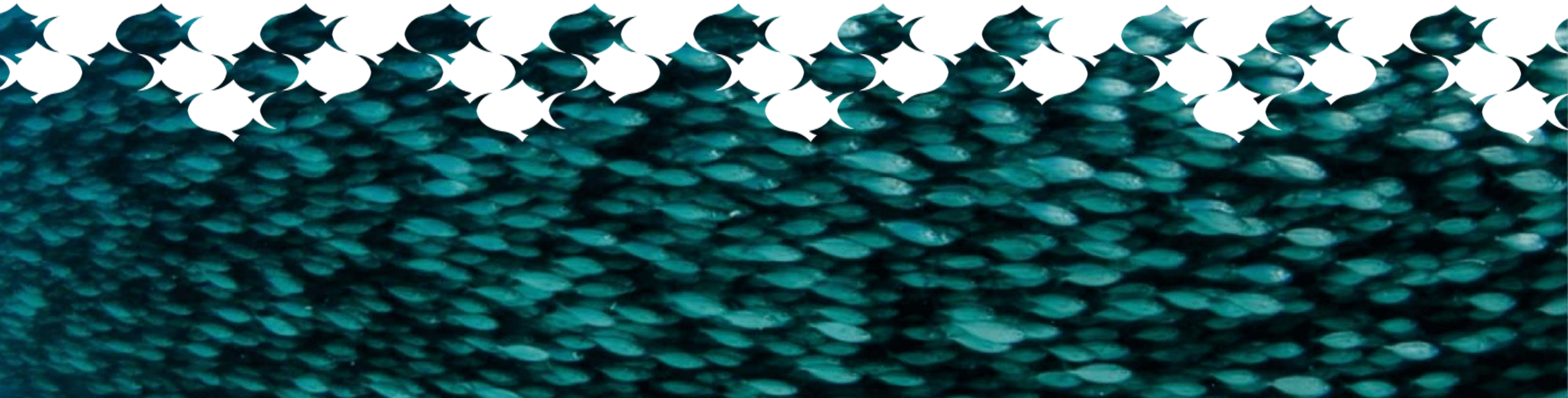


# Fish waste for profit

9<sup>th</sup> June 2022

What role may by-products play in the future of marine ingredients?

Petter M. Johannessen, IFFO Director General





 **1.** What are marine ingredients?



 **2.** Nutrient-dense and low carbon footprint ingredients



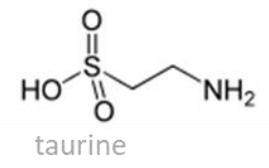
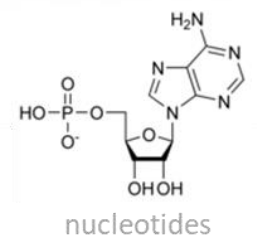
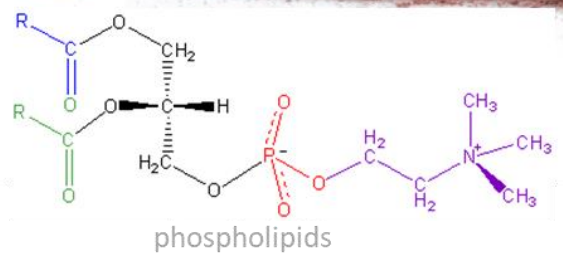
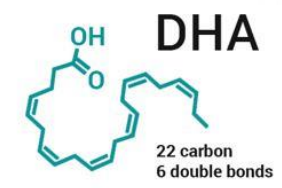
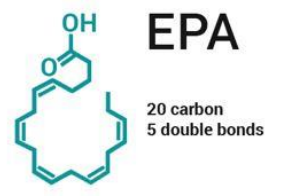
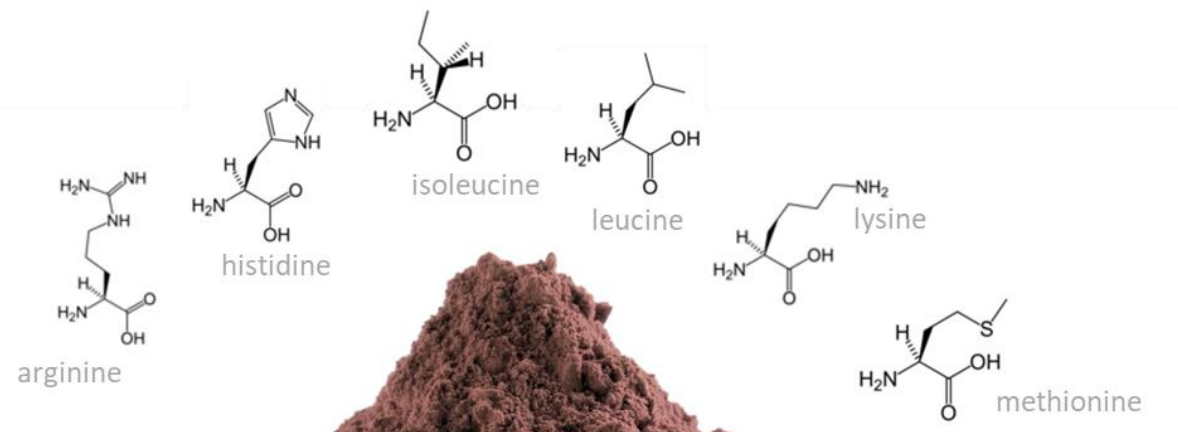
 **3.** What does the future look like?

# 1. What are marine ingredients?



# 1.1

## Nutrient-dense ingredients



# UNUSED RESOURCES HAVE THE POTENTIAL TO FEED THE WORLD



Recycled  
byproducts



Species with  
very limited  
direct food  
market



Fish oil  
& fishmeal  
+ additional  
ingredients



Animal  
feed



Healthy  
farmed  
species

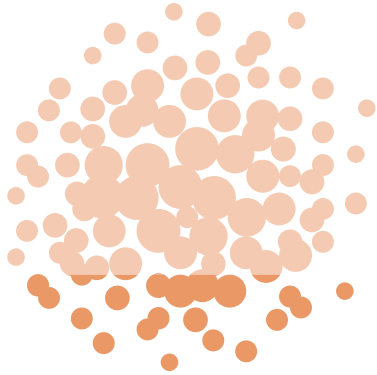


Healthy  
population

TARGETED SPECIES: SMALL & BONY FISH AND PROCESSING BYPRODUCTS

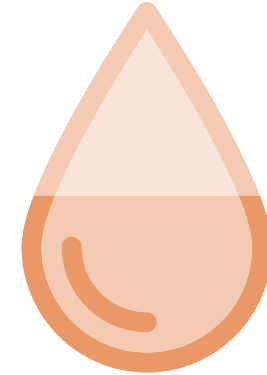
# 1.3

One third of raw materials used to produce marine ingredients are by-products



# 30%

of the world's fishmeal production already comes from byproducts



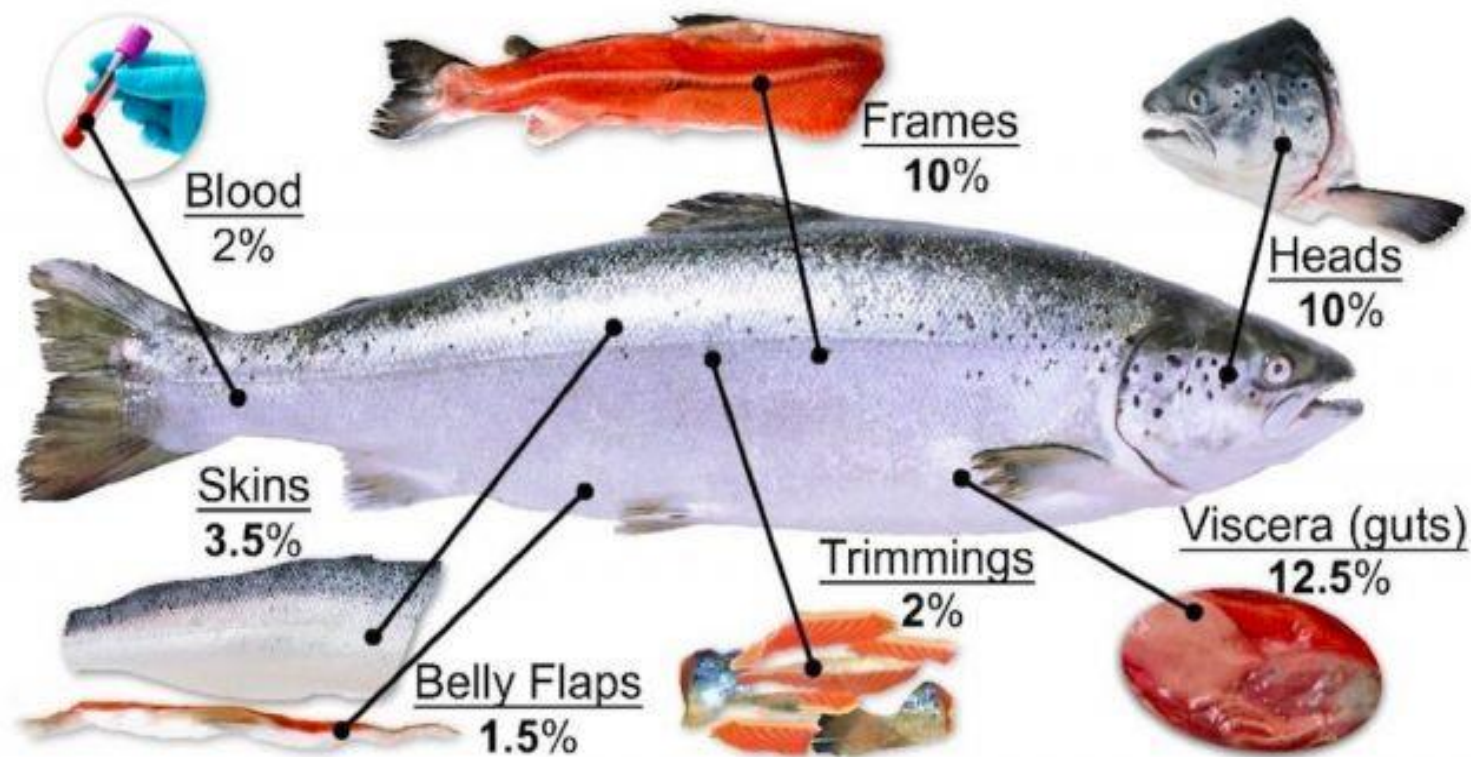
# 51%

of the total fish oil production already comes from byproducts

Source IFFO: 2022 data

# 1.4

Focus on the by-products which are used in the marine ingredients industry



## 2. Nutrient-dense and low carbon footprint ingredients

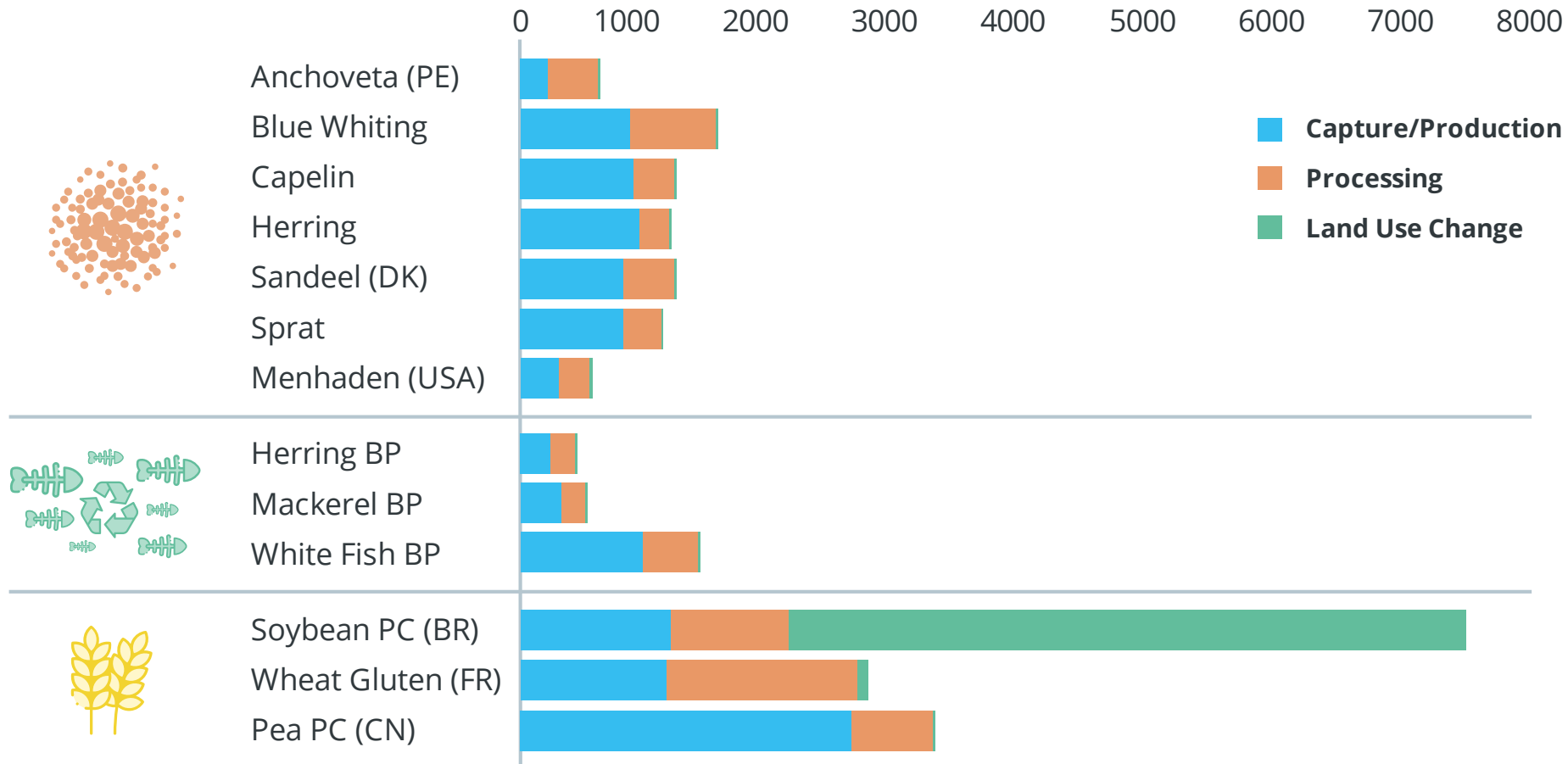




# 2.1

## Low carbon footprint ingredients

### CARBON FOOTPRINT (KG CO2 EQ. PER TONNE OF PRODUCT)



Source: based on data provided by Dr Richard Newton. University of Stirling, UK

# 3. What does the future look like?

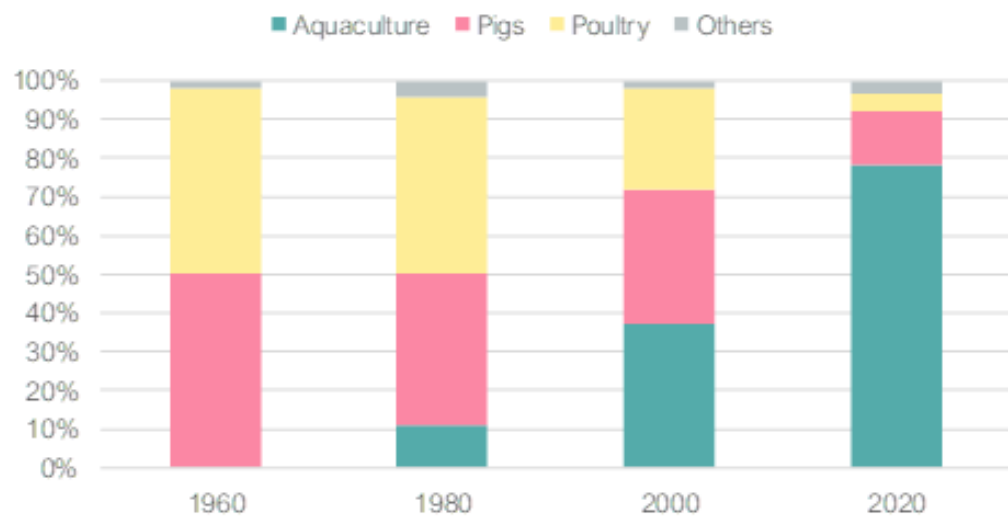


# 3.1 Marine ingredients will continue to support the growth of the aquaculture sector...



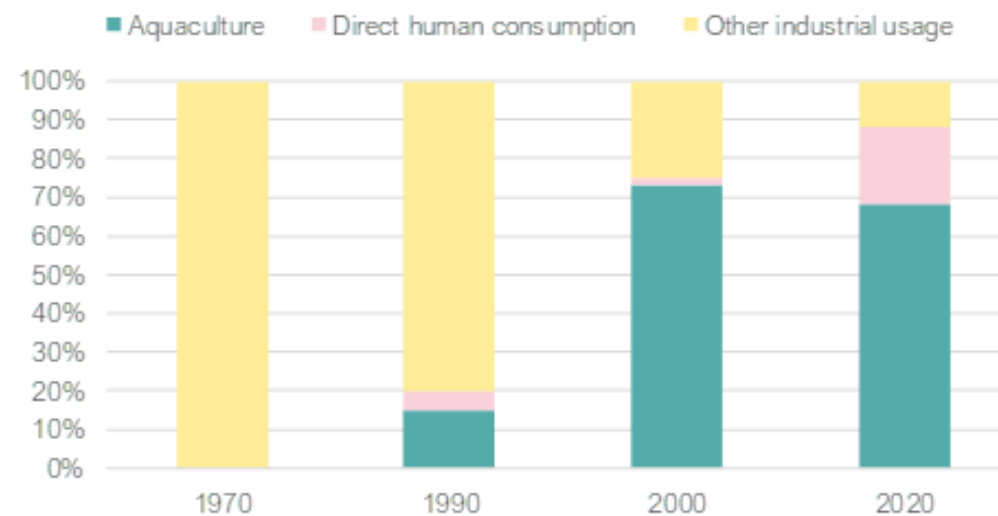
Fishmeal

from pigs and chicken feed to aquafeed



Fish oil

from discard to aquafeed and human health

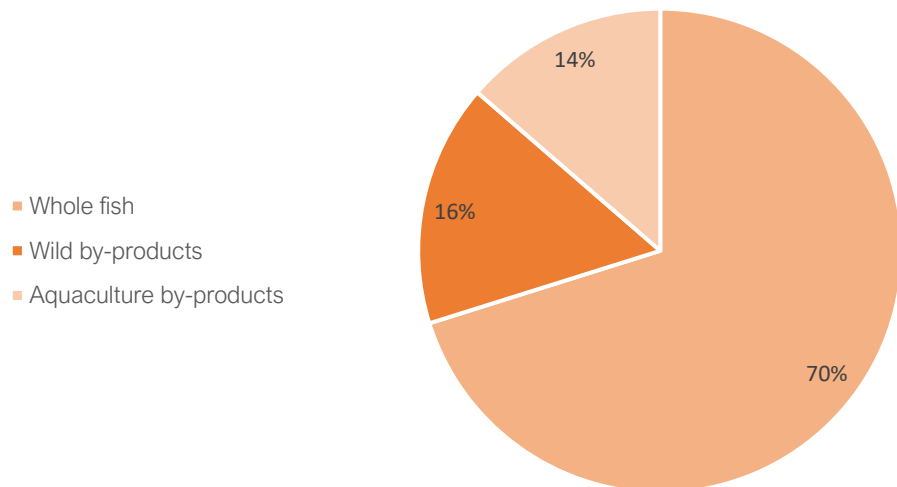


# 3.2

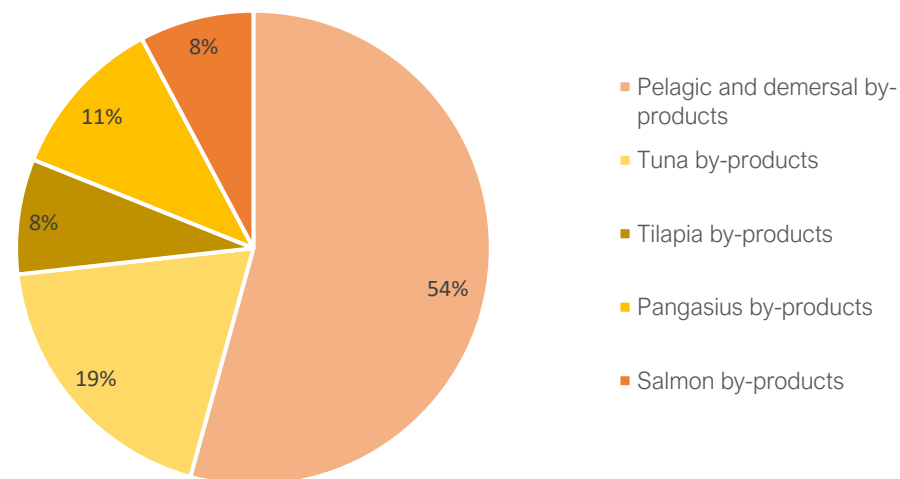
## The origin of marine ingredients keep diversifying



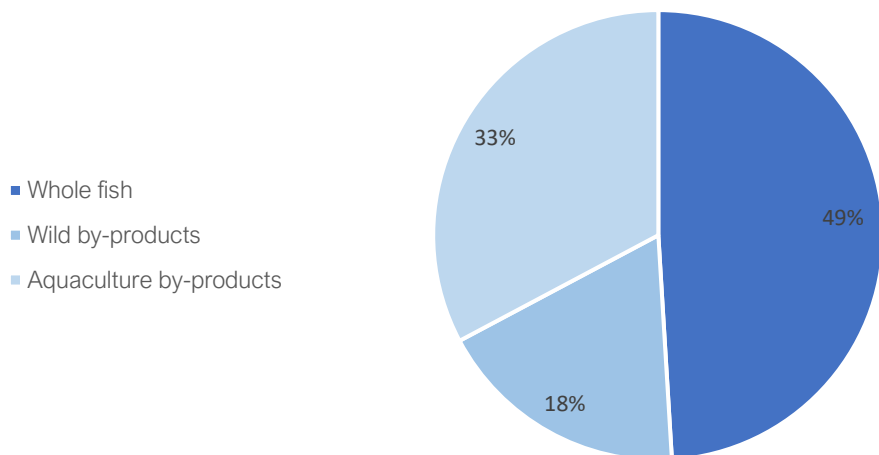
Fishmeal



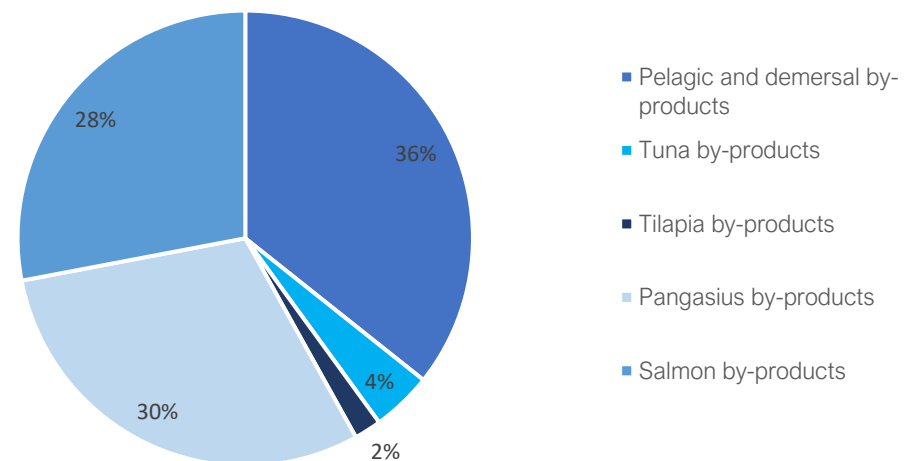
By-products fishmeal



Fish oil



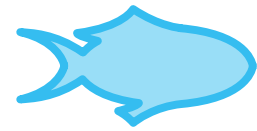
By-products fish oil



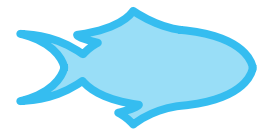
### 3.3 Marine ingredients can support a greater role for blue foods in the global food system



Oceans make up  
**70%**  
of our planet



but fish accounts for...



**17%**

of total animal protein



**7%**

of all proteins





**THANK YOU**

[www.iffco.com](http://www.iffco.com)

