IN BRIEF

Philippine IUU Fishing Assessment Report 2021

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ACRONYMS & ABBREVIATIONS

ARMM	Autonomous Region of Muslim Mindanao
B/C/MFARMC	Barangay/City/Municipal Fisheries and Aquatic Resources Management Council
BARMM	Bangsamoro Autonomous Region in Muslim Mindanao
CAR	Cordillera Administrative Region
CFM	coastal and fisheries management
CRM	coastal resource management
DA-BFAR	Department of Agriculture-Bureau of Fisheries and Aquatic Resources
DFW	deputized fish warden
EEZ	exclusive economic zone
FCA	fisheries compliance audit
FMA	fisheries management area
FOO	Fisheries Office Order
FPLEG	Fisheries Protection and Law Enforcement Group
IEC	information, education, communication
I-FIT	Philippine IUU Fishing Index and Threat Assessment Tool
IUU	illegal, unreported and unregulated (fishing)
kg	kilogram
LGU	local government unit
MAO	municipal agriculture office
MCS	monitoring, control and surveillance
MERF	Marine Environment and Resources Foundation
MFLET	municipal fisheries law enforcement team
MIMAROPA	Mindoro (Occidental and Oriental), Marinduque, Romblon, Palawan
MKBA	marine key biodiversity area
MDS	modified Danish seine
NGO	non-governmental organization
NPOA-IUU	National Plan of Action to Prevent, Deter, and Eliminate IUU fishing
NSAP	National Stock Assessment Program
PCG	Philippine Coast Guard
PLGU	provincial local government unit
PNP	Philippine National Police
RFO	Regional Fisheries Office
USAID	United States Agency for International Development
VIIRS	Visible Infrared Imaging Radiometer Suite
VMS	vessel monitoring system
WPS	West Philippine Sea

MESSAGES

FROM DA-BFAR

On behalf of the Department of Agriculture Bureau of Fisheries and Aquatic Resources (DA-BFAR), allow me to extend my commendations to the men and women behind this noteworthy endeavor of crafting a comprehensive assessment report on Illegal, Unreported and Unregulated (IUU) fishing and its implications to the fisheries sector. In this report, we effectively underscore the dynamic change, strategic development, and resolved thrust that the Bureau envisions in preventing, deterring, and eliminating IUU fishing.

In partnership with the U.S. Agency for International Development through the Fish Right Program, the Philippine IUU Fishing Report Assessment 2021 aims to demonstrate a standardized measurement of IUU fishing in municipal waters and gauge the fisheries management areas on a national level.

This report highlights a broader spectrum of IUU fishing, not just the results of the evaluation and assessment. It is meant to serve as a benchmark for assessing the country's exposure to IUU fishing and informing lawmakers and legislative bodies on the operational decisions of fisheries authorities, and as a criterion for monitoring progress.

The Bureau, together with public and private stakeholders, pursues its commitment to international conventions while ensuring the sustainability of our fisheries resources. The IUU Fishing Index and Threat Assessment or the I-FIT Tool is one of the manifestations of DA-BFAR in promoting a more holistic approach to eradicating IUU fishing in our waters. In addition, the Bureau implemented noteworthy initiatives such as the Integrated Marine Environment Monitoring System and fisheries law enforcement assets that feature a state-of-the-art monitoring system which expands and improves the Bureau's monitoring, control, and surveillance program, and a Vessel Monitoring System which tracks and monitors the position, course, and speed of fishing vessels at any given time for the purpose of managing fisheries, fishing effort, and traceability.

For 74 years, the Bureau has been consistent in maintaining its unparalleled service to address illegal, unreported, and unregulated fishing in the country. The Philippine IUU Fishing Report Assessment 2021 is a pronouncement of our commitment to the development, improvement, management, and conservation of the country's fishery and aquatic resources.

Mabuhay ang Sektor ng Pangisdaan!

Commodore EDUARDO B. GONGONA, PCG (Ret.)
DA-BFAR National Director

FROM USAID

To advance the U.S. Government's vision of a free and open Indo-Pacific that is more connected, prosperous, secure, and resilient, the United States Agency for International Development (USAID) supports activities that promote sustainable fisheries and marine biodiversity conservation in the region. A key piece of this commitment is helping our regional partners address illegal, unreported, and unregulated (IUU) fishing. With the Indo-Pacific encompassing many major fish-producing countries and some of the world's biggest fishing grounds, IUU fishing threatens the entire region and extends well beyond the Indo-Pacific. This threat will only grow as climate change exacerbates the environmental, economic, and social impacts of IUU fishing. The international community has a shared responsibility to address this important issue.

As a long-time friend, partner, and ally of the United States and a global center of marine biodiversity, the Philippines is a valued strategic partner in promoting sustainable use of the oceans – central to regional peace, growth, and shared prosperity. For more than three decades, USAID has partnered with the Philippine government to address IUU fishing as part of a broader effort to reduce loss of biodiversity and deter conservation crimes. Through the Fish Right Program, USAID works with the Department of Agriculture - Bureau of Fisheries and Aquatic Resource (DA-BFAR) to address biodiversity threats, improve marine ecosystem governance, and increase fish biomass in the waters of South Negros, the Calamian Island Group, Visayan Sea, and West Philippine Sea.

IUU fishing activities persist around the world because their extent is little known or understood. These activities are inherently clandestine and complex, making data collection difficult; thereby creating blind spots that inhibit our ability to address them effectively. USAID, DA-BFAR, and other key partners facilitate improved understanding of IUU fishing in the Philippines through assessments of its prevalence and the country's vulnerability and response to its threat.

This report is the culmination of assessments conducted in 160 cities and municipalities using the Philippine IUU Fishing Index and Threat Assessment Tool, developed by DA-BFAR and USAID's Fish Right Program through the Marine Environment and Resources Foundation. The report summarizes these assessments and describes IUU fishing on a larger scale, to include a fisheries management area in waters beyond the jurisdiction of local governments, including the Philippine exclusive economic zone. The report also presents findings of a remote sensing study that examined poaching by foreign-flagged vessels in Philippine waters.

Thanks to DA-BFAR and other partners, Filipinos now have established a much-needed baseline for a more comprehensive understanding of the extent of IUU fishing in the Philippines. This tool will inform more targeted, effective solutions and management responses to address IUU fishing in the Philippines, the greater Indo-Pacific, and beyond.

RYAN WASHBURN
USAID Mission Director
Philippines, Pacific Islands and Mongolia

EXECUTIVE SUMMARY

About the Assessment

In 2020-2021, in its continuous effort to reduce illegal, unreported and unregulated (IUU) fishing, the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR), together with the United States Agency for International Development (USAID) and various partners in the field, facilitated a series of IUU fishing assessment workshops towards better understanding of IUU fishing in Philippine waters. The workshops piloted the use of the Philippine IUU Fishing Index and Threat Assessment Tool (I-FIT) to measure IUU fishing risk in municipal waters. They also demonstrated how the tool can be scaled to the fisheries management area (FMA) and country levels.

Developed by the USAID Fish Right Program and DA-BFAR through the Marine Environment and Resources Foundation based on the Global IUU Fishing Index's prevalence-vulnerability-response framework, I-FIT was used to assess how big of a threat IUU fishing posed to a given area (prevalence) the year before (January to December), why it was occurring (vulnerability), and what was done to address it (response). In total, 54 workshops were conducted involving 777 participants from 160 municipalities and cities in nine of the Philippines' 12 FMAs. Scoring was based on I-FIT's standardized indicators and 1-4 (good-to-bad) rating scale. Participants scored their LGU on each indicator, and the scores were averaged to form the LGU's score for that indicator. Thereafter, the indicator scores were combined into a composite IUU fishing index score representing the risk of IUU fishing occurring and persisting in a given area.

Although currently designed primarily for municipal waters, I-FIT also provided a framework for an initial assessment of IUU fishing at the FMA level in FMA-8, as requested by DA-BFAR's offices in Region 8 and Region 13 that are jointly responsible for the FMA. The assessment estimated the prevalence in 2020 of IUU fishing by domestic commercial fishing vessels (CFVs) within FMA-8, based on data from DA-BFAR, data obtained from information gathering and community reports, and the results of the IUU fishing assessment workshops for 49 LGUs (out of the 51 LGUs of FMA-8). An assessment of poaching by foreign-flagged vessels in Philippine waters was also done based on apprehension data from DA-BFAR and an analysis of VIIRS nighttime satellite images.

It must be emphasized that the assessments were and are not meant as a gauge of performance of either the LGUs or DA-BFAR. Rather, they are meant as an indication of IUU fishing risk exposure, as a guide for planning and operational decisions on the fight against IUU fishing, and as a baseline for monitoring progress towards IUU fishing reduction.

Key Findings and Their Implications

The scores derived from I-FIT fall mostly within the 2.00-3.00 range of the I-FIT scale, with the national IUU fishing index, prevalence, vulnerability, and response scores averaging 2.58, 2.51, 2.53, and 2.76, respectively, indicating an overall moderate risk to IUU fishing. This is borne out by participant observation indicating that, in about half of the assessed LGUs, enforcement was fairly strong, and there was a decrease in IUU fishing between the year in review and the year before. The close agreement between the prevalence and vulnerability scores suggests that the prevalence of IUU fishing in a given area is associated with that area's vulnerability (attracting factors) to IUU fishing.

The FMA-level assessment reported an average fishing index score of 2.55 for FMA-8. Prevalence, vulnerability and response scores averaged 2.49, 2.58, and 2.66, respectively, across the 49 LGUs assessed. Key vulnerability factors for FMA-8 included the perceived richness of its fishing grounds, the CFVs' better ability to withstand the rough seas compared to DA-BFAR's enforcement vessels, and the IUU fishers' unscrupulous and aggressive attitude.

With regards to poaching, DA-BFAR apprehension data from 2016 to 2019 show that half of the apprehensions involved vessels with unknown flag states, which means these vessels engaged in both illegal and unregulated fishing. An analysis of nighttime satellite images from April 2012 to July 2021 meanwhile reports an increasing trend in average detection of potential fishing vessels in the West Philippine Sea.

There are five implications from the assessment that are of particular note for future research, policy, and practice on IUU fishing:

1. **The I-FIT results will enable response to be more targeted and purposive to specifically reduce the more immediate and harmful threats, and not simply address what is more visible from shore.** I-FIT has provided greater clarity at a granular level on where the hotspots and what the top fishing threats could be. For example, fishing with fine mesh nets was reported in 74 percent of the assessed LGUs. This suggests that the volume of illegal catch may be composed mainly of juveniles of species that, if left uncaught, can grow to a much larger size as they mature, and thus would be equivalent to a much bigger loss in potential adult catch than its face value would suggest.
2. **A major effective and sustainable effort is needed to encourage and incentivize the registration and licensing of all fishing boats**, both municipal and commercial, in line with what is scientifically sustainable. This view is based on the findings that the largest contributor (by volume) to IUU catch during the period in review was fishing without registration, permits or licenses, and that in areas with weak registration or licensing, there was an increase in illegal fishing, repeat offenders, and related violence compared to the previous year.
3. **DA-BFAR intends to apply I-FIT at FMA scales (including poaching in the exclusive economic zone), while also assisting LGUs nationwide to use the tool regularly to improve compliance.** As well as providing tools for reducing IUU fishing, I-FIT lays out a systematic approach for assessing, monitoring, managing, and communicating IUU fishing risk. The assessment results serve as a baseline and building block for understanding the magnitude of IUU fishing in the Philippines, designing and implementing targeted responses to specific problems in various areas, and tracking progress in reducing those problems.
4. **DA-BFAR will continue to provide national support in areas that are especially vulnerable and difficult for LGUs to manage on their own**. A variety of attracting factors for IUU fishing can be gleaned from the I-FIT data to identify proactive and preventive IUU fishing measures, such as those that promote voluntary compliance and discourage high-risk or non-compliant practices.
5. **There may be possible best practices that can be replicated nationwide to strengthen overall compliance**. While enforcement teams in a majority of LGUs are reported to be on the weaker side, there are good examples to follow with nearly half of the LGUs rated as having fairly strong enforcement teams, and with IUU fishing observed to be decreasing (compared to the year before) in half of the LGUs. BFAR is ready to help LGUs strengthen their compliance efforts.

Brgy Pinamihagan, President Roxas, Capiz (Photo: USAID Fish Right Program

Chapter 1 INTRODUCTION

Why Assess

'Knowing the problem is half the solution' is an adage that applies well to combating illegal, unreported, and unregulated (IUU) fishing. Unfortunately, in the Philippines, there are barriers to gaining the level of understanding needed to effectively prevent, address, and find durable solutions to IUU fishing and its underlying factors. As stated in the Philippine National Plan of Action to Prevent, Deter and Eliminate IUU Fishing (NPOA-IUU, 2013), while "IUU fishing is believed to be widespread in the country, its actual magnitude remains to be quantified." The measures used to track IUU fishing reduction efforts are typically focused on outputs, i.e., the number of patrols, apprehensions, cases filed and settled, etc. – these measures are useful, but they do not show the extent of IUU fishing and its impacts. Other measures such as the use of remote sensing/satellite data (e.g., data from VIIRS boat detection, AIS, and anonymous reports) only provide a partial perspective on IUU fishing occurrence and incidences. The Global IUU Fishing Index developed by the Global Initiative Against Transnational Organized Crime and Poseidon Aquatic Resource Management Ltd.,[1] benchmarks countries, including the Philippines, according to their exposure and response to IUU fishing. While this tool is valuable at a macro level, it evaluates IUU fishing from a whole-country perspective and is meant to be used when dealing with international commitments. More and different detail is needed to inform fisheries management at the levels of the fisheries management area (FMA) and municipality or city. The lack of such detail has hampered efforts to quantify and respond to IUU fishing on the ground.

DA-BFAR IS CONSTANTLY SEEKING SOLUTIONS TO THE STILL SIGNIFICANT GAPS IN THE CURRENT UNDERSTANDING OF IUU FISHING IN THE PHILIPPINES.

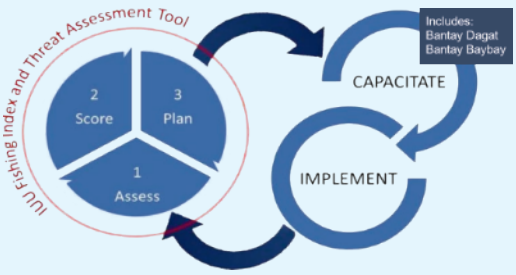
Installation of vessel monitoring system by DA-BFAR in Region 4b (Photo: DA-BFAR Mimaropa)

As part of its continuing commitment to address IUU fishing and its strategic vision on a whole-of-society approach to reducing this destructive practice, the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) is constantly seeking solutions to the still significant knowledge gaps that remain in the current understanding of IUU fishing in the Philippines. In 2020-21, DA-BFAR, the United States Agency for International Development (USAID), and various partners in the field, collaborated through the USAID Fish Right Program with selected municipalities and cities to assess IUU fishing in municipal waters in 9 of the country's 12 FMAs, and in waters beyond local government jurisdiction in FMA-8 (Figure 5). The assessment was intended to demonstrate a standardized measurement of IUU fishing in municipal waters, and how this can be scaled to the FMA and national levels.

It is important to note that this summary report presents a broad view of the assessment results. It is not intended as a review of how well a local government or DA-BFAR is conducting its mandate on IUU fishing, but rather, it is meant to help assess the country's exposure to IUU fishing, to inform planning and operational

[1] Macfadyen G and Hosch G. 2021. The IUU Fishing Index, 2021. Poseidon Aquatic Resource Management Limited and the Global Initiative Against Transnational Organized Crime. 126pp. https://globalinitiative.net/wp-content/uploads/2021/12/IUU-Report-2021.pdf

decisions on the frontlines of fighting this complex, dynamic, and multifaceted problem, and to serve as a baseline for monitoring progress.



I-FIT is a collection of tools that provides relevant, measurable and Philippine-specific indicators to assess the prevalence of IUU fishing in a given area, that area's vulnerability to IUU fishing, and government's response to the problem. In its current form, the tool is designed for use in municipal waters, but efforts are underway to expand its applicability to the FMA and national levels. It has three components: (1) IUU Fishing Assessment Guide; (2) IUU Fishing Index; and (3) IUU Fishing Reduction Planning Guide.

How the Assessment Was Done

Local-level assessment

Fish Right and DA-BFAR, through the Marine Environment and Resources Foundation, developed the Philippine IUU Fishing Index and Threat Assessment Tool – I-FIT – based on the Global IUU Fishing Index's prevalence-vulnerability-response framework. A series of 54 IUU fishing assessment workshops, led and facilitated by DA-BFAR and its partners, were conducted from April 2020 to December 2021. The assessments used I-FIT to answer three key questions about the IUU fishing situation in a given area the year before (January to December):

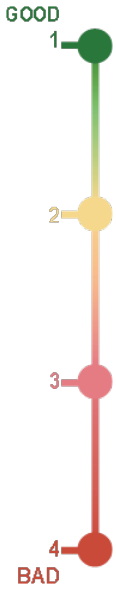
- How big of a threat was IUU fishing (in the given area) in January to December of the past year? (Prevalence)
- Why was IUU fishing occurring? (Vulnerability)
- What was being done to address IUU fishing? (Response)

Participants, aided by facilitators, delved into understanding the IUU fishing that was happening in their area by assessing its prevalence and their vulnerability and response to the problem, based on a set of standardized indicators and the 4-point I-FIT rating scale, with 1 being good and 4 being bad (Table 1).[2] The current I-FIT indicators emphasize illegal fishing activities, although cases of not reporting when required by law (unreported fishing) and inadequate regulations (unregulated fishing) are also assessed (e.g., R3 below).

Table 1. Standardized indicators and rating scale for IUU fishing prevalence, vulnerability, response, and risk assessment in the Philippines

PREVALENCE	
P1. Monthly presence of illegal fishing activities in the municipality during the past year	P6. Trend in illegal fishing incidence
P2. Illegal fishing incidence from remote sensing	P7. Presence of repeat offenders
P3. Number of apprehended violators relative to patrolling effort in seaborne operations	P8. Amount of fish caught through illegal fishing
P4. Regular monitoring or reporting of fish catches	P9. Risk of coastal habitat damage due to illegal fishing
P5. Registration and regulation of fishers and fishing vessels	P10. Violence due to illegal fishing
VULNERABILITY	
V1. Fisheries resource availability and coastal habitat quality	V5. Weather and ocean condition impacts on seaborne interventions
V2. Ex-vessel selling price of species commonly targeted by illegal fishers	V6. LGU budget allocation for fisheries and CRM
V3. Overcapacity of fisheries	V7. Clear boundaries and jurisdiction for enforcement
V4. Physical configuration of shoreline and islands	V8. Illegal fishers supported by third-party influential people or groups
RESPONSE	
R1. Enforcement team fully operational	R4. Systematic data collection on IUU fishing used proactively to inform IUU fishing reduction strategies
R2. Targeted and purposive information, education, and communication to increase compliance	
R3. LGU compliance to national fisheries laws	R5. IUU Fishing Reduction Plan

I-FIT RATING SCALE



[2] The quality of the data on which ratings were based were also scored but are not discussed in this report. It will be important to also improve the quality of the data basis as the tool is repeatedly used in a site.

IUU fishing assessment workshop, Tacloban City (Photo: USAID Fish Right Program)

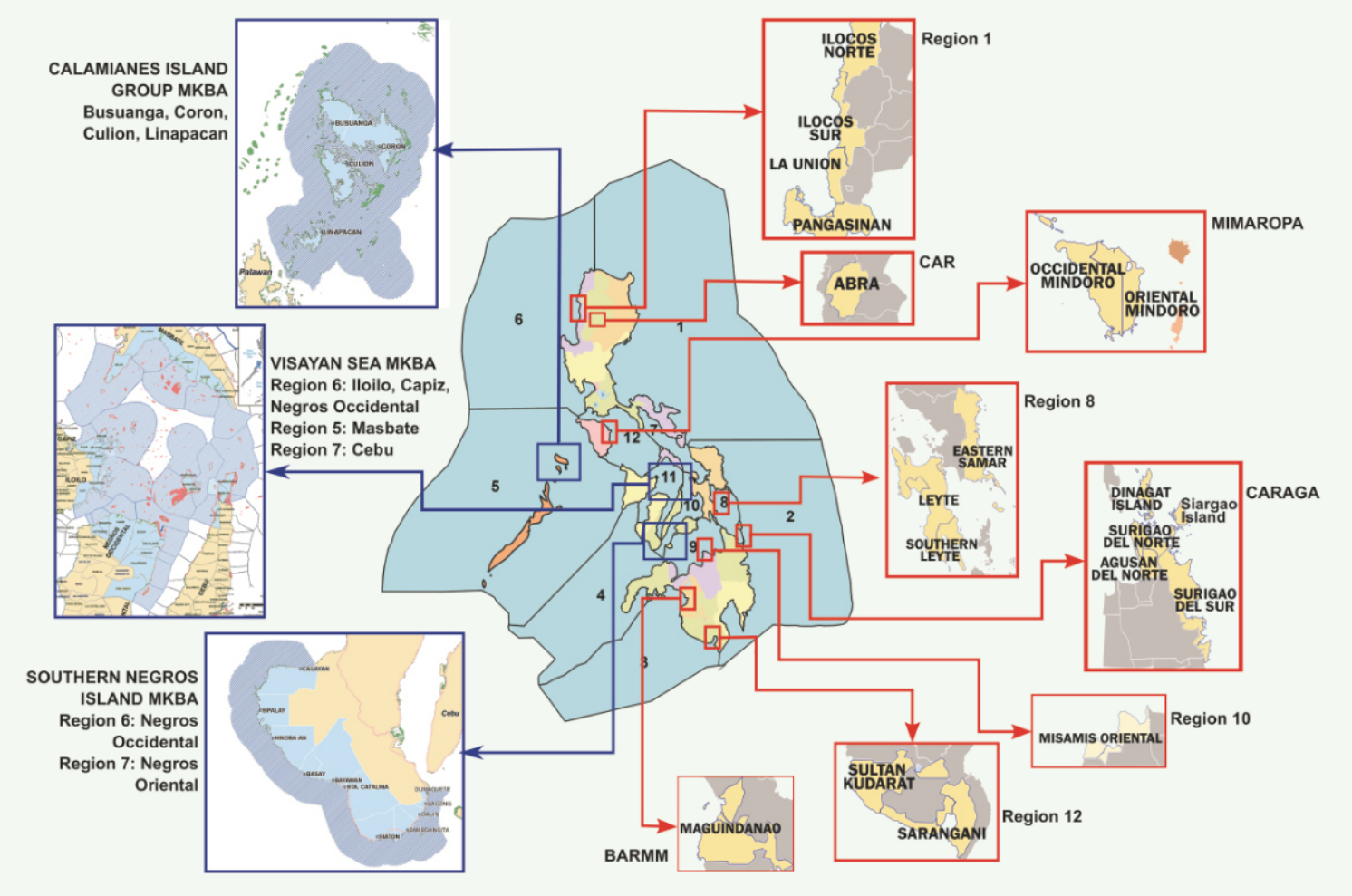


Figure 1. Areas covered by the 2021 Philippine IUU fishing assessment (blue boxes refer to sites that used the prototype I-FIT version 0)

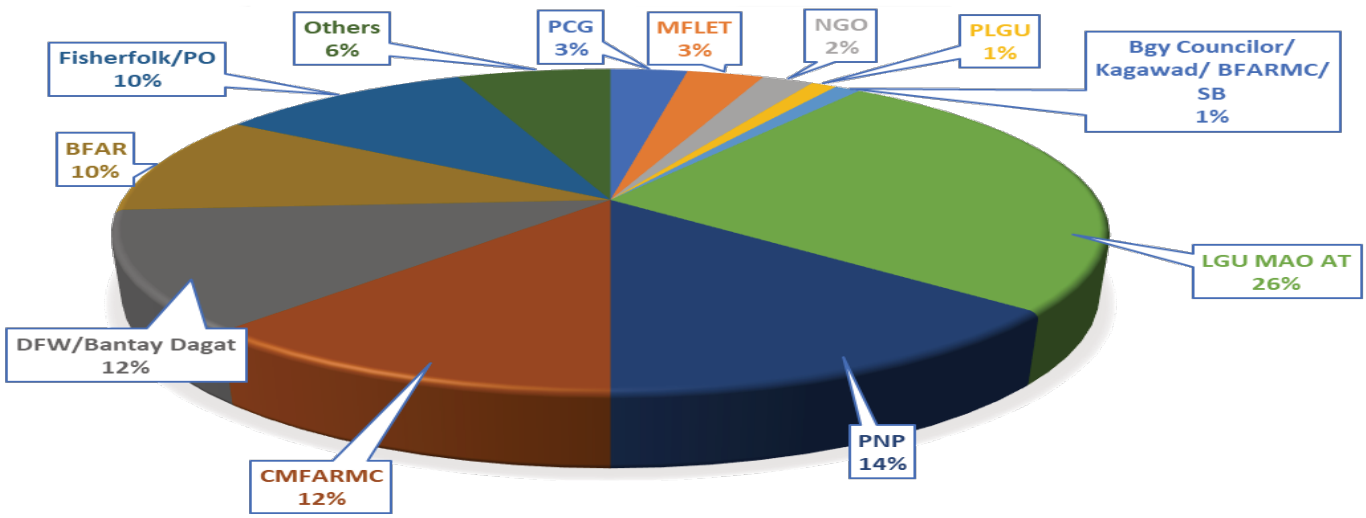


Figure 2. Participant distribution by stakeholder sector

Altogether across the workshop series, 160 municipalities and cities in nine of the Philippines' 12 FMAs were represented (about 17 percent of the 917 municipalities and cities[3] in the 12 FMAs). This included 25 municipalities and cities in the Fish Right sites (Figure 1) that were assessed using a prototype version (ver. 0) of I-FIT. A total of 777 participants from various stakeholder groups attended. (Figure 2)

The scores given by participants to their local government unit (LGU) were averaged to form that LGU's score for a given indicator. Thereafter, the indicator scores were integrated into a composite IUU fishing index score representing the risk of IUU fishing occurring and persisting in a given area.

For this report, the municipal scores of the various I-FIT indicators were averaged and depicted as shown in Figure 3.

Figure 3. Rating scale used to report IUU fishing prevalence, vulnerability, response, and risk

THE IUU FISHING INDEX SCORE IS NOT A MEASURE OF LGU PERFORMANCE BUT A TOOL TO ASSESS THE STATUS OF IUU FISHING UNDER LGU JURISDICTION.

Beach seine boat and crew (Photo: DAI-MERF)

It must be emphasized that the IUU fishing index score is not a measure of LGU performance but a tool to assess the status of IUU fishing under LGU jurisdiction, and an indication of whether IUU fishing reduction efforts are on track to achieve their goals.

FMA-level and poaching assessments

The current version of I-FIT focuses more on factors affecting IUU fishing threats within municipal waters, but it also provided a framework for an initial assessment of IUU fishing at the FMA level in FMA-8. The FMA-level assessment was proactively requested by DA-BFAR's regional offices in Regions 8 and 13 that are jointly responsible for FMA-8. The initial assessment was conducted by the DA-BFAR Central Office and DA-BFAR 8 and 13, primarily through their Fisheries Protection and Law Enforcement Groups (FPLEGs). It used available data within DA-BFAR and data obtained from information gathering and community reports, combined with the results of the IUU fishing assessment workshops for the LGUs of FMA-8. The assessment focused on understanding the prevalence of IUU fishing committed in 2020 by domestic commercial fishing vessels (CFVs) within FMA-8, looking specifically at the compliance rates of CFVs with valid and active licenses, and violations by unlicensed CFVs from DA-BFAR's apprehension records and observed/reported violations by CFVs.

In addition, an assessment of poaching by foreign-flagged vessels in Philippine waters was done based on apprehension data from DA-BFAR and an analysis of nighttime satellite images by Geronimo (2021).

This work feeds into the ongoing refinement and inclusion of FMA-level indicators in the I-FIT tool. It can also guide the internal processes by which DA-BFAR collects data and helps enable the proper measurement of the extent and magnitude of IUU fishing in the Philippines.

What This Report Contains

This report summarizes the key findings of the assessment (Chapter 2) and their implications for the effort to reduce IUU fishing in the Philippines (Chapter 3).

[3] This number may change as DA-BFAR continues to validate the boundaries of the FMAs.

Uba, Surigao del Sur

Chapter 2
KEY FINDINGS

IUU Fishing in Municipal Waters

Overall I-FIT scores

In terms of their risk to IUU fishing, the majority of the 160 LGUs covered by this report score within the 2.00-3.00 range. Eight LGUs score below 2.00 (good), and two LGUs within 3.50-4.00 (bad). Extrapolated to FMA scale, most scores fall within the median range of the I-FIT rating scale. At the national level, all scores are at the median range of the scale, with the national IUU fishing risk score at 2.58, the prevalence score at 2.51, vulnerability score at 2.53, and response score just slightly above mid-range at 2.76. It must be noted that not all FMAs are represented and there are differences between the FMAs in the number of assessed LGUs, so the FMAs are not equally weighted. FMAs 8, 9, and 11, in particular, account for almost 70 percent of the assessed LGUs and thus heavily influence the national figures presented here. (Figure 4)

THESE RESULTS PROVIDE AN OPPORTUNITY FOR LGUs, TOGETHER WITH STAKEHOLDERS, TO EFFECTIVELY DETERMINE AND IMPLEMENT RESPONSES TO IDENTIFIED RISKS AND VULNERABILITIES.

IUU fishing assessment workshop (Photo: USAID Fish Right Program)

In general, the prevalence scores closely approximate the vulnerability scores, suggesting that the prevalence of IUU fishing in municipal waters is associated with these areas' vulnerability (attracting factors) to IUU fishing. These results provide an opportunity for LGUs, together with stakeholders, to effectively determine and implement responses to identified risks and vulnerabilities.

The story behind the numbers

PREVALENCE: HOW BIG IS THE IUU FISHING THREAT IN MUNICIPAL WATERS?

In regard specifically to IUU fishing prevalence during the period in review, the assessment reveals that:

1. IUU fishing threats are seen to vary across the LGUs, with clusters of LGUs facing different threats. What seems to be common to most LGUs are those forms of IUU fishing that constitute multiple violations of the amended Philippine Fisheries Code. This includes the use of active fishing gear in municipal waters, or illegal use of fine mesh nets. Fishing with fine mesh nets appears to be the most common IUU fishing practice during the years in review (reported in 74 percent of assessed LGUs).
2. Based on participants' estimates, annual catches of IUU fishing in the municipal waters of the assessed LGUs during the year reviewed was about 113,000 tons, valued at around Php5.6 billion at a conservative price of Php50/kg.
3. By far the largest volume of IUU catch is said to come from 'fishing without permit' (more than 100,000 tons). This is believed to include catches of commercial fishing in municipal waters (which was explicitly reported by 82 of 160 assessed LGUs[4]) and other forms of IUU fishing.

[4] This finding is supported by nighttime satellite images (2020), which indicate the presence of commercial light fishing (a subset of commercial fishing methods) in the municipal waters of 128 (80 percent) of the 160 LGUs covered by this report, and in 686 (about 75 percent) of the 917 municipalities and cities in the 12 FMAs.

I-FIT SCORES BY FMA

FMA	2	4	5	6	8	9	10	11	12	NAT'L
Prevalence	2.57	2.39	2.45	2.27	2.49	2.35	2.50	2.75	2.58	2.51
Vulnerability	2.49	2.60	2.79	2.50	2.58	2.33	2.30	2.53	2.87	2.53
Response	2.80	3.17	3.11	2.60	2.66	2.72	3.40	2.98	2.08	2.76
IUU Fishing Index	2.59	2.74	2.75	2.42	2.55	2.42	2.75	2.76	2.57	2.58

NUMBER OF ASSESSED LGUs BY FMA
RELATIVE TO TOTAL NUMBER OF LGUs

FMA	1	2	3	4	5	6	7	8	9	10	11	12	Total
LGUs assessed	0	15	0	7	9	2	0	47	37	4	26	13	160
Total LGUs in FMA	103	80	64	85	50	123	84	51	106	83	90	85	1004
Unique count* of LGUs across the 12 FMAs													1004

* 84 LGUs that span two or three FMAs are counted more than once in the total of 1004 in Row 2.

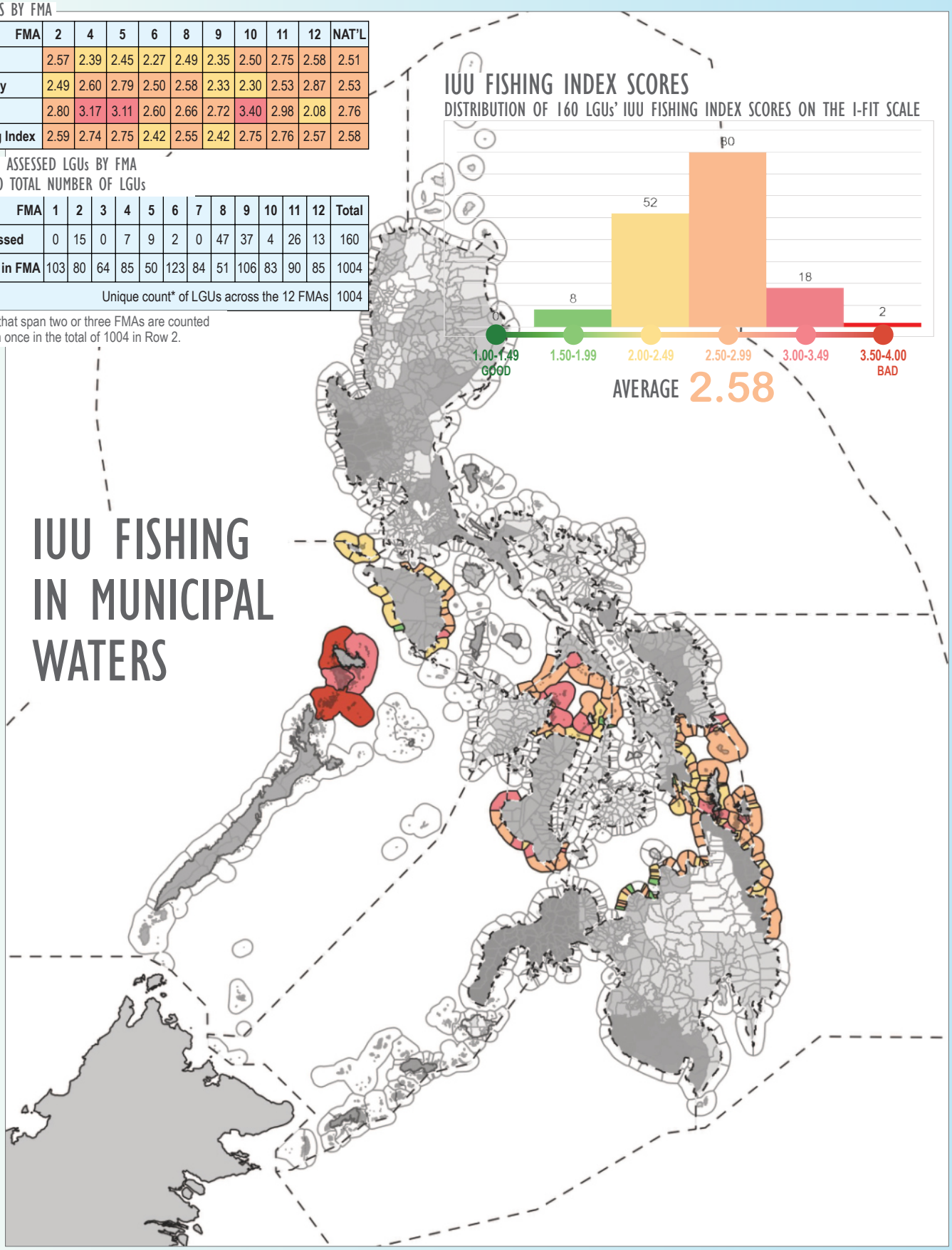
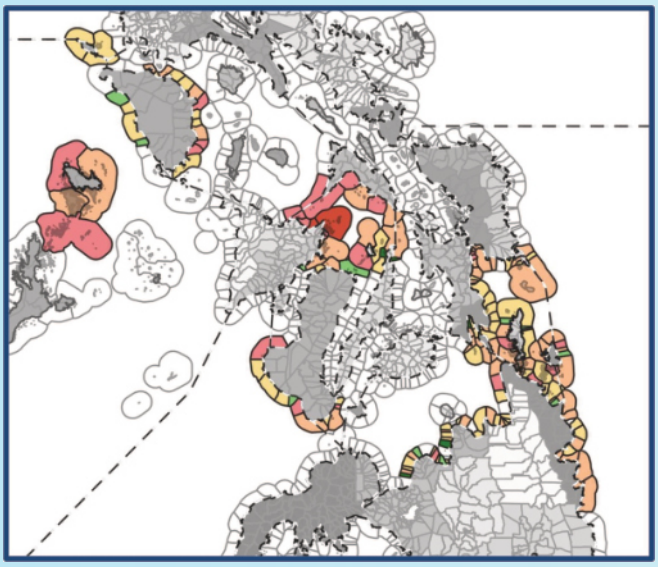
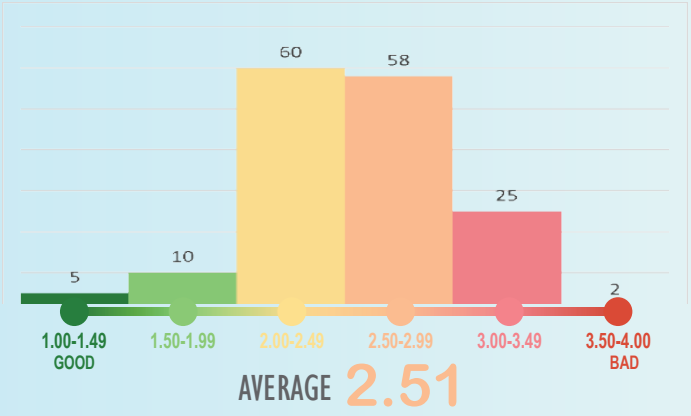


Figure 4. I-FIT scores of the 160 assessed LGUs

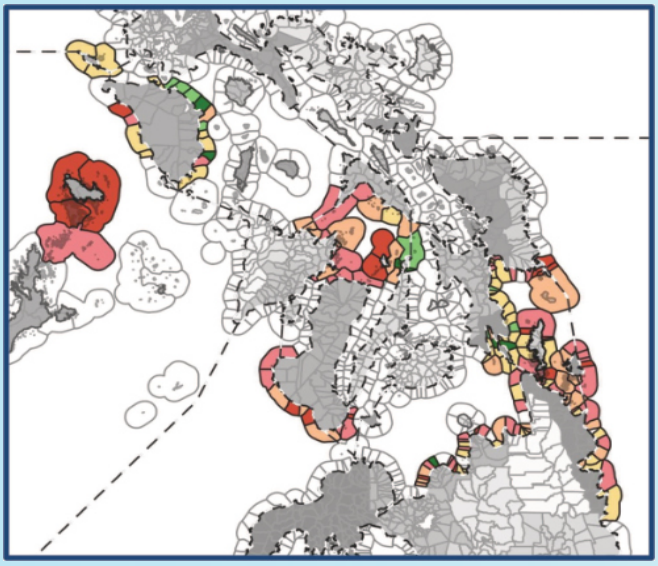


PREVALENCE SCORES

DISTRIBUTION OF 160 LGUs' PREVALENCE SCORES ON THE I-FIT SCALE

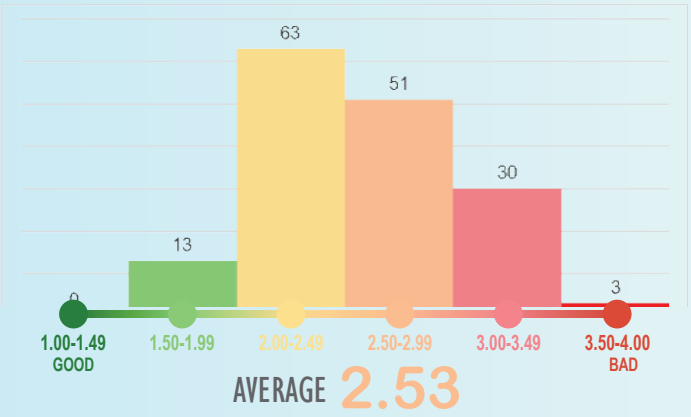


AVERAGE 2.51



VULNERABILITY SCORES

DISTRIBUTION OF 160 LGUs' VULNERABILITY SCORES ON THE I-FIT SCALE



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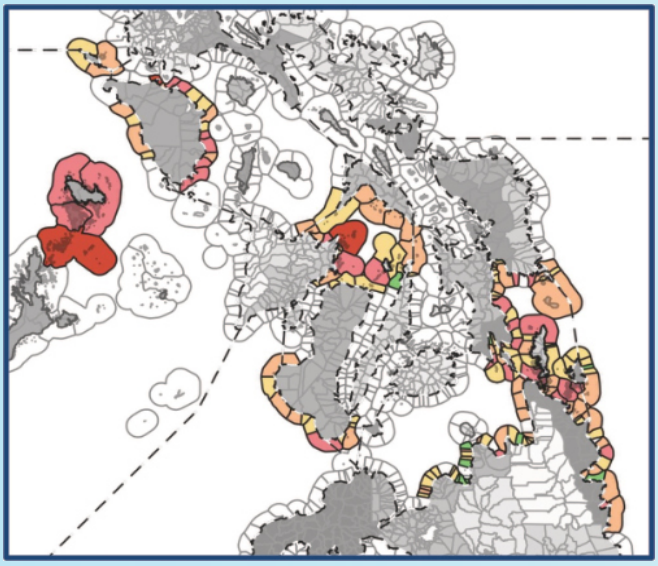
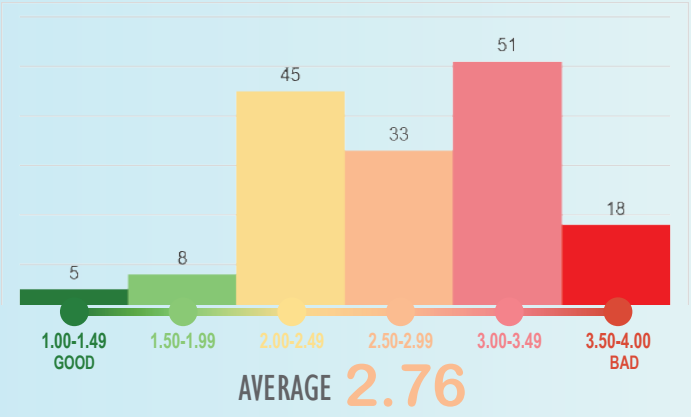
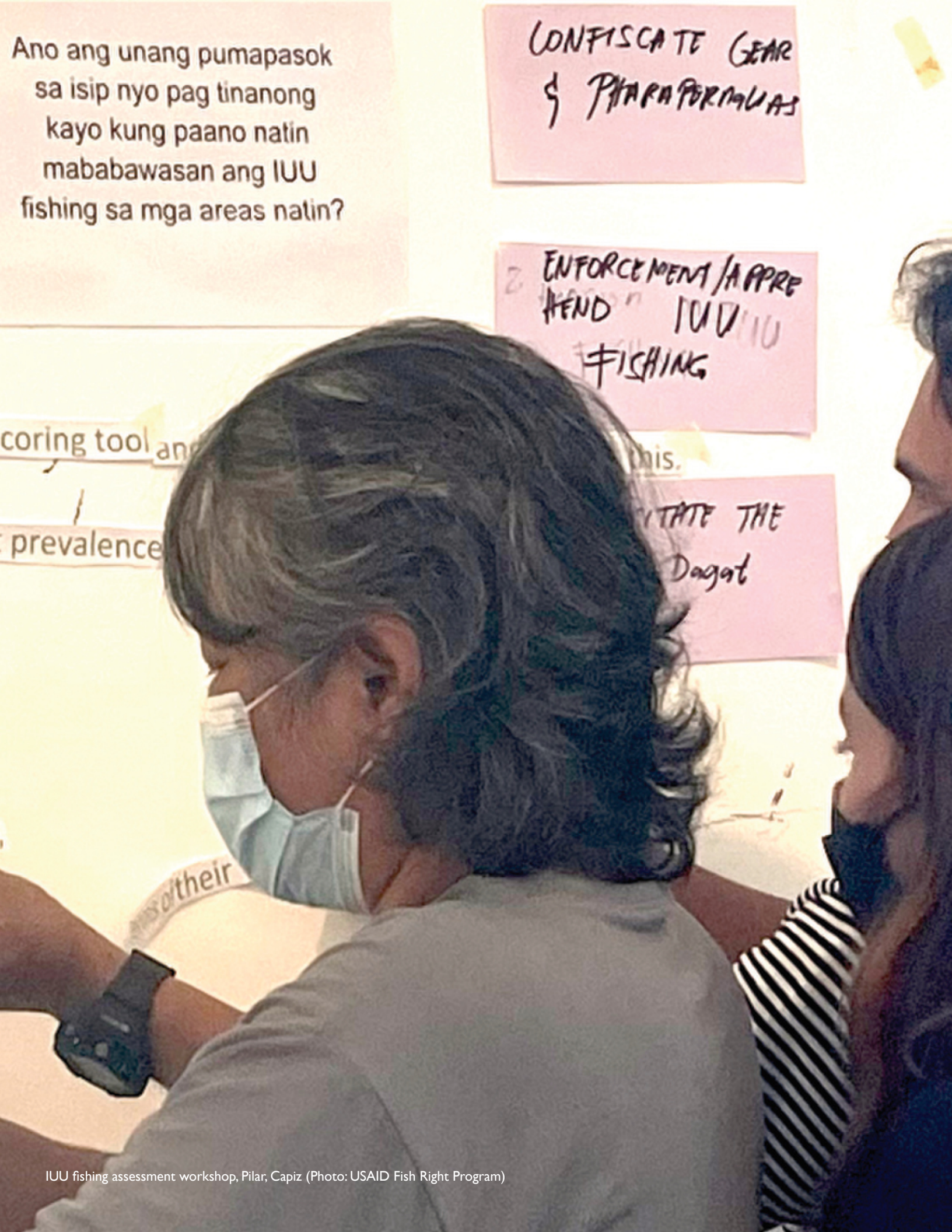


RESPONSE SCORES

DISTRIBUTION OF 160 LGUs' RESPONSE SCORES ON THE I-FIT SCALE



AVERAGE 2.76



IUU fishing assessment workshop, Pilar, Capiz (Photo: USAID Fish Right Program)

3. Notwithstanding the reported magnitude of IUU fishing within municipal waters, IUU fishing in 52 percent of the LGUs is said to be on a downward trend from the previous year, and only 14 percent of the LGUs are reported to show an increasing trend of IUU fishing in their waters.
4. Participants assessing the prevalence of IUU fishing threats in their municipal waters not only looked at the common type of IUU fishing by volume, by value, and by number of incidents based on observations and remote sensing, but they also examined factors such as apprehensions relative to patrolling effort, catch reporting, fisher and fishing boat registration, trends in illegal fishing incidents, presence of repeat offenders, risk of coastal habitat damage, and violence due to illegal fishing. Together, indicators P1-P10, which were used for rating the LGUs on the 1-to-4 I-FIT scale, make up the respective LGUs' standardized prevalence scores.
5. Maximum ratings (i.e., 4) are the most common responses for the following five prevalence indicators:
    a. P1. Monthly presence of illegal fishing activities in the municipality in a year Illegal activities were observed more than three months (25 percent) of the year in review in the average barangay in a large majority of the LGUs (99/135).
    b. P3. Number of apprehended violators relative to patrolling effort in seaborne operations Greater than 25 percent of seaborne operations resulted in apprehensions in 57 of 135 LGUs.
    c. P4. Regular monitoring or reporting of fish catches Either no mechanisms existed for monitoring catch or less than 25 percent of fish catches were being monitored in 77 of 135 LGUs.
    d. P7. Presence of repeat offenders Repeat offenders were being apprehended in 94 of 160 LGUs.
    e. P9. Risk of coastal habitat damage due to illegal fishing Greater than 50 percent of illegal activities were also habitat-damaging in 93 of 135 LGUs.
6. Ratings are generally lower for the following five indicators:
    a. P2. Illegal fishing incidence from remote sensing Less than 10 VIIRS night lights of more than 10 nanowatts/m^2 were observed in 2020 in 136 of 160 LGUs.
    b. P5. Registration and regulation of fishers and fishing vessels Between 51 percent and 90 percent of fishers and fishing vessels were registered in 57 of 135 LGUs during the period reviewed.
    c. P6. Trend in illegal fishing incidence Most illegal activities were reported to have decreased in 82 of 160 LGUs between the year in review and the previous year.
    d. P8. Amount of fish caught through illegal fishing Illegal activities are said to have caught less than 0.25 tons/km^2 of water in 77 of 160 LGUs.
    e. P10. Violence due to illegal fishing The threat of physical violence existed in 62 of 135 LGUs, but no physical harm due to illegal fishing conflicts were reported in these LGUs.

VULNERABILITY: WHY IS IUU FISHING STILL OCCURRING IN OUR MUNICIPAL WATERS?

Key findings related to vulnerability include:

1. Illegal fishing appears to trend upward in areas where there is poor registration and licensing.
2. Commercial fishing intrusion is more commonly reported in areas that have complex physical configurations of many islands and where rough weather and ocean conditions make seaborne operations difficult.
3. The main results for the eight vulnerability indicators (V1-V8) are as follows:
    a. V1. Fisheries resource availability and coastal habitat quality Participant responses from 57 of 135 LGUs indicate that perceptions of thriving MPAs and fishing grounds and presence of commercially important species are major attracting factors for IUU fishing. (Meanwhile, scientific assessments point to widespread overfishing in the Philippines.[5])

[5] Santos, MD, NC Barut and AD Bayate (editors). 2017. National Stock Assessment Program: The Philippine Capture Fisheries Atlas. Bureau of Fisheries and Aquatic Resources - National Fisheries Research and Development Institute. Quezon City, Philippines. 220 pages; Expert overviews at the 2021 Comprehensive National Fisheries Industry Development Plan Updating Consultations

b. V2. Ex-vessel selling price of species commonly targeted by illegal fishers Increasing demand, evidenced by a more than 10-percent increase in fish prices during the period reviewed, is thought to be an important vulnerability factor in 56 of 135 LGUs.

c. V3. Overcapacity of fisheries A density of 31-70 fishers/km of coastline is reported in 48 of 135 LGUs.

d. V4. Physical configuration of shoreline and islands 'Simple coastlines' and 'mainland with islands' are seen, respectively, as vulnerability factors for 71 and 52 LGUs (out of 160 LGUs).

e. V5. Weather and ocean condition impacts on seaborne interventions Weather and ocean conditions generally do not preclude seaborne operations, with less than five percent of operations said to have been canceled due to weather in 53 of 135 LGUs during the years in review.

f. V6. LGU budget allocation for fisheries and CRM LGU budgets for fisheries and coastal management were around the range of Php1,000-49,000/year/km^2 of municipal water in 66 of 135 LGUs, with budgets generally higher in the LGUs of FMA-11, and generally lower in the LGUs of FMA-5 and FMA-12.

g. V7. Clear boundaries and jurisdiction for enforcement Municipal water boundaries have been officially delineated in 69 of 160 LGUs.

h. V8. Illegal fishers supported by third-party influential people or groups Participant responses from 81 of 135 LGUs indicate no interventions by influential persons or groups in the release of illegal fishers in 2020, while responses from the remaining 54 LGUs show at least one such intervention in the same year.

2. Based on participant responses from 121 LGUs, three factors emerged, following a problem tree analysis, as the top perceived causes of increased risk of IUU fishing in a given area: (1) poverty and/or inadequate sources of income, (2) weak enforcement, and (3) lack of information on fishery regulations, fisheries, and coastal resources.
3. The top vulnerability indicators reveal both biophysical factors (e.g., presence of fishing grounds, weather conditions, length of coastline) and resource management factors (e.g., delineation of municipal waters, budget for fisheries and coastal management). These can provide LGUs with important insights related to creating site-specific and appropriate responses and management measures.
4. The results from the problem tree analysis support the notion of IUU fishing being a highly complex problem that must be viewed as a result or symptom caused by other factors, including sociopolitical, economic, and cultural factors. Furthermore, they show that IUU fishing is a multidimensional problem, and that its reduction will require the cooperation and active participation of various institutions and stakeholders not directly involved in fisheries.

RESPONSE: WHAT IS BEING DONE TO ADDRESS IUU FISHING IN MUNICIPAL WATERS?

Many LGUs are acting in response to IUU fishing in their municipal waters, but based on their I-FIT ratings, most still lack strong mechanisms for ensuring compliance with fisheries regulations. Some key findings based on information provided by participants are summarized below:

1. The key results for the five response indicators (R1-R5) are as follows:

   a. R1. Enforcement team fully operational Although reportedly present in 127 LGUs, fisheries enforcement teams are rated 'weak' in 64 LGUs, and 'moderate' in 59 others.

   b. R2. Targeted and purposive information, education, and communication to increase compliance About a third (48) of the LGUs are observed to not conduct regular information, education, and communication (IEC) drives on IUU fishing, while roughly the same number (44) are reported to have IEC campaigns that focus on the broader topics of compliance and not simply on fisheries regulations.

Fisheries law enforcement training for judges and prosecutors, Tacloban City (Photo: USAID Fish Right Program)

a. R3. LGU COMPLIANCE TO NATIONAL FISHERIES LAWS More than half of the assessed LGUs are reported to have either a low fisheries compliance audit (FCA) score of 25 percent or less, or no FCA at all, for the reporting period.

b. R4. SYSTEMATIC DATA COLLECTION ON IUU FISHING USED PROACTIVELY TO INFORM IUU FISHING REDUCTION STRATEGIES The two most cited sources of IUU fishing data are law enforcement operations and community observations. About a third (49) of the LGUs are purported to have no systematic data collection, archiving, or analysis.

c. R5. IUU FISHING REDUCTION PLAN Most of the LGUs are reported to have no IUU fishing reduction plan, or have an enforcement plan or strategy only. Among LGUs that are said to have an IUU fishing reduction plan, only 28 have a plan that is being implemented.

2. Overall, the most reported IUU fishing responses are financial and livelihood assistance for fishers, issuance of municipal ordinances, consultations and dialogues with stakeholders, sea patrols, establishment of Bantay Dagat, and fisheries registration. As expected, these interventions are all seen to address many of the top perceived causes of IUU fishing, with financial and livelihood assistance being particularly prominent.

A broader view of IUU fishing in municipal waters: Consolidating LGU scores by FMA

Combining the LGU scores by FMA reveals some interesting variations of LGUs between FMAs in terms of how participants rated their LGUs on the different I-FIT indicators. The results are outlined below:

1. In terms of the monthly presence of illegal fishing in municipal waters, participants from FMA-2 and FMA-12 assessed their LGUs to be worse off than those in the other FMAs.
2. Ratings for fish catch monitoring are generally low, except for the LGUs of FMA-5 and FMA-12.
3. There are wide variations between estimates of IUU fish catch volumes across the FMAs that may be due to reporting bias, but they may also reflect the heterogeneity of the FMAs.
4. Participants from two LGUs in FMA-6 believed the physical configuration of their shoreline and islands are attracting factors for illegal fishing, while those from FMA-4, FMA-9, and FMA-10 said otherwise.
5. LGUs in FMA-4 and FMA-12 are rated relatively high on compliance with national fisheries laws, while those in FMA-4 and FMA-10 have low average ratings for their implementation of 'soft approaches' to fisheries law enforcement, and for not having an IUU fishing reduction plan and a systematic collection of IUU fishing data to inform planning.

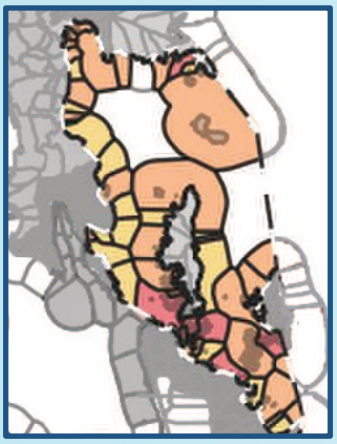
IUU Fishing in FMA-8: An Initial Assessment

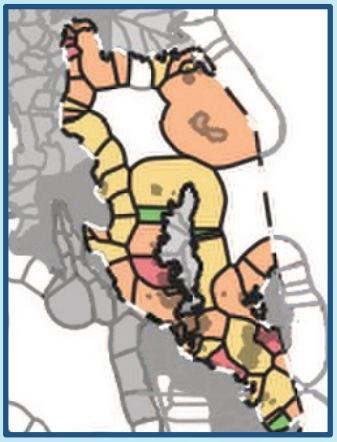
Overall findings

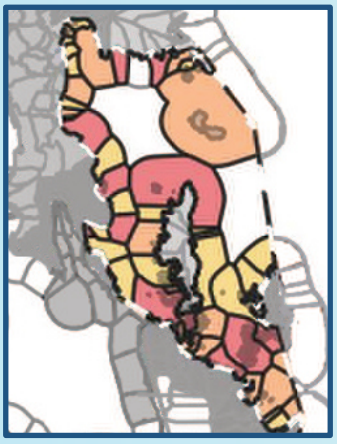
In total, 49 out of the 51 LGUs of FMA-8 were assessed, resulting in an average IUU fishing index score of 2.55, with the highest score at 2.3 and the lowest at 1.3. A majority of the LGUs' overall scores are in the I-FIT scale categories of 2.50-2.99 (23/47 or 49 percent) and 2.00-2.49 (18/47 or 38 percent). Prevalence, vulnerability and response scores average 2.49, 2.58 and 2.66, respectively, across the 49 LGUs. (Figure 5)

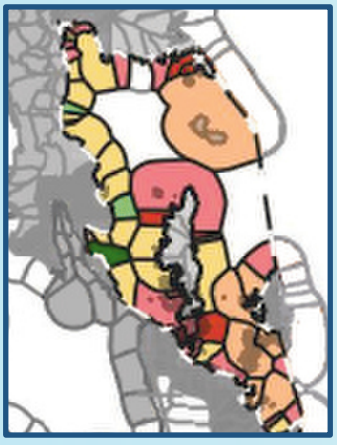
It is estimated that approximately 3,170 tons are illegally caught annually by commercial fishing vessels (CFVs) in FMA-8 both in and outside municipal waters, while within municipal waters alone, 2,155 tons are illegally caught in total by both municipal and commercial fishers. These estimates come from combining the results of the initial assessment by DA-BFAR 8 and DA-BFAR 13 of IUU fishing by CFVs in FMA-8 (including areas beyond the LGUs' jurisdiction) with those from the I-FIT assessments done by participants from the 49 LGUs in FMA-8. The perceived richness of FMA-8 fishing grounds, better ability of CFVs to withstand the rough seas compared to

IUU FISHING IN THE MUNICIPAL WATERS OF FMA-8



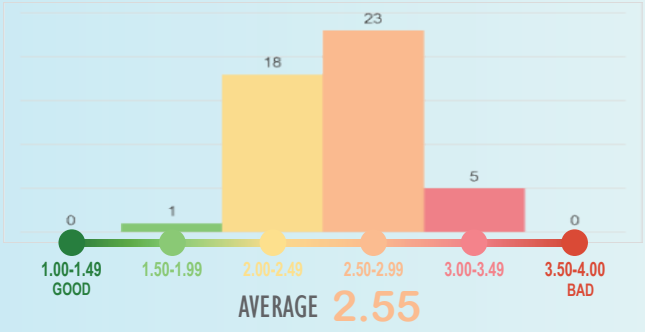






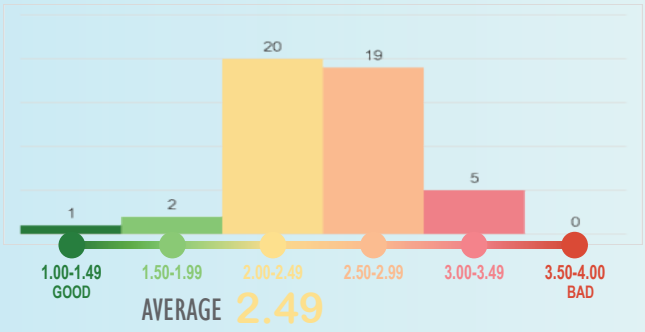
IUU FISHING INDEX SCORES

DISTRIBUTION OF 49 FMA-8 LGUs' IUU FISHING INDEX SCORES ON THE I-FIT SCALE



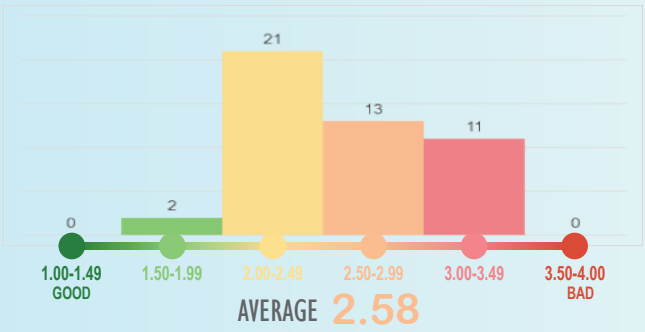
PREVALENCE SCORES

DISTRIBUTION OF 49 FMA-8 LGUs' PREVALENCE SCORES ON THE I-FIT SCALE



VULNERABILITY SCORES

DISTRIBUTION OF 49 FMA-8 LGUs' VULNERABILITY SCORES ON THE I-FIT SCALE



RESPONSE SCORES

DISTRIBUTION OF 49 FMA-8 LGUs' RESPONSE SCORES ON THE I-FIT SCALE

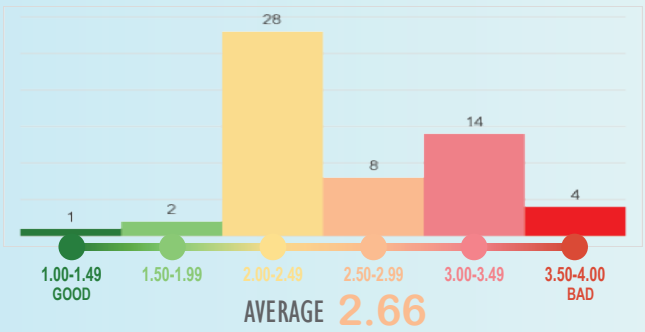


Figure 5. I-FIT scores of 49 LGUs in FMA-8

DA-BFAR's enforcement vessels, and the IUU fishers' unscrupulous and aggressive attitude are cited as vulnerability factors for FMA-8. Responses to IUU fishing are focused on seaborne operations, roadside inspections, and installation of vessel monitoring systems (VMS).

The story behind the numbers

PREVALENCE: HOW BIG OF A THREAT IS IUU FISHING IN FMA-8?

IUU fishing activities that are reported to be happening in the LGUs of FMA-8 are mostly situated in the shallow waters and in coastal marine habitats such as coral reefs, seagrass beds, and mangrove forests. IUU fishing by CFVs, on the other hand, target mostly pelagic fish species, except for the modified Danish seine (MDS), which catches both pelagic and demersal species. CFV catch is composed mainly of commercially important food fish. In municipal waters, aside from food fish, live fish (for aquarium and ornamental use), corals, and rocks, were also reported to be illegally harvested. The most widespread reported violations in the municipal waters of FMA-8 include 'boso' (compressor fishing), fishing with poisonous or noxious substances (e.g., 'lagtang'), and encroachment in municipal waters or marine protected areas, according to the LGUs that reported their occurrence. Among CFVs, the top violations in FMA-8 include unlicensed fishing (using MDS), unauthorized fishing in municipal waters, and the use of active gear in municipal waters and bays, including ring nets, trawls, and MDS. The threat of MDS remains persistent in FMA-8.

IUU fishing in FMA-8 is reported to be done primarily by local resident fishers for both municipal and commercial fishing. Consistent with other information indicating that FMA-8 has many productive fishing grounds and habitats, this shows that most resident IUU fishers in FMA-8 do not see the need to go to other areas to fish.

Total fish catch from IUU Fishing in FMA-8. In 2020, an estimated total of 2,155,237kg of fish valued at approximately Php107,761,850 (at Php50/kg) were caught through IUU fishing in the municipal waters of FMA-8, while the estimated total potential fish catch from IUU fishing by CFVs is about 3,170,335kg valued at Php348,704,173 (at Php106-116/kg). Note, however, that there may be overlap between these estimates.

Using catch per unit effort as a reference, the potential fish catch from IUU fishing by licensed CFVs is estimated at 594,264kg, with an approximate potential value of Php64,706,010. Potential IUU fishing yield from unlicensed CFVs, on the other hand, is estimated at 2,575,027kg.

Other unreported violations by commercial fishers, whether licensed or unlicensed, may not have been detected, documented, or reported, so these initial estimates may be an underestimation of actual values, especially for the commercial fishing sector.

Table 2. Summary of IUU fishing in FMA-8 by estimated volume and value of potential fish catch (2020)

IUU FISHING in 2020 in FMA-8	Estimated Potential Fish Catch from IUU Fishing	
	by Volume (in kg)	by Value* (in Php)
in municipal waters (49 out of 51 LGUs)	2,155,237	107,761,850
by CFVS (using CPUE/NSAP Data)	3,170,335	348,704,173
Licensed CFVs	594,264	64,706,010
based on apprehended violations	25,668	2,720,884
based on observed/reported violations	568,596	61,985,126
Unlicensed CFVs	2,575,027	291,377,663
based on apprehended violations	78,794	7,385,290
based on observed/reported violations	2,497,277	283,998,163

* For the estimated IUU fish catch from IUU fishing in municipal waters, price is pegged at the conservative Php50/kg. For estimated potential fish catch from IUU fishing by CFVs, price is pegged at Php106 to Php116/kg, based on average monitored prices of fish catch by gear.

One of two trawlers apprehended on January 27, 2022 by FPLEG-8 in the municipal waters of Calbayog, Samar in FMA-8 (Photo: DA-BFAR-8)

VULNERABILITY: WHY IS IUU FISHING STILL OCCURRING IN FMA-8?

The presence of commercially important fish and productive marine habitats was identified to be a significant factor for attracting the operation of IUU fishing activities in both municipal and commercial waters. FMA-8 has many known fishing grounds and highly productive coastal ecosystems, making it particularly vulnerable to IUU fishing.

The total area of the municipal waters of each LGU is a major factor in the prevalence of IUU fishing in municipal waters as it directly relates to the LGU's capacity for monitoring, control, and surveillance, and for allocating resources to maintaining these activities. Farther offshore, outside municipal waters, weather and sea conditions are also major factors that contribute to the persistence of IUU fishing because they can hinder seaborne operations by law enforcers.

RESPONSE: WHAT IS BEING DONE TO ADDRESS IUU FISHING IN FMA-8?

All levels of government from national to local are working to combat IUU fishing in FMA-8. LGUs have identified and implemented numerous activities and programs to address IUU fishing in their localities. Currently, there are ongoing programs that aim to increase the capability of DA-BFAR to monitor CFV activities and the reporting of fish catch. Improvements in the responses of DA-BFAR and other government agencies to IUU fishing may include installing VMS in more CFVs, increasing compliance and accuracy in catch reporting, improving coordination between DA-BFAR regional fisheries offices, and intensifying effort in law enforcement other than seaborne operations.

Poaching in Philippine Waters: A Snapshot

An analysis of apprehension data from DA-BFAR and nighttime satellite images provides the following picture of foreign-fleet poaching in Region 1, Region 2, Region 4B, ARMM and the West Philippine Sea (WPS):

1. DA-BFAR apprehension data from 2016 to 2019 show that in half of the apprehensions, the flag state of the vessels was unknown, making these vessels not only illegal but unregulated fishers.
2. Based on the type of violations on record, the fishing practices employed by poachers endanger the structure and function of coral reefs and other marine habitats.
3. VIIRS nighttime satellite images from April 2012 to July 2021 show an increasing trend in average detection of potential fishing vessels using lights throughout the entire South China Sea. A comparison of the images shows a stark contrast between 2013 and 2020, with a sharp increase over the years. (Figure 6)[6]

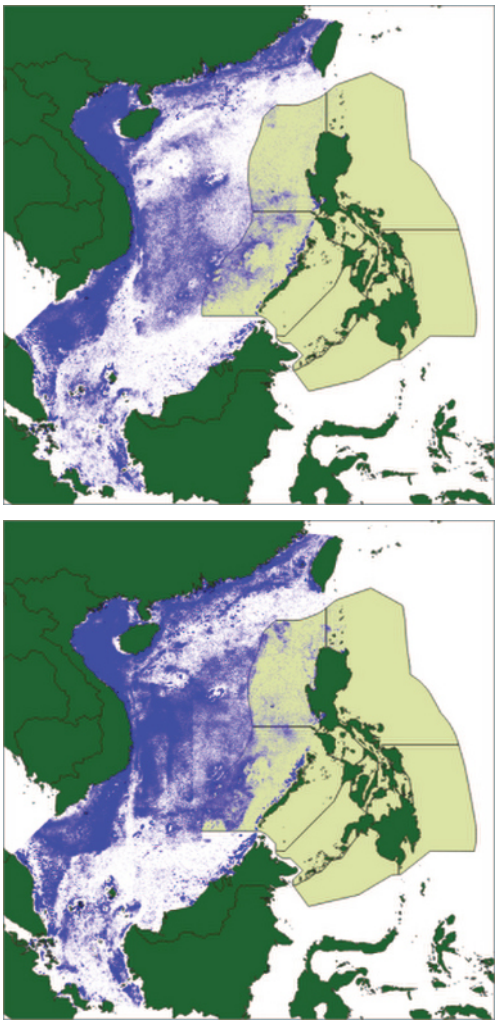


Figure 6. VIIRS images from 2013 (top) and 2020 showing increase in number of potential fishing vessels using lights in South China Sea

[6] Geronimo, R. 2021. Trends and Patterns of Fishing Activities in the West Philippine Sea and the broader South China Sea (2007 to 2021). Paper presented at the 16th National Symposium on Marine Science, 23 July 2021.

Chinese fishing vessel apprehended in May 2016 by joint elements of the Bureau of Fisheries and Aquatic Resources and Philippine Coast Guard between the waters of Babuyan Island and Batanes province (Photo: DA-BFAR Central Office)

4. A closer look at WPS shows the number of fishing vessels to be on a general increasing trend over the period in review, but interestingly, the potential fishing effort appears to have somewhat declined in 2019, although still at a comparatively higher level than in earlier years. The highest number of boat detections is in West Palawan (900 per night), followed by Panatag Shoal (600 per night) and North Luzon (300 per night). An increasing trend in fishing that is seemingly coming from the west is observed in the Philippine EEZ in North Luzon and West Palawan.[7]
5. A more comprehensive analysis of the extent of poaching in Philippine waters can be made in the coming years as DA-BFAR increases its capacity for monitoring, control, and surveillance of both domestic and foreign fishing vessels, and for the consolidation and integration of data on poaching from its regional offices, other national government agencies, and partners.

[7] ibid.

Talibon, Bohol

Chapter 3
IMPLICATIONS & NEXT STEPS

DA-BFAR'S ADOPTION AND ROLLOUT OF I-FIT THROUGH FISHERIES OFFICE ORDER 31/2021 THAT RESULTED IN THIS REPORT REPRESENTS ANOTHER MILESTONE TOWARDS SYSTEMATIC IUU FISHING REDUCTION.

The Philippines has been taking decisive steps against IUU fishing, including updating the Fisheries Code with an emphasis on preventing, deterring and eliminating IUU fishing (Republic Act 10654). DA-BFAR's adoption and rollout of I-FIT through Fisheries Office Order 31/2021 that resulted in this report represents another milestone for our effort to address IUU fishing. This is an important first step towards systematic IUU fishing reduction around which partners in the national government (Philippine National Police/PNP, Department of Environment and Natural Resources/DENR) have rallied with many LGUs, fisheries stakeholders (FARMCs, Bantay Dagat/deputized fish wardens, etc.), civil society, and technical organizations. The findings summarized in this report have implications for future research, policy, and practice on IUU fishing, as outlined below:

Commercial fishing boat, Bohol.

1. I-FIT clarifies what the big violations are in each location (e.g., unregistered/unlicensed fishing, fine mesh nets, and commercial fishing in municipal waters) – the top IUU fishing threats in terms of impact in a given area – and where the hotspots are. This data enables us to **more directly target and purposively respond to specifically reduce these more damaging threats**, as opposed to simply addressing what is more visible from shore. In addition, the I-FIT data facilitates taking into account the nature of the various violations. For example, the volume of illegal catch by fine mesh nets may be composed mainly of the smaller-sized juveniles of species that, if left uncaught, can grow to a much larger size as they mature, and thus would be equivalent to a much bigger loss in potential adult catch than its face value would suggest. Also, habitat-damaging fishing gears such as muro-ami, MDS, and bottom trawls have larger ecosystem-scale and longer-term effects than might be indicated simply by the volume of illegal catch.
2. Fishing without appropriate registration and permits/licenses is reported to be the largest contributor (by volume) to IUU catch, and poor registration and licensing also correlate with areas of increasing illegal fishing, repeat offenders, and violence. This finding, coupled with studies that point to widespread overfishing nationwide, recommends **a major effective and sustainable effort to encourage and incentivize the registration and licensing of all fishing boats, whether municipal or commercial, in line with what is scientifically sustainable.** Registration and licensing facilitate regulation of fishing vessels, as enforcers can regularly and cost-efficiently check registration and permits/licenses port-side more easily than they can conduct seaborne patrols. In addition, they provide a mechanism – i.e., non-renewal of licences – by which repeat offenders can be administratively sanctioned. To promote the process, DA-BFAR and the LGUs will together encourage and help both municipal and commercial fishers to become registered and licensed.

DA-BFAR MCS (monitoring, control and surveillance) vessel 3006 (Photo: DA-BFAR FPLEG)

3. I-FIT lays out a systematic approach for assessing, monitoring, managing, and communicating IUU fishing risk, while also providing tools for reducing IUU fishing. This report serves as a baseline and an important building block for understanding the magnitude of IUU fishing in the Philippines, designing and implementing targeted responses to the specific problems in various areas, and tracking progress in reducing those problems. **DA-BFAR will apply I-FIT at FMA scales (including poaching in the EEZ), as well as assist LGUs nationwide to use the tool regularly to improve compliance.** The current IUU fishing scores and other information and insights gathered from I-FIT, and the assessment process, can be used as a basis for future assessments of the LGUs. In addition, they help inform the further refinement of the tool to allow for a more holistic assessment of the IUU fishing situation at the FMA level. When I-FIT is enhanced (using the framework in Figure 7) a more standardized way of assessing IUU fishing at the FMA scale will be developed. This will include an index to estimate the risk of IUU fishing at the FMA scale and the ability to track the FMAs' progress in reducing IUU fishing.
4. DA-BFAR will continue to provide **national support in areas that are especially vulnerable and difficult for LGUs to manage on their own**, i.e., in areas with complex island configurations and rough weather and ocean conditions that make seaborne operations difficult. The I-FIT data illuminates a variety of attracting factors for IUU fishing. The availability of this information presents opportunities to identify proactive and preventive – and not only reactive and punitive – IUU fishing measures. This includes measures that promote voluntary compliance and those that discourage high-risk or non-compliant practices.
5. Our efforts are bearing fruit! **IUU fishing is reported to have decreased in 52 percent of LGUs between the year in review and the year before.** While enforcement teams in a majority of LGUs are reported to be on the weaker side, there are good examples to follow with nearly half of the LGUs rated as having fairly strong enforcement teams, and BFAR is ready to help LGUs strengthen their compliance efforts. For example, at the LGU level, there are several municipalities that score within the 'green range,' with one LGU receiving a prevalence score of 1.18 (Lugait, Misamis Oriental), and two LGUs (Gitagum, Misamis Oriental and Medellin, Cebu) getting a response score of 1.20. These and other municipalities/cities' experiences may reveal possible best practices that can be replicated elsewhere to strengthen overall compliance.

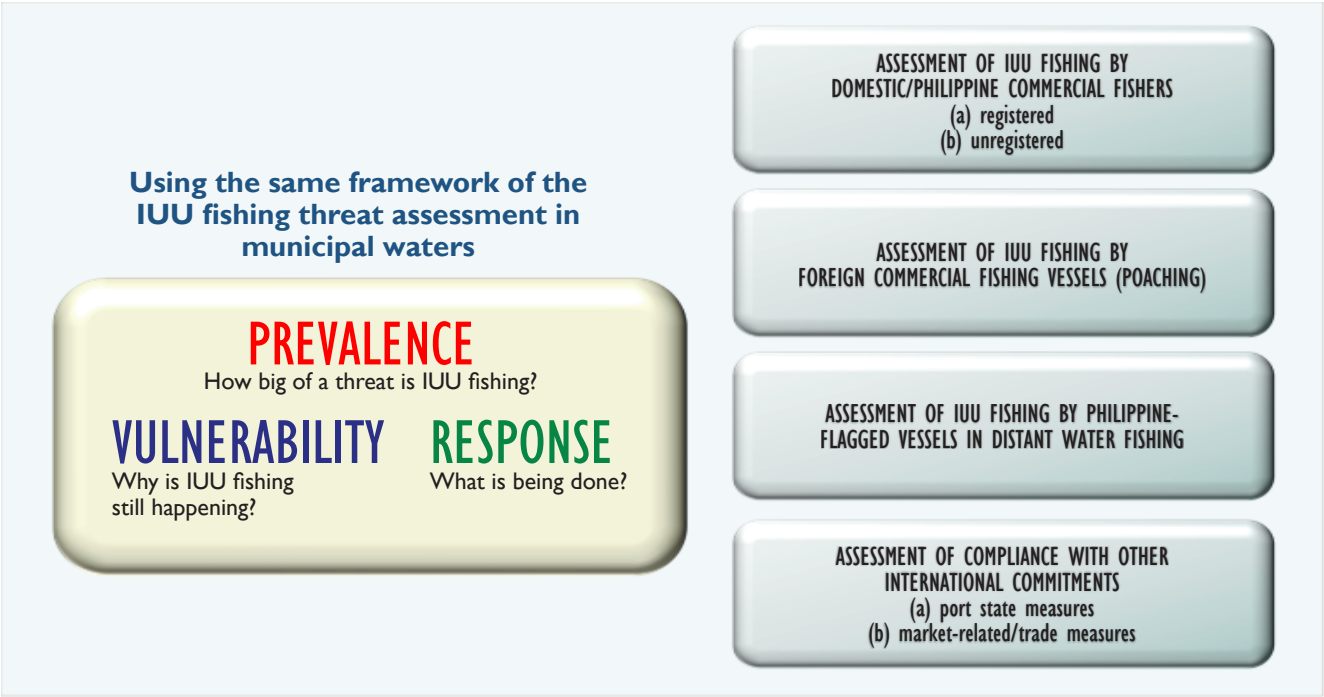


Figure 7. Proposed framework for IUU fishing assessment at the FMA level

DA-BFAR National Fisheries Monitoring Center headquarters (Photo: DA-BFAR Central Office)

Joint DA-BFAR/Philippine Coast Guard seaborne patrol
(Photo: DA-BFAR)

> “Our strong resolve to prevent and put an end to IUU fishing in Philippine waters will not waver, especially now that we are gaining momentum technology-wise.”
>
> *DA-BFAR Director Eduardo Gongona, 2020*

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