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Perspective

A Comprehensive Study on Nutrition and Greenhouse Gas Emissions

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DESCRIPTION

Seafood has the ability to assist meet nutritional needs while minimizing environmental effect. They weigh the nutrient density and greenhouse gas emissions of globally significant species in relation to production mode. Consuming wild-caught small pelagic and salmonid species, as well as farmed bivalves such as mussels and oysters, delivers the most nutritional value while releasing the fewest emissions. Many, but not all, marine species supply greater nourishment while producing less greenhouse gases than land animal proteins, notably red meat, however there are considerable variances between species groupings and species based on production mode.

The nutrients that contribute to nutrient density differ among seafood, as do the dietary requirements of population groups within and between countries or regions. Based on the nutritional attribute and climate impact patterns discovered, they recommend refocusing and tailoring production and consumption patterns toward species and production methods with improved nutrition and climate performance, while keeping specific nutritional needs and emission reduction goals in mind. More seafood is being produced and consumed globally than ever before, and demand is predicted to expand in step with rising wealth and population levels.

In 2017, seafood made up 17% of worldwide animal protein intake. There is strong evidence that the health advantages of consuming seafood outweigh any negative health consequences caused by pollutants or other safety hazards. Because seafood contains high levels of protein, omega-3 fatty acids, and micronutrients like vitamin D, vitamin B12, selenium, iodine, iron, zinc, and phosphorus, aquatic habitats play a vital role in achieving human nutrition objectives. Numerous governments push for increased seafood eating since it helps avoid numerous non-communicable diseases and alleviate widespread nutritional shortages. Furthermore, replacing other animal diets with seafood has been found to have environmental advantages.

The public debate over future diets is currently focused on the so-called green shift, which involves shifting consumption away from terrestrial animal-based foods and toward plant-based foods, with far less attention paid to a potential blue shift, in which aquatic-sourced foods play an increasingly important role. Instead, in studies looking at the overall health and environmental impact of diets, seafood is typically either left out entirely or handled as a single entity. To improve sustainable seafood consumption, we need to better understand the performance of this diverse food category.

While food sustainability is complex and multifaceted, climate change is one of the humanity's most pressing challenges, and Greenhouse Gas (GHG) emissions are easily quantifiable across production systems, allowing comparisons between diverse sources as long as methods are aligned. Climate impact is frequently, but not always, linked to other environmental concerns, and measures to reduce emissions will have broader benefits. Studies analyzing and comparing GHG emissions from seafood and other food products typically report emissions per kilogram of product, neglecting differences in nutritional content and dietary function. Some research compared items based on portion size or protein content, but did not account for overall nutritional variation.

Recently, nutritional density signs were developed as a more comprehensive way to represent the nutritional profile of meals when assessing their environmental impact. Nutrient indices summarise macronutrient and micronutrient density and reflect how well meals meet the average nutritional requirements. In that study, the nutrient density score was calculated using data from 24 nutrients and compared the content of each nutrient to the Dietary Reference Intake (DRI) of desirable nutrients or the Maximum Recommended Intake (MRI) of undesirable nutrients.

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