

Climate-Smart Blue Foods



Food systems contribute to both climate change and climate solutions. Species that are wild-caught or farmed from oceans, rivers, and lakes – known as blue foods – are essential to global food systems. When done right, blue foods can be a promising part of sustainable, equitable climate solutions, yet they are often overlooked in climate discussions and underfunded in mitigation and adaptation financing.

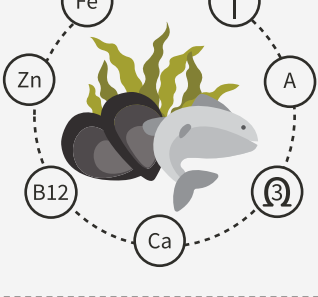
Did you know?

There are more than 2,500 different species or species groups of blue foods.



Over 3 billion people are estimated to get at least 20% of their animal protein from blue foods.

Nutrition and public health



Blue foods are rich in essential nutrients like vitamin A, vitamin B-12, calcium, iodine, iron, zinc, and omega-3 fatty acids.

Environmental performance

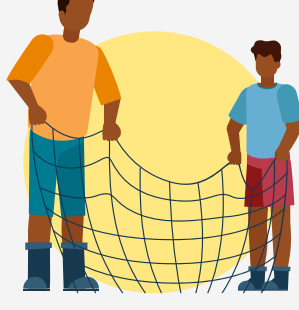
Equivalent GHG emissions



Blue foods like bivalves and seaweed can have lower greenhouse gas emissions as compared to chicken.

Culture

Blue foods can be central to the identity, culture, storytelling, and art of communities around the world, especially coastal Indigenous Peoples.



Livelihoods

Blue food production supports more than 600 million livelihoods. Nearly half of the blue food workforce are women. 90% of jobs in fisheries are held by small-scale actors.

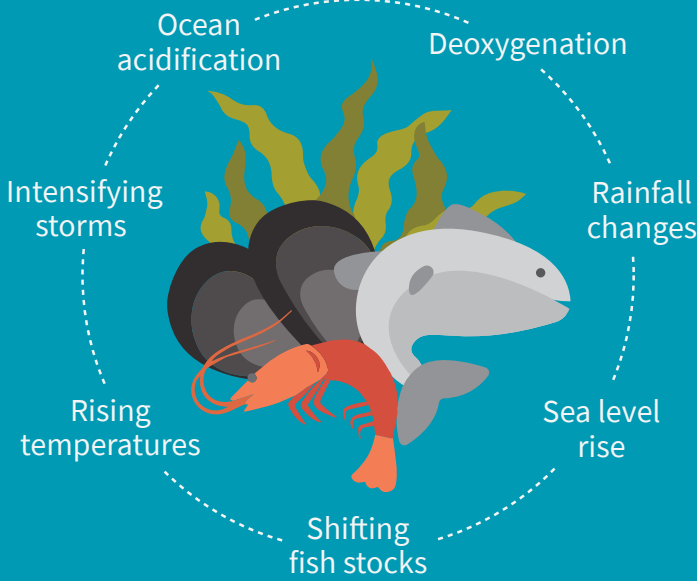


Threats and Challenges

Blue food production can degrade the environment and worsen social inequities. Blue foods also face climate and societal challenges that undermine their benefits.

Climate change

More than 90% of global blue food production faces substantial risks from environmental change. The productivity, quality, and safety of blue foods is threatened by:



Overfishing

1/3 of marine fish stocks are overfished.

Illegal, unreported, unregulated fishing

Illegal, unreported, and unregulated fishing removes millions of tons of fish from the ocean each year.

Pollution

Pollution can cause low oxygen conditions and threaten food safety.

Habitat degradation

Over 20% of mangroves are estimated to have been lost globally over the past 40 years.

Inequities

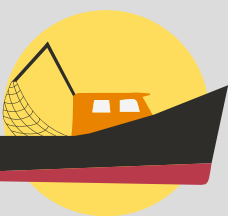
Women often face gender-based constraints that prevent them from fully participating in blue food decision-making.

Improving environmental performance and social equity in blue food systems can strengthen their resilience to climate change impacts and their contributions to climate solutions – for both mitigation and adaptation.

Climate Mitigation Opportunities



Increasing food and nutrition security through low-carbon, nutrient-rich blue foods.



Reducing carbon emissions along blue food supply chains.



Enhancing carbon storage in blue food ecosystems.

Bay2Tray

Real Good Fish | United States

Bay2Tray repurposes local seafood once discarded as bycatch to promote nutrient-rich school meals for nearby California schools. The program also connects local fishers and students, empowering future environmental stewards.



Genetically Improved Farmed Tilapia (GIFT)

WorldFish | Egypt

GIFT, selectively bred by WorldFish scientists and produced in at least 14 countries, can outperform other farmed strains in growth by up to 80%. It can have 20% reduced GHG emissions due to improved feed conversion efficiency.



Community-based mangrove management

CARE Vietnam | Vietnam

Community groups, which center gender equality and social inclusion, build coastal resilience with mangrove forests. This empowers rural coastal communities to sustainably manage coastal resources, bolster livelihoods, and address adaptation and mitigation to climate change.



Climate Adaptation Opportunities



Reducing exposure to climate hazards.



Enhancing community capacity to predict and respond to climate hazards.



Supporting equitable, alternative livelihood opportunities.

Ecosystem-based adaptation in the Coral Triangle

Environmental Defense Fund | The Philippines

This project aims to restore nipa palm, mangrove, seagrass, and coral reef ecosystems to enhance storm surge protection. It will integrate with a community-based seaweed and shellfish farm that supports local livelihoods and increases understanding of seaweed's role in GHG mitigation, ocean deacidification, and biodiversity.



Un Sistema de Alerta, Predicción y Observación (SAPO)

Environmental Defense Fund | Chile, Peru, Ecuador

Three South American countries are developing SAPO, a tool that acts as a prediction and early warning system for climate-resilient fisheries. SAPO 2.0, a mobile app, enables fishers to adapt better fisheries. SAPO 2.0, a mobile app, enables fishers to adapt better fisheries. SAPO 2.0, a mobile app, enables fishers to adapt better fisheries.



Seaweed farmers' associations

CARE Philippines | The Philippines

These associations receive training in seaweed cultivation, harvesting, disease prevention, and processing for market consumption. They also grow abalone as an alternative product during the seaweed off-season when areas are affected by strong waves, promoting socio-economic equity and climate and economic justice.



To work towards sustainable, equitable, climate-smart food systems, decision-makers can integrate blue foods into **Nationally Determined Contributions** and **National Adaptation Plans**, and increase **climate financing** for fisheries and aquaculture.

#ClimateSmart #BlueFoods | @oceansolutions

Learn more

This infographic is produced by the Stanford Center for Ocean Solutions, WorldFish, the Environmental Defense Fund, the Stockholm Resilience Centre at Stockholm University, CARE USA, and the Beijer Institute. The project builds on the research findings of the Blue Food Assessment.