

Tuna fisheries in the western and central Pacific, an update

Tuna fisheries are an important source of income and employment for many Pacific Island countries and territories. For many, the tuna resources within their 200-mile exclusive economic zones (EEZs) represent their only significant renewable resource and their best opportunity for economic development.

Tuna fisheries in the western and central Pacific Ocean (WCPO) target four main species: skipjack (*Katsuwonus pelamis*), yellowfin (*Thunnus albacares*), bigeye (*T. obesus*) and albacore (*T. alalunga*). The total annual catch in 2008 was approximately 2.4 million metric tonnes (t) (Fig. 1), an all-time record, and representing 56% of global tuna production. The estimated delivered value of the WCPO catch in 2008 was a record USD 4.4 billion. Several major gear types are used in the fishery. Three-quarters of the regional catch comes from the purse-seine fishery, which provides tuna for canning in regional and Southeast Asian canneries. The purse-seine fishery targets skipjack tuna, but also takes significant catches of juvenile yellowfin and bigeye tuna. The longline fishery, which targets adult bigeye, yellowfin and albacore tunas, constitutes a much smaller portion of the catch (10%), but its value is relatively high (30% of the total value). Longline-caught bigeye and yellowfin tunas are exported fresh or frozen to sashimi markets in Japan and the USA, while albacore is a premium “white meat” canned tuna product.

While the overall catch is distributed throughout the WCPO region, it is particularly concentrated in tropical waters, where the EEZs of Pacific Island countries and territories predominantly occur. Approximately half of the total WCPO catch (i.e. 1.2 million t annually), comes from the waters of Pacific Island countries and territories.

STOCK ASSESSMENTS

Skipjack

Skipjack tuna are a short-lived species (maximum age ~3 years) that grow rapidly (reaching a maximum size of ~10 kg) and have rapid population turnover. Skipjack are highly resilient to fishing pressure and seem capable of supporting annual catches at the current level of about 1.6 million t annually. The majority of exploitation occurs on fish that have already reached reproductive maturity (age 1+ year). Most skipjack, therefore, have the opportunity to reproduce before being exposed to intensive fishing pressure. This provides a measure of protection to the stock's reproductive capacity. The fishery's current impact represents a depletion of equatorial adult biomass of about 40% from unexploited levels.

Yellowfin

Yellowfin tuna live up to seven years, grow rapidly and have moderate population turnover. Yellowfin reach a maximum size of about 70 kg, and begin spawning at around 1.5-2.0 years of age (~100 cm fork length, or 20 kg). Current catch levels are 400,000-450,000 t annually, mainly taken in the western equatorial region of the WCPO by the purse-seine fishery and the domestic fisheries of the Philippines and Indonesia. The purse-seine fishery catches juvenile yellowfin in floating objects sets (logs and fish aggregation devices, or FADs) and large yellowfin from free-school sets. Large catches of juvenile yellowfin are taken by the domestic fisheries of the Philippines and Indonesia. The most recent (2009) stock assessment for yellowfin indicates that the stock is at or near fully exploited levels. The assessment

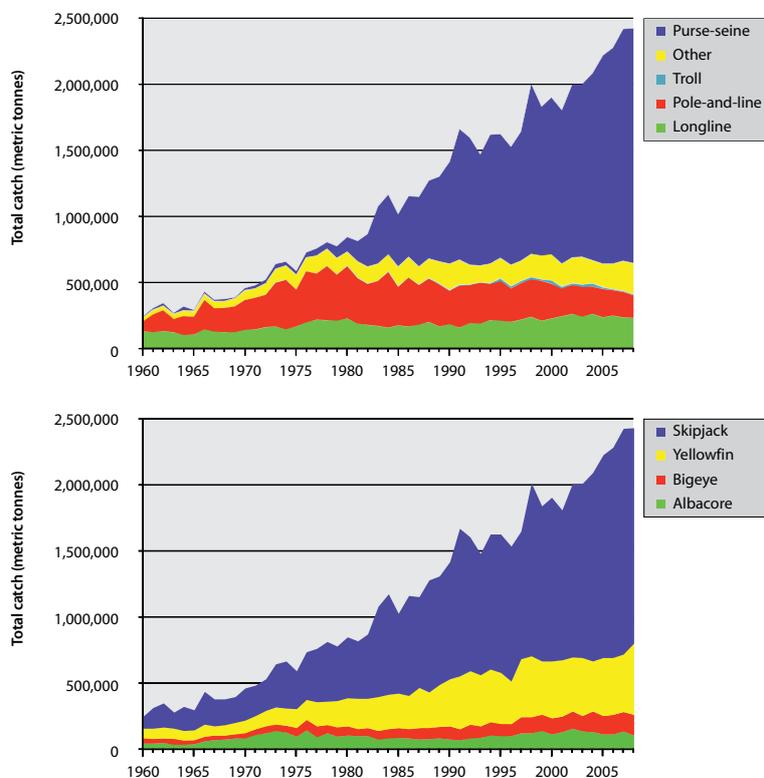


Figure 1. Total 2008 tuna catch in the WCPO by gear type and species.

indicates that the western equatorial area is the most impacted, while fishery impacts in sub-tropical regions are not large. The Western and Central Pacific Fisheries Commission (WCPFC) Scientific Committee has recommended that there be no increase in fishing mortality in the western equatorial Pacific, where the fishery has depleted the adult biomass by about 70% from unexploited levels. Most of this impact is attributable to the Indonesian and Philippines domestic fisheries and the purse-seine fishery. The longline fishery has a relatively low impact on the yellowfin stock.

Bigeye

Bigeye tuna live to be at least 12 years of age, grow more slowly than yellowfin, have lower natural mortality, and a lower stock size. Bigeye reach a maximum size of about 120 kg, and begin spawning at around three to four years of age (~110 cm fork length, or 30 kg). While the largest component of the catch is larger fish caught by longline gear, significant exploitation of juveniles occurs by the purse-seine fishery setting on floating objects and by the domestic fisheries of the Philippines and Indonesia. These juvenile catches have a substantial impact on the subsequent adult population. Recent assessments (2008 and 2009) show that overfishing of bigeye tuna is currently occurring. The WCPFC Scientific Committee has recommended that fishing mortality be reduced by a minimum of 30% from 2001–2004 average levels. The current impact on the fishery represents a depletion of adult biomass of over 80% from unexploited levels. This impact is attributable to the longline fishery and, to a lesser extent, those fisheries capturing juvenile bigeye tuna.

South Pacific albacore

Albacore tuna live up to 10 years, are relatively slow grow-

ing and reach a maximum size of about 25 kg. Albacore begin spawning at about five years of age (~80 cm fork length, or 10 kg). Apart from a minor troll fishery that targets juvenile albacore, most of the catch is by longline gear, which catches few juvenile albacore. As with skipjack, most albacore have the opportunity to reproduce before they are exposed to significant fishing pressure. This provides a measure of protection to the stock's reproductive capacity. The fishery's current impact represents a depletion of adult biomass of 35% from unexploited levels. While overfishing is not estimated to be occurring, further expansion of catch or effort would have negative impacts on the longline fisheries that rely on this species.

MANAGEMENT ISSUES

WCPFC has the responsibility of implementing conservation and management measures for WCPO tuna fisheries throughout the geographic range of tuna stocks. The main management issue currently facing the WCPFC is overfishing for bigeye tuna. In 2008, the WCPFC adopted a conservation and management measure (CMM2008-01) that contains a mixture of catch, effort and capacity limits, as well as time/area gear restrictions. SPC's Oceanic Fisheries Programme conducted analyses to evaluate the potential impacts of the measure, and found that:

- CMM2008-01 is highly unlikely to meet its objectives of a 30% reduction in bigeye tuna fishing mortality from the 2001–2004 level, or maintenance of the bigeye tuna stock at a level capable of producing the maximum sustainable yield (MSY) over the long term.
- The measures are predicted to result in little, if any, reduction in bigeye tuna fishing mortality from the high levels

in excess of two times F_{MSY} estimated for 2007–2008, and accordingly, spawning biomass is predicted to fall to around 40–60% of the level necessary to support MSY.

- The main reasons for the measure's lack of effectiveness are i) the many exemptions that are built in, including the exclusion of archipelagic waters; ii) likely increases in purse-seine effort and efficiency; and iii) insufficient reductions in the longline catch of large bigeye tuna.
- While the outcome from the first year of implementing CMM2008-01 is not yet known, it seems clear that there will be a need to strengthen the measure if bigeye tuna stocks are to remain near levels capable of producing MSY.

WCPFC is now at a crossroads in managing tuna fisheries in the region. Its early efforts to limit the increase in fishing effort and capacity have been ineffectual, and there are concerns regarding sustainability for some key species. Meanwhile, there is continued pressure to expand fishing effort to meet the legitimate development aspirations of Pacific Island countries and territories, and to provide access for new entrants to the fishery from Europe and Latin America. At the same time, the established distant-water fishing nations wish to maintain their historical share of the fishery. The need to allocate an increasing share of the tuna catch towards ensuring food security for rapidly-growing Pacific Island populations will result in further pressure on tunas. The Pacific now needs to take the lead, both within and outside the WCPFC, to ensure the long-term conservation and sustainable use of this critical resource.

For more information:

www.spc.int/oceanfish/