by Billo Heinzpeter Studer

Series 'Beyond the rim of the plate' #4

How much fish should I (not) eat?

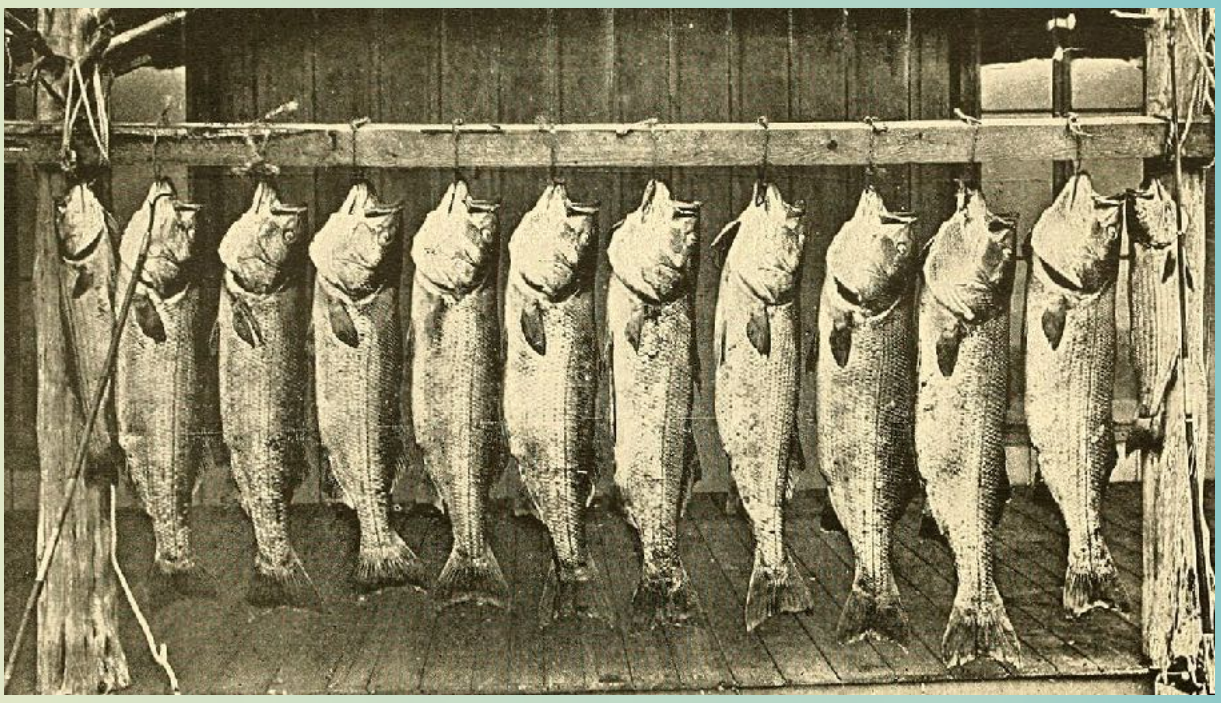
'Still life with fish on a sales counter,' Jacob van Es, ca 1635 /1640 (Wikimedia Commons)

Some cardiologists, paediatricians, nutritionists, and the fishing industry highly recommend eating fish at least twice a week to stay healthy, avoid heart attacks, and for better brain development in young children. On the other hand, environmental campaigns want are calling for us to rethink our fish consumption. Is it okay to eat fish, and if so, how much?

According to the most current data (FAO, 2024 [1]), the seafood consumption (including fishes, molluscs, and crustaceans from fisheries and aquaculture) reaches 20,7 kg per year per person, which is twice as much as mankind consumed just two generations ago.

If only the edible meat of fish is considered, 64 to 85 million tonnes are consumed each year, according to a study carried out for fair-fish [2], which means an average of 8 to 11 kg per person.

Can fish consumption continue sustainably at such a high level? Or, to put it more concretely: Will your children and your grandchildren still be able to still eat so much fish? Perhaps in the richest countries, but what about the rest of the world, let alone the many developing countries whose populations are much more dependent on fish in their diet than you or I?



'12 Stripped bass caught of Newport in two hours an five minutes, with rod and line', 1888 (photo: George Brown Goode/Wikimedia Commons)

Up to 60 per cent more catch than today

Fisheries biologists who are independent from the industry, such as Rainer Froese or Daniel Pauly, tell us that the fishing pressure should be reduced by 50 per cent until fish stocks have fully recovered, where 'fully' does not refer to the first sign of recovery, but to the abundance known until the end of the Second World War. They assert that when stocks are fully recovered, fishing efforts per tonne will decrease, while the annual catch will increase by up to 60 per cent compared to today — and will remain so, provided that unsustainable fishing practises and fishing for feed will be banned.

60 per cent more catch would also mean that mankind could do without most aquaculture, especially the farming of species that require fish components in their feed and/or have a low potential of experiencing welfare in captivity, according to the fairfish database [5]. What an amazing prospect for the last great wild food resource on this planet we still benefit profit from! All the more so as the legendary growth of fish farming has peaked quite some time ago [4].

To fully recover, stocks of pelagic species like herrings, mackerels, sardines etc. need 4 to 5 years, whereas bottom-dwelling species (cod, flatfishes, etc.) and deep-sea species need more time to contribute to their stock‘s recovery, depending on the depth and their age at which they reach sexual maturity.

Reducing fishing pressure by 50 percent means eating 50 percent less fish. Overfishing is not just caused by 'evil' fishermen. As Daniel Pauly once put it quite clearly when asked where all the fish had gone: 'We simply ate it!'

Table 1: Calculation of the 'allowed' fish consumption		
Fish consumption per capita and year	**Lower estimation: 8 kg** *(see page 11)*	**Upper estimation: 11 kg** *(see page 11)*
Wild fish	50% of 8 kg/2 = 2.0 kg	11 kg/2 x 50% = 2.75 kg
Farmed fish	80% of 8 kg/2 = 3.2 kg	80% of 11 kg/2 = 4.4 kg
„Allowed" consumption	5.2 kg = 34 meals of 150 g	7,1 kg = 47 meals of 150 g
Farmed, Western market	0% of 8 kg/2 = 0,0 kg	0% of 11 kg/2 = 0,0 kg
„Allowed" for Westerners	2.0 kg = 13 meals of 150 g	2,75 kg = 18 of 150 g

Table 1 by Billo HP. Studer, from fish-facts 33 [2]

So, let's do the maths:

1) We should reduce the consumption of wild fish by 50%.

2) As far as aquaculture is concerned, we should avoid fishing to feed farmed fishes. The current average global requirement of fish in feed across all species, including herbivores and omnivores, is estimated to be about 200 g of forage fish to gain 1 kg of farmed fish [2]. Thus, reducing the consumption of farmed fish to 80% could help abandon the use of wild fish in feed.

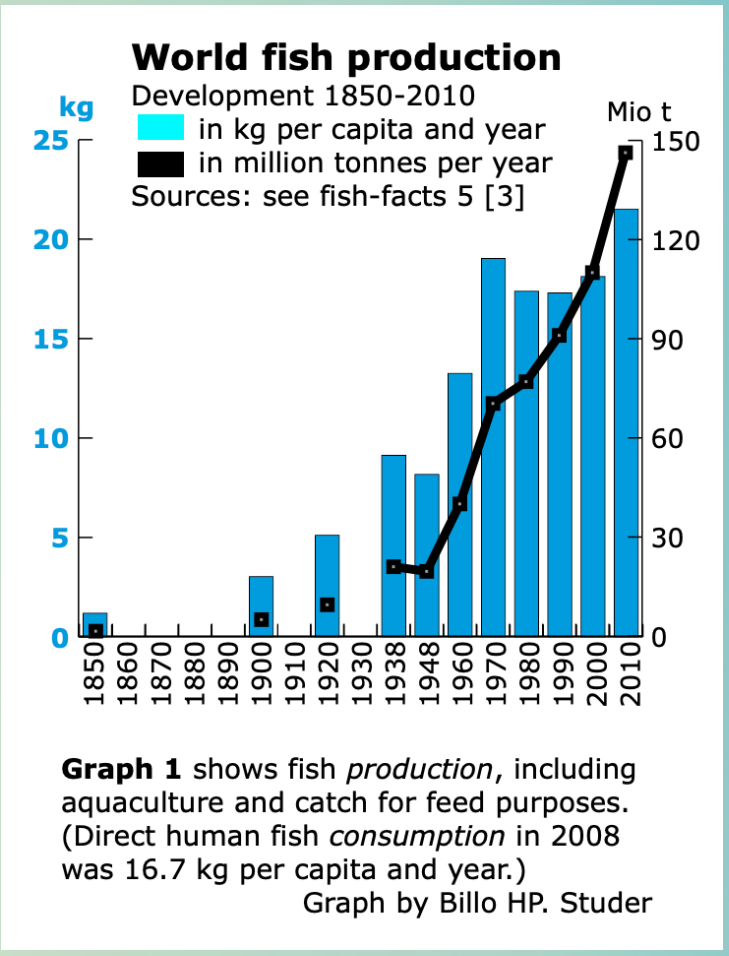
3) On a global scale, mankind should therefore reduce the consumption of wild fish (half of the fish on the market) to 50% and that of farmed fish (the other half) to 80%.

4) On the Western market, however, the demand for farmed fish is concentrated on carnivorous species (salmon, trout, seabream, seabass, etc.) whose feed is estimated to contain 1 kg wild fish to gain 1 kg farmed fish as an average [5]. We Westerners should actually do without farmed fish altogether, except species fed without fish components.

5) With respect for populations that highly depend on fish, we should follow the lower estimation in Table 1.

Hence the golden and easy-to-remember rule for populations that are not dependent on seafood [2]:

Drawing: Marco Eberli



Graph 1 shows fish *production*, including aquaculture and catch for feed purposes. (Direct human fish *consumption* in 2008 was 16.7 kg per capita and year.)
Graph by Billo HP. Studer

But my doctor told me to eat more fish…

Throughout human history and until recently, most people had a modest or even poor fish consumption (see graph 1), yet mankind has survived. Humans have largely evolved without fish — so we don't seem to need much fish to be healthy and productive. It was only with increasing industrialisation after the Second World War that fish became an everyday food.

So what are the alternatives to fish?

Should I eat more **molluscs** and **crustaceans**? Certainly not! The problems with overfishing and aquaculture are pretty much the same.

Or should I eat more **meat**? Again, bad solution! Today's meat consumption causes heavy problems for the environment, the climate, and not least for the poor animals, the vast majority of which are kept in intolerable conditions. Not to mention the health problems that normal meat eaters have to contend with and the financial consequences for society.

If you are worried

- about a loss of **protein** intake: do as your grandparents did: there is plenty of protein in a smart plant-based diet.
- about a lack of the daily intake of long-chain fatty acids (o**mega-3** EPA and DHA): ask your health food shop or retailer for 'fish oil' made from microalgae — this is exactly how fishes get their more or less high content of omega-3, from microalgae along the marine food chain.
- By the way: It makes no sense to ingest a lot of omega-3 as long as you stick to the usual Western diet which contains far too much omega-6 [3].

East coast fisheries freezing room, 1966 (Mr. Cormish/Wikimedia Commons)

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References:

[1] The State of World Fisheries and Aquaculture 2024, FAO, Rome, 2024

[2] Background and references in: Ashly Krummenacher (2021), 'Edible Fish Consumption', fish-facts 33

[3] Background and references in: Billo Heinzpeter Studer (2010), 'Wieviel Fisch gibt's? Wieviel ist gesund? Und Omega-3?', fish-facts 5 (in German only)

[4] 'Can aquaculture deliver?', in fish-facts 41 (page 10)

[5] fair-fish database