

Sustainable Seafood

by the Smithsonian Ocean Portal

Online at <http://ocean.si.edu/sustainable-seafood>



David Barouh displays fresh fish for sale at Seattle's Pike Place Market. Credit:© Rich Frishman

As a consumer, you can choose what kinds of seafood to buy. Some species are in good supply and make excellent choices. Others have declined dramatically due to overfishing or environmental factors. Choosing those can add to the problem.

So choose wisely. Buy sustainable seafood—seafood harvested in a way that supports productive fisheries and coastal communities and also maintains healthy ecosystems.

Science and Technology

Could you be eating endangered tuna at your favorite sushi place and not know it? Find out how DNA barcoding can help identify exactly which species are being sold and served. Plus, a look at the pluses and minuses of fish farming as well as devices that help reduce “bycatch”— marine animals that are unintentionally trapped and killed in fishing gear.

Research

Barcodes for Fish?

Like this Atlantic cod (*Gadus morhua*), every fish species has a distinct sequence of genes in its DNA. This genetic information enables scientists to create barcodes for fish—very similar to the barcodes scanned when you check out at the grocery store. The fish barcodes include valuable information like the name of the species and where it came from. Scientists are currently using museum specimens to build an [electronic database of fish barcodes](#). It will help [differentiate between closely related species](#), [protect endangered species](#), and sustain populations. Eventually the barcodes might be used to help consumers like you. For example, they could verify that the fish you're served in a restaurant is actually what you ordered.



Nearly 4,600 of the more than 29,000 known fish species have been barcoded so far. Credit: NOAA



An offshore cage is stocked with 70,000 Pacific threadfin (*Polydactylus sexfilis*). Credit: NOAA

Aquaculture

One way to meet the demand for seafood while also reducing pressure on wild fish populations is through fish farming—also known as [aquaculture](#). Scientific research is helping to ensure that [fish are farmed successfully and safely](#), without harming other marine species or polluting the ocean environment. For example, some fish are raised in large cages in the open ocean, miles from fragile coastal environments and busy boat traffic.

[Scientific studies](#) have also led to the controlled reproduction of fish that could not be farmed previously.

Technology

Preventing Needless Deaths

About a quarter of the marine animals trapped in fishing gear are not the intended catch. This unwanted catch, referred to as bycatch, usually die. Sometimes this unintended bycatch is [fish](#) too small to sell, other times it

consists of animals such as [sea turtles](#), dolphins, [sea birds](#), and even whales.

Recent technological advancements are helping to prevent such accidents. The "[Turtle Excluder Device](#)" shown here is one example. It allows turtles like the endangered loggerhead to escape from trawl nets through a grid of bars at the top or bottom.

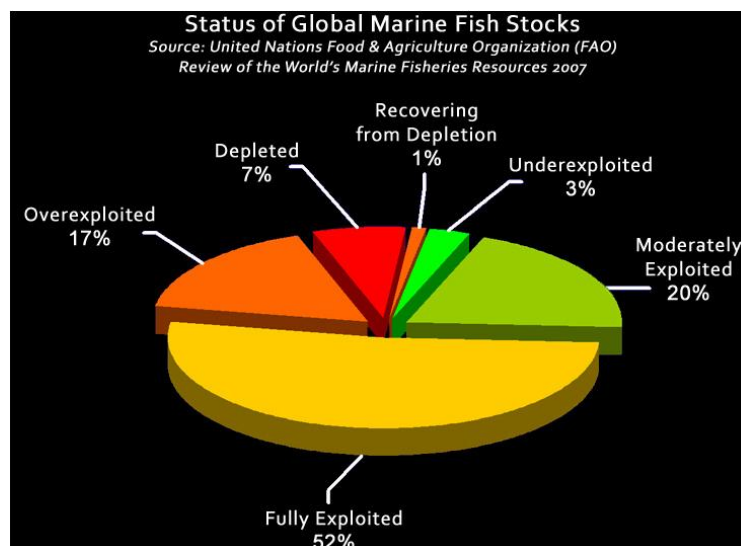


A Turtle Excluder Device (TED) enables a loggerhead turtle to escape from a net. Credit: NOAA

Threats

The Need to Act

During the 1950s, the [United Nations Food and Agriculture Organization](#) began collecting statistics about fisheries. At that time fishing on an industrial scale began in earnest -- fishing boats carried more sophisticated equipment and used it to capture larger and larger numbers of fish and shellfish. Their success is reflected in the latest statistics. Since the 1950s, 29% of [commercial fish species have suffered collapses](#). Entire fishing industries, including the cod industry in Nova Scotia, have disappeared. Many species, such as the [bluefin tuna](#) and [marlins](#), are on the brink of extinction. Even birds and mammals that feed on fish, including humpback whales in Canada's Bay of Fundy, are feeling the impact.



Solutions

So what's the answer? What can we do? Learn more here about sustainable consumer choices, cooking and recipes, and how to "look for the label" of one of the many available seafood labeling programs that can help you learn more about making the most sustainable seafood choice.

How You Can Help



Sablefish are among the many delicious and sustainable seafood choices. Credit: Chip Clark / Smithsonian Institution

Are you concerned about overfishing and other threats to ocean fish? Do you want to become part of the solution? Even as an individual consumer, there are plenty of things you can do. For a start, you should avoid eating certain kinds of fish and shellfish that are fished using unsustainable methods, or are known to be facing population losses. There are plenty of tasty alternatives to these fish, including smaller fish that are lower on the food chain (such as anchovies and sardines), local sustainably caught fish and shellfish, and simply becoming a more informed consumer can help you to

make more sustainable choices.

There are several guides available that can help you make responsible, ocean-friendly choices - at home, at the grocery store and while eating out:

- [Monterey Bay Aquarium Seafood Watch](#)
- [Blue Ocean Institute Seafood Guide](#)
- [Marine Stewardship Council seafood certification program](#)
- [Sustainable seafood recipes for at home](#)
- [Smithsonian's Sustainable Seafood Cookbook](#)
- [Restaurants serving sustainable seafood](#)