

Subsidies to tuna fisheries in the Western Central Pacific Ocean



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ABSTRACT

Tuna fisheries in the Western and Central Pacific Ocean are among the most valuable resources in the region. These fisheries, worth an estimated \$4.1 billion each year, play a pivotal role in supporting incomes and development goals in the region. However, due to the twin, and potentially inter-related effects of harmful fishing practices such as the use of fish aggregating devices, overcapacity, and fisheries subsidies, many of these tuna fisheries are currently at risk of over-exploitation—putting the livelihoods of countless local fishers at risk. This study finds that government fisheries subsidies in the region represent 37% of the ex-vessel value of tuna fisheries in the region. Fuel subsidies are estimated at US\$ 335 million and non-fuel subsidies are estimated at US\$ 1.2 billion for the year 2009. Developed countries are responsible for more than half of the subsidies spent in the predominantly developing region, underlying the fact that the majority of tuna value extracted from the national waters of developing countries in the region benefit larger, developed countries. The total resource rent, or return to society, from tuna fisheries, once adjusted for subsidies is a net negative US\$750 million in 2009. Fisheries subsidies are enabling foreign fleets to operate at sub-market rates, putting local fleets out of competition for their own fishery resources.

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1. Introduction

In the year 2009, 29 flag states reported landings of tuna in the commercial fisheries of the Western and Central Pacific Ocean (WCPO) and there are 34 flag states that have reported tuna landings in the region since 1997. Combined, it is estimated that tuna landings captured in the region represent more than 50% of global tuna landings [1]. Of the four main tuna species targeted in the WCPO, skipjack (*Katsuwonus pelamis*) represent the largest proportion of all landings, however, both bigeye (*Thunnus obesus*) and yellowfin (*Thunnus albacares*) are considered to be more valuable, often fetching prices upwards of US\$ 9000 per tonne for longline caught fish. A single bigeye can garner an ex-vessel value of as much as US\$ 10,000 at auction.

The above prices are more the norm not the media-reported prices that are based on some individual fish selling for astronomical prices such as a single bluefin being sold for about US\$1.8 million in early January 2013. This does not reflect the average market price; rather, this is seen as a media event where buyers use the attention as free advertising.

There are two major tuna fisheries active in the WCPO: (i) a longline fishery targeting mature, bigeye and yellowfin for the

sashimi market as well as albacore for canning; and (ii) a surface fishery typically using purse seines and, to a lesser extent, pole and line, targeting primarily skipjack and yellowfin.

Tuna fisheries in the WCPO are a valuable resource, especially for the Small Island developing States (SIDS) that have few alternative natural resources; however, a number of issues in the region have raised concerns regarding who benefits from the resource under current management practices. Common, and competing, methods of fishing for tuna are expensive to operate and the management of trans-boundary stocks in pockets of high seas areas between island nations is a complex issue. Additionally, the presence of distant water fleets, which are often heavily-subsidized, can increase the pressure on the domestic Island fleets to reduce the cost of fishing for tuna in order to compete for this valuable resource. This research, seeks to better understand which coastal States, gear types, and flag states benefit most from tropical tuna fisheries in the Western and Central Pacific Ocean (WCPO). Finally, this research aims to identify subsidies going towards WCPO tuna fisheries in order to assess the overall financial “benefit” or “loss” that these fisheries generate for coastal and flag states.

1.1. Fisheries of the WCPO region

The four main tuna species targeted in the Western and Central Pacific Ocean are: albacore (*Thunnus alalunga*), bigeye (*T. obesus*),

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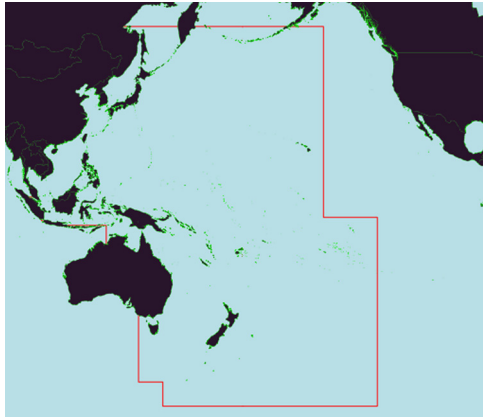


Fig. 1. West and Central Pacific fisheries convention management area.

skipjack (*K. pelamis*) and yellowfin (*T. albacares*). On an individual fish basis, bigeye and yellowfin caught by the longline fishery are the most valuable per unit weight of these tuna species in the region. Albacore is a moderately valued species, and skipjack, is the lowest per unit weight value of these species, however, it is a high volume fishery in which supplies the canned tuna market.

Tuna in the region are caught mainly by two gear/vessel types. The primary vessel types in the region are longline vessels, which set long multi-hooked fishing lines, and purse seine vessels that locate schools of fish, surround them with large nets and scoop them up. Fish aggregating devices (FADs), which leverage a common behaviour of many fish species to congregate around objects floating in the ocean, are regularly deployed by purse seine vessels in pursuit of tuna [2]. Although effective in capturing tuna, FADs are known to be associated with high levels of bycatch species such as sharks, juvenile yellowfin and bigeye, and billfish. Pole-and-line and troll gears are also used by both artisanal and commercial fishers in the region.

1.2. Fisheries management in the West and Central Pacific Ocean

The Western and Central Pacific Fisheries Commission¹ (WCPFC) is an international regional fisheries management organization (RFMO) concerning the effective management of migratory fish stocks such as billfish and tuna in the region and covers a total area that is nearly equal to 20% of the earth's surface (Fig. 1). The WCPFC management area overlaps with the Inter-American Tropical Tuna Commission (IATTC) near its eastern boundary and has additional mutual agreements with other RFMOs such as the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), the Indian Ocean Tuna Commission (IOTC) and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

Seventeen of the flag states operating in the Western and Central Pacific Ocean are members of the Pacific Islands Forum Fisheries Agency (FFA) including: Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu. Since 1979, FFA has facilitated regional cooperation so that all Pacific countries benefit from the sustainable use of tuna.

1.3. Fisheries subsidies

A fishery can be understood as the intersection of nature, fish stocks, and the human economy. From this background any factor either directly or indirectly affecting parts of the economy related to

fisheries will also affect the fish stocks. It is for this reason that fisheries economists concern themselves with fisheries subsidies. Fisheries subsidies can increase over-capacity and overfishing incentives by directly affecting the profitability of fishing activity [3]. Fisheries subsidies can increase fishing effort beyond ecological limits by reducing the costs of fishing or increasing revenues—effectively thwarting normal price and cost market signals that would indicate heavy fishing pressure. The first global estimates of fisheries subsidies ranged from US\$ 20 billion per year [4] to US\$ 54 billion per year [5], however, the most recent global estimate of fisheries subsidies puts this amount at US\$ 27 billion per year, representing more than 30% of the ex-vessel value of fisheries landings [3].

2. Data and methodology

2.1. Tuna landings, value and access fee data

Tuna landings and value for this project are sourced from the Pacific Islands Forum Fisheries Agency (FFA). The FFA reports landings and values for four species of tuna; albacore (*T. alalunga*), bigeye (*T. obesus*), skipjack (*K. pelamis*) and yellowfin (*T. albacares*) [6,7].

Access fees from distant water fishing nations (DWFN) such as China, Japan, South Korea and Chinese Taipei, are collected by FFA members for the right to fish in their 200 nautical mile Exclusive Economic Zones (EEZs). Data on access fees is collected from FFA documents summing the total of multilateral agreements, such as the Federated States of Micronesia Arrangement (FSMA) and the U. S. Treaty (UST). Access fees paid under bilateral agreements are estimated at 6% of landed-value for purse-seine caught fish and 5% for longline catches [6,7].

2.2. Estimating the cost of fishing

The variable cost of fishing is estimated globally to be US\$ 73 billion per year [8]. The unit cost of fishing per tonne of landings by fishing country and gear type is combined with landings data from the FFA. The total cost of fishing by gear type and tuna species for each fleet targeting tuna in the Western and Central Pacific Ocean (WCPO) is estimated from this data. Mathematically, the procedure for estimating the cost of fishing can be summarized as:

$$TC_{c,g,s} = L_{c,g,s} \times C_{c,g}$$

where $TC_{c,g,s}$ represents the estimated total fishing cost by country (c), gear (g), and species (s). The symbols L and C represent tuna landings in tonnes and unit cost of fishing, respectively.

2.3. Estimating subsidies to tuna fishing fleets in the Western and Central Pacific Ocean

The most comprehensive estimation of global fisheries subsidies was conducted by. In addition to a global estimate of subsidies to the fishing industry, a recent review of global fisheries subsidies also estimates subsidy intensity, which is the subsidies portion of every dollar of landings, for thirteen broad categories of subsidy [3]. This current research estimates total fuel and non-fuel subsidies to tuna fisheries in the Western Central Pacific Ocean using the equation:

$$S_{c,i,g,s} = LV_{c,g,s} \times SI_{c,i}$$

where $S_{c,i,g,s}$ represents the estimated total subsidy by country (c), subsidy type (i), gear (g) and species (s). The value of landings by country, gear and species are represented by $LV_{c,g,s}$ and subsidy intensity by country and subsidy type are indicated by $SI_{c,i}$.

¹ <http://www.wcpfc.int/>

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