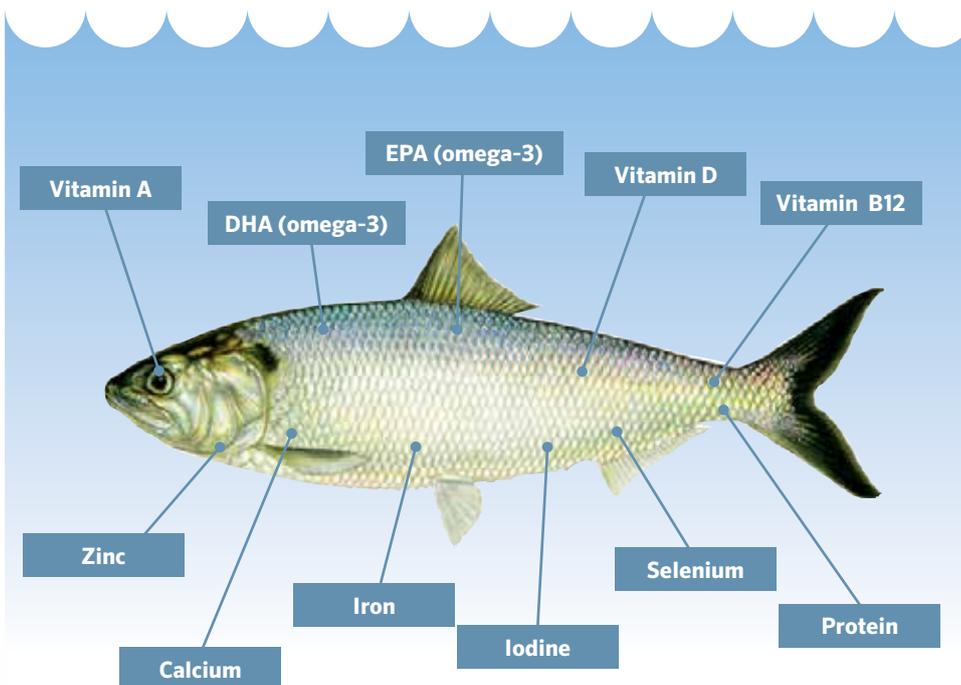


## Fish and human nutrition

Fish plays an important role in fighting hunger and malnutrition. Fish is not only a source of proteins and healthy fats, but also a unique source of essential nutrients, including long-chain omega-3 fatty acids, iodine, vitamin D, and calcium. The multiple benefits of fatty fish high in omega-3s and small fish eaten whole containing nutrients in the skin and bones clearly illustrate seafood's irreplaceable nutritional value.

An increased focus on fish and nutrition aids both developing countries and the developed world. In many developing countries, fish is the main or only source of animal protein, and is essential for providing micronutrients to vulnerable populations. Fish can sometimes serve as a solution to existing health problems. For instance, goiter is found in areas where iodized salt is unavailable, but the consumption of fish and the natural iodine it contains could help reduce these cases. Dietary patterns are also shifting in developed and middle-income countries, and an increasing emphasis on coronary and overall health has led to an increased demand for fish.

### Fish: Nature's superfood



## Key facts & figures

More than **3.1 billion** people depend on fish for at least **20%** of their total animal protein intake, and a further **1.3 billion** people for **15%** of animal protein intake.

Fish consumption by expectant mothers aids their children's neurodevelopment.

Often undervalued parts of the fish, like the head, viscera, and back-bones make up **30-70%** of fish and are especially high in micronutrients.

Fish consumption has increased from **9 kg** per capita in 1961 to approximately **20 kg** per capita today.

Half of the consumed fishery products derive from aquaculture.

## Seafood and crucial nutrients for healthy development

Throughout the world, expectant mothers face demanding nutritional needs. The so-called 1 000 day window - from pregnancy to the child's second birthday - is now understood as a crucial time to promote proper nutrition for development, transforming the infant's future prospects and promoting proper physical and mental development. Fish has a crucial role to play in this development.



### KEY NUTRIENTS IN SEAFOOD:



#### Long chain omega-3 fats

Mainly found in fish and seafood, these fatty acids are essential for optimal brain development.



#### Iodine

Seafood is in practice the only natural source of this crucial nutrient. Iodine serves several purposes like aiding thyroid function. It is also essential for neurodevelopment.



#### Vitamin D

Another nutrient crucial for mental development, this vitamin also regulates the immune system function and is essential for bone health.



#### Iron

During pregnancy, iron intake is crucial so that the mother can produce additional blood for herself and the baby.



#### Calcium, zinc, other minerals

Diets without dairy products often lack calcium, and zinc deficiency slows a child's development.

### Waste not, want not: How fish bones can supplement traditional diets

The composition of some amino acids, vitamins and minerals in tuna bones used for fish powder, in comparison with maize flour

Nutrient	Tuna bones per 100 g	maize flour per 100 g	daily requirement for children
Calcium	10.2 g	7 mg	700 mg/day
Iron	36 mg	2.4 mg	8.9 mg/day
Zinc	8.6 mg	1.7 mg	3.7 mg/day
EPA + DHA	3.1 g	N/A	150 mg/day

Fish products are ideal complements to starch-based diets lacking these nutrients.



### FISH PRODUCTS

Ranging from fish pastes and cakes to dried and fried offerings, seafood products are gaining recognition for their nutritional value. Gaining popularity in African countries like Uganda, seafood powders made from by-products or lake sardines provide missing nutrients to the primarily grain or starch-based diets of the region. In Chile, salmon meat is scraped off frames and heads to produce fish patties and sausages.