



The Story of Atlantic Bigeye Tuna

Improved controls urgently needed to stem this species' rapid decline

Overview

Everything that Atlantic bigeye tuna (*Thunnus obesus*) do, they do with speed. These tuna reach sexual maturity in just two to three years and can grow in that time from small enough to swim through the eye of a needle to more than 400 pounds. They are formidable predators with the ability to outmaneuver, outswim, and eat just about anything that they can fit in their mouths. Their considerable size, however, makes them primary targets for tuna fishing fleets around the world.

Atlantic bigeye fisheries are worth hundreds of millions of dollars annually for fishers and nearly US\$1 billion a year at the final point of sale.¹ Bigeye support one of the most valuable fisheries in the Atlantic Ocean, feeding not just the sizeable canned tuna market but also the demand for high-end sashimi. Years of overfishing, recent population declines, and risky fishing practices, however, threaten the long-term viability and profitability of bigeye fisheries. The good news for bigeye and the industry is that recovery can be relatively fast, in large part because this tuna grows so rapidly.

Two years ago, an independent performance review conducted for the International Commission for the Conservation of Atlantic Tunas (ICCAT) —the intergovernmental body that oversees management of bigeye—called on ICCAT to make bigeye recovery a “key, immediate management priority.”² The review highlighted weaknesses in bigeye management and recommended that the quota “be decreased further to increase the probability of rebuilding in a shorter period.”

ICCAT has not followed through on the panel's advice, however, and has not adopted the quota cuts needed to give this stock more than a coin flip's chance of recovery. This approach harkens back to ICCAT's controversial management of Atlantic bluefin tuna in recent decades. The Commission did not set bluefin quotas in line with scientific advice until 2009, after an independent performance review called ICCAT an "international disgrace."³ At that point, ICCAT's reputation had been tarnished, and fishers faced a possible international trade ban on Atlantic bluefin.

This year, fishery managers must decide whether to go down a similar path with Atlantic bigeye or honour their commitment to precautionary, science-based management.

Growth in the fishery, decline of the stock

Fishing for Atlantic bigeye had humble beginnings on the islands of Madeira and the Azores, both autonomous regions of Portugal. In 1950, a few Portuguese pole-and-line fishers were the only ones targeting Atlantic bigeye, with a catch of 808 metric tons that year.⁴ By 1994, catch of Atlantic bigeye peaked at 135,000 metric tons, with dozens of countries targeting it with a variety of fishing gears.⁵

Longline vessels from Japan, followed by those from Taiwan, Province of China, and South Korea, drove the early growth in the fishery, targeting adult Atlantic bigeye largely for the sushi and sashimi markets. But starting in the 1990s, the catch of juvenile bigeye tuna increased as purse seine vessels targeting skipjack tuna ramped up the use of satellite-tracked fish aggregating devices (FADs), which attract young bigeye in addition to adult skipjack. (See below.)

Conflicts Between Purse Seine, Longline Interests Undermine Bigeye Conservation

Purse seine fleets using huge nets increasingly rely on fish aggregating devices to catch large quantities of skipjack tuna. But juvenile bigeye tuna also congregate around these FADs, forming multi-species schools of similarly sized fish. This means that FAD fishing for skipjack is leading to increased catch and decreased average size of the Atlantic bigeye tuna traded in seafood markets.

Growth in the purse seine catch of juvenile bigeye has also contributed to overfishing of the bigeye population. Fewer adult bigeye are then available for catch by fishers using longlines. While the adult bigeye caught and sold by the longline fleet for sushi and sashimi markets are worth nearly \$6,000 per metric ton at the dock, the juvenile bigeye caught and sold by purse seine fleets for canned tuna are worth only about \$2,000 per metric ton.⁶

At this point, curtailing purse seine vessels' catch of juvenile bigeye would likely force them to change their fishing strategies and potentially result in lower skipjack revenue. So a tension exists between maintaining the current approach to skipjack fishing or conserving bigeye tuna.

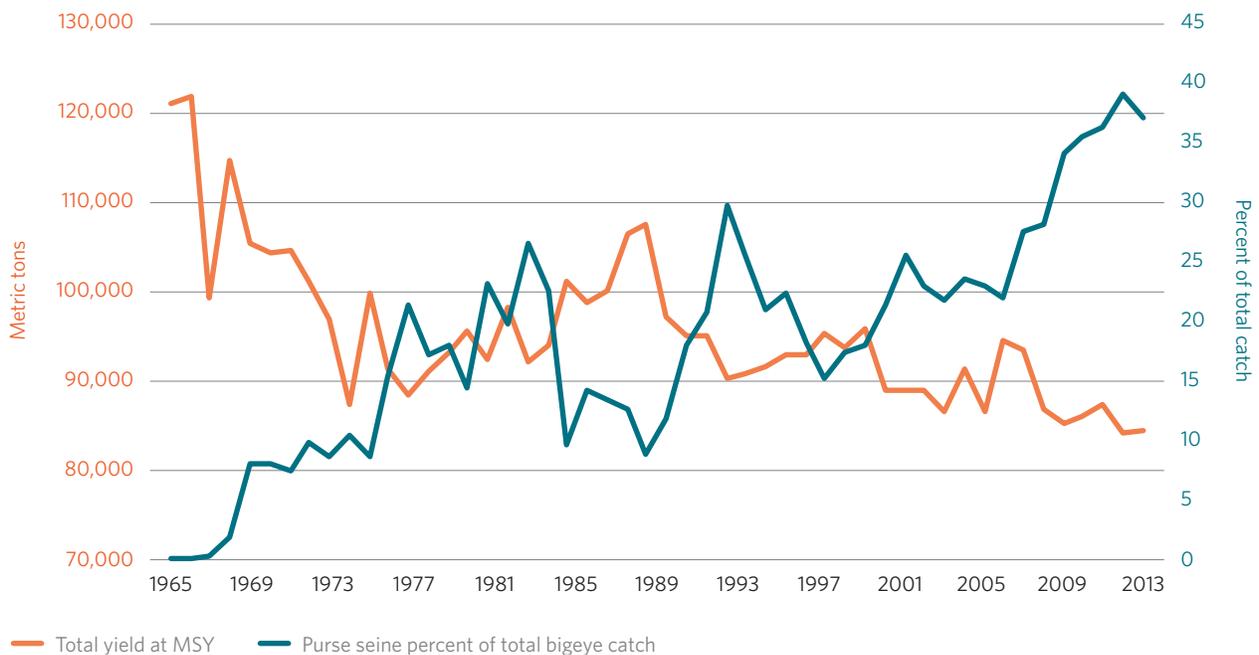
Since hitting a peak in 1994, Atlantic bigeye landings have declined, indicating that the population has been fished down to levels no longer capable of supporting the maximum sustainable yield (MSY). MSY refers to the largest average catch that theoretically can be taken from a stock without affecting the long-term stability of the population.

In fact, scientists confirmed in 2015 that the population is not only severely depleted but that fishing pressure also remains too high to allow the stock to grow.⁷ Furthermore, the shift to catching young bigeye around FADs has compromised the productivity of the population and its ability to grow. Specifically, the potential sustainable catch has decreased while the number of adult fish needed to support that lower catch has increased. (See Figure 1.) This combination is bad news for the species, the role that it plays in the ecosystem, and the coastal communities and economies that rely on Atlantic bigeye.

The smaller-scale operators, like the original fishers from Madeira and the Azores, continue to fish for Atlantic bigeye via pole and line, but their yields have declined significantly. Today, however, some three dozen countries report catching this tuna, making its management—and the balancing of interests across countries and gear types—a significant challenge.

Figure 1
More Purse Seine Effort Has Led to Less Productive Atlantic Bigeye Fishery, 1965-2014

Incidental catch of juveniles is taking a toll on the maximum sustainable yield



Note: MSY refers to maximum sustainable yield, the largest average yield, or catch, that theoretically can be taken from a stock without affecting the long-term stability of the population.

Source: International Commission for the Conservation of Atlantic Tunas, "Task-I Web Statistical Database," accessed March 5, 2018, <http://iccat.int/en/t1.asp>; International Commission for the Conservation of Atlantic Tunas, "Report for Biennial Period 2016-17, Part I 2017—Volume 2" (2018), http://iccat.int/Documents/BienRep/REP_EN_16-17_II-2.pdf

© 2018 The Pew Charitable Trusts

Current management

The governments and industry with interest in bigeye—and skipjack—agree that bigeye are in trouble and that action is needed. The debate is around who in the fishery will pay the price. Since ICCAT's decisions are reached by consensus, the only agreements thus far have been to minor cuts in quota and to test measures less burdensome to fishers, steps that fall well short of what science indicates is needed to give the population a strong chance of rebuilding.

The 2015 stock assessment showed for the first time that the Atlantic bigeye was overfished and that overfishing was occurring. ICCAT's response was to adopt a "recovery plan," which included a reduced quota largely based on a proposal by the European Union. The plan gave bigeye just a 49 percent chance of recovery by 2028, assuming the new quota was not exceeded. These odds were so poor that the 2016 independent performance review questioned ICCAT's decision to adopt a recovery plan with such a low probability of success.

ICCAT's total catch limit is 65,000 metric tons, but if each recent minor harvester were to catch its allowable amount, the catch would top 160,000 metric tons—more than double the quota but still legal.

Making matters worse, the measure adopted did not limit the total catch of bigeye. It capped catch for the major harvesters—such as Japan and the EU—but maintained open-ended exemptions for countries considered to be minor harvesters. (See Table 1.) For example, the total catch limit set by ICCAT is 65,000 metric tons, but if each recent minor harvester were to catch its allowable amount, the catch would top 160,000 metric tons. That's more than double the quota but still legal, given the way the measure was structured. ICCAT also has put nothing in place to prevent additional nations from entering the Atlantic bigeye fishery as minor harvesters, which could further increase landings. In recent years, several nations, including one that does not border the Atlantic, have become new minor harvesters using purse seine vessels to fish for skipjack tuna—and incidentally bigeye as well.

The minor harvester provision has become a critical loophole in the ICCAT measure, allowing industry or governments to re-flag vessels to new or existing minor harvesters. Doing that allows fishers to expand the catch beyond their allocated quota and put even more pressure on the stock. While ICCAT was well aware of this practice when it adopted the 2015 measure, limiting the entry of minor harvesters into this depleted fishery has been a non-starter to this point.

The ICCAT measure did include some positive restrictions on FAD use, such as an expansion of the area included in a two-month annual prohibition on FAD fishing and a limit on each vessel's active FADs to 500. But these decisions were not based on scientific advice and are unlikely to boost the chances of recovery. For example, preliminary analyses conducted by ICCAT scientists found that the current FAD fishing prohibition is ineffective because fleets simply move their FAD fishing to adjacent waters during closure periods. A 2017 proposal by South Africa and seven co-sponsors sought to address juvenile bigeye mortality linked to FAD fishing. ICCAT members debated possible measures but did not reach consensus.



Fabien Forget

Bigeye tuna and yellowfin tuna swim in a purse seine net.

Table 1
Dominant Interests in the Atlantic Bigeye Fishery, 2018
 Japan, EU together account for more than half of quota

Quota holder	Percentage of quota (2016-18)	Dominant gear
Japan	27.2%	Longline
European Union	26.1%	Purse seine
Taiwan, Province of China	18.0%	Longline
China	8.3%	Longline
Ghana	6.6%	Purse seine
South Korea	2.3%	Longline
Philippines	0.4%	Longline
Minor harvesters	11.1%	Mixed

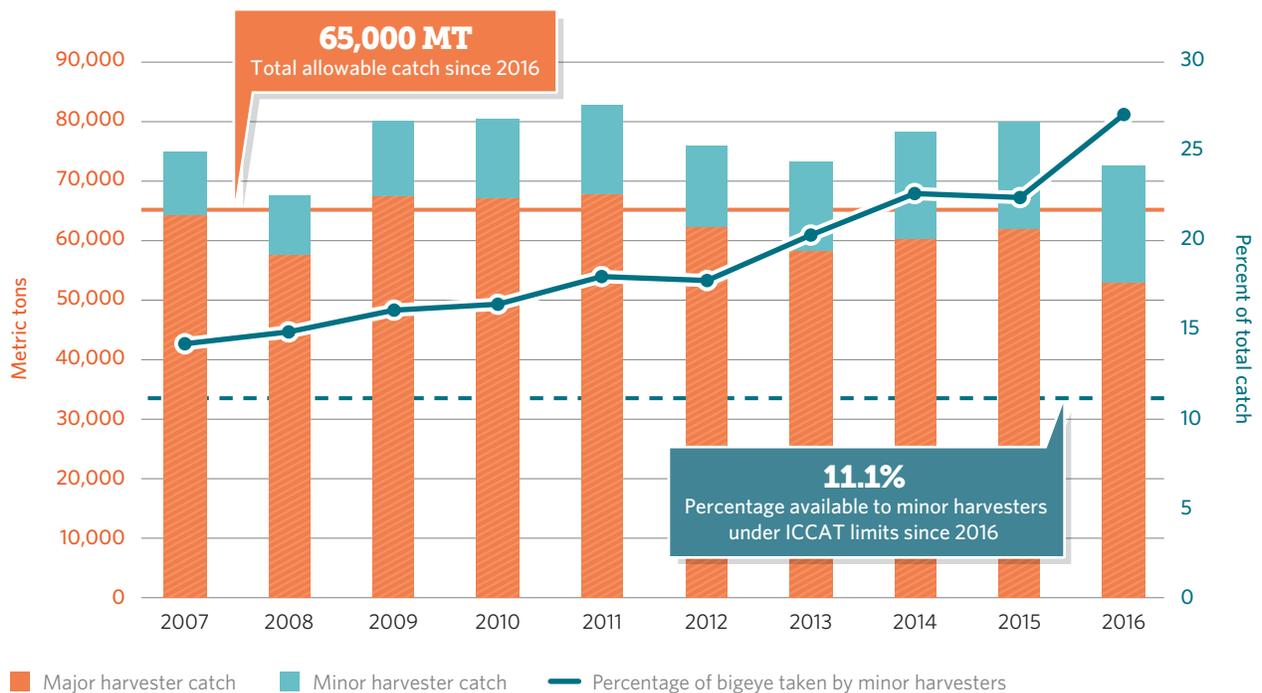
Source: International Commission for the Conservation of Atlantic Tunas, "Recommendation by ICCAT on a Multiannual Conservation and Management Program for Tropical Tunas" (2016), <http://iccat.int/Documents/Recs/compendiopdf-e/2016-01-e.pdf>

© 2018 The Pew Charitable Trusts

Not surprisingly, the measure adopted in 2015 has not been successful. The aggregate catch by minor harvesters is approaching 30 percent of the total. (See Figure 2.) Because only 11 percent of the total catch has been allotted for minor harvesters, the aggregate has exceeded the adopted limits, which has driven further overfishing. At reported 2016 total catch levels, which were 12 percent above the quota, the likelihood of successfully ending overfishing and recovering the bigeye stock by 2028 was reduced to about 38 percent.⁸ Actual catch totals for 2016 and 2017 could be even higher, further reducing the probability of recovery.

The 2016 reported catch overage triggered a mandatory review of the recovery plan at ICCAT’s November 2017 annual meeting. The parties agreed in theory that quota cuts were needed, but they could not agree on which countries and fishing gear sectors would take the reductions or how big they would be. So the flawed earlier measure remains in effect.

Figure 2
Minor Harvesters Responsible for Increasing Share of Atlantic Bigeye Catch, 2007-16
 Without greater controls, bigeye quota likely to continue to be exceeded



Source: International Commission for the Conservation of Atlantic Tunas, “Task-I Web Statistical Database,” accessed March 5, 2018, <http://iccat.int/en/t1.asp>

© 2018 The Pew Charitable Trusts

Stronger measures are needed

With a new stock assessment this summer, ICCAT is scheduled to adopt a revised recovery plan for Atlantic bigeye in November. The question is whether the Commission, and key governments such as the EU, Japan, and China, will agree to the science-based catch reductions needed to give bigeye a high probability of rebuilding to a healthy level. With challenging quota negotiations for Atlantic bluefin tuna finalized last year, there is an opportunity to address—and no rationale to delay—action on bigeye this year. As with bluefin a decade ago, the Commission and fishery stakeholders will face intense public pressure to make the necessary decisions that may require all parties and fleets to bear the costs, some more than others.

One thing is certain: To be successful, the new plan must include a quota with a much higher likelihood of success than the current plan—without delaying the recovery timeline. To be effective, the plan should include:

- A system to ensure that the total catch of both major and minor harvesters does not exceed the overall quota. That could be accomplished by including all fishing nations in a quota allocation scheme or through an alternative approach that still ensures fair distribution of fishing rights.
- At least a 70 percent chance of ending overfishing and recovering the population by 2028.
- Specific steps to reduce juvenile Atlantic bigeye catch through reform of FAD management, including reductions in the number of FADs deployed and the purse seine fishing effort allowed on tuna schools associated with FADs.
- A commitment to develop and implement a management procedure for Atlantic bigeye that would require agreement in advance on the management response to changes in the population status.

Beyond the urgent steps needed to help the Atlantic bigeye population recover, ICCAT must continue to move from setting quotas through traditional negotiations to a process that relies on pre-agreed management procedures or harvest strategies. When policymakers implement these procedures, they set a long-term vision for the fishery.

As seen in other fisheries, the switch from reactive to proactive management is less expensive, less political, and more effective.⁹ ICCAT considers Atlantic bigeye—along with the other tropical tunas—priority stocks for development of these management procedures. Policymakers should maintain their commitment to implement this new approach by 2020 but not allow the process to be used as an excuse to delay critical actions this year.

Conclusion

This is an important year for Atlantic bigeye tuna management at ICCAT. From its experience with Atlantic bluefin, ICCAT learned that science-based reductions in catch and capacity have short-term economic costs but can lead to faster rebuilding and increased yield. Still, policymakers will need to do their part, and industry must accept its portion of the costs to give the population a fighting chance of rebuilding. Success would not only mean more bigeye in the water, but also more fish in the fishery. It also would mean that ICCAT has recommitted to be a leader in global fisheries management, even when times are hard.

Endnotes

- 1 Grantly Galland, Anthony Rogers, and Amanda Nickson, "Netting Billions: A Global Valuation of Tuna," The Pew Charitable Trusts (2016), <http://www.pewtrusts.org/tunavalue>.
- 2 International Commission for the Conservation of Atlantic Tunas, "Report of the 2nd Independent Performance Review of ICCAT" (2016), http://iccat.int/Documents/Other/0-2nd_PERFORMANCE_REVIEW_TRI.pdf.
- 3 International Commission for the Conservation of Atlantic Tunas, "Report of the Independent Performance Review of ICCAT" (2009), http://iccat.int/Documents/Other/PERFORM_%20REV_TRI_LINGUAL.pdf.
- 4 International Commission for the Conservation of Atlantic Tunas, "Task-I Web Statistical Database," accessed March 5, 2018, <http://iccat.int/en/t1.asp>.
- 5 Ibid.
- 6 Graeme Macfadyen, "Estimate of the Global Sales Values from Tuna Fisheries—Phase 3 Report," Poseidon Aquatic Resource Management Ltd. for The Pew Charitable Trusts (2016), <http://www.pewtrusts.org/-/media/assets/2016/05/estimate-of-global-sales-values-from-tuna-fisheries--phase-3.pdf>.
- 7 International Commission for the Conservation of Atlantic Tunas, "Report for Biennial Period, 2014-15, Part II (2015)—Vol. 2" (2015), http://iccat.int/Documents/BienRep/REP_EN_14-15_II-2.pdf.
- 8 International Commission for the Conservation of Atlantic Tunas, "Report for Biennial Period, 2016-17, Part II (2017)—Vol. 2 - SCRS," (2018), http://iccat.int/Documents/BienRep/REP_EN_16-17_II-2.pdf.
- 9 The Pew Charitable Trusts, "Case Studies of Harvest Strategies in Global Fisheries" (2016), <http://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/09/case-studies-of-harvest-strategies-in-global-fisheries>.

For further information, please visit:

pewtrusts.org/tuna

Contact: Leah Weiser, communications officer

Email: lweiser@pewtrusts.org

Project website: pewtrusts.org/tuna

The Pew Charitable Trusts is driven by the power of knowledge to solve today's most challenging problems. Pew applies a rigorous, analytical approach to improve public policy, inform the public, and invigorate civic life.