

A scientific perspective on current challenges for PICT domestic tuna longline fleets that are dependent on South Pacific albacore



Tuna longliners at anchor in Suva harbour, Fiji (image: Johann Bell).

In recent years domestic fishing fleets targeting primarily albacore in Pacific Island countries and territories (PICTs) have reported difficulties in maintaining profitability. In fact, as noted in a Pacific Islands Tuna Industry Association (PITIA) press release,¹ in the last few months many vessels based in Fiji have stopped fishing altogether and are tied up at wharves. The PITIA release notes that despite their experiences on the water, scientific stock assessments “continue to produce relatively healthy results”.

The purpose of this article is to summarise some of the recent scientific analyses of south Pacific albacore. It won't discuss issues such as the prices of fish or fuel, or the mobility of fleets (which enhances or constrains their ability to follow or find fish); clearly these issues would be expected to play a large role in the profitability of individual fleets.

The key sources of scientific information are the stock assessments for South Pacific albacore. These analyses combine fishery data on catch, effort, sizes of fish, and their biology (e.g. growth and maturity) to estimate the number of albacore in the water, how this has changed through time, and what number might be caught sustainably. The last assessment for South Pacific albacore was in 2012 and used data through 2010.

There were three key findings from that assessment: (1) the estimated amount of albacore was considered large enough to keep the population healthy (more on why this conclusion was reached later); (2) the level of fishing was considered to be “sustainable” and could actually be increased while maintaining a healthy fish population; and (3) despite the health of the albacore population, any increase in catches (even within sustainable levels) was predicted to have a significant impact on the catch rates in the longline fishery.

The assessment's conclusion regarding the health of the albacore population is an interesting one and requires some background information. The most common fishing approach for catching South Pacific albacore is through longlining. This involves laying kilometres of fishing line with baited hooks into the water (Fig. 1). This fishing method tends to catch larger and hence older tuna; indeed, these fish tend to be old and large enough to have had a chance to reproduce and hence

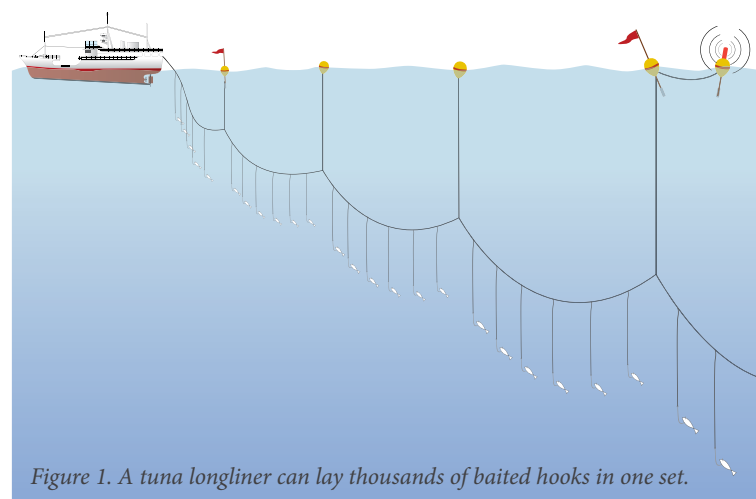


Figure 1. A tuna longliner can lay thousands of baited hooks in one set.

¹ See article on p. 29 of this issue of SPC Fisheries Newsletter.

sustain the albacore population, before they are caught (Fig. 2). It is actually quite rare to find a fishery that waits until after fish have had a chance to reach reproductive age before starting to catch them!

While the pattern of fishing is good for the albacore population, it has consequences for the longline fishery exploiting it, and forms the basis of the third finding from the assessment. As longliners target the largest fish, those vessels are reliant on a relatively small part of the population, and the number of large-sized albacore decreases rapidly as fishing effort and catches increase. As a result, vessels are chasing fewer fish and for each day fishing and burning fuel, they achieve lower catches (i.e. lower catch rates in terms of catch per day) and hence lower income. Again, while this is happening there are large numbers of albacore maturing and spawning — essentially untouched by fishing.

It is telling that since its first meeting in 2005, the Western and Central Pacific Fisheries Commission's Scientific Committee has warned the commission members that any increase in South Pacific albacore catches would have significant negative impacts on domestic longline fleets, but nevertheless since 2008 there have been large increases in catches (Fig. 3). For example the annual catch in 2009–2012 was 32% higher than that in 2001–2008, and this is associated with a large influx of new vessels and fishing effort.

It will not be until the next stock assessment, which is scheduled for 2015, that we will be able to re-evaluate the biological health of the South Pacific albacore stock, but it is clear that the predictions of decreased catch rates have unfortunately occurred. Bioeconomic modeling — which expands on biological stock assessments to include considerations of the costs of fishing and the price of fish — is beginning to build a picture of the economic health of the fishery that is far less rosy than the biological one.

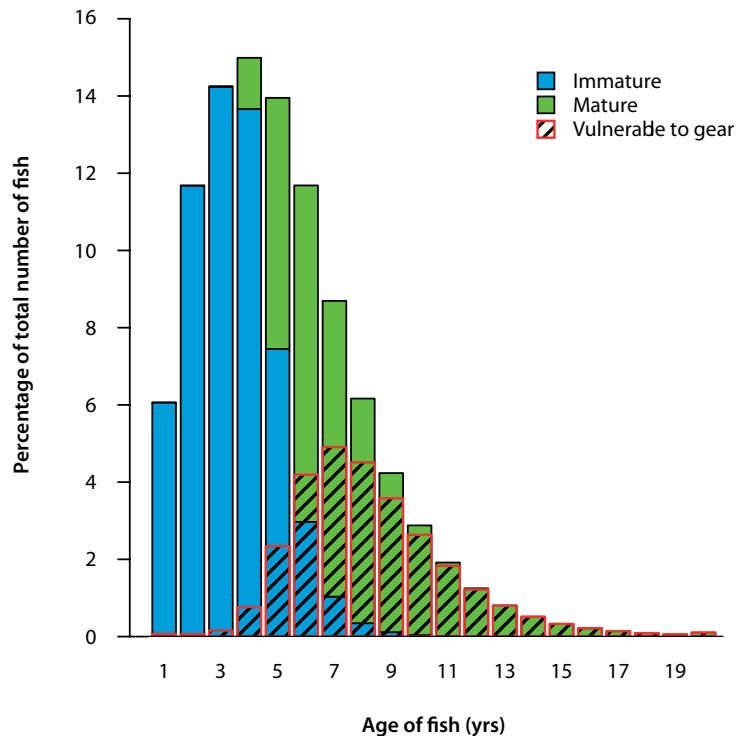


Figure 2. Percentage of the albacore tuna population vulnerable to longline gear by age, compared to the percentage of immature and mature fish.

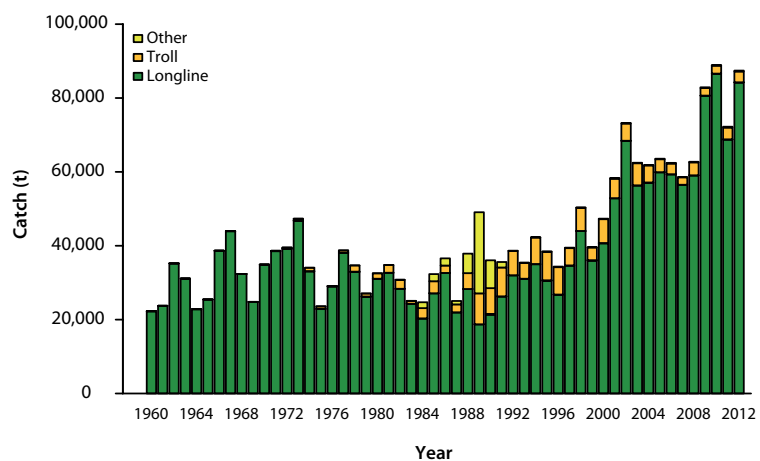


Figure 3. Albacore tuna catches in the western and central Pacific region since 1960.

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