what we should try to protect. It thus reflects the EU Marine Strategy's<sup>1</sup> emphasis on management approaches that consider the needs of both people and nature.

To calculate a global or national score for ocean health using the index, performance towards meeting goals for ten areas of concern is measured out of 100. The areas are: food provision, artisanal fishing opportunity, natural products, carbon storage, coastal protection, tourism and recreation, coastal livelihoods and economies, sense of place, clean waters and biodiversity.

The researchers analysed data from around the world to calculate scores for each area. Scores were calculated by comparing each location to a more favourable or ideal state (the goal), for example, the size of habitat in comparison to a certain time in the past, or an established target for the proportion of waters set aside as protected areas.

Globally, the ocean's health was scored at 60 out of 100. Scores for individual countries ranged from 36 to 86, with most scoring below 70. Scores for developed countries were generally higher than those for developing countries. In Europe, Germany scored highly with 73 and Poland scored poorly with 42.

Similar total scores could be achieved through different routes. For instance, while the UK scored 62, with high scores for natural products and food provision, the US scored 63, with high scores for coastal protection and coastal livelihoods and economies.

Comparing the scores for different countries and goals could provide guidance for improving overall ocean health at global and national levels, according to the researchers. For instance, food provision scores were low globally compared to scores for other goals, suggesting that humans could benefit from efforts to improve sustainable fishing and mariculture (such as fish or seaweed farming).

The researchers say computer simulations could be used to provide further guidance on the actions that would have the greatest impact and inform decisions about how to use and protect the oceans. However, they stress that the index itself is an assessment tool rather than a means to predict future conditions.

The index only covers ten goals, but this streamlined approach aids the understanding and communication of key issues. It is also limited by data availability, meaning that modeling or proxies had to be used to fill gaps in the calculation of some scores. In addition, benchmarks for ideal conditions were not always easy to set, such as in the case of mariculture, where sustainable levels for production are ill-defined.



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