



The Growth and Impact of the Tuna industry in Papua New Guinea

Marcelo Hidalgo
contact@seafoodmatter.eu
Sustainability & CSR Director
Fishing Industry Association (PNG) Inc
Hamburg MSC Commercial meeting - September 2024



Our FIA PNG members

Its membership composition consists of:

- Funded in 1991, *Registered under the PNG Associations Incorporations Act 1966*
- *Vertically Integrated Tuna players*
- Companies and operators in the tuna industry (both the fishing and shore-based processors)

MSC fishery certification:

- Skipjack, Yellowfin, and Bigeye
- Access to 750.000 MT of tuna in the PNA fishing ground
- 53 tuna purse seiners
- Six (6) tuna canneries in Papua New Guinea
- Associated canneries in Thailand and the Philippines
- 25% of Global tuna catches come from PNG

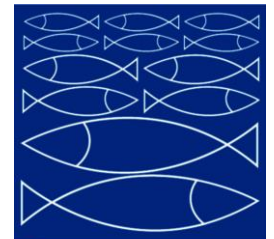
Tuna fishing companies



STARCKI VENTURE CORP.
"Where Tuna Meets The World"



Tuna processors



Frabelle (PNG) Ltd



RD TUNA CANNERS LTD



FIA PNG Responsible Sourcing Policy RSP Log (2018) – frame v2.0 (Reviewed and Revised **in June 2022**)

| Management System | CSR and Sustainability | Stakeholder engagement and Market awareness | Technology enhancement |
|--|---|--|--|
| <ul style="list-style-type: none"> • Maintain and enhance the robustness and holistic approach of our FIA PNG management system to support our members • Invest in capability building for FIA PNG office and members • Monitoring and Evaluation of our RSP (KDE or KPI) • FIA PNG RSP communication tool e.i: clipboards • Annual report improvement (content and design) for stakeholders • Education & Awareness of Responsible Sourcing Policy RSP (Staff, members, and Stakeholders) | <ul style="list-style-type: none"> • MSC tuna certification & surveillance • MSC tuna client action plan (CAP) implementation • MSC Lobster certification • SeafoodMAP – Tilapia farming* • SeafoodMAP – Mud Crab • SeafoodMAP – Seaweed • CO2 neutral commitment • Human Rights at Land & onboard • ML&FG improvement (FADs & recycling) • CSR and Sustainability image improvement and implementation • Update of FIA PNG office personal role and description | <ul style="list-style-type: none"> • RSP Stakeholder’s communication • Improve engagement with EJF, WWF, ISSF, HRAS, SPC (countries), GGGI, WWF countries. • Global markets and new markets engagement with the FIA RSP – event’s participation • Promote it and engage: new markets and outreach/ commercial network - RSP • Attend and promote FIA PNG RSP in Seafood global conferences • Education & Awareness of Responsible Sourcing Policy RSP (Staff, members, and Stakeholders) | <ul style="list-style-type: none"> • Digitalization of RSP pillar’s audit checklists • Labor onboard and Social Accountability KDE’s inclusion in the iFIMS • Global Fishing Watch & NFA collaboration with assessment reports • GDST capability test to iFIMS • Use of Data collected for data analysis and recommendation for decision makers • Website content improvement and design • Intelligent communication & harmonization across tuna fleet (clipboards and infographic) |

Each frame intends to be fully up and running by 2030



FIA PNG Responsible Sourcing Policy - RSP (2018)

Due diligence

Sustainability

Marine litter &
Fishing gear

Social Responsibility
& Crew Welfare

Traceability

Certification, third party
assessment, & public access tools



Industrial & Artisanal



MARPOL



F · I · S · H



The Growth - Tuna

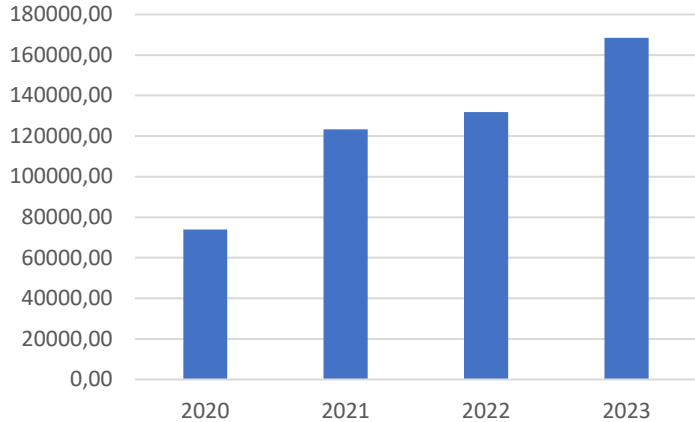


At Sea: 1344 Crew – direct job

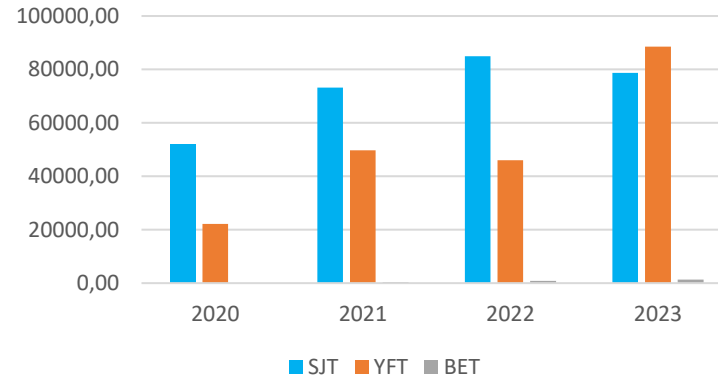


At Land: 11.000 Workers – direct job

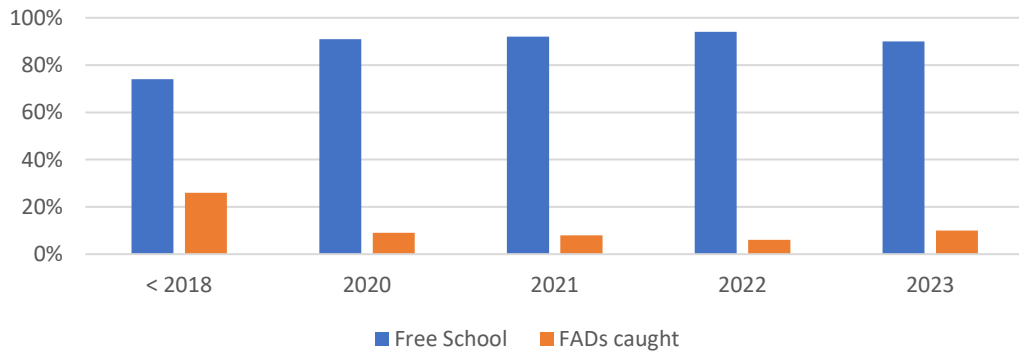
FIA PNG tuna fleet - Total Catches per Year (MT)



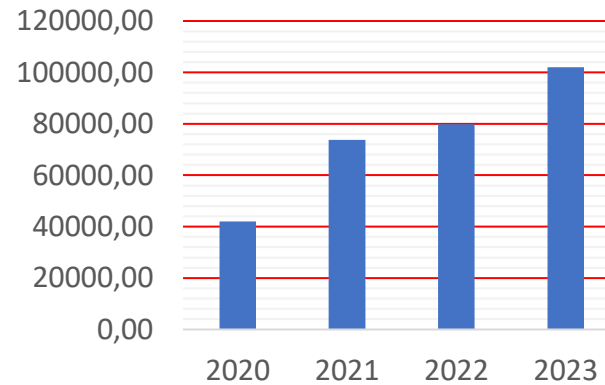
FIA PNG catches per Species per Year (MT)
48 (P/S)



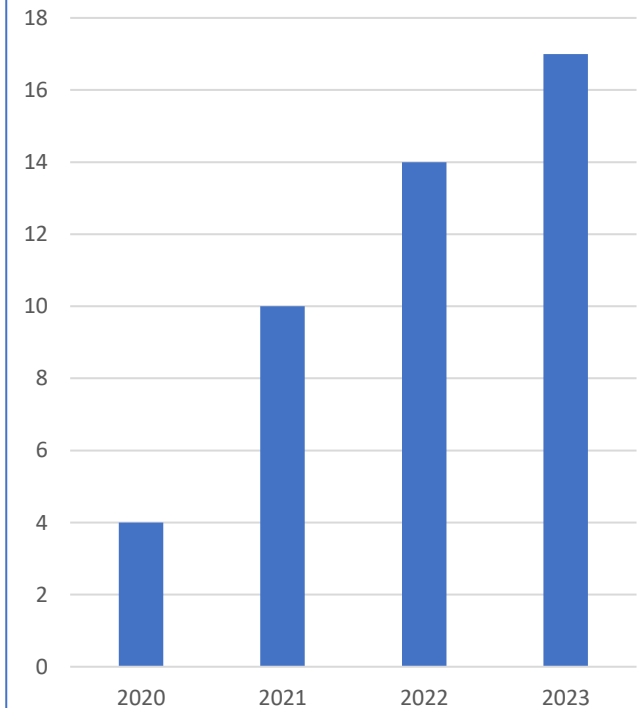
FIA PNG - Free school vs FADs catches per year



Fish meal & fish oil (60 - 70%) – Metric Tonnes



Partnerships (Academia, NGOs, Regulators)

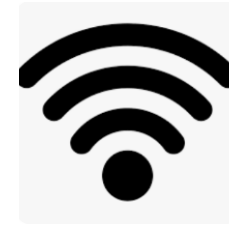


SDG: OceanAction #38702

For Our People

Fishing has consistently ranked as the most deadly occupation since 1992

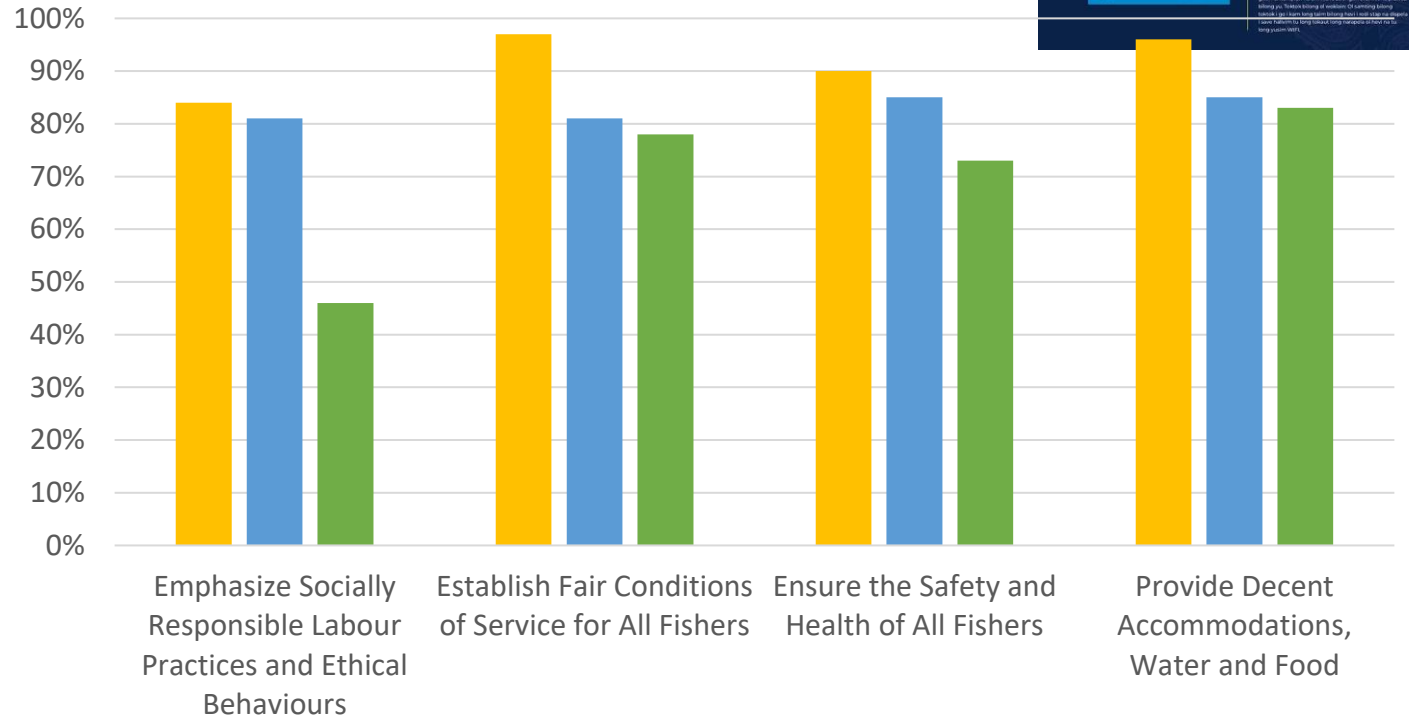
- Due diligence process providing decent working and living conditions
- Protecting workers begins with a safe and healthy working environment.
- Maintaining a low risk of accidents and injuries.
- Market and Fisheries regulations (+50 Seafoodmatter benchmark tool)
- Certification based on ILOC 188
 - **Fairness Integrity Safety Health (FISH)**



FIA PNG 10 GOOD PRACTICES ON BOARD: DECENT WORKING AND LIVING CONDITIONS

You are entitled to receive an explanation on the stipulations and content of your written contract in your language according to the legislation of your country.

FIA PNG Tuna Fleet: FISH for Crew standard



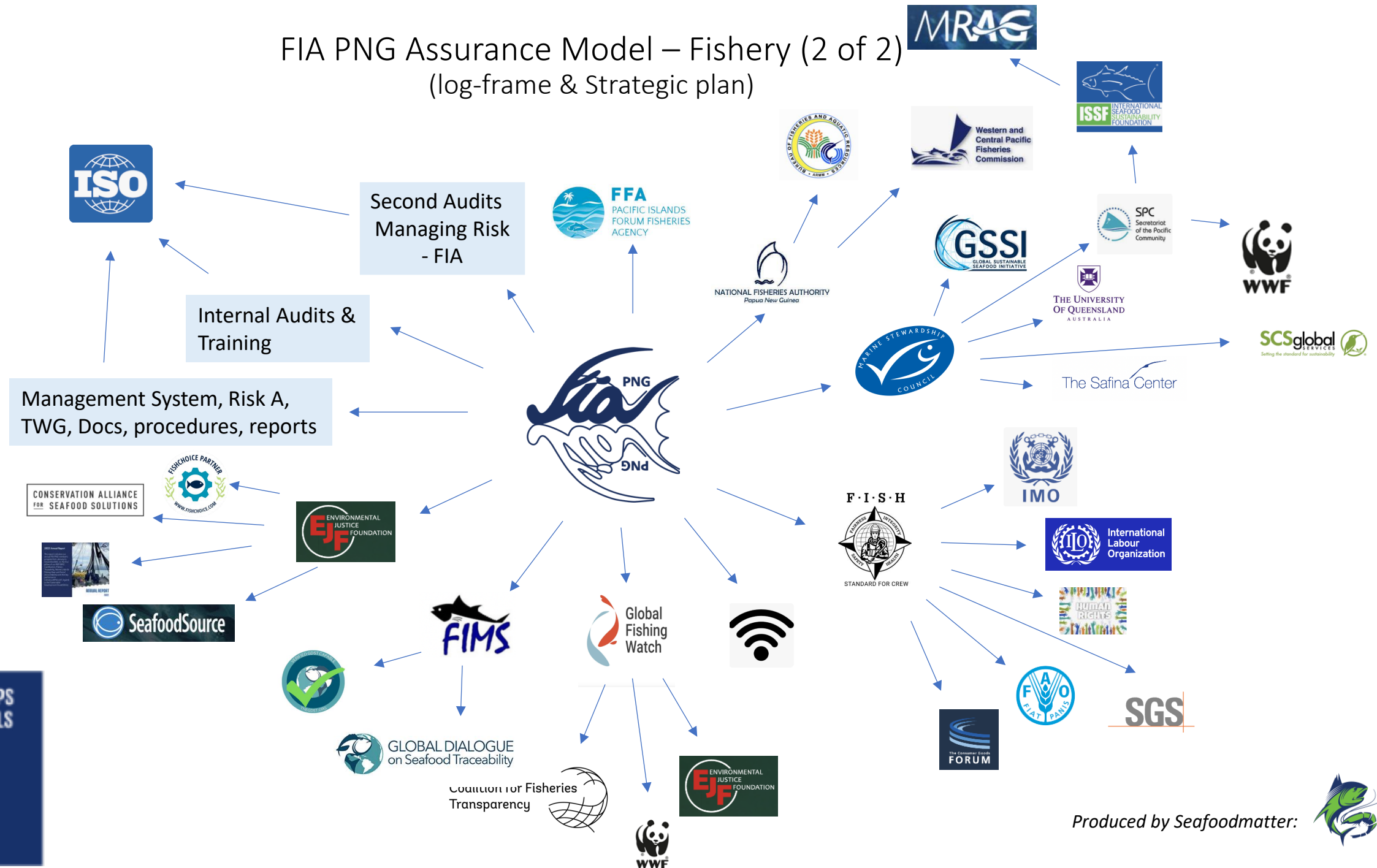
■ Fleet 1 ■ Fleet 2 ■ Fleet 3

SDG: OceanAction #38702

PNG FIA Global Partnerships and Stakeholders



FIA PNG Assurance Model – Fishery (2 of 2) (log-frame & Strategic plan)





Impact of the MSC in our Fishery

Ecological Applications August 2024

Evidence to inform spatiotemporal management of a western Pacific Ocean tuna purse seine fishery

Eric Gilman¹, Milani Chaloupka², Nialangis Posanau³, Marcelo Hidalgo³, Sylvester Pokajam³, Donald Papaol³, Adrian Nanguromo⁴, Francois Poisson⁵

¹ Fisheries Research Group, The Safina Center, Honolulu, USA

² Ecological Modelling Services Pty Ltd and Marine Spatial Ecology Lab, University of Queensland, Brisbane, Australia

³ Papua New Guinea Fishing Industry Association, Port Moresby, PNG

⁴ Papua New Guinea National Fisheries Authority, Port Moresby, PNG

⁵ MARBEC IFREMER, IRD CNRS University of Montpellier, Sète, France

Table 6. Life status of observed captured, non-retained whale sharks, 2019-2022.

| Year | Number discarded | No. retained | No. escaped |
|------|------------------|--------------|-------------|
| 2019 | 94 | 0 | 0 |
| 2020 | 56 | 0 | 1 |
| 2021 | 38 | 0 | 0 |
| 2022 | 17 | 0 | 0 |
| 2023 | 14 | 0 | 0 |

Table 5. Number of observed captured whale sharks, by fate (discarded, retained, or escaped), 2019-2022.

| Year | Alive | Dead | Life status unknown |
|------|-------|------|---------------------|
| 2019 | 89 | 2 | 3 |
| 2020 | 56 | 0 | 1 |
| 2021 | 34 | 0 | 4 |
| 2022 | 17 | 0 | 0 |
| 2023 | 13 | 1 | 0 |

The Safina Center



Impact of the MSC in our Fishery

FIA research on the potential for area-based management tools to reduce bycatch of at-risk species

FIA in collaboration with The Safina Center, through a grant from MSC, conducted research (described in the CAP for year 4 of condition 2-7) analyzing observer program data to determine the potential for area-based management tools to reduce silky shark catch rates by separating fishing at silky shark and tuna catch rate hotspots. This study has been completed and a publication from the study is available:

Gilman E, Chaloupka M, Posaunau N, Hidalgo M, Pokajam S, Papaol D, Nanguromo A, Poisson F. 2024.

Evidence to inform spatiotemporal management of a western Pacific Ocean tuna purse seine fishery. *Ecological Applications*

Table # 1: FADs deployed by the FIA PNG Tuna Fleet per year (updated March 2024)

| Year | Fishing Company Names | | | | | | | Material | | | ISSF/GGGI/RSP/NFA | |
|------|-----------------------|-----|-----|----------|-----------|----------|------------|-------------------|-------------------------|-------|-------------------|----------------|
| | Starcki | TSP | TPJ | Frabelle | Bluecatch | Fairwell | RD fishing | Non-Biodegradable | Biodegradable & Organic | Mixed | Entangling | Non-entangling |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | | | * | | * |
| 2020 | 0 | 20 | 0 | 0 | 0 | 0 | 133 | | | * | | * |
| 2021 | 0 | 0 | 35 | 0 | 0 | 0 | 120 | | | * | | * |
| 2022 | 0 | 9 | 42 | 0 | 0 | 0 | 148 | | | * | | * |
| 2023 | 0 | 30 | 129 | 0 | 0 | 53 | no fishing | | | * | | * |

TOTAL DRIFTING FAD DEPLOYED 2023: 212

| Year | Fishing Company Names | | | | | | | Material | | | ISSF/GGGI/RSP/NFA | |
|------|-----------------------|-----|-----|----------|-----------|----------|------------|-------------------|-------------------------|-------|-------------------|----------------|
| | Starcki | TSP | TPJ | Frabelle | Bluecatch | Fairwell | RD fishing | Non-Biodegradable | Biodegradable & Organic | Mixed | Entangling | Non-entangling |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| 2020 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | | | * | | * |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| 2022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| 2023 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | | | * | | * |

TOTAL DRIFTING FAD DEPLOYED 2023: 35

*Source: Data collected by an annual survey of our FIA PNG tuna fleet members.

*PNA allows 300 FADs per vessel

*NFA PNG allows accountability of aFADs, and recording of dFADs/aFADs in iFIMS mandatory

Table # 2: Summary of catch rate by species/group for PNG - and Philippine-flagged tuna purse vessels in the western Pacific Ocean, from 2001-2022 per tunas and number for other species groups

| Set Type | Catch per set (MT) | | | | | | | |
|--------------|--------------------|----------------|-------------|-------------|-------|----------------|--------------|----------------------|
| | skipjack tuna | yellowfin tuna | bigeye tuna | silky shark | rays | toothed whales | whale sharks | hard-shelled turtles |
| Free school | 13.6 | 8.0 | 0.3 | 1.1 | 0.091 | 0.031 | 0.008 | 0.005 |
| Drifting FAD | 28.7 | 7.6 | 1.9 | 2.5 | 0.102 | 0.106 | 0.004 | 0.008 |

Table # 3: Sets made on anchored FAD in the last 9 years

| Year | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|----------------------|------|------|------|------|-------|-------|-------|-------|-------|
| Sets on Anchored FAD | 13.7 | 7.7 | 1.4 | 0.6 | 0.059 | 0.099 | 0.001 | 0.006 | 0.003 |



The Safina Center

AREA-BASED MANAGEMENT OF THREATENED SPECIES BYCATCH IN A PACIFIC OCEAN TUNA PURSE SEINE FISHERY

WHAT:

Analyzed observer program data of Papua New Guinea and Philippine flagged tuna purse seine vessels operating in the western Pacific Ocean in order to estimate the effect of the spatial and temporal distribution of fishing effort on target and at-risk catch rates.

WESTERN PACIFIC OCEAN



WHY - STUDY OBJECTIVE:

Determine if there are temporally and spatially predictable hotspots and coldspots for catch rates of at-risk species and of target tunas to determine if these can be feasibly separated.



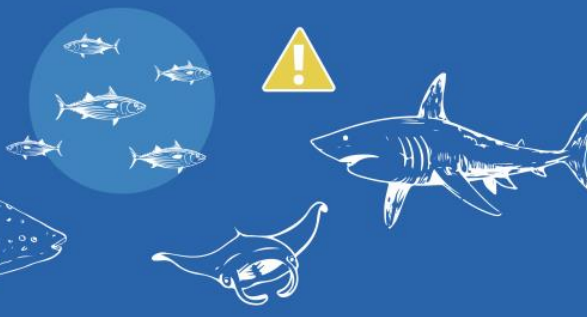
HOW:

With effort conditioned to account for other potentially informative predictors of catch risk, the observer data were fit to spatially-explicit generalised additive multilevel regression models within a Bayesian inference framework.

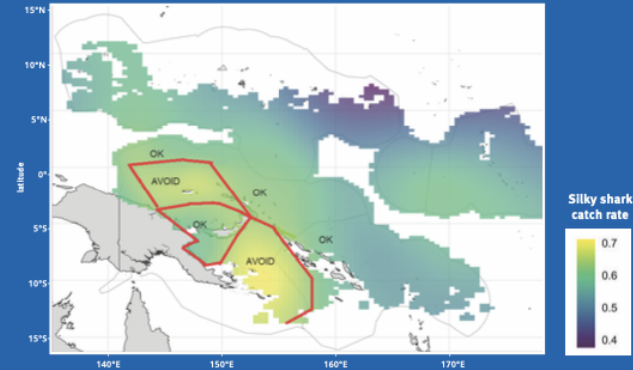


INFORMING THE MANAGEMENT OF THE SPATIAL DISTRIBUTION OF EFFORT:

Effort could be focused in an area within core fishing grounds to reduce overlap with hotspots for silky sharks, rays and whale sharks without affecting catch rates of target tunas. Effort could also be shifted outside of core fishing grounds to zones with higher commercial tuna catch rates that reduce overlap with hotspots for at-risk species.



Fishing Grounds to Reduce Silky Shark Catch



AREAS WHERE SPATIAL SEGREGATION MIGHT NOT BE FEASIBLE:

Two tuna catch rate warmspots overlapped with warmspots for whale sharks in the northwestern zone of the PNG EEZ, and for silky sharks, rays and whale sharks in the Coral Sea in the southeastern PNG EEZ. Here, spatial separation of target and at-risk catch may not be feasible.

SPECIES FOR WHICH SPATIAL SEGREGATION MIGHT NOT BE FEASIBLE:

There were sparse hard-shelled marine turtle and whale shark catch rate hotspots generally scattered across the fishing grounds.

ADDITIONAL RESEARCH ON SOCIOECONOMIC EFFECTS OF ALTERNATIVE STATIC AREA-BASED MANAGEMENT STRATEGIES

is a priority, such as accounting for costs including from fuel efficiency and operational constraints of adjusting fishing grounds. Additional research could also assess the spatial distribution of the size frequency distribution of the principal market tuna catch.



OTHER OPPORTUNITIES TO REDUCE DOLPHIN BYCATCH:

Unlike for silky shark, whale shark, rays and turtles, a small subset of sets had disproportionately large numbers of odontocete captures. Real time fleet communication and move-on rules, and avoiding sets on dolphin schools, might hold promise to reduce odontocete catch rates.



MANAGEMENT OF SIGNIFICANT OPERATIONAL PREDICTORS

SET TYPE: Silky shark catch was lowest in sets on anchored fish aggregating devices (FADs), and highest in drifting FAD and in other associated sets compared to sets on free swimming schools. The fishery has increasingly conducted free school sets, making up over 80% of sets during the past 5 years.

MESH SIZE: Sets using nets with a smaller mesh size were more likely to have no silky shark or ray catch. Mesh size did not affect tuna catch rates.

NO TEMPORALLY DYNAMIC AREA-BASED MANAGEMENT METHODS IDENTIFIED.

Results did not identify opportunities for temporally dynamic area-based management of target and bycatch catch rates. Time of day of initiating sets was an important predictor for tuna catch rate, but not for at-risk bycatch species. Previous studies that explored time of day effects on attendance at drifting FADs found that target tunas and silky sharks unfortunately make excursions away from the FADs, likely to forage, at similar times (mainly during the night time). Temporal predictors at scales of within a month (moon phase), season, and interannual El Niño Southern Oscillation phase also did not explain any species-specific catch rates.

CONCLUSION:

Findings inform the design of a bycatch management strategy that incorporates area-based management to avoid catch rate hotspots of at-risk species without compromising the catch of principal market species.



THE UNIVERSITY OF QUEENSLAND AUSTRALIA

- Ongoing
- Bycatch project
- Per vessel
- Per fleet
- Per NTS
- BY Q1 2025

Impact of the MSC in our Fishery

[FIA PNG Strategic Plan for Mitigating Bycatch](#) - Public on our website

WHAT YOU MUSTN'T DO

//// SEA TURTLES
WRONG HANDLING

- Do not lift them by the flippers.
- Do not place the turtle upside down. Turtles can't breathe in this position.

//// WHALE SHARKS
WRONG HANDLING

- Do not tow a whale shark.
- Do not pull up a whale shark.

GOOD PRACTICES ON BOARD FOR THE MANAGEMENT AND RELEASE OF SENSITIVE INTERACTING SPECIES IN THE TUNA PURSE SEINE FISHERY

FIA PNG
DND

FISHING INDUSTRY ASSOCIATION
PAPUA NEW GUINEA
Back Office#3
Section 52, Lot 53/54, Kennedy Road, Gordons,
National Capital District
Papua New Guinea
FIA-PNG.COM

Illustration and text based on the WCPFC Conservation Management Measures (CMM). The illustrations belong to the FIA PNG with the purpose of providing a visual link to the user to emphasize the importance of abiding the Code of Good Practices as based for the management and release of bycatch.

WHAT YOU MUST DO

//// SHARKS
ACTIONS TO REASSURE SHARKS

- IF YOU NEED TO DELAY TO RELEASE:**
 - Remove the animal from being in the net and handle it gently.
 - Place the animal in the tubs and avoid handling.
 - Place a cloth over the mouth and gills for the animal to breathe.
- HOW TO PREVENT SHARK BITES:**
 - At all times, do not approach a shark from the front, side or back.
 - Always maintain a safe distance from the shark.
- HOW TO CALM DOWN A VIOLENT SHARK:**
 - Hold the shark by the back of the head, not the dorsal fin.
 - Hold the shark by the back of the head, not the dorsal fin.

HANDLING TO RELEASE MEDIUM SIZED SHARKS

- STEP 1: Hold the shark by the back of the head, not the dorsal fin.
- STEP 2: Hold the shark by the back of the head, not the dorsal fin.
- STEP 3: Hold the shark by the back of the head, not the dorsal fin.

WHAT YOU MUST DO

//// SHARKS
HANDLING TO RELEASE SMALL SHARKS

HANDLING TO RELEASE BIG SHARKS

WHAT YOU MUST DO

//// SEA TURTLES
FIRST STEPS

- STEP 1: Do not lift them by the flippers.
- STEP 2: Do not place the turtle upside down.

HOW TO RELEASE A BIG SEA TURTLE

- STEP 1: Hold the turtle by the back of the head, not the dorsal fin.
- STEP 2: Hold the turtle by the back of the head, not the dorsal fin.
- STEP 3: Hold the turtle by the back of the head, not the dorsal fin.

WHAT YOU MUST DO

//// RAYS
HANDLING TO RELEASE RAYS

- STEP 1: Hold the ray by the back of the head, not the dorsal fin.
- STEP 2: Hold the ray by the back of the head, not the dorsal fin.
- STEP 3: Hold the ray by the back of the head, not the dorsal fin.

WHAT YOU MUSTN'T DO

//// DANGERS ON DECK
WRONG HANDLING

//// SHARKS & RAYS
WRONG HANDLING

- BITE:** Do not touch the shark or ray.
- BLOW:** Do not blow air into the shark or ray.
- STING:** Do not touch the shark or ray.



Scaling our MSC certifications Artisanal –
Small Scale Fisheries (SSF)



Artisanal – Small scale fishery

NFA collect data by GPS per dinghies

NFA officers collect data across the PNG lobster supply chain to feed FIMS

FIMS – once set up and tested internally will be challenged by GDST capability test

FIA PNGRSP proven model will be replicated in the Lobster fishery

These are independent tools of the assurance model for traceability, reporting, and transparency that FIA PNG is leading across the Seafood Sector.





Artisanal and Industrial Fisheries

What do we aim?



TO CARRY OUT A SEAFOOD SUPPLY CHAIN ASSESSMENT TO CHALLENGE THE INTEROPERABILITY OF THE DIFFERENT TRACEABILITY SYSTEMS

TO INTERCONNECT DIFFERENT PLAYERS IN THE SEAFOOD SUPPLY CHAIN.

TO IDENTIFY ANY GAPS WITHIN EACH SYSTEM WHILST UPHOLDING TRANSPARENCY IN OUR TRACEABILITY SYSTEM

TO INCREASE THE BAR IN THE SEAFOOD INDUSTRY FOR INTEGRATED TRACEABILITY ALIGNED WITH THE SEAFOODMAP AND GDST KDE ACROSS THE VALUE CHAIN.

ENCOURAGE SEAFOOD SUPPLY PLAYERS TO JOIN SEAFOOD TO MAP SDGS PERFORMANCE, AND

THE GDST AND PASS THE CAPABILITY TEST



Lobster Group Chain of Custody – Q4 2024

- 7 Reef Dory
- 49 dinghies
- 49 divers, 49 Skippers
- 109940,01 Kilos - 2023

- 2 Processors
- 2 Exporters
- 32 workers
- 12 Management Staff



PNG Mud Crab



- Join task force NFA/FIA PNG
- Chose a CAB
- Organizing in-house MSC pre-assessment
- **Embarking on the full assessment**
- CAP implementation
- In – Transition to MSC (ITMs)
- TWG extended
- RSP implementation
- Singapore and Hong Kong
- 21000 local collectors

MUD CRAB

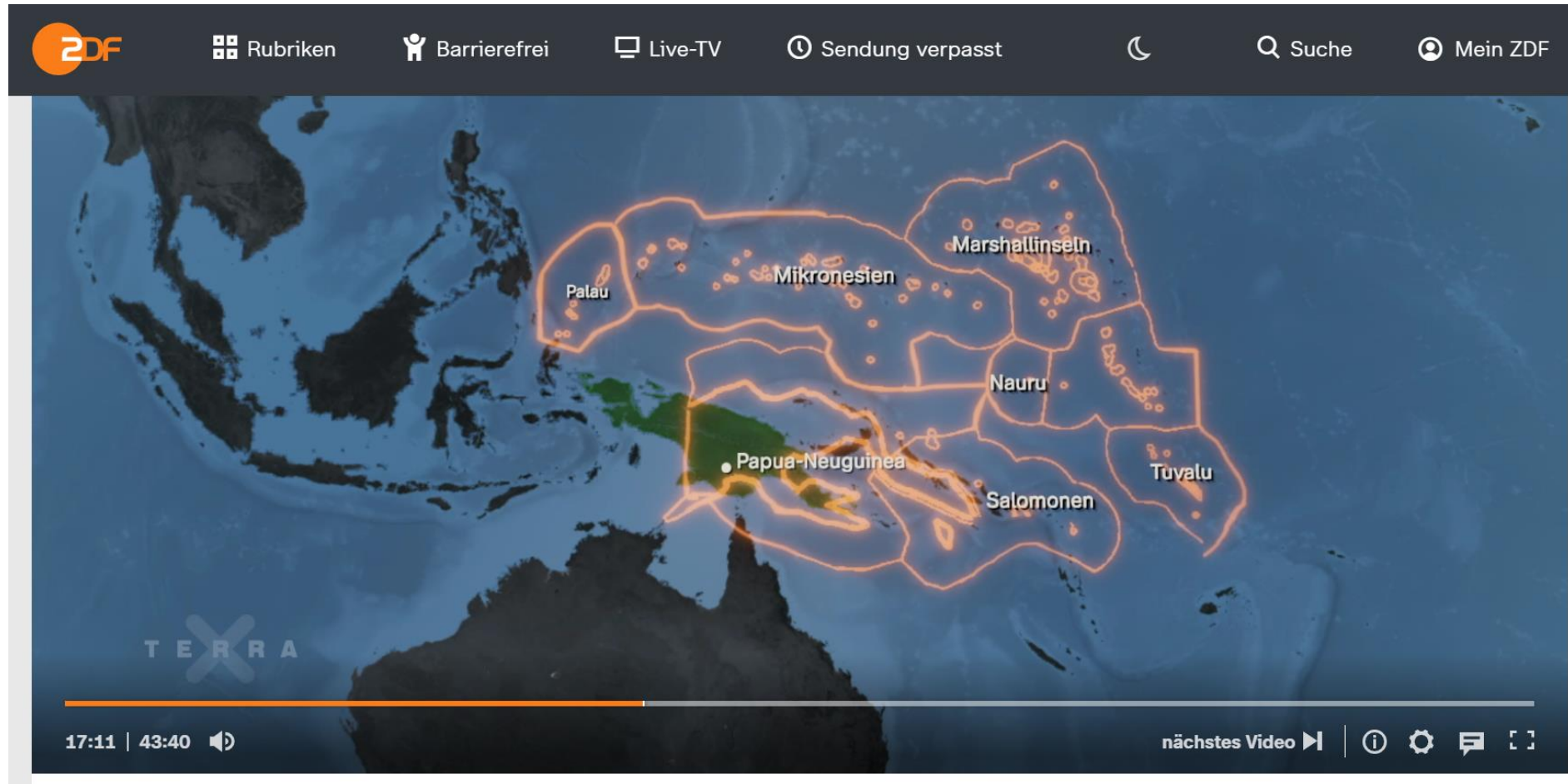


Conclusions - FIA PNG assurance model relies on

- Credible certifications and third-party audits – MSC, FISH, GDST
- Real-time monitoring at Sea at Land – FIMS
- Opened Vessel Monitoring System (VMS) – Global Fishing Watch
- Collaboration with authorities, regulators and key stakeholders (e.i NGOs)
- Continuous RSP pillars' monitoring at Sea with only competent and qualified internal auditors – on a monthly basis
- A robust management system



Terra X – Thunfisch – der bedrohte Jäger



Minute 17:10 – PNG: <https://www.zdf.de/dokumentation/terra-x/thunfisch-der-bedrohte-jaeger-mit-uli-kunz-doku-100.html>

Thank you for your attention



www.fia-png.com

Marcelo Hidalgo | FIA PNG Sustainability & CSR Director | contact@seafoodmatter.eu