

The use of satellite technology in combatting IUU fishing in the Pacific Islands region

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by

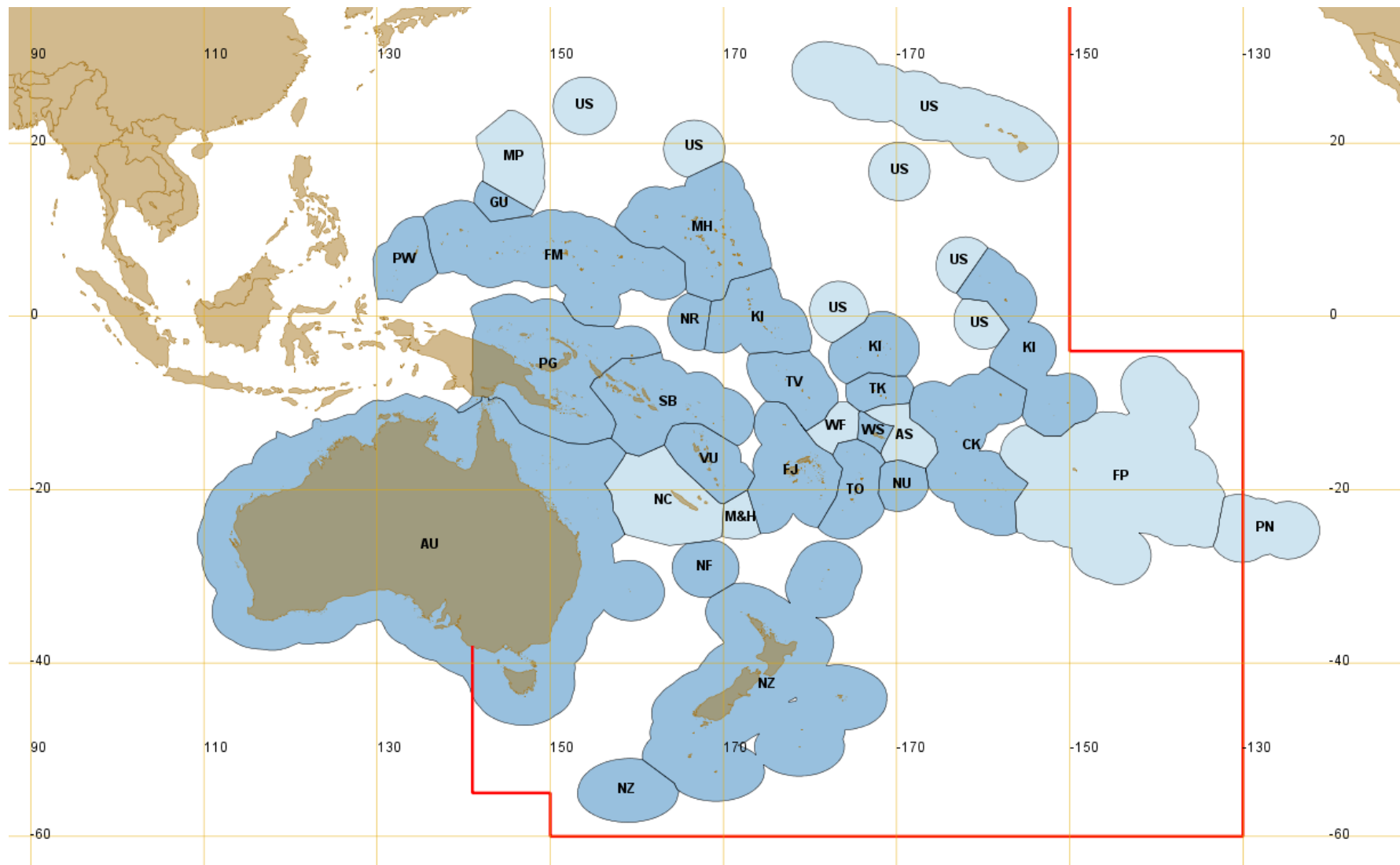
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The maritime management challenge facing PICs

The region is characterized by:

- **Small Island Countries with very large EEZs (plus Australia & NZ)**
 - PIC EEZs cover 30 million sq kms (not including ANZ)
 - Adjacent High Seas & HS Pockets
 - Region spans 6 time zones & Intl Date Line
- **Highly valuable tuna resources**
 - WCPO produces 55% of world tuna catch
 - Catch yields 2.25million tonnes per annum
 - 80% of catches are from FFA member EEZs
 - PNA EEZs alone produce 40% of world canning tuna supply
- **Generally limited resources with which to undertake MCS**
 - IUU fishing has the potential to significantly erode the benefits to Pacific Island people.

WCPO and FFA waters



Satellite tracking – a key part of the regional IUU fishing solution....BUT only when supported by an effective enforcement capability

- The member countries of the Pacific Islands Forum Fisheries Agency (FFA) were amongst the first multinational collective management arrangements to require secure satellite tracking of registered vessels involved in fishing of the tuna and other highly migratory fish species in their combined EEZs, starting in 1998 and mandatory since 2002.
- **MY KEY TAKEAWAY POINT NUMBER 1.....**
- The success of satellite tracking in reducing IUU fishing in FFA member EEZs has been noticeably significant but that success is also substantially due to the collective regulatory management framework shared by the PICs, which includes further surveillance and legal enforcement tools that support the integrity of the system and the apprehension and prosecution of vessels suspected of illegal fishing within the EEZs.**TO BE EFFECTIVE TECHNOLOGY (SATELLITE SURVEILLANCE AND MONITORING) MUST BE SUPPORTED BY EFFECTIVE ENFORCEMENT INCLUDING LEGAL STANDING, LINKAGE TO DEPLOYABLE ASSETS AND LONG-ARM REACH CAPABILITY.**
- The comparative importance of this supportive regulatory element is demonstrated by the **less successful efforts of the WCPFC** in combatting IUU fishing activity on the region's high seas areas.

The fundamental diplomatic/legal basis to PIC regional fisheries management efforts and success is Regional Cooperation supported by Zone Rights Based Management

- National sovereignty – From the outset of UNCLOS3 PICs insisted on national (coastal state) sovereignty and sovereign rights over the management and development of tuna and other highly migratory stocks of fish (HMS) within their EEZs.
- As such, because HMS move across multiple zones, effective management requires cooperation amongst the coastal states sharing those stocks.
- The management framework adopted has been of **Zone Rights Based Management** - a multi-jurisdictional form of rights-based fisheries management that recognizes the right and responsibility of coastal states under UNCLOS to conserve and manage resources in their EEZs, **giving coastal states a more equitable say** in the management of highly migratory species.
- **Noteworthy, that PICs were committed to the national sovereignty based approach even though in 1978 the extent of the fishery and its principal location within EEZs was not at all clear – a strong point of principle based on desire for greater equity.**
- **Understanding this basic conceptual framework is fundamental to understanding PIC regional fisheries management.**

Implementing ZRBM

1. Establishing a regional body to coordinate their cooperation
 - In 1979 PIC leaders established the **Pacific Islands Forum Fisheries Agency (FFA)** to facilitate fisheries management cooperation amongst the PICs
 - With its secretariat in Honiara, Solomon Islands, FFA now includes the 15 independent PICs, Australia and New Zealand and the Territory of Tokelau.
2. From the early 1980's the FFA members adopted a number of **cooperative uniform measures** to enhance their limited individual capability to control foreign fishing activity in their EEZs (Detailed below).
3. Sharing and coordination of surveillance and enforcement efforts was formalized into more legally binding form in 1992 when FFA members adopted the '**Niue Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific Region**'.

Through FFA adopted key Common Programs

- HMTCs for licensing of foreign fishing vessels
- FFA Register of Fishing Vessels - 1200 vessels
- FFA VMS
- FFA RSP
- FFA Observer Program
- Port controls & monitoring
- Legal / Prosecutions
- Data & information sharing / exchange
- Aerial & surface patrols



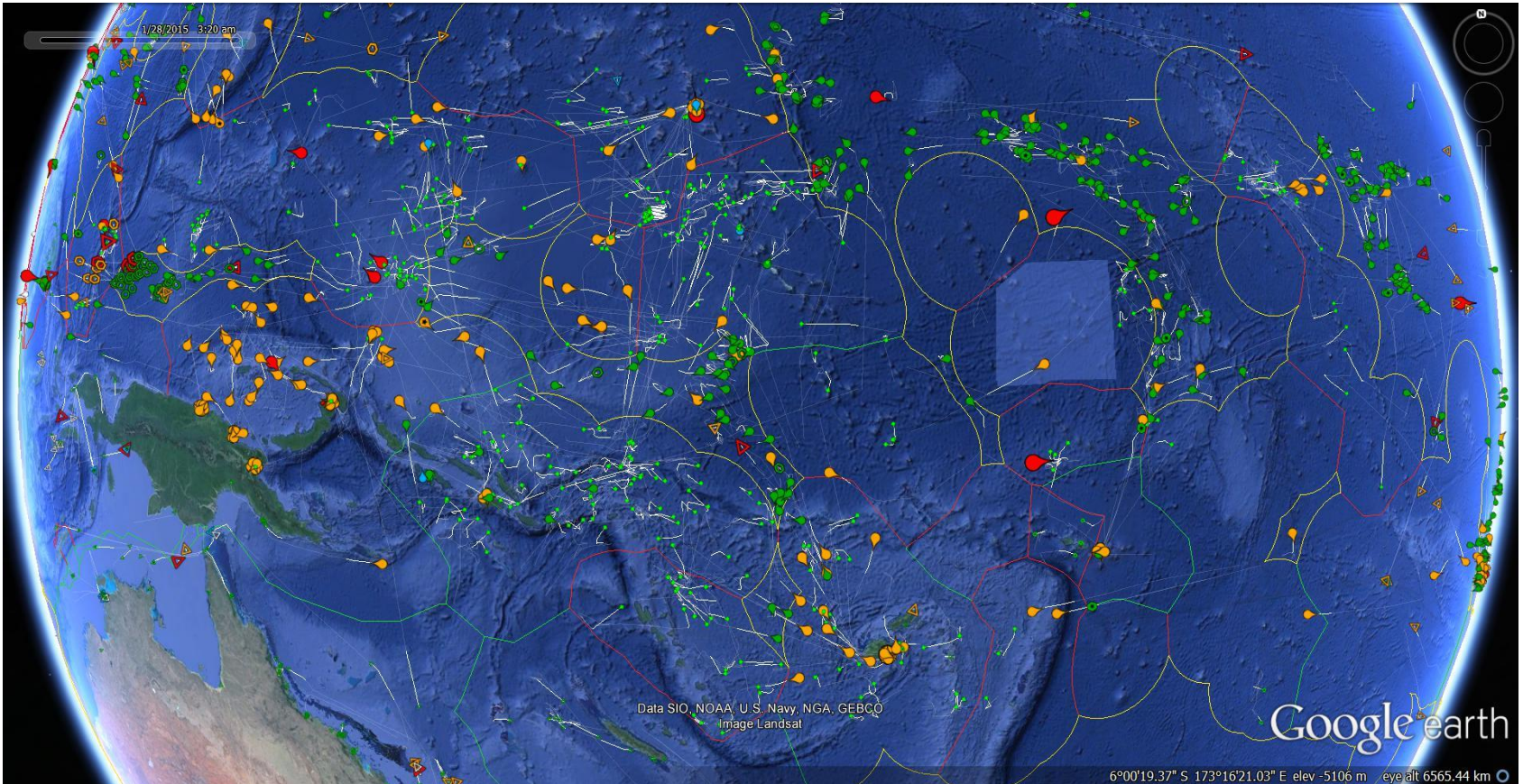
Vessel Monitoring System

- Agreed in 1997, became 'operational' in 1998 and mandatory by 2002.
- Type-approved Automatic Location Communicators (ALC)/Mobile Transmitting Units (MTU) required on all licensed fishing boats; mandatory reporting required from port to port; units directly interrogated by FFA; monitored in real-time by FFA RFSC (region-wide) and by PICs (own and authorized EEZs) in accordance with agreed data sharing rules – tracks 1200 boats.
- In 2007 WCPFC adopted same VMS platform as FFA to track vessels authorized to fish on the high seas, albeit HS data generally not accessible to FFA – tracks about 3000 boats.
- Advantage of the closed, type-approved, VMS units is that the location and details of the vessel cannot be easily altered without detection by the RFSC, unlike AIS units.
- In 2011 FFA members mandated that fishing vessels also install and utilize AIS units, which serves to further validate vessel position and can be a back-up in the event of VMS MTU failure.



The basis for a regional Maritime Domain Awareness - Common Operating Picture – the FFA regional fisheries surveillance picture

FFA



FFA Regional Fisheries Surveillance Centre



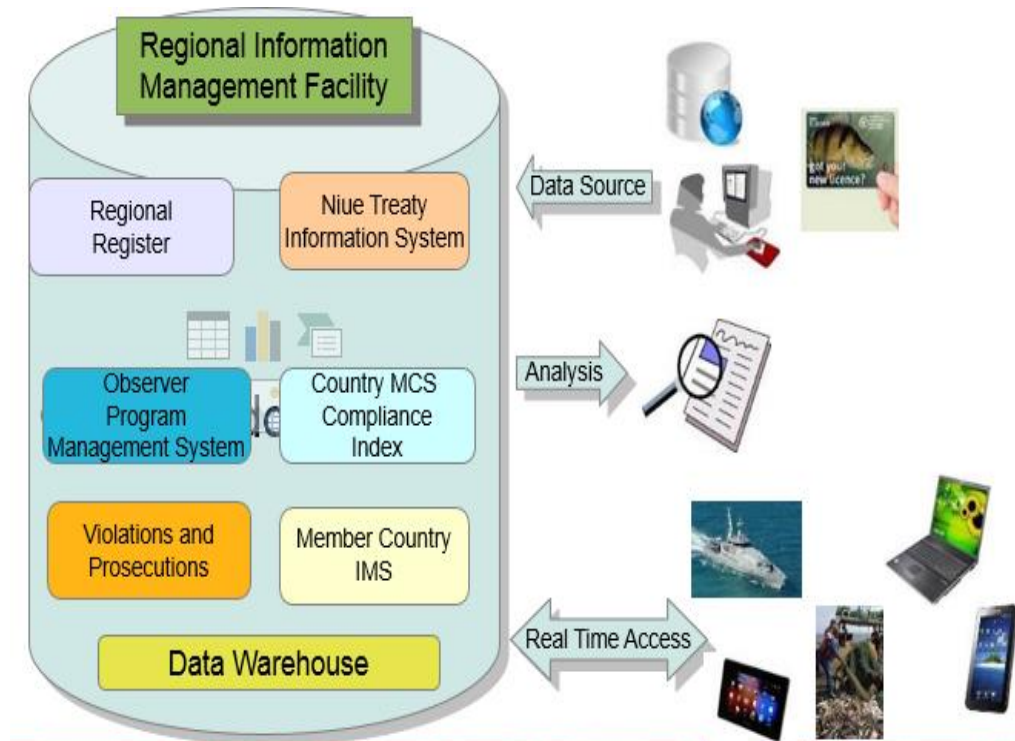
Regional Fisheries Surveillance Centre

– the regional hub for cooperative fisheries monitoring

- Established in 2009 – located at FFA secretariat, Honiara.
- Provides analysed Surveillance Picture to FFA Members and QUAD Surveillance Providers (Australia, NZ, France, USA) to support national MCS activities.
- Analytical capacity complimenting Members' MCS efforts.
- Coordinates QUAD surveillance with Members.
- Assist Members through provision of case packages (incl. evidence to support prosecutions).
- Capacity build Members on regional MCS tools.
- Supports PMSP/FFA regional air surveillance operations.
- Assists trials of new technology for FFA.

FFA Regional Information Management Facility – facilitating regional information sharing

- Originally developed in 2009...operational by mid-2014
- RIMF is an integrated/central system to house/manage MCS data and info, that FFA Members access through secure portals also allowing them to populate/update their own information data-bases and regional information systems



Going forward: Proposed and interesting new technology for improved IUU fisheries detection

- **Seeking to improve Real-Time data access – Satellite communication systems**
- Electronic monitoring – video monitoring of on-board fishing activity and sensing of fishing equipment use, including FADs.
- Electronic reporting – satellite communications to enable real-time catch data reporting by vessels and on-board Observers (also Observer safety).
- Independent/Verifiable AIS reporting validation.
- **Using Satellite imagery platforms to cross-validate vessel position reporting data.**
- Trials with night light vessel imagery, small boat detection using Satellite based SAR imagery, trials with high quality Satellite Optical imagery.
- **Using Satellite remote sensing for intelligence assessment to more efficiently focus surveillance targeting**
- Trials with Satellite remote sensing data to better focus surveillance efforts, such as plankton distribution, ocean currents and temperature.

Going forward: Broader law enforcement security cooperation – regional Maritime Domain Awareness

- The re-conceptualization of IUU fishing as a facet of trans-national crime will pose new opportunities and challenges for the use of satellite based technology in the PIC region in the years ahead.
- This will include engaging with Broader Law Enforcement stakeholders under the **Boe Declaration on Cooperation in Broader Regional Security** (which recognizes Climate change, People Security (food security and disaster response), Trans-National Crime, Economic resource security (including IUU fishing),and Cyber-security as regional security threats to be addressed collectively.
- **Pacific Fusion Centre** – an Australia Government initiative with critical PIC governmental oversight and regional technical agency cooperation; to undertake cross-sectoral Intelligence analysis, Broader Information sharing, Intel capacity building and Maritime Domain Awareness in support of implementing ‘Boe’.
- The PFC will develop a regional **Maritime Domain Awareness(MDA)** system hopefully incorporating multiple Satellite communications, imagery and remote sensing input fused with other information to provide better security intelligence support to regional governments and appropriate technical agencies.

The PIC region – many needs and constraints

- ❖ For many PIC communities **detection of IUU activity in near-shore coastal fisheries** and **protection of Marine Protected and Managed Areas** is a pressing food, economic and environmental security issue.
- ❖ **BUT PIC's aspirations for more effective usage of satellite technologies, are significantly constrained by COST and LIMITED TECHNICAL EXPERTISE:**
 - high cost of products and communications
 - limited awareness of available technology, possible applications and meta-data
 - limited technical know-how to develop algorithms to analyse the data to address the needs most important to PICs
 - limited expertise to know and to properly frame the questions that can/should be asked
 - apparent technical limitations to the expeditious use of international satellite systems in the region – available earth stations and orbits

So what can be done going forward?

Key take-away point Number 2.....Let's DO something, don't just talk...SDG's ..PALM8..the mandate is there.....

- Help PICs **address the cost issues** through free or cheaper access – including through creative indirect means eg development of algorithms to use free data feeds from existing satellites.
- Meet with PIC technical users to understand and **address the technical constraints** that they are experiencing.
- Help **develop space technology/satellite expertise in the PIC** region through appropriate academic scholarships, training programs and provide technical expertise to PICs.
- Undertake public information programs and events to **inform PIC regional policy makers, technical officials and communities** about the range and value of space technology/satellite observation and communication platforms and of products. e.g. support the Pacific Islands pre-event planned for the GEO conference in Canberra in November.
- **Support** the development of a **Regional Earth Observation (including Satellite Oceans Observation) platform** to promote greater access to and use of Earth Observation tools to address the needs of PICs more systematically.



FFA

Remember ... Someone is watching...

