

Recommendations on the Relative Ecological Sustainability of Sources of Light Tuna for Canning

April 2012

There is considerable interest within the seafood industry about the relative ecological sustainability of different fishing methods used to supply canned light meat tuna. This short brief outlines the Sustainable Fisheries Partnership's recommendations to commercial partners on the relative sustainability of different sources of tuna for canning along with some explanation of the issues involved.

Which species, which gear and what impacts?

The following table describes the main gear types used to catch skipjack and yellowfin 'light meat' tuna for canning, the primary species caught, and main ecological impacts:

Method	What do they aim to catch?	Main environmental impacts
Pole and line	Primarily skipjack tuna, with smaller catches of albacore and yellowfin tunas.	Nominal bycatch. Fisheries that supply live bait can have various problematic ecological effects, including from bycatch and overexploitation of target baitfish species.
Purse seine unassociated sets (sets on free-swimming tuna schools not associated with a floating object)	Predominantly skipjack in the western, central and eastern Pacific, and yellowfin in the Indian and Atlantic Oceans	Nominal bycatch; problematic bycatch of manta rays and sailfish may occur in some fisheries.
Purse seine sets on floating objects (artificial anchored and drifting fish aggregating devices (FADs), and natural objects such as logs)	Predominantly skipjack	Bycatch of juvenile bigeye and yellowfin tunas, sharks and unmarketable species and sizes of other fish. Broader community- and ecosystem-level effects from FADs are not well understood.
Purse seine sets on dolphin schools	Almost exclusively yellowfin	Annual cap of 5,000 dolphins with annual mortality of about 1,000. Nominal bycatch of other species groups.
Purse seine sets on large live marine organisms (whales, whale sharks, etc.)	Predominantly skipjack	Sometimes kill the marine organism, with similar bycatch as in sets on other floating objects.

Some pelagic longline fisheries target albacore tuna for canning, referred to as canned 'white meat' – this is not covered here.

Ecological Effects of Alternative Fishing Methods that Supply Light Meat Tuna for Canning

Bycatch – retained and discarded catch of non-targeted species and unobserved removals – lies at the heart of the sustainable tuna debate. Pole-and-line fisheries have very low bycatch levels, generally consisting of non-target pelagic fish species like juvenile kawakawa tuna and frigate mackerel. Discards are believed to have high post release survival rates due to the use of barbless hooks and flick-off practices. There are questions however about the ecological and socioeconomic effects of fisheries that supply live bait to pole-and-line fisheries. Due to differences in the ecological effects of each fishing method, it is not possible to make a direct comparison of the relative ecological risk of pole-and-line fisheries and other methods for supplying canned tuna. In general, SFP recommends sourcing from pole-and-line fisheries that are supplied by sustainably managed baitfish fisheries, however, SFP has not produced procurement specs for pole-and-line caught tuna for canning.

Purse seine fishing on free-swimming tuna schools results in very low bycatch. However, when purse seines are combined with natural or artificial floating objects there is often a much higher bycatch. In some regions, bycatch of juvenile bigeye and yellowfin tunas is a concern with purse seine sets on FADs and other floating objects. Purse seines sets on FADs catch sharks (< 1% by weight) - predominantly silky sharks followed by oceanic white tips. Unmarketable species and sizes of other fish are also caught at higher rates with FADs than unassociated sets. Sea turtles are also occasionally entangled in FAD appendages and caught in the pursed net, although these are rare events. The broader community- and ecosystem-level effects of FADs are not well understood. For instance, drifting FADs, which aggregate biomass from a surrounding area, may alter the survival probability of species by altering their spatial distributions over in the order of hundreds of kilometres, potentially trapping them in prey-poor habitat, modifying their diet composition, changing their behaviour, such as vertical habitat use and diel vertical migration cycles. Measures to control FAD usage and design, in theory, could mitigate these problems. It is therefore possible that purse seine FAD-caught tuna could address known and potential ecological sustainability problems at some point in the future if appropriate measures were taken. Until industry practices and governance adopt these practices, preferential sourcing from purse seine unassociated sets is recommended over purse seine FAD sets.

Purse seine vessels operating in the Eastern Pacific Ocean of nations that are contracting parties to the Agreement on the International Dolphin Conservation Program (AIDCP) are allocated annual, vessel-based dolphin mortality limits. There is an annual cap of 5,000 total dolphin mortalities in the fishery, as well as annual mortality caps for individual dolphin stocks, established at 0.1% of each stock's minimum estimated abundance, and annual dolphin mortality levels are about 1,000. AIDCP measures have reduced direct dolphin mortality levels by 98%. Purse seine sets on dolphin schools result in nominal levels of bycatch of other species.

As with pole-and-line fisheries, purse seine sets on FADs, sets on schools of dolphins, and sets on live large organisms such as whale sharks and whales, result in different ecological effects, including effecting different species groups, precluding making a direct comparison of the relative degree of adverse environmental impacts. As with other iconic marine species, greater negative public reaction has occurred over fishing mortality of dolphins relative to fish species, such as sharks, and this reaction is anticipated to persist regardless of the outcome of a comparison of ecological risks of the two fishing methods.

For more information

SFP's procurement specifications for purse seine FAD-caught light tuna for canning, and longline-caught tuna and tuna-like species are available as additional resources for SFP partners.

Contacts:

Blake Lee-Harwood, Director of Communications, blake.lee-harwood@sustainablefish.org

Eric Gilman, Fisheries Scientist, Eric.Gilman@sustainablefish.org

Duncan Leadbitter, Technical Director, Duncan.Leadbitter@sustainablefish.org