

# Pole-and-Line Tuna Fishing in the World: Status and Trends

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Robert Gillett is a fisheries specialist based in Suva, Fiji. Gillett has been involved in a large number of projects in the Pacific Islands, as well as in the Indian Ocean, and has carried out many global fisheries studies, including a worldwide study of tuna baitfish management. He was the reviewer of the Maldives Marine Stewardship Council (MSC) assessment. Gillett recently helped Maldives to formulate its livebait management plan – and soon will be involved in similar work for Indonesia. He is currently a member of the International Pole & Line Foundation’s Scientific & Technical Advisory Committee (STAC).



The International Pole & Line Foundation (IPNLF) works to develop, support and promote socially and environmentally responsible pole-and-line and hand-line tuna fisheries around the world. IPNLF’s ambition is to contribute to thriving coastal fisheries, including the people, communities, businesses and seas connected with them.

IPNLF uses the influence of the market to forge change through practical fishery projects and stakeholder cooperation. IPNLF membership is open to organisations involved in the one-by-one tuna supply chain, from fishing associations to suppliers, to retailers. Allied with our members, we demonstrate the value of pole-and-line tuna to consumers, policy-makers and throughout the supply chain.

IPNLF works across science, policy and the seafood sector, using an evidence-based, solutions-focused approach with guidance from our Scientific & Technical Advisory Committee and Board of Trustees.

IPNLF was officially registered in the United Kingdom in 2012 (Charity 1145586), with a branch office in London, the Maldives and a staff presence in Indonesia

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## Abbreviations used in this report

GRT Gross Registered Tonnage

IATTC Inter-American Tropical Tuna Commission

ICCAT International Commission for the Conservation of Atlantic Tuna

IOTC Indian Ocean Tuna Commission

IPNLF International Pole & Line Foundation

ISSF International Seafood Sustainability Foundation

MSC Marine Stewardship Council

MT Metric tonnes

NGO Non Governmental Organisation

WCPFC Western and Central Pacific Fisheries Commission

# 1. Introduction



## 1.1 Background

In the 1950s, more tuna was caught with pole-and-line than any other type of gear. In the past six decades, though, the proportion of the tuna catch taken by other gear, such as purse seining, has expanded, while the pole-and-line share has generally decreased. Recognising the many positive characteristics of pole-and-line tuna fishing, especially its social and environmental attributes, a significant effort has gone into the promotion of pole-and-line tuna fishing in the past 15 years. This has included initiatives from the International Pole & Line Foundation (IPNLF), the Forum Fisheries Agency, WWF, Greenpeace, other NGOs, government fisheries agencies, and private companies. IPNLF's position is that pole-and-line fisheries need to be developed and championed worldwide.

To promote pole-and-line tuna fisheries globally, some knowledge of the status and trends in the major fisheries is important. In 2012, the International Seafood Sustainability Foundation (ISSF) commissioned a report on the baitfish fisheries that support pole-and-line operations (Gillett 2012). That report contained a section on the status of the 22 pole-and-line fisheries in the world thought to be significant. The present report represents an update of that information.

## 1.2 Methodology

The information used for determining the current status of 22 significant pole-and-line fisheries was obtained from a variety of sources:

- The statistics of the regional fisheries management organisations concerned:
  - Western and Central Pacific Fisheries Commission (WCPFC)
  - International Commission for the Conservation of Atlantic Tunas (ICCAT)
  - Inter-American Tropical Tuna Commission (IATTC)
  - Indian Ocean Tuna Commission (IOTC)
- Published reports
- National tuna specialists
- Informal documentation

Most of the pole-and-line fisheries are located in developing countries, which characteristically have poor or non-functional fisheries statistical systems – hence the need to use any available information.

In cases where conflicting catch information was received, some judgement was required, with reports by local fishery specialists given the most credibility. As the present survey was conducted in just few days, the results should be considered indicative rather than precise.

The periods covered by the 2012 study and the present study were generally a few years prior to the surveys, the latest years for which statistics are available. That is, 2008-2010 and 2011-2013 for the 2012 and 2015 surveys, respectively.

### 1.3 Terminology

Some clarification of terminology used in this report is required:

- “Pole-and-line fishing” refers to tuna fishing by which one fisher uses a pole-and-line to catch one tuna fish at a time, and using live-baitfish
- “Pole-and-line fishing” is taken to be the same as “baitboat fishing”
- The term “tuna” is used for “principal market species of tuna”: skipjack tuna, yellowfin tuna, bigeye tuna, albacore, Atlantic bluefin tuna, Pacific bluefin tuna, and southern bluefin tuna



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Pole-and-line fishers in Ecuador.

## 2. Results





## 2.1 Survey results

The results of the survey are given in Table 1.

**Table 1: Estimates of recent (2011-2013) annual pole-and-line tuna catches.**

Area or Country	Recent Annual Catches (tonnes/year)	Details	Source
<b>Japan</b>	100,000	Total annual tuna pole-and-line catch ranged from 250,000 to 300,000 metric tonnes (mt) in 1970s and early 1980s. It decreased to around 150,000 mt in 1990s and around 100,000 mt in recent years. Pole-and-line vessels in Japan are divided by domestic regulation into coastal (<20 Gross Registered Tonnage), offshore (20-120 GRT) and distant water (>120 GRT) categories. Total tuna pole-and-line production by all size categories was 100,173 mt in 2014.	Uosaki et al. (2015), OFP (2014), McCoy (2014)
<b>Indonesia</b>	90,000	In the past decade there has been a huge range of estimates of annual pole-and-line tuna production: from 60,000 to 240,000 mt in various reports. Recently, more credible sources indicate the total tuna production by pole-and-line was estimated to be 103,000 mt in 2013 and 82,000 mt in 2014. There has been a major drop since 2011, probably because fewer boats fishing due to deteriorating economics. About half of the pole-and-line production is for canning and/or export, with the remainder for domestic fresh/frozen consumption.	Williams and Terawasi (2009), Ingles et al. (2008). A.D. Lewis (pers. comm.), Lewis (2015), Anon (2015)
<b>Maldives</b>	76,000	Production of skipjack and yellowfin by pole-and-line fishing reached an all-time high in 2006 of about 150,000 mt. In the four-year period 2011 to 2014 the catch averaged about 76,000 mt. A switch to hand-line gear accounts for much of the pole-and-line decline.	Adam et al. (2014), unpublished data

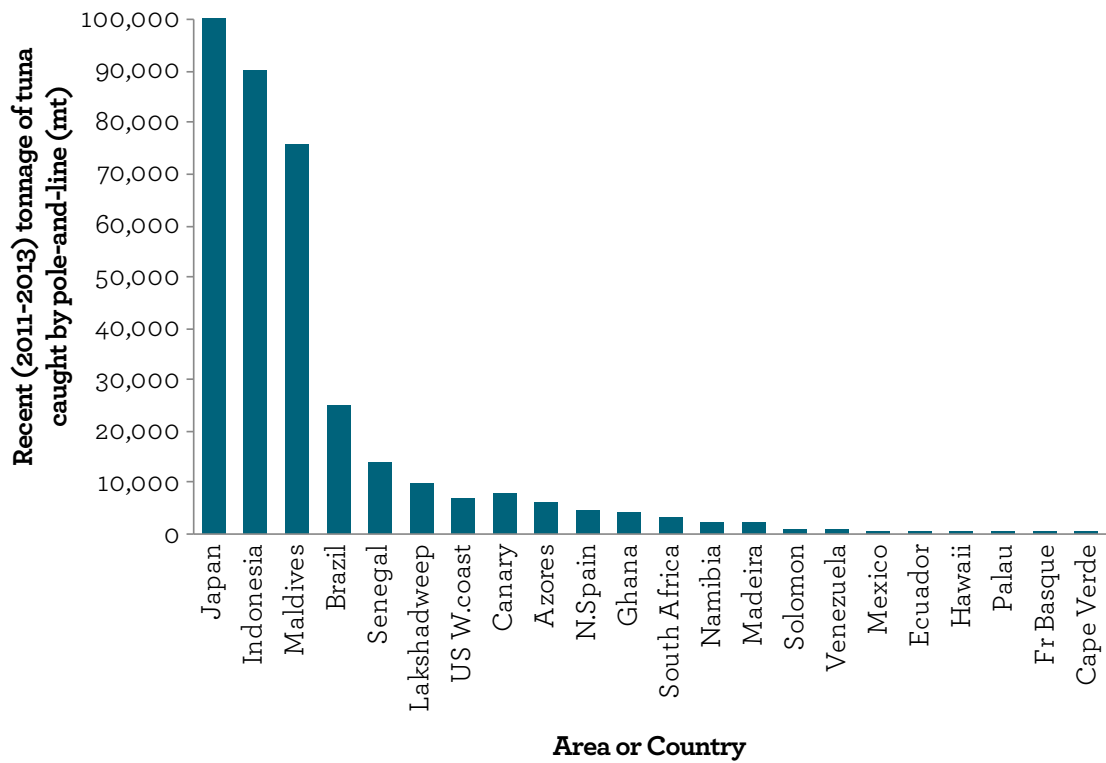
Area or Country	Recent Annual Catches (tonnes/year)	Details	Source
<b>Brazil</b>	25,000	Average annual production of pole-and-line tuna over the three-year period of 2011-2013 was 25,485 mt. The fishing effort of the Brazilian baitboats has stabilised over the past 20 years.	ICCAT (2015), ICCAT statistics, H. Hazin (pers. comm.)
<b>Senegal</b>	14,000	The fleet size peaked in the late 1950s with 88 baitboats. Vessel productivity increased in the 1980s when a new technique was developed, in which a team of two baitboats stays with a tuna school for several months. The Dakar-based fleet currently consists of 15 vessels: seven Senegalese-flagged, seven Spanish-flagged, and one French-flagged. Annual catches of tuna are about 14,000 mt of tuna.	Hickman (2015), ICCAT statistics
<b>India Lakshadweep</b>	13,500	Little of the pole-and-line tuna caught here enters international trade. From IOTC data and a knowledge of Indian tuna fisheries the catch in the last few years has averaged about 13,500 mt.	IOTC data, J.Million and M.Herrera (pers. comm.)
<b>Spain Canary Islands</b>	8,000	Tuna catches reached a maximum of 15,667 mt in 1994. The average annual pole-and-line tuna catch during the period 2011-2013 was 8,065 mt. The fishery has been fairly stable in recent years.	ICCAT (2015), ICCAT statistics
<b>USA West Coast</b>	7,000	The total annual catches by the fleet (both trolling and pole-and-line) have been about 10,000 to 12,000 tonnes in recent years. The 2014 catch of albacore by trolling and pole-and-line was 13,414 mt tons compared to 12,310 mt caught in 2013 and 14,149 mt caught in 2012. The target is albacore. About 2/3 of the catch (that taken close to the coast) is made specifically by pole-and-line fishing with livebait.	N.Webster (pers. comm.), J.Childers (pers. comm.)

Area or Country	Recent Annual Catches (tonnes/year)	Details	Source
<b>Portugal Azores</b>	6,000	Official statistics indicate that the average annual pole-and-line tuna catch during the period 2012-2014 was 6,703 mt, with the 2014 catch being 3,409 mt.	M. Machete (pers. comm.), T. Morato (pers. comm.), Pham et al. (2013), ICCAT statistics
<b>Spain Basque Country and Cantabria</b>	5,000	The number of pole-and-line boats has gone down in recent years. Now there are about 39 in the Basque country and 15 in Cantabria. The target species is albacore. In the three year period 2011-2013 the average annual tuna pole-and-line catch was 4,961 mt.	H.Arrizabalaga (pers. comm.), ICCAT statistics
<b>Ghana</b>	4,300	In the three-year period 2011-2013 the annual “tuna landings” by baitboats have averaged 21,526 mt – but 80% of those landings were purportedly caught by purse seine gear. This equates to an annual catch by “pure baitboat fishing” of about 4,300 mt/year.	P.Bannerman (pers. comm.), ICCAT statistics
<b>South Africa</b>	3,400	The catch figure given is the average annual tuna catch for the South Africa-flagged fleet in the three-year period 2011-2013. Most of the catch is albacore. Any catches made in the Indian Ocean are attributed to the Atlantic.	ICCAT statistics, M.Herrera (pers. comm.), West et al. (2014)
<b>Namibia</b>	2,500	The catch figure given is the average annual tuna catch for the Namibia-flagged baitboat fleet in the three-year period 2011-2013. Most of the catch is albacore. A large part of the catch is taken with dead baitfish.	ICCAT statistics L.Clark (pers. comm.)
<b>Portugal Madeira</b>	2,000	The catch figure given is the average annual tuna catch in the Madeira area in the three-year period 2011-13.	ICCAT statistics

Area or Country	Recent Annual Catches (tonnes/year)	Details	Source
<b>Solomon Islands</b>	1,300	The pole-and-line fishery began in 1971 and reached its height in 1986 with a catch of 38,644 mt of tuna. At one point over 30 pole-and-line vessels were operating. In 2014, three pole-and-line vessels operated. The average annual catches for the fleet for the period 2011-2014 was 1,331 mt.	MFMR (2015), MFMR (unpublished data), F.Wickham (pers. comm.)
<b>Venezuela</b>	1,000	Figure given is the average annual tuna catch in the three-year period 2011-2013.	ICCAT statistics
<b>Mexico Baja California</b>	700	IATTC statistics indicated that three pole-and-line vessels made tuna catches of 562 mt in 2012 and 781 mt in 2013. The fleet withdrew from MSC certification process in May 2015.	IATTC statistics
<b>Ecuador</b>	650	The pole-and-line tuna catch was at a maximum in the 1960s. Currently, the six active pole-and-line vessels catch a total of about 650 mt annually.	Scott (2014)
<b>USA Hawaii</b>	200	The one remaining vessel (from a fleet that numbered 35 boats in the late 1940s and six boats in 1991) averages about two mt of tuna per day, but fishing is sporadic.	Gillett (2011), D.Itano (pers. comm.)
<b>Palau</b>	100	The 2010 catch was 108 mt per year for the single vessel operating, according to the vessel operator. The vessel continues to operate.	Gillett (2011), BOFM (2015), N.Malsol (pers. comm.)
<b>France Basque Country</b>	80	During the three-year period 2011-2013, an annual average of 78 mt was caught by pole-and-line fishing. This is three or four vessels catching a small quota of bluefin.	B.Caillart (pers. comm.), ICCAT statistics
<b>Cape Verde</b>	80	81 mt of tuna were reported caught by pole-and-line fishing in 2013.	ICCAT statistics
<b>TOTAL</b>	<b>360,810</b>		

The tuna catches given in Table 1 are graphed in Figure 1.

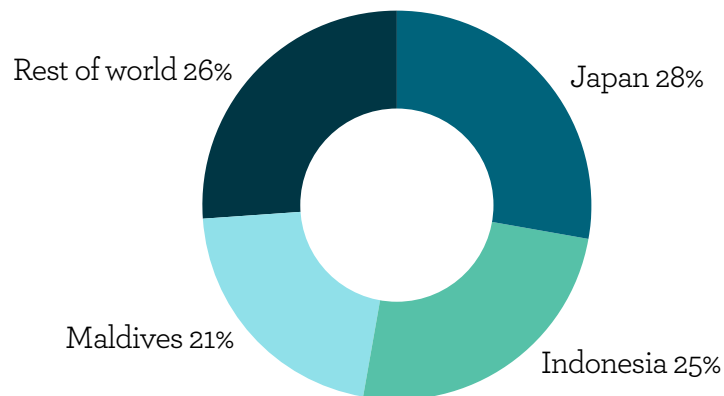
Figure 1: Estimates of recent (2011-2013) annual pole-and-line tuna catches.



Source: Table 1.

From Figure 1 it can be seen that three countries (Japan, Indonesia, and the Maldives) produce most of the world’s pole-and-line caught tuna. This feature is shown in Figure 2.

Figure 2: The proportion of pole-and-line tuna caught by the major producers.

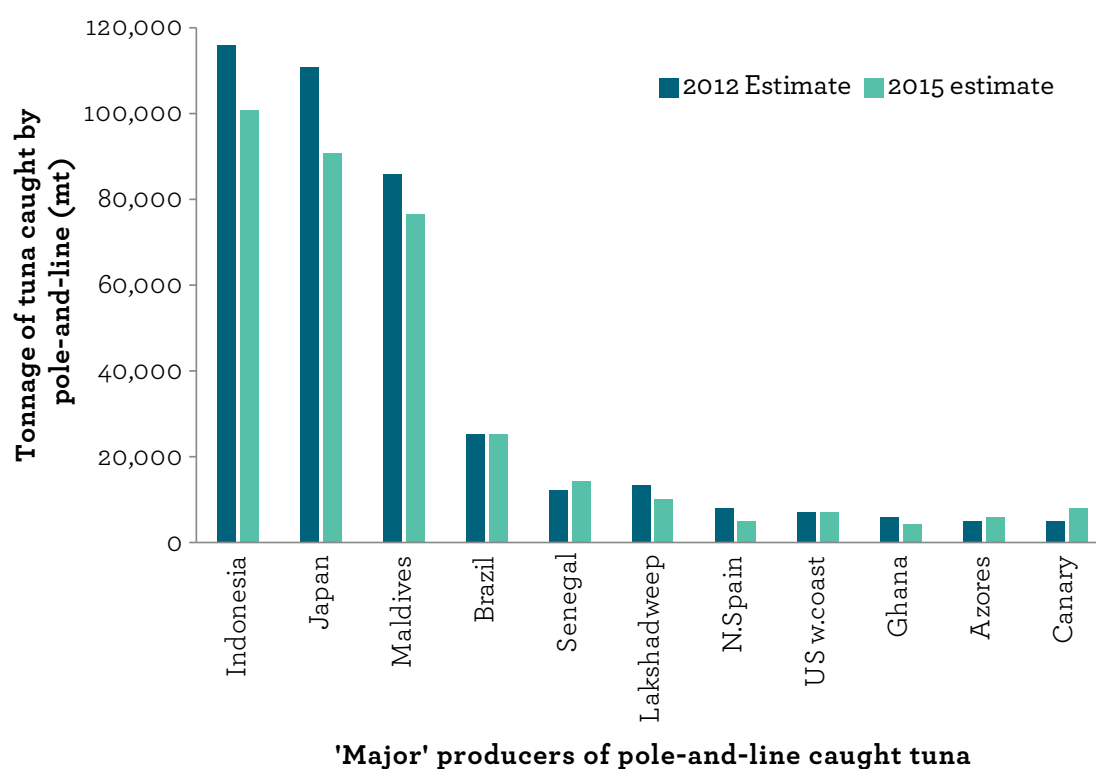


Source: Table 1.

## 2.2 Trends in the recent studies

With some care, the results of this survey can be compared to those of the 2012 survey. The nominal results are given in Figure 3.

Figure 3: Comparing the 2012 and 2015 surveys for the major producers.



Source: Table 1 and Gillett (2012); the “major producers” are those with catches greater than 5,000 mt/yr.

The changes shown in Figure 3 need to be viewed cautiously. For the minor fisheries the changes can represent a significant drop in production due to fewer vessels fishing (e.g. northern Spain), but for others it can be better data availability during the latter study (Senegal, Ecuador), and normal inter-annual variability (Azores, Canary) – or a combination of these factors.

The total estimated global pole-and-line catch in the 2012 survey was about 399,000 mt, compared with the 357,000 mt of the present survey. The 10% drop in the three-year period is largely due to the big players: Indonesia (fewer vessel fishing due to declining profitability), Japan (fewer vessel fishing due to a variety of reasons (McCoy 2014)), and the Maldives (many vessels switched to handline gear).

## 2.3 Longer term trends

Using the experience from carrying out the 2012 and 2015 surveys one feature is quite apparent: almost all of the world's pole-and-line fisheries have been in a state of decline for many years. Most of the major pole-and-line fisheries today reached their peak between 15 and 50 years ago. Examples include the pole-and-line fishing in Hawaii (peaked in the late 1940s), Ecuador (1950s), Senegal (early 1960s), Basque Country of Spain (early 1970s), Japan (late 1970s), Brazil (1985), Canary Islands (1994), and the Azores (late 1990s). The Maldives peaked much later (2006). While it is not possible to state with any certainty the changes in Indonesian production, people familiar with the situation indicate a decline for many years (perhaps since the late 1990s), with a steep drop in the last five years.

Several of the large pole-and-line fisheries have disappeared, such as the southern California based fleet in the eastern Pacific and that of Papua New Guinea. Other fisheries are today just a tiny remnant of what they used to be (e.g. Solomon Islands, Hawaii, Ecuador, Palau).

Another review of pole-and-line fisheries in the world does not portray such a pronounced decline. An FAO study (Miyake et al., 2010) concludes "baitboat catches have been nearly stable since the mid-1970s". It is important to point out that the FAO study did not consider several pole-and-line fisheries that have crashed since the 1970s, such as the Papua New Guinea and Hawaii fisheries, nor those that declined prior to that period, such as those of southern California and Ecuador.



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Pole-and-line fishing at sunset, Indonesia.

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