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Abstract. Our oceans are home to a large number of resources that are either not exploited or are marginally exploited currently. These could improve food security and the well-being of humanity.

This SAPEA Evidence Review Report examines the question of how the oceans can help satisfy the global demand for food, as sustainably as possible. It informs the recommendations in the Food from the Oceans Scientific Opinion produced by the High Level Group of Advisors of the Scientific Advice Mechanism, which was delivered to the College of European Commissioners in November 2017.

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Read the report at <http://doi.org/10.26356/foodfromtheoceans>



SAPEA Evidence Review Report Executive summary





How can more food and biomass be obtained from the oceans in a way that does not deprive future generations of their benefits?

This question was put to the European Scientific Advice Mechanism (SAM) by Commissioner Vella, Commissioner for Environment, Maritime Affairs and Fisheries, on behalf of the European Commission. It was taken up by the SAM High Level Group of Scientific Advisors, which provides independent scientific advice to the College of European Commissioners to support their decision-making. The SAPEA Consortium, an integral part of the Scientific Advice Mechanism, was asked to produce an evidence review report to support the scientific opinion of the High Level Group.

We have to find new ways to feed a fast-growing global population, anticipated to grow from 7.3 billion people in 2015 to 9.8 billion by 2050, according to the United Nations. Not only will there be many more people, but today's nutritional challenges coupled with the expectations of citizens in an increasingly prosperous world will intensify **the global demand for food and biomass by 60% by 2050**, according to the Food and Agriculture Organisation of the United Nations, unless demand can be managed more effectively.

The oceans are home to a large number of resources that are either not exploited or are marginally exploited currently and which **could improve food security and the well-being of humanity**. Increased food production from the ocean could release some of the pressure that has been put on agriculture, as well as supporting a range of livelihoods and activities associated with the fishing and mariculture industries.

The Evidence Review Report and the policy-based Scientific Opinion were handed over to the European Commission at the end of November 2017.

They are being used in the planning of the EU's future political priorities and resource allocation. These could include the preparation of the Commission's post-2020 Multi-Annual Financial Framework (MFF), the successor to the European Maritime and Fisheries Fund, and a range of other policy areas such as the implementation of the Blue Growth Strategy, Agenda 2030, ocean governance and development cooperation.



Options for how to obtain more food and biomass from the oceans

1. **Improve management of the established fisheries on wild species**, which can potentially increase the global annual catch of seafood.
2. **Tackle the problem of discards and other wastes.**
 - Reduce discards.
 - Utilise discards and other post-harvest wastes.
3. **Redirect part of the landings** from reduction fisheries into human consumption.
4. **Harvest wild animal species at lower trophic levels**, which today are either not exploited at all, or only marginally.
5. **Support the mariculture of**
 - Macroalgae.
 - Marine herbivores, such as bivalves and other filter feeders.
 - Marine carnivores.
6. **Integrate multi-trophic aquaculture (IMTA).**
7. **Support rights-based management**, as a means to smoothing out the supply of wild fish over time.
8. **Support start-ups**, by clear, transparent and harmonised rules and regulations, in support of mariculture initiatives.
9. **Ensure the long-term viability of start-ups**, by awarding social licences to operate.
10. **Provide trustworthy consumer information**, to promote initiatives on discards and mariculture.
11. **Cultivate new approaches to social responsibility**, which focus on open innovation, co-production of knowledge and social responsibility on multiple levels.
12. **Involve citizens and other relevant stakeholders** in planning processes and in awarding social licences to operate.
13. **Prioritise resulting new jobs** in areas within reach of existing fishing communities.
14. **Introduce financial strategies** that promote sustainable fishing.
15. **Design new coastal and offshore engineering developments**, to enhance both the ecosystem and the production of specific food species.