

Tuna in focus

SPC scientists provide the latest information to WCPFC 11th Scientific Committee meeting

The Oceanic Fisheries Programme of the Secretariat of the Pacific Community (SPC-OFP) is the key scientific services provider to the Western and Central Pacific Fisheries Commission (WCPFC). The main services provided by the OFP to WCPFC are regional stock assessments, evaluations of conservation and management measures, and managing data provided to WCPFC by its members.

A key event on the WCPFC calendar is the annual meeting of the Scientific Committee, which was held during early August this year in Pohnpei, Federated States of Micronesia (also the location of WCPFC's headquarters). Once again, the OFP produced a large volume of material. The team produced 36 working and information papers for the meeting, and made significant contributions to seven others. Some of the highlights of the OFP work submitted to the meeting are as follows:

- ✓ The total catch of key tuna species in the western and central Pacific Ocean (WCPO) in 2014 has been provisionally estimated at a record 2.86 million tonnes, which is a 6% increase over the previous high that was recorded in 2013. This catch represented 60% of the global tuna production in 2014. The biggest increase occurred in the purse-seine fishery (catching mainly skipjack tuna), which exceeded 2 million tonnes for the first time. See <http://www.wcpfc.int/node/21762>.
- ✓ Work undertaken on a recently compiled set of operational (set-by-set) longline data was reported in a series of papers by the OFP's stock assessment and modelling team. This comprehensive data set, which represents almost all of the industrial-scale longline fishing in the Pacific Ocean since the early 1950s, was provided by the fisheries agencies of China, Japan, Korea, Chinese Taipei, United States and other SPC members. The data comprised information on more than 10 million individual longline sets and is, without doubt, by far the largest data set of its type, ever. The data were used to estimate relative abundance trends for Pacific bigeye and South Pacific albacore tuna, and this information was incorporated into stock assessments for these species. See <http://www.wcpfc.int/node/21773>, <http://www.wcpfc.int/node/21781> and <http://www.wcpfc.int/node/21782>.
- ✓ A stock assessment analysis of bigeye tuna was conducted on a Pacific-wide basis for the first time since 2006. The objective of this work was to incorporate new information on the movement of bigeye tuna out of the WCPFC area and into the eastern Pacific Ocean, to see if this might have biased the results of assessments. While some changes in results were observed when modelling the stock over the entire Pacific, the essential stock assessment results (that bigeye tuna spawning stock was being depleted by fishing to less than 20% of the unexploited stock level) from the 2015 WCPO assessment were supported. See Figure 1 and <http://www.wcpfc.int/node/21774>.
- ✓ A new assessment of the South Pacific albacore stock was undertaken, which updated the previous assessment from 2012. The main conclusion is that the spawning stock has been reduced to less than half of its unexploited level. While this is comfortably within biologically safe limits, the older part of the stock that is exploited by longliners is probably depleted beyond the level than can sustain profitable fisheries. See Figure 1 and <http://www.wcpfc.int/node/21776>.
- ✓ An analysis of data from a number of sub-tropical and temperate water skipjack tuna fisheries was undertaken in order to evaluate a hypothesis favoured by some WCPFC members who believe that high catches of skipjack in the equatorial zone are making skipjack less likely to migrate seasonally to temperate waters, and are therefore negatively impacting the fisheries that occur there. The analysis undertaken could not find any concrete evidence to support this hypothesis. At this stage, the question remains open and it would seem equally plausible that declines of skipjack numbers in temperate and sub-tropical fisheries could be due to local exploitation effects, unfavourable economics for sustaining these small-scale fisheries and/or general declines in the overall skipjack stock as a result of fishing. See <http://www.wcpfc.int/node/21713>.
- ✓ An analysis of purse-seine catch and effort data was undertaken to try to identify factors that might be responsible for above-average catches of bigeye tuna, which might be the focus of future mitigation efforts to reduce fishing pressure on this species. The analysis examined vessel-specific catches across the equatorial Pacific, and found that over the period 2010–2013, fewer than 5% of the 300-strong purse-seine vessels in the fleet took 25% of the bigeye tuna catch, and fewer than 15% of vessels took about 50% of the catch. This level of concentration suggests that

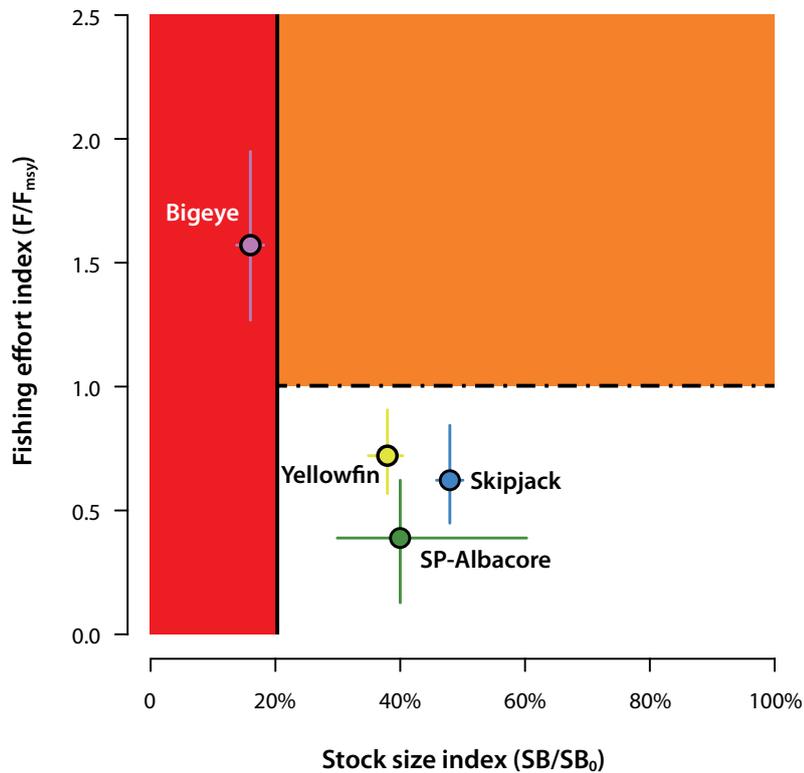


Figure 1. Relative status of the four main tuna stocks against biological reference points

- F/F_{msy} : Current fishing effort relative to the fishing effort that would produce maximum sustainable yield.
- SB/SB_0 : Current number of spawners relative to the estimated number of spawners if the stock had never been fished (SB_0 calculated as an average over the most recent 10 years). 20% is considered to be the limit below which the stock may not be able to successfully reproduce.

there might be ways that these vessels operate, or places where they fish, which if avoided could substantially reduce the catch of bigeye tuna without necessarily, or substantially, impacting the catch of the main target species: skipjack. See <http://www.wcpfc.int/node/21795>.

- ✓ A new report investigating the ecosystem effects of fishing in the western Pacific was presented. This work, led by the OFP's Ecosystem Monitoring & Analysis team, shows that the warm pool ecosystem is resilient to considerable perturbation by fisheries, and that this resilience is related to the high diversity of predator species in the food chain that consume a wide variety of prey. The study estimated that the largest impacts of fishing are likely to be on long-lived, bycatch species with lower productivity (e.g. silky and oceanic whitetip sharks, opah, swordfish and blue marlin). These groups are the most sensitive to changes in fishing effort due to their longevity, age at first maturity and low rate of reproduction. See <http://www.wcpfc.int/node/21722>.

These and other reports have formed the basis of the Scientific Committee recommendations for management action to the 12th Annual Session of the WCPFC, to be held in December 2015 in Bali, Indonesia.

The SC11 executive summary report and all documents presented during the meeting are available from the WCPFC website (<http://www.wcpfc.int/meetings/11th-regular-session-scientific-committee>), or from SPC-FAME's Digital Library (http://www.spc.int/DigitalLibrary/FAME/Collection/WCPFC_SC11).

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