

# Quantifying illegal, unreported and unregulated fishing in the Pacific Islands region – a 2020 update<sup>1</sup>

## Background and approach

Illegal, unreported and unregulated (IUU) fishing is a recognised global problem that undermines the integrity of responsible fisheries management arrangements, and results in lost value to coastal states (e.g. FAO 2002; Agnew et al. 2009). The first attempt at quantifying the value and volume of IUU fishing in tuna fisheries within the Pacific Islands region was undertaken in 2016 using data from 2010–2015 (MRAG Asia Pacific 2016). That study estimated the total volume of product either harvested or transhipped involving IUU activity in Pacific tuna fisheries was 306,440 t, with an ex-vessel value of USD 616 million. Nevertheless, the authors noted that the data and information underlying many of the estimates were highly uncertain and that the outputs should be seen as a “first cut”.

In order to assess changes in the nature and extent of IUU fishing since that time, this study was commissioned as part of the Global Environment Facility-funded Pacific Islands Oceanic Fisheries Management Project II to undertake a 2020 update of the original estimates. The aim was to undertake an “apples vs apples” update of the original estimates, using a consistent methodology and taking into account the latest available information. The study period covered the years 2017–2019. Importantly, this preceded any COVID-19 related impacts on monitoring, control and surveillance, and IUU activity in the region.

Broadly, we used a “bottom up” approach to quantify IUU fishing activity across key IUU risks in four categories: 1) unlicensed or unauthorised fishing; 2) misreporting; 3) non-compliance with other license conditions (e.g. shark finning); and 4) post-harvest risks (e.g. illegal transhipping). Best estimate and minimum and maximum range values were generated for each risk, taking into account the best available information. Monte Carlo simulation was then used to produce probabilistic estimates of IUU activity, taking into account probability distributions assigned within the minimum and maximum range values. Using this approach, estimates of IUU volume and value were developed for each of the three main fishing sectors – purse-seine, tropical longline and southern longline – and then aggregated to produce an overall estimate for tuna fisheries in the Pacific Islands region.

While the same basic approach to estimating IUU was used between the 2016 and 2020 studies, a number of changes were made to the information underlying the estimation of individual risks. In some cases, this was driven by new information becoming available (e.g. to estimate the scope for illegal transshipment), while in other cases the information previously used to support estimates for the 2016 study was no longer available. For some risks, these changes in information had substantial impacts on the estimated volume and value between studies.

## Estimated volume and value of IUU fishing

Our simulations suggest that the best estimate for the total annual volume of product either harvested or transhipped involving IUU activity in Pacific tuna fisheries during the 2017–2019 period was 192,186 t, with 90% confidence that the actual figure lies within a range of 183,809 t to 200,884 t. Based on the expected species composition and markets, the ex-vessel value of the best estimate figure is USD 333 million. The 90% confidence range is between USD 312 million and USD 358 million. For context, the estimated IUU volume figure is around 6.5% of the total Western and Central Pacific Fisheries Commission (WCPFC) Convention Area (WCPFC-CA) catch in 2019.

This result is a considerable reduction from the “first cut” estimates in the 2016 study, which were 306,440 t (276,546 t to 338,475 t), with a best estimate value of USD 616.11 million (USD 517.91 million to USD 740 million). The reduction was primarily driven by substantial reductions in estimates for illegal transshipping and FAD fishing during the closure period (in turn driven by the use of better and different information, respectively) as well as the removal of the “unauthorised landings in foreign ports” risk. Overall, figures were also influenced by changes in fishery dynamics (e.g. catch, effort, price).

Among the four categories of risk identified here, the largest contribution to the overall IUU volume was made by misreporting, accounting for 89% of the total volume. Importantly, much of this volume was driven by misreporting and misidentifying target species in the purse-seine sector, for which challenges exist in making accurate estimates of

<sup>1</sup> Based on the report prepared for the Pacific Islands Fisheries Agency: MRAG Asia Pacific. 2021. The quantification of illegal, unreported and unregulated (IUU) fishing in the Pacific Islands Region – a 2020 update. 125 p. <https://sustainpacificfish.ffa.int/wp-content/uploads/2021/12/ZN2869-FFA-IUU-2020-Update-final.pdf>



Between 2016 and 2020, the total estimated volume of tuna illegally caught or transhipped in the western and central Pacific Ocean decreased by 37%. That's good news for everyone. (Image: ©Francisco Blaha)

catch while at sea. The various types of unlicensed fishing collectively accounted for 5% of overall estimated IUU volume, while non-compliance with license conditions and post-harvest offences accounted for 3% each.

Of the three main sectors assessed, the estimated volume of IUU product was highest in the purse-seine sector, accounting for 72% of overall volume. Nevertheless, much of the estimated volume in this sector was driven by estimates for misreporting, for which mechanisms exist (through 100% observer coverage) to correct any errors in catch reports and, given the nature of access arrangements under the vessel day scheme, it is likely that economic rents associated with any misreporting would be captured anyway. This result should be seen in that context. The tropical longline and southern longline sectors accounted for 21% and 7% of the overall volume, respectively. The purse-seine fishery also contributed to slightly under half of the overall ex-vessel value of IUU product (USD 152.26 million), although the higher market value of target species in the longline fisheries meant that the tropical longline sector made a proportionally higher contribution by value (40%) than volume to overall estimates. The southern longline fishery had the lowest overall estimates of IUU product value (14%).

Of the main target species, yellowfin accounted for the highest volume of IUU product, making up 33% of the total estimated IUU volume, and 25% of the ex-vessel value. The total estimated IUU volume of yellow fin equated to around 9.4% of the estimated total yellowfin catch in the WCPFC-CA area during 2019. However, because much of the yellowfin volume is driven by misreporting in the purse-seine fishery, which is subject to 100% observer coverage,

this should not result in any “unaccounted for” catch. Skipjack tuna accounted for the next highest volume, making up around 27% of overall estimated volume, but only 20% of the overall ex-vessel value given its lower market price relative to other tuna species. The total estimated IUU volume of skipjack equated to around 2.5% of the estimated total skipjack catch in the WCPFC-CA area in 2019. Bigeye tuna accounted for 17% of the overall estimated IUU volume, but 20% of the ex-vessel value. The proportionally higher contribution to the ex-vessel value total reflects the fact that much of the estimated IUU volume came from the longline sector, which achieves relatively high market prices. The total estimated IUU volume of bigeye equates to around 24.3% of the estimated total bigeye catch in the WCPFC-CA area during 2019. Importantly, this does not necessarily mean that 24.3% of additional bigeye tuna have been taken in addition to reported figures. For example, some of bigeye estimates relate to over-reporting in the purse-seine fishery. Albacore accounted for 2% of the overall estimated IUU volume and total ex-vessel IUU value. The total estimated albacore IUU volume equates to around 2.8% of the estimated total albacore catch in the WCPFC-CA area in 2019.

## Analysis and main messages

Apart from the main outcomes of volume and value estimates, a number of key messages arise from the analysis:

- **The reduction in estimates since 2016 is positive but should be seen in context.** The overall volume and

value of IUU estimated in this 2020 update are a substantial reduction from those of 2016. Although this is a very positive result for the region and the monitoring, control and surveillance (MCS) efforts for IUU fishing, it should be seen in context. The 2016 estimates were a first cut, with highly uncertain data across a number of key risk areas. On that basis, estimates were kept deliberately broad to account for high levels of uncertainty. For the 2020 study, new information became available to estimate some risks – most notably illegal transshipping and longline misreporting – while information previously used to quantify risks for the 2016 study were unavailable for the current study period. Broadly, it was these changes in information that produced the biggest overall changes in volume and value estimates. In addition, incorporating one new risk (exceeding effort limits) and removing another (unauthorised landing of catch in foreign ports) together with changes in fishing effort, catch rates and fish price also influenced overall estimates. In practice, the 2020 estimates should be seen as the next evolution in an ongoing process to refine approaches to quantify the nature and scale of IUU in the Pacific Islands region.

- **Cooperation works.** While IUU fishing in its various guises will require ongoing attention from members of the Pacific Islands Forum Fisheries Agency (FFA), there is little doubt that the MCS measures FFA members and their partners and/or regional secretariats have implemented over recent decades have had a profound impact on both the nature and volume of IUU fishing in the region. Cooperative, regional MCS measures – such as the establishment of the FFA Vessel Register and Good Standing requirement, the agreement of Harmonised Minimum Terms and Conditions for foreign fishing

vessel access, the establishment of the FFA Vessel Monitoring System, the development of common regional data collection protocols and forms, the establishment of regional Pacific Island Regional Fisheries Observer standards and training for observers, the Niue Treaty and Subsidiary Arrangement to facilitate cooperation on MCS, including information sharing and coordinated regional operations, among others – have substantially strengthened the MCS environment across all member exclusive economic zones compared to individual members acting alone. The relatively low estimates of IUU activity in the FFA region – compared to many other parts of the world – is practical evidence of the MCS framework's success.

- **Estimates continue to be dominated by the licensed fleet.** A key outcome of the 2016 study was that estimates of IUU volume and value were dominated by the licensed fleet. The 2020 update shows a similar pattern, with unlicensed fishing accounting for only 5% of overall IUU activity.
- **Unlicensed fishing remains a marginal issue.** Unlicensed fishing continued to be a marginal issue, both figuratively and literally. Overall, evidence for unlicensed fishing by vessels on the FFA Vessel Register and/or WCPFC Record of Fishing Vessels was very limited with no confirmed instances of unlicensed fishing by these vessels detected during regional operations, and few national level detections and/or prosecutions during the study period. The main exception to this is on the fringes of the FFA region, and in particular on the western fringe adjacent to the domestic fleets of south-east Asian countries, where evidence of regular incursions was stronger.



Image: ©Francisco Blaha



Fisheries enforcement officers, as seen here in the Marshall Islands, are a key element in the fight against illegal activities in the tuna industry. (Image: ©Francisco Blaha)

- **Priorities for strengthening MCS measures in the longline sector.** Of the two main gear types operating in the Pacific Islands region, the purse-seine fleet is subject to very strong MCS arrangements, including 100% observer coverage, a requirement to transship in port and a requirement for e-reporting under the Parties to the Nauru Agreement’s vessel day scheme (VDS). Moreover, the majority of fishing effort occurs in exclusive economic zones that are subject to strong coastal state MCS arrangements. In contrast, MCS arrangements for the longline sector are weaker, with lower observer coverage, a far higher proportion of effort on high seas areas, and a higher proportion of the catch transhipped at sea, which limits opportunities for port state MCS measures. Particular focus should be on strengthening measures to monitor and validate catch both on longline vessels and as they move through the supply chain. Given the shared nature of stocks in the region, it is important that strong catch validation measures are applied across the full range of stocks, including on the high seas.
- **Estimates of illegal transshipping have come down, but monitoring and control remain a work in progress.** The availability of WCPFC transshipment declaration information, together with Global Fishing Watch’s automatic identification system dataset, has provided considerably better information on the scope for unauthorised transshipment than was available to the 2016 study. This has led to a substantial reduction in overall estimates of volume and value. Nevertheless, important areas of uncertainty remain in the at-sea transshipment component of the longline supply chain, and monitoring and control remain a work in progress. In particular, improvements are required to strengthen the implementation of the observer programme such that information provided by vessels on the volume and species composition of fish transshipped can be validated against independent observer estimates.
- **IUU is not straightforward.** While the formal definition of “IUU fishing” in the International Plan of Action-IUU is relatively clear in theory, but applying it for the purposes of quantifying its nature and extent presents a range of practical challenges. In addition to the inevitable uncertainties in the underlying data, resolving what should, and should not, be considered in estimates frequently requires judgements that can significantly impact on overall volume and value figures.
- **Ex-vessel value is not a good indicator of actual loss to FFA members.** This is because the full value of the catch is not returned to coastal states under normal circumstances (only a proportion of total revenue is, typically through access fees). A better benchmark of revenue forgone by Pacific Island countries is likely to be the rent generated by vessels from IUU activity; however, even then the nature of access arrangements, such as the VDS, mean that economic rents associated with many IUU activities (e.g. misreporting) is likely to be captured anyway. Taking into account estimates of profitability during the study period in the purse-seine and longline sectors, as well as the likelihood that rents associated with some risks (notably misreporting in the purse-seine sector) are likely to be captured through the VDS, we estimate the rent associated with ex-vessel IUU value to be USD 43.18 million. This is a considerable reduction from the 2016 estimate (USD 152.67 million), but may still overestimate actual loss. More accurate estimates would require additional analyses of the unique circumstances of each IUU risk.

## What additional measures can be taken to better deter and eliminate IUU fishing?

As outlined in the 2016 study, considerable efforts have been taken at the national, subregional (FFA, the Pacific Community, Parties to the Nauru Agreement) and regional levels (WCPFC) to mitigate IUU fishing in Pacific tuna fisheries. Moreover, a range of additional MCS measures have been taken since then (e.g. establishment of the Pacific Maritime Security Program, strengthening of longline un-loadings monitoring coverage in FFA member ports, which have better informed the estimates of the 2020 update and contributed to lower overall estimates.

Nevertheless, ongoing uncertainties in relation to a number of key risk areas highlight priority areas for future MCS development. In the longline sector, the priority is to strengthen measures to monitor and validate the catch of licensed vessels throughout the supply chain. Despite good improvements in some areas (e.g. un-loadings coverage in FFA ports), current monitoring arrangements remain limited for some fleets. Measures that could be taken to strengthen monitoring include strengthening observer coverage (for those longline fleets not meeting the 5% WCPFC benchmark, as well as FFA domestic fleets), more active cross-verification of independent data sources to identify reporting discrepancies (e.g. logsheet versus unloading), an enhanced focus on investigating reporting offences, wider use of electronic reporting and monitoring, and the development of an effective catch documentation scheme for key species. In addition, more effective monitoring and control of at-sea transshipments is required, including strengthening arrangements for the implementation of the transshipment observer programme.

In the purse-seine sector, notwithstanding recent complications arising from COVID-19 restrictions, the MCS arrangements in place are considerably stronger than those for the longline sector. Priorities include continuing efforts to validate estimates of catch composition and monitoring and control of FAD usage.

## References

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