BOBLME IUU sub-component Baseline, progress monitoring and the BOBLME RPOA

17 October 2024

BOBLME Project and IUU

BOBLME Strategic Action Programme and TDA identified overexploitation of marine resources as a major issue for common action in the BOBLME

- Recognized this was driven by:
 - excessive fishing effort
 - destructive fishing methods
 - unselective fishing practices and gear
 - illegal, unregulated and unreported (IUU) fishing

Theme 1: Marine living resources

Fisheries and other marine living resources are restored and managed sustainably

Objective 1:

Restore fisheries resources that are degraded

Targets

- Increase abundance and biomass of selected national and transboundary fish stocks by 5% by 2025
- Reduce fishing capacity in degraded fisheries by 10% by 2025
- Reduce IUU fishing in the region by 20% by 2025

Objective 2:

Restore and maintain species composition

Targets

- Improve mean trophic level of the catch by 5% by 2025
- Increase the biomass of higher trophic level species (e.g. large demersals, tuna and sharks) by 5% by 2025

Objective 3:

Reduce the proportion of juvenile fish caught and/ or retained

Targets

- Reduce the percentage of juvenile fish caught by 10% by 2025
- Reduce the percentage of juveniles of commercially important fish caught by 25% by 2025
- Reduce unselective/destructive fishing by 20% (using a measure of fishing effort) by 2025
- Reduce fishing effort targeting juvenile fish by 20% by 2025

Objective 4:

Restore biodiversity status of 1980 by 2025

Targets

- Enhance species richness in selected ecosystems
- Eliminate the use of destructive fishing gear and practices by 2025, including in critical habitats
- Reduce incidental catch of vulnerable and endangered species by 50% by 2025

Over-fishing and over-capacity recognized, but IUU fishing prioritized in 2015

BOBLME countries endorsed the TDA/SAP Major outcome to:

"Formulate a Regional Plan of Action on IUU fishing (RPOA-IUU) and/or multi-national agreements to strengthen arrangements to determine and implement management measures to combat IUU at a regional level."

Drivers encouraging growing policy commitment to combat IUU fishing in the region since BOBLME SAP endorsed (2015)

- Belief that IUU is contributing to overfishing, impacts on resources and lost rents (but rarely, if ever, quantified)
- 2. The growing realization that marine fisheries resources require more effective sustainable management, with application of capacity and effort controls.
- 3. Recognition that IUU fishing creates conflicts in national fisheries (esp. SSF & LSF, between gears)
- 4. Commitments taken on by countries to tackle IUU fishing as part of:
 - NPOA-IUU
 - Obligations for those countries that have acceded to the PSMA
 - SDG target (14.6)
 - ASEAN-SEAFDEC Joint Declaration and ASEAN Guidelines for Preventing the Entry of IUU Fish and Fishery Products into the Supply Chain
 - Indian Ocean Rim Association (IORA) Action Plan (2017–2021)
- 5. Market or trade requirements
 - Requirement by European Union requiring proof fish is not from IUU fisheries (affecting several countries)
 - WTO disciplines (most recently)
 - Seafood companies importing seafood from Asian countries
- 6. Increasing global public access to vessel information and fisheries data, makes vessel activity harder to hide

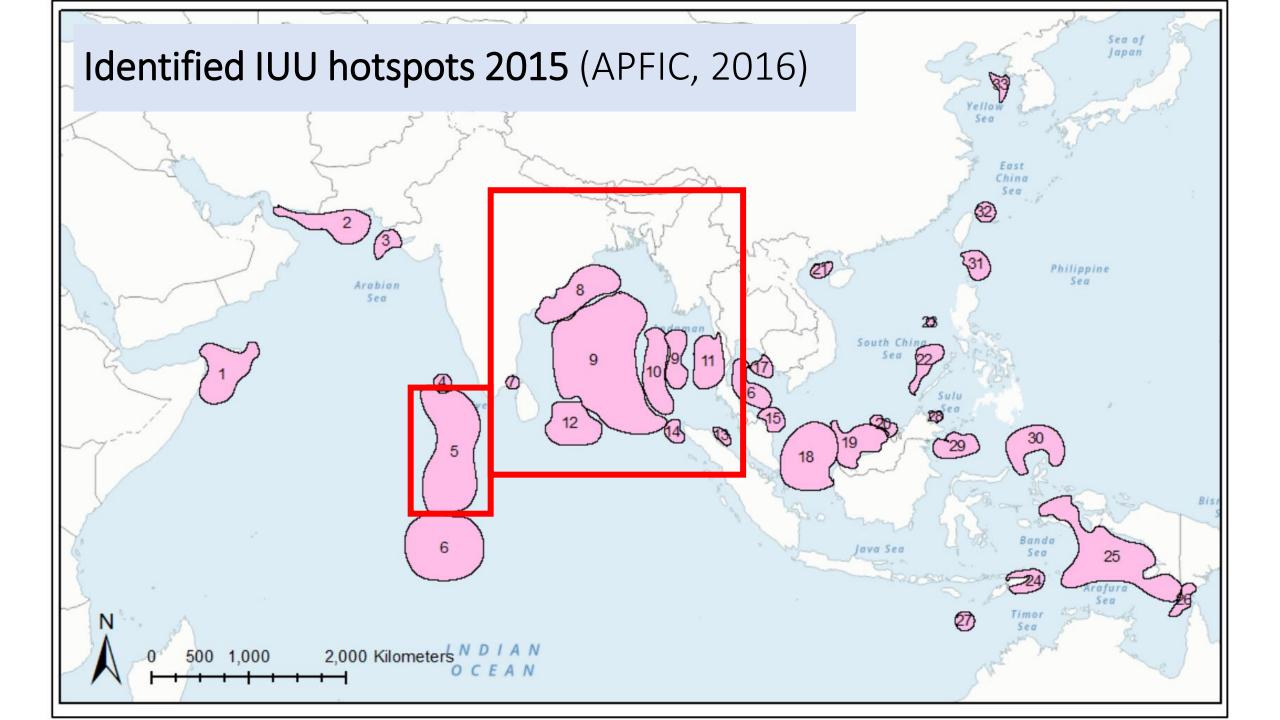
1. IUU in the BOBLME region - how serious is it?

- By its nature IUU fishing extremely hard to quantify
- Activity typically occurs beyond the reach of fishery enforcement activity
 - Secretive, so difficult to monitor and measure
 - Only comes to light when there is a successful, high profile apprehension, or major complaint
- Not something that is typically reported into public information mechanisms (except perhaps PSMA and RFMO processes)
- <u>Countries reluctant to reveal extent of IUU activity</u> of national fishing fleets and sometimes also IUU by foreign vessels operating in their waters

Identifying & quantifying IUU in the BOBLME

- Almost no national data made public
 - Few, <u>if any</u>, national studies
 - No quantification of IUU in NPOAs
- A number of historic regional efforts to get an idea of locations and quantify the scale of IUU fishing in the Asian region
- These used different methods of estimation and extrapolation including:
 - Estimation
 - Case studies, anecdotal information
 - Media reports of IUU fishing
 - Expert respondents
 - Fishery officer respondents
 - Grey literature
 - Peer reviewed journals
 - Extrapolation and or modelling (from the estimations)
 - gives confidence ranges, and fills gaps

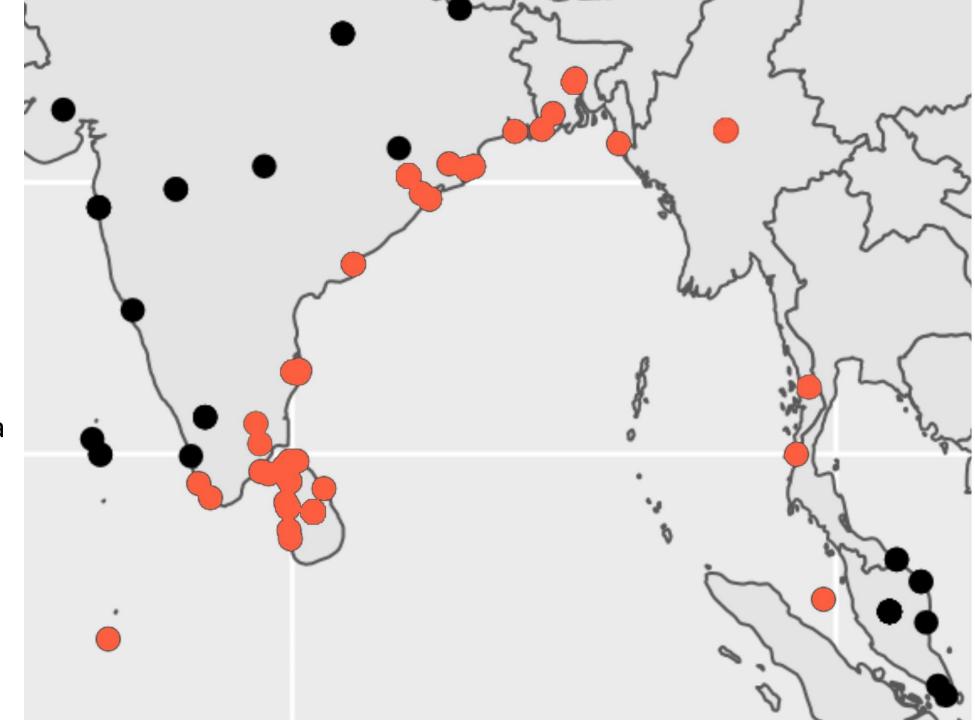
Study	IUU catch Tonnes		Value (million USD)		% of annual catch reported to FAO	Coverage (area/location)	
	Lower	Upper	Lower	Upper	%		
Meere & Lack, 2008	3,400,000 – 8,100,000		-		8 – 16%	Asia-Pacific. Case studies and examples. Did not make an aggregated estimate (Area 71)	
Agnew et al 2009	467,865	970,589	421	874	8 – 16%	Eastern Indian Ocean (larger than BOBLME)	
Agnew et al 2009	785,897	1,729,588	707	1,557		Western Central Pacific	
APFIC review 2016	716,071	745,814	1,128	1,854	10%	Bay of Bengal, Andaman Sea and Malacca Straits. Focussed on illegal activity, primarily by foreign vessels. No extrapolation.	
(Un-published Presented at APFIC 34th Session)	777,478	940,498	935	1,810	8 – 10%	South China Sea, Gulf of Thailand, Arafura-Timor Sea, Banda Sea, Savu Sea, Sulu-Celebes, Sulawesi Sea, Makassar Strait, Molucca Sea, Halmaheras Strait	
BOBLME, 2015	2,169,766	6,540,997				Asian region. Whole of country EEZ so includes large areas outside of BOB. The figure is the estimate of illegal catch for the countries in Bay of Bengal. The study also estimated unreported catch. Data was extrapolated.	
Wilcox et al., 2021	1,363,000		4,921.3		21%	Bay of Bengal and Andaman Sea. Focussed on illegal activity, primarily by foreign vessels. Data was extrapolated.	
Spijkers et al., 2023	1,320,921		1,301.1		28%	East and West Indian ocean. Use similar methodology to CSIRO 2019	



IUU locations 2019

Wilcox et al. 2021

- Identified locations of IUU
- Expert respondents (DOF)
- Reports from media analysis

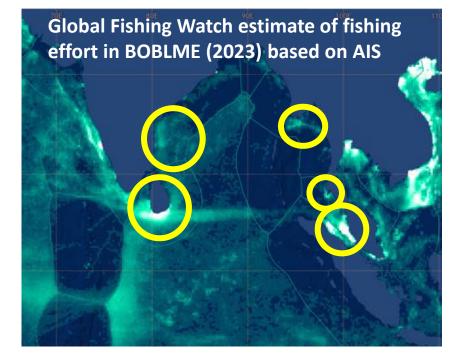


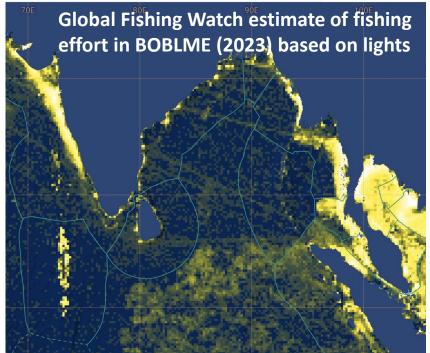
Overcapacity and overfishing of resources are major IUU drivers

- Clearly identified in the BOBLME SAP
- National data >307,000 fishing vessels operating in BOBLME Area 57.1
 - 73 percent small-scale (<12m length, unmotorized or powered with outboard engines); 28 percent medium and large scale
- Mostly domestic or neighbouring country
 - Very registered to operate outside of the national EEZ waters
 - Trawlers generally operate within the EEZ areas on narrow coastal shelf resources
 - Trawlers (and associated transhipment activity) operating laterally across neighbouring maritime borders, most commonly associated with historical IUU fishing activity in the BOBLME
- Some countries starting to address this
 - Efforts at capacity reduction (Malaysia, Thailand)
 - Only Malaysia has NPOA capacity
 - Some recent effort to match capacity and effort to resources

AIS Global Fishing Watch estimate of fishing effort in BOBLME (2023)

- Fishing effort analysis based on algorithms can show where fishing effort is concentrated
- Note thisis effort not IUU!
- Fishing effort AIS data is unevenly distributed
 - Note limited activity of large vessels (AIS) within the EEZ areas...
 - Except Straits of Malacca, Sri Lanka India
- Whole year light imagery highlights smaller scale vessels, not tracked by VMS/AIS
 - Fishing effort is unevenly distributed
 - Mostly, but not 100% fishing vessels
 - Highlights intense activity in coastal area of all EEZs
 - Limited offshore (except tuna fleets outside BOBLME





Although we have no formal quantification...are there signs in BOBLME area that perhaps IUU is reducing?

- IUU activity is not static and one of its characteristics is how IUU activity starts up, closes down, or shifts to take advantage of new opportunities
- Foreign encroachment is identified by all countries, but its frequency and scale are challenging to estimate - is this being deterred more effectively?
- Current evidence from the actions of the coastal states indicates their commitment to combatting IUU fishing is greater than in the past
 - Lower tolerance for IUU
 - Improved vessel management (registration, licensing, VMS)
 - Increased MCS
 - More effective port controls/PSMA
 - Desire to maintain market access
- With little or no documentation, it is <u>hard/impossible to demonstrate if IUU has</u> reduced

We can make the following statements about the current situation of IUU in the Bay of Bengal

- IUU is no longer the same as it was 5-10 years ago.
- While the amount of IUU (volume or number of locations) has probably changed, it is likely to still exist to some degree
- <u>Some</u> countries are now more effectively controlling IUU (in the most serious historic hotspots)
- Other countries have demonstrated less commitment or capacity to take action and have made limited progress
- Whilst it is possible to claim that IUU is now more effectively managed, no country can credibly claim to have zero IUU
- The lack of monitoring and <u>public documentation</u> limits the countries ability to demonstrate they are effectively controlling IUU
- Supporting some BOBLME level monitoring and risk communication can assist countries to more effectively communicate their actions to combat IUU

2. BOBLME IUU sub-component

Project document indicators Outcome 1.2: IUU catch in the BOBLME reduced

- By the end of the project, the following key outputs are anticipated under this Outcome:
 - 1. 20% reduction in IUU <u>fishing from the BOBLME phase 1 baseline estimate</u> for selected fisheries.
 - Implement and as necessary <u>prepare Regional Plan(s) of Action (RPOA)</u> to address IUU fishing in the BOBLME.
 - **3.** <u>Eight National Plans of Action (NPOAs-IUU) and national IUU Monitoring, Control and Surveillance (MCS) systems and Vessel Monitoring Systems (VMS) <u>strengthened.</u></u>
 - **Tools for promoting best practices**, such as MCS, Port State Measures (PSM) and traceability of fish and fisheries products (including catch documentation schemes), policies and national actions, to combat IUU fishing developed and implemented in national pilot/investment projects. Countries supported in acceding to the PSMA.
 - 5. Regional capacity development programme on port inspections, MCS and traceability implemented with 20 national fisheries staff trained in each country.
 - **6. Gender is mainstreamed** into actions to combat and eliminate IUU Fishing in BOBLME.

BOBLME project targets

- 1. 20% reduction in IUU
 - over 2014 baseline which is not clearly specified in Project Document but intended as the APFIC 2016 review and Wilcox et al 2021 reviews
- 2. RPOA-IUU endorsed
- 3. NPOA-IUU being <u>implemented</u> in 7 countries
- 4. Regional training platform(s) operational
 - Indicated: MCS training, Port inspections
 - **Note:** could be <u>any training or capacity building that would contribute to policy or actions related to reducing IUU activity</u> (e.g. fishing vessel capacity management, improved resource management)

3. Ways to monitor progress

- Quantitative requires use of data from monitoring
 - Reduction of IUU incidents (from MCS monitoring data)
 - Reduction of number of locations (IUU hotspots) where IUU is considered problematic
 - Reduction of impact (e.g. vessels numbers reduced in IUU hotspots)

• **Semi-quantitative** or **proxy** measures

- Allow change to be estimated
- May track the same metrics above, but use estimation methods
 - Country reporting
 - Expert opinion
 - Media reports
- IUU risk assessment (likelihood vs. impact) indicate reduction in risk

Qualitative

- Progress towards establishing/strengthening national framework to combat IUU
 - Signing up to international agreements
 - Institutional and legal reforms, investments, cooperation
 - Establishment of operational capacity (VMS centres, port measures, MCS capability, information sharing)

4. BOBLME project baseline

- Indicator: 20% reduction in IUU in the BOBLME region
 - Estimation reduction by
 - ~150,000 tonnes (from 716-746,000 tonnes, 2016 APFIC Baseline)
 - ~273,000 tonnes (1,363,000 tonnes Wilcox et al, 2021)
- The lack of quantification and identification of IUU at the national level is puzzling
 - basis for funding actions
 - implementation should be linked to the extent and severity of the IUU issue
- This limits ability to state clearly what progress is being made on combatting IUU

Agree on BOBLME IUU baseline target

- The baseline is not clearly specified in Project Document but intended as the APFIC 2016 review and Wilcox et al., 2021 reviews.
 - 20% reduction in IUU fishing from the BOBLME phase 1 baseline estimate for selected fisheries.
 - This is an estimated reduction by 150,000 273,000 tonnes
 - The PSC should agree and endorse this as the project baseline
- Countries need to assess IUU
 - Apply a risk-based approach to determine the severity of the IUU identified
 - Use expert respondents approach (simplified Wilcox et al. 2021 method) to identify IUU issues and apply a semi -quantitative approach to track change.
 - Method outlined in this report.
 - PSC should endorse this and it needs to be incorporated into the workplan

Quantitative BOBLME project progress tracking on indicator

- Indicator: 20% reduction in IUU in the BOBLME region
 - Estimation reduce by
 - ~150,000 tonnes (from 716-746,000 tonnes, 2015 APFIC Baseline)
 - ~273,000 tonnes (1,363,000 tonnes CSIRO 2019)
- Focus on the illegal fishing component (not unreported and unregulated)
 - IUU within EEZ
 - <u>Exclude RFMO related</u> tuna as covered under the IOTC
 - Cover foreign and domestic vessels
 - Try to disaggregate by large and small scale, or gear type (help estimate quantity)
- Develop a rough estimate of the catch that is IUU
 - Identify IUU activity: how many locations, species targeted or gear group
 - Estimate annual occurrences: number of vessels (and types) and how often frequency
 - Estimate the amount of catch based on vessel/type/size and gear and duration
 - Estimate the volume and thus the value

Data sources or ways to estimate

- If there is formal national monitoring this is the best
 - Use electronic monitoring data (VMS, GPS on board or AIS) for larger vessels
 - MCS data on sightings or apprehensions
- Expert opinion (semi-quantitative if you get enough respondents)
 - Use (DOF) expert opinion to identify locations and vessel size/gear type & indicate frequency (e.g. APFIC/Wilcox et al. 2021 method)
- Back up with other analysis
 - Media reports (media search)
 - IUU tracking internet sites
 - Public reporting and citizen science (only if this is already in place)

Example of a scoring-approach for IUU risk assessment

- 2 factors of likelihood of IUU
 - How frequently is the IUU occurring?
 - What are the chances of being caught?
- 2 factors of impact of IUU activity
 - How many vessels are involved?
 - How big are they?
- Likelihood score: Square root Frequency x Risk of capture
- Impact score: Square root Number of vessels x Vessel size
- Example maximum:
 - Likelihood score = 5: Daily IUU with no risk of capture
 - Impact score = 5: >200 vessels that are 500 tonnes
- Example minimum:
 - Likelihood score = 1: A few times a year with high chance of being caught
 - Impact score = 1: less than 5 vessels that are are less than 10 tonnes
- Risk score = likelihood x impact

Likelihood				
Frequency	X	Risk of capture		
Daily	5	None	5	
Weekly	4	Very low	4	
Monthly	3	Low	3	
Many times in short period	2	Moderate	2	
A few times a year	1	High	1	

Impact					
Numbe vesse involv	ls	Vessel size/ capacity (tonnes)			
>200	5	>500	5		
51-200	4	201-500	4		
11-50	3	51-200	3		
6-10	2	10-50	2		
<5	1	<10	1		

Semi-Quantitative progress tracking

20% reduction in IUU in the BOBLME region

- 1. Identify IUU activity locations
- Score likelihood of IUU and severity of impact
- 3. Use a risk plot to track change (mainly driven by national actions and shifting IUU fishing opportunities)
- 4. A positive change, is recorded as success



	Risks	score			
Hotspot	2023	2026	Comment		
1	13.4	8	Some improvement		
2	5.5	2.2	Improvement		
3	11.0	16	Deterioration		
4	12	12	No change		
5	3.5	2.8	Improvement		
6	4	1.4	Improvement		
7	15.8	3.5	Significant improvement		
8	5	4.2	Minor change		

e.g. In the period 2024 and 2026: there were 8 identified IUU hotspots: 5 hotspots show improvement, 1 hotspot has become worse, 2 have no significant change.

Overall out of the 8 hotspots identified, only three are considered medium or high risk.

Qualitative BOBLME Tracking

- This is text based reporting of actions and initiatives that countries have taken
- They monitor progress on other key <u>indicators of commitment</u> to combat IUU
 - NPOA-IUU update and <u>implementation</u>
 - Institutional reforms and strengthening (national reports, year by year)
 - MCS and Port control strengthening; fleet controls
 - Progress against the checklist of actions (see table)
 - Other progress that supports efforts to combat IUU (e.g. Fishing Capacity management, effort reduction, stock rebuilding; ASEAN-SEAFDEC RPOA 2017)
 - Sources of info:
 - Annual national report back to BOBLME WG
 - National reporting: SDG reporting 14.6.1, national PSMA report, reporting to RPOA-IUU (note this does not include South Asia)
 - Third party monitoring: e.g. IUU_fishing_risk_index, media reporting analysis

Qualitative tracking: updating the BOBLME baseline indications of country progress since 2015

- Countries report on progress on the key elements:
 - Improved legal frameworks
 - EEZ boundary definition
 - Draft/Revised NPOA-IUU
 - MCS Programme
 - Vessel tracking
 - Vessel registration
 - PSMA
 - MCS networks (coordination, info-sharing)
- Progress towards Consortium for the Conservation and Restoration of the BOBLME (CCR-BOBLME) - Related to IUU - update baseline, stocktake and track IUU

5. Tracking output RPOA -IUU endorsed

Typical features of an RPOA

- Incorporate a regular assessment of national IUU risks (vulnerability and impact)
- Monitor implementation (or development) of NPOA-IUU or equivalent actions
- Incorporate a commitment to sharing of information
- Should complement other aspects of fishery management that contribute to combatting IUU (e.g. fleet overcapacity, vessel registration, removal of subsidies that contribute to IUU, improved resources assessment, decent work and safety at sea)
- Align and support the international framework and regional commitments, including RFMOs
- Identify capacity building and training needs
- Indicate the mechanisms (ongoing, or those to be established) for implementation, roles and responsibilities
- Have a regular reporting mechanism
- Have a clear end of project sustainability strategy (i.e. there are ongoing processes that would sustain some or all of its elements)
- A draft RPOA outline has been prepared

6. Tracking output: NPOA-IUU

	BGD	INS	IND	MAL	MDV	SRL	THA
FAO NPOA-IUU as part of Implementation of IPOA-IUU	NPOA 2019	NPOA 2012-2016	No	2 nd NPOA 2013	NPOA 2019	2 nd NPOA 2015	2 nd NPOA 2021

- All countries except 1 have NPOA-IUU
- In several cases the NPOA-IUU are now out of date, some have been revisited and updated
- Assisting countries in updating NPOAs is a recognized action in the BOBLME project, although it seems there may be little demand for this assistance
- BOBLME could focus on:
 - monitoring progress and achievements of NPOA implementation
 - NPOA updating (how many are planning to do this?) and NPOA development (India)

7. Tracking output: Tools for promoting best practices examples for knowledge sharing of best practice, pilots

Theme	Country examples for knowledge sharing of best practice, pilots (to update!)
Vessel tracking	Indonesia CSIRO working on radio tracking of vessels to support other methods like VMS or satellite imagery Malaysia (SEA-IU project) Indonesia Use of AI to see vessel tracking (Ocean Mind) DOF Thailand using PSMART (AI) to track fishing vessel route Pilot project on low-cost vessel tracking system for SSF vessels
Port Inspections	Procedures for checking fishing vessels entering port Using AI to support cross-checking of documents
Surveillance	Risk assessment methods for identifying IUU and targeting MCS Thailand CRA (common risk assessment method) Drone use in aerial surveillance Surveillance cameras on landing sites Use of AI on board cameras
Quantifying IUU and impact	Identify IUU hot spot, estimation of economic loss from IUU fishing Tracking analysis (machine learning AI) Malaysia citizen science and reporting apps
E-documentation	QR Codes on fishing vessels Electronic Reporting Systems: Digital platforms, e-logbook SSF on-board GPS uploading data when vessels enter port
Capacity resources	Capacity reduction initiatives (Malaysia, Thailand, others?) Effort/Vessels/catch linked to capacity and resource assessment – country

8. Tracking output: Regional training platform(s) operational

- In-house project training courses run by SEAFDEC, BOBP-IGO or perhaps FAO and national, agencies (few existing comprehensive courses)
- Supports or facilitate access to regional training by other bodies (NOAA, AFMA, IMCS, EU, CSIRO (via coordination with mechanisms such as RPOA-IUU, AN-IUU, IORA)
- Training rolled-out in region by various organizations and bodies (course materials unavailable)
 - Port controls, port inspections, implementing PSMA (theory and practical-hands on)
 - Designing and implementing MCS, at-sea inspections (mainly theory)
 - Awareness raising on the International fishery governance framework
 - Vessel tracking, use of data, remote sensing, other methods for remote identification of IUU activity (IUU hotspot tracking has not yet been subject to training courses)
- Facilitate access to online training resources (<u>few relevant courses available</u>)
- Regional meeting for awareness raising and experience training on country pilots/best practice
- Training on complementary measures: e.g. NPOA-capacity, linking resource assessment to capacityeffort
- Countries need to indicate their priority capacity building needs (<u>agenda item at the regional WG</u> meeting)
- Are there enough funds to develop and run training courses?

9. Tracking output: Gender mainstreaming

- This is an indicator for the sub-component
- It should be elaborated in the Gender action plan for the project
 - Men are primarily involved in fishing operations and thus directly active in IUU fishing
 - Traders are often complicit or involved in receiving IUU catch and these may be men or women
 - Impacts of IUU fishing may disproportionately affect women, particularly in the small-scale sector
- Specific targets or actions for the IUU sub-component likely to cover:
 - Identification of gender specific impacts of IUU or responses to combat IUU
 - Look specifically for IUU issues within the small scale sector

Plan and convene Regional WG meeting

- Key to component tracking, RPOA development, knowledge sharing
- Could be a joint SEAFDEC-BOBPIGO meeting
 - Virtual or physical depending on resources
- Alternatively, virtual preparatory meeting followed by in-person regional WG meeting.
 - This might be convened by the RCU, with support of BOBP-IGO and SEAFDEC
- The main purpose of the WG meeting would be to:
 - Countries provide an updated national baseline on IUU and risk assessment (or brief on on how to do this)
 - Countries provide report back of their progress against the checklist of actions
 - Other actions in support of PSMA, RPOA-IUU, AN-IUU, ASEAN IUU Task Force, ASEAN-SEAFDEC RPOA IUU, IORA FSU/CGFM
 - Results of ad hoc third-party research studies (e.g. IUU estimates)
 - Review draft RPOA-IUU and modify
 - Identify suitable training courses in the region
 - Identify awareness raising activities related to pilots in the region
- The report of the Regional Working Group Meeting and actions towards BOBLME RPOA-IUU provides the input for BOBLME sub-component monitoring

10. Conclusion (1) - message

- There has been a history of IUU in the BOBLME, some of it substantial (frequency, numbers of vessels and total catch)
- With a few exceptions, it is probably fair to say that most countries are now "effectively controlling" IUU (most serious hotspots)
- While IUU has probably reduced, some IUU will exist, but if there is no monitoring how can we support a claim we are controlling IUU??
- What is credible, is being able to say:
 - We monitor IUU across our EEZ
 - We have identified where it occurs and <u>estimated</u> the number and types of vessels involved and the frequency
 - Based on risk analysis, we consider the impact to be low in all but [a few] cases
 - We target our MCS on these most serious areas
 - Overall IUU activity within our EEZ is effectively managed
- Supporting BOBLME-level monitoring can assist countries to more effectively communicate their actions to combat IUU

Conclusion (2)

- Agree 20% reduction, from IUU baseline (2015-2019) = 150,000 273,000 tonnes
- Set a date for the Working Group Meeting (develop agenda)
- Agree on tasks for countries to present at WG meeting
 - Update their national IUU baseline (risk assessment, hotspots, or national tracking)
 - Update progress on NPO
 - Report on progress of the checklist of actions (many already completed)
- Agree on draft outline of the RPOA (simplify if necessary to focus on a few key achievable items)
- Consider one regional training course (<u>easiest way</u> is to support participation in existing course)
- Develop knowledge sharing events on best practice (can be virtual seminars, or inperson sharing)
 - target national MCS/IUU/PSM staff of DOF
 - For virtual seminars, it may be useful to open to private sector
- Work with RCU on the gender aspects of IUU