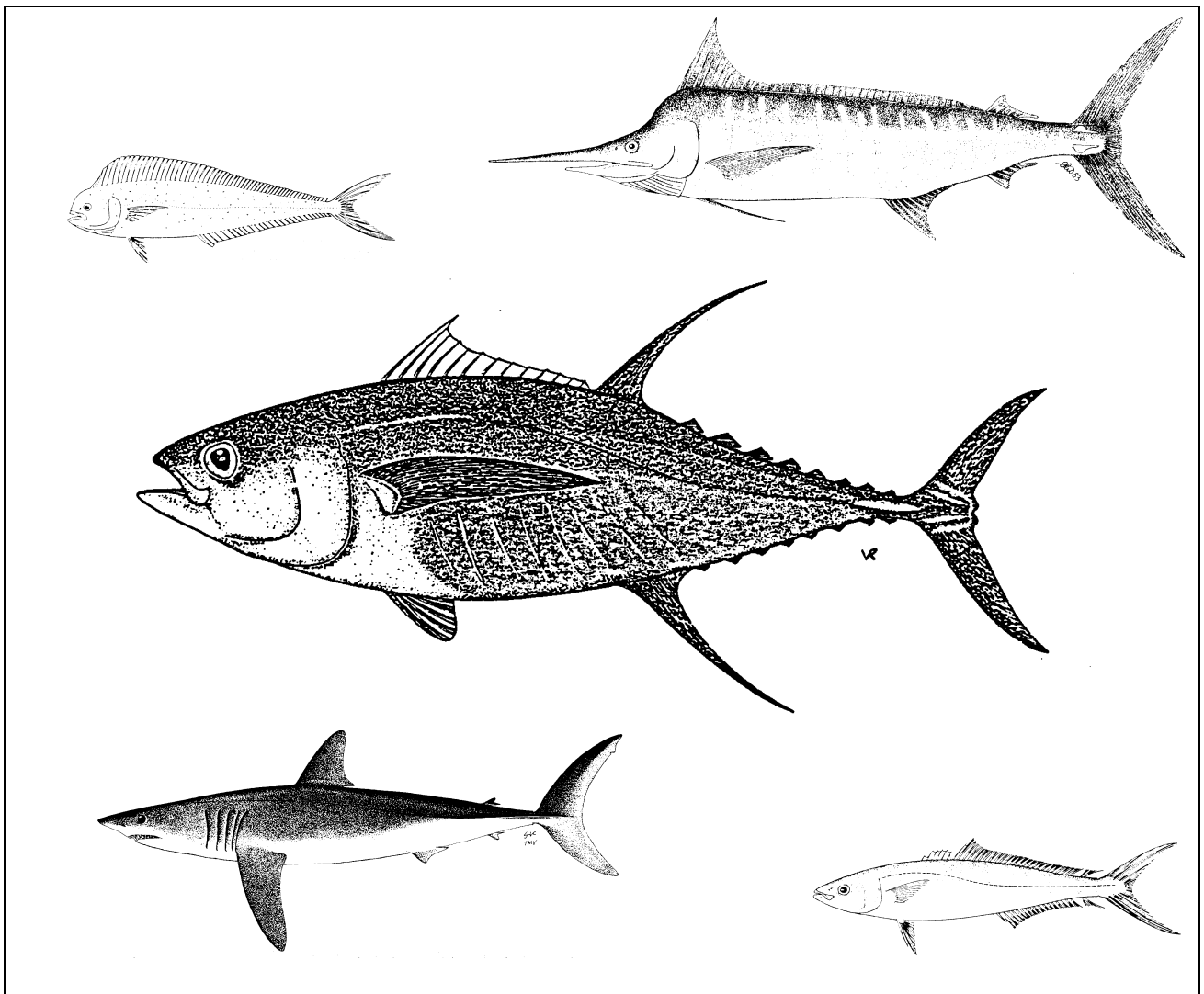




SOUTH PACIFIC COMMISSION
NOUMEA, NEW CALEDONIA

**BY-CATCH AND DISCARDS IN WESTERN PACIFIC TUNA FISHERIES:
A REVIEW OF SPC DATA HOLDINGS AND LITERATURE**



Oceanic Fisheries Programme
Technical Report No. 34

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Kevin Bailey, Peter G. Williams and David Itano

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ABSTRACT

The western and central Pacific Ocean (WPO) currently supports the largest industrial tuna fishery in the world, with total annual catches from 1991 to 1994 of approximately 1,000,000 mt. The three gear types accounting for most of the catch in the area are longline, purse seine and pole-and-line. Large-mesh drift-net, handline and trolling gear have been utilised in some areas, but not to the extent of the above-mentioned gear types. The primary target species are skipjack, yellowfin, bigeye and albacore.

All of these fisheries invariably have some level of (i) discards of target species, (ii) retained by-catch, and (iii) discards of by-catch. This report attempts to document by-catch and discard practices in the fisheries through review of catch logsheet data, observer information, and published and unpublished reports. The catch logsheets available for this review generally cover the period 1978–1992, but the coverage is variable; data for some fleets/areas are considered near complete, while for other fleets logsheet data are seriously incomplete. Observer activity during this period was very low, and it has only been recently that some effort has been made to increase observer activity and standardise observer data collection. For this reason, some observer data collected in recent years (i.e. 1993 and 1994) have been included in this review.

In the **purse-seine** fishery, the catch logsheet reporting of target species discards, retained by-catch and discarded by-catch is poor. Observer estimates provide some indications, although the coverage is low. According to available observer data, an estimated 0.35–0.77 per cent of the total catch (by weight) for school sets is by-catch; for log sets, the level is higher at an estimated 3.0–7.3 per cent. The most common by-catch species observed in purse seine log sets are amberjack (*Seriola rivoliana*), mackerel scad (*Decapterus macarellus*), rainbow runner (*Elagatis bipinnulata*), drummer (*Kyphosus cinerascens*), mahimahi (*Coryphaena hippurus*) and ocean triggerfish (*Canthidermis maculatus*). Observer records show that blue marlin (*Makaira mazara*) is the most common billfish species taken in purse-seine sets. Marine turtles are taken occasionally, but there is evidence that these are usually released alive. While the reasons for the discard of target tuna species are well documented, tuna discard is an irregular and unpredictable feature of the purse-seine fishery, thus it is difficult to provide indicative estimates.

In the **longline** fishery, the catch logsheet reporting of target species discard and discarded by-catch is very poor. Observer activity on longline vessels has only recently increased; however, the coverage remains low and is not considered adequate to provide overall indications of the levels of by-catch and discards in the tropical waters of the WPO. The by-catch of over 50 fish species has been observed in the tropical and sub-tropical waters of the WPO; these are categorised into shark (21 species), non-target scombrids (7 species), billfish (6 species) and other fish (21 species).

Longline catch logsheets provide some indication of the catch of billfish species, but the reporting of other fish by-catch species is poor. The distribution of nominal catch rates, and annual and seasonal trends in nominal catch rates, of billfish species are presented in this review. There is no logsheet reporting of shark catch, by species, in the tropical waters of the WPO, and observer data show that the total shark catch is grossly under-reported on logsheets. The catch of shark, according to observer data, is sometimes at a similar level to target tuna catch, and the blue shark (*Prionace glauca*) was observed as the most common shark species taken throughout the WPO. Marine turtles appear to be taken occasionally on longline vessels in the tropical waters of the WPO; however, there are insufficient data to determine the extent of exploitation.

The reasons for the discard of by-catch on longline vessels are documented in the report, although overall estimates could not be determined due to the poor coverage. As in the purse-seine fishery, the reasons for tuna discards are well documented, but tuna discard is an irregular and unpredictable feature of the fishery and thus difficult to estimate.

Observer data provide good indications of the levels of by-catch and discard in the large-mesh **drift-net** fishery in the South Pacific. Due to mounting pressure regarding the impacts on the albacore stock and by-catch species, the use of this gear type has now been banned and this fishery therefore no longer exists.

Tuna discards and by-catch in the **hand-line, pole-and-line** and **troll** fisheries are relatively minor and it is suggested that emphasis be focused on the future monitoring of the purse-seine and longline fisheries.

Suggestions for the future monitoring of the purse-seine and longline fisheries are provided. Increasing observer coverage was identified as the main solution to obtaining better estimates of by-catch and discards in the industrial tuna fisheries.

RÉSUMÉ

C'est dans le Pacifique occidental et central que la production thonière est la plus importante du monde à l'heure actuelle, les prises réalisées ayant atteint 1 million de tonnes par an environ de 1991 à 1994. L'essentiel des captures est réalisé à l'aide de trois types d'engins, la palangre, la senne et la canne. Les filets maillants dérivants, la palangrotte et la traîne ont été utilisés dans certaines zones, mais dans une moindre mesure que les autres engins. Les principales espèces ciblées sont la bonite, le thon jaune, le thon obèse et le germon.

Il existe pour tous les engins un certain nombre de rejets des espèces visées, de prises accessoires conservées et de prises accessoires rejetées. Le présent document étudie la situation en matière de prises accessoires et de rejets, sur la base des données fournies par les fiches de pêche, des informations communiquées par les observateurs, et de rapports publiés ou non. Les fiches de pêche utilisées couvrent généralement la période comprise entre 1978 et 1992, mais cette couverture est de qualité variable; les données sont en effet considérées comme presque complètes pour certaines flottilles ou certaines zones, mais très incomplètes dans d'autres cas. Les activités d'observation étaient très rares durant cette période et ce n'est que récemment qu'on s'est efforcé de les intensifier et d'harmoniser la collecte de données par les observateurs. Certaines données d'observation recueillies ces dernières années (en 1993 et en 1994) ont donc été incluses dans ce travail.

En ce qui concerne la **pêche à la senne**, il est rare que les espèces visées rejetées, les prises accessoires conservées et les prises accessoires rejetées soient mentionnées dans les fiches de pêche. Les estimations des observateurs donnent quelques rares indications à cet égard : 0,35 à 0,77 pour cent des prises totales (en volume) par calée sur des bancs simples seraient constitués de prises accessoires; en ce qui concerne les calées sur épaves, ce niveau est plus élevé puisqu'il se situerait entre 3 et 7,3 pour cent. Les prises accessoires le plus souvent réalisées sur épaves concernent les espèces suivantes : carangue amoureuse (*Seriola rivoliana*), maquereau (*Decapterus macarellus*), coureur arc-en-ciel (*Elagatis bipinnulata*), saupe (*Kyphosus cinerascens*), mahi-mahi (*Coryphaena hippurus*) et baliste du large (*Canthidermis maculatus*). D'après les observateurs, le marlin bleu

(*Makaira mazara*) est le marlin le plus souvent capturé par les senneurs. Il arrive que des tortues soient prises, mais elles sont généralement relâchées vivantes, d'après les données dont on dispose. Les causes des rejets des thons ciblés sont expliquées, mais la pratique du rejet lors de la pêche à la senne est irrégulière et imprévisible, de sorte qu'il est difficile de fournir des estimations.

Les données fournies par les fiches de pêche en ce qui concerne les rejets des espèces visées et des prises accessoires par les **palangriers** sont très rares. Les activités d'observation sur les palangriers ne se sont développées que récemment; la couverture reste faible et ne paraît pas suffisante pour tirer des conclusions générales sur les niveaux de prises accessoires et de rejets dans les eaux tropicales du Pacifique occidental et central. Il a été constaté que les prises accessoires concernaient plus de 50 espèces de poissons dans les parties tropicale et subtropicale de cette région; il s'agit de requins (21 espèces), de scombridés non ciblés (7 espèces), de marlins et alliés (6 espèces) et d'autres poissons (21 espèces).

Les fiches de pêche fournissent quelques indications sur les prises à la palangre de marlins et alliés, mais les captures des autres espèces de poissons sont rarement consignées. La présente étude indique la répartition des taux de prise nominale de marlins et alliés, ainsi que les tendances enregistrées à cet égard par année et par campagne. Les fiches de pêche n'indiquent pas les prises de requins par espèce dans les eaux tropicales du Pacifique occidental et central, et les informations fournies par les observateurs montrent que les prises totales de requins déclarées dans les fiches de pêche sont très en-deçà de la réalité. En fait, elles sont parfois aussi importantes que les prises des thons ciblés, le requin bleu (*Prionace glauca*) étant le plus fréquemment capturé dans l'ensemble de la région étudiée. Des tortues de mer sont parfois prises par des palangriers dans les eaux tropicales du Pacifique occidental et central, mais les données sont insuffisantes pour permettre d'établir l'ampleur de l'exploitation.

Les causes de rejets des prises accessoires par les palangriers sont expliquées dans le présent rapport, mais il n'est pas possible de donner des estimations globales en raison de la médiocrité de la couverture. De même que pour la pêche à la senne, les causes des rejets de thons sont bien connues, mais cette pratique est irrégulière et imprévisible, de sorte qu'il est difficile de procéder à des estimations.

Les données d'observation donnent une bonne indication des niveaux de prises accessoires et de rejets des navires de **pêche au filet maillant dérivant** dans le Pacifique Sud. Des pressions de plus en plus fortes se sont exercées afin de protéger les stocks de germons et les espèces constituant des prises accessoires, de sorte que cet engin est maintenant interdit et que ce type de pêche n'existe plus.

Les rejets de thons et les prises accessoires des navires pêchant à **la palangrotte, à la canne et à la traîne** sont relativement peu importants; il est donc proposé de mettre l'accent à l'avenir sur le suivi de la pêche à la senne et à la palangre.

Des propositions sont formulées dans cette optique. L'amélioration de la couverture assurée par les observateurs semble être la solution à adopter en priorité pour améliorer les estimations de prises accessoires et de rejets des navires thoniers.

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DEDICATION



Kevin Neil Bailey

This technical report is dedicated to the memory of Kevin Bailey, who was tragically taken from us close to the completion of the work for this review.

It was Kevin's experience, interest and determination that provided the impetus for this project. We have lost a dear friend, and the fisheries world has lost a valuable scientist.

