



INFOCUS WEBINAR: SUSTAINABLE AQUAFEED?

THE DEVIL IS IN THE DETAIL

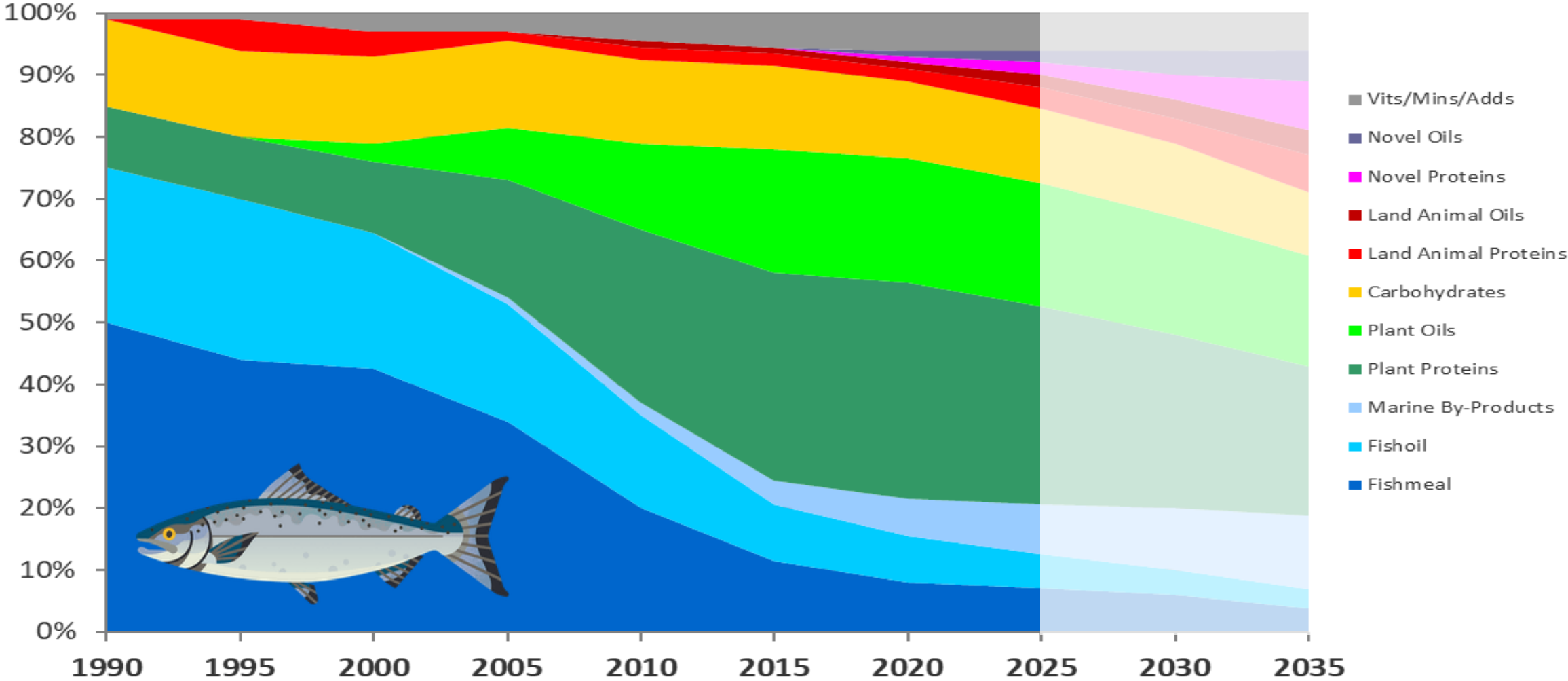


Environmental footprint of Aquaculture feed

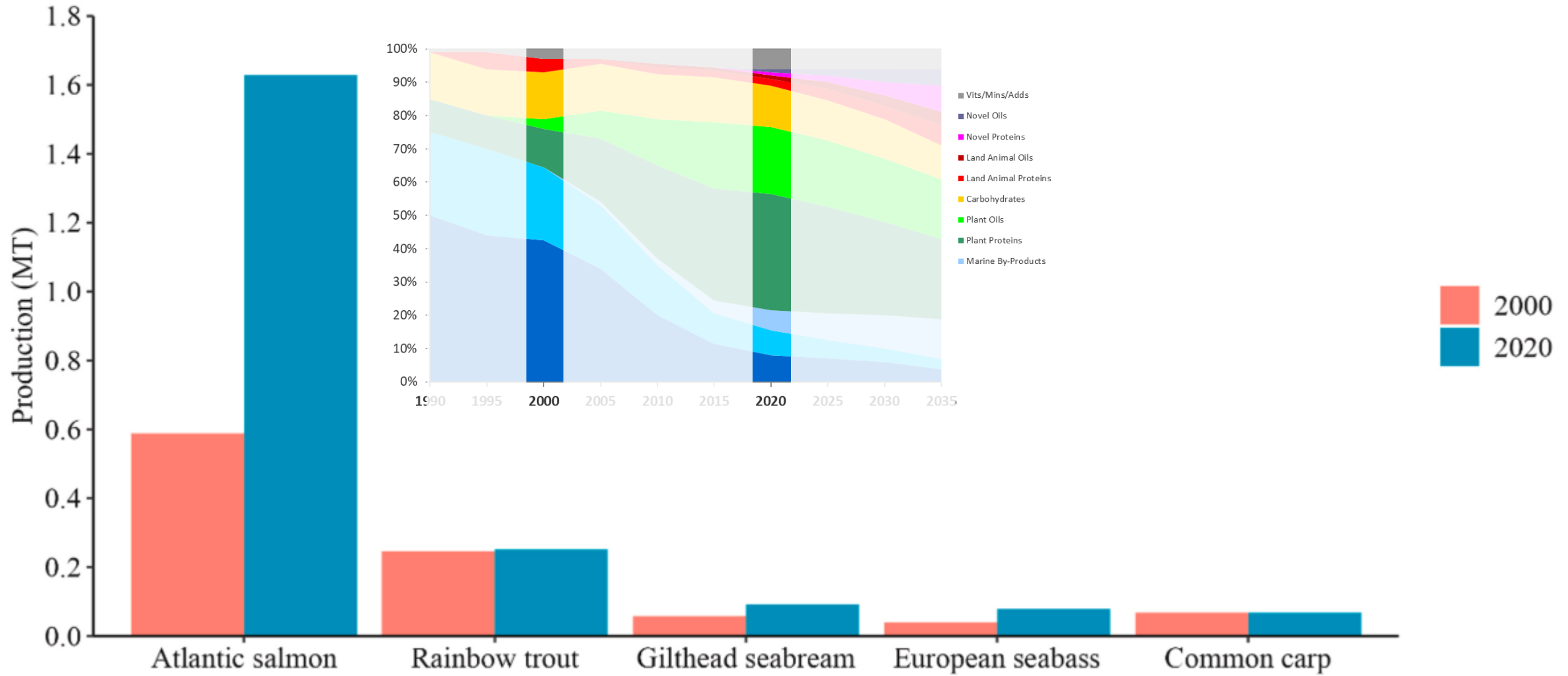
Carbon footprint contribution (%) (approximate)

	Feed	Other stages
Salmon	70%	30%
Shrimp	40-60%	40-60%

Feed has been changing



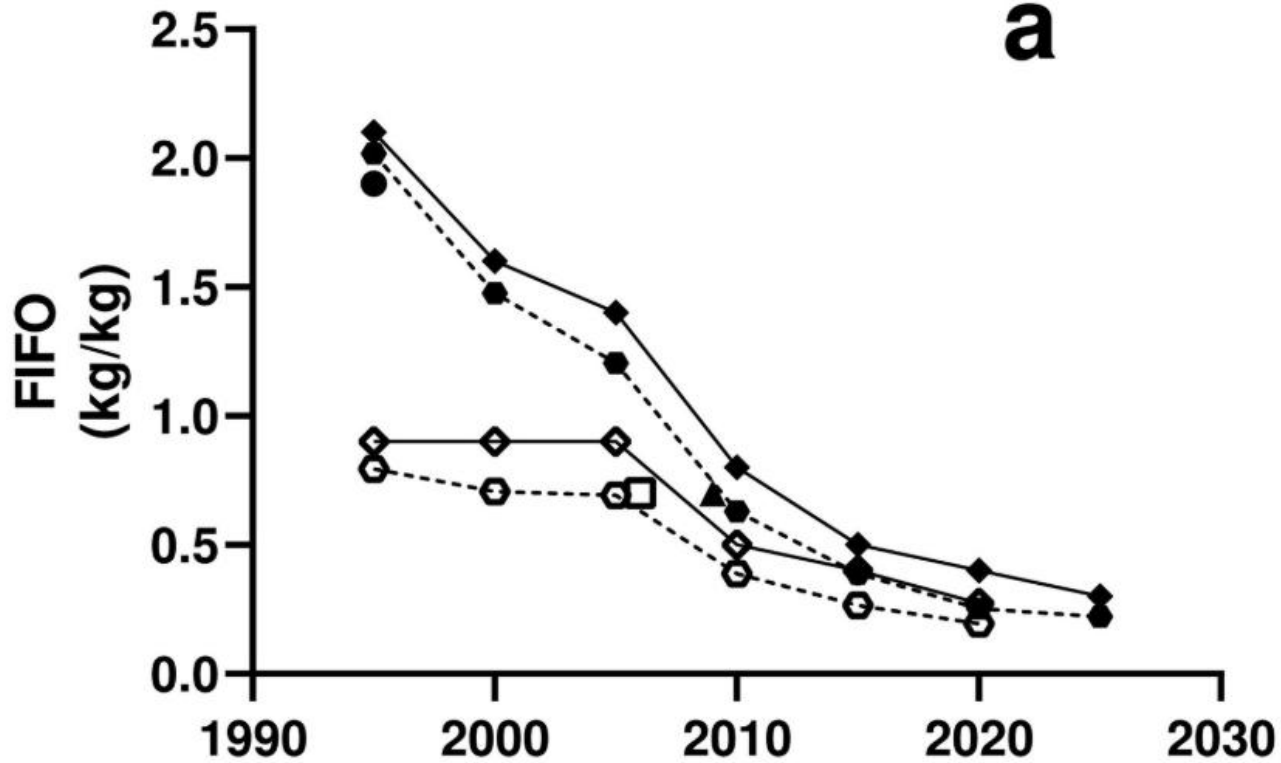
Source: IFFO



Fish In: Fish Out

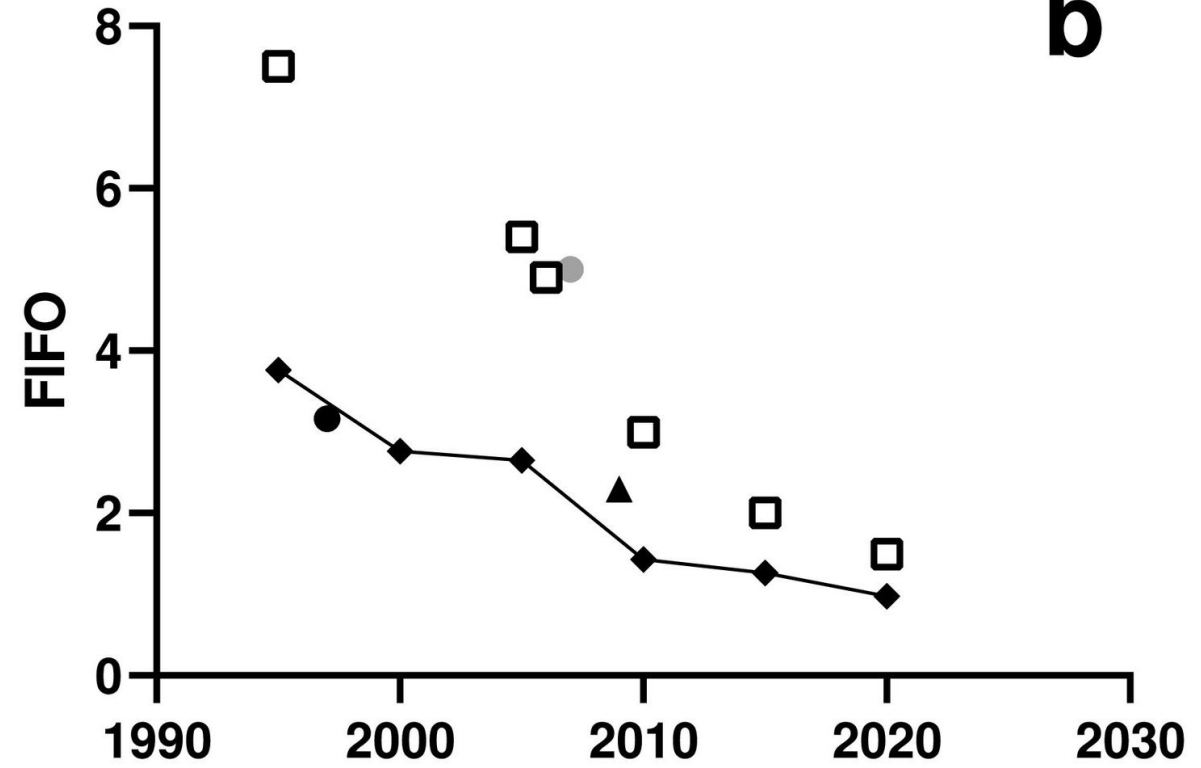
Global aquaculture

a



Salmon

b



Methodology

- Index Decomposition Analysis (IDA)
- European aquaculture (EEA + UK)
- 5 key species (~96% of production)
 - Atlantic salmon
 - Rainbow trout
 - Gilthead seabream
 - European seabass
 - Common Carp

Methodology

- Environmental indicators:
 - Wild fish use
 - Global warming (GHG emissions)
 - Land use
 - Water consumption
 - Marine & freshwater eutrophication.

Total amount of wild fish use declined:

-13%

On a single metric, this looks like clear progress.

But considering multiple environmental impact categories,
a different story emerges.

Greenhouse gas emissions : **+314%**

Land use: **+594%**

Water consumption: **+236%**

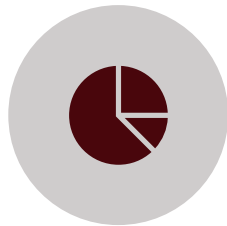
Marine eutrophication: **+630%**

Freshwater eutrophication: **+468%**

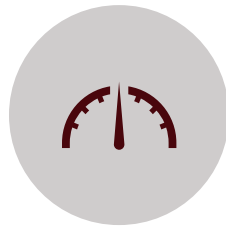
Decomposed total change into:



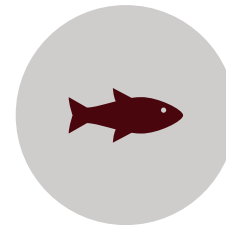
PRODUCTION
GROWTH
(VOLUME)



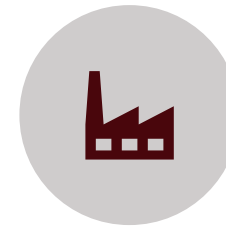
FEED
COMPOSITION



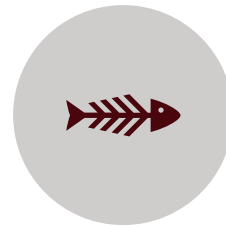
FEED
EFFICIENCY
(EFCR)



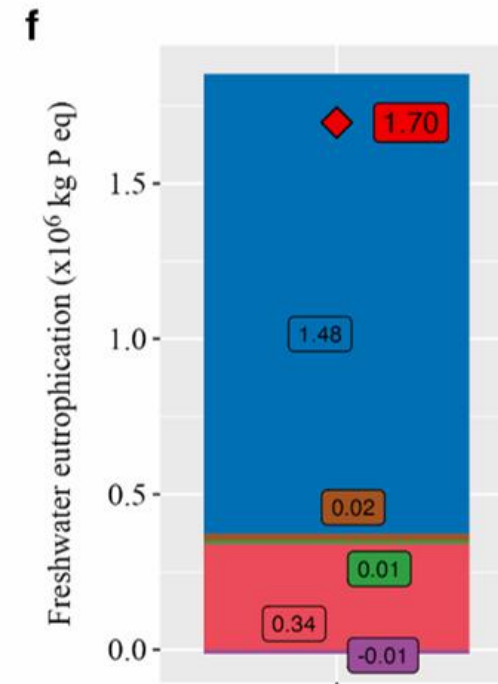
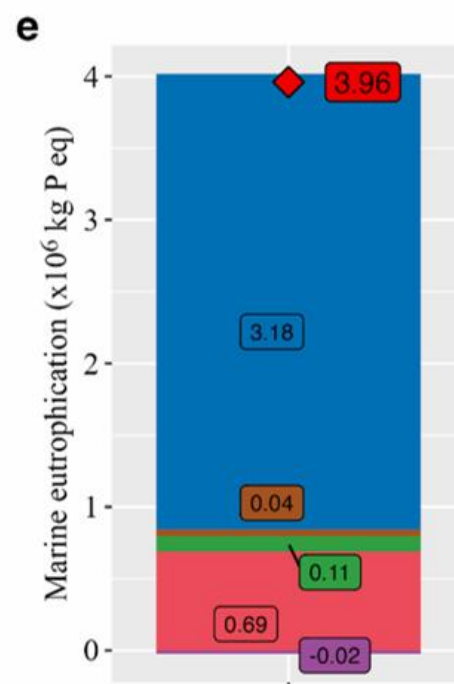
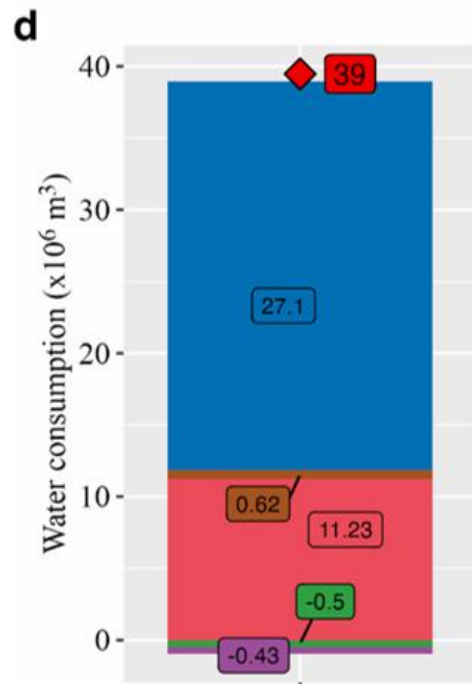
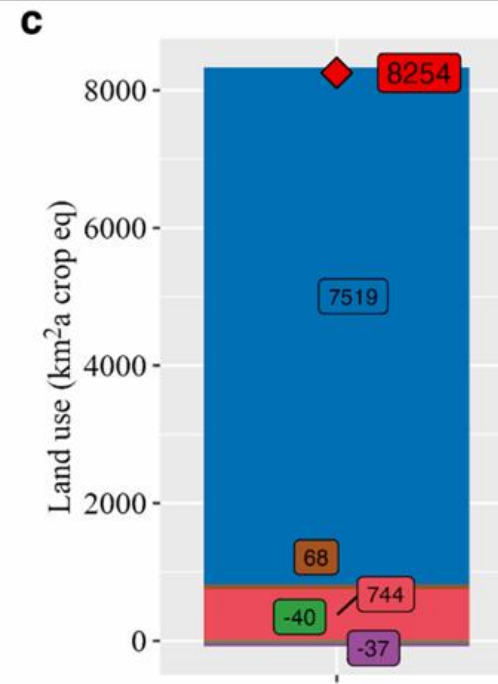
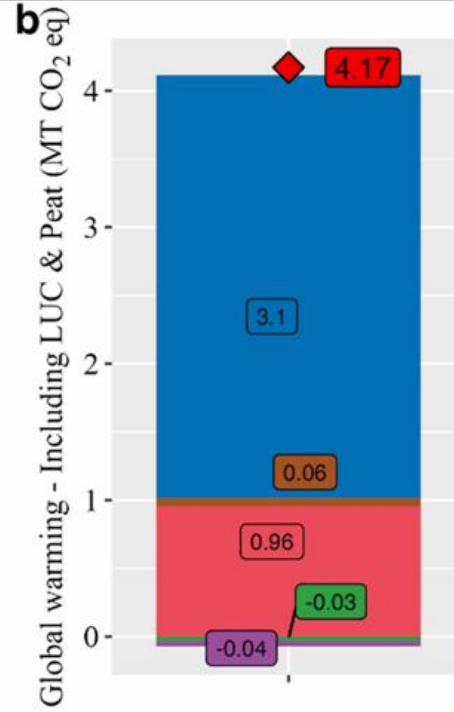
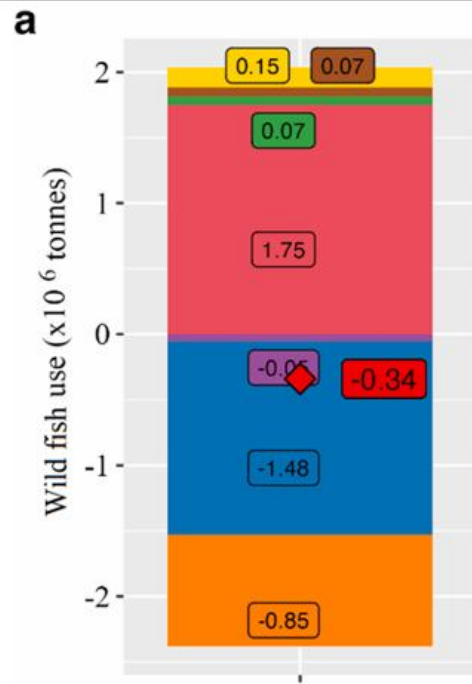
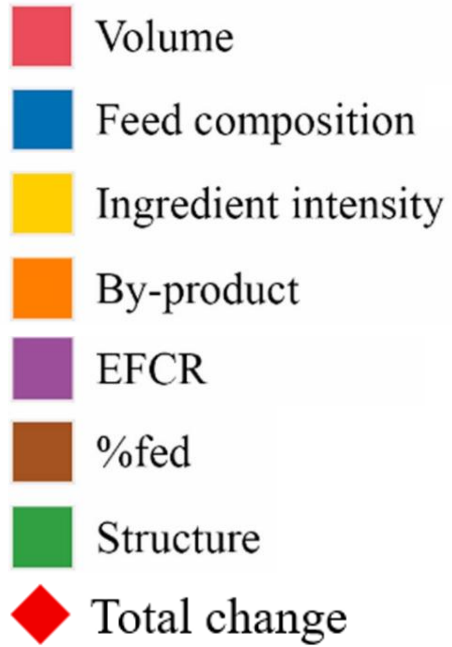
SPECIES
STRUCTURE

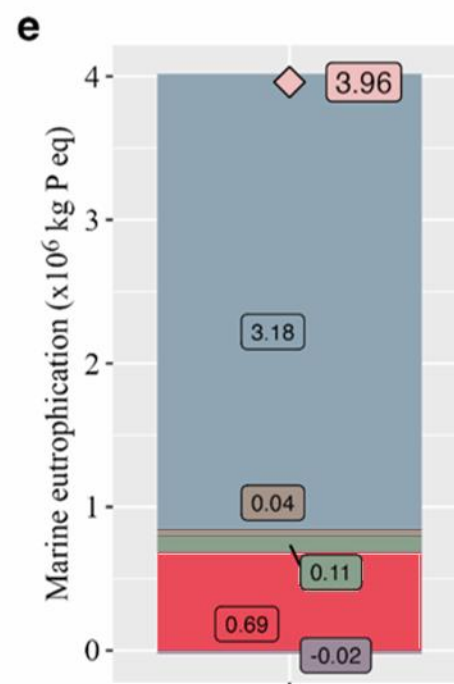
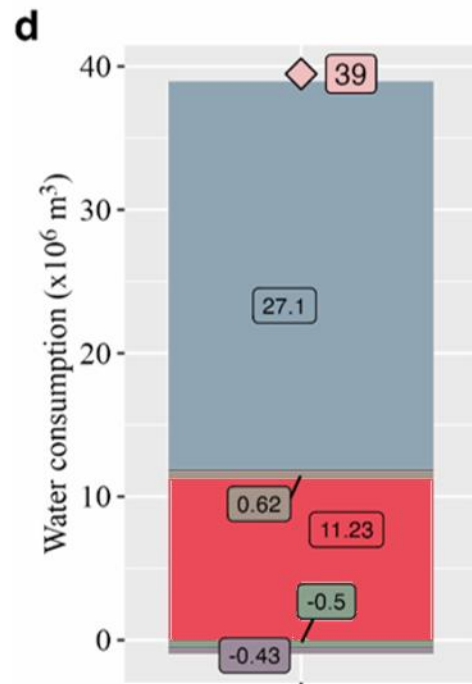
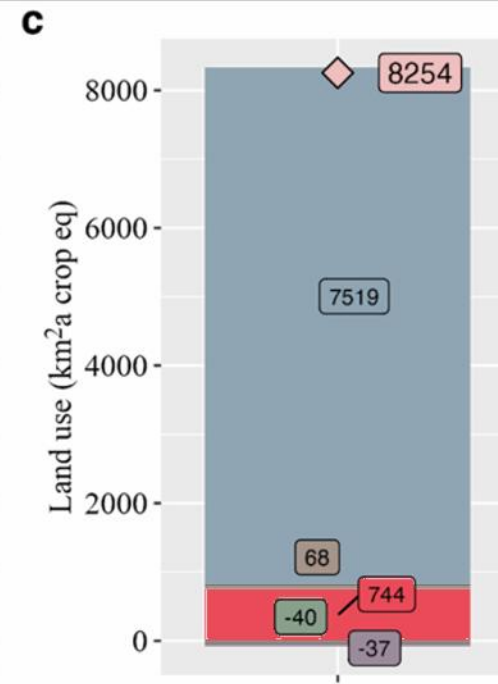
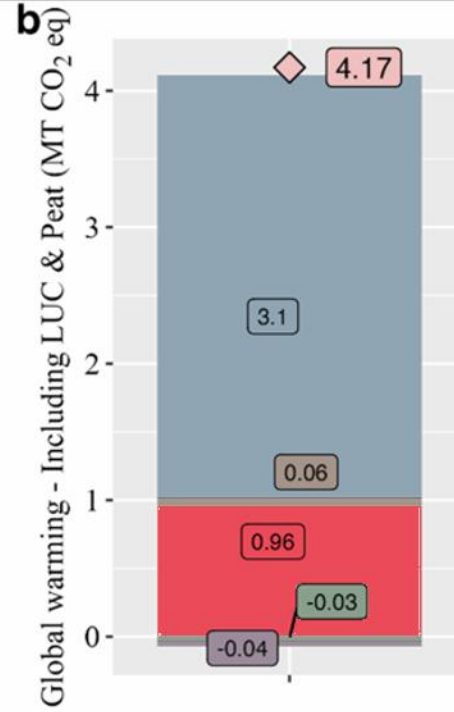
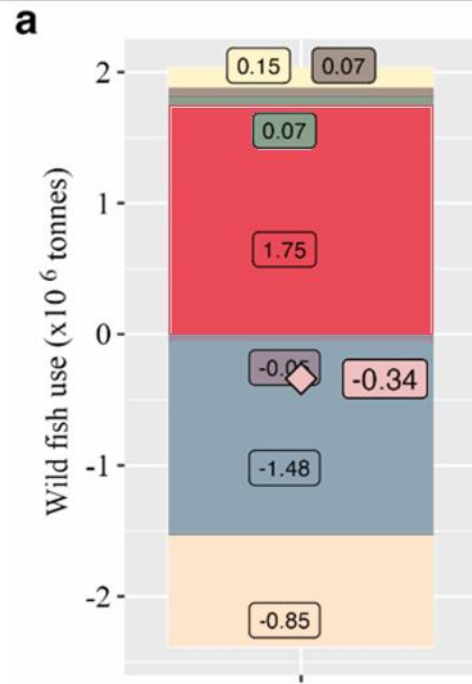
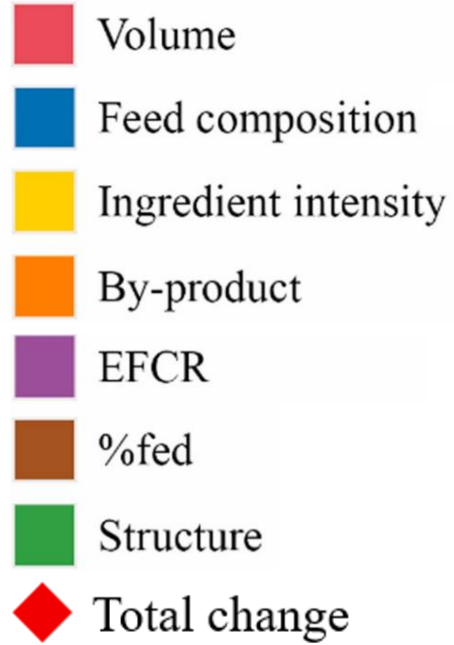


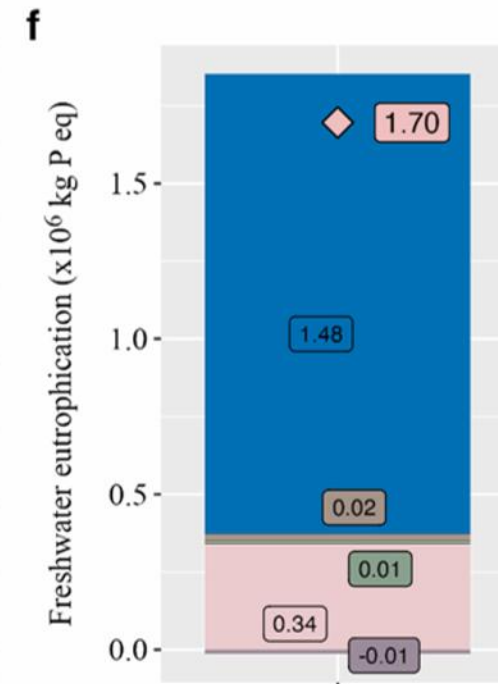
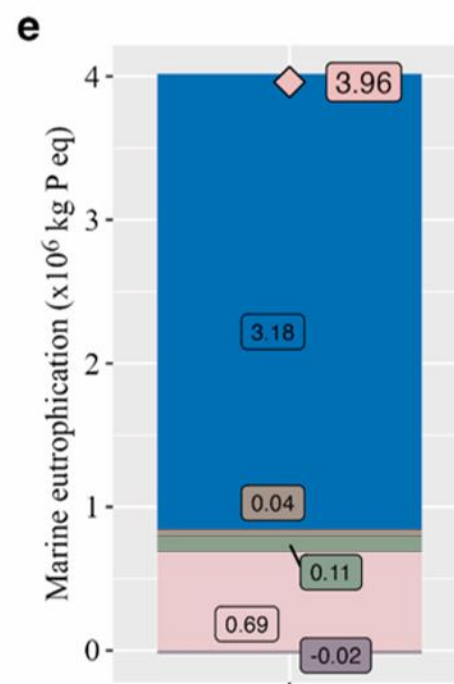
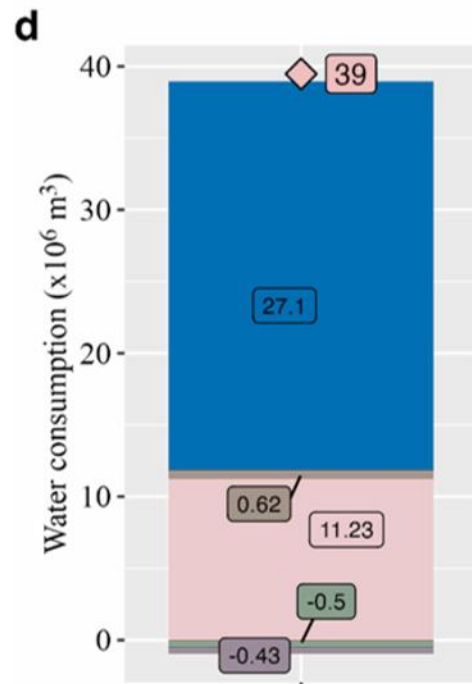
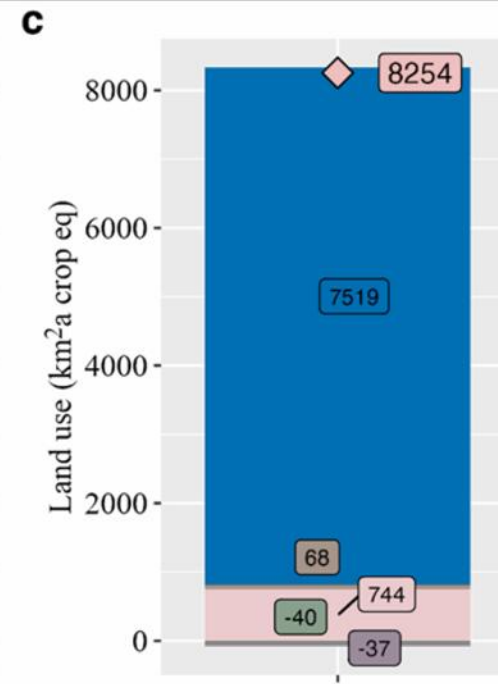
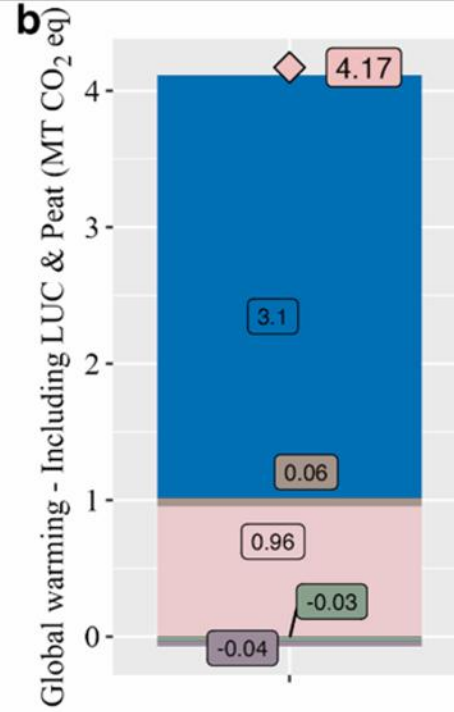
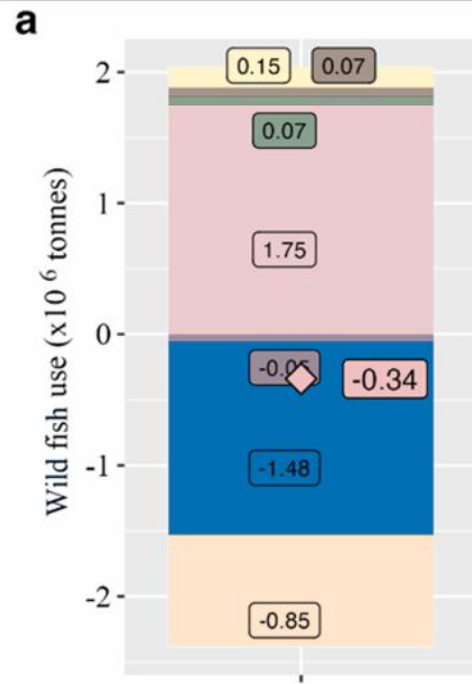
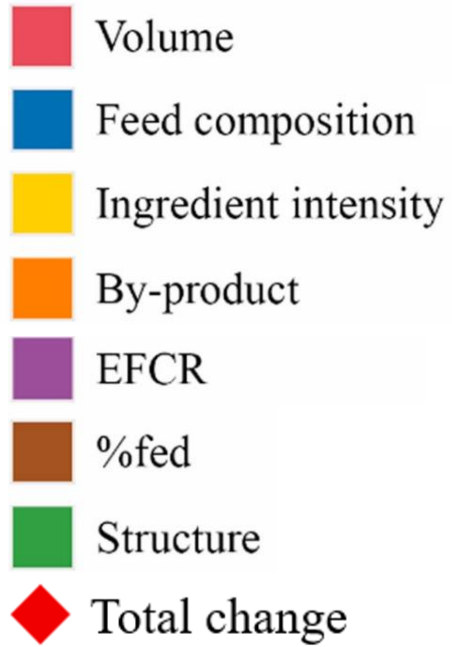
INGREDIENT
PRODUCTION

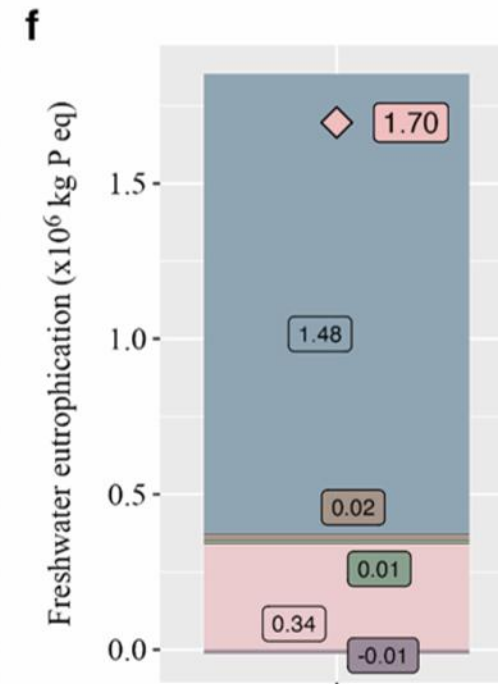
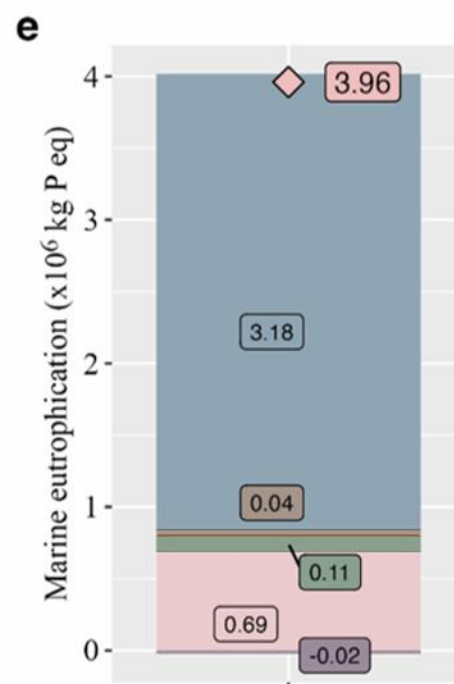
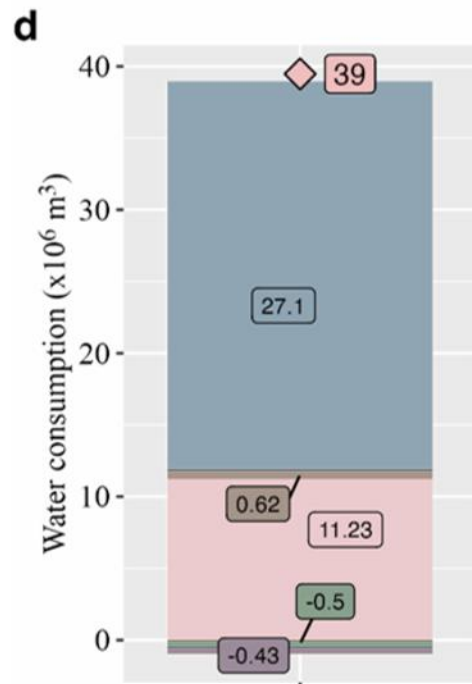
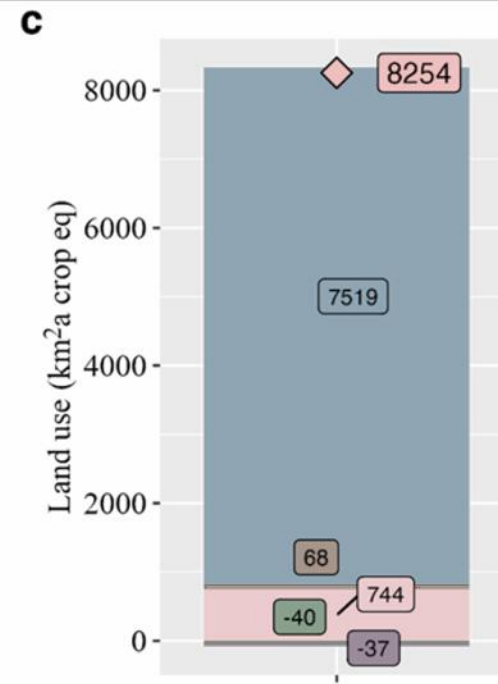
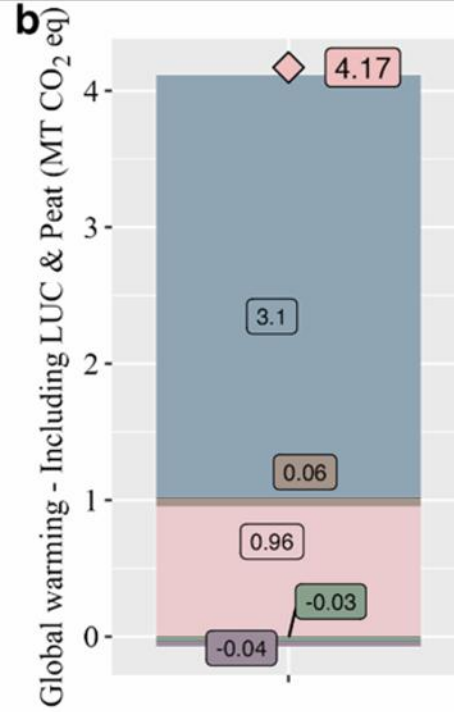
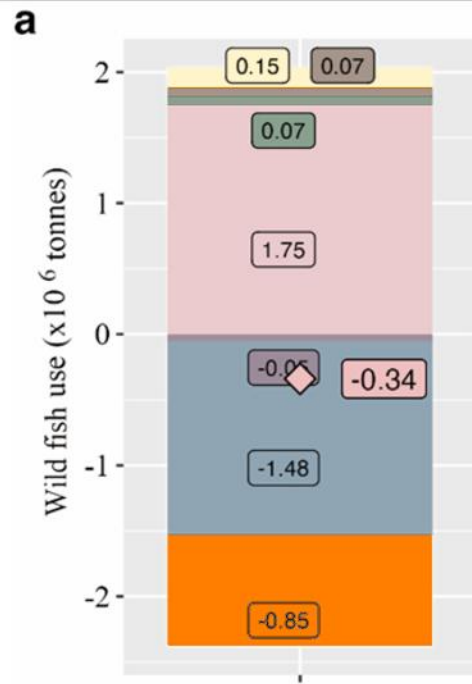
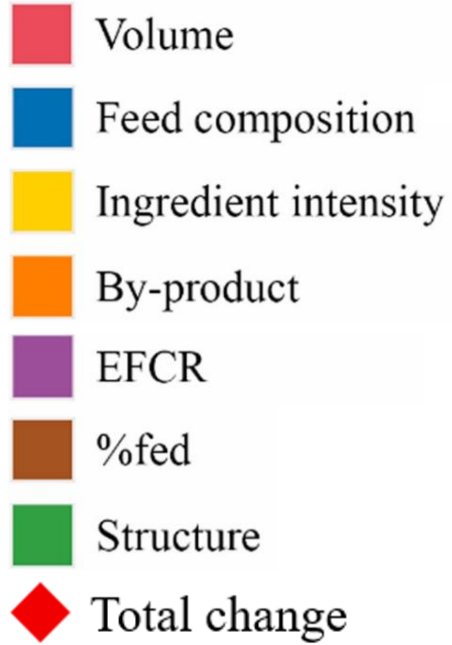


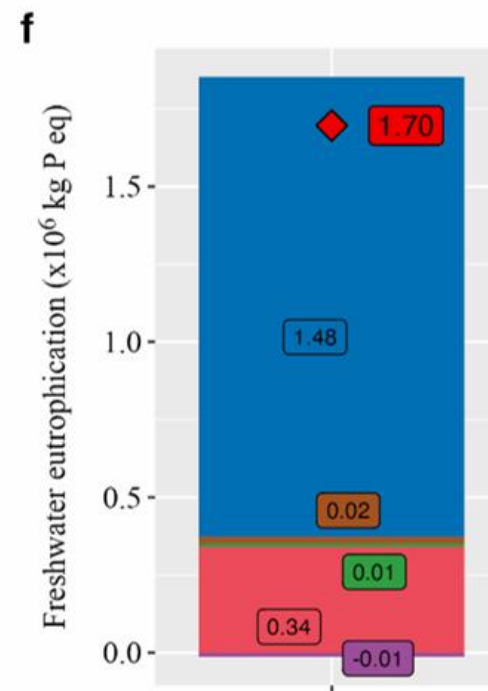
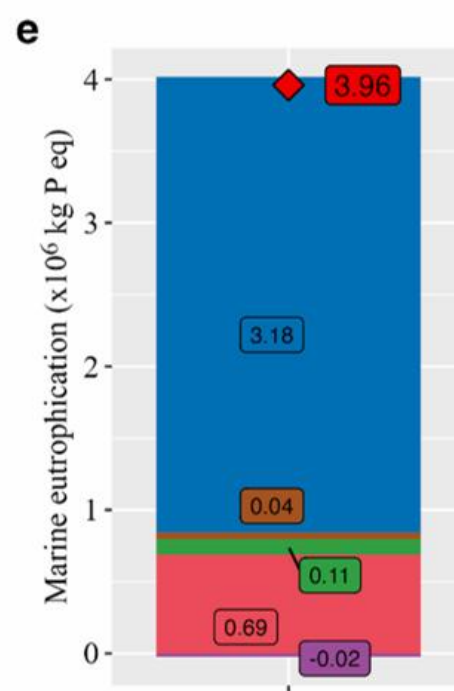
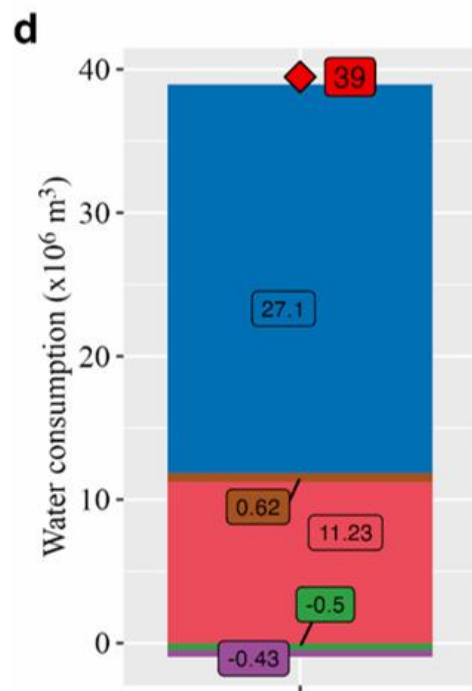
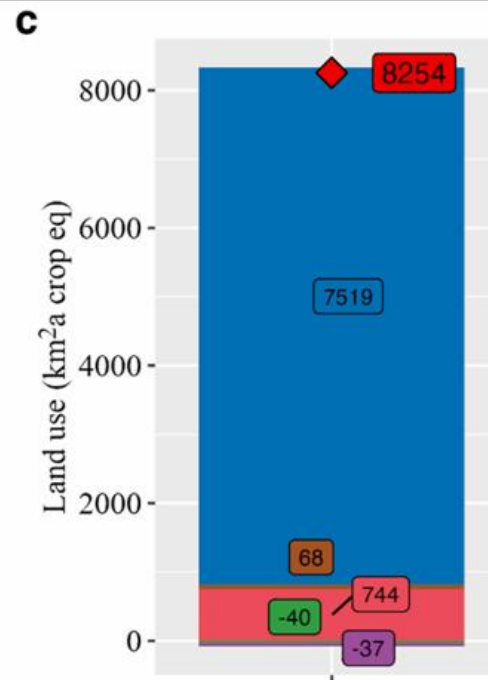
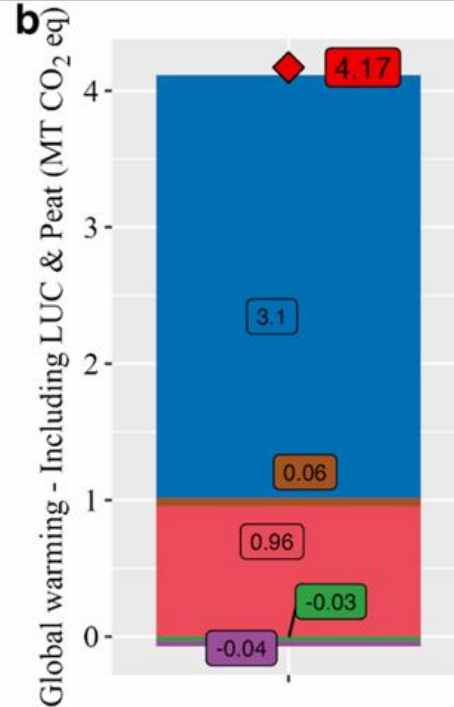
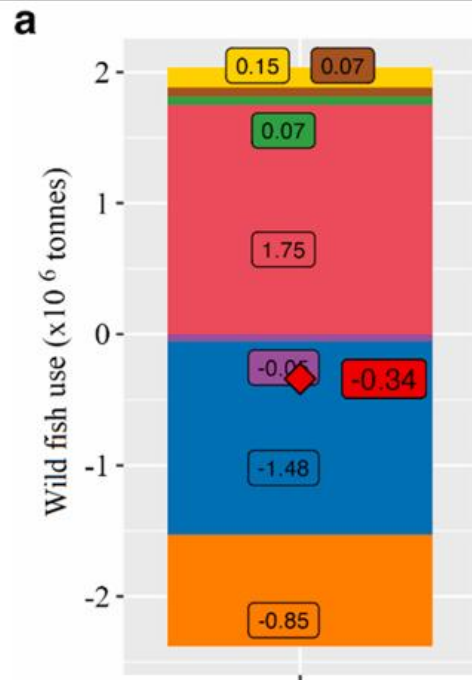
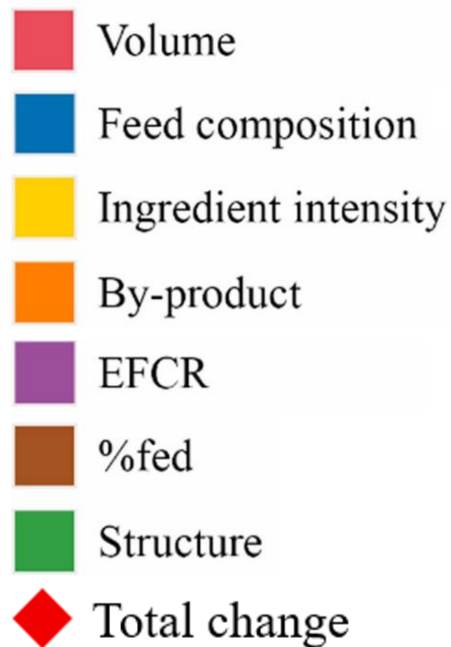
BY-PRODUCT
USE
(MARINE
INGREDIENTS)









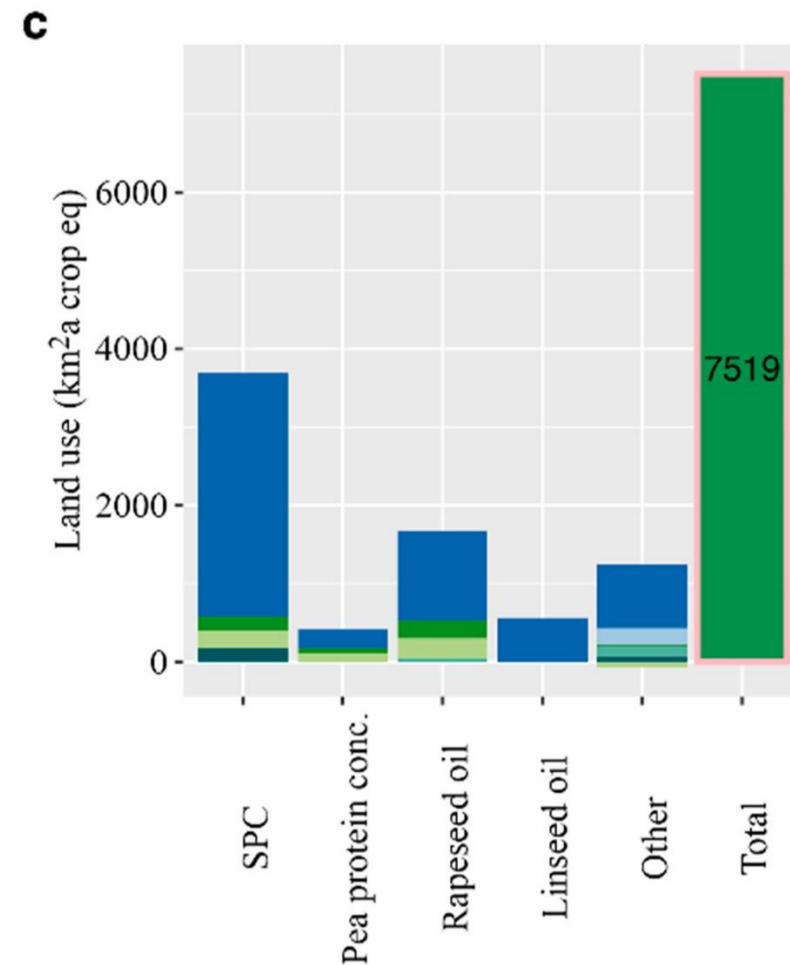
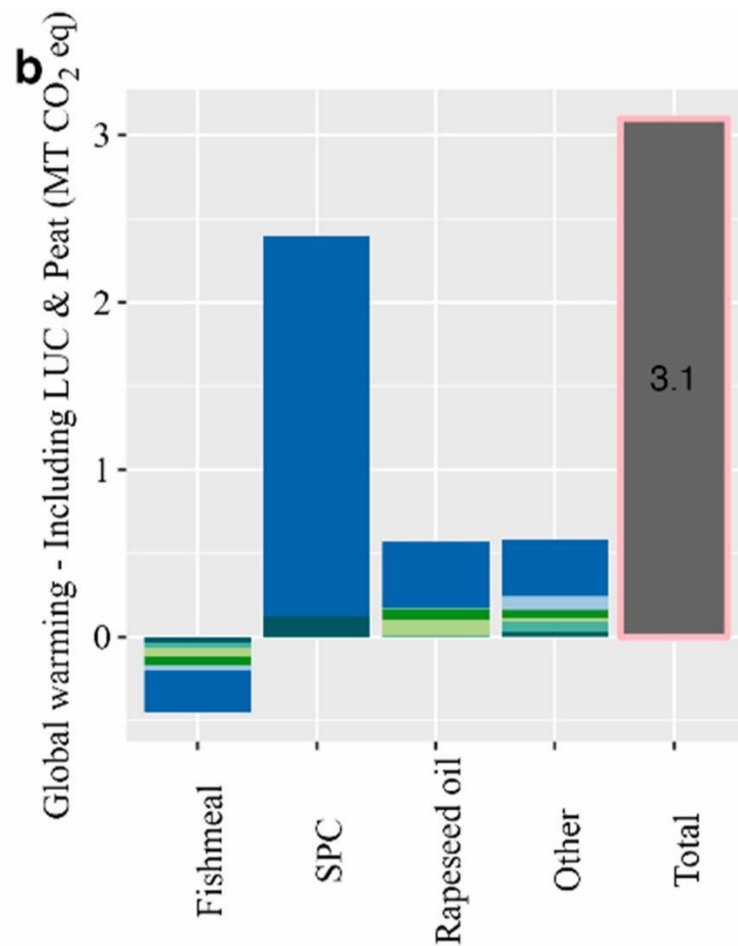
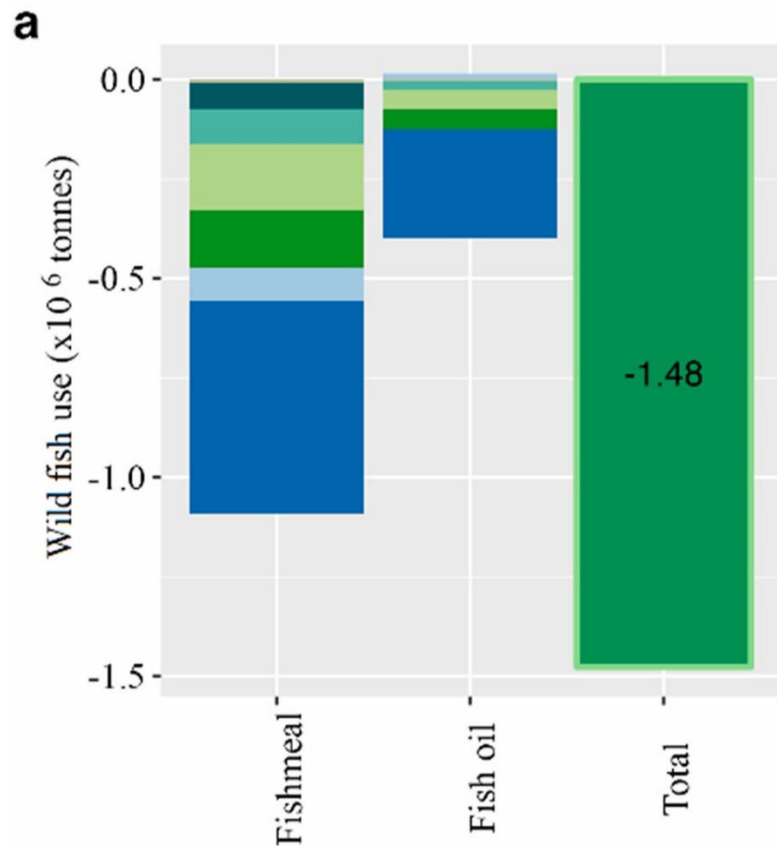


Efficiency

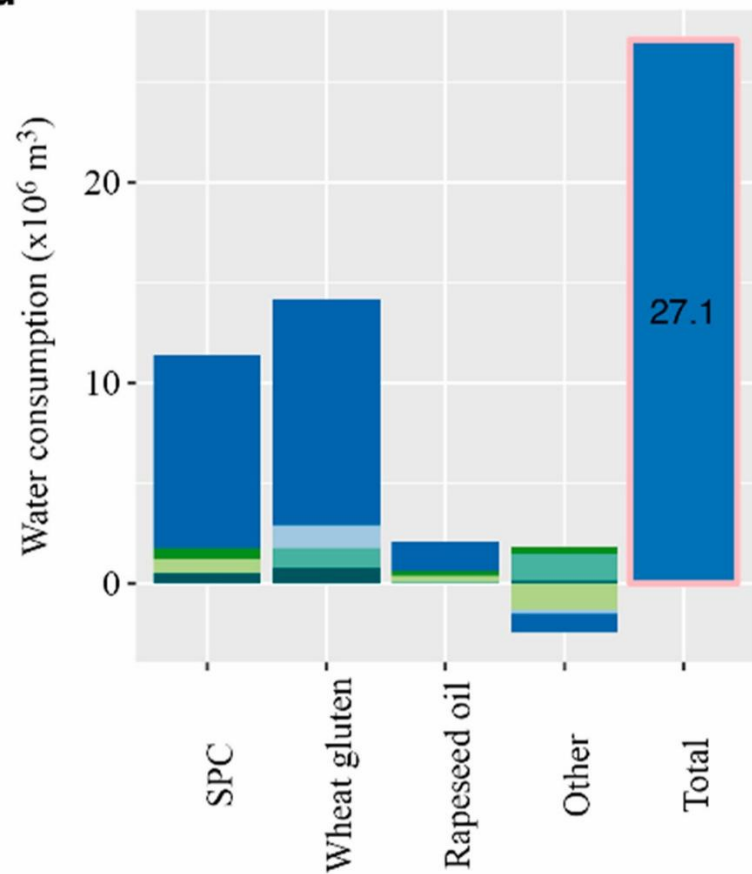
- eFIFO reduced from 2.6 → 1.1 kg/kg (−59%)

Terrestrial environmental impacts increased strongly:

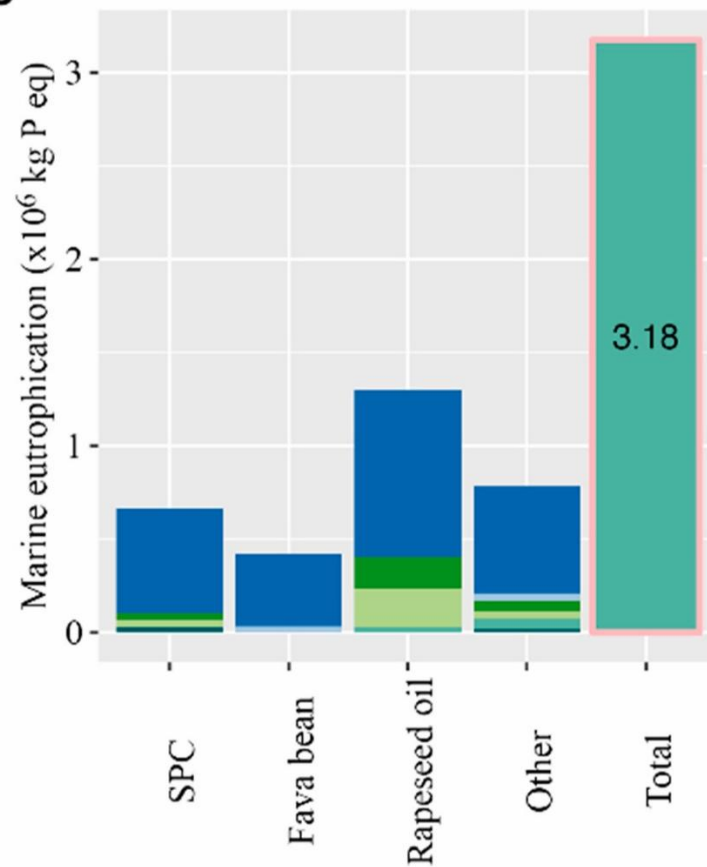
- Global warming: 1.24 → 2.55 kg CO₂eq/kg fish (+106%)
- Land use: 1.04 → 4.55 m²·a crop eq/kg fish (+336%)
- This reflects a shift from marine-based to terrestrial feed ingredients



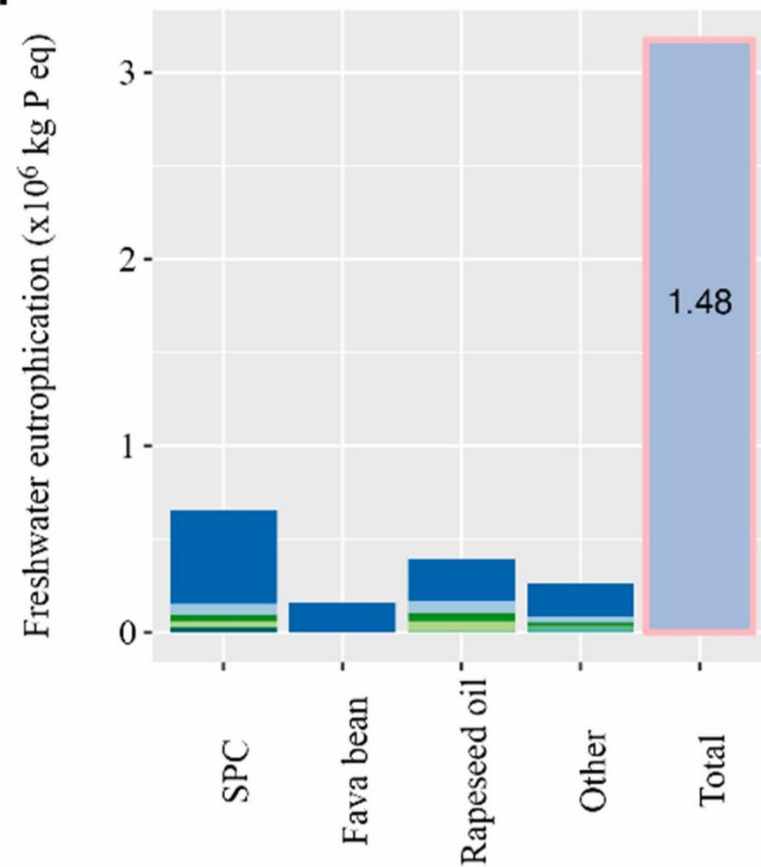
d



e



f

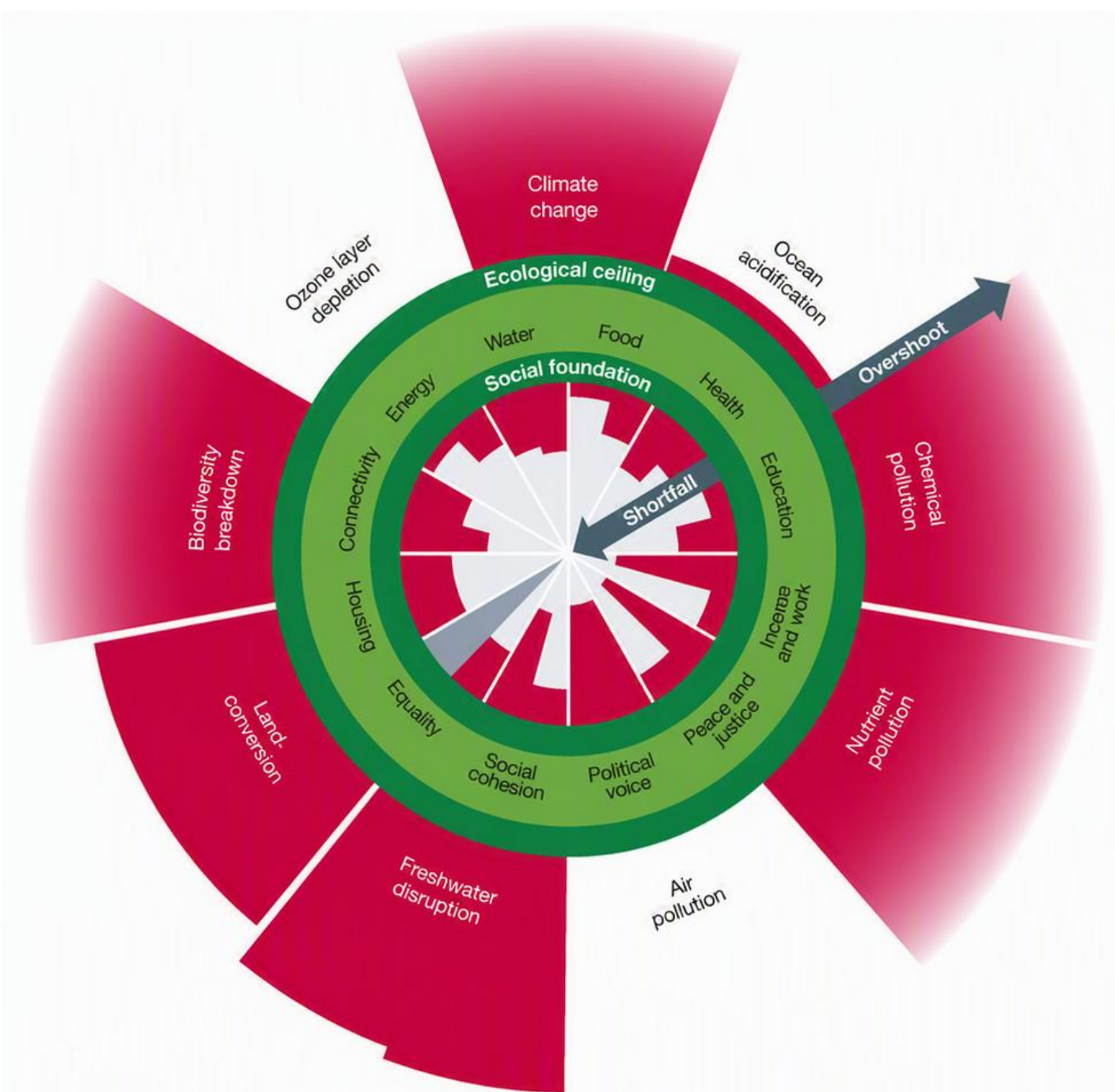


Ingredient sustainability

- Marine ingredients are not automatically “unsustainable.”
- Plant ingredients are not automatically “low impact.”
- Novel feed ingredients are not automatically a solution

- Single-metric tunnel vision can shift , rather than solve, environmental pressure.

The challenge



The way forward

- Holistic sustainability
 - Environmental
 - Social
 - Economic
- Certification
- Collaboration