

Stanford University

# Blue Foods in the World

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Center for Ocean Solutions







Protein and nutrients  
for 3 billion people

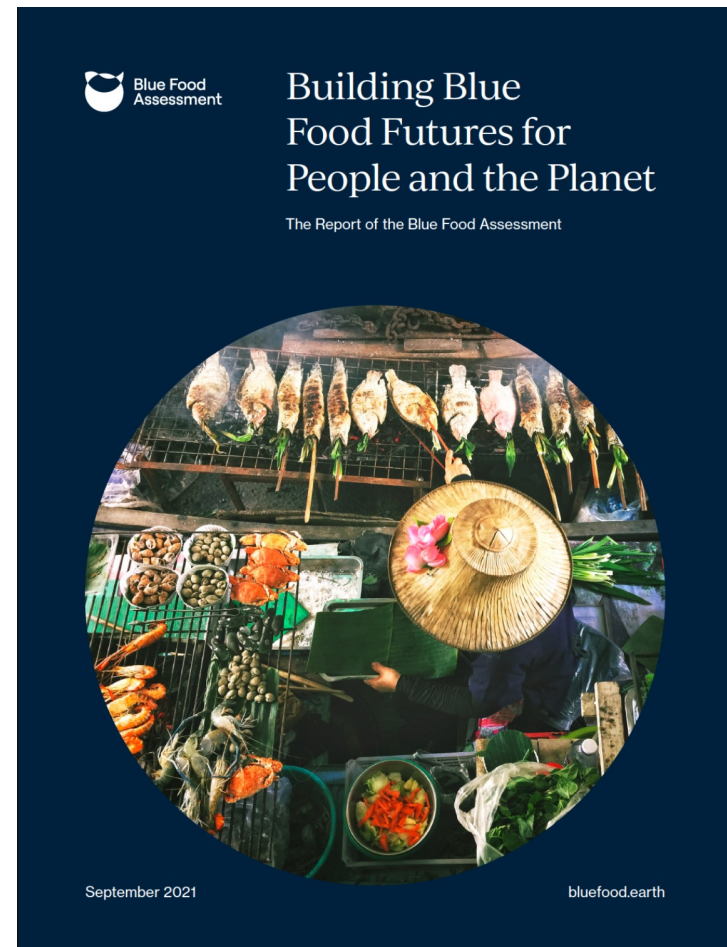


Livelihoods for 800  
million people

# The Blue Food Assessment







<https://bluefood.earth>

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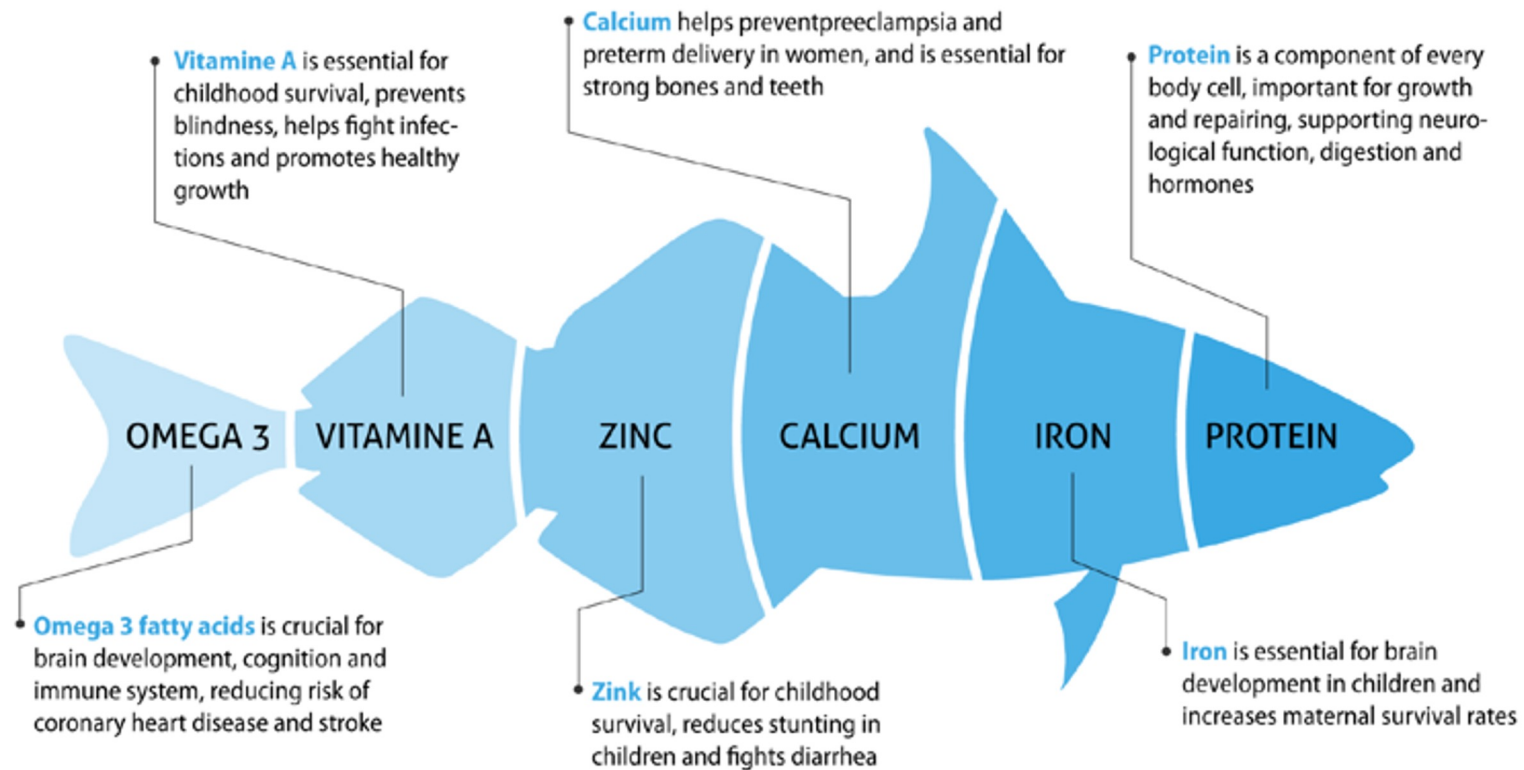




More than  
**2,500 species**  
of fish, crustaceans,  
seaweeds and plants  
are caught or  
cultivated for food

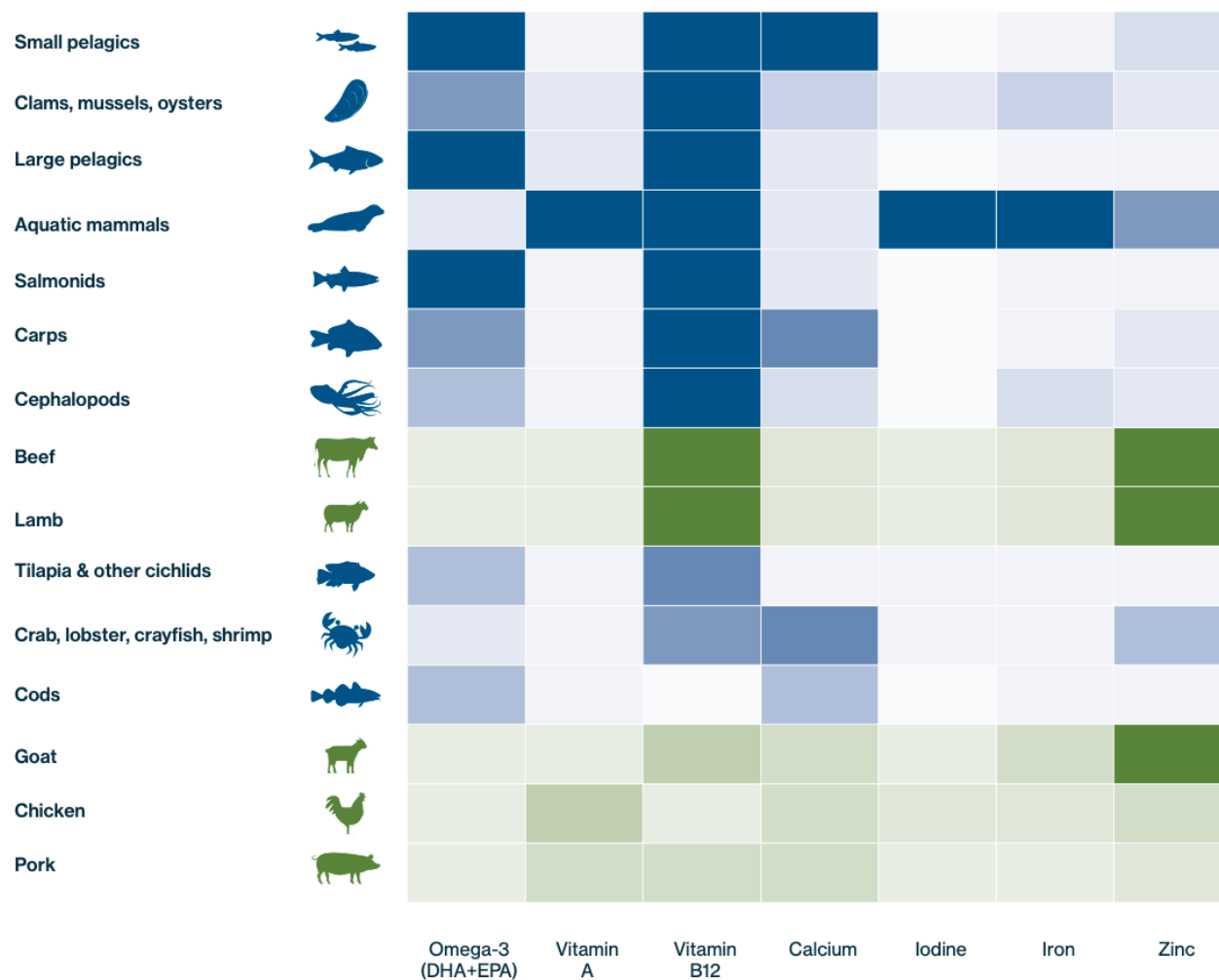


# Blue Foods are critical sources of nutrients



Troell *et al.* (2019)





Most blue foods are richer than other animal-source foods across an array of vital micronutrients

Golden, Koehn, et al. *Nature* (2021)



In many coastal nations, nutrient deficiencies  
could be met with fish in their waters



A single serving of many species of small pelagic fish provides more than the daily recommendations for omega-3 fatty acids (EPA+DHA), Vitamin B12 and calcium.

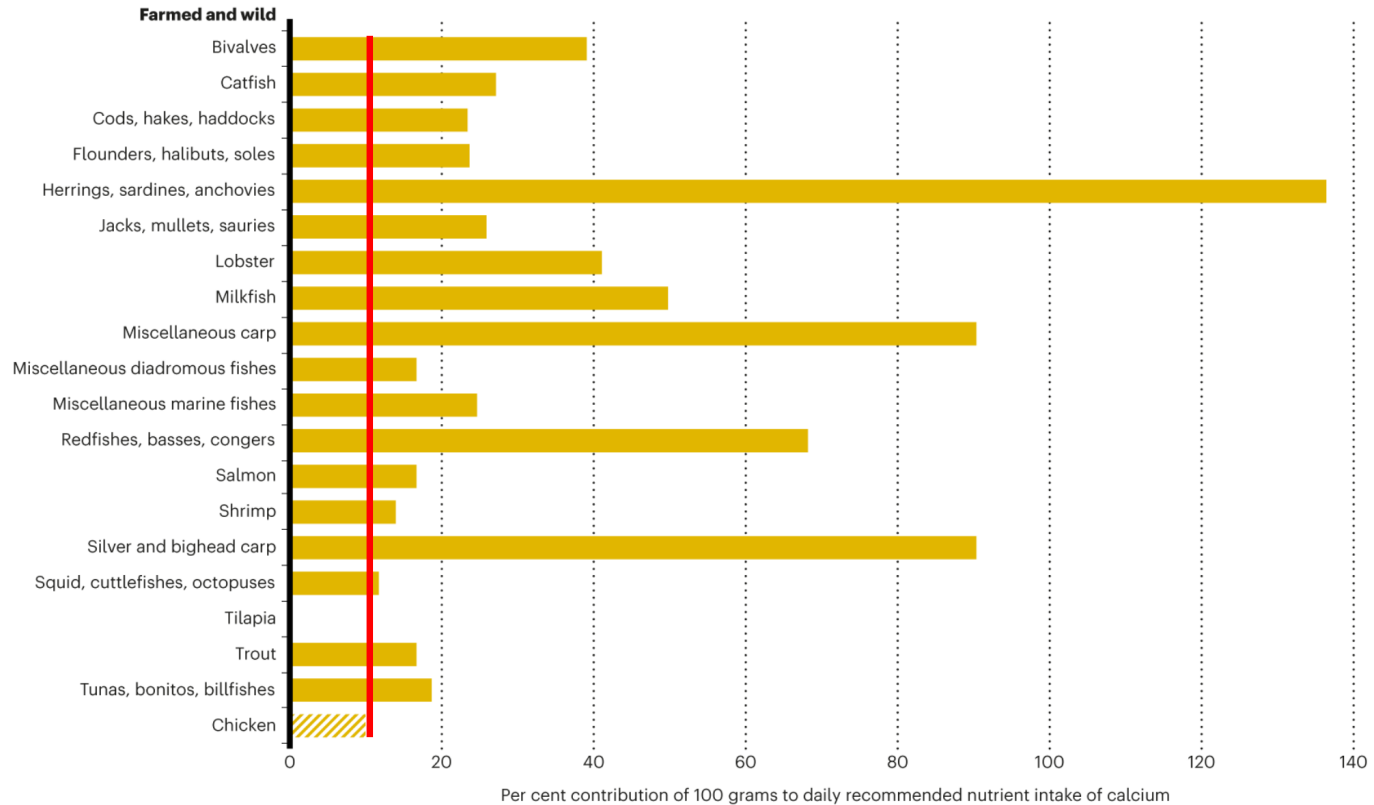


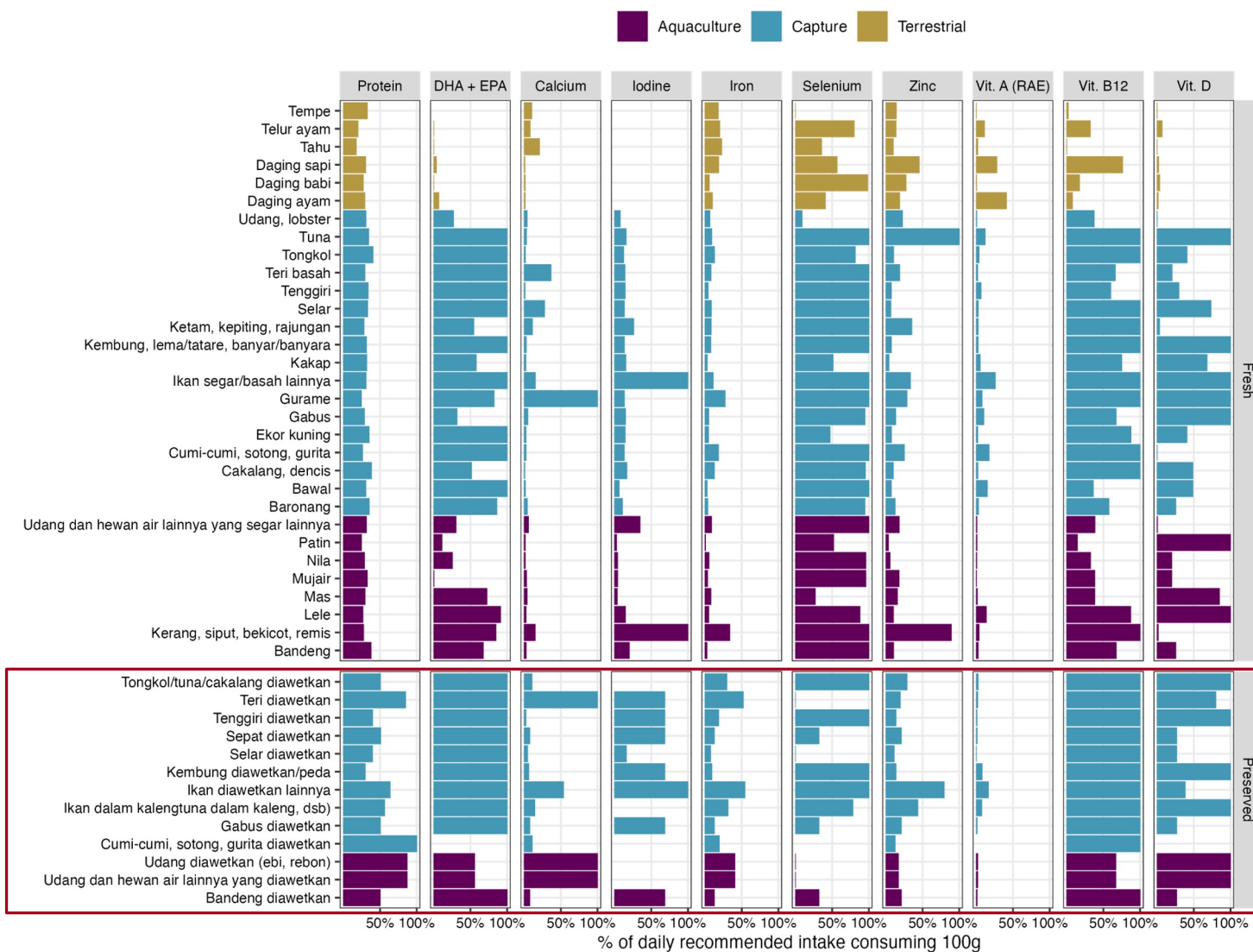
This small indigenous fish – mola - provides **35% of all zinc**,  
**56% of all iron** and **98% of all Vitamin A** in the Bangladesh diet.



# Blue foods vary widely in the nutrients they offer

## Calcium



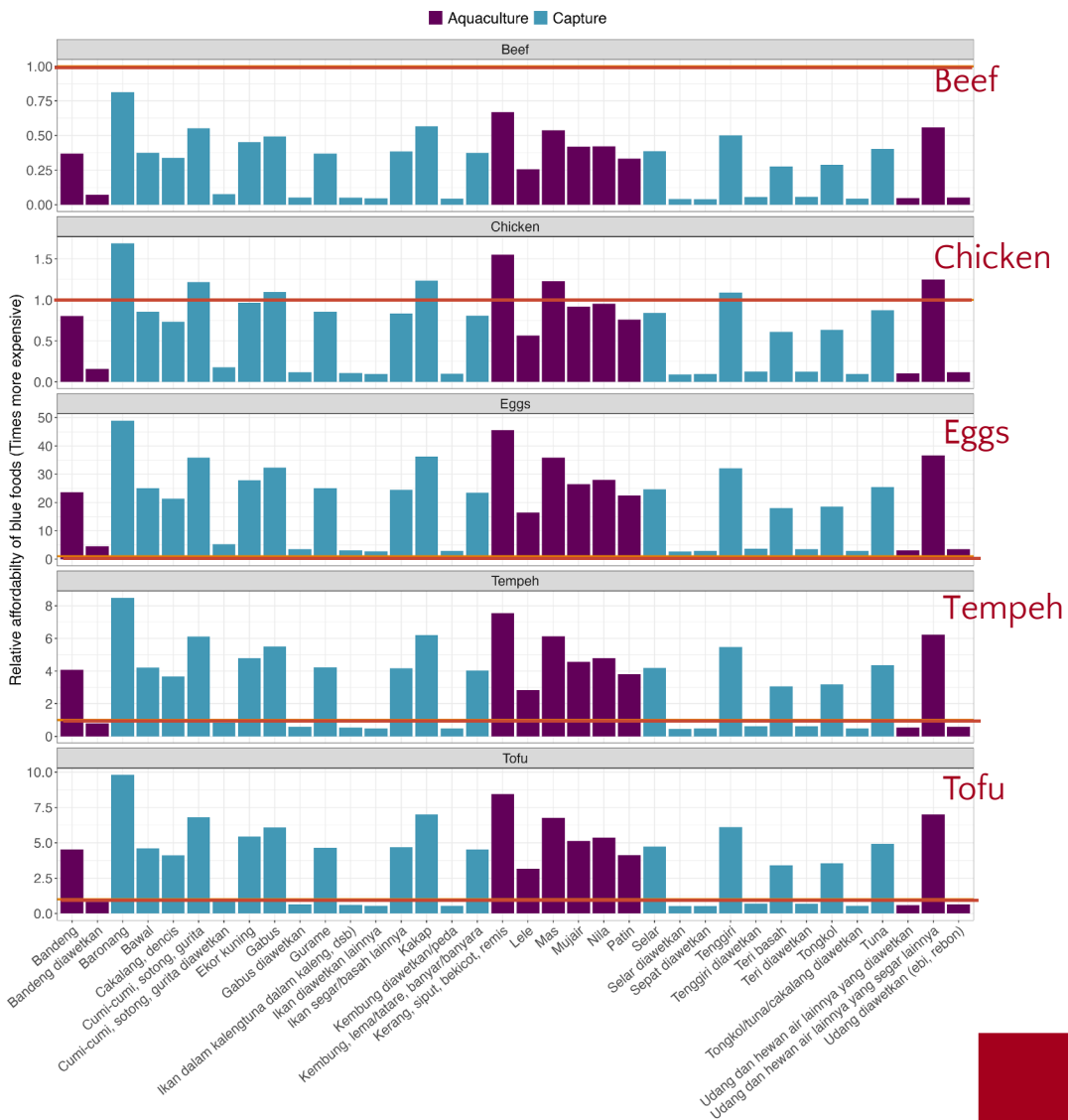


Sources: AFCD, SUSENAS 2022

Blue foods are more nutrient rich than many terrestrial species.

Preserved blue foods are most nutrient rich.



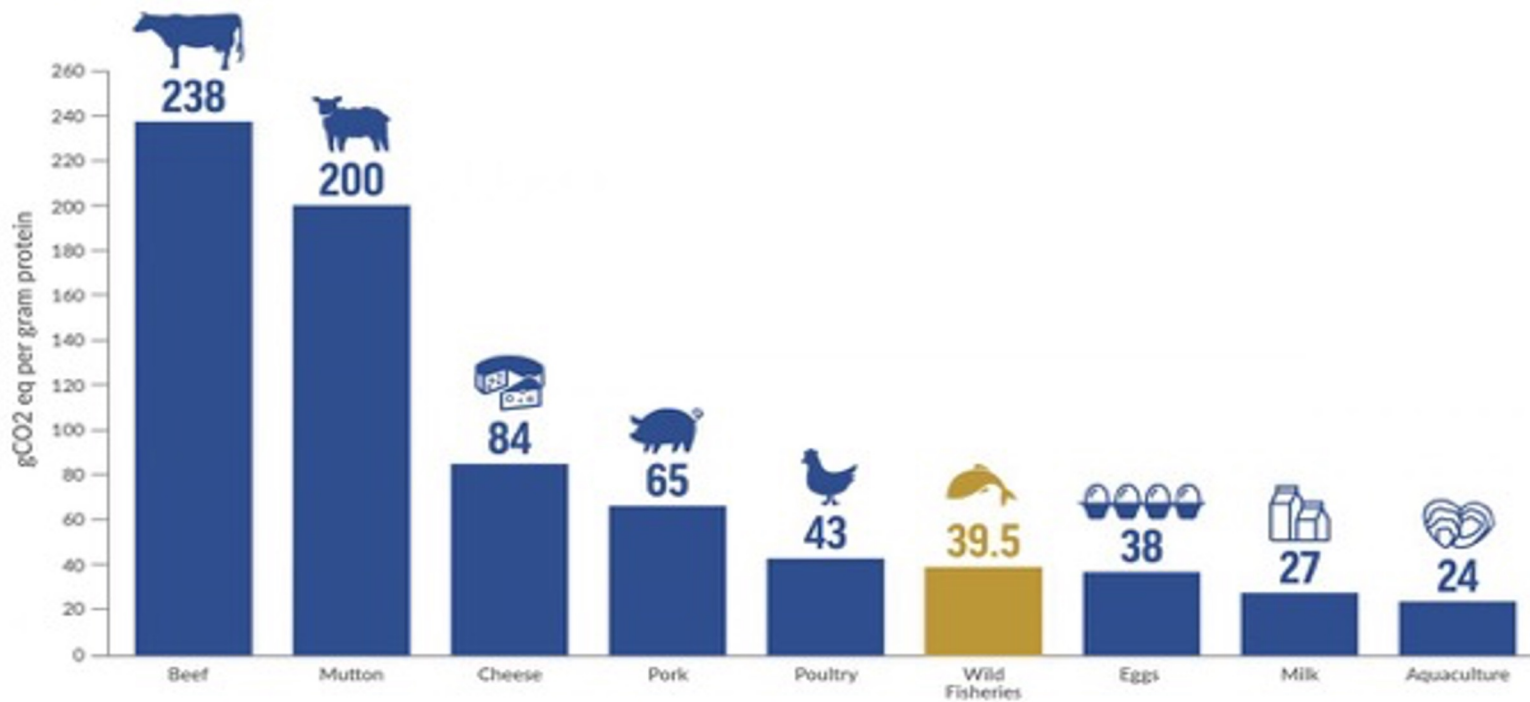


Most blue foods are much more affordable than beef, but are comparable to or cheaper than chicken.

Most blue foods are more expensive by weight than eggs, tofu, and tempeh – but they are also much more nutrient-rich.

Blue Foods have a lower carbon footprint  
than other animal-source foods

### CO<sub>2</sub>e Emissions of Protein Sources

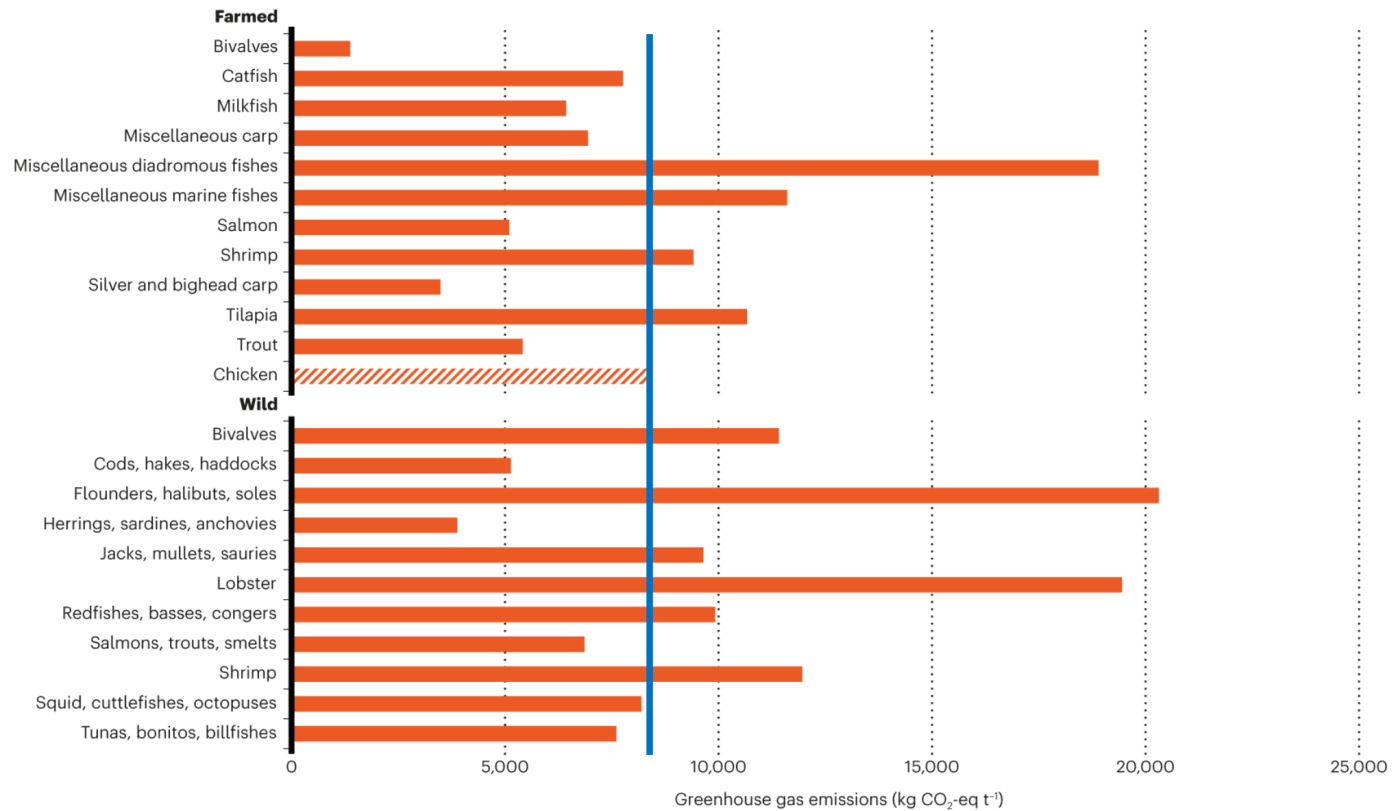


Petsko, 2021



And some blue food have very low footprints

## GHG Emissions





*Photo courtesy of Zeb Hogan*

Small-scale producers  
produce most of the  
blue food destined for  
human consumption



Women are half of the blue food workforce but are often unrecognized and excluded from governance







UNITED NATIONS  
FOOD SYSTEMS  
SUMMIT 2021



Dreamstime





Dreamstime

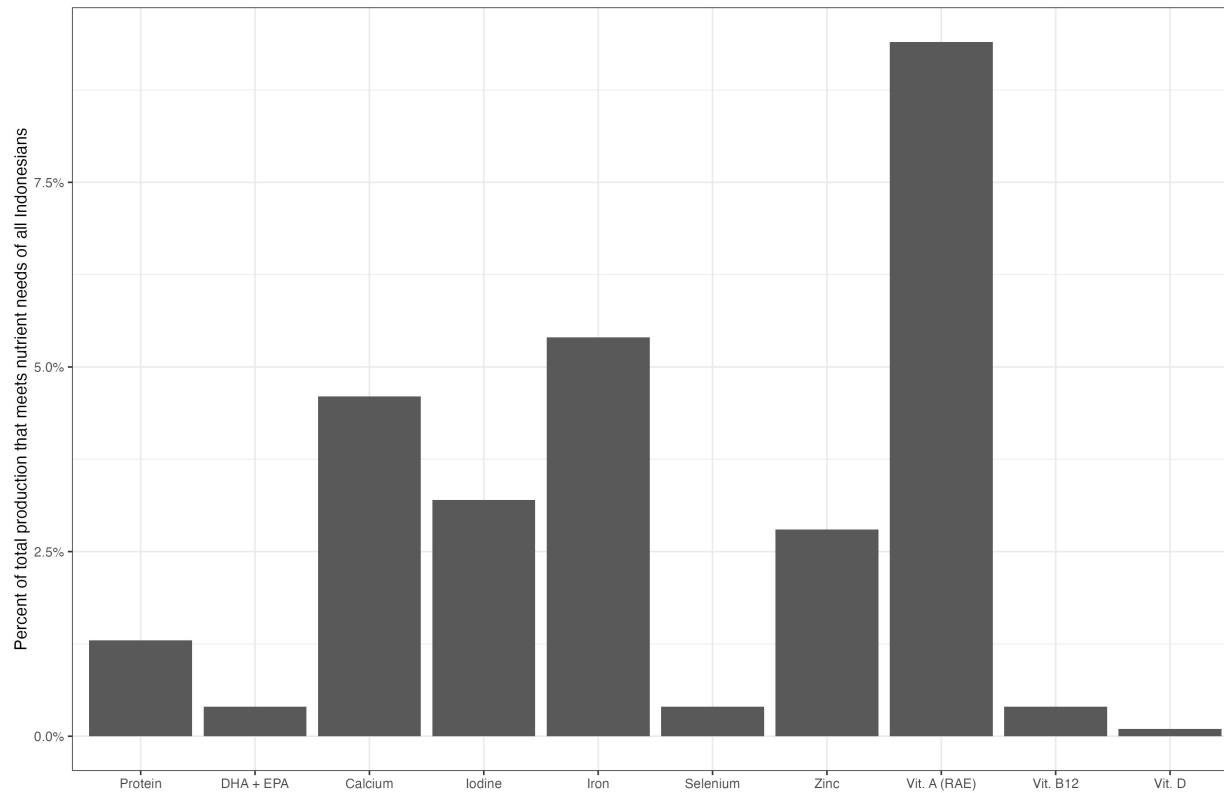


FOOD: An accessible, affordable source of vital nutrients  
A priority for healthy, sustainable, just food systems



- Address overfishing and IUU
- Support small-scale actors and [women](#)
- Factor nutrition into decisions about fisheries access, aquaculture development and export
- Include blue foods in
  - dietary guidelines
  - social safety net and nutrition programs
  - school meal programs

# Opportunities for Public Health and Nutrition



A small fraction of blue food production could provide all Indonesians with their nutrient needs

[Based on KKP data for catch by the Indonesian fleet in 2022]

# CLIMATE: Opportunities for reducing food system emissions

- Reducing emissions in existing systems
  - Fisheries management
  - Cleaner vessels
  - Feed conversion & sourcing
- Reducing loss and waste
- Changing consumption
  - Investing in low-carbon species/systems
  - Shifting diets





# CLIMATE: An important part of food system resilience

- Blue food systems are priorities for investment in adaptation
  - Addressing changes in distribution and productivity
  - Conserving coastal ecosystems
- Diversity offers options for new, more resilient blue food systems
- Including blue foods in food system adaptation strategies can improve overall resilience





## Blue Foods Serve Multiple SDG Priorities



Nutrition



Net Zero



Development



Inclusion



