How Will Commercial Fishing Pressure Affect Skipjack Tuna?

The world’s most abundant tuna is resilient, but can the fish outswim our demand?

On the western fringes of Tuna Alley, the skipjack are about to fly.

As a fishing boat moves through the Molucca Sea, off the coast of the Indonesian island of Sulawesi, two crewmen fling shovelfuls of tiny baitfish overboard, stoking a foaming tuna feeding frenzy. More than 20 fishermen—barefoot, cigarettes clenched in teeth, and not a life jacket in sight—perch on the prow, whipping long, flexible fishing poles overhead. They hook and pull the tuna out of the water in graceful arcs, releasing the fish onto the deck of the boat and returning their barbless hooks to the ocean with a fluid, uninterrupted motion. Not a single line ever seems to get crossed as about 100 of the torpedo-shaped, purplish-blue-backed fish hit the deck every minute.

Catching one tuna at a time by a crew of individual fishers on a boat—referred to as “pole and line” on some canned-tuna labels—is about as sustainable as tuna fishing gets. It avoids the massive by-catch of sharks, turtles, and other sea creatures associated with many other tuna fisheries, and guarantees the fish are in immaculate condition for market, since they’re immediately put on ice.

After a day or two on the water, the boat will return to harbor at Bitung, a city in North Sulawesi. The tuna are destined for a local cannery, where they will be cleaned, cooked, canned, and ultimately shipped to supermarkets across the European Union and North America, the two largest markets for canned tuna in the world.

The fishermen’s quarry, the humble skipjack, is the smallest commercially exploited tuna and the most abundant of the world’s 15 tuna species. Even if you don’t recognize the name, there’s a good chance that if you have tuna in your cupboard, this is it.

At a maximum weight of just over 30 kilograms, about the size of a bull terrier—but reaching maturity at less than two kilograms—skipjack seem unremarkable next to the charismatic and much-desired Pacific bluefin, which can grow to three meters and weigh as much as a large grand piano. But skipjack possess twin superpowers—fast growth and impressive fecundity relative to their bigger tuna cousins—which has helped to sustain their abundance despite being the most caught tuna on Earth. Skipjack accounted for about half of the nearly seven million tonnes of tuna (and tuna-like species, including some mackerel) harvested globally in 2018, the most recent year for which catch numbers exist.

Skipjack are found throughout the world’s tropical and subtropical waters, including the Atlantic and Indian Oceans, but most are now caught in the western and central Pacific Ocean (WCPO), along an approximately 7,400-kilometer band of tropical water known informally as Tuna Alley, which stretches like an aquatic thoroughfare from Indonesia eastward through the exclusive economic zones of Pacific Island countries and territories including the Solomon Islands.

But despite their remarkable resilience as fast-growing breeding machines, some researchers are warning it’s only a matter of time until skipjack, representing one of the planet’s last great oceanic biomasses, are fished into decline in a way similar to the cod of Newfoundland or any number of bigger tuna species in the Atlantic and Indian Oceans.
“All industrial fisheries, with very few exceptions, are ultimately drained of life after a certain time,” says Daniel Pauly, a University of British Columbia fisheries biologist. “They increase and push, push, until they collapse. Why should skipjack tuna be any different?”

At stake is the future of these fish—which fuel the food chains of billfish, shark, and other larger tuna—and the future of a pantry staple that most North Americans take for granted as something that will always be one shopping trip away.

The rise of canned tuna as a fixture in American kitchens began over six decades ago when mismanagement of one fishery drove industrial tuna fishers to the world’s tropical oceans.

It was only with the collapse of California’s offshore sardine fisheries, a boom-and-bust fishery immortalized by John Steinbeck’s *Cannery Row*, that coastal Californian canneries increasingly turned their attention to tuna—first albacore and eventually other more plentiful species like yellowfin and skipjack.

Bob Shanahan, senior vice president of global procurement at food supplier Amercian International and a fish buyer with over 30 years of experience sourcing tuna for American markets, says that canned “tuna fish” became a hit with Americans mostly because it was a cheap and healthy form of protein that was mild on the palate.

“Americans don’t like strong-tasting fish. That’s why the consumers in this country gravitate toward things like sole and mahimahi, and why canned tuna took off in such a strong way.”

### Tonnes of tuna caught by species

<table>
<thead>
<tr>
<th>Skipjack tuna</th>
<th>Yellowfin tuna</th>
<th>Bigeye tuna</th>
<th>Albacore</th>
<th>Bullet and frigate tunas</th>
<th>Longtail tuna</th>
<th>Southern bluefin tuna</th>
<th>Little tunny</th>
<th>Atlantic bluefin tuna</th>
<th>Pacific Blackfin tuna</th>
<th>Black skipjack</th>
<th>Dogtooth tuna</th>
<th>Slender tuna</th>
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Most of the tuna Americans ate was sourced off the coast of California at first, Shanahan says, but as canned fish became more popular, imports started coming from sources farther afield, including Thailand, Japan, and South Korea. He points to the marketing of canned tuna as “chicken of the sea”—both a major tuna brand and an advertising catchphrase—as a marketing coup that connected the mild taste of tuna with a mainstream aversion to all things fishy.

The demand for canned tuna in the United States peaked years ago and is currently declining, COVID-19 stockpiling aside. To attract new customers, pouches of flavored vacuum-packed fish are replacing unflavored fish in cans—a potential appeal to time-harried modern families and people who do not own can openers. (StarKist, one of the most popular canned-tuna brands in the United States, is leading the transition, currently offering at least 17 flavors in pouches, including hot buffalo, bacon ranch, and spicy Korean.) The industry is also looking to growth markets in Latin America, Asia, and Eastern Europe, places where low cost per unit is even more critical to success than in the United States.

With this demand—current and potential—skipjack remains the most caught tuna species; in the United States alone, at least 60 percent of all canned tuna is skipjack, according to Shanahan.

Most of the skipjack caught in the WCPO today is harvested by purse seining, an industrial fishing method in which dense schools of fish near the surface are encircled with a large net and scooped out of the ocean. Beginning in the early 1950s, fleets from the United States, South Korea, and Taiwan were the primary tuna purse seiners in the Pacific, but by the 2000s, vessels from China, Ecuador, El Salvador, New Zealand, Spain, and the Pacific Islands became active, too.
Most tuna are caught using purse seines. In this method, a large net deployed around a school of fish is “pursed” on the bottom to prevent the fish from escaping. (Serg

Purse seining became even more efficient at catching tuna by the widespread use of fish aggregating devices (FADs), which float on the surface and naturally attract skipjack and many other marine creatures. Millions of FADs are currently employed in the Pacific, where many become lost or abandoned but continue to attract fish. Ecological concerns about the by-catch associated with FADs, brought to the public’s attention primarily by environmental groups, has led some regulators to ban this approach for purse seiners across much of the Pacific.

Catching by pole and line—a more selective fishery and the primary way tuna were caught prior to purse seining—is a more sustainable fishing method, but is of limited popularity with consumers.

“Pole and line fills only a fraction of the global demand for canned tuna, supplying sustainability markets in countries that are willing to pay more, primarily in North America and Western Europe,” says Keith Symington, fisheries advisor with World Wide Fund for Nature in Vietnam who has worked on tuna management and sustainable seafood in Asia-Pacific since 2004.
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“People with industry or regulatory agencies will tend to say things are okay. And people more oriented toward conservation—and I’m one of the latter—will say things collapsed, the people who say it is stable are seemingly right, until all of a sudden, they are not. The question of how to know when we reach that critical juncture is problematic, Pauly says, and therein lies a great, recurring tragedy. As long as a fishery has not cleared, this point has not been reached.

Fisheries managers define a tuna stock as overfished when it has been reduced to levels that place its future in jeopardy, Pilling says, and as the stock assessment makes recent years, the current WCPO catch of skipjack is still below the point at which the stock would be permanently harmed and begin to decline irreversibly.

Skipjack in the WCPO would only be considered overfished if the reproductive adult fish fell below 20 percent of the estimated population in the absence of a fishery.

Fisheries scientist Graham Pilling with the Oceanic Fisheries Programme at the Secretariat of the Pacific Community and a coauthor of the stock assessment says that conclude that skipjack aren’t currently being overfished.

Fisheries Commission, one of five commissions managing the world’s tuna fisheries and the one that manages skipjack catches across Tuna Alley and beyond, the authors Fisheries managers in the WCPO, however, do not see an imminent threat. In the most recent stock assessment of skipjack tuna by the Western and Central Pacific Fisheries Commission, the WCPO's skipjack are at 86 percent of unfished levels, the authors conclude.
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