

The Role of Shellfish in the UK Diet

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Shellfish Association of Great Britain
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RESAS

Rural & Environmental Science
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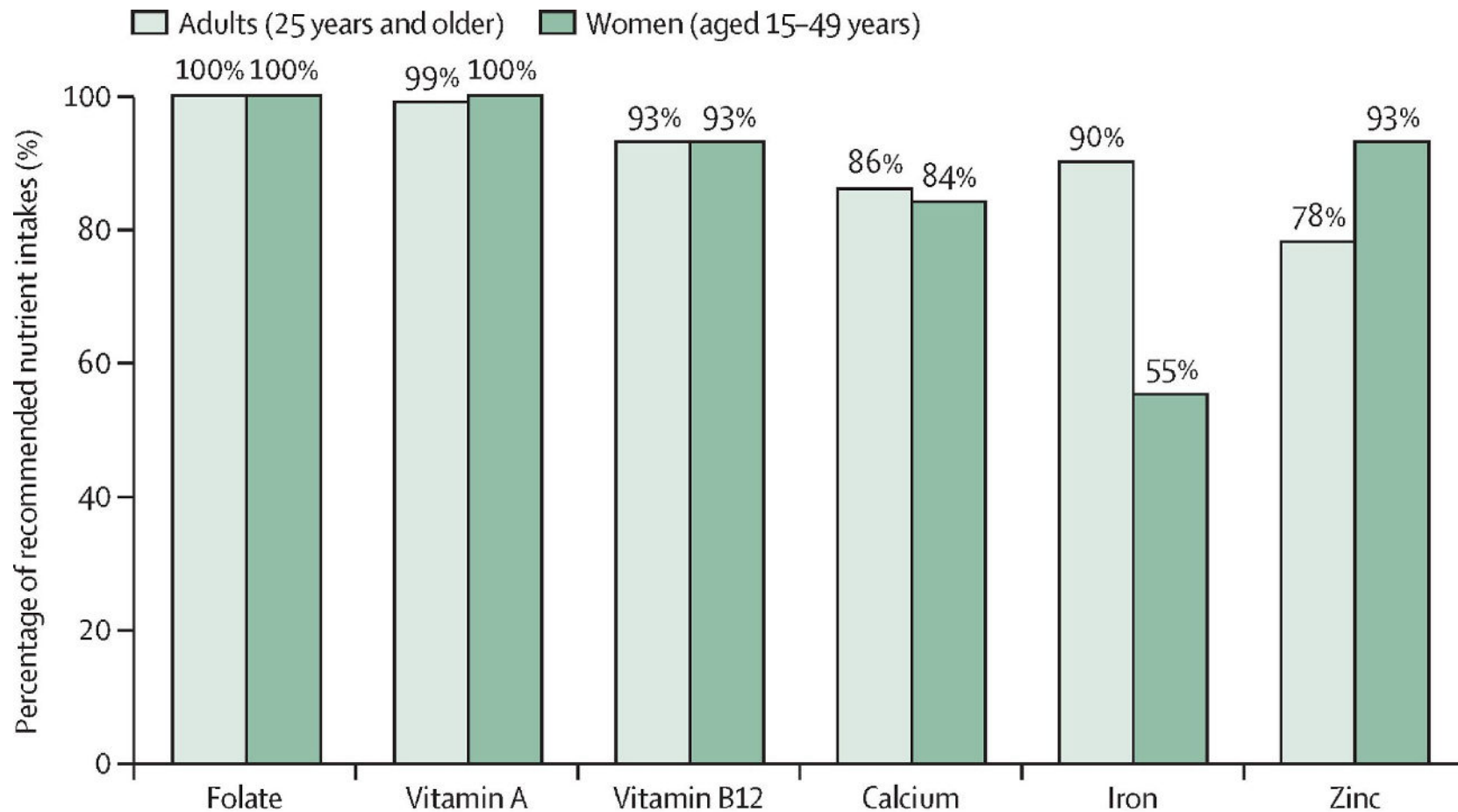
Achieving for net-zero food systems

- ~ 30% of global greenhouse gas emissions are associated with the food system
- Need to achieve net zero by 2050
- Dietary shifts part of the solution needed
- Adopt plant-rich diets, moderate amounts of meat, dairy, and eggs

Need a food system that is **healthy** and **sustainable**



Planetary health diet insufficient in some nutrients



- Consumption of plant rich diets increasingly recommended
- Such diets can be insufficient in vitamin B₁₂, calcium, iron and zinc
- Increased intake of fish and shellfish (including crustaceans and bivalves) could offer the nutrients that such diets lack

Beal et al (2023). *The Lancet*

Findings: The EAT–*Lancet* planetary health diet insufficient in vitamin B₁₂, calcium, iron, and zinc

Health benefits of shellfish

Protein



Lean source, low
in saturated fat



Omega-3



Low to moderate
consumption prevents
mortality from coronary
heart disease



Vitamins
D and B₁₂



Important dietary
source for growth
and bone health



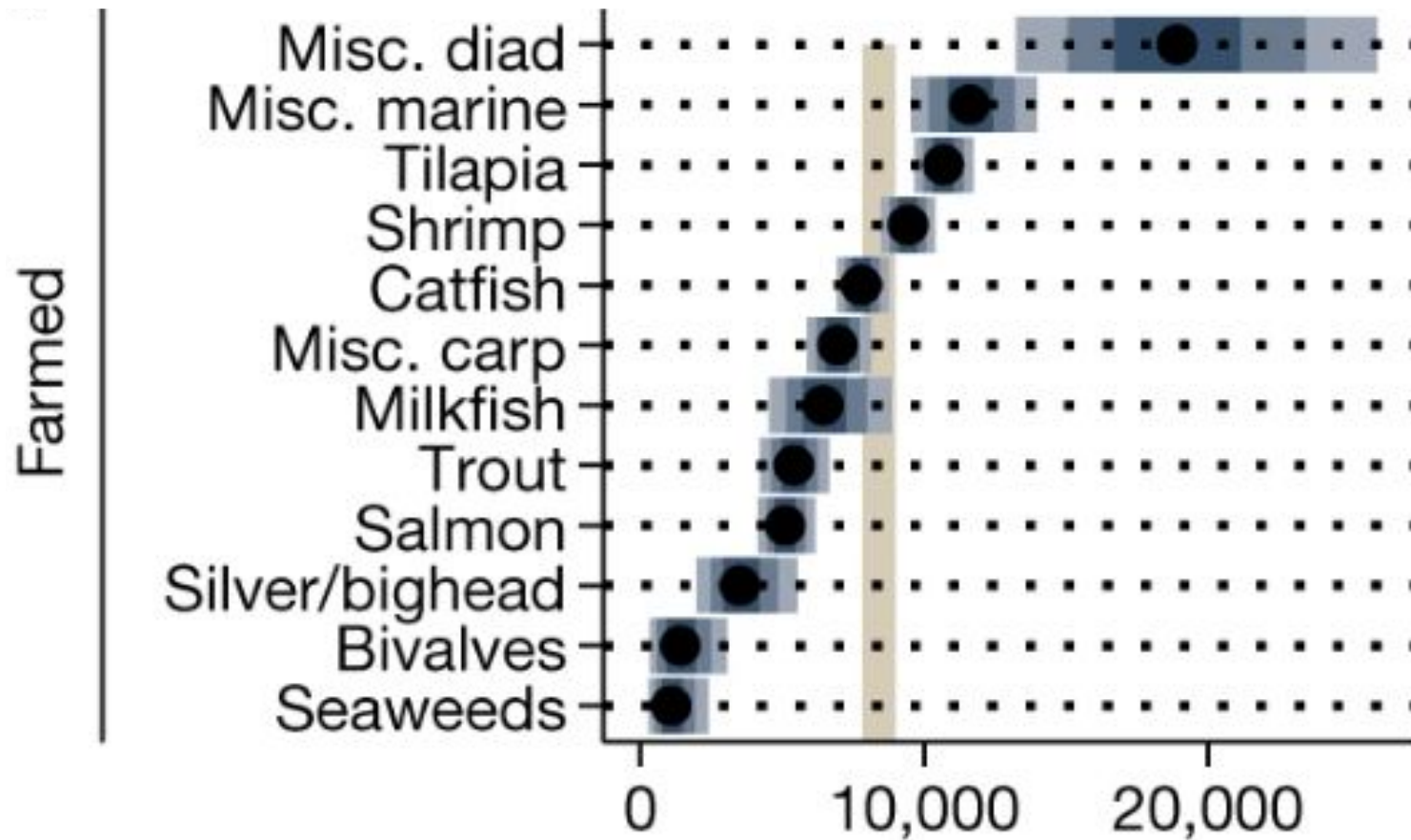
Micro-
nutrients



Calcium, copper, iron,
selenium, and zinc
essential for growth
and development



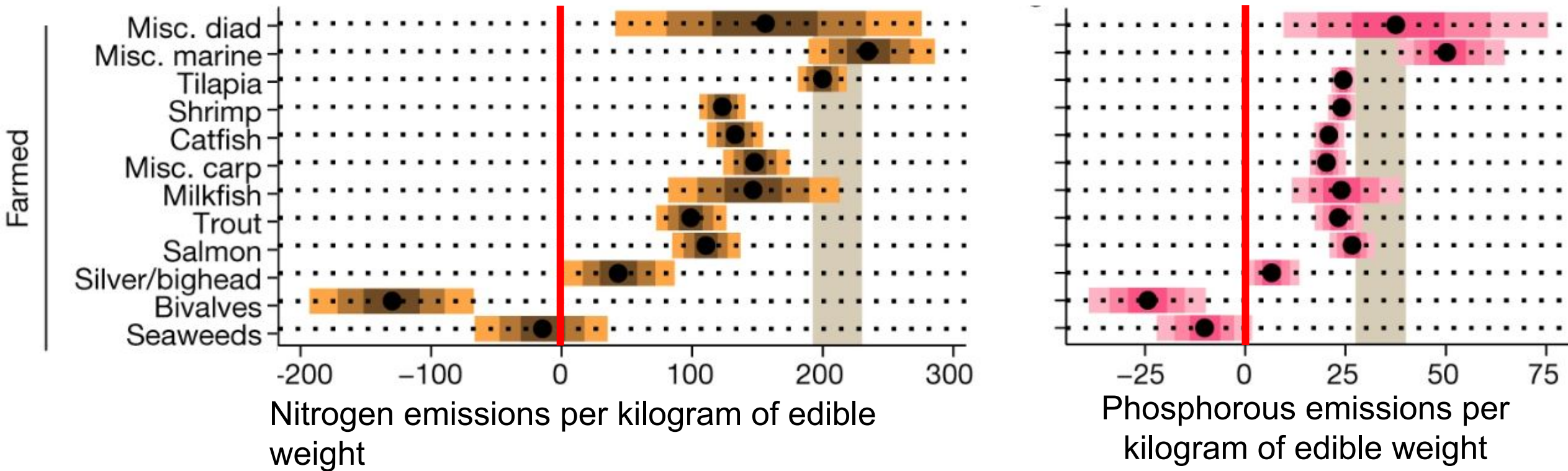
Farmed bivalves and seaweeds generate the lowest stressors



Findings: Across all blue foods, farmed bivalves and seaweeds generate the lowest GHG emissions per kilogram of edible weight

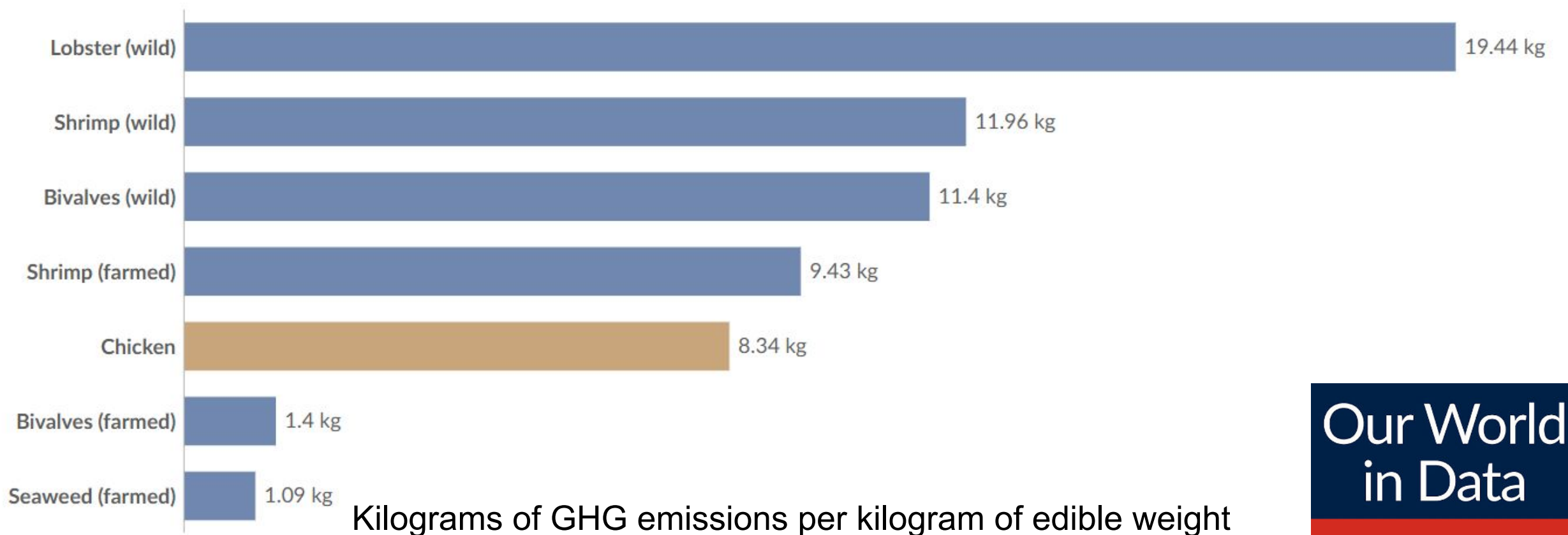
* Blue foods defined as fish and other aquatic foods

Farmed bivalves and seaweeds generate the lowest stressors



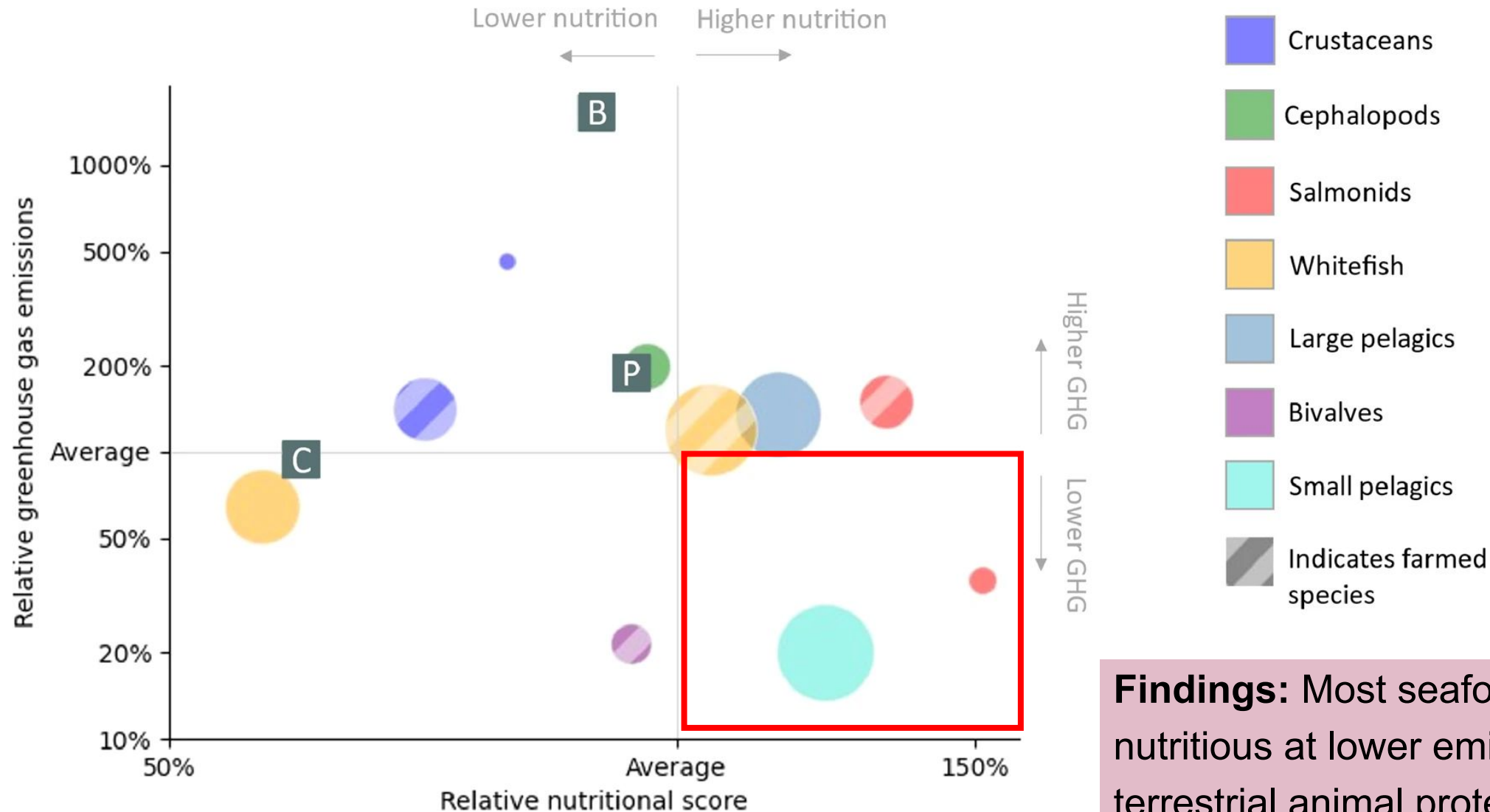
Findings: Across all blue foods, farmed bivalves and seaweeds generate the lowest stressors (including greenhouse gas emissions, nitrogen, and phosphorous, water use and land use)

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Seafood more nutritious at lower emissions

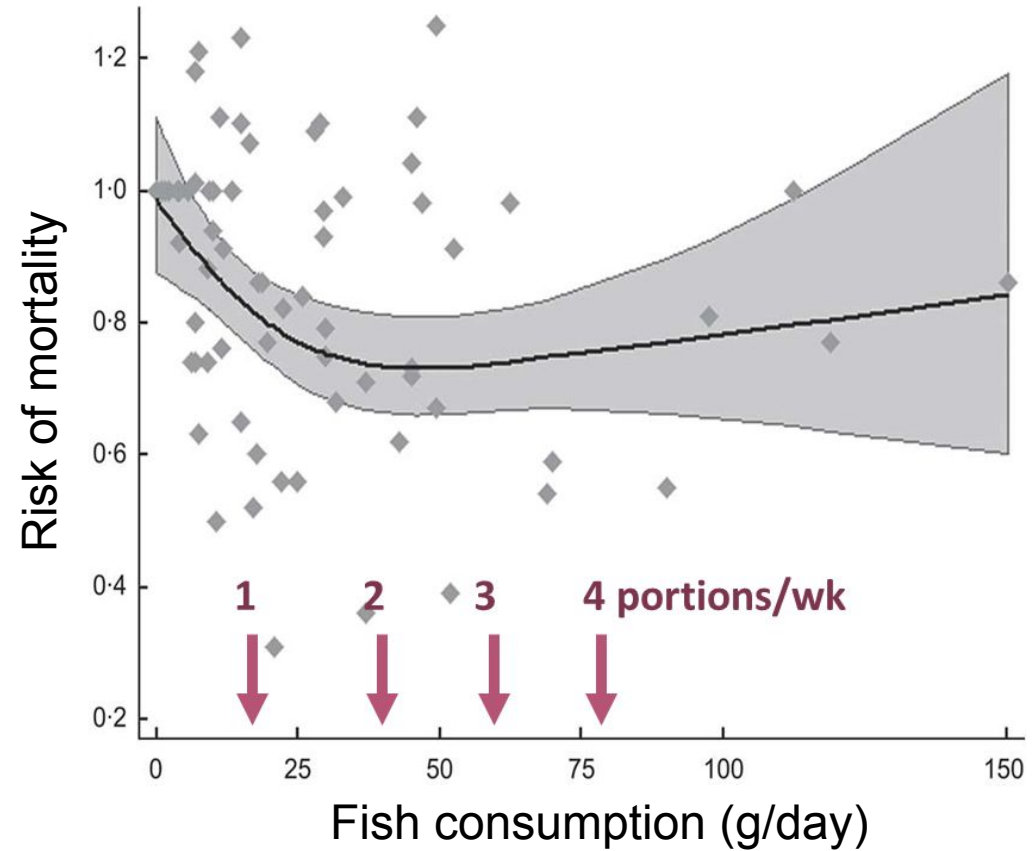


Findings: Most seafoods more nutritious at lower emissions than terrestrial animal protein sources

Dietary guidelines for fish consumption



Zheng J et al (2012). *Public Health Nutrition*



Findings: Either **low** (1 serving/week) or **moderate** fish consumption (2-4 servings/week) had a beneficial effect on the prevention of cardiovascular disease mortality by 16% and 21%, respectively

Omega-3 not as bioavailable in supplements

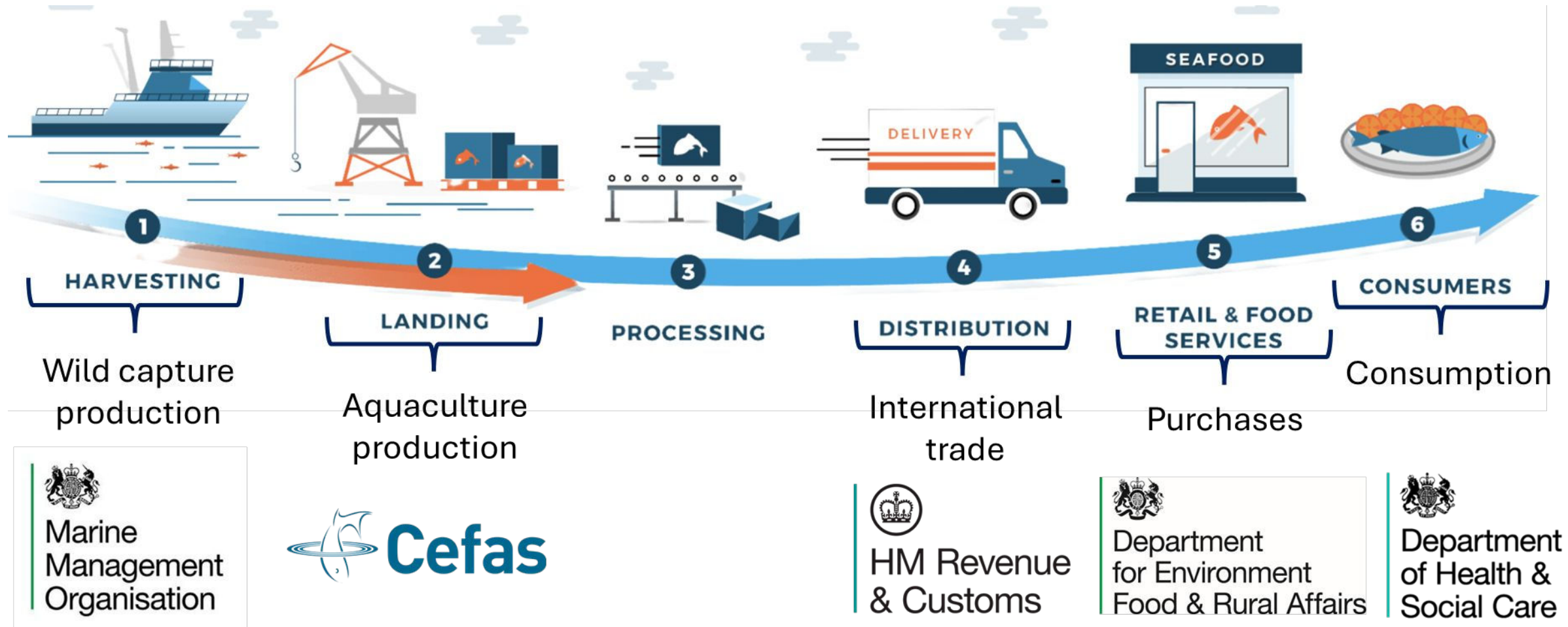
Study reviewed randomised trials of increasing fish and plant-based omega-3 fats on cardiovascular disease

Abdelhamid et al (2020). Cochrane

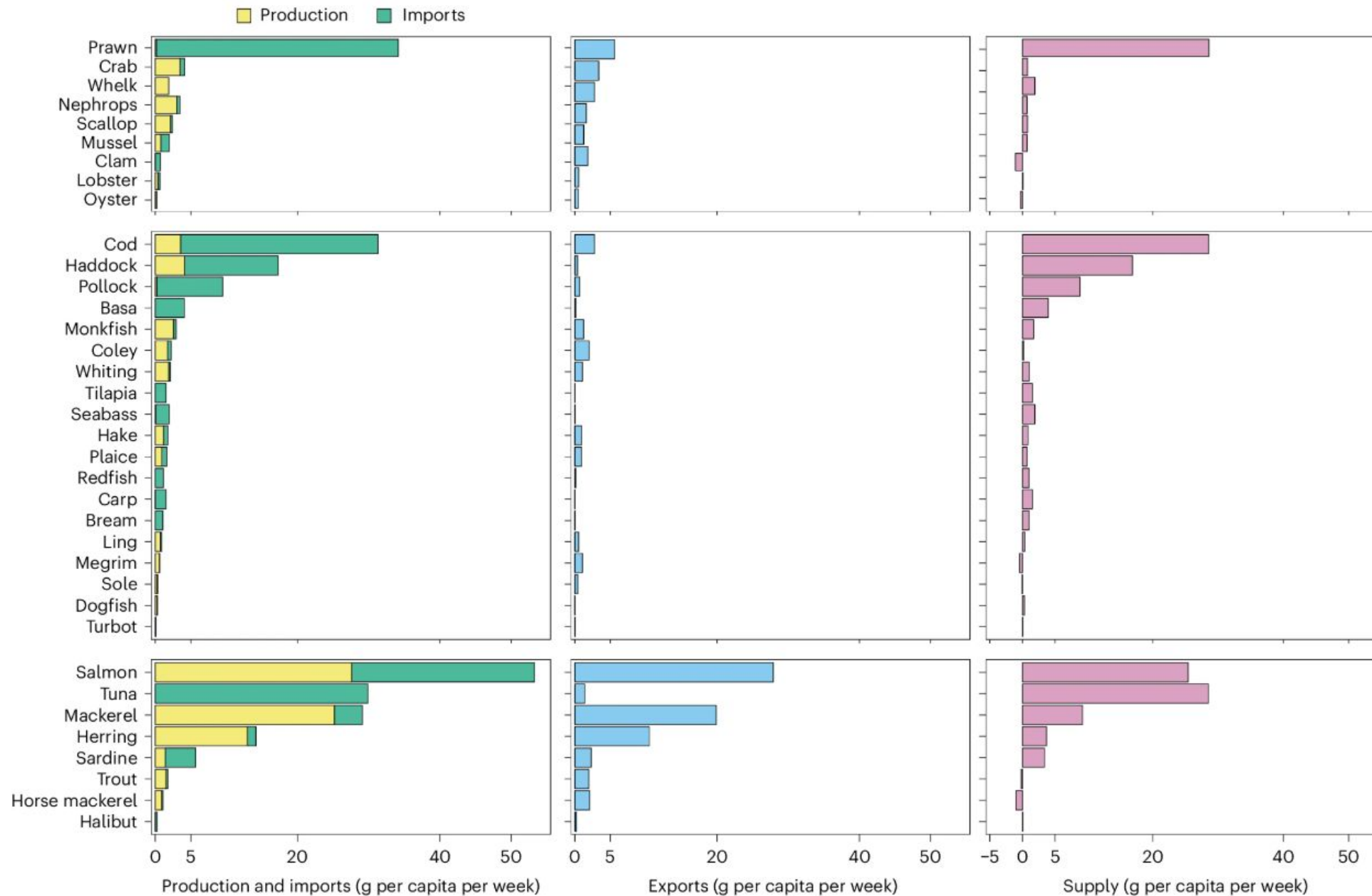


Findings: Omega-3 supplements probably not beneficial for preventing or treating cardiovascular disease: **1000 people** would need to take omega-3 supplements for **4 years** so that **three** of those people would avoid a coronary heart disease event

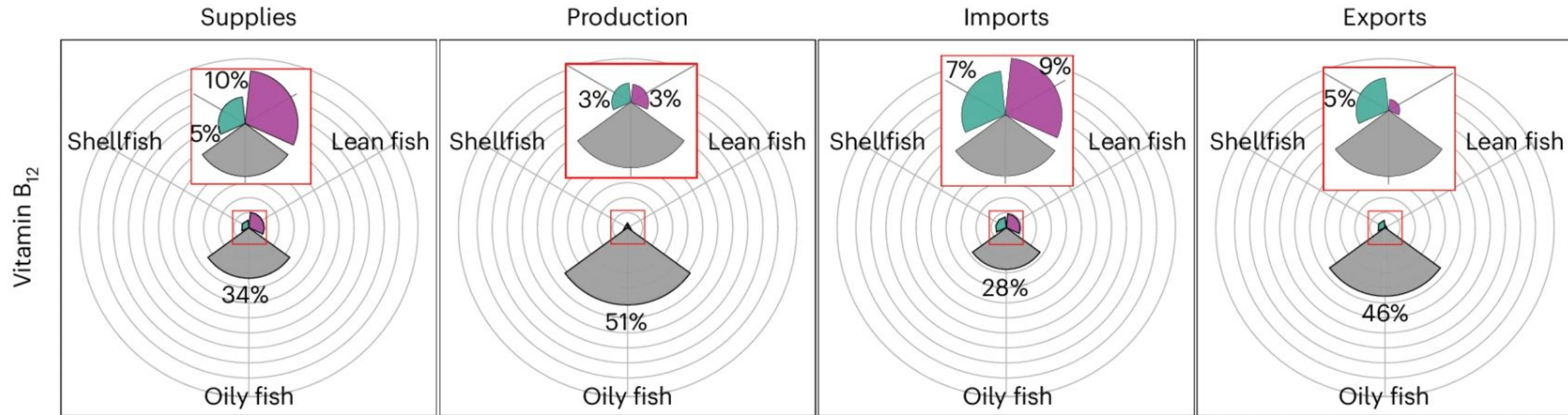
Mapping UK seafood supplies



The UK is a net importer of seafood



Large nutrient losses from seafood through trade

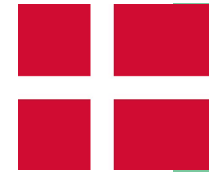


Löfstedt et al (2025). Nature Food

Findings: The UK experiences large losses in nutrients from seafood through international trade, notably **omega-3 fatty acids** and **vitamin B12**. Such nutrient losses primarily occur through exports of oily fish (herring, mackerel, and salmon). Retaining more exports of oily fish for domestic consumption could contribute significantly to achieving recommended nutrient intakes

Include shellfish in dietary recommendations?

UK dietary recommendation is to consume at least two portions of fish per week, of which one should be oily



→ Eat 350 g of fish per week, of which 200 g is oily fish*. Oily fish include for example, herring, mackerel, salmon and trout. It is important to eat different types of fish. All kinds of fish, shellfish and roe count in the 350 g.



Consume at least **3 servings a week**, prioritising oily fish (blue: sardines, anchovies, mackerel, scad, etc.; white: haddock, whiting, cod, etc.; seafood: mussels, etc.).

Portion: 125-150 g. Example: 1 single fillet or several units of seafood.

Bringing bivalves back



- Barriers to bivalve consumption
 - Flavour preferences
 - High perceived price
 - Low convenience
 - Lacking food literacy
- Frozen mussel meat is among the cheapest meat products available in the UK
- Seafood consumption is substantially lower in low-income groups
 - ~ half that of high-income groups

Bringing bivalves back

Role of convenience? Product innovation and reformulation



Securing a sustainable shellfish future

We can secure a sustainable shellfish future by:

1. Increasing demand for locally-caught shellfish through product innovation and reformulation
 - Focus on lower-income groups
 - Investment in processing infrastructure?
2. Developing fisheries and public health policies that promote increased consumption of locally produced shellfish species
3. Diversifying UK fish consumption towards local, nutrient-rich species could reduce import reliance while supporting local fishing communities
 - Building resilience in the UK seafood sector and boost the health of our nations



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Nutritious and low carbon diets

