



“PNA - 8 Small Island Nations or 8 Large Ocean States?” - Fishery overview and Investment opportunities.

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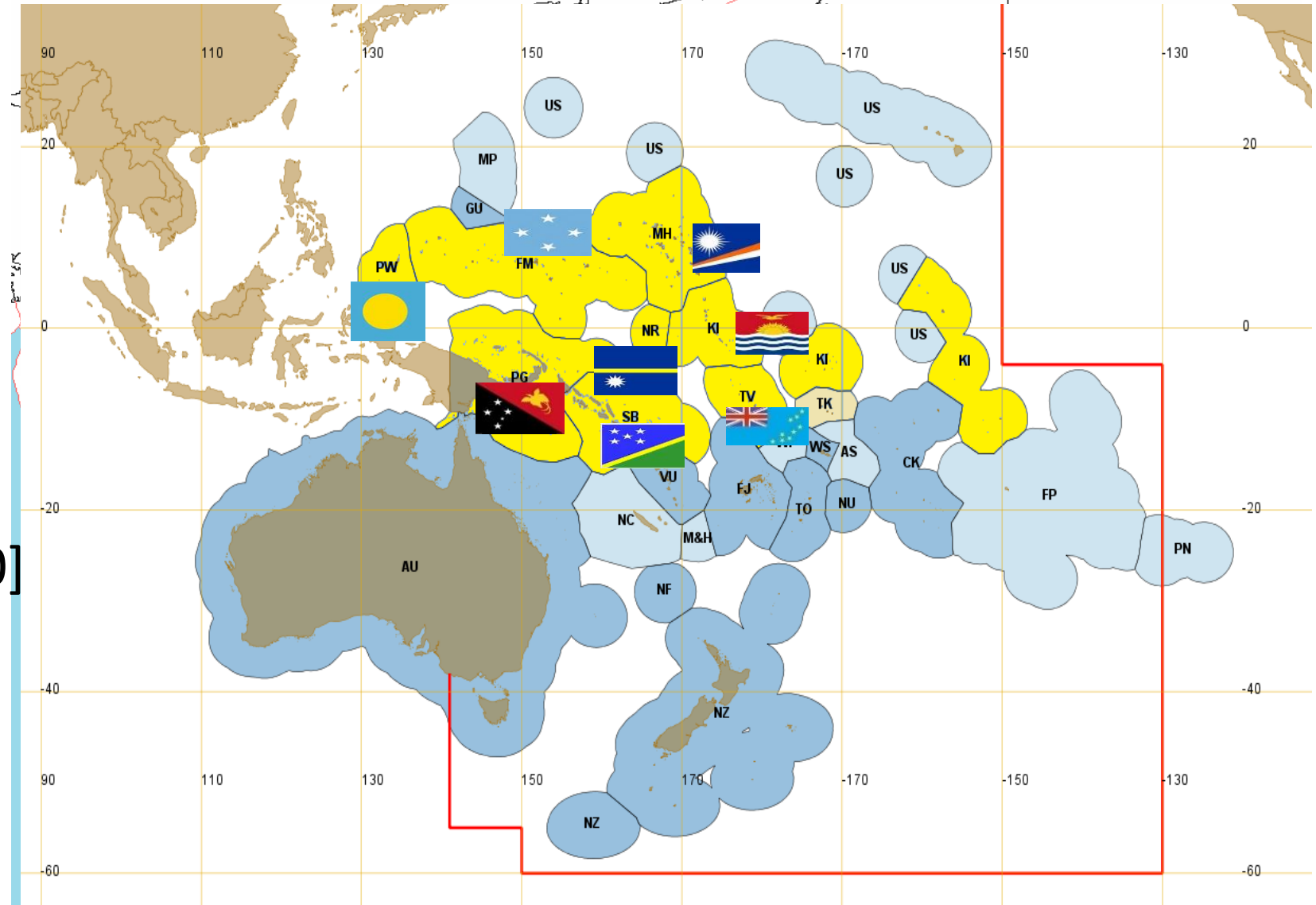


1. Who is the PNA?



PNA Parties, smallest economies globally, but **8 +1 large ocean states.**

- Kiribati [110,000]
- FSM [105,000]
- Marshall Islands [53,000]
- Nauru [10,000]
- Palau [21,000]
- Papua New Guinea [8.5m]
- Solomon Islands [600,000]
- Tuvalu [10,000]
- *Tokelau [1,500]*
- working under VDS



PNA EEZ - 14.3 million Km², plus territory of Tokelau

“Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest” (Nauru Agreement - 1982)

Feb 1982 the leaders met in Nauru, due to common concerns over large fleets invading their waters, their common aspirations for the fishery sector and common concerns for the future.

The resultant “Nauru Agreement” can be summarized as concerns over :

- ***exploitation of common stocks of fish, both within the EEZs and adjacent waters, by DWFNs***
- ***dependence, as developing island states, on the rational development and utilization of the living resources within the EEZs, in particular the common stocks of fish***
- ***co-operation in the management of the 8 EEZs to achieve maximum benefits from the fisheries resources***

The PNA [fish] Cake



The PNA office was established 1st January 2010 , and directed by the leaders to work in 3 general areas;

- **Growing the PNA cake bigger** – more catch MT and higher value fishery \$ ---- the fishery today is up from \$2-3 billion to \$ 6-8 billion - retail value
- **Take a bigger slice[s] for PNA** – bench mark \$, tenders, etc -- up from \$60 to \$520 Million in VDS access fees to PNA parties.
- **Add icing to the PNA cake** – vertical integration into processing, trading and branding - MSC / PACIFIC AL - put PNA on the map, increase investment in PNA and start taking a margin from the supply chain.

The History of PNA Measures Include Many World Firsts: -

All adopted into national laws of the island nations, through regional Implementing arrangements [1 IA, 2 IA, 3 IA, 4 IA] and MTCs

1980's:-

- Minimum Terms & Conditions
- Ship's Registry and good standing.
- Mandatory catch logbook
- report zone entry / exits
- 100% in port transship

1990's: -

- 100% observer coverage on purse seiners
- Port to port - 100% satellite track

2000':-

- High seas pocket closures
- Periodic FAD bans
- Tuna catch retention.

2010's:-

- Open PNA office
- MSC skipjack FS / Pacific
- Whale shark prohibition
- Mesh size regulations
- At sea and port sampling
- FIMS and iFIMS development and FIMS Inc acquisition.

2020's:-

- e-logs, e-forms, Bunkering restriction, FAD logs /tracking, LL VDS and Tanker and carrier VMS tracking

Under roll out

- FAD registry. electronic monitoring. AI and ML

**For our people
“ SUSTAINABILITY ”
is NOT AN OPTION !**

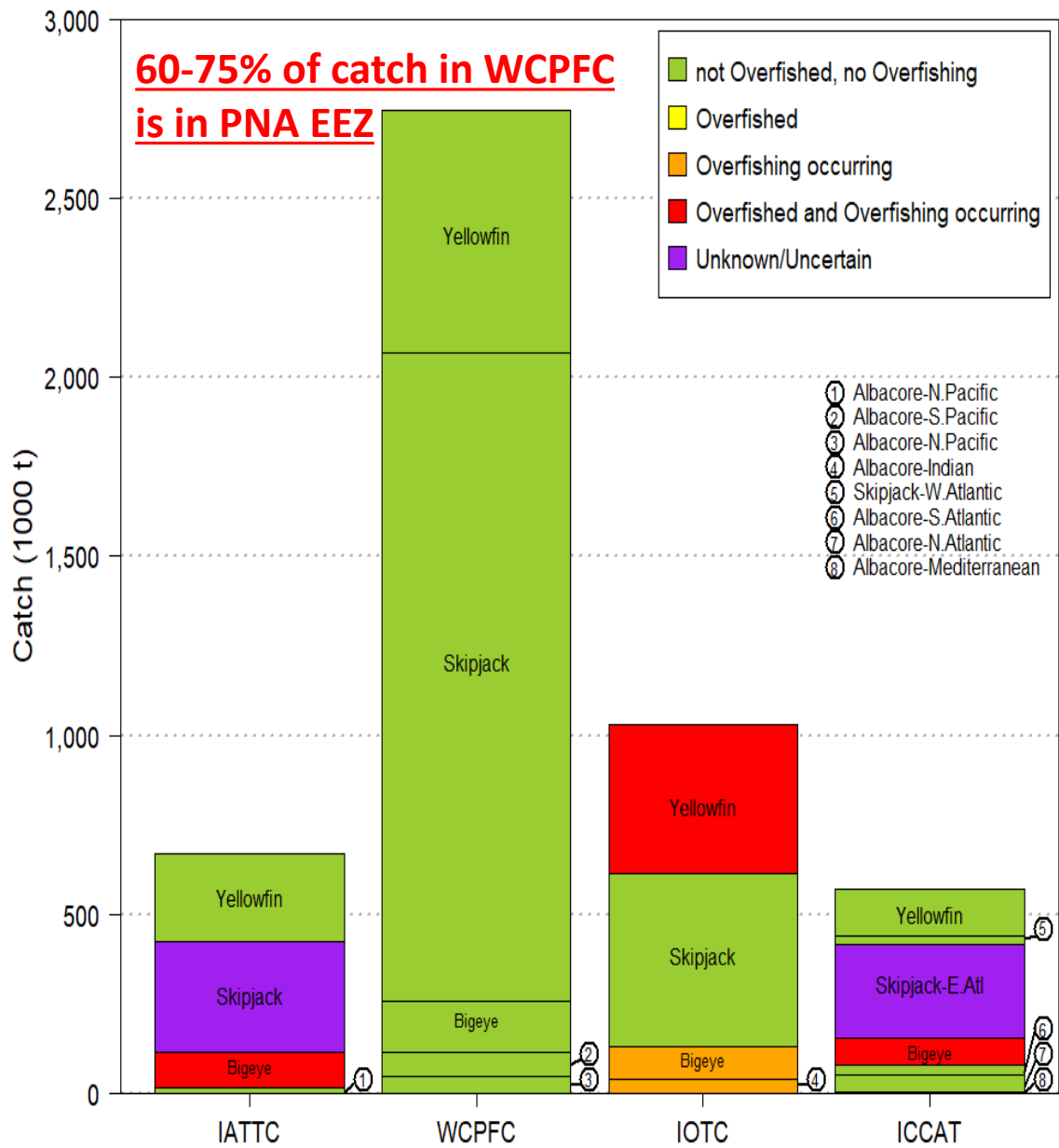
**For Pacific Islands, It is
purely a matter of
SURVIVAL !!**



2. Status of the fishery and stocks

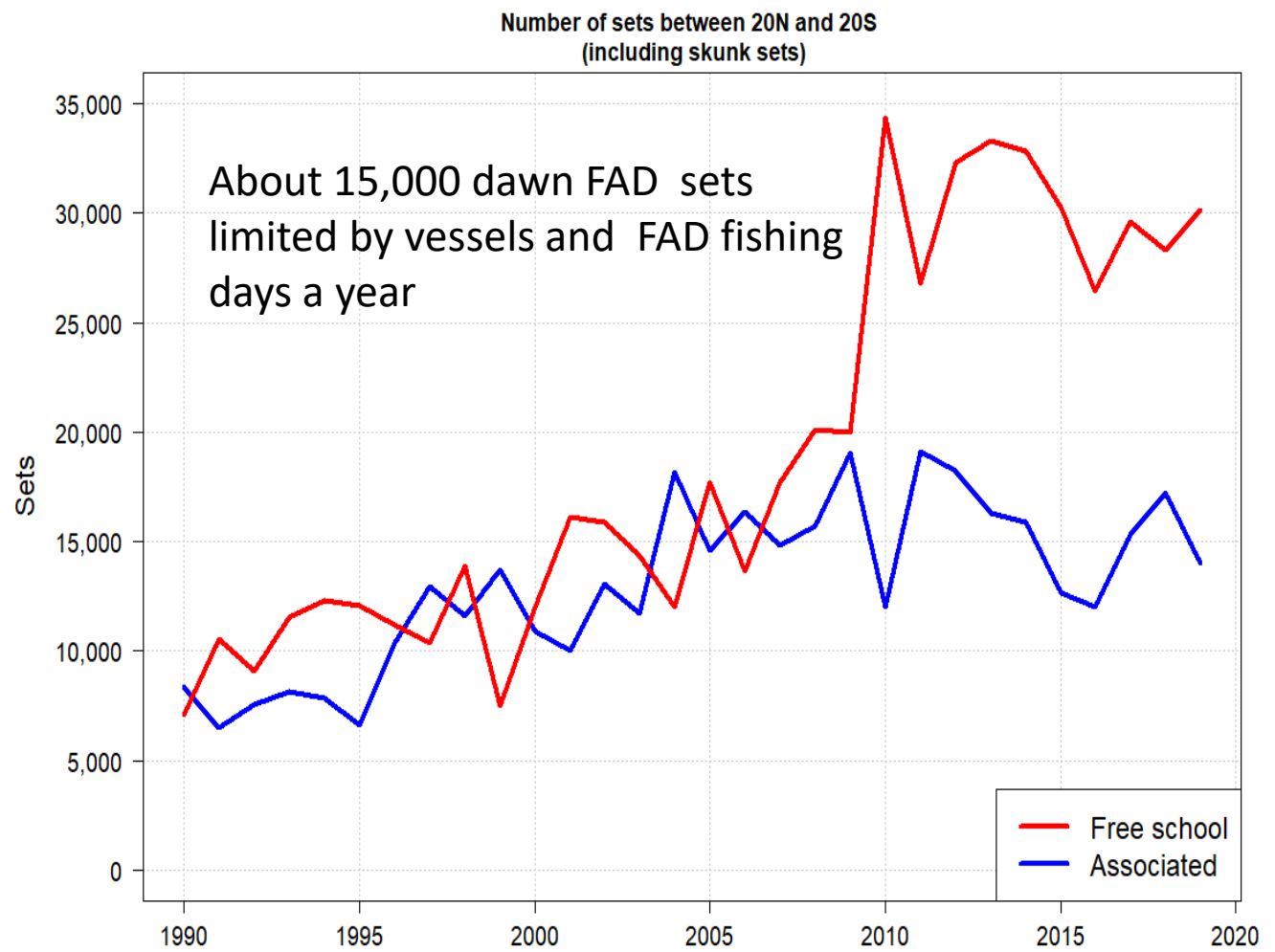


Today ALL WCPO stocks are in GREEN

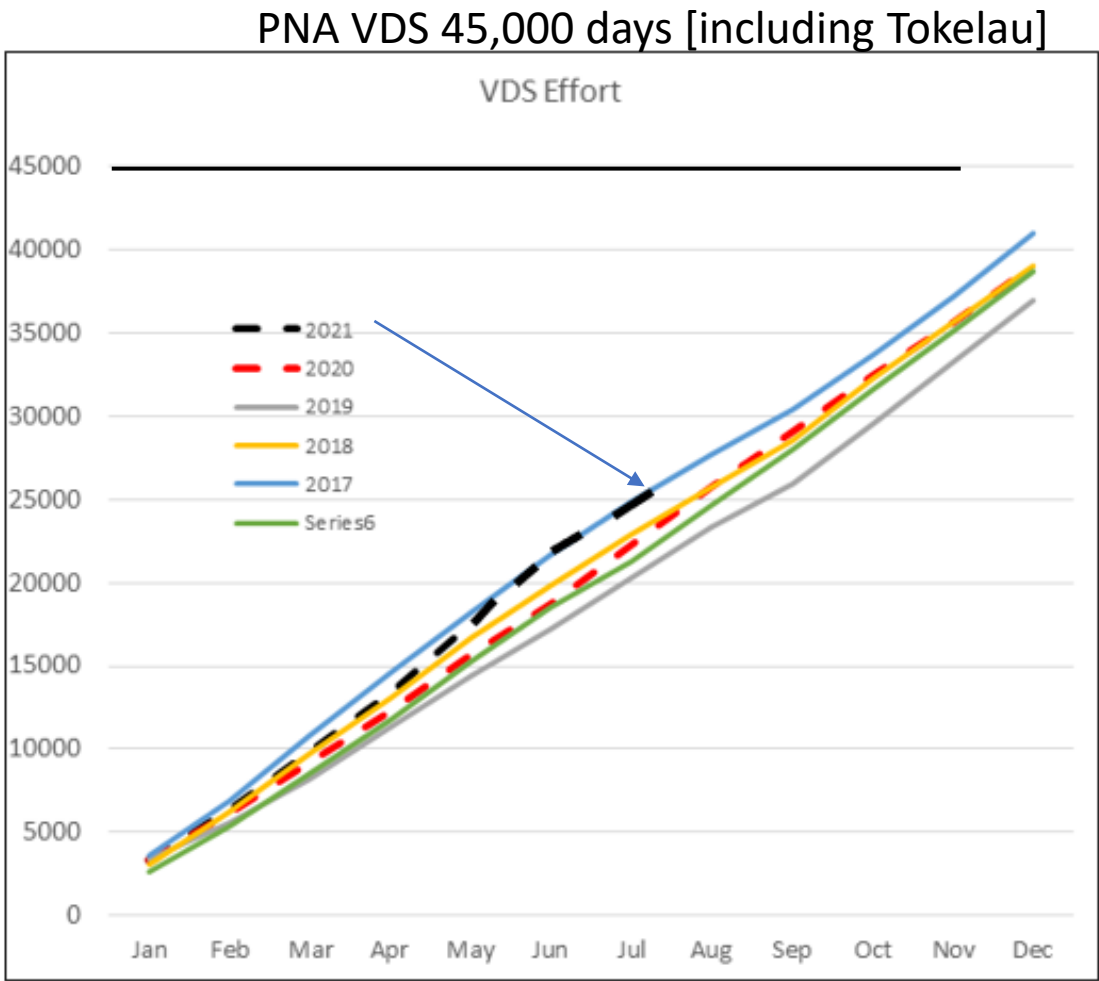
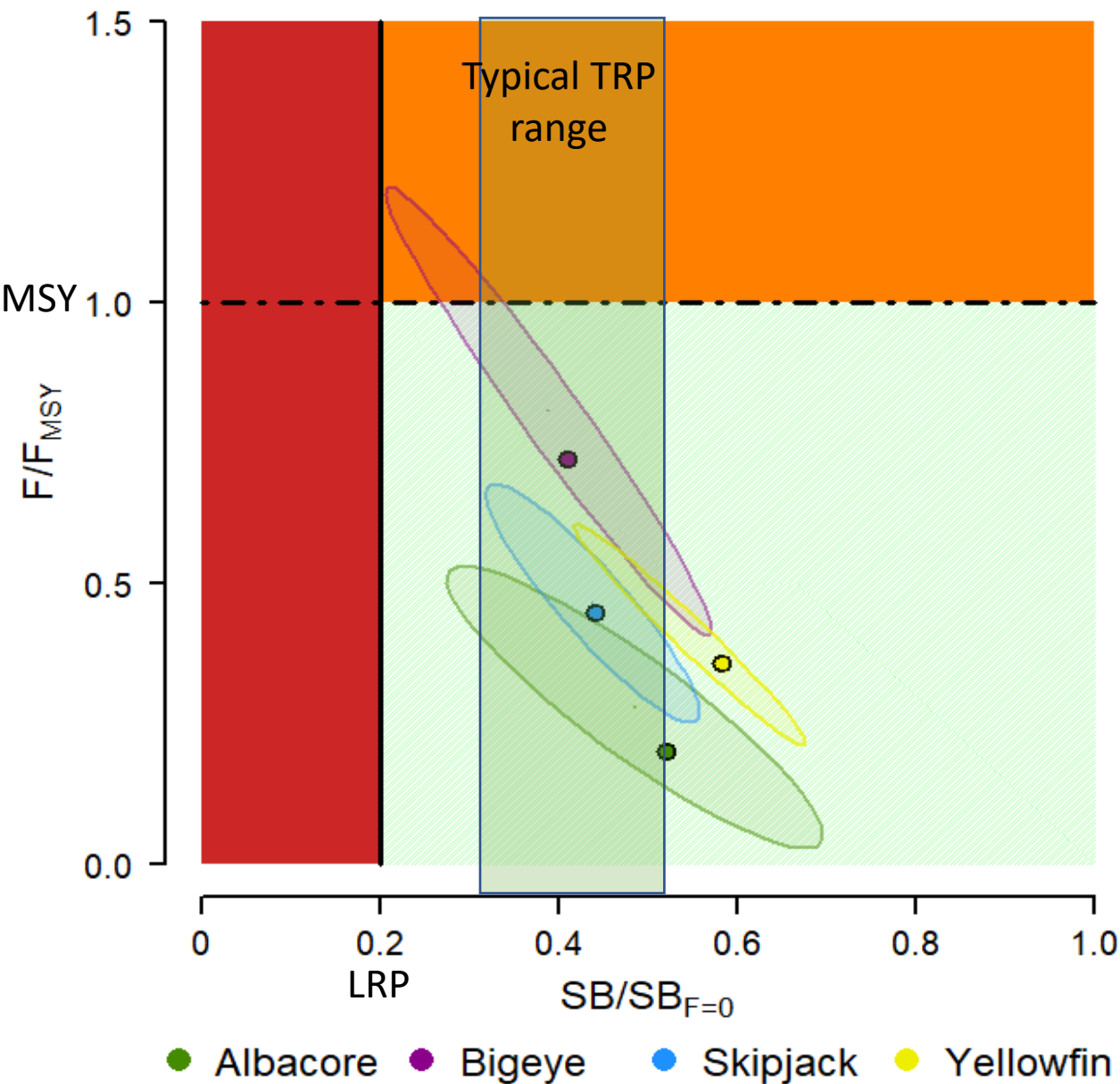


WCPO delivers >50% of global tropical tunas, with all 4 stocks in the green- this reflects management, - not policies on paper.!

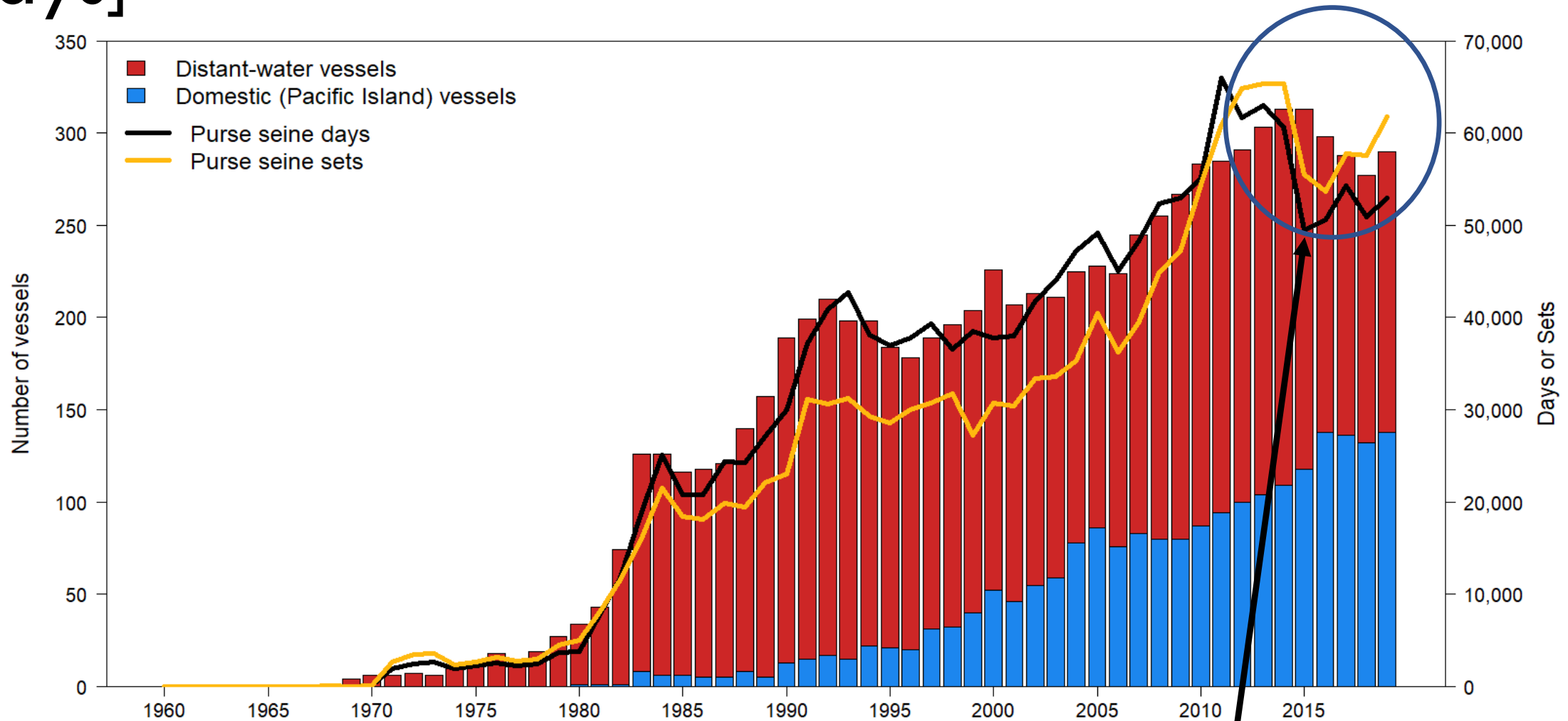
All other RFMO are heavily FAD dependent, and the impact of FAD dependency is a concern



WCPFC stock status [Majuro Plot] and PNA+ VDS effort to July 2021



Effort Trends – Purse seine in WCPFC [PNA 45,000 days]

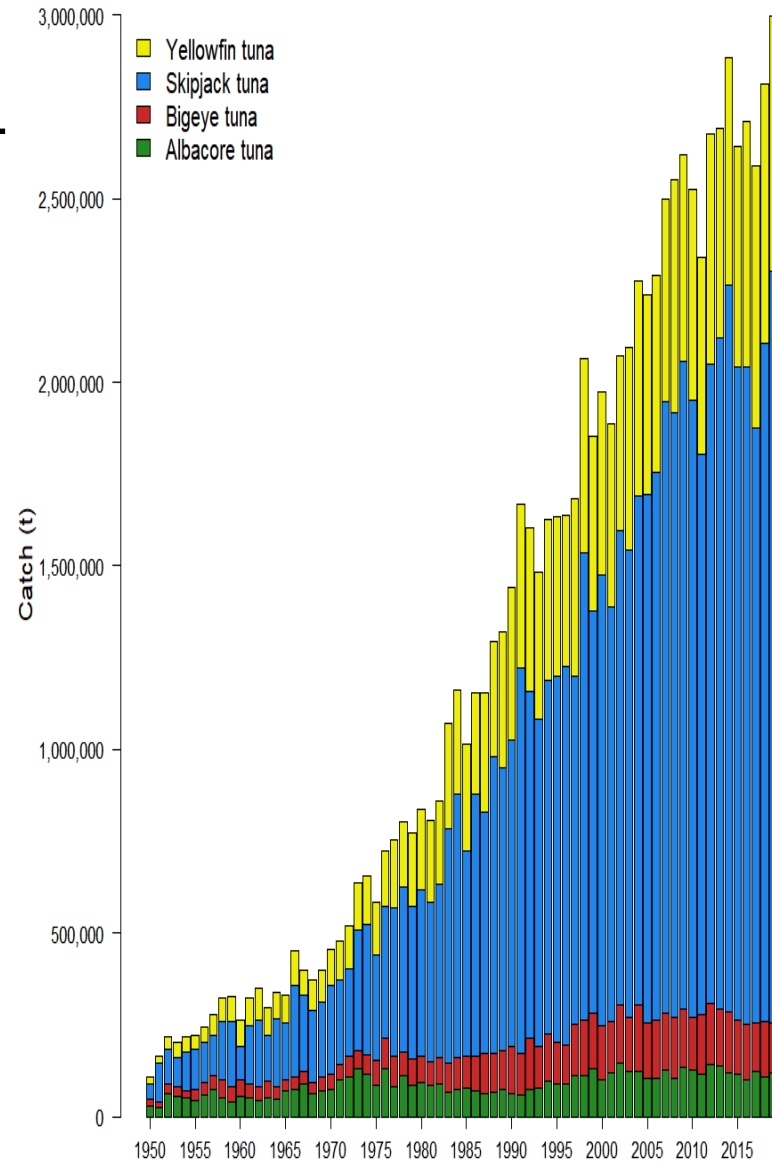


- Note 1 All purse seine effort totals shown as “days” exclude Vietnam, Indonesian, Philippines domestic fleet and the Japan coastal fleet effort
- Note 2 Growing domestic [Pacific Island] fleets / effort - about 50%
- Note 3 Increased sets per day since 2012 – VDS driven ? or MSC Freeschool economic incentive ?? or technology - satellite and Sonar FAD Buoys ?

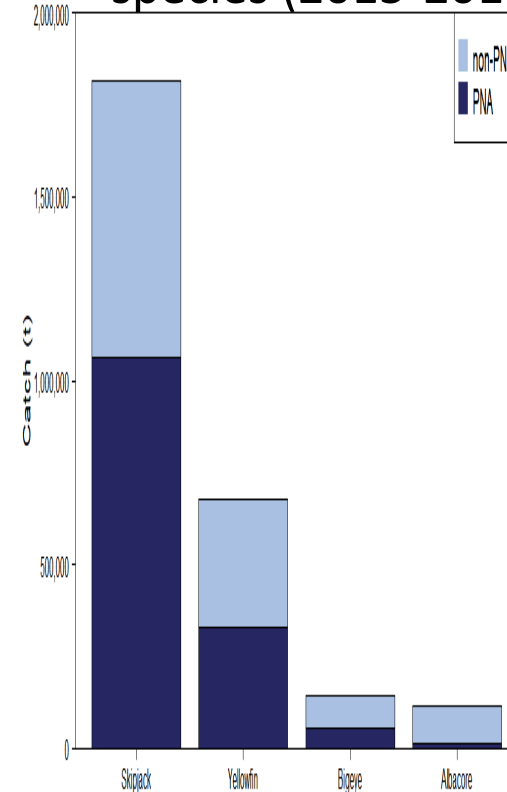
Fisheries Trends – WCPFC catch by species and gear

2019 Catch Totals (mt)

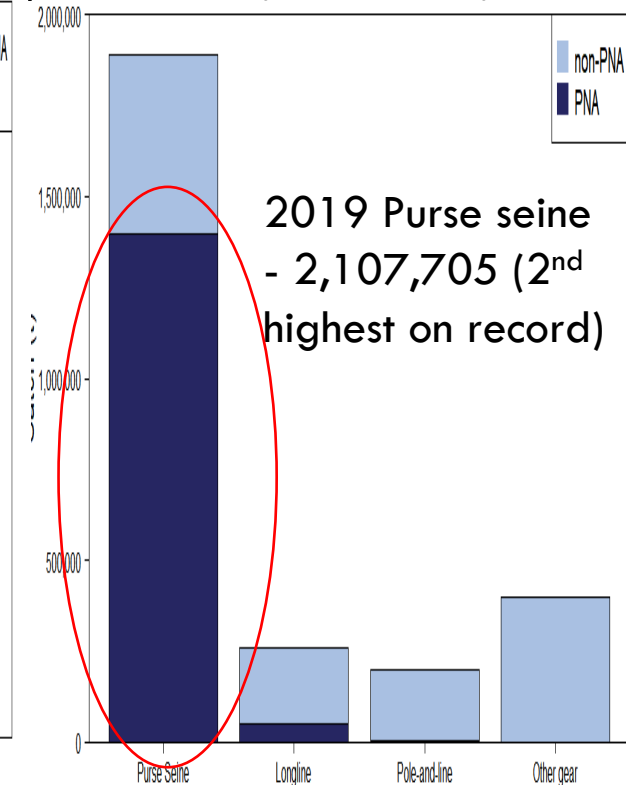
- WCPFC Total - 2,997,002 (highest on record)
- Skipjack - 2,045,709 (highest on record)
- Yellowfin – 696,777 (down 1%)
- Bigeye – 135,416 (down 10%)
- Albacore – 119,100 (up 7%)



Average catch by species (2015-2019)

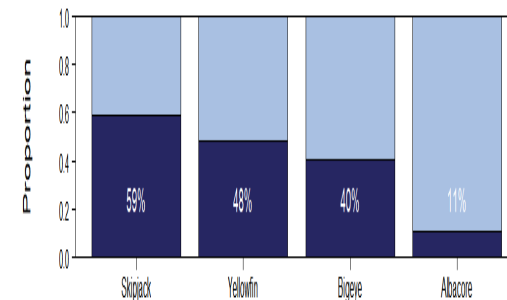


Average catch by gear (2015-2019)

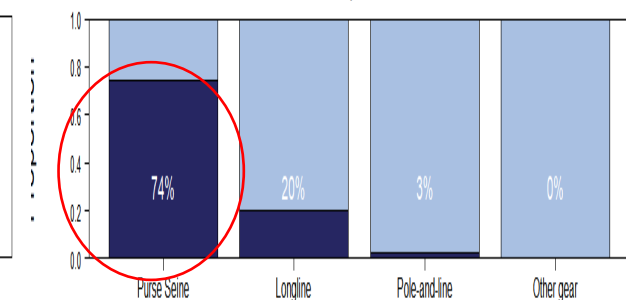


2019 Purse seine - 2,107,705 (2nd highest on record)

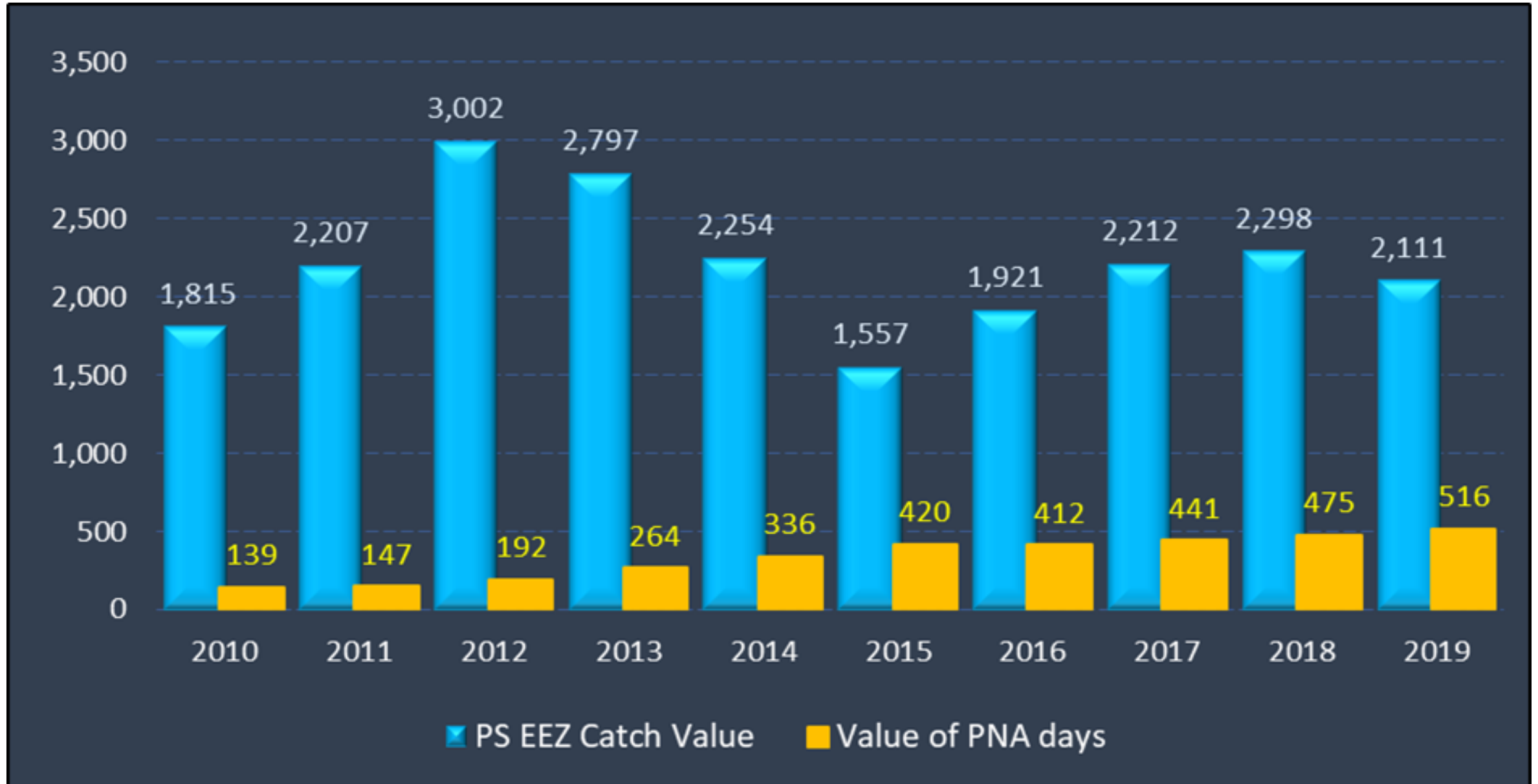
Proportion

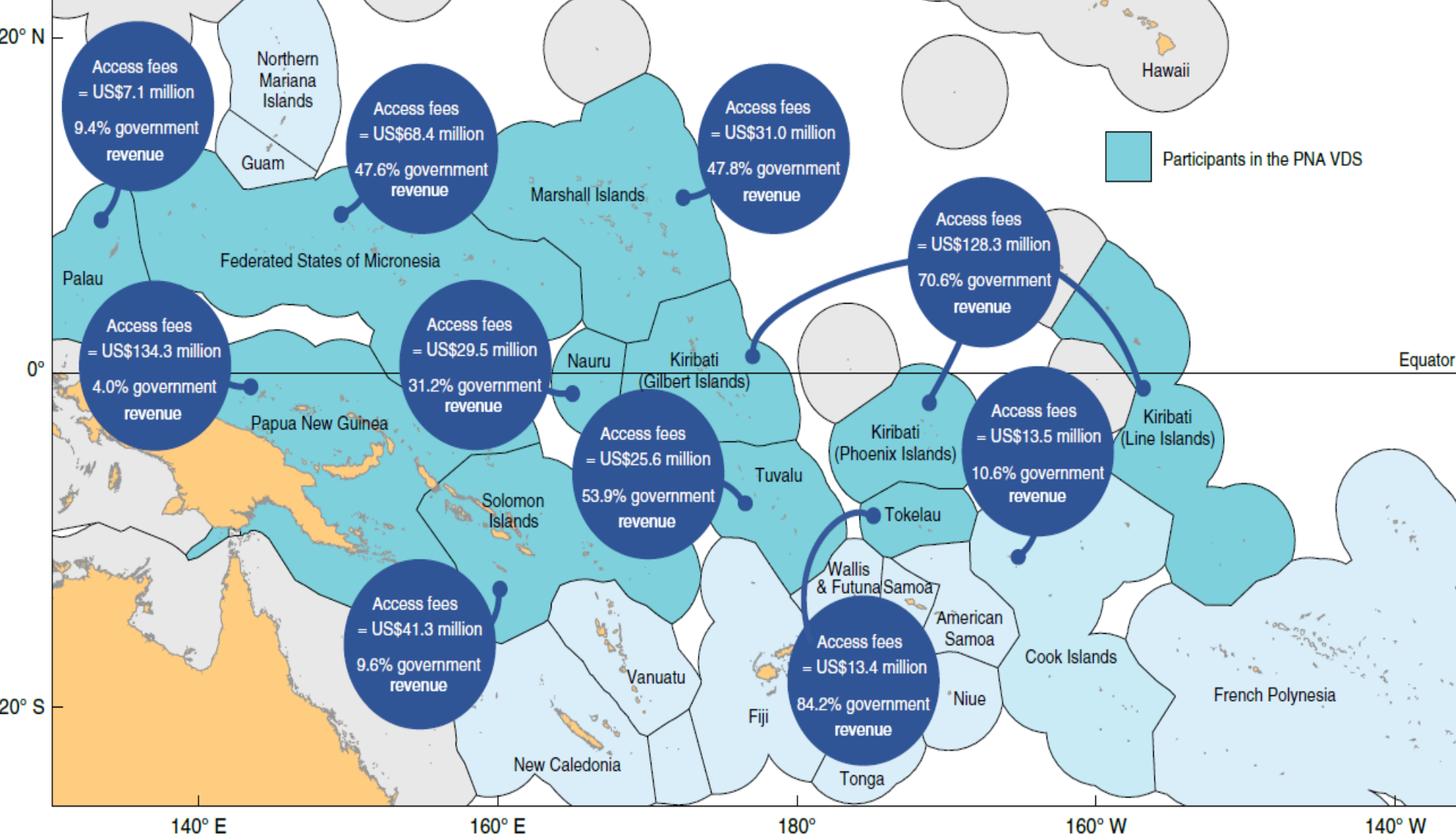


Proportion



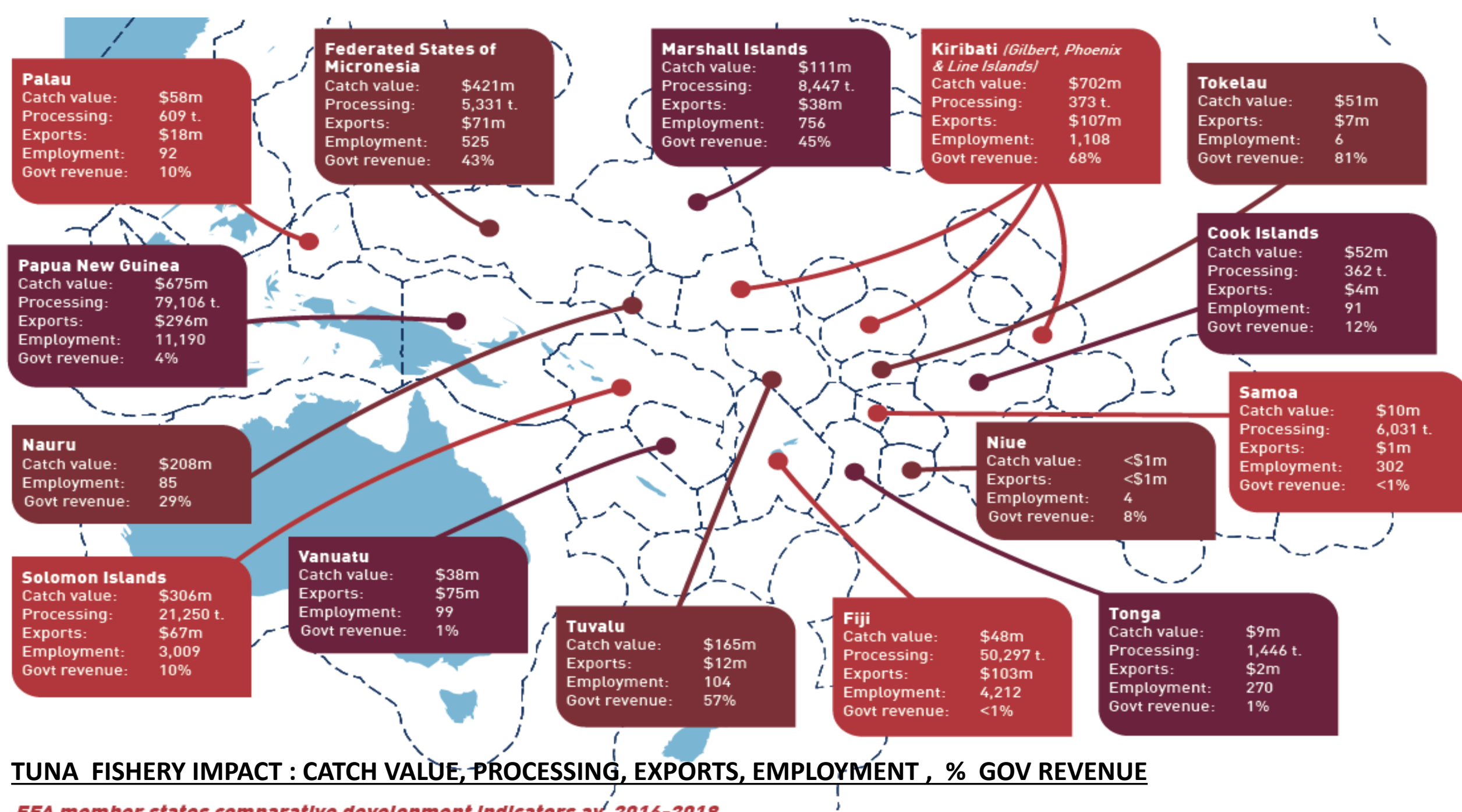
PNA catch and VDS value



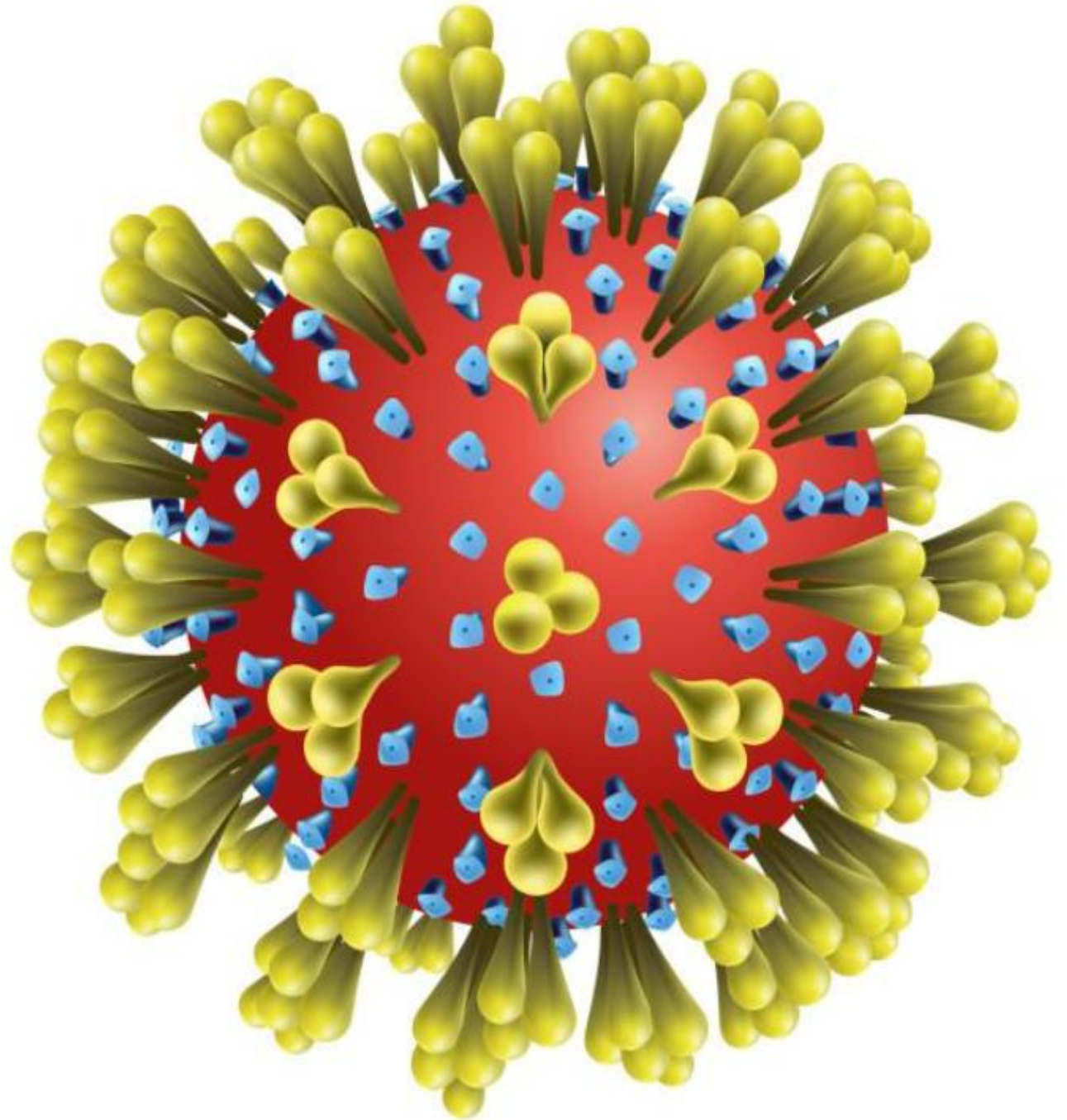


- Within the PNA, VDS contributes up to 84.2 % of gov revenues in the Island economies.
- There are few other revenue options.

Fig. 1 | Tuna-dependent Pacific SIDS in the western and central Pacific Ocean. Average annual tuna-fishing access fees (US\$) for the period 2015–2018 earned by the ten Pacific SIDS, together with the average percentage contributions of access fees to total government revenue (excluding grants). The nine Pacific SIDS participating in the PNA VDS (Box 1) are also shown. Access fee and government revenue data sourced from ref. ¹ and the Pacific Islands Forum Fisheries Agency.

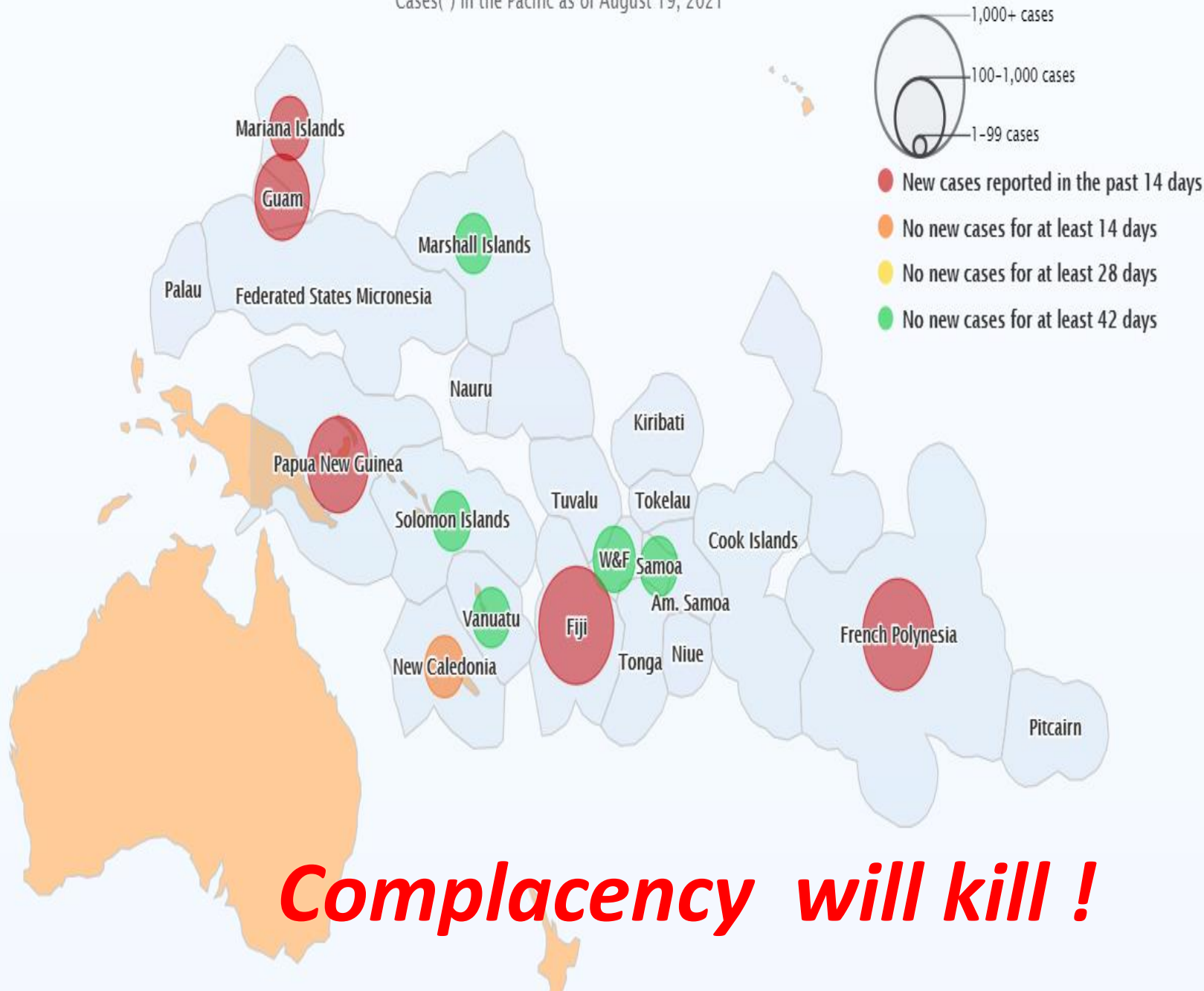


3.COVID-19 in the Pacific region - Impact



Coronavirus Disease 2019 (COVID-19)

Cases(*) in the Pacific as of August 19, 2021



Complacency will kill !

- Globally 200m cases, 2.45m deaths, as of **3rd August 2021**.
- We are among the last nations globally without the COVID pandemic due to isolation.
- Most of region <1% vaccinated [except Palau/FSM/ RMI] so most people are unprotected
- **Vaccines are NOT a panacea, as you can still catch and transmit COVID-19, but at much reduced risk to get sick.**
- It is critical to maintain strict COVID-19 protocols. Eg 14 days from last contact

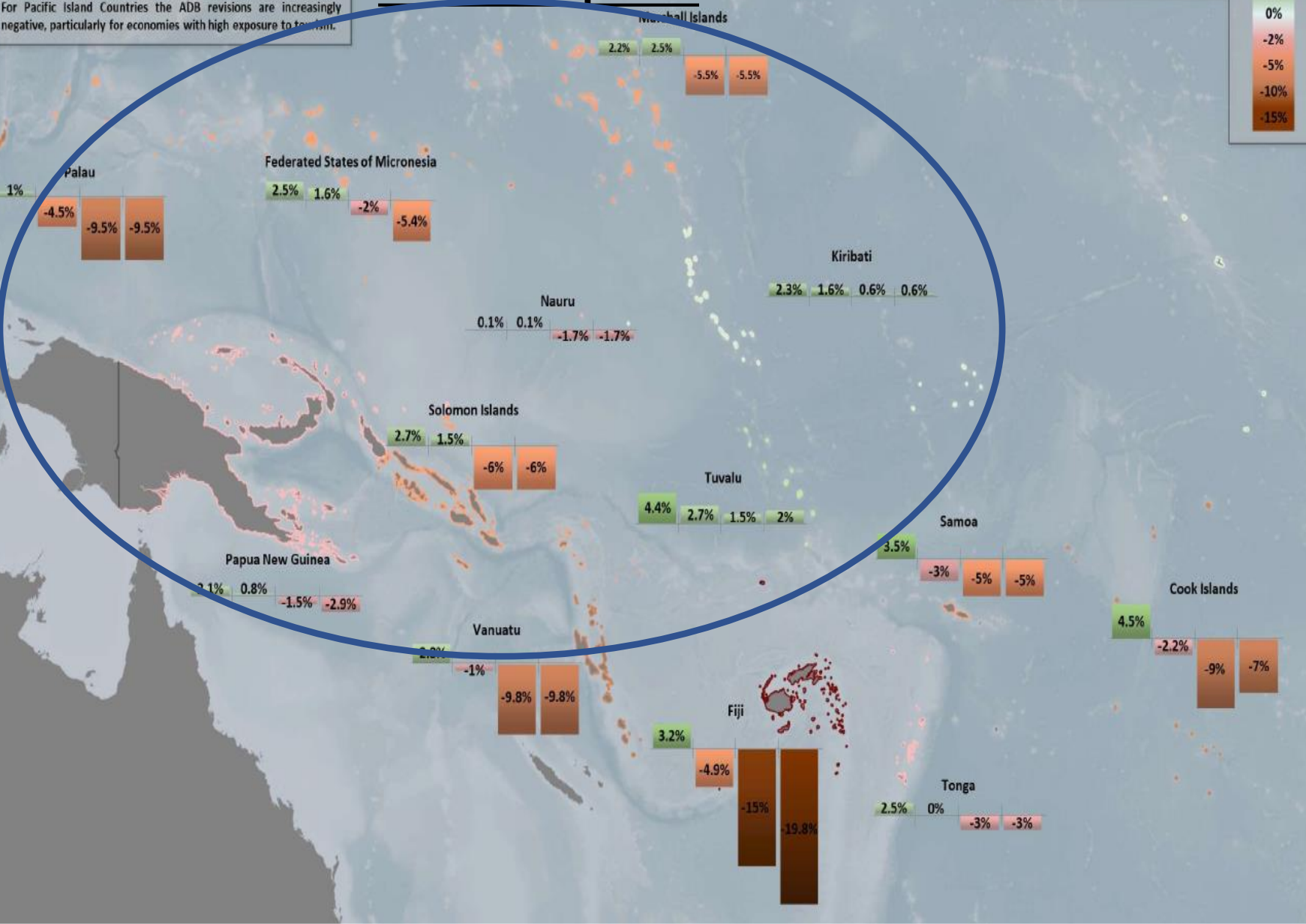
Pacific 2020 GDP Growth

Pre-COVID vs. post-COVID Projections

In light of the COVID-19 pandemic, the Asian Development Bank (ADB) has revised its projections for 2020 GDP growth three times.

For Pacific Island Countries the ADB revisions are increasingly negative, particularly for economies with high exposure to tourism.

4 Progressive revisions of 2020 GDP projections shows COVID related impacts.



- In 2020 PNA have maintained the Purse seine fishery / VDS sales and island state revenues at pre COVID-19 levels.
- 2021 effort YTD best for 5 years.
- Spin off services and revenues in ports have collapsed.
- About \$5.4m lost income for PNA fishery observers
- The fresh tuna long line and artisanal fishery exports, tourism and other trades are dominant are more seriously impacted.
- If COVID gets into the fishery, fuel supply and island economies - the results will be catastrophic to the whole region.

The impact of COVID -19 in the tuna sector in other oceans - Lessons to be learned !

Ecuadorian Seiner's Near Entire Crew Infected With COVID-19

27 May 2020

50% Of 10 Spanish Seiners Anchored Due To COVID-19

29 June 2020

General Santos Port Temporarily Shuts Down Due To COVID-19

31 August 2020

August 2021: Currently Thai processors may close for 3 weeks due to high COVID-19 infections of staff and foreign workers leaving.

THE MAIN PROCESSING STATES ARE IN THE TOP 12 INFECTED DAILY IN ASIA.

The purse seine fishery is faced with high cold stores inventory, Asian processors COVID 19 infected and reduced processing, also slowing global trade currently.

So whilst PNA maintains a healthy fishing, we may see some reduced demand, -> reduced effort -> reduced sales and potentially an emerging economic disaster for our region.

Case for vaccinating all seafarer on all vessels

- With no international flights for crews; crew changes and provisions are delivered at sea. This has kept the fishery operational to date, but with massive potential risk of COVID -19 spread into our region and the risk is growing.
- If the virus gets into the region's fuel tankers at sea, it will disrupt island fuel distribution and power generation, as well as impacting fuel supply to the fishery itself. A Pacific wide disaster.
- If the Virus gets into our fishery it will cut global tuna / food supply
- Our island economies and health services will collapse as a result
- **A practical solution is to require immediate vaccination of all seafarers in our region and all port workers in our ports.**
- **RMI port has vaccinated almost 500 crews on various nationalities on fishing boats, but the region does not have vaccines even for citizens.**
- **We need your help to roll out vaccinating all seafarers !**



4. Fish Aggregating Devices [FADs] Management and Tracking

What is a FAD?

- Traditionally naturally occurring logs, a coconut, a dead animal carcass, a whale shark, or in fact any thing floating that tunas could aggregate around
- Today man-made rafts, are anchored near shore or drift ocean wide and are tracked,
- Traditional anchored FADs typical Philippines to Solomon Islands use lights to assess aggregations and set pre dawn.
- Late 1990s man made drifting FADs emerged, and were tracked with VHF buoys, 60nm range, FAD numbers therefore limited. Again hit or miss at dawn using lights to hold the tuna.
- Up to about 2012 VHF were replaced with standard satellite buoys, tracked globally, only 40-100 per boat manageable. Still no idea if any aggregations pre set at dawn using lights
- Last decade the emergence of sonar capable satellite buoys meant, remote assessment of biomass, species and fish size, under each FAD, and targeted "cherry picking" often managed from fleet HQ. FAD numbers reported up to 350/boat, [some eg EU reported 800 initially.]
- Total 40-60,000 thought to track through PNA waters annually.
- Every FAD buoy has a unique ID.
- We know very little about how FADs work, impact on tuna stocks, ghost fishing, VME, etc
- PNA/SPC lead the world on FAD research.

Anchored FADS, ready to deploy

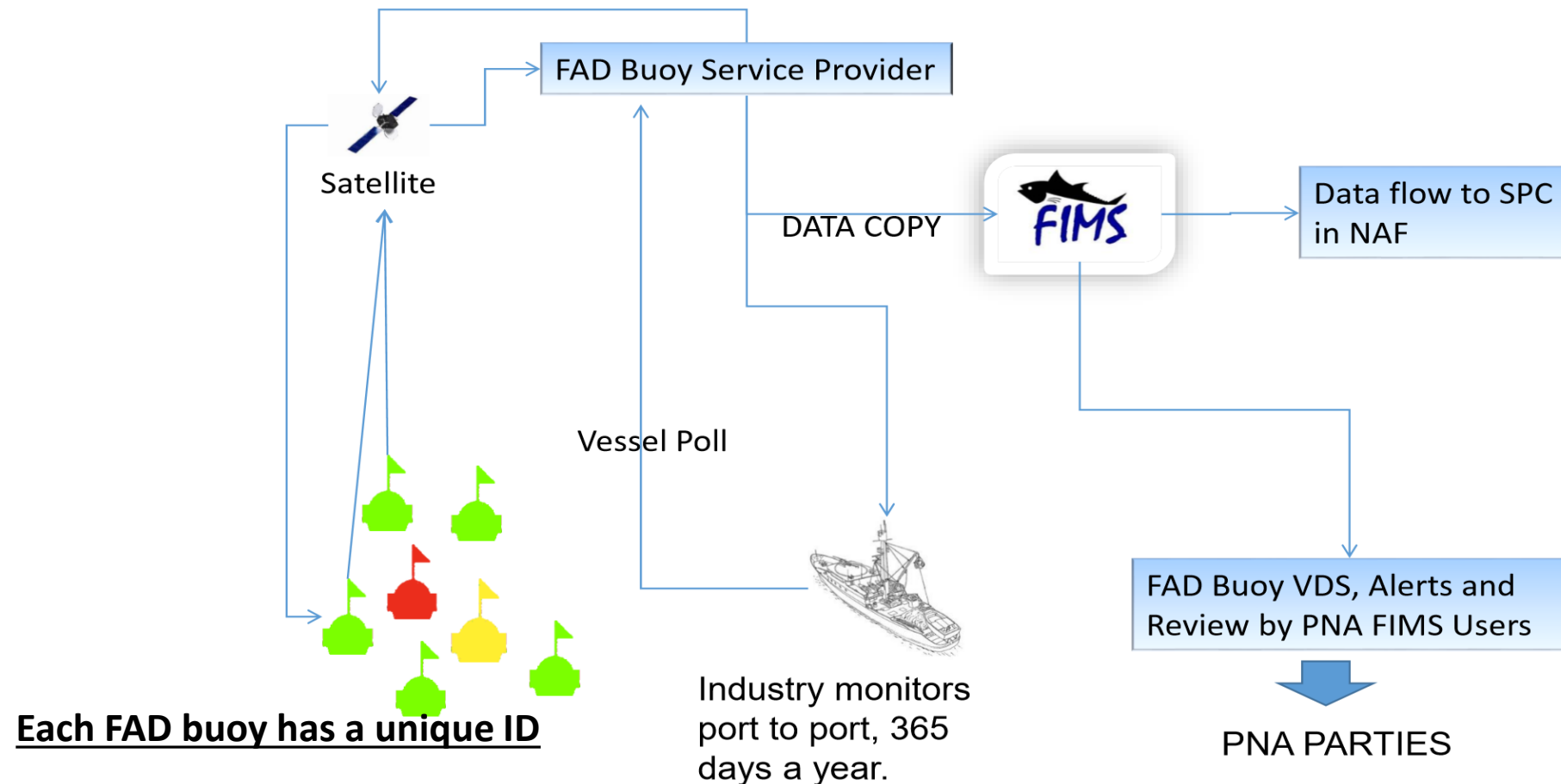


Drifting FAD with Satellite buoy



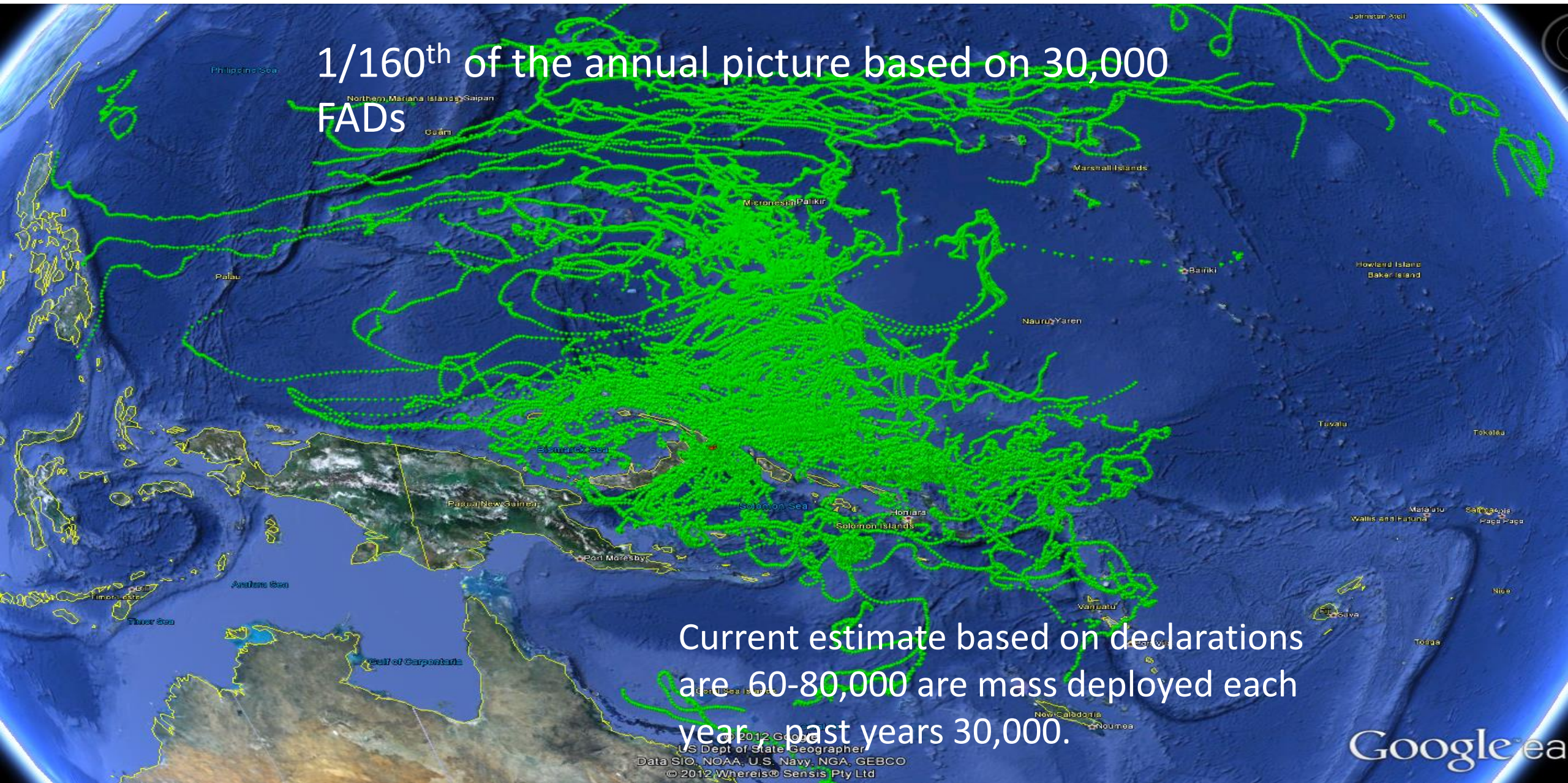
FADs and FAD tracking – in simple terms

FAD Buoy Data-flow

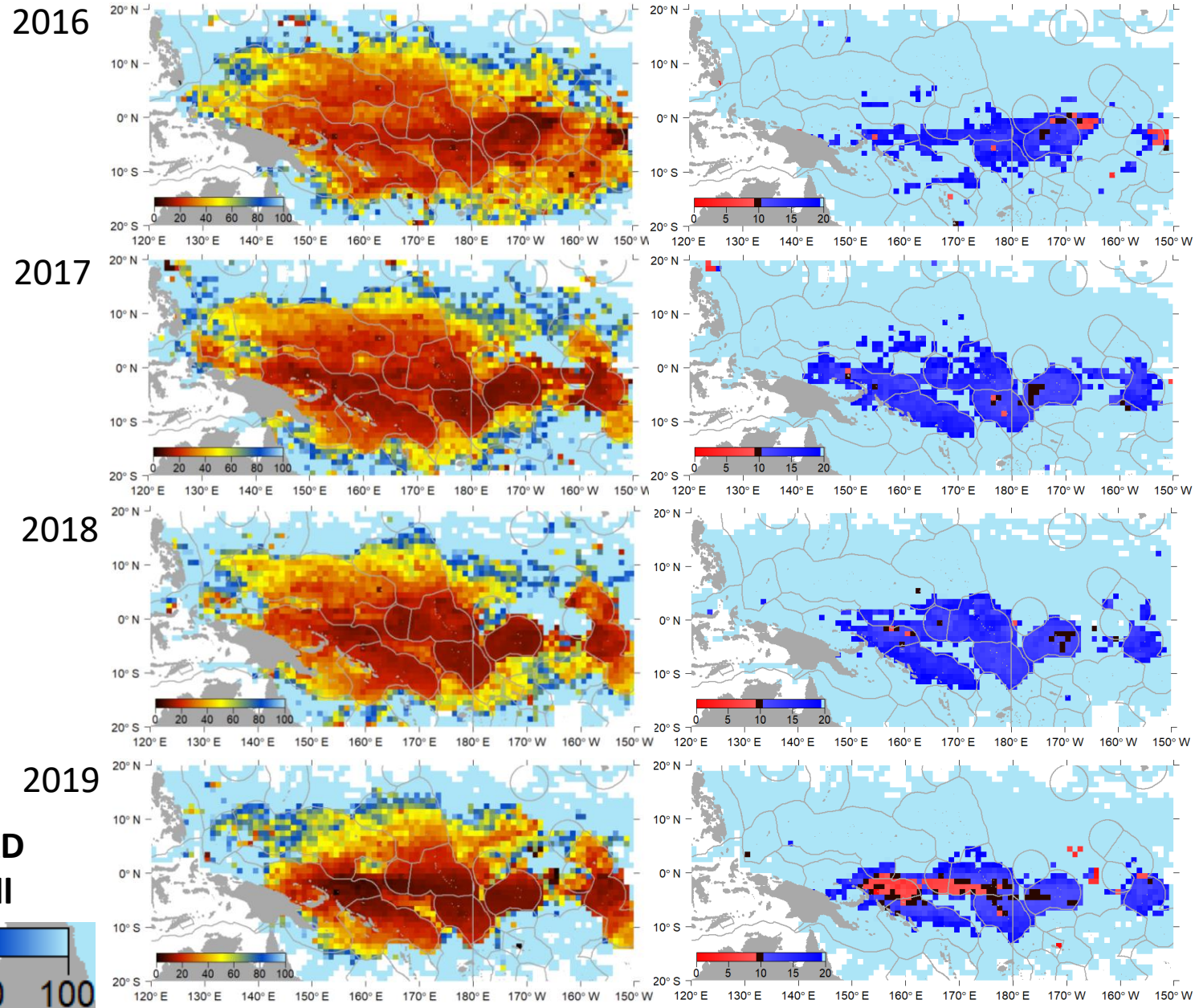


6 months track data for FADs from 3 vessels

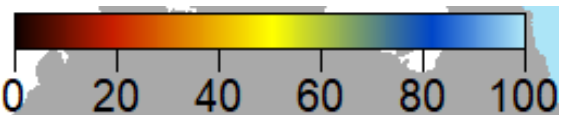
1/160th of the annual picture based on 30,000 FADs



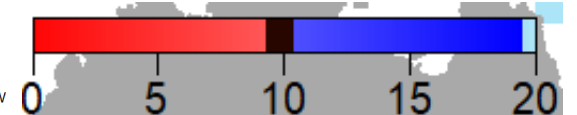
Current estimate based on declarations are 60-80,000 are mass deployed each year, past years 30,000.



Median daily inter-FAD
distances (km) per cell



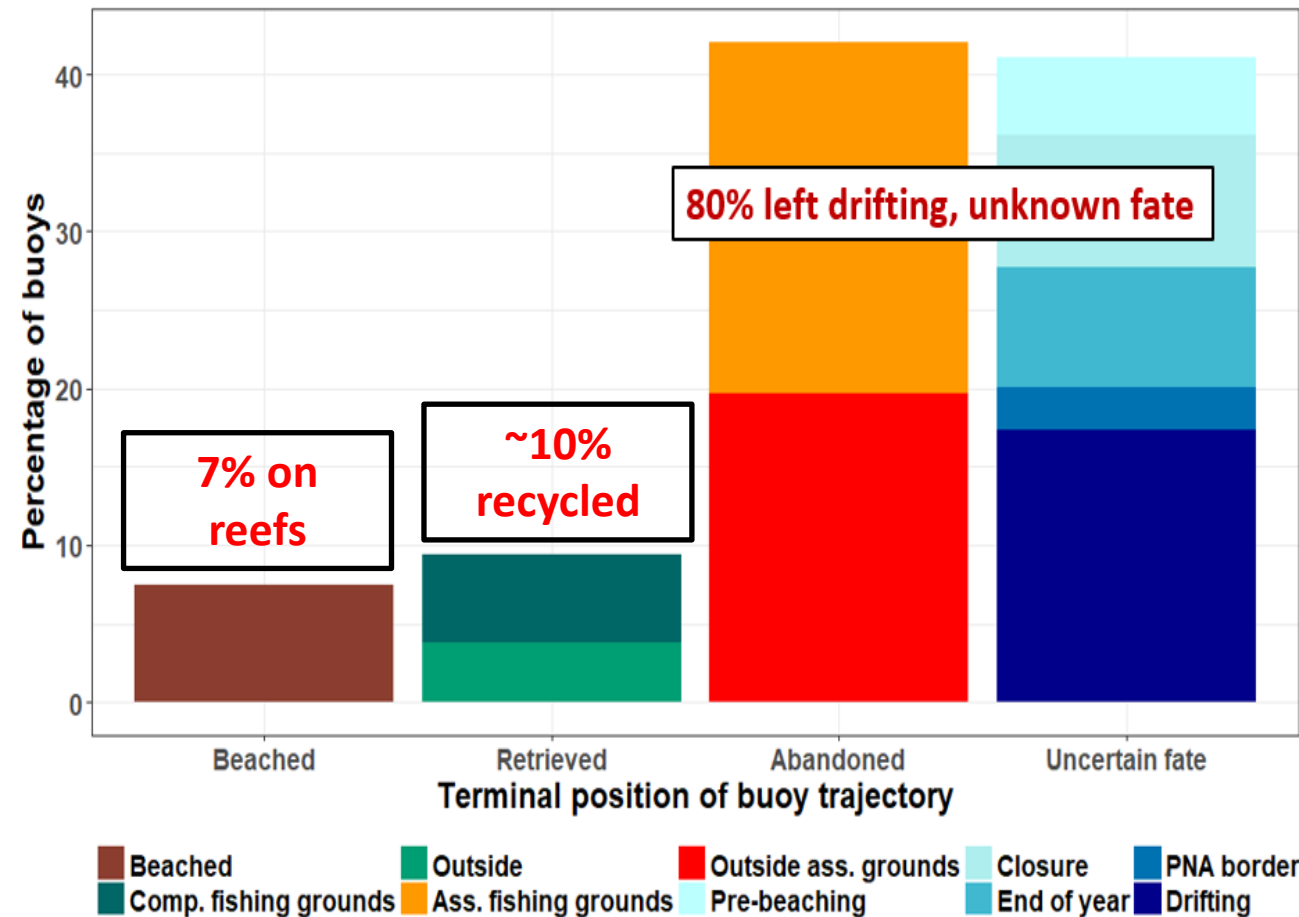
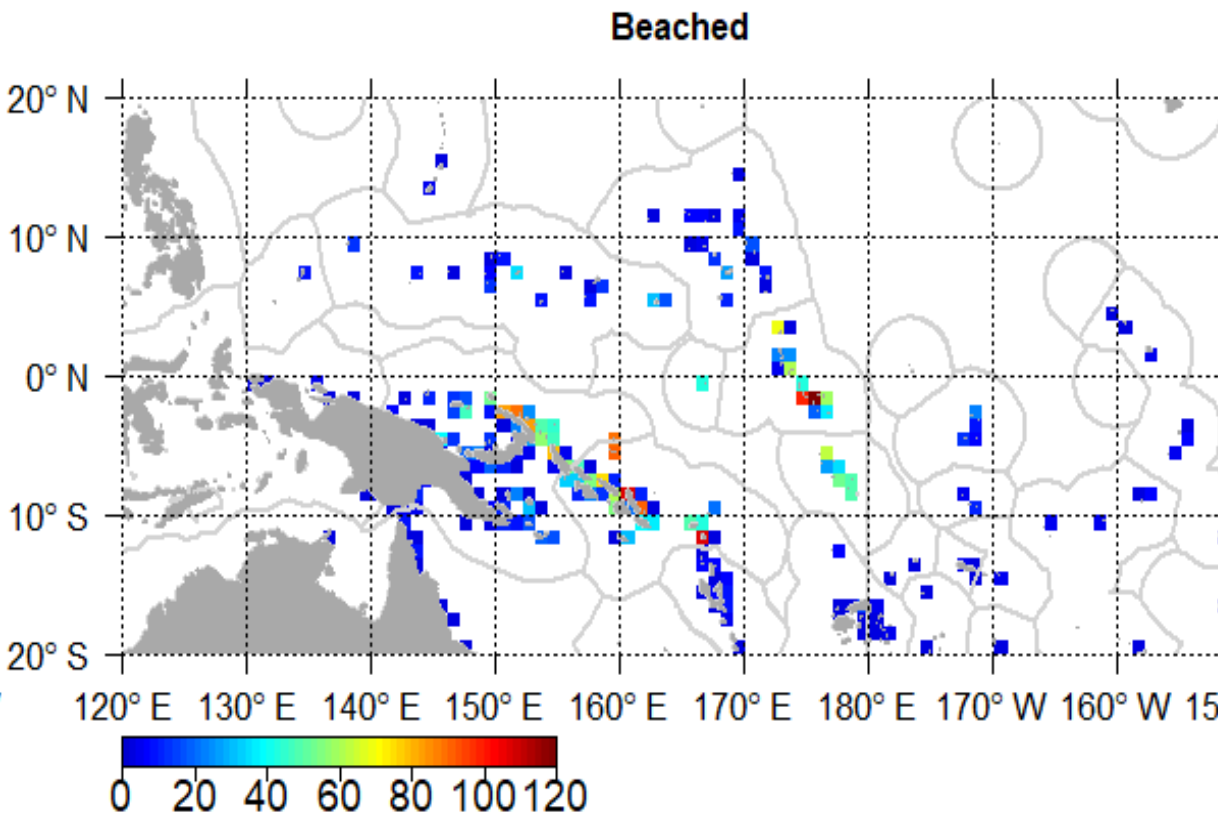
Median daily inter-FAD
distances (km) per cell
below 20km



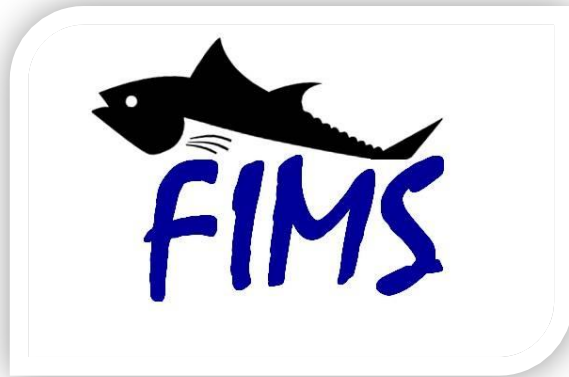
Fate of FADs lost

Due to be enforced soon as a term of license:

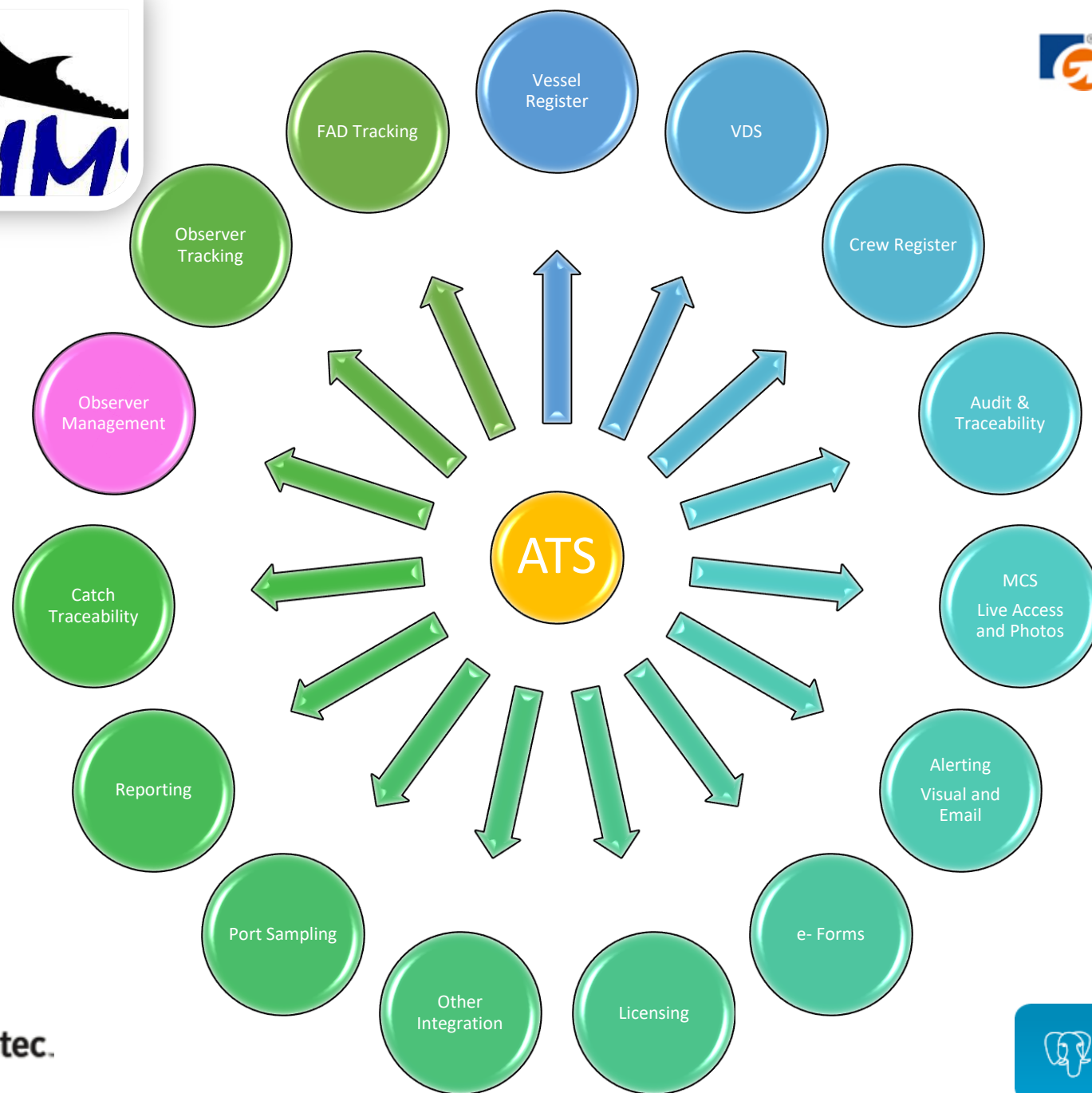
- Mandatory FAD registration and tracking in PNA waters is being adopted into national laws.
- Onus on vessels to fill out FAD log sheets. [not Observer]
- Fad design shifting to non entangling and bio degradable with >90% lost or discarded
- Growing concern over marine debris and pollution from FADs and their impacts on Vulnerable Marine Environments [VME] - reefs



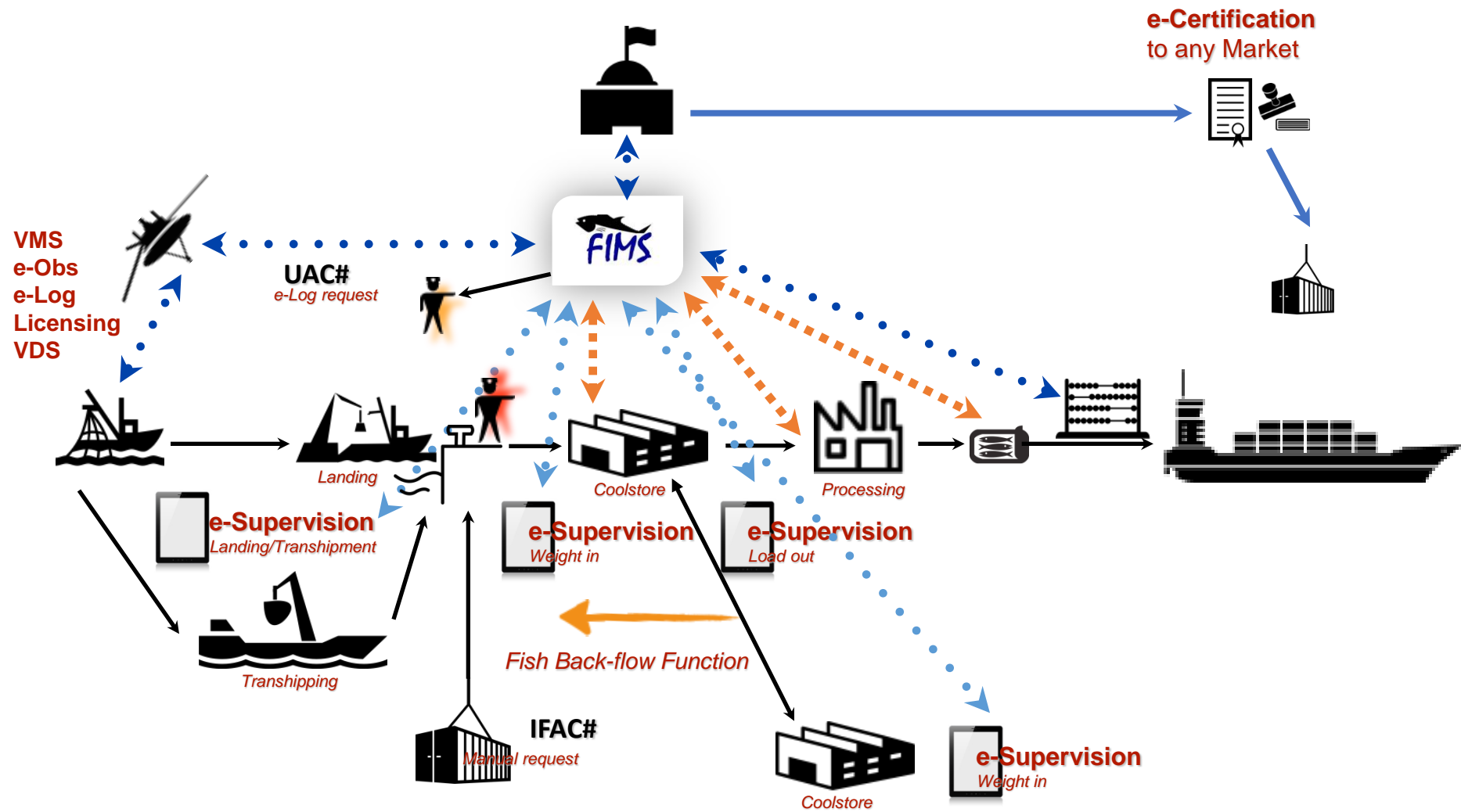
5. FIMS Inc and IFIMS



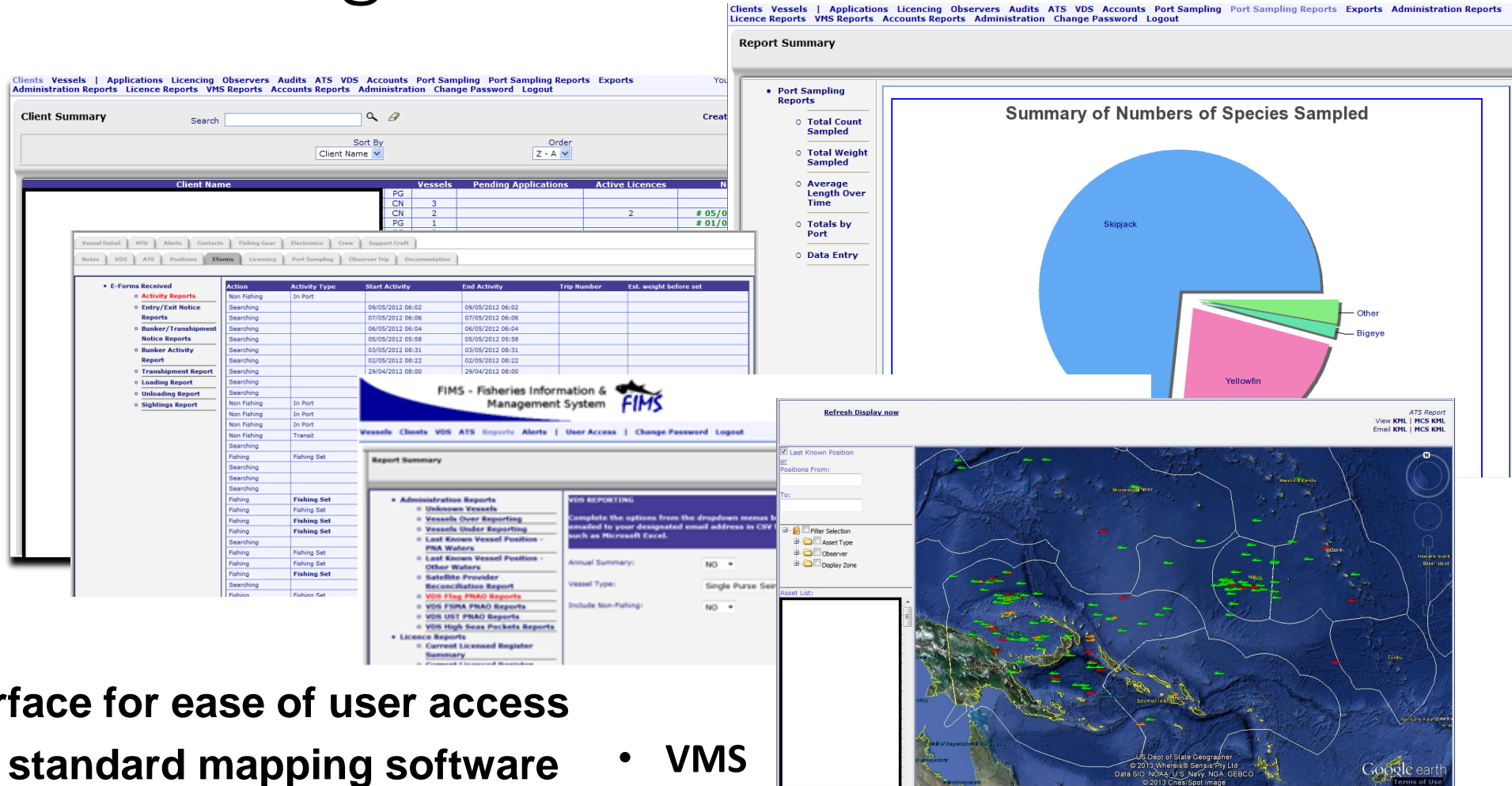
- “Fit for Purpose”
- Platform developed over 10 years by PNG and PNA to manage VDS and more.
- 4 main clients, including Industry [IFIMS]
- Today unrivalled globally .
- As of November 2019 PNA + Tokelau now own it 100%



FIMS - Big Picture



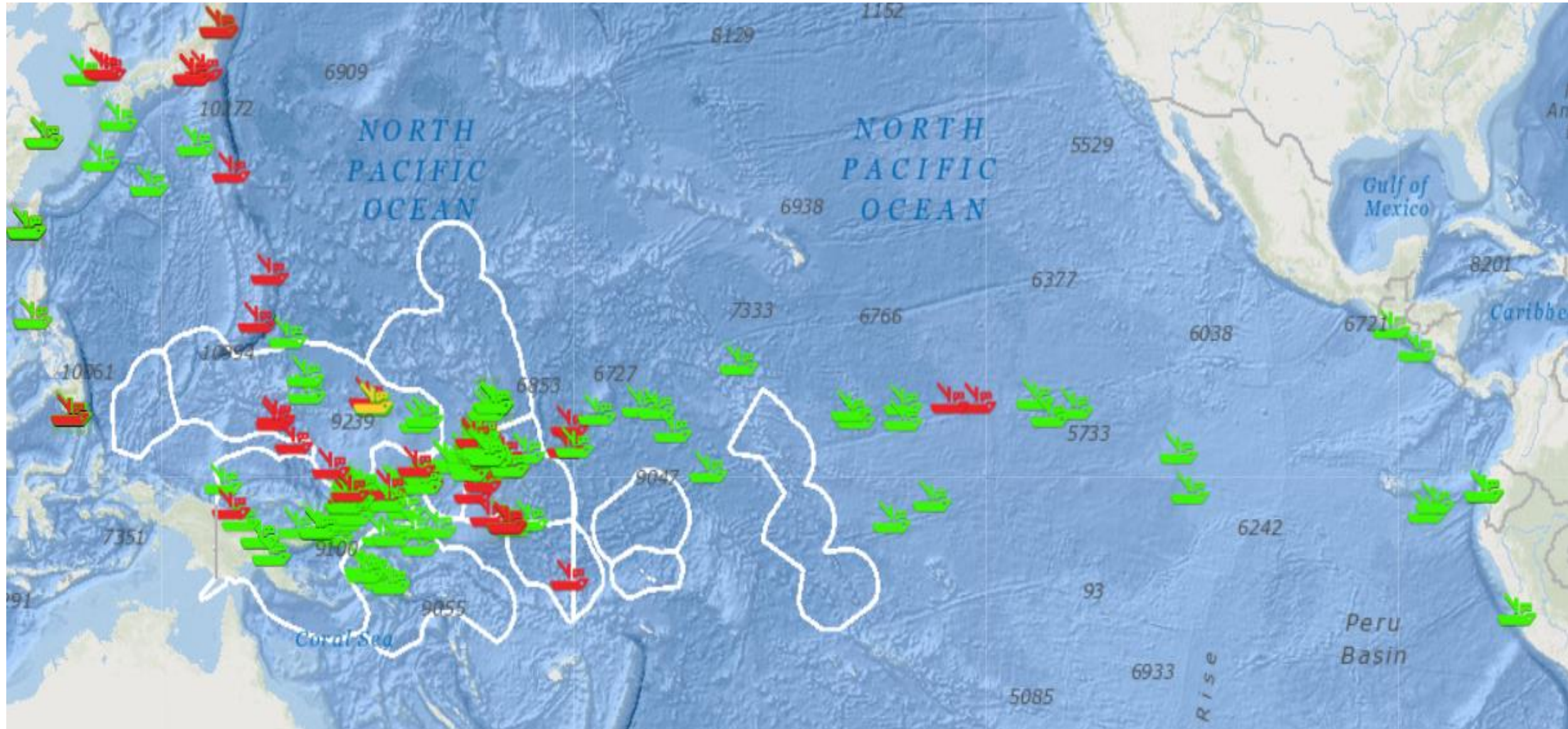
FIMS Program Interface



- ◆ Web Interface for ease of user access
- ◆ Industry standard mapping software
- ◆ Excellence in data access security
- ◆ Bathymetric charts
- ◆ Sea currents, Wind
- ◆ Plankton,

- VMS
- ATS
- Automated VDS
- FAD tracking
- On line vessel registry
- Reports and dashboards
- E LOGS / live catch data
- Proximity alerts , vessel/vessel, vessel/FAD, FAD /zones
- NFD lodgments
- Etc

Real time Position data, even catch data.





6. PNA MSC /PACIFICAL



MML-F-112

PACIFICAL

SUSTAINABLE TUNA FROM THE PNA PEOPLE

ABOUT PACIFICAL

THE RIGHT TUNA

PEOPLE

PRODUCTS

NEWS

CONTACT

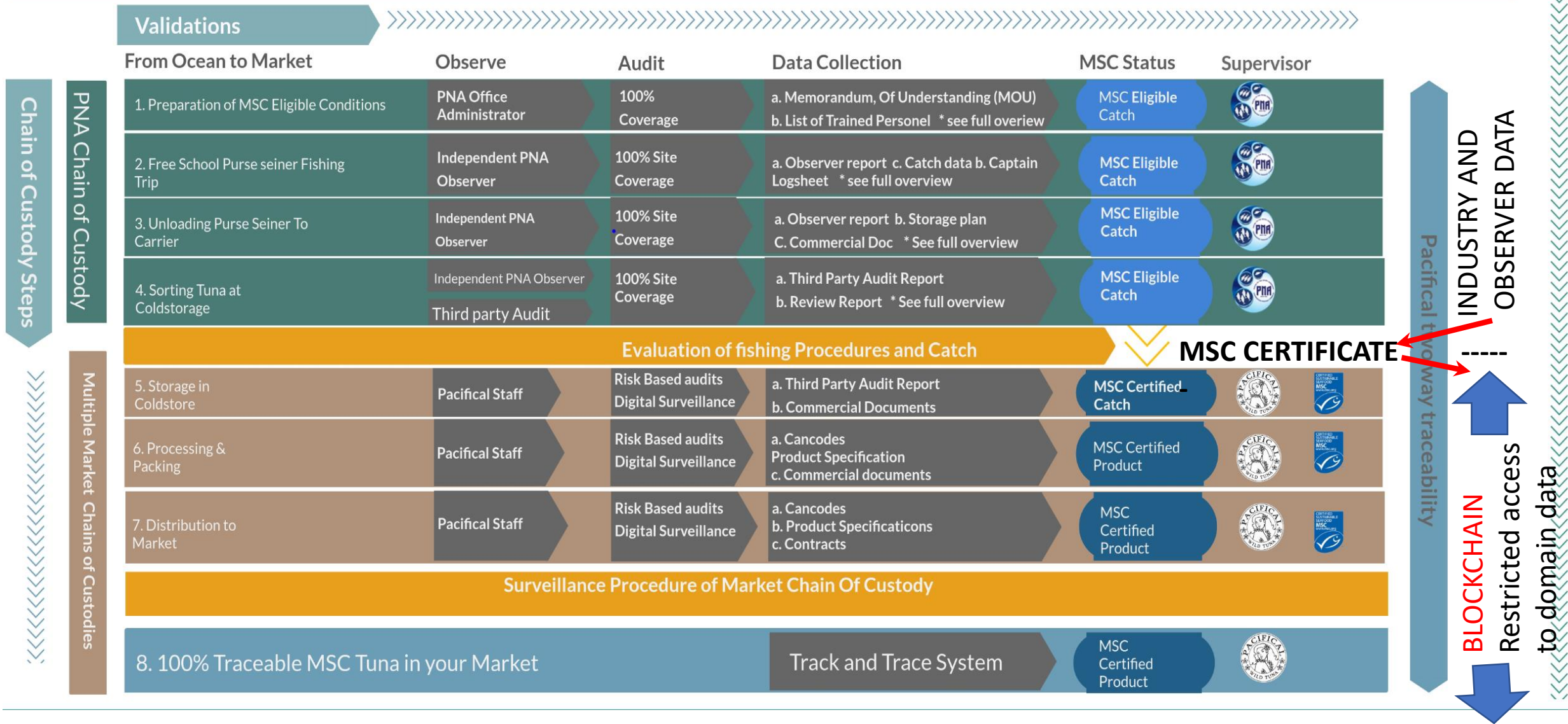


200 million units MSC co-branded PACIFICAL / year.
 ~150 Product lines
 ~ Over 30 country /regions
 ~ Traceability from set to can (backed by blockchain)



PNA MSC / PACIFICAL COC SCHEMES ARE LIKE A SERIES OF FILTERS - gives a lot of data / traceability

PNA Fishery and Pacific Chain of Custody: Verification, Segregation & Administration Procedures



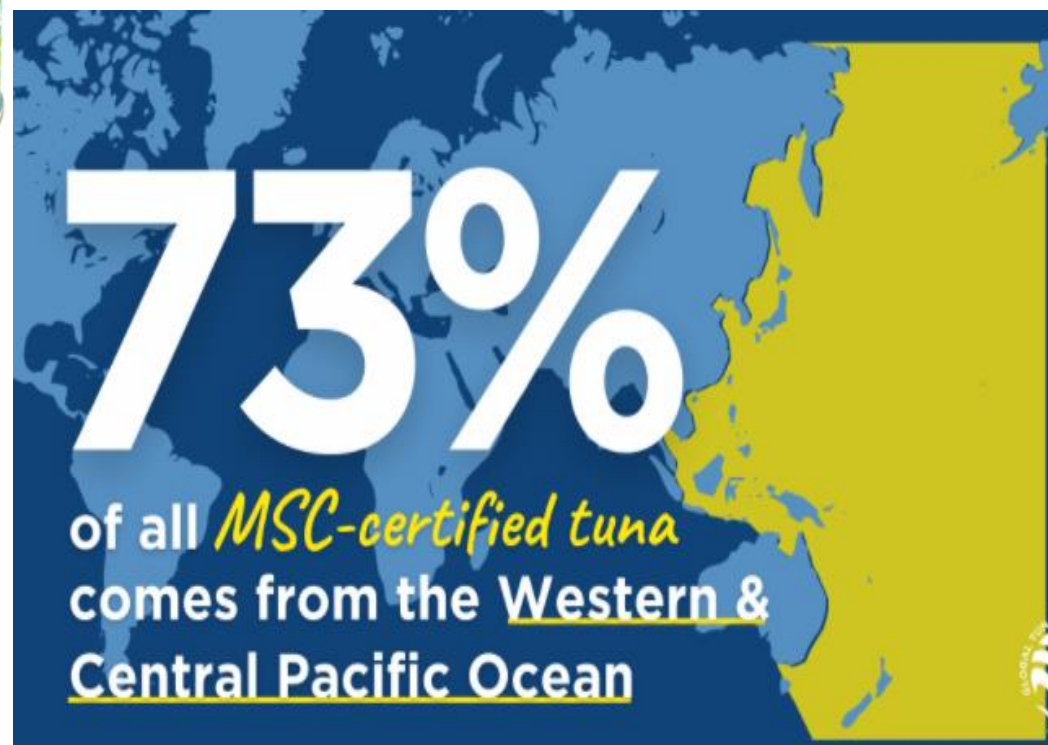
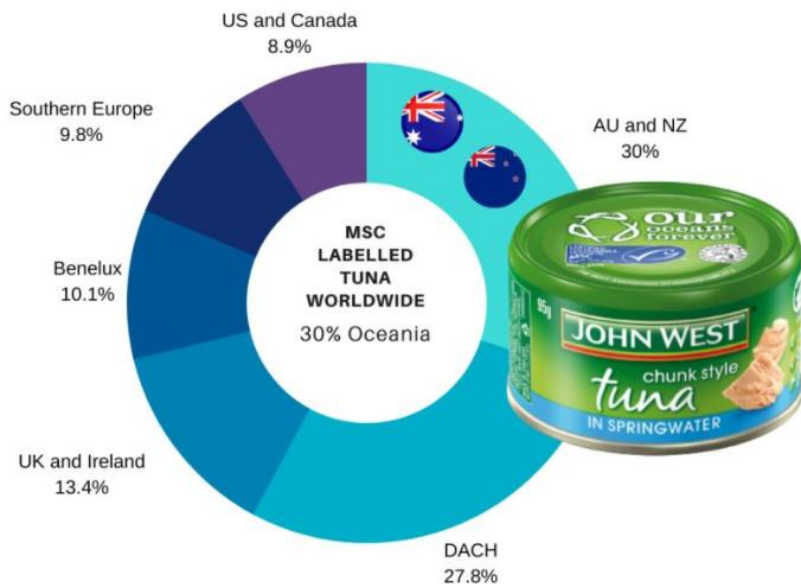
MSC / PACIFICAL – FISH with a STORY



- PNA received the world's first MSC certification for Free school tuna purse seine.
- **Always opposed by the BIG brand interests, as it potentially it would divide the market into sustainable and non sustainable categories.**
- Pacifical set up as a JV- traceability platform. MSC and Pacifical 100% self funded.
- The Pacifical geographic indicator [GI] is run as a co brand , **so retailers pay to associate with PNA Pacifical and MSC.**
- Backed by unrivalled at sea , processor and retail chain of custody, including block chain, each can of tuna is traceable back to the factory vessel and trip details
- Marketing, trade fair, media, promotion, interns, etc, all delivering on leader's vision.
- Pacifical GI has put PNA on the map, like Fiji water for Fiji.
- However
 - > 22 Industry MSC certificates in the region [PS and LL] all free ride on the PNA MSC certificate , with nil ability to impact management or validate the MSC Certificate
 - Industry returns for MSC are up in the short term, but competing MSC certificates are driving down premiums as MSC becomes a commodity
 - Ironically MSC encourages this and demands “whole of fishery” as MSC - thus discarding MSC as economic driver for “Theory of change”, and its premium value.



MARCH 2021 OCEANIA MSC TUNA MARKET SNAPSHOT



PNA: The World's Largest MSC Tuna Fishery



Total MSC Tuna Volume (SK)+YF+ALB)= **1,652,490 MT
***Total PNA Eligible Volume 735,523 MT

FIGURE 3 - BASED ON DATA FROM WWW.MSC.ORG

Competing between industry based MSC certificates are mostly in PNA region,
Small volumes of MSC has driven the MSC premium down to ~\$0.00, It has become a commodity, as the standard.
Who wins ?? - The same BIG Brands who opposed PNA MSC! . Who loses ?? - PNA and non vertically integrated Industry !

7. Economic opportunities : government and private sector, investments and domestication



Majuro Lagoon

Government revenues from VDS are up for PNA nations, but is increased domestication [almost 50%] actually rewarding their economies ??

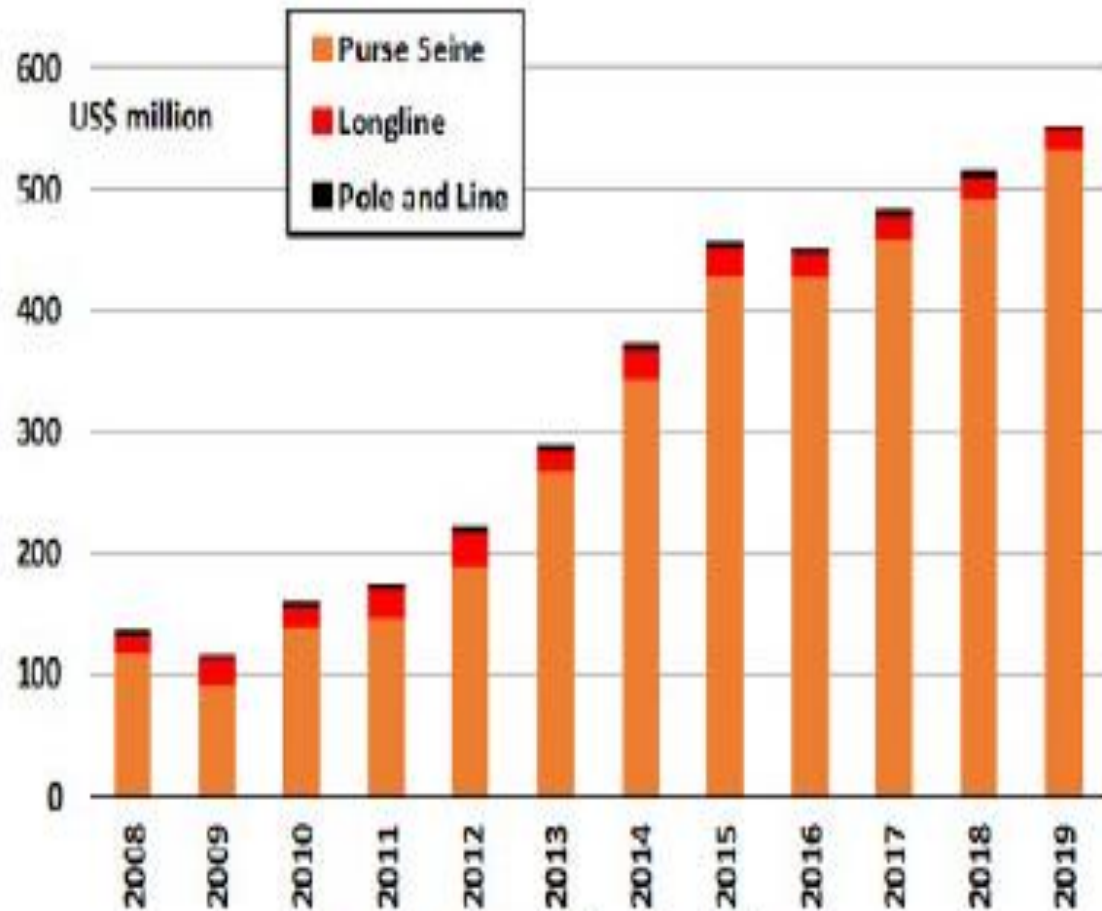


Figure 22: Access fees by fishery

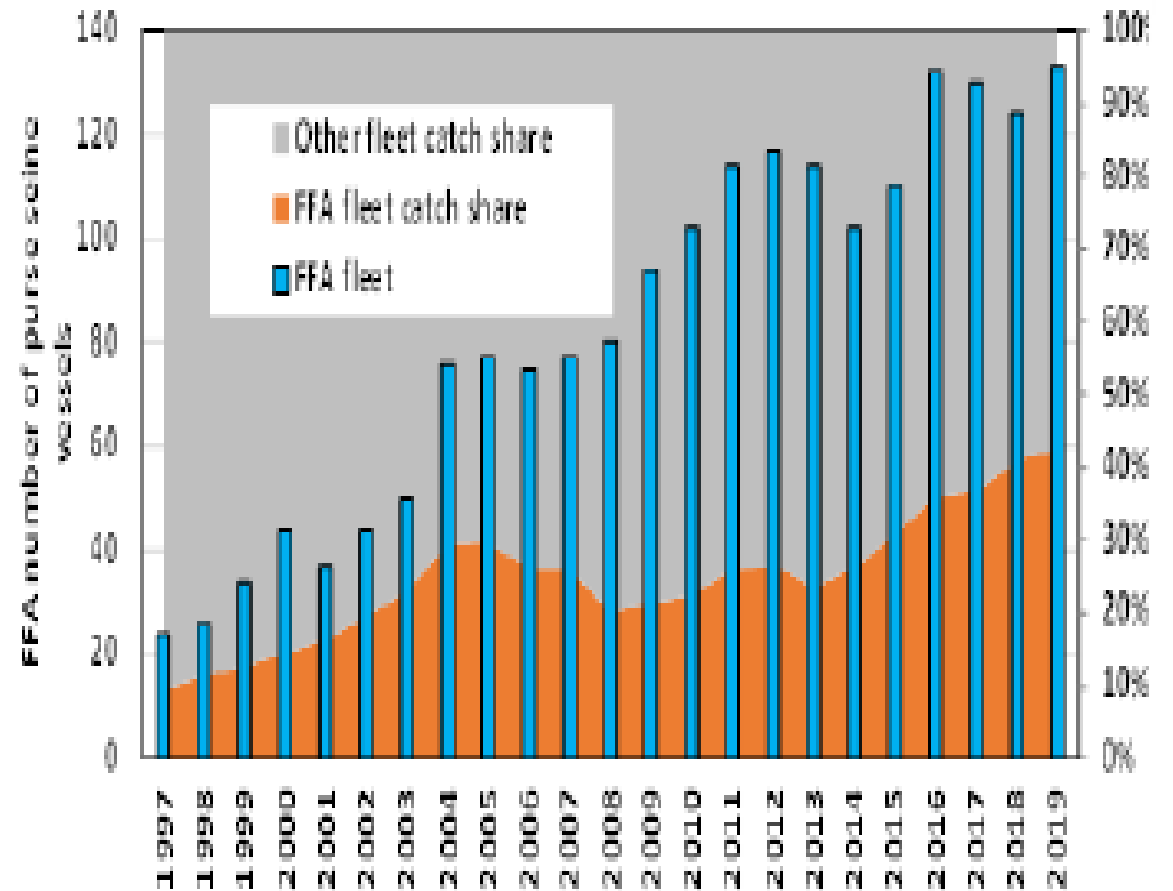
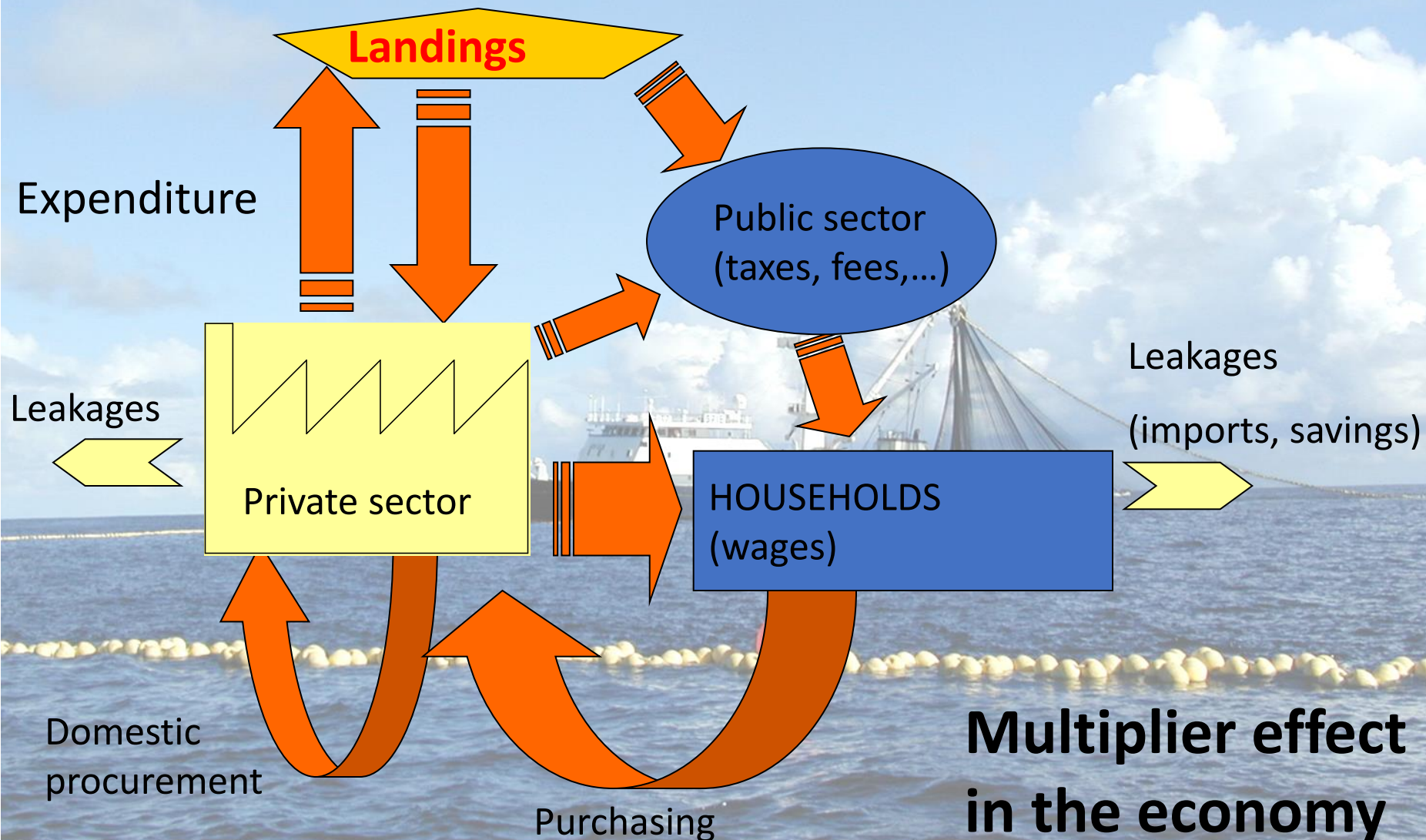


Figure 3: FFA national purse seine fleet and relative catch

The spill-over model of the Island Tuna Economy



PNA Processors sector – trend towards intermediate products eg frozen loins to can in the industrialized world



Potential for genuine domestic investors

A internationally recognized **Competent Authority** is critical for any long term domestic participation by PNA nations in the global tuna sector and market access.

Subject to the above, then immediate prospects include:

1. **Domestication of Fishing fleets**, jobs, forex, commerce, and supply in country, etc
2. **Landing, grade and containerization**, large scale expansion of frozen tuna exports.
3. **Industrial Cold store**, Hold tuna, temperature “condition”, grade and export quality tuna graded to select markets for a premium. [If a “Public” facility could aid import and export sectors with common cold storage as well as existing and new processors.]
4. **Service sector and stores** - Net repair, Fad making, chandlery, marine electronics, hydraulics, electrical, welding, provedoring, crewing, transport, labour pools, bunker, lubricants, detergents, salt, vegetables, store food, crews, etc. **Mostly it comes in on carriers from Asia today.**
5. **Waste management services** - plastic and other industry waste, waste oil, sewerage [ships and town], Bycatch, etc. All can be disposed of, as a business.
6. **Value adding / SME**, - processing bycatch, value add processing waste /trimming for various products, eg Canned, fish oil etc. This can address import replacement, niche exports, food security, fish and agriculture feeds, etc
7. **Small /medium scale industrial processing** including Katsuobushi, jerky, cooked loins, frozen steaks, micro canning, etc.

Financing, feasibility, technical support and financial modeling are needed.

THE VITAL NET REPAIR, SHIPYARD FACILITIES, GEAR SUPPLIES, COLD STORES AND WAREHOUSES, EVEN SALT AND FUEL

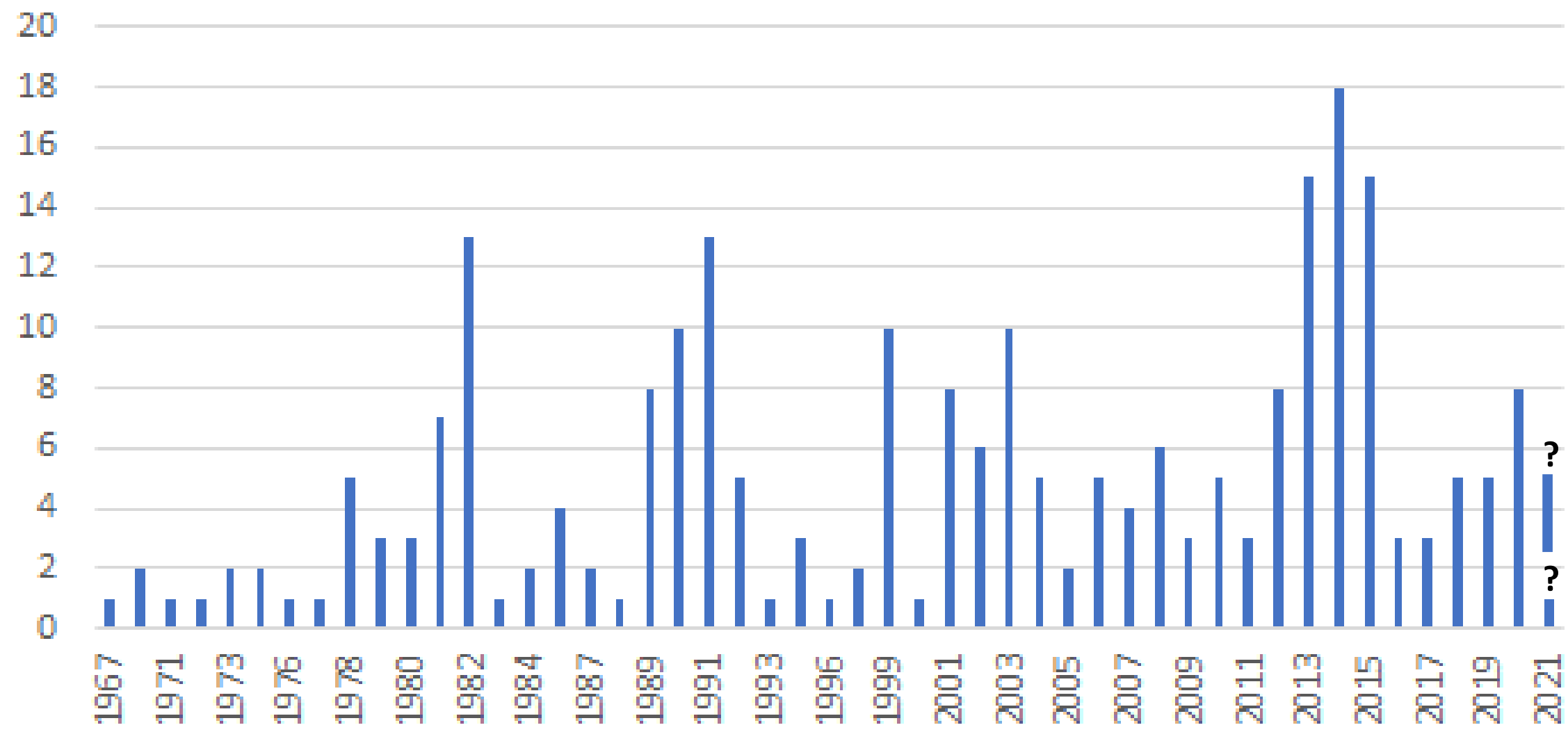


Reality check for our region

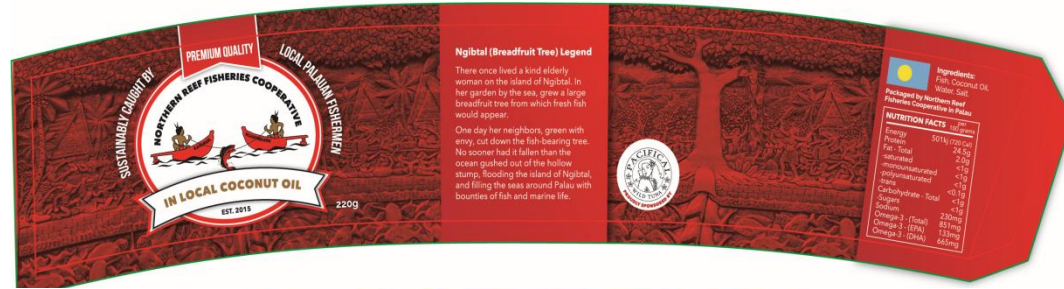
- The interests of investors and PNA nations historically are rarely aligned.
- Islandization of fleets typically means to move old inefficient vessel to Island flag and then look to the island flag state for concessions and discounts to operate in return for rarely delivered commitments of jobs, processing , new boats etc.
- The highly efficient new replacement vessel stays with the parent company offshore,
- So the foreign investor now has **2** vessels!! [and perhaps 2.5x the capacity to fish.]
- The history of foreign investments in the Pacific are typically summed up as:
 1. **Never show a profit or pay tax in country**, [all control, accounts, supplies are provided by the offshore parent company for a profit and shareholders gain]
 2. **Never go bankrupt** [it is in the interest of the parent company to extend more loans – see above]
 3. **Never want to leave** [It is just too profitable loosing money ! [in the islands]]
- This is not a criticism; it makes good business sense as the investor if you can get away with it. But some investors in the region are rapidly out staying their welcome.!
- **No one begrudges industry making profits, providing jobs and commerce, but not at a net cost to the Flag State**

More efficient New build vessels entering the fishery.

Vessels by Year Built



8. Food security, Bycatch utilization and import replacement – Community level Micro canning



The proof is in the taste. Palau and RMI domestic labels





BE BUY Marshallese

PRODUCT OF KMI - MARSHALL ISLANDS

NET WEIGHT 220GM

NUTRITION FACTS	
Energy	: 501kJ [120Cal]
Protein	: 24.5g
Fat - Total	: 2.0g
- saturated	: <1g
- monounsaturated	: <1g
- polyunsaturated	: <1g
- trans	: <0.1g
Carbohydrate - Total	: <1g
- Sugars	: <1g
Sodium	: 567mg
Omega-3 (total)	: 851mg
Omega-3 (EPA)	: 133mg
Omega-3 (DHA)	: 665mg

INGREDIENTS
Fish, Water/Coconut Oil, Salt.

☐ Skipjack Tuna / Lojabwil
☐ Yellowfin Tuna / Bwebwe
☐ Rainbow Runner / Ekaidik
☐ Mackerel / Mölmöl
☐ Oil ☐ Brine

Net WT: 220 Grams
Fish WT: 140 grams when packed

Gamsa hamnida
Tankyu Tru,
Komol Tata,
Kammagar
Thank you

