

## Overfishing: A bane for the oceans

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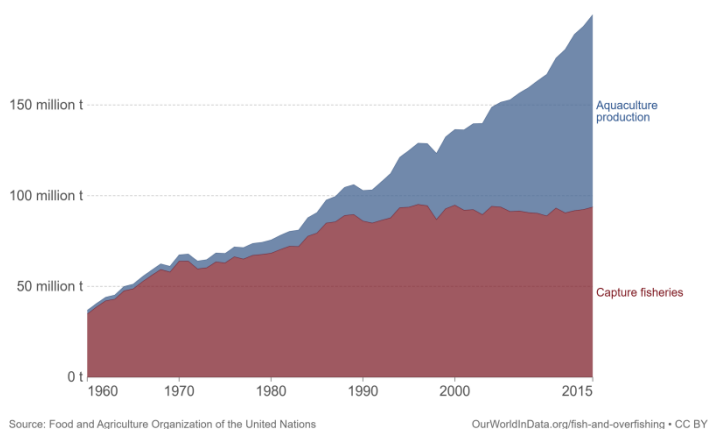
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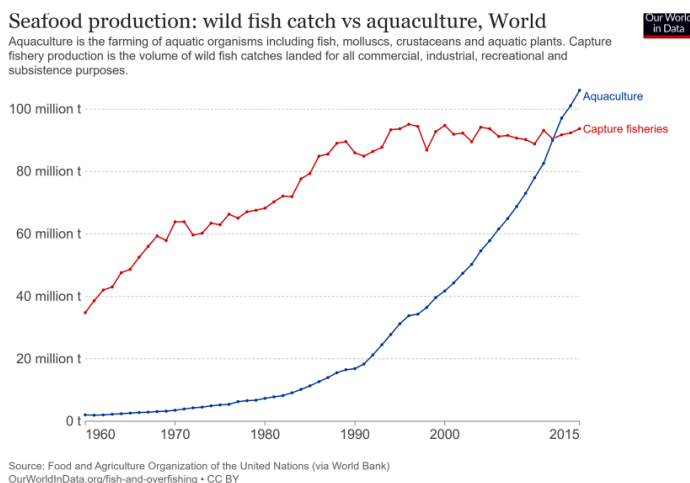
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### Introduction

World production of fish and seafood has quadrupled over the last 50 years. Not only has the world population more than doubled over this phase, the common person now eats almost double as much seafood as half a century ago. This has increased force on fish stocks across the globe. Since the 1980s, there has been a more than twofold increase in the proportion of overexploited fish stocks worldwide. The world produces around 200 million tonnes of fish and seafood every year. This comes from a combination of wild fish catch and fish farming. In fact, rapid growth of aquaculture over the last few decades means we now produce more seafood from fish farms than we do from fisheries. China is the world's largest seafood producer, producing more than 60 million tonnes in 2019. This is followed by Indonesia, India, Vietnam and the United States. Most of the world's growth in aquaculture production has come from East Asia and the Pacific.



**Fig. 1 Seafood production: wild fish catch vs aquaculture, world**



**Fig. 2 Seafood production: wild fish catch vs aquaculture, world**

Most notably China, which produced 66 million tonnes in 2018. This growth in aquaculture has played an important role in increasing global seafood production without sacrificing fish stocks. Production has continued to grow while the output of wild fisheries has slowed, or even plateaued. This allows us to maintain sustainable fishing levels that do not deplete wild fish populations.

### Is the global fishing industry sustainable? Which types of fish are we harvesting sustainably and where are we overfishing?

These are critical questions, but to answer them we need to first agree on what ‘sustainability’ actually means when it comes to fishing. One of the biggest conflicts I see is not actually about technical discussions of how much fish we catch, or whether populations are increasing or decreasing, but a larger ethical conflict in how we view fish. When we view fish through different lenses, these debates don’t get very far. One school of thought (often adopted by environmentalists, ecologists or animal welfare advocates) views fish as an animal in its own right; just as we view most other groups of animals. In the same way that most of us view elephants or monkeys. In this realm, our end goal is often to restore wild animal populations to as close to their pre-human levels as possible. The same would apply to fish: we should allow populations to increase back to their historical levels. Ultimately this means we should be catching very little (if any at all).

**Table 1 world fisheries and aquaculture production, utilization and trade**

	<u>1990s</u>	<u>2000s</u>	<u>2010s</u>	2018	2019	2020
	Average per year					
	Million tonnes (live weight equivalent)					
<b>Production</b>						
<b>Capture</b>						
Inland	7.1	9.3	11.3	12.0	12.1	11.5
Marine	81.9	81.6	79.8	84.5	80.1	78.8
<b>Total Capture</b>	88.9	90.9	91.0	96.5	92.2	90.3
<b>Aquaculture</b>						
Inland	12.6	25.6	44.7	51.6	53.3	54.4
Marine	9.2	17.9	26.8	30.9	31.9	33.1
<b>Total Aquaculture</b>	21.8	4.34	71.5	82.5	58.2	87.5
<b>Total world fisheries and aquaculture</b>	110.7	134.3	162.6	178.9	177.4	177.8
<b>Utilization</b>						
Human Consumption	81.6	109.3	143.2	156.8	158.1	157.4
Non-food uses	29.1	25.0	19.3	22.2	19.3	20.4
Per capita apparent consumption (kg)	14.3	16.8	19.5	20.5	20.5	20.2

The fraction of fishery stocks within biologically sustainable levels decreased to 64.6% in 2019, 1.2% lower than in 2017. However, 82.5% of the 2019 landings were from biologically sustainable stocks, a 3.8% improvement from 2017. Effective fisheries management has been proven to successfully rebuild stocks and increase catches within ecosystem boundaries. Improving global



fisheries management remains crucial to restore ecosystems to a healthy and productive state and protect the long-term supply of aquatic foods. Rebuilding overfished stocks could increase fisheries production by 16.5 million tonnes and raise the contribution of marine fisheries to the food security, nutrition, economic growth and well-being of coastal communities. Rebuilding overfished stocks to the biomass that enables them to deliver MSY could increase fisheries production by 16.5 million tonnes and annual rent by USD 32 billion (Ye *et al.*, 2013). It would also increase the contribution of marine fisheries to the food security, nutrition, economies and well-being of coastal communities. The situation seems more critical for some highly migratory, straddling and other fisheries resources that are fished solely or partially in the high seas. The United Nations Fish Stocks Agreement (in force since 2001) should be used as the legal basis for management measures of the high seas fisheries. A recent study (Hilborn *et al.*, 2020) shows that scientifically assessed and intensively managed stocks have, on average, seen abundance increasing or at proposed target levels and that in contrast, regions with less developed fisheries management have much greater harvest rates and lower abundance than assessed stocks. This highlights the urgent need to replicate and re-adapt successful policies and regulations in fisheries that are not managed sustainably and to create innovative mechanisms that promote sustainable use and conservation around the world.

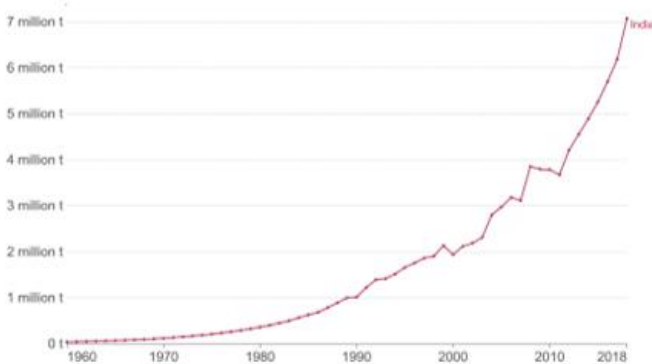
The team of researchers from Central Marine Fisheries Research Institute (CMFRI) did the analysis using the time-series of landings of species, fishing gears and total landings. The results indicate that 34.1% of the assessed fish stocks in India are sustainable, 36.3% are overfished, 26.5% are recovering, and 3.1% are in the overfishing status. The highest percentage of sustainable fish stocks were in Goa (63.6), West Bengal (52.6) and Kerala (52%), the highest percentage of overfished stocks were in Puducherry (71.4%), Gujarat and Daman Diu (65%) and Maharashtra (46.4%), and the highest percentage of recovering fish stocks were in Andhra Pradesh (50%), Odisha (40.7%) and Maharashtra (32.1%). Fish catch in Maharashtra rose for the first time since 2017, increasing by around 38% from 1.23 lakh tones in 2021 to 1.7 lakh tonnes in 2022, according to Central Marine Fisheries Research Institute (CMFRI) data.

### **Overfishing statistics**

- Approximately 90 % of the world's fish stocks are fully exploited, overexploited, or depleted.
- Overfishing has caused global fish biomass to decline by 35 % since 1974.
- One-third of the world's assessed fish stocks are currently overfished.
- 61% of the world's high-seas fishing grounds are experiencing overfishing.
- The world's fishing fleet is around 2.5 times bigger than what the oceans can reasonably support.

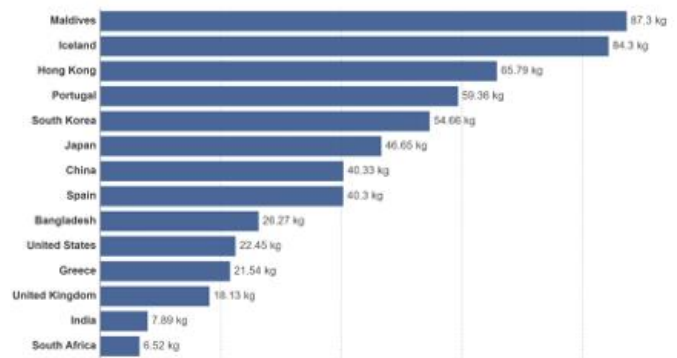


- It is estimated that overfishing has caused the loss of 90% of large predatory fish populations, such as sharks, tuna, and marlin
- Every year, approximately 32 million metric tons of fish are caught illegally, unreported, or unregulated
- Overfishing threatens the livelihoods of more than 200 million people who depend on fishing for their income and sustenance
- The economic losses resulting from overfishing are estimated to be around \$80 billion annually
- The global seafood industry could lose up to \$10 billion by 2050 if overfishing continues at current rates



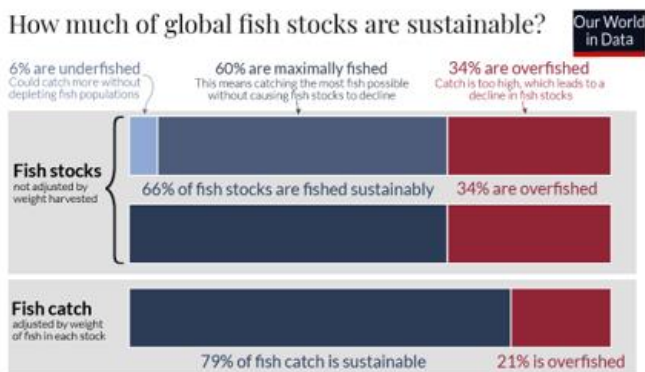
Source: Food and Agriculture Organization of the United Nations (via World Bank)  
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Fig. 3 Aquaculture production



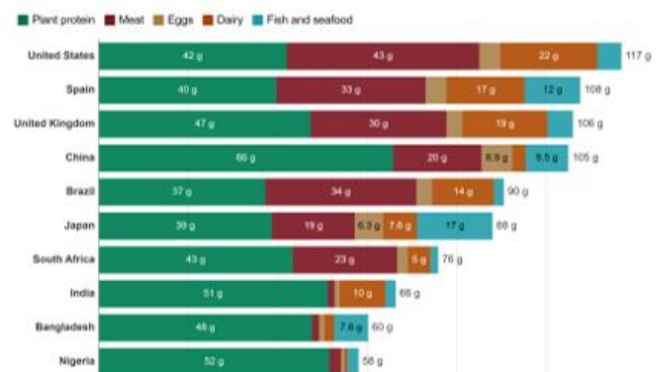
Source: Food and Agriculture Organization of the United Nations  
Note: Data is based on per capita food supply at the consumer level, but does not account for food waste at the consumer level.  
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Fig. 4 Fish and seafood consumption per capita, 2020



Note: Data is shown for 2017 (the latest estimate available).  
Source: Food and Agriculture Organization of the United Nations, The State of World Fisheries and Aquaculture (2020).  
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Fig. 5 How much of global fish stocks are sustainable?



Source: Food and Agriculture Organization of the United Nations  
OurWorldInData.org/diet-composition • CC BY

Fig. 6 Per capita source of protein, 2020

## How to Stop Overfishing

Reform, subsidies, and declaring certain areas of the sea off-limits to non-sustainable fishing are probably the best overfishing solutions. Individual consumer choices, like purchasing fish from sustainable fisheries and fish farms, are also a great way to encourage the growth of sustainable fishing. The long-term change will probably require legislation and a change in how fishing as an



industry is regulated — and how growth and profit are balanced with sustainable practices.

“The ocean is like a checking account where everybody withdraws but nobody makes a deposit. This is what’s happening because of overfishing”

-Enricsala

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