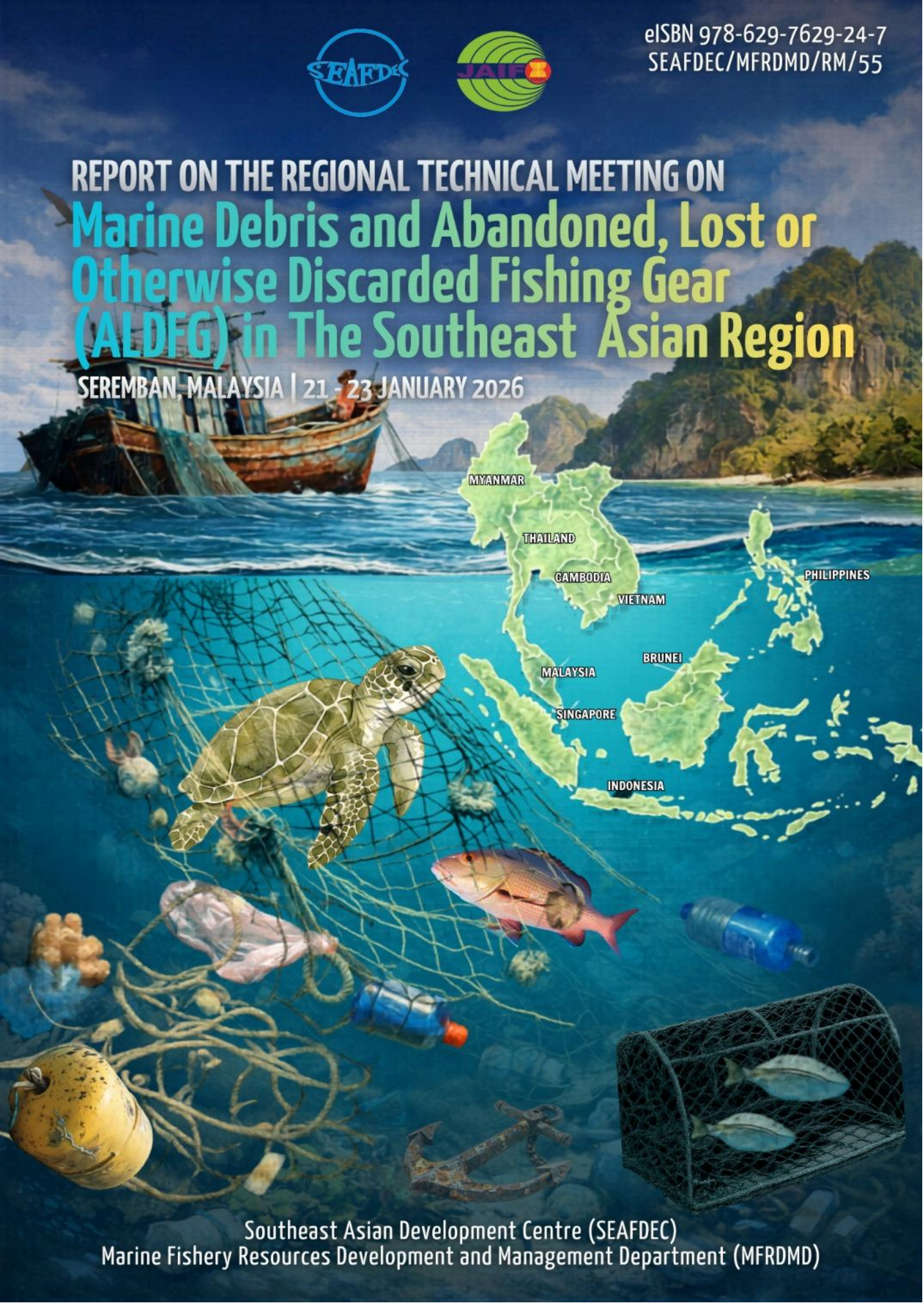
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REPORT ON THE REGIONAL TECHNICAL MEETING ON Marine Debris and Abandoned, Lost or Otherwise Discarded Fishing Gear (ALDFG) in The Southeast Asian Region

SEREMBAN, MALAYSIA | 21 - 23 JANUARY 2026



Southeast Asian Development Centre (SEAFDEC)
Marine Fishery Resources Development and Management Department (MFRDMD)

Report on the Regional Technical Meeting on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region

Royale Chulan Hotel, Seremban, Negeri Sembilan, Malaysia

21 – 23 January 2026

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ACRONYMS

ALDFG	Abandoned, Lost or otherwise Discarded Fishing Gear
AMSs	ASEAN Member States
CPUE	Catch Per Unit Effort
DOF	Department of Fisheries
E	Exploitation Rate
FAD	Fish Aggregating Devices
FAO	Food and Agriculture Organization
FRI	Fisheries Research Institute
GT	Gross Tonnages
GRT	Gross Registered Tonnages
IMO	International Maritime Organization
JAIF	Japan-ASEAN Integration Fund
LBI	Length-Based Indicator
LBSPR	Length-Based Spawning Potential Ratio
LCCC	Length-Converted Catch Curve
MMAF	Ministry of Marine Affairs and Fisheries
MPL	Marine Plastic Litter
MSY	Maximum Sustainable Yield
PE	Polyethylene
PP	Polypropylene
RFID	Radio Frequency Identification
ROV	Remotely Operated Vehicle
RTM	Regional Technical Meeting
TD	Training Department

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The Regional Meeting on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region
21-23 January 2026
Seremban, Negeri Sembilan, Malaysia

I. OPENING SESSION

1. SEAFDEC/MFRDMD convened the Regional Technical Meeting (RTM) on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) at Seremban, Negeri Sembilan, Malaysia, from 21 to 23 January 2026. The meeting was funded by the Japan-ASEAN Integration Fund (JAIF). It was attended by a representative from the Mission of Japan to ASEAN, the ASEAN Secretariat (ASEC), a resource person from the Universiti Malaya (UM); representatives from eight ASEAN Member States (AMS), namely Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam; representatives from the Fisheries Research Institute (FRI) Kampung Acheh, FRI Batu Maung, FRI Bintawa and Department of Fisheries (DOF) Sabah; representatives from the SEAFDEC Secretariat and SEAFDEC/TD; as well as the Chief, Deputy Chief, Special Departmental Coordinator, and officials from SEAFDEC/MFRDMD. The list of participants is in **Annex 1**.

2. The Chief of SEAFDEC/MFRDMD, *Mr. Abd Haris Hilmi Ahmad Arshad* welcomed all representatives to the RTM. In his welcoming remarks, he congratulated the representatives selected to join the RTM, as he believes that the Regional Technical Meeting will serve as a productive platform for dialogue, knowledge exchange, and regional collaboration, and that its outcomes will contribute meaningfully to strengthening regional initiatives and collective efforts in addressing marine debris and ALDFG. He also expressed appreciation to the resource person and meeting secretariat for their hard work and meticulous preparation. His welcoming speech appears as **Annex 2**.

3. The First Secretary of the Mission of Japan to ASEAN, *Mr. Yosuke Kawamoto*, officiated the meeting. He expressed his sincere gratitude to all members for hosting the workshop. He shared the revised Japan-ASEAN MIDORI Cooperation Plan, aligned with the ASEAN Food, Agriculture and Forestry Sectoral Plan 2026–2030, which includes fisheries-related projects. He expressed his hope that the public and private sectors would work together to reduce fishing gear waste, promote sustainable fishing, and strengthen food security. His opening remarks appear as **Annex 3**.

II. ADOPTION OF AGENDA AND INTRODUCTION OF THE PROJECT

4. The agenda of this meeting was presented by *Ms. Mazalina Ali*, the Special Departmental Coordinator of SEAFDEC/MFRDMD to the participants and was adopted without any amendment. It appears as **Annex 4**, together with the provisional prospectus of the meeting.

5. *Mr. Mohammad Faisal Md Saleh*, the Project Component Leader presented the 'Introduction of the project Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia'. He also shared information on Activity 1.2, which involves organizing a regional workshop to assess the current status of ALDFG. His presentation appears as **Annex 5**.

III. OVERVIEW AND TECHNICAL PRESENTATION

6. *Mr. Ruzaidi Mamat*, the Senior Director of Capture Fishery Resources Division from DOF Malaysia, delivered the keynote address 'Overview of Framework and Best Practices on Management of Marine Debris and ALDFG'. He cited global initiatives: FAO Voluntary Guidelines for Marking Fishing Gear (2018), MARPOL Annex V (IMO), and FAO–IMO leadership in GESAMP WG 43. He shared that at the national level, Malaysia's Ministry of Transport (National Focal Point) and DOF committed to implementing FAO and IMO initiatives. He highlighted the OceanLitter Program supporting best practices and regional cooperation toward a low-plastics fisheries sector. He also emphasized the Intergovernmental Negotiating Committee (2022) as a global step toward a binding response to plastic pollution, including ALDFG. His keynote address appears as **Annex 6**.

7. *Assoc. Prof. Dr. Fauziah Shahul Hamid* presented Marine Debris and ALDFG: Global and Regional Perspectives and their Impacts on Ecosystems, Fisheries, and Livelihoods. Her presentation appears as **Annex 7**.

8. *Ms. Pattaratjit Kaewnuratchadasorn*, Policy and Program Coordinator from SEAFDEC Secretariat concurred with *Assoc. Prof. Dr. Fauziah* on the importance of involving the fishing community in reporting and preventing ALDFG. She further emphasized that the raising awareness and enhancement capacity of fishers and communities along coastal provinces on rescuing marine species affected by marine debris and ALDFG. *Assoc. Prof. Dr. Fauziah* expressed her agreement with *Ms. Pattaratjit*.

IV. COUNTRY AND DEPARTMENT PRESENTATION ON CURRENT STATUS AND CHALLENGES OF MARINE DEBRIS AND ALDFG

9. The representative from Brunei Darussalam, *Ms. Siti Nur Nisrina Matali* presented Country Report: Assessment of Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Brunei Darussalam. Her presentation appears as **Annex 8**.

10. *Assoc. Prof. Dr. Fauziah* inquired about any budget availability from the government of Brunei Darussalam on incentives and ALDFG projects. Brunei Darussalam responded that to secure such funding, the Department of Fisheries has to submit a formal project proposal outlining the proposed ALDFG management initiatives and budgetary requirements for consideration.

11. *Dr. Watcharapong Chumchuen*, the representative from Thailand inquired about trap fisheries in Brunei Darussalam including the target species noting that the gear is only permitted in areas more than three nautical miles (Zone 1A) from the coastline. *Ms. Siti Nur Nisrina* responded that the majority of fishers operate fish traps beyond Zone 1A and expanded their operation up to Zone 3, targeting species such as grouper and red snapper.

12. *Ms. Pattaratjit* added that technical officers from SEAFDEC/TD can assist Brunei Darussalam for the capacity building and would be an opportunity between SEAFDEC/TD and Brunei Darussalam to discuss on how to enhance capacity on the research. SEAFDEC/TD can provide training or workshops including the training for data collection survey based on ongoing projects and activities.

13. The representative from Cambodia, *Mr. Leng Syvann* presented Country Report: Assessment of Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Cambodia. His presentation appears as **Annex 9**.

14. *Assoc. Prof. Dr. Fauziah* inquired about the type of incentive provided by the Cambodia government to the local community and fishers for ALDFG retrieval. *Mr. Leng* replied that there is no incentive from the government, instead the government through fisheries administration will acknowledge their efforts by providing an appreciation letter or certificate for their contribution.

15. *Ms. Pattaratjit* shared her previous experience on implementation of the project in Cambodia, where community awareness campaigns and a local working group were established to address solid waste management. Limited incentive-based collection of cans and plastics was implemented, but long-term sustainability was constrained by the high cost of transporting collected waste to distant recycling facilities. The need for a circular economy approach enabling local conversion of marine waste into end products was highlighted.

16. *Mr. Fumiya Takahashi* from SEAFDEC Secretariat sought clarification on the stated level of compliance with the FAO Voluntary Guidelines, as the table indicated full compliance. Further explanation on this point was sought whether this classification implies that most Cambodian fishers mark their fishing gear. *Mr. Leng* replied that the assessment was based on national-level compliance, as the fisheries authority is required to follow the FAO Guidelines. However, compliance at the community fishery level has not yet been achieved, as further training is needed for the full implementation by fishers.

17. The representative from Indonesia, *Mr. Antonius Sujanto Siregar* presented Country Report: Assessment of Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Indonesia. His presentation appears as **Annex 10**.

18. *Mr. Santiphong Putsa* from SEAFDEC/TD inquired further on the mechanism for reporting to the Harbour Master, including how incidents are formally reported. *Mr. Antonius* replied that fishers are only required to report their details on crew numbers, vessel lights, and fishing gear, to the Harbour Master before departing to sea. It was noted that

information on the type and quantity of fishing gear used, as well as the amount of gear lost at sea, is important for monitoring purposes. The Harbour Master is responsible for checking whether fishing gear brought by fishers complies with existing regulations. However, while the reporting of lost fishing gear is required in principle, it is currently practiced on a voluntary basis rather than being mandatory.

19. *Assoc. Prof. Dr. Fauziah* asked for clarification on the community or fishers participation rate in lost gear reporting in Indonesia. *Mr. Antonius* informs that no data on participation is available because reporting is voluntary and not part of the official monitoring system, and no records are collected by the fishing port, as the system is still under development to incorporate and include ALDFG. *Assoc. Prof. Dr. Fauziah* suggested that reviewing practices from different countries could help identify best practices and determine which approaches might be applicable in various contexts.

20. *Dr. Watcharapong* explained that the mechanism for fishers to inform the Harbour Master is similar to port inspection, where gear is reported before departure and upon return. However, many fishers leave static gear, such as gill nets and traps, in the water, making it important to track all operated gear. It was suggested that gear marking could assist in addressing this issue in the future, although it would not provide a complete solution for ALDFG.

21. The representative from Malaysia, *Mr. Abdul Wahab Abdullah* presented Country Report: Assessment of Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Malaysia. His presentation appears as **Annex 11**.

22. The representative from DOF Sabah, *Mr. Irman Isnain* presented Country Report: Assessment of Marine Debris and Abandoned, Lost or Otherwise Discarded Fishing Gear (ALDFG) in Sabah. His presentation appears as **Annex 12**.

23. *Mr. Nakaret Yasuk* from SEAFDEC/TD requested further clarification regarding the specific types of fishing gear and nets that contribute most significantly to ALDFG. *Mr. Abdul Wahab* identified gillnets as the primary category of fishing gear contributing to ALDFG. Additional information was provided by *Ms. Haryati* regarding trawl nets, which were identified as another significant source of ALDFG. She noted that during seabed cleaning operations conducted by department officials at artificial reef sites, trawl nets are frequently recovered after becoming snagged on the bottom structures. *Mr. Muhammad Amirullah Al Amin* added, based on his experience, that the prevalence of specific ALDFG types is highly dependent on geographical location and local fishing activities. Survey data indicate that gillnets are most frequently identified in coastal areas, whereas trawl net debris is more common in zones beyond five nautical miles. Purse seine nets are rarely encountered in the sampled areas.

24. The representative from Singapore, *Ms. Sarah Tang*, inquired about Malaysia's progress on gear marking, particularly materials, designs, and accessibility for fishers with lower literacy levels. *Mr. Abdul Wahab* explained that Malaysia is adapting the Guidelines to local socio-economic contexts, emphasizing cost-effective alternatives as FAO designs

are too expensive. Various durable materials are under testing, and markers with official branding (e.g., "Department of Fisheries Malaysia") have shown greater fisher responsibility compared to alphanumeric codes. *Ms. Haryati* added that Malaysia is gradually adopting the FAO Voluntary Guidelines to ensure realistic compliance among the fishing community. She shared that under the 13th Malaysia Plan; government funding has been secured to conduct research and surveys aimed at enhancing gear marking requirements. It was further noted that future efforts will prioritize awareness campaigns and the integration of marking requirements into licensing conditions, while acknowledging that achieving full compliance will be a long-term process.

25. *Mr. Santiphong* shared insights from recent FAO proceedings 'The Third Asia Regional Taskforce Workshop' in India, noting that Marine Plastic Litter (MPL) is classified into sea-based sources, primarily fishing activities and ALDFG, and land-based sources originating from rivers. Concerns were raised regarding the long-term impact of abandoned fiberglass hulls, with evidence from India and Sri Lanka showing fragmentation into microplastics, suggesting the need for future policy consideration. He also shared a case study from Norway as a potential model for Malaysia, where fishers utilize repurposed aluminum for durable, low-cost gear tags. It was emphasized that the success of such a system depends less on the material itself and more on the implementation of a robust, formal registration and marking system.

26. *Dr. Watcharapong* shared Thailand's experience with gear marking and trials of alternative netting materials. The potential for standardizing existing markings, such as those on buoys or flags, with FAO country codes or registration numbers was discussed. Furthermore, the establishment of a regional system was recommended to track transboundary gear movement between neighboring countries. On biodegradable nets, concerns were raised about their short lifespan and micro-particle release. As a practical alternative, natural materials such as cotton ropes for traps were suggested, allowing organisms to escape if gear is lost and reducing ghost fishing impacts.

27. *Mr. Takahashi* shared that a symposium is planned for 30 March 2026, where a Japanese manufacturer will present solutions to the technical challenges of biodegradable fishing gear. Updates on Activity 4.1 of the Marine Debris Project highlighted efforts to identify gear markers that balance cost and durability. Although these demonstrations are currently operating at a national level in Thailand. The current initiatives in Malaysia would be highly valuable in supporting this regional expansion.

28. The representative from the Philippines, *Mr. Isidro C. Tanangonan* presented 'Country Report: Assessment of Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in the Philippines'. His presentation appears as **Annex 13**.

29. *Mr. Antonius* inquired about the extent of government involvement versus independent community action in coastal initiatives, as well as the key drivers of participation. *Mr. Tanangonan* explained that such initiatives are primarily led by local leaders or

"champions" who mobilize communities in environmental advocacy. One of the government programs and motivating factors is the annual search for outstanding coastal municipalities and fisherfolks, which recognizes leadership in community service and marine conservation. It was further noted that these activities are rooted in a collective commitment to protecting the local marine environment.

30. *Assoc. Prof. Dr. Fauziah* highlighted the Philippines' success in fostering community participation, citing the formalization or registration of informal waste collectors. She requested insights on government strategies to promote volunteerism and best practices for encouraging public interest, noting that high engagement remains a challenge in many ASEAN contexts. *Mr. Tanangonan* elaborated that the success of community engagement in the Philippines was attributed to strong collaboration among government agencies, each deploying personnel on the ground to participate and raise awareness. For instance, government agencies such as the Philippine Coast Guard, formalize these events by issuing official invitations or memoranda to various offices in advance. Key motivators include work-offset credits, shirts, refreshments, and public recognition via social media, while the involvement of high-profile individuals and celebrities further enhances public interest in coastal clean-up activities.

31. The representative from Singapore, *Ms. Sarah Tang* presented 'Current Status of ALDFG and ALDFG Management in Singapore'. Her presentation appears as **Annex 14**.

32. *Assoc. Prof. Dr. Fauziah* inquired about data availability on ALDFG in Singapore, noting reported low gear loss due to the small size of Singapore's fishing industry. *Ms. Sarah* referred to a multi-year review by the National University of Singapore, based on coastal cleanup reports and surveys, which found that overall ALDFG occurrences remain low.

33. *Mr. Muhammad Amirullah Al Amin* raised the issue of transboundary ALDFG. *Ms. Sarah* noted that while there are cases of ALDFG in Singapore, identifying its source remains difficult as much of it washes ashore from unknown origins. Regular cleaning operations are conducted on land and at sea, and measures are being developed to further reduce gear loss.

34. *Ms. Najihah Mohamad* from FRI Batu Maung requested clarification on whether unique identification numbers are assigned to individual gear units, if markings require annual renewal, and how traceability supports recovery of lost or stolen gear. The representative from Singapore, *Ms. Shirley Chua* explained that current gear marking is linked to fishing vessels and gears licensing systems, with more durable marking solutions under evaluation to withstand marine conditions. While suitable physical markers remain under study, traceability is already maintained through integration of gear identification with fishing vessel licensing records.

35. *Mr. Antonius* inquired about practical success stories of the circular economy approach in addressing marine litter. *Ms. Sarah* explained that initiatives are led by the Ministry of Sustainability and the Environment, with circular economy strategies applied broadly to

plastics across industries. However, no programs are currently tailored to fishing gear, given the relatively small size of Singapore's fishing sector.

36. *Dr. Watcharapong* presented 'Country Report: Assessment of Marine Debris and Abandoned, Lost or Otherwise Discarded Fishing Gear (ALDFG) in Thailand. His presentation appears as **Annex 15**.

37. *Mr. Irman* inquired about Thailand's gear marking requirements, covering both mandatory and voluntary components as well as the challenges to the implementation of the gear marking. *Dr. Watcharapong* clarified that overseas fishing vessels operating under Regional Fisheries Management Organizations (RFMOs) are subjected to mandatory gear marking. Implementation is straightforward for overseas fleets with fewer than 10 vessels. Thai trawlers operating in the area of The Southern Indian Ocean Fisheries Agreement (SIOFA) apply metal clamps with unique codes as fishing gear marking, costing about USD 10 per set. In domestic waters, where fewer than 50,000 vessels operate, gear marking remains voluntary, typically using flags for some fisheries. Challenges were noted in tracing lost or drifting gear due to ocean currents and cross-border movement, underscoring the need for a regional platform.

38. The representative from Viet Nam, *Mr. Dinh Xuan Hung* presented 'Country Report: Assessment of Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Viet Nam'. His presentation appears as **Annex 16**.

39. *Assoc. Prof. Dr. Fauziah* requested clarification on the duration of Vietnam's buy-back program. *Mr. Hung* explained that since 2010, fishers have been encouraged to collect and return plastic net debris, a cost-effective practice requiring no major investment. However, this is feasible only for short fishing trips of up to one month, as longer voyages face vessel space limitations that hinder the storage and transport of collected waste.

40. *Mr. Santiphong Putsa*, from SEAFDEC/TD presented 'Activity 1.1.1: Information Gathering on the Estimation of ALDFG in Gillnet and Trap Fisheries at Selected Sites in Thailand'. His presentation appears as **Annex 17**.

41. *Mr. Antonius* inquired whether the study focused solely on swimming crab gillnets or included other gear types, and sought clarification on technical differences and replacement rates. *Mr. Santiphong* explained that the study covered traps and gillnets for fish, shrimp, and crabs, each analyzed separately due to differing constructions and operations. He confirmed that in Thailand, swimming crab gillnets have a notably short lifespan, typically replaced every two to three months, a renewal cycle that distinguishes them from other gear types with longer operational lives.

42. *Dr. Watcharapong* recommended to estimate total gear loss and associated economic impacts by calculating average loss per fisher and multiplying by the total number of fishers in the study. This approach provides a clearer annual estimation of both the amount of lost

gear and the resulting economic loss, and was acknowledged as an effective method for presenting data in standardized units per fisher per year.

43. *Ms. Mazalina* presented 'Activity 1.1.1: Information gathering to estimate the amount of ALDFG at pilot sites (Malaysia)'. Her presentation appears as **Annex 18.**

44. *Mr. Antonius* inquired about survey duration and whether fishers could complete the questionnaire independently. *Ms. Mazalina* explained that the standardized form was developed through testing and revisions, with most responses recorded by interviewers as preferred by fishers, though some respondents opted to complete the form independently. Average completion time was about 20 minutes.

45. *Dr. Watcharapong* requested examples of frequent questions raised by fishers when completing the questionnaire independently. *Ms. Mazalina* explained that fishers often seek guidance on how to record fishing locations, asking whether positions should be noted as distance from the coastline, general area descriptions, or formal coordinates such as latitude and longitude.

46. *Mr. Muhammad Amirullah Al Amin Ayob*, from SEAFDEC/MFRDMD presented 'Activity 1.1.2: Monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG'. His presentation appears as **Annex 19**.

47. *Mr. Santiphong* asked whether recovered gear should be categorized by type or by material (e.g., PP, PE, nylon), and sought clarification on classification criteria. *Mr. Muhammad Amirullah Al Amin* explained that Reef Check Malaysia records some items under "nylon" due to clumping, degradation, or biofouling that obscures gear type. *Mr. Santiphong* suggested refining the system by adding an "unidentified" category with material descriptions, and *Dr. Watcharapong* suggested rechecking the data (e.g., nylon rope, nylon net) to better reflect ALDFG composition.

48. *Mr. Santiphong* shared information regarding a demonstration of Remotely Operated Vehicle (ROV) technology for ALDFG retrieval, conducted in Thailand in collaboration with the Norwegian Institute of Marine Research (IMR) in February 2025. The ROV proved effective in locating and recovering single units such as independent traps, though it was noted to be less effective for ghost nets in complex environments like coral reefs.

49. *Ms. Hamizah Nadia Yusof @ Alias*, from SEAFDEC/MFRDMD presented 'Activity 2.2: Research and evaluation on amount of marine debris collected by different types of fishing gears during the fishing activities at sea.' Her presentation appears as **Annex 20**.

50. *Mr. Santiphong* questioned the units used to report debris collection, noting current figures are presented as item counts per operation or trip. *Ms. Hamizah* explained that while time-based standardization could yield very low figures for certain gear types, clarity in reporting is essential, with results specified as either totals or per-operation averages. *Dr. Watcharapong* recommended further standardization by incorporating variables such as net

length and soaking time, to enable more accurate comparisons across different fishing operations.

51. *Mr. Nakaret Yasuk* from SEAFDEC/TD presented 'Activity 4.1: Development of Methods on Marking of Fishing Gears and Promotion on Marking of Fishing Gears. His presentation appears as **Annex 21**.

52. *Mr. Hung* raised concerns about the durability of rope-attached markers, questioning why barcodes or QR codes have not been adopted and whether a uniform marking structure could be applied across regions. He also noted that a one-month testing phase may be insufficient to assess marker lifespan. *Mr. Nakaret* explained that monitoring continues beyond the formal data collection period. Laser-printed markers are being tested to improve legibility, while bird rings and animal tags were chosen for their availability and familiarity. He emphasized that fisher registration remains the key element of traceability, as a robust database ensures ownership linkage regardless of marker type.

53. *Mr. Muhammad Amirullah Al Amin* suggested embedding Radio Frequency Identification (RFID) microchips into fishing gear to enhance security and traceability, noting that chips are inexpensive though detectors are more costly. *Mr. Nakaret* acknowledged the proposal, emphasizing the need for cost comparison, as current markers used in this study, like bird ring and metal tag cost USD 0.70, plastic tags cost USD 1.60, remain cheaper. Microchips could match gear shelf life of 1–2 years and be embedded in main ropes to prevent removal, but inspectors face difficulty in locating non-visible chips. The concept was recognized as secure and a potential candidate for future trials.

54. *Mr. Abdul Wahab* requested technical details on bird rings used as gear markers, including dimensions, cost, and optimal positioning on crab traps. *Mr. Nakaret* explained that rings range from 0.5 cm to over 1 cm, with 8 mm selected to fit 6 mm ropes; each cost about USD 0.70 with laser-printed identification. Rings are best installed during gear construction, with the side panel identified as the optimal position to ensure durability, visibility, and avoid entanglement. *Mr. Santiphong* added that placement decisions prioritized fisher safety and efficiency, with consultations ensuring no interference during handling. It was recommended that gear marking research begin with a risk assessment in collaboration with fishers to identify hazards and ensure safe, functional application.

55. *Dr. Watcharapong* emphasized that gear marking aims to establish ownership and traceability, not punishment, with firstly focus on voluntary implementation. Materials should suit local socio-economic contexts, ranging from RFID tags to low-cost DIY options such as fabric strips or recycled aluminum cans for durable, near cost-free tags.

V. DRAFTING OF ALDFG REGIONAL TECHNICAL GUIDELINES

56. *Assoc. Prof. Dr. Fauziah* facilitated the session on drafting 'Technical Guidelines on the Status of Abandoned, Lost, or otherwise Discarded Fishing Gear (ALDFG) and Measures to Prevent and Remove ALDFG'. The representatives actively involved in the discussion, reviewed the draft on Technical Guidelines, made a few modifications. *Assoc.*

Prof. Dr. Fauziah acknowledged the revisions and updated her draft accordingly.

57. The Meeting agreed to emphasize that the Technical Guidelines are voluntary in nature. It was further noted that the voluntary application of the Technical Guidelines would allow AMSs the flexibility to adapt them according to their respective national contexts and priorities.

58. The Meeting suggested revising the title and outlines of the guidelines. The proposed new title is 'Technical Guidelines to Assess, Prevent and Remove Abandoned, Lost, or Otherwise Discarded Fishing Gear (ALDFG) in the Southeast Asian Region'. The Meeting accepted this suggestion, and the revision has accordingly been incorporated. The outline of the Technical Guidelines appears as **Annex 22**.

VI. WAY FORWARD

59. *Mr. Mohammad Faisal* presented the way forward for Sub-activity 1.2. His presentation appears as **Annex 23**.

VII. CLOSING SESSION

60. The Deputy Chief of SEAFDEC/MFRDMD, *Dr. Masahito Hirota* delivered the closing remarks. His closing remarks appears as **Annex 24**.

ANNEX 1

LIST OF PARTICIPANTS

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ANNEX 2

WELCOMING REMARKS

Regional Technical Meeting on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region
21 January 2026
Royale Chulan Hotel, Seremban, Negeri Sembilan, Malaysia

By:
Mr. Abd Haris Hilmi Ahmad Arshad, Chief of SEAFDEC/MFRDMD

Good morning.

Mr. Yosuke Kawamoto, First Secretary of the Mission of Japan to ASEAN,

Mr. Joseph Arbiol, Head of the Food, Agriculture, and Forestry Division, ASEAN Secretariat,

Assoc. Prof. Dr. Fauziah Shahul Hamid, Resource Person from the University of Malaya,

Ms. Pattaratjit Kaewnuratchadasorn, Policy and Program Coordinator of SEAFDEC,

Mr. Fumiya Takahashi, Manager of the JAIF Marine Debris Project,

Mr. Abd Haris Hilmi Ahmad Arshad, Chief of SEAFDEC/MFRDMD,
Dr. Masahito Hirota, Deputy Chief of SEAFDEC/MFRDMD,
Ms. Mazalina Ali, Special Departmental Coordinator of SEAFDEC/MFRDMD,
Mr. Mohammad Faisal Md Saleh, Project Component Leader,

Distinguished representative from ASEAN Secretariat,

Representative from SEAFDEC Training Department,

Representative from Brunei Darussalam,
Representative from Cambodia,
Representative from Indonesia,
Representative from Malaysia,
Representative from Singapore,
Representative from Philippines,
Representative from Thailand,
Representative from Viet Nam,
Officers and staff of SEAFDEC/MFRDMD.

Distinguished guests,

Ladies and gentlemen,

First of all, it is my great pleasure and distinct honor to warmly welcome to all of you to the Regional Technical Meeting on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in the Southeast Asian Region. On behalf of SEAFDEC/MFRDMD, I extend a special welcome to Mr. Yosuke Kawamoto and all representatives to Seremban, Negeri Sembilan. We are truly honored by your attendance and participation in this important meeting.
.
As you are all aware, marine debris, including ALDFG, has emerged as a serious and growing global concern. It affects our marine ecosystems, threatens fisheries sustainability, and impacts coastal communities throughout our region. Addressing this complex and transboundary issue requires strong regional collaboration, scientific expertise, shared commitment, and coordinated action from all relevant stakeholder across the regions.

I would like to congratulate all representatives who have been selected to join this important Regional Technical Meeting, or RTM. Your participation demonstrates your commitment and dedication to working collectively towards practical and effective solutions for the management of marine debris and ALDFG in Southeast Asia.

Ladies and gentlemen,

My sincere appreciation goes to our distinguished resource person, Associate Professor Dr. Fauziah Shahul Hamid, for her valuable contributions and willingness to share her expertise and insights throughout this meeting. I am confident that her input will greatly enrich out discussions and deliberations.

I would also like to take this opportunity to express my sincere appreciation to the Meeting Secretariat and the organizing team for their hard work, dedication, commitment, and meticulous preparations. Their efforts have been instrumental in ensuring the successful organization of this meeting.

I trust that this Regional Technical Meeting will serve as a productive platform for discussion dialogue, knowledge exchange, and regional collaboration, and that its outcomes will contribute meaningfully to strengthen regional initiatives and collective efforts in addressing on marine debris and ALDFG. I also hope that you will have a pleasant and comfortable stay in Seremban and find some time to experience our cuisine and local hospitality.

Finally, on behalf of SEAFDEC/MFRDMD, I wish to extend our apologies in advance for any shortcomings that may arise throughout this Regional Technical Meeting.

With that, I end my welcoming remarks. Thank you very much.

ANNEX 3

OPENING REMARKS

Regional Technical Meeting on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region
21 January 2026
Royal Chulan Hotel, Seremban, Negeri Sembilan, Malaysia

By:
Mr. Yosuke Kawamoto, First Secretary Mission of Japan to ASEAN

Mr Ruzaidi, Senior director, Department of Fisheries Malaysia

Mr Haris, Chair, Marine Fishery Resources Development and Management Department (MFRDMD)

Mr Joseph, SO, ASEC,

SEAFDEC and MFRDMD team,

Ladies and gentleman,

My name is Yosuke Kawamoto, First Secretary of the Mission of Japan to ASEAN. It is my great honor to deliver opening speech for Regional Technical Meeting which utilizes "Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia", funded by Japan ASEAN Integrated Fund (JAIF).

First of all, I would like to express my sincere gratitude to all members for hosting this workshop.

I believe that the friendly and cooperative relationship between ASEAN and Japan is reflected in the implementation of projects through dialogue with ASEAN countries. For example, two years ago, on the 50th anniversary of Japan-ASEAN friendship and cooperation, at the ASEAN-Japan Ministerial Meeting on Agriculture and Forestry, Japan proposed the initiative called the Japan-ASEAN MIDORI Cooperation Plan, and it compiled the list of ongoing and new activities together with ASEAN countries.

This plan has also been revised in line with the ASEAN Food, Agriculture and Forestry Sectoral plan 2026-2030, which was adopted this year. This plan also compiles projects related to fisheries. Furthermore, within the ASEAN+3 framework, Japan supports the activities of "the Regional Knowledge Centre on Marine Plastic Debris", which managed by Economic Research Institute for ASEAN and East Asia (ERIA).

I understand that this project aims to formulate guidelines for reducing as much discarded Abandoned, Lost or Discarded Fishing Gear (ALDFG) as possible through the fishing industry, in order to implement “ASEAN Framework of Action on Marine Debris”.

I look forward to hearing about the policies and initiatives of government officials at this meeting.

There are start-up companies in Japan that recycle fishing gear, and I believe there are also start-up companies in ASEAN that are addressing marine plastic debris. I would like to conclude my speech by expressing my hope that the public and private sectors will work together to reduce fishing gear waste, promote sustainable fishing, and strengthen food security.

END

ANNEX 4

The Regional Technical Consultation on the Conservation Efforts and Management Strategies of Pelagic Fisheries Resources in Southeast Asia

6 to 8 January 2026
Port Dickson, Malaysia

PROVISIONAL PROSPECTUS

1. Background

Marine debris has emerged as one of the most critical environmental and socioeconomic challenge in the Southeast Asian region. With rapid population growth, intensified economic activities, and increasing dependence on marine resources, coastal and marine ecosystems across ASEAN Member States (AMSs) are increasingly affected by both land-based and sea-based sources of pollution, particularly plastics and microplastics. These pollutants pose significant threats to biodiversity, fisheries productivity, tourism, and human health, while undermining the resilience of marine ecosystems.

Recognizing the urgency of this issue, ASEAN Member States (AMSs), during the 34th ASEAN Summit held in Thailand on 22 June 2019, adopted the "Bangkok Declaration on Combating Marine Debris in the ASEAN Region," and endorsed the implementation of the "ASEAN Framework of Action on Marine Debris." These frameworks reflect ASEAN's strong commitment to address marine debris and advancing sustainable, regional solutions through strengthened regional cooperation, science-based solutions, and harmonized policy interventions.

A particularly harmful subset of marine debris is Abandoned, Lost or Discarded Fishing Gear (ALDFG). It includes fishing nets, lines, traps, and other fishing gears that are no longer actively managed, often due to operational accidents, severe weather events, or lack of proper disposal facilities. Once adrift, ALDFG becomes a persistent form of marine pollution because of its durable synthetic composition, often persisting for decades.

The environmental impacts of ALDFG are far-reaching. It contributes to ghost fishing, where unattended gear continues to entangle and kill marine organisms unintentionally. This causes significant mortality of fish, crustaceans, marine mammals, and endangered species such as sea turtles and sharks. ALDFG also contributes to habitat degradation, including coral reefs and seagrass beds, and poses risks to navigation of vessels and maritime safety. In many cases, ALDFG can persist for years due to its durable synthetic composition, compounding the effects of plastic pollution in marine ecosystems. Economically, ALDFG imposes costs on fishers, industries, and governments through reduced fish stocks, damaged vessels, and increased cleanup efforts.

Given that fisheries being vital for food security and livelihoods in the region, addressing ALDFG is critical to ensuring sustainable fisheries and healthy ecosystems. As a major component of the broader marine debris problem, ALDFG requires targeted and coordinated measures that integrate technical, regulatory, and community-based approaches. The transboundary nature of marine debris underscores the urgency for strong regional cooperation,

through shared knowledge, harmonized monitoring methodologies, develop practical, science-based technical guidelines for mitigation, and the promotion of best practices.

At the international level, several initiatives such as the FAO Voluntary Guidelines on the Marking of Fishing Gear, UNEP's Global Partnership on Marine Litter, and the Sustainable Development Goals (SDG 14) provide frameworks for tackling marine debris. However, effective solutions require regional adaptation and tailored to the specific ecological, socioeconomic, and cultural contexts of Southeast Asia.

In alignment with these imperatives, the Southeast Asian Fisheries Development Center (SEAFDEC), through its Marine Fishery Resources Development and Management Department (MFRDMD), is organizing a Regional Technical Meeting funded by the Japan-ASEAN Integration Fund (JAIF) to review the status of marine debris and ALDFG, share experiences and knowledge, and develop technical guidelines to support countermeasures in the region. This meeting provides a collaborative platform for AMSs to exchange information, identify gaps, agree on countermeasures for marine debris and ALDFG in line with regional and global commitments to sustainable fisheries and marine ecosystem conservation. It also aims to deepen regional cooperation, facilitate scientific and policy dialogue, and strengthen institutional capacity among participating countries.

2. Objectives of the Meeting

The Regional Technical Meeting (RTM) on Marine Debris and ALDFG in Southeast Asian region aims to:

- Share the current status experiences, policies, and ongoing initiatives of marine debris and ALDFG among AMSs,
- Discuss and develop draft regional technical guidelines for ALDFG management and countermeasures in Southeast Asia,
- Strengthen regional cooperation and partnerships to reduce marine debris and support sustainable fisheries management.

3. Expected Outputs

The Regional Technical Meeting (RTM) is expected to deliver the following outputs:

- A consolidated regional overview of the current status of marine debris and ALDFG in Southeast Asian region,
- Identified gaps, key challenges and opportunities for regional collaboration,
- Draft Regional Technical Guidelines on ALDFG for Southeast Asian region.

4. Date and Venue

The Regional Technical Meeting (RTM) on Marine Debris and ALDFG in Southeast Asian Region will be held from 21 to 23 January 2026 in Port Dickson, Malaysia.

5. Participants

It is envisaged that the participants of the meeting will be:

a. One resource person
b. One representative from AMSs except Lao PDR and Malaysia
c. Representatives from Malaysia: Department of Fisheries (DOF) Malaysia, and Fisheries Research Institute (FRI)
d. Two representatives from Training Department
e. Chief, Deputy Chief, Special Departmental Coordinator, Activity Leader, and relevant officials from SEAFDEC/MFRDMD.

6. Tentative Agenda

Agenda 1: Opening Session
Agenda 2: Adoption of Agenda and Introduction of the Project
Agenda 3: Overview and Technical Presentations
Agenda 4: Country and Department Presentation on Current Status and Challenges of Marine Debris and ALDFG
Agenda 5: Drafting of ALDFG Regional Technical Guidelines
Agenda 6: Way Forward
Agenda 7: Closing Session

Secretariat and Correspondence

All correspondence regarding the Regional Technical Meeting (RTM) should be addressed to:

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The Regional Technical Consultation on the Conservation Efforts and Management Strategies of Pelagic Resources in Southeast Asia

6 – 8 January 2026
Port Dickson, Malaysia

PROVISIONAL TIMETABLE

20 January 2026 (Tuesday)	
15:00 –	Check-in hotel
Day 1 (21 January 2026, Wednesday) *Moderator: Mr. Muhammad Amirullah Al Amin bin Ayob*	
08:30 – 09:00	Registration
Agenda 1: Opening Session	
09:00 – 09:10	Welcome Remarks *by Mr. Abd Haris Hilmi Ahmad Arshad, Chief of SEAFDEC/MFRDMD*
09:10 – 09:20	Opening Address *Mr. Yosuke Kawamoto, First Secretary of the Mission of Japan to ASEAN*
09:20 – 09:30	Self-Introduction of Meeting Participants
Agenda 2: Adoption of Agenda and Introduction of the Project	
09:30 – 09:40	Adoption of the Agenda *by Ms Mazalina Ali, Special Departmental Coordinator (SDC) for MFRDMD*
09:40 – 10:00	Introduction of the Project *by Mr. Mohammad Faisal Md. Saleh, Project Component Leader*
Agenda 3: Overview and Technical Presentation ***Chairperson: Chief of SEAFDEC/MFRDMD***	
10:00 – 10:30	Overview of Framework and Best Practices on Management of Marine Debris and ALDFG *by Keynote Speaker*
10:30 – 11:00	Group Photo and Morning break
11:00 – 11:30	Marine Debris and ALDFG: Global and Regional Perspectives and their Impacts on Ecosystems, Fisheries, and Livelihoods *by Assoc. Prof. Dr. Fauziah Shahul Hamid, Resource Person*
Agenda 4: Country And Department Presentation on Current Status and Challenges of Marine Debris and ALDFG	
11:30 – 12:00	Brunei Darussalam
12:00 – 12:30	Cambodia
12:30 – 13:00	Indonesia
13:00 – 14:30	Lunch Break
14:30 – 15:00	Malaysia
15:00 – 15:30	DOF Sabah
15:30 – 16:00	Philippines
16:00 – 16:30	Singapore
16:30 – 17:00	Tea Break

Day 2 (22 January 2026, Thursday) *Chairperson: Chief of SEAFDEC/MFRDMD*	
09:00 – 09:30	Thailand
09:30 – 10:00	Viet Nam
10:00 – 10:20	Activity 1-1 (1): Information Gathering to Estimate the Amount of ALDFG at Pilot Sites (Thailand) *By Mr. Santiphong Putsa, SEAFDEC/TD*
10:20 – 10:50	Activity 1-1-(1): Information Gathering to Estimate the Amount of ALDFG at Pilot Sites (Malaysia) *By SDC for MFRDMD*
10:50 – 11:20	Morning Break
11:20 – 11:50	Activity 1-1-(2): Monitoring on the ALDFG at Accumulated Pilot Sites and Development of Removal Guidance of the ALDFG *By Mr. Muhammad Amirullah Al Amin bin Ayob, SEAFDEC/MFRDMD*
11:50 – 12:20	Activity 2-2-(1): Research and Evaluation on Amount of Marine Debris Collected by Different Types of Fishing Gears during the Fishing Activities at Sea *By Ms. Hamizah Nadia Alias @ Yusof, SEAFDEC/MFRDMD*
12:20 – 12:50	Activity 4-1: Development of Methods on Marking of Fishing Gears and Promotion on Marking of Fishing Gears *By Mr. Nakaret Yasuk, SEAFDEC/TD*
13:00 – 14:30	Lunch Break
Agenda 5: Drafting of ALDFG Regional Technical Guidelines	
14:30 – 16:30	Discussion for Developing the ALDFG Regional Technical Guidelines *Facilitator: Resource Person*
16:30 – 17:00	Tea Break
Day 3 (23 January 2026, Friday) *Chairperson: Chief of SEAFDEC/MFRDMD*	
09:00 – 10:00	Discussion on the First Draft of ALDFG Regional Technical Guidelines *Facilitator: Resource Person*
10:00 – 10:30	Morning Break
10:30 – 12:20	Presentation on the First Draft of ALDFG Regional Technical Guidelines *by Resource Person*
Agenda 6: Way Forward	
12:20 – 12:30	Way Forward *by Project Component Leader*
12:30 – 15:00	Lunch Break
15:00 – 16:00	Adoption of Meeting Report
Agenda 7: Closing Session	
16:00 – 16:10	Closing Session *by Deputy Chief of SEAFDEC/MFRDMD*
16:10 – 16:30	Tea Break
24 January 2026 (Saturday)	
08:00 – 12:00	Check-out hotel

Regional Technical Meeting (RTM) on Marine Debris & ALDFG
21-23 January 2026, Royale Chulan Seremban,
Negeri Sembilan, Malaysia

INTRODUCTION OF THE PROJECT

Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia

By
Mohammad Faisal Md Saleh
SEAFDEC/MFRDMD

21.1.2026



INTRODUCTION ON MARINE DEBRIS

- Marine debris is a pressing global issue requiring cooperative responses.
- Impacts include threats to biodiversity, fishery productivity, human health, and economic sustainability.
  - ❖ Some marine debris that could be collected as by catch from fishing activities are discarded back into the sea and becoming sources of microplastic in the future
  - ❖ The risk from contamination and characteristics of micro plastics in freshwater and marine fish for securing food safety is not still clear
- Southeast Asia faces severe challenges due to the high volume of marine debris. Thus, ASEAN has been working to combat the issue.
  - ❖ During the 34th ASEAN Summit held in Thailand on 22 June 2019, ASEAN Member States (AMSs), adopted the "*Bangkok Declaration on Combating Marine Debris in the ASEAN Region*," and endorsed the implementation of the "*ASEAN Framework of Action on Marine Debris*."
  - ❖ These TWO regional frameworks show ASEAN commitment in tackling the marine debris issues.







INTRODUCTION ON ALDFG

- In the fisheries sector, Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) has recently drawn attention as one of the significant sources of marine debris.
- It includes fishing nets, lines, traps, and other fishing gears that are no longer actively managed, often due to operational accidents, severe weather events, or lack of proper disposal facilities. Once adrift, ALDFG becomes a persistent form of marine pollution because of its durable synthetic composition, often persisting for decades.
- Economically, ALDFG imposes costs on fishers, industries, and governments through reduced fish stocks, damaged vessels, and increased cleanup efforts
- It is necessary to investigate the situation of ALDFG and develop effective countermeasures to reduce marine debris from fisheries in the region
- As a major component of the broader marine debris problem, ALDFG requires targeted and coordinated measures that integrate technical, regulatory, and community-based approaches.



DETAILS OF THE PROJECT

Japan-ASEAN Cooperation

Name: ***Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia***

Goal: Sustainable management of biodiversity and natural resources

Overall objective: to strengthen regional research collaboration and capacity-building efforts in the fisheries sector, including application of scientific knowledge in regional policies, and monitoring the frameworks of regional initiatives.

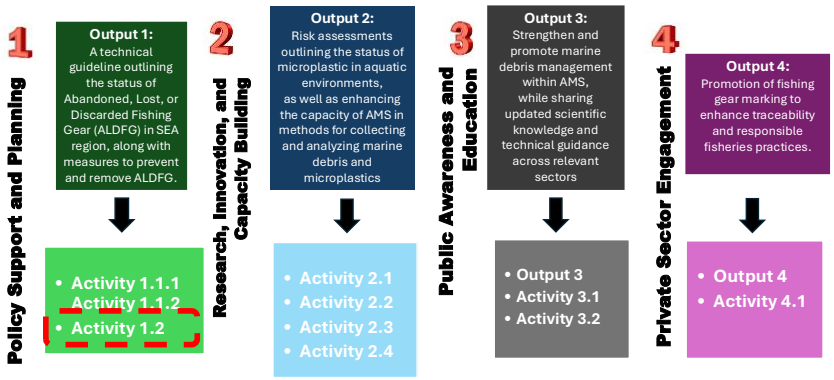
Project Duration: April 2024 – April 2026

Funder: Japan - ASEAN Integration Fund (JAIF)

Participating Countries: ALL Member Countries except LAO PDR

Department of SEAFDEC involved: Secretariat, TD, MFRDMD & IFRDMD

Four (4) priority fields: for combating marine debris in Southeast Asia, according to ASEAN Framework of Action on Marine Debris



Activity 1.2

Information exchange on ALDFG situation and countermeasures in AMSs

This Activity 1.2 will be accomplished through Regional Workshop/Meeting and the development of technical guidance on ALDFG countermeasures.

- In preparation for the regional meeting, it was necessary to develop a questionnaire assessing ALDFG in ASEAN Member States (AMSs).

➢ From 13–15 May 2025, MFRDMD conducted an internal workshop with the Resource Person, **Assoc. Prof. Dr. Fauziah Shahul Hamid**, at the SEAFDEC/MFRDMD Office in Kuala Terengganu to design the questionnaire. The article of this internal workshop was published in SEAFDEC Newsletter Volume 48 Number 2.

- The draft questionnaire, titled "Assessment of Marine Debris and Abandoned, Lost or Discarded Fishing Gear (ALDFG)", was successfully prepared.
- The questionnaire underwent several rounds of review before dissemination (Example: an online discussion with the Resource Person on 1 August 2025).

➢ On 10 August 2025, the questionnaire was distributed to focal points of nine AMSs (excluding Lao PDR). The deadline for AMSs to provide feedback was set for 11 September 2025.

➢ On 7 September 2025, MFRDMD issued invitations to AMSs to attend the Regional Technical Workshop, initially scheduled for 14–16 October 2025.

- However, due to financial constraints, the workshop date was rescheduled, and a postponement letter was circulated to all AMSs on 21 September 2025.

➢ On 9 October 2025, MFRDMD held an online discussion with the Resource Person to prepare the first draft of the Technical Guidelines, incorporating inputs and comments received during the Online Quarterly Meeting with the SEAFDEC Secretariat and SEAFDEC/IFRDMD on 30 September 2025.

➢ On 30 October 2025, MFRDMD convened a Preparatory Meeting with the Resource Person at the SEAFDEC/MFRDMD Office in Kuala Terengganu to discuss the upcoming Regional Technical Meeting (RTM) on Marine Debris and ALDFG. This article of this meeting is scheduled to be published in SEAFDEC Newsletter Volume 48 Number 4.

➢ Following several discussions, the RTM was finalized to be held from 21–23 January 2026.





Let's take care of our ocean

THANK YOU

ANNEX 6

KEYNOTE ADDRESS

Regional Technical Meeting on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region
21 January 2026
Royal Chulan Hotel, Seremban, Negeri Sembilan, Malaysia

By: *Mr. Ruzaidi Mamat*, Senior Director of Capture Fishery Resources Division,
Department of Fisheries Malaysia

"Overview of Framework and Best Practices on Management of Marine Debris and ALDFG"

Assalamualaikum Warahmatullahi Ta'ala Wabarakatuh, and a very good morning.

First Secretary of the Mission of Japan to ASEAN,

ASEAN Secretariat,

Distinguished delegates from Brunei Darussalam, Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Viet Nam,

Representatives from SEAFDEC Secretariat and Training Department,

Chiefs, Deputy Chief, representatives and members of the meeting secretariat of SEAFDEC/MFRDMD.

Part 1 – INTRODUCTION

First and foremost, I would like to express my sincere appreciation to SEAFDEC for the invitation and the opportunity to deliver this keynote address. This Regional Technical Meeting provides a valuable platform for SEAFDEC Member Countries to exchange experiences, strengthen technical understanding, and enhance regional cooperation in addressing marine debris and Abandoned, Lost or Discarded Fishing Gear, or ALDFG—an issue that directly affects fisheries sustainability and marine ecosystem health in our region.

Against this backdrop, this Regional Technical Meeting is both timely and highly relevant. It comes at an important moment, as marine debris and ALDFG continue to gain increasing attention as shared regional challenges, underscoring the urgent need for coordinated, practical and regionally responses. As highlighted through this project, marine debris has evolved into a significant environmental and socioeconomic challenge in Southeast Asia, driven by rapid development, increased reliance on marine resources, and plastic pollution from both land-based and sea-based sources. In response, ASEAN Member States have demonstrated strong regional commitment through the adoption of the Bangkok Declaration on Combating Marine Debris and the ASEAN Framework of Action on Marine Debris.

Within this broader context, ALDFG represents a particularly serious concern due to its impacts on marine ecosystems, fisheries sustainability, navigation safety, and coastal livelihoods. Its transboundary nature highlights the need for coordinated regional action, supported by relevant international frameworks and best practices.

In line with these priorities, SEAFDEC, through its Marine Fishery Resources Development and Management Department (MFRDMD), is convening this Regional Technical Meeting with support from the Japan-ASEAN Integration Fund.

This RTM serves as a collaborative platform for ASEAN Member States to review the current status of marine debris and ALDFG, exchange experiences and knowledge, and work towards the development of practical technical guidelines to support effective countermeasures for the region. More importantly, it seeks to strengthen regional cooperation, foster science–policy dialogue, and enhance institutional capacity, in line with regional commitments and global objectives for sustainable fisheries and marine ecosystem conservation.

Part 2 - GLOBAL FRAMEWORKS AND BEST PRACTICES: FAO INITIATIVES

At the global level, the Food and Agriculture Organization of the United Nations (FAO) has consistently identified ALDFG as a critical concern due to its significant environmental, economic and safety impacts. Given its transboundary nature, FAO emphasizes that regional and international cooperation is essential to effectively address ALDFG as part of the broader challenge of marine debris and sea-based plastic pollution. During the thirty-third Session of the FAO Committee on Fisheries (2018), Voluntary Guidelines for the Marking of Fishing Gear (VGMFG) was endorsed. This Guidelines adopt a systems-based approach, covering not only gear identification, but also enforcement, reporting of lost gear, recovery mechanisms, and environmentally sound disposal of unwanted fishing gear. It aims to prevent and reduce ALDFG, support sustainable fisheries management, improved safety at sea by reducing hazards to navigation, and assist in combating illegal, unreported and unregulated (IUU) fishing.

The Committee also requested FAO to develop a comprehensive global strategy on ALDFG. In response, FAO has initiated a series of actions under its work on responsible fishing operations to support the implementation of these Guidelines. Among others, FAO is developing a dedicated Fishing Gear Marking Toolkit to facilitate States and Regional Fisheries Bodies; conducted capacity building programs to facilitate states and regional fisheries body in implementing gear marking contributing to responsible fishing operations and sustainable fisheries management; developed the Global ALDFG Survey to support evidence-based decision-making; as well as jointly leading the GESAMP Working Group on Sea-based Sources of Marine Litter (WG 43) with International Maritime Organization to strengthen scientific understanding of sea-based sources of marine litter, particularly from the fishing and shipping sectors, including their relative contributions and the range and extent of impacts.

Part 3 - INTERNATIONAL MARITIME ORGANIZATION (IMO): ROLES AND INITIATIVES

Ladies and gentlemen,

As you may be aware, besides FAO, The International Maritime Organization (IMO) also plays a central role in addressing marine pollution from ships through legally binding international instruments. A key framework is MARPOL Annex V, which generally prohibits the discharge of all garbage into the sea, except as provided otherwise in regulations 4, 5, and 6 of the Annex, which are related to food waste, cargo residues, cleaning agents and additives and animal carcasses.

Under MARPOL Annex V, garbage includes all kinds of food, domestic and operational waste, all plastics, cargo residues, incinerator ashes, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically.

To support effective implementation, the IMO's Marine Environment Protection Committee (MEPC) has developed and adopted the Guidelines for the Implementation of MARPOL Annex V, providing practical guidance to Governments, ships and port operators on compliance, enforcement and waste management practices.

These provisions are directly relevant to preventing marine litter from shipping and fishing activities and complement programme-based initiatives, such as the IMO–FAO OceanLitter Programme, by providing a strong regulatory foundation to reduce marine debris and ALDFG.

As for Malaysia, the Ministry of Transport Malaysia serves as the National Focal Point for the implementation of MARPOL Annex V. At the same time, the Department of Fisheries Malaysia remains fully committed to supporting its effective implementation within the fisheries sector. This is undertaken through close inter-agency coordination and collaboration with relevant authorities, to ensure that existing mechanisms are functioning effectively in addressing marine debris and ALDFG.

OceanLitter Programme is a global initiative, implemented in collaboration with FAO, to prevent and reduce marine litter, particularly marine plastic litter, from maritime transport and fisheries activities. The Programme supports countries, including developing countries, in strengthening national capacities, policies and institutional frameworks to reduce, monitor and prevent marine plastic litter from ships, including fishing vessels. It promotes multi-stakeholder engagement, including with the private sector, encourages improved plastic waste management practices, and fosters inclusive participation, while facilitating regional and global partnerships.

Aligned with the IMO Action Plan to Address Marine Plastic Litter from Ships and complemented by FAO-led initiatives, the OceanLitter Programme supports practical measures such as the implementation of the FAO Voluntary Guidelines for the Marking of Fishing Gear, contributing to the sharing of best practices, strengthened regional cooperation, and the transition towards a more sustainable, low-plastics maritime and fisheries sector.

Part 4 - INTERGOVERNMENTAL NEGOTIATING COMMITTEE ON PLASTIC POLLUTION

At the global level, an important milestone was reached in March 2022, when the United Nations Environment Assembly (UNEA-5.2) adopted a resolution to develop an internationally legally binding instrument on plastic pollution, including in the marine environment. Through this resolution, UNEA requested the Executive Director of the United Nations Environment Programme (UNEP) to convene an Intergovernmental Negotiating Committee, or INC.

The INC is tasked with developing the instrument based on a comprehensive life-cycle approach to plastics, encompassing production, design, use and disposal. Since its establishment, the INC has convened multiple negotiating sessions, reflecting strong global engagement and a shared recognition that plastic pollution, including marine debris, and ALDGF which requires coordinated international action.

Moving forward, the INC process signals a clear global direction towards a binding and integrated response to plastic pollution. Therefore, it is crucial for all of us to work together in addressing all aspects of plastic pollution including reporting and reducing incidents of ALDFG as well as exploring other conservation and management measures taking into consideration national priorities and capacities.

Part 5- CLOSING

In closing, against the backdrop of numerous global initiatives and our region's shared concern, I would like to encourage all participants to engage actively and share openly throughout this meeting. I am confident that the outcomes of this RTM will contribute meaningfully to strengthen regional cooperation, practical guidance, and more effective management of marine debris and ALDFG in Southeast Asia.

In particular, the development of Regional Technical Guidelines on ALDFG for the Southeast Asian region is, in my view, will serve as an important milestone, providing regionally appropriate guidance that reflects our shared context, marine environment, and fisheries practices.

With that, I wish you all a productive and successful meeting. Thank you.



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Presentation Overview

- Introduction to Plastic Pollution
- Distribution: Land to Sea
- Ecological Impacts of Marine Debris and ALDFG
- Impacts on Fisheries & Coastal Livelihoods
- ALDFG-Specific Solutions
- Conclusion and Call to Action

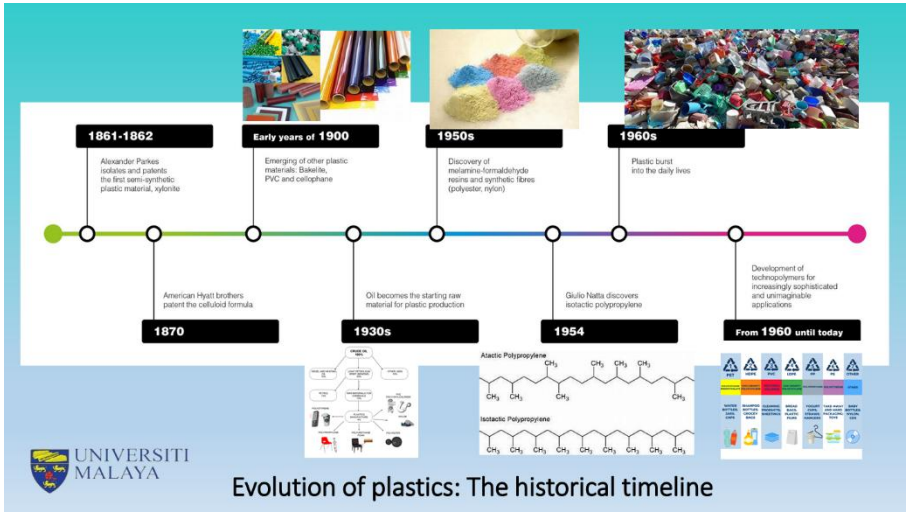
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Section 1: Introduction to Plastic Pollution

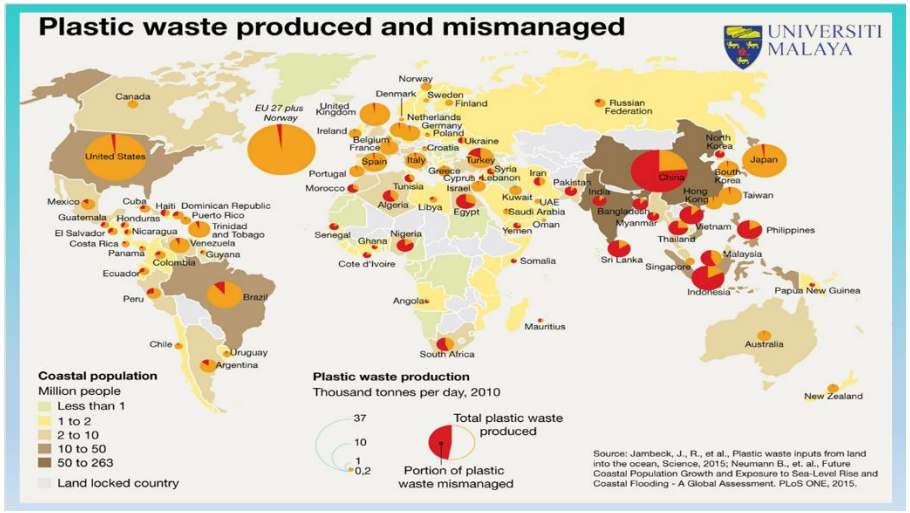
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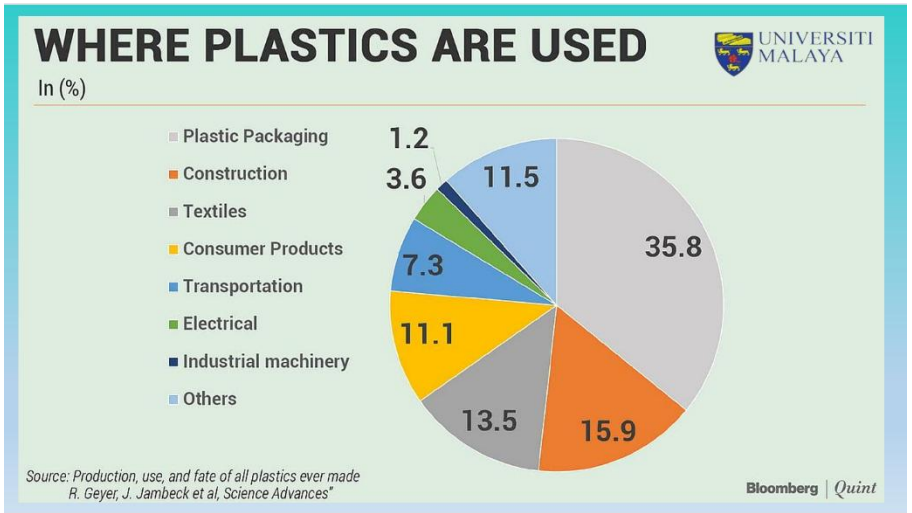
Plastic Pollution – A Global Crisis

- Global plastic production exceeds 400 million tonnes annually.
- 79% ends up in landfills or the natural environment.
- mismanaged waste, single-use plastics, industrial leakage.
- Why it matters: persistent, widespread, and harmful to ecosystems.
- Plastic pollution is a cross-boundary environmental challenge.


1861-1862
Alexander Parkes isolates and patents the first semi-synthetic plastic material, xylonite
Early years of 1900
Emerging of other plastic materials: Bakelite, PVC and cellophane
1950s
Discovery of melamine-formaldehyde resins and synthetic fibres (polyester, nylon)
1960s
Plastic burst into the daily lives
1870
American Hyatt brothers patent the celluloid formula
1930s
Oil becomes the starting raw material for plastic production
1954
Giulio Natta discovers isotactic polypropylene
From 1960 until today
Development of technopolymers for increasingly sophisticated and unimaginable applications
Atactic Polypropylene
Isotactic Polypropylene
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Evolution of plastics: The historical timeline


Global plastic waste generation, 1950 - 2030
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Million tons
Year
+8.5% average annual growth since 1950
Global financial crisis
Global oil crisis
$R^2 = 0.9979$
500
400
300
200
100
0
1950
1960
1970
1980
1990
2000
2010
2020
2030

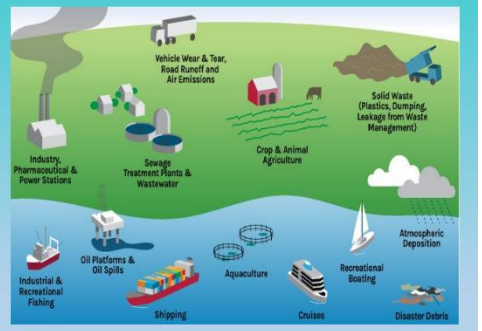

Plastic waste produced and mismanaged
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Coastal population
Million people
Less than 1
1 to 2
2 to 10
10 to 50
50 to 263
Land locked country
Plastic waste production
Thousand tonnes per day, 2010
37
10
1
0,2
Total plastic waste produced
Portion of plastic waste mismanaged
Source: Jambeck, J., R., et al., Plastic waste inputs from land into the ocean, Science, 2015; Neumann B., et. al., Future Coastal Population Growth and Exposure to Sea-Level Rise and Coastal Flooding - A Global Assessment. PLoS ONE, 2015.


WHERE PLASTICS ARE USED
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In (%)
Plastic Packaging
Construction
Textiles
Consumer Products
Transportation
Electrical
Industrial machinery
Others
1.2
3.6
11.5
35.8
7.3
11.1
13.5
15.9
Source: Production, use, and fate of all plastics ever made R. Geyer, J. Jambeck et al, Science Advances"
Bloomberg | Quint

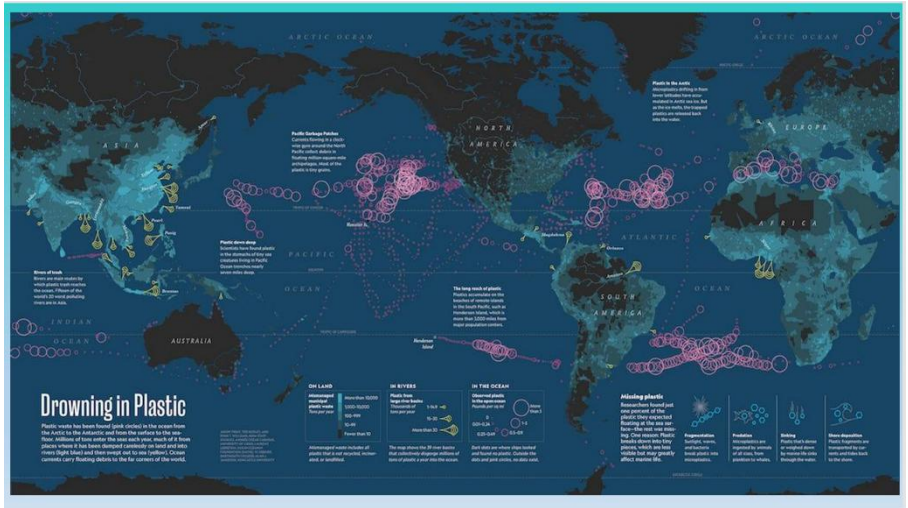
Section 2: From Land to Sea

Sources and Pathways

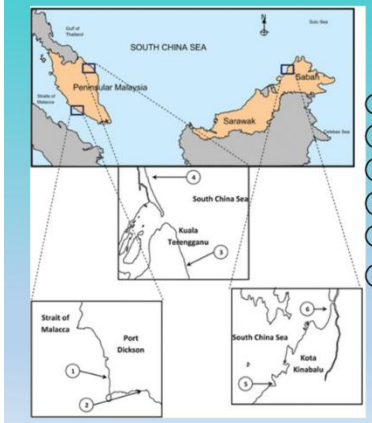
- Land-based: urban runoff, mismanaged waste, agriculture
- 80% of marine plastics originate from land-based sources.
- Sea-based: fisheries, maritime industries
- While most marine debris originates from land, abandoned, lost or discarded fishing gear (ALDFG) represents a distinct and disproportionately harmful category directly linked to fisheries



Source: Graphic developed by K. Youngblood. Jambeck, J., E. Moss, B. Dubey et al. 2020. Leveraging Multi-Target Strategies to Address Plastic Pollution in the Context of an Already Stressed Ocean. Washington DC: World Resources Institute. Available online at: https://oceanpanel.org/blue-papers/pollution-and-regenerative-economy-municipal-industrial-agricultural-and-maritime-waste.



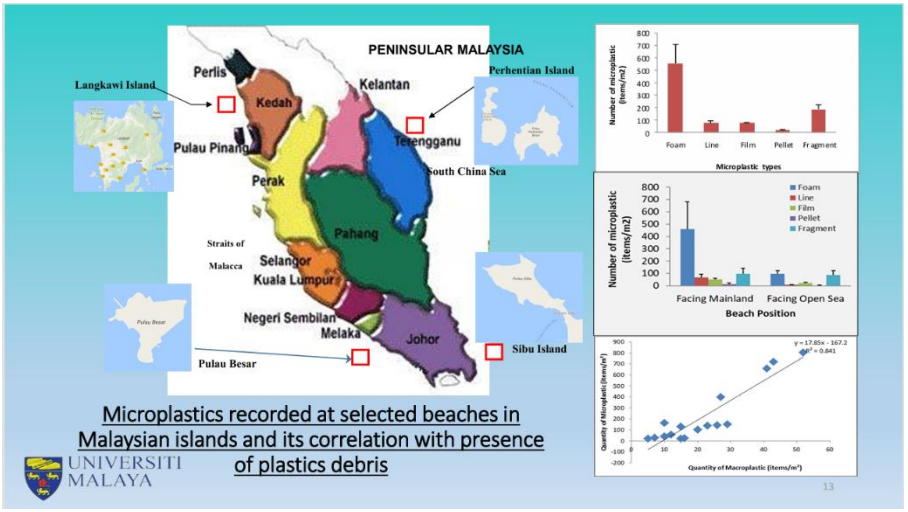
Abundance and Distribution of Plastic Debris in Selected Beaches in Malaysia



Average quantity of plastic debris (items/m²) at the selected beaches.

	Sampling sites	Types of beach	Sampling 1 (items m⁻²)	Sampling 2 (items m⁻²)	Sampling 3 (items m⁻²)
1	Teluk Kemang Beach, Port Dickson	Recreational	219	244	229
2	Pasir Panjang Beach, Port Dickson	Fishing	228	227	179
3	Batu Burok Beach, Kuala Terengganu	Recreational	1064	888	388
4	Seberang Takir Beach, Kuala Terengganu	Fishing	1164	944	528
5	Tanjung Aru Beach, Kota Kinabalu	Recreational	183	213	180
6	Teluk Likas Beach, Kota Kinabalu	Fishing	239	263	245

(Fauziah *et al.*, 2015)



Microplastics recorded at selected beaches in Malaysian islands and its correlation with presence of plastics debris

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13

What is ALDFG (FAO definition)

- any fishing gear left in the marine environment, including gear deliberately abandoned, accidentally lost but unretrievable, or intentionally discarded at sea, continuing to "ghost fish" and harm marine life, habitats, and navigation

- Why ALDFG ≠ general marine litter
- Designed to fish, not to degrade

ALDFG – Scale & Regional Context

- ALDFG = **~10% of marine debris by count, but up to 70% of large plastic mass**
- Fishing nets = dominant source of **entanglement-related mortality**
- ASEAN-specific ALDFG examples
  - Extreme weather & monsoon impacts
  - Trawl net loss
  - Gillnets in coral/seagrass areas

Why ALDFG is Persistent

- Designed to be durable
- Operates continuously (“ghost fishing”)
- Poor retrieval incentives

Section 3: Ecological Impacts of Marine Debris and ALDFG

Physical Harm to Aquatic Organisms

- Organisms mistake plastics for food (e.g., turtles eat plastic bags thinking they're jellyfish).
- Ingestion causes **internal injuries, false satiation (feeling full without nutrition)**, blockages in the digestive tract, and ultimately starvation or death.
- Microplastics can physically **abrade tissues** of filter feeders like mussels and barnacles.

More than 29 kg of plastic was found in sperm whale in Spain in 2018

Biological Impacts of Plastics

- Ingestion, entanglement, bioaccumulation
- Reproductive decline, behavior changes, mortality

Entanglement

Definition: Animals becoming physically trapped or injured by plastic debris.

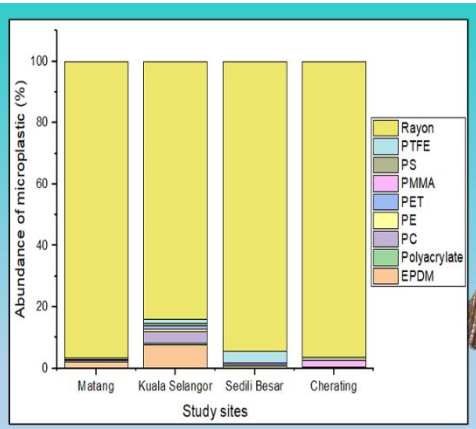
- **Impacts:**
  - **Restricted movement**, impaired feeding or mating
  - **Amputations**, strangulation, infections
  - Increased vulnerability to **predators**

Examples:

- **Turtles** and seals entangled in discarded fishing nets ("ghost gear")
- **Dolphins** and whales caught in plastic strapping bands or bags
- **Seabirds** with legs and wings bound by plastic rings or lines

Effects on Primary Producers , Microbiota, and Ecosystem

- Plastics in sediments can **block light penetration**, disrupting **photosynthesis** in benthic algae and seagrass beds.
- Microplastics may **alter microbial community structures**, reducing diversity and affecting essential ecosystem functions like nitrogen cycling.
- These cascading effects reduce **ecosystem resilience** and affect biodiversity at all levels.





Microplastics act as an additional, chronic stressor that compounds the ecological and fisheries impacts of larger marine debris, including ALDFG.

Biological Impacts of Plastics – From Ingestion to Mortality

Impact Pathway	Biological Effect	Example Species	Outcome
Ingestion	Gut blockage, malnutrition, leaching of toxins	Sea turtles, seabirds, fish	Starvation, reduced growth
Entanglement	Restricted movement, injuries, drowning	Seals, dolphins, seabirds	Infection, amputation, death
Bioaccumulation	Toxic buildup of chemicals in tissue	Zooplankton, mussels, fish	Transfer up food chain to humans
Reproductive Decline	Hormonal disruption, reduced fertility	Fish, bivalves	Population decline, intersex conditions
Behavioral Change	Altered feeding, predator avoidance, and navigation	Juvenile fish, crabs	Reduced survival, impaired responses
Mortality	Asphyxiation, starvation, internal injury from ingestion or entanglement	Turtles, seabirds, whales	Individual deaths, species impact

Section 4: Impacts on Fisheries & Coastal Livelihoods

Impacts of ALDFG on Fisheries

- Ghost fishing reduces stock availability
- Gear conflicts (trawlers vs small-scale fishers)
- Damage to coral reefs → nursery habitat loss
- Cost of gear replacement

Socio-Economic & Livelihood Impacts

- Small-scale fishers most affected
- Reduced catch → income instability
- Safety risks at sea
- Increased time spent disentangling gear

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Environmental Sustainability at Risk

Factor	Environmental Risk	Sustainability Impact
Soil Degradation	Reduced productivity and nutrient cycling	Threatens food systems and land health
Biodiversity Loss	Species extinction and imbalance	Weakens ecosystem resilience and adaptation
Ecosystem Services Decline	Failure in water, food, climate functions	Diminishes nature's ability to support life

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Section 5: ALDFG-Specific Solutions

ALDFG–Specific Solutions

- Gear marking & traceability
- Retrieval incentives
- Deposit-refund schemes
- Biodegradable panels / weak links
- Port reception facilities
- Fisher training & reporting

Technological Innovations

Mitigation Measure	Description	Sustainability Contribution
Biodegradable Materials	Eco-friendly plastics that break down naturally	Reduce waste persistence, lower fossil fuel use
Cleanup Devices	Tools to remove plastics from waterways	Restore habitats, prevent marine harm
Detection & Monitoring	Tech to measure, track, and analyze plastic pollution	Data-driven decision-making, improved management

Biodegradable Materials: Sustainable Alternatives to Conventional Plastics

- **Benefits:**
  - Reduce reliance on fossil-fuel-based plastics
  - Minimize accumulation of persistent waste
  - Support circular economy and **low-carbon production cycles**
  - Reduce the ecological footprint, less dependency on petroleum
- **Challenges:**
  - May still require specific conditions (e.g., industrial composting) to degrade
  - Risk of **"greenwashing"** if not certified or properly managed
  - Need for clear **labeling and disposal infrastructure**

ALDFG and Marine Debris Retrieval Initiatives

Detection and Monitoring Technologies: Data-Driven Management

- To mitigate effectively, we must **know where, how much, and what type of plastic pollution exists**
- **Technologies Include:**
  - **Remote sensing & drones** for mapping plastic accumulation on coastlines or floating debris at sea
  - **Artificial intelligence & image analysis** to track litter and trends
  - **Smart buoys & GPS-tagged bottles** to understand plastic movement
- **Benefits:**
  - Enables **targeted interventions and policy actions**
  - Helps track the success of mitigation efforts
  - Supports **early warning systems** for pollution hotspots



Regional Collaboration: ASEAN and Beyond

- **ASEAN Regional Action Plan for Combating Marine Debris (2021–2025):**
  - Focus areas: Policy harmonization, technology, data sharing, capacity building
  - Encourages national roadmaps and voluntary actions by industry
- **Notable Initiatives:**
  - **SEA Circular Project (UNEP & COBSEA):** Industry and community engagement in SEA countries
  - **Malaysia's National Marine Litter Policy (draft)** aligned with ASEAN goals
  - **Indonesia's National Plastic Action Plan:** Target to reduce 70% ocean plastics by 2025
- **Sustainability Link:**
  Fosters **regional integration**, shared responsibility, and **scalable solutions** to a transboundary issue.

Community-based monitoring and fisher participation

- Behavior change campaigns
- Community clean-ups
- Role of youth and education



Call to Actions

- Strengthen data & reporting
- Integrate ALDFG into national fisheries management
- Support fishers through incentives and capacity-building, rather than punitive approaches.
- Science–policy–community interface

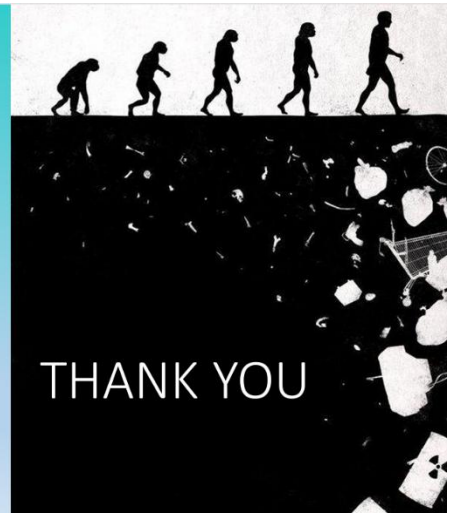
Conclusion

- ALDFG is a high-impact, low-visibility threat
- Ecological, economic & livelihood impacts are intertwined
- Prevention > retrieval
- Regional cooperation is essential

"The choice to be a consumer of plastic products is totally ours. Thus, be more responsible with that choice! Promote plastic recycling and stop plastic pollution!"

fauziahsh@um.edu.my

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جابتن ڤرايكانن
DEPARTMENT OF FISHERIES
MINISTRY OF PRIMARY RESOURCES AND TOURISM

BRUNEI DARUSSALAM COUNTRY REPORT: QUESTIONNAIRE ON MARINE DEBRIS & ABANDONED, LOST OR DISCARDED FISHING GEAR (ALDFG)

Regional Technical Meeting (RTM) on Marine Debris and Abandoned, Lost or Discarded Fishing Gear (ALDFG) in Southeast Asian Region

21 - 23 January 2026
Seremban, Malaysia



FISHING ZONATION IN BRUNEI DARUSSALAM

FISHING ZONATION IN BRUNEI DARUSSALAM	
Zone 1	Zone 1A: Area between 0 to 3 nautical miles (nm) from shore that are designated for Full Time and Part Time small-scale fishers
	Zone 1B: Area between 3.1 to 7 nm from shore that are permitted for small scale fishers registered as companies.
Zone 2	Area between 7.1 to 20 nm from shore that are allowed for fishing activities by commercial fishing vessels (specification: less than 60 GT, less than 350 HP)
Zone 3	Area between 20.1 to 45 nm from shore permitted for fishing activities by larger commercial fishing vessels (specification: 60-150 GT, 351-600 HP)
Zone 4	Area between 45.1 to 200 nm from shore that are designated for fishing activities by larger commercial fishing vessels (specification: 150.1-230 GT, 600-800 HP)



PART 1: NATIONAL FISHING PROFILE

MAIN TYPES OF FISHING GEAR USED IN PELAGIC FISHERIES IN BRUNEI DARUSSALAM

No.	Gear	Operational Area	Fishing Industry
1	**Purse seine**	**7.1nm to 200nm** Zone 2 - Zon 4	Commercial Fisheries Industry
2	**Hook and lines**	**0nm to 45nm** Zone 1A- Zon 3	Small-Scale Fisheries Industry
3	**Drift net / gill net**	**0nm to 45nm** Zone 1A- Zon 3	Small-Scale Fisheries Industry
4	**Longlines**	**3.1nm to 200nm** Zone 1B-Zone 4	**Commercial Fisheries Industry** Small-Scale Fisheries Industry
5	**Trawl (Bottom Trawler only)**	**7.1nm to 45 nm** Zone 2 - Zone 3	Commercial Fisheries Industry
6	**Trap**	**3.1 nm to 45nm** Zone 1B - Zone 3	Small-Scale Fisheries Industry

PART 1: NATIONAL FISHING PROFILE

MAIN FISH LANDING PORT IN BRUNEI DARUSSALAM

Name of port	Muara Fish Landing Complex *Only for commercial fishing vessels
Operator/Authority	Muara International Fish Landing Sdn Bhd
Number of vessels serviced	50 commercial vessels
Size of port area	4.5 hectares
Available facilities related to marine debris	General waste bins, crane



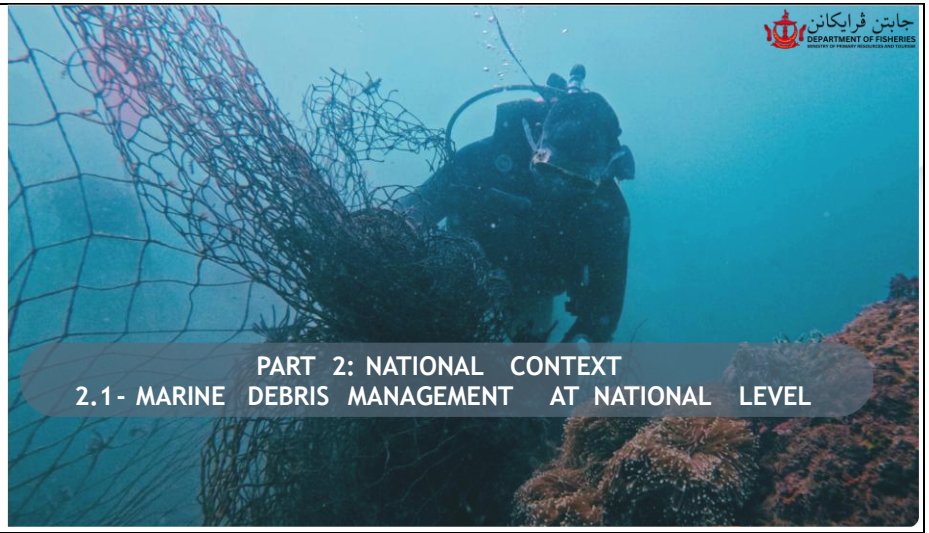
MUARA FISH LANDING COMPLEX



JERUDONG BEACH SLIPWAY

SMALL-SCALE LANDING SITES

- Landing sites are generally small and widely dispersed across the country
- Some landing sites has general waste bins



PART 2: NATIONAL CONTEXT
2.1 - MARINE DEBRIS MANAGEMENT AT NATIONAL LEVEL

PART 2.1 - MARINE DEBRIS MANAGEMENT AT NATIONAL LEVEL

WHICH GOVERNMENT AGENCIES ARE THE MOST RESPONSIBLE FOR MARINE DEBRIS MANAGEMENT? (PLEASE INCLUDE ROLES: POLICY, ENFORCEMENT, MONITORING, OUTREACH)

1.	**Department of Environment, Parks and Recreation, Ministry of Development**	1. Data collection, policy planning and monitoring of waste management in Brunei Darussalam 2. Conduct public education outreach on sustainability practices in waste management
2.	**Department of Fisheries, Ministry of Primary Resources and Tourism**	1. Compilation of data on Abandoned, Lost, or Discarded Fishing Gear (ALDFG). 2. Monitoring and retrieval of ALDFG in collaboration with NGOs. 3. Conduct awareness programmes for fishers and the general public on ALDFG through roadshows and media outreach.

No existing regulations or policies addressing marine debris.



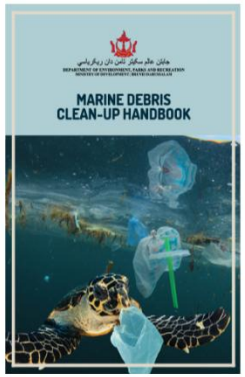
Borneo Bulletin

Fisheries Dept removes ghost nets at popular dive site

PART 2.1 - MARINE DEBRIS MANAGEMENT AT NATIONAL LEVEL

PLEASE DESCRIBE THE NATIONAL OR LOCAL INITIATIVES AIMED AT REDUCING MARINE DEBRIS. (E.G., BEACH CLEAN-UPS, RECYCLING CAMPAIGNS, SINGLE-USE PLASTIC BANS, AWARENESS CAMPAIGN, COMMUNITY ENGAGEMENT)

No.	initiatives	Period of implementation
1	**No Plastic Bag Everyday Initiative**	Ongoing
2	**Coastal Marvel: Nationwide Beach Clean Up Campaign**	Ongoing
3	**Bring Your Own Reusables Initiative**	Ongoing
4	**Plastic Bottle Free Initiative**	Ongoing
5	**Nationwide Recycling Day**	Ongoing
6	**Public Education Awareness Talks on Waste Management**	Ongoing



PART 2.1 - MARINE DEBRIS MANAGEMENT AT NATIONAL LEVEL

RANK THE MAIN SOURCES OF MARINE DEBRIS IN YOUR COUNTRY

No.	Sources
1	**Domestic waste**
2	**Fishing activities**
3	**River discharge**
4	**Shipping/port operations**
5	**Tourism**
6	**Industrial waste**

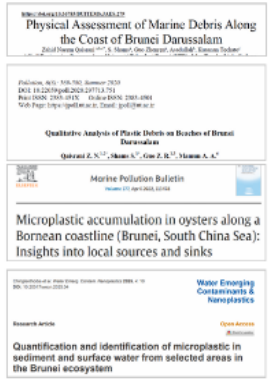
WASTE MATERIALS THAT ARE MOSTLY FOUND IN MARINE DEBRIS (GIVE RANKING, 1 = HIGHEST ABUNDANT, 5= LEAST ABUNDANT):

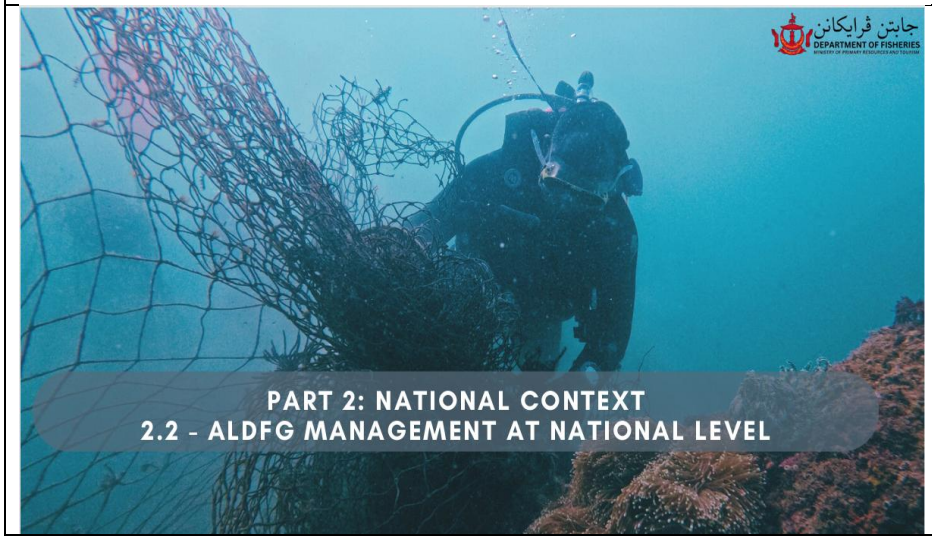
No.	Materials
1	**Plastic**
2	**Vegetation & Wood**
3	**E-Waste (Water Village)**
4	**Rubber**
5	**Paper, Glass, Metal**

PART 2.1 - MARINE DEBRIS MANAGEMENT AT NATIONAL LEVEL

Have any studies or research been conducted on marine debris in your country? (Government and/or research)	ANSWER
	NO

Has your government/university/NGO/private sector published any official reports on marine debris?		ANSWER
		YES
If YES, choose the organization and provide the link	Source of the publication:	Provide link:
	University	**Link: https://doi.org/10.36785/BUITEMS.JAES.279**
	University	**Link: https://doi.org/10.22059/poll.2020.297713.751**
	University	**Link: https://doi.org/10.1016/j.marpolbul.2022.113478**
	University	**Link: https://doi.org/10.20517/wecn.2025.04**





2.2 - ALDFG MANAGEMENT AT NATIONAL LEVEL

		ANSWER
1	Is there any national or sub-national initiative or research on ALDFG?	**NO**

		ANSWER
2	What is the current research capacity status on ALDFG in your country?	**Beginner**

			FREQUENCY FOUND	LOCATION OF THE ALDFG FOUND
3	Name the main fishing gear that contribute to ALDFG in your country	**Nets**	**Always**	**Coastal**
		Traps	**Sometimes**	**Coastal**
		Hook and longline	**Always**	**Coastal**
		***FADs (Fish Aggregating Devices)**	**Sometimes**	**Offshore**

		ANSWER
4	How severe is the issue of ALDFG in your country?	**Moderate**

2.2 - ALDFG MANAGEMENT AT NATIONAL LEVEL

5	Is there a reporting system for ALDFG incidents in your country?	ANSWER
		NO
	If YES, give link or brief information	**Link: No official reporting system but through reporting by public and NGOs**

6	Socio-economic impacts of ALDFG in your country		SELECT ALL THAT APPLY
		Reduced aesthetic / tourism value	**YES**
		Economic loss from gear loss	**YES**
		Reduction in fish catch	**YES**
		Navigation hazard	**YES**

2.2 - ALDFG MANAGEMENT AT NATIONAL LEVEL

7	Impacts of ALDFG include		SELECT ALL THAT APPLY
		Damage to coral / artificial reefs	**YES**
		Ghost fishing	**YES**
		Threats to marine mammals/turtles	**YES**
		Microplastics pollution	**YES**
		Contamination of food chain (health)	**Not sure/Not yet studied**
		Diver entanglement	**YES**
		Increase cost for clean up	**YES**

2.2 - ALDFG MANAGEMENT AT NATIONAL LEVEL



PELONG ROCKS

Ghost Net entangled on coral reef



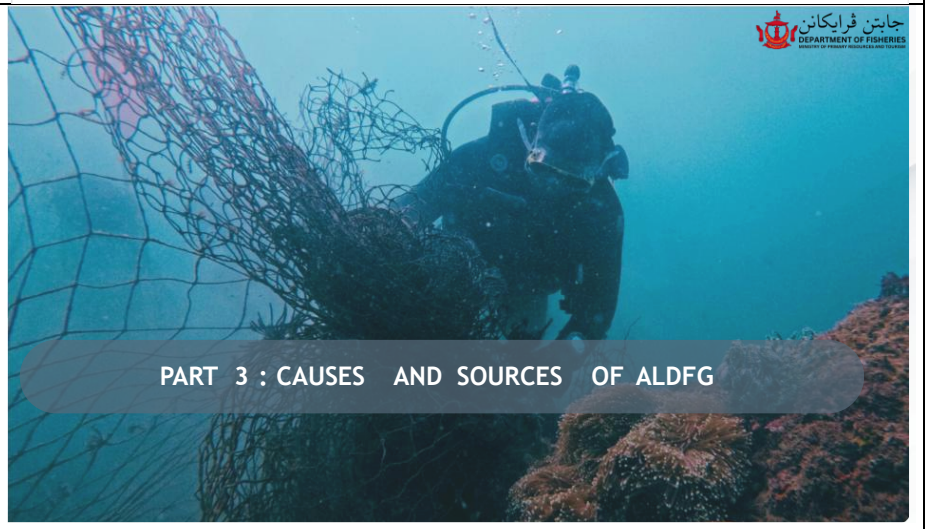
BEDUKANG ISLAND

Ghost Net found buried in marine sediment



DOLPHIN WRECK

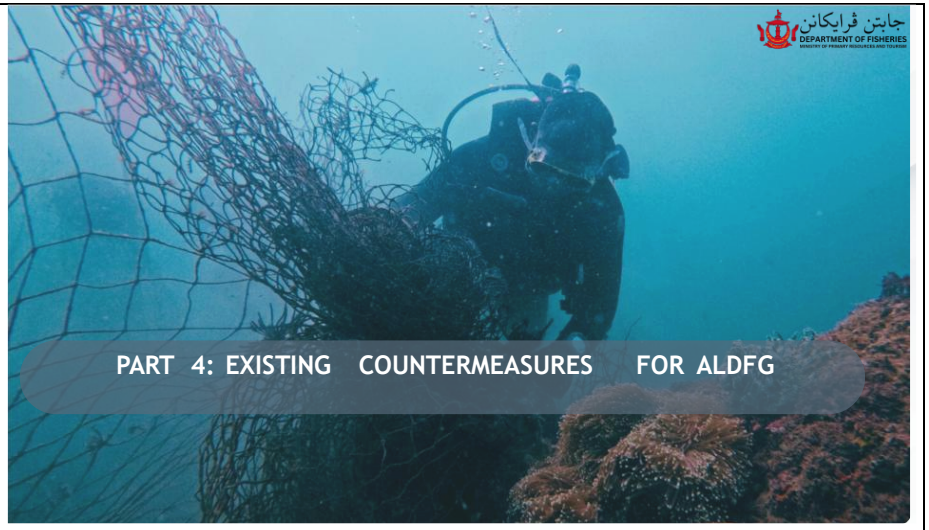
Ghost Net entangled on a shipwreck, actively capturing fish



PART 3 : CAUSES AND SOURCES OF ALDFG

			SELECT ALL THAT APPLY
1	Identify the main cause of ALDFG occurence in your country	Storms/extreme weather	YES
		Intentional discarding	YES
		Gear conflict (e.g. entanglement)	YES
		Theft	Not sure
		Poor construction/weak material	Not sure
		Lack of retrieval systems	YES
		Entanglement with natural/artificial reefs or seabed	YES
		Lack of regulations or disposal infrastructure	YES

			SELECT ALL THAT APPLY
2	Common hotspots for ALDFG accumulation in your country	Coral reefs	YES
		Artificial reefs	YES
		Shipwrecks	YES
		Rocky seabed	YES
		Jetties or landing sites	YES
		Mariculture farms	NO
		Fishing villages	YES



4.1 PREVENTION AND MITIGATION MEASURES

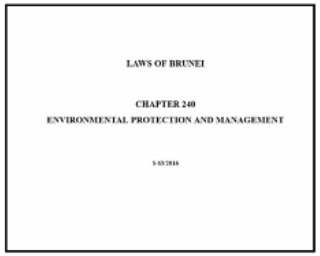
			SELECT ALL THAT APPLY
1	Which of the following prevention or mitigation mechanisms are available in your country?	Gear marking/tracking systems	NO
		Licensing or reporting requirements	NO
		Training for fishers	NO
		Awareness campaigns	NO
		Penalties for gear discards	NO
		Incentives for bringing debris back	NO
		Use of biodegradable gear materials	NO

4.2 RETRIEVAL AND CLEANUP

		ANSWER	HOW MANY YEARS NOW?
1	Is there any programme led by government to retrieve/remove ALDFG?	YES	5-10 year
2	Is there any programme led by local community to retrieve/remove ALDFG?	YES	5-10 year
3	Are there clean-up efforts organized by government?	YES	5-10 year
4	Are there clean-up efforts led by local communities?	YES	More than 10 year
5	Do ports have facilities for receiving discarded or damaged gear?	YES	More than 10 year
6	Are there any incentives for fishers or communities to engage in retrieval or clean-up?	NO	

4.3 LEGAL AND INSTITUTIONAL FRAMEWORK

		ANSWER
1	Are there any regulations or policies addressing ALDFG in your country?	**YES**
	If YES, provide name(s) and brief description.	• **Environment Protect and Management Act, Chapter 240 - Under Department of Environment Park & Recreation** • **MARPOL Annex 5 - Under Maritime and Port Authority**


LAWS OF BRUNEI

CHAPTER 240

ENVIRONMENTAL PROTECTION AND MANAGEMENT



4.3 LEGAL AND INSTITUTIONAL FRAMEWORK

			SELECT ALL THAT APPLY
2	What do these regulations/policies address?	Gear recycling	**NO**
		Bring-back schemes	**NO**
		Biodegradable gear materials	**NO**
		Effective disposal systems	**YES**
		Microplastics monitoring by agencies	**YES**

		ANSWER (Full name of Agency)
3	Which agencies are responsible to manage ALDFG in your country? (if applicable)	**Department of Environment Park & Recreation**
		Maritime and Port Authority of Brunei Darussalam
		Department of Fisheries

4.3 LEGAL AND INSTITUTIONAL FRAMEWORK

		ANSWER
4	If your country has relevant regulations on ALDFG, does current enforcement sufficient to prevent ALDFG occurence?	**NEED IMPROVEMENT**

		ANSWER
5	If national laws / policies on ALDFG are absent, could other international framework (e.g the Codes of Conduct for Responsible Fisheries) be expanded to address ALDFG?	**YES**

4.3 LEGAL AND INSTITUTIONAL FRAMEWORK

			ANSWER (Level of compliance)
6	What is the level of compliance for	1) FAO Code of Conduct for Responsible Fisheries	**PARTIALLY**
		2) FAO Voluntary Guidelines	**NOT YET**
		3) Regional Fisheries Management Organizations (RFMOs)	**IN PROCESS**
		4) MARPOL Annex V	**FULLY**
		5) United Nation Sustainable Development Goals (SDG 14 Life Below Water)	**FULLY**
		6) UNCLOS	**FULLY**
		7) UNEP's Global Partnership on Marine Litter (GPML)	**NOT SURE**

		ANSWER
7	Are you aware about FAO Guidelines on ALDFG?	**YES**

4.4 READINESS AND CAPACITY

1	The level of awareness about ALDFG among fishers/coastal communities in your country is:	ANSWER
		LOW

2	Please rate your country's readiness to tackle ALDFG:	ANSWER
		SOMEWHAT READY

3	Do your country have the capacity/availability to address ALDFG? (select all that apply):		SELECT ALL THAT APPLY
		Financial resources	NO
		Facilities	NO
		Expertise	NO
		Technology/innovation	NO
		None of the above	YES

4.4 READINESS AND CAPACITY

4	The main motivators for ALDFG prevention in your country are		SELECT ALL THAT APPLY
		Compliance with law	YES
		Incentives/subsidies	NO
		Penalties/Fines	YES
		Awareness	YES
		Environmental protection	YES



PART 5: STAKEHOLDER ENGAGEMENT ON ALDFG MANAGEMENT

1	The fishers/ fishing communities are involved in the following efforts (regarding ALDFG)		SELECT ALL THAT APPLY
		Prevention	NO
		Gear retrieval	YES
		Local clean up initiatives	YES
		Reporting	NO
		Policy-making	NO
		None of above	

2	The fishers/ fishing communities have conducted ALDFG prevention activities with the following partner		SELECT ALL THAT APPLY
		Government	YES
		NGOs	YES
		Private sector (gear manufacturers, seafood companies, CSR)	NO
		Academia/researchers	NO
		International organizations	NO

PART 5: STAKEHOLDER ENGAGEMENT ON ALDFG MANAGEMENT

			SELECT ALL THAT APPLY
3	Does your country respond to international pressures by these measures?	Develop policy	Proposal stage
		Adapt and comply	NO
		Participate in studies	NO
		Present existing data	YES
		Public communication campaigns	YES
		Other (please specify):	



PART 6: GAPS AND NEEDS IN ALDFG MANAGEMENT

			SELECT ALL THAT APPLY
1	The key challenges in addressing ALDFG in your country are	Data gaps	YES
		Lack of policy/govt initiative	YES
		Weak enforcement	YES
		Jurisdictional uncertainty of governing bodies (e.g. overlapping mandates, lack of coordination)	YES
		Poor infrastructure	YES
		Limited technical capacity	YES
		Low public awareness	YES
		Financial limitations	YES
		Geographic challenges	YES

PART 6: GAPS AND NEEDS IN ALDFG MANAGEMENT

			SELECT ALL THAT APPLY
2	The support/capacity building that your country need to address ALDFG include	Monitoring systems	YES
		Training	YES
		Community models	YES
		Policy guidance	YES
		Funding	YES
		R&D and technology support	YES
		Technical guidelines	YES
		Case studies	YES
		Facility upgrades	YES
		Inter-agency collaboration	YES
		International networking (e.g.CITES, WWF, GERF)	YES



PART 7: RECOMMENDATIONS

		ANSWER (Can give few suggestion)
1	What mitigation measures at national level should be prioritized to reduce ALDFG?	1. **Capacity building** • for DOF personnel on monitoring, reporting and management of ALDFG • Training on gear marking and appropriate procedures to follow in cases of gear loss or when ghost nets are encountered. 2. **Awareness program** • Raise awareness among fishers and the public on the impacts of ALDFG and responsible fishing practices. 3. **Stakeholders' engagement** • Strengthen cooperation among government agencies, fishers, NGOs, and other stakeholders to support prevention and management of ALDFG. 4. **Baseline studies** • Carry out basic assessments to identify ALDFG sources, hotspots, and impacts to support effective management actions.
2	What kind of suggestions for regional collaboration and knowledge sharing would you like to share?.	**Strengthen regional collaboration through** • **coordinated policy development,** • **harmonised management approaches, and** • **structured platforms for knowledge and best-practice exchange.**

PART 7: RECOMMENDATIONS

		ANSWER (Can give few suggestion)
3	How do you promote gear marking among fishers?	**Through Awareness and Legal Framework** • Awareness: **Educate fishers on the benefits of gear marking, such as preventing gear loss and aiding recovery.** • Legal Framework: **introduce clear rules requiring gear marking and ensure compliance through monitoring and**
4	How can recycling (ALDFG item processed into secondary materials) or upcycling (ALDFG item converted into valuable product) of ALDFG be implemented (or planned)?	**Government initiatives at first and then to any interested private sectors or through Foreign Direct Investment**

THANK YOU!

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Muara Fisheries Complex
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Muara BT1728, Brunei Darussalam



THE REGIONAL TECHNICAL MEETING (RTM) ON MARINE DEBRIS AND ABANDONED, LOST OR OTHERWISE DISCRADED FISHING GEAR (ALDFG) IN SOUTHEAST ASIAN REGION

ASSESSMENT OF MARINE DEBRIS AND MARINE DEBRIS AND ABANDONED, LOST OR OTHERWISE DISCRADED FISHING GEAR (ALDFG) IN CAMBODIA

LENG SYVANN
FISHERIES ADMINISTRATION OF CAMBODIA

21-23 JANUARY 2026
ROYALE CHULAN HOTEL
NEGERI SEMBILAN, MALAYSIA

Part 1. National Fishing

			Click ranking	OPERATIONAL AREA (give distance from shore)
1	**Main types of fishing gear used in pelagic fisheries (Rank according to level of dominant, 1: the most dominant)**	*e.g: Purse seine*	*1*	*e.g: 8nm to 12 nm*
		Trawl	3	8 to 12 m
		Purse seine	6	10 to 20 m
		Drift net / gill net	1	8 to 12 m
		Trap	2	8 to 12 m
		Hook and lines	5	5 to 10 m
		Longlines	4	5 to 10 m
		Others, specify		

		Name of port	Operator/Authority	Number of vessels serviced	Size of port area (meter square / acres / hectares)	Available facilities related to marine debris (eg: recycling bin, ALDFG collecting centre, crane)
2	**List 5 main fish landing ports in your country and provide the details**	1. Kampong Kandal in Kampot province	Provincial Administration Authority	226	1500 meter square	Not available
		2) Trapeang Ropov in Kampot province	Commmunity Fisheries	224	5500 meter square	Not available
		3) Ou Krasa in Kep province	Commmunity Fisheries	224	5000 meter square	Not available
		4) Mitepheap in Preah Sihanouk province	Commmunity Fisheries	520	7900 meter square	Not available
		5) Steung Hav in Preah Sihanoun province	Commmunity Fisheries	224	6500 meter square	Not available

Part 2: National Context

Part 2 .1: Marine Debris Management at National Level

Please describe the current situation regarding marine debris:

		ANSWER (Full name of Agency)	Roles
1	Which government agencies are the **MOST** responsible for marine debris management? (Please include roles: policy, enforcement, monitoring, outreach)	1) Fisheries Administration of Ministry of Agriculture, Forestry, and Fisheries	Responsible for the management of coastal area and marine fisheries resources, including marine debris focusing on how debris impacts fish stock, marine ecosystem, and the livelihood of fishers.
		2) Ministry of Environment	Developing national policies, strategies, and action plans on solid waste management and plastic pollution.

		Name of regulation/policy	Year Enacted	Scope covered (E.g: collection of marine debris; prohibition on disposal)	Is the regulation currently enforced?
2	List existing regulations or policies addressing marine debris in your country	1) Law on Fisheries in 2006	2006	Prohibits the "dumping, flowing, draining toxic substances, polluting or harming to aquatic animals and plants in the fishery domains." (Article 98).	YES
		2) Sub-decree No.27 on the Control of Water Pollution in 1999	1999	Disposal of solid waste or any garbage or hazardous substances into public water areas or into public drainage system shall be strictly prohibited and Storage or disposal of solid waste or any garbage and hazardous substances that lead to the pollution of water shall be strictly prohibited." (Article 8)	YES
		3) Sub-decree No.36 on Solid Waste Management in 1999		The sub-decree devolves responsibility to provinces and cities, which are expected to develop "short, medium and long-term waste management plans for their areas" (Article 5).	YES

Continue

		ANSWER	Period of implementation
3	Please describe the national or local initiatives aimed at reducing marine debris. (e.g., beach clean-ups, recycling campaigns, single-use plastic bans, awareness campaign, community engagement)	1)FFI has collaborated with FiA/MAFF,Kuda Divers and other dive shops to collect data regarding underwater debris.	2-5 years ago
		2) Khmer Dive Group, private sector, (volunteer) they collect the ghost gears every month in order to protect coral reef and marine life in sea water.	Ongoing
		3) Community Fisheries in collaboration with local authorities and NGOs to collect solid waste/trash including fishing net around beach and mangrove forest every month.	Ongoing
		4. Beach clean up campaign is launched every year during World Ocean Day by NGOs collaborating with FiA, Provincial Authorities, and Community Fisheries	Ongoing

Continue

4	Rank the main sources of marine debris in your country		CHOOSE THE RANK
		Domestic waste	1
		Industrial waste	5
		Fishing activities	2
		Shipping/port operations	6
		Tourism	3
		River discharge	4
		Others (please specify): AQUACULTURE WASTE	7
5	Waste materials that are mostly found in marine debris (Give ranking, 1 = highest abundant, 5= least abundant):		CHOOSE THE RANK
		Plastic	1
		Paper	5
		Glass	2
		Metal	4
		Rubber	3
		Others (please specify):	
6	Have any studies or research been conducted on marine debris in your country? (Government and/or research)		ANSWER: YES
	If YES, provide titles / authors or links to publications		Link/ authors:
7	Has your government/university/NGO/private sector published any official reports on marine debris?		ANSWER: YES
	If YES, choose the organization and provide the link	Source of the publication:	Provide link:
		NGOs	..\..\..\UNEP-COBSEA\FFI_2020_Investigating_Solutions_to_Marine_Plastic_Pollution_in.pdf
			Link:
			Link:
			Link:

Part 2.2 - ALDFG Management at National Level

Existing Data and Research on ALDFG

1	Is there any national or sub-national initiative or research on ALDFG?		ANSWER: YES
	If YES, name the main programme or research		1) FFI and RUPP conduced research on Investigation Solution to Marine Plastic Pollution in Cambodia in 2020 2) FFI and WB did research on Solid Waste Management and Marine Litter in the Koh Rong Archipelago in 2021 3) UNEP studied research on Marine Litter in Cambodia: A Situation Analysis and Recommendations for Planning and Action in 2022
2	What is the current research capacity status on ALDFG in your country?		ANSWER: Beginner
3	Name the main fishing gear that contribute to ALDFG in your country		FREQUENCY FOUND / LOCATION OF THE ALDFG FOUND
		Nets	Always / Coastal
		Traps	Sometimes / Coastal
		Hook and longline	Sometimes / Near landing site
		FADs (Fish Aggregating Devices)	Sometimes / Coastal
		Other (please specify):	

Continue

4	How severe is the issue of ALDFG in your country?		ANSWER: Critical
5	Is there a reporting system for ALDFG incidents in your country?		ANSWER: NO
	If YES, give link or brief information		Link:
6	Socio-economic impacts of ALDFG in your country		SELECT ALL THAT APPLY
		Reduced aesthetic / tourism value	YES
		Economic loss from gear loss	YES
		Reduction in fish catch	YES
		Navigation hazard	YES
		Other (specify):	
7	Impacts of ALDFG include		SELECT ALL THAT APPLY
		Damage to coral / artificial reefs	YES
		Ghost fishing	YES
		Threats to marine mammals/turtles	YES
		Microplastics pollution	YES
		Contamination of food chain (health)	YES
		Diver entanglement	YES
		Increase cost for clean up	YES
		Other (specify):	
8	**Please attach photos or case reports on ALDFG, if available.**		https://drive.google.com/drive/folders/1dXyu0q-nC8yigcEwRD2SbcxLSk0lrTHr?usp=sharing
	Please add related photos into the this google drive link		

PART 3 : CAUSES AND SOURCES OF ALDFG

1	Identify the main cause of ALDFG occurrence in your country		SELECT ALL THAT APPLY
		Storms/extreme weather	YES
		Intentional discarding	YES
		Gear conflict (e.g. entanglement)	YES
		Theft	YES
		Poor construction/weak material	YES
		Lack of retrieval systems	YES
		Entanglement with natural/artificial reefs or seabed	YES
		Lack of regulations or disposal infrastructure	YES
		Other (please specify):	
2	Common hotspots for ALDFG accumulation in your country		SELECT ALL THAT APPLY
		Coral reefs	YES
		Artificial reefs	YES
		Shipwrecks	YES
		Rocky seabed	YES
		Jetties or landing sites	YES
		Mariculture farms	YES
		Fishing villages	YES
		Others (specify):	

PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.1 Prevention and Mitigation Measur es

		SELECT ALL THAT APPLY
Which of the following prevention or mitigation mechanisms are available in your country?	Gear marking/tracking systems	NO
	Licensing or reporting requirements	NO
	Training for fishers	YES
	Awareness campaigns	YES
	Penalties for gear discards	NO
	Incentives for bringing debris back	YES
	Use of biodegradable gear materials	NO
	Other (specify):	

4.2 Retrieval and Cleanup

		ANSWER	HOW MANY YEARS NOW?
1	Is there any programme led by government to retrieve/remove ALDFG?	NO	
2	Is there any programme led by local community to retrieve/remove ALDFG?	YES	2-5 years
3	Are there clean-up efforts organized by government?	YES	2-5 years
4	Are there clean-up efforts led by local communities?	YES	2-5 years
5	Do ports have facilities for receiving discarded or damaged gear?	NO	
6	Are there any incentives for fishers or communities to engage in retrieval or clean-up?	YES	5-10 years

4.3 Legal and Institutional Framework

Are there any regulations or policies addressing ALDFG in your country?		ANSWER: YES
If YES, provide name(s) and brief description.		Law on Fisheries, Sub-decree No.27 on the Control of Water Pollution in 1999, Sub-decree No.36 on Solid Waste Management in 1999, and Sub-decree No.168 on the Management of Plastic Bags in 2017.
What do these regulations/policies address?		SELECT ALL THAT APPLY
	Gear recycling	YES
	Bring-back schemes	NO
	Biodegradable gear materials	NO
	Effective disposal systems	YES
	Microplastics monitoring by agencies	YES
	Others (specify):	
Which agencies are responsible to manage ALDFG in your country? (if applicable)		ANSWER (Full name of Agency) 1) Fisheries Administration of Ministry of Agriculture, Forestry, and Fisheries 2) Ministry of Environment
If your country has relevant regulations on ALDFG, does current enforcement sufficient to prevent ALDFG occurrence?		ANSWER: NEED IMPROVEMENT
If national laws / policies on ALDFG are absent, could other international framework (e.g the Codes of Conduct for Responsible Fisheries) be expanded to address ALDFG?		ANSWER: YES
What is the level of compliance for		ANSWER (Level of compliance)
	1) FAO Code of Conduct for Responsible Fisheries	FULLY
	2) FAO Voluntary Guidelines	FULLY
	3) Regional Fisheries Management Organizations (RFMOs)	PARTIALLY
	4) MARPOL Annex V	PARTIALLY
	5) United Nation Sustainable Development Goals (SDG 14 Life Below Water)	PARTIALLY
	6) UNCLOS	PARTIALLY
	7) UNEP's Global Partnership on Marine Litter (GPML)	FULLY
Are you aware about FAO Guidelines on ALDFG?		ANSWER: YES

4.4 Readiness and Capacity

1	The level of awareness about ALDFG among fishers/coastal communities in your country is:		ANSWER: LOW
2	Please rate your country's readiness to tackle ALDFG:		ANSWER: SOMEWHAT READY
3	Do your country have the capacity/availabilityto address ALDFG? (select all that apply):		SELECT ALL THAT APPLY
		Financial resources	NO
		Facilities	NO
		Expertise	NO
		Technology/innovation	NO
		None of the above	YES
		Other (please specify):	
4	The main motivators for ALDFG prevention in your country are		SELECT ALL THAT APPLY
		Compliance with law	YES
		Incentives/subsidies	YES
		Penalties/Fines	YES
		Awareness	YES
		Environmental protection	YES
		Other (please specify):	

PART 5: STAKEHOLDER ENGAGEMENT ON ALDFG MANAGEMENT

			SELECT ALL THAT APPLY
1	The fishers/ fishing communities are involved in the following efforts (regarding ALDFG)	Prevention	NO
		Gear retrieval	NO
		Local clean up initiatives	NO
		Reporting	NO
		Policy-making	NO
		None of above	YES
2	The fishers/ fishing communities have conducted ALDFG prevention activities with the following partner		SELECT ALL THAT APPLY
		Government	YES
		NGOs	YES
		Private sector (gear manufacturers, seafood companies, CSR)	YES
		Academia/researchers	YES
		International organizations	YES
3	Does your country respond to international pressures by these measures?		SELECT ALL THAT APPLY
		Develop policy	YES
		Adapt and comply	YES
		Participate in studies	YES
		Present existing data	YES
		Public communication campaigns	YES
		Other (please specify):	

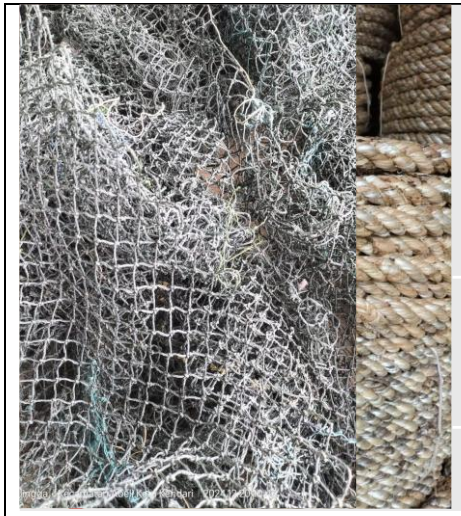
PART 6: GAPS AND NEEDS IN ALDFG MANAGEMENT

			SELECT ALL THAT APPLY
1	The key challenges in addressing ALDFG in your country are	Data gaps	YES
		Lack of policy/govt initiative	YES
		Weak enforcement	YES
		Jurisdictional uncertainty of governing bodies (e.g. overlapping mandates, lack of coordination)	NO
		Poor infrastructure	YES
		Limited technical capacity	YES
		Low public awareness	YES
		Financial limitations	YES
		Geographic challenges	NO
		Others (please specify):	
			SELECT ALL THAT APPLY
2	The support/capacity building that your country need to address ALDFG include	Monitoring systems	YES
		Training	YES
		Community models	YES
		Policy guidance	YES
		Funding	YES
		R&D and technology support	YES
		Technical guidelines	YES
		Case studies	YES
		Facility upgrades	YES
		Inter-agency collaboration	YES
		International networking (e.g.CITES, WWF, GERF)	YES
		Other (please specify):	

THANK YOU VERY MUCH FOR YOUR ATTENTION

PART 7: RECOMMENDATIONS

		ANSWER (Can give few suggestion)
1	What mitigation measures at national level should be prioritized to reduce ALDFG?	1. To enhance capacity building to National and Sub-National Fisheries Officers; 2. To raise public awareness and dissemination raising on impacts of marine debris; 3) To promote policy and regulation of retrieving and recycling marine litter; 4) To strengthen and extend in collaboration with development partners and donors to promote and support further research and monitoring on marine debris.
2	What kind of suggestions for regional collaboration and knowledge sharing would you like to share?.	1. Propose the baseline survey of ALDFG; 2. Study research on ALDFG; and 3) Create Regional Technical Working Network for ALDFG.
3	How do you promote gear marking among fishers?	It is needed to train fishermen about how to mark fishing gears and show advantage of gear marking to them.
4	How can recycling (ALDFG item processed into secondary materials) or upcycling (ALDFG item converted into valuable product) of ALDFG be implemented (or planned)?	Cambodia will be planning to recycle ALDFG in the future.



THE REGIONAL TECHNICAL MEETING (RTM) ON MARINE DEBRIS AND ABANDONED, LOST OR OTHERWISE DISCRADED FISHING GEAR (ALDFG) IN SOUTHEAST ASIAN REGION

Antonius Siregar
FISHING VESSEL AND FISHING GEARS ANALYST
DIRECTORATE OF FISHING VESSELS AND FISHING GEAR
DIRECTORATE GENERAL OF CAPTURE FISHERIES
2026

PART 1: NATIONAL FISHING PROFILE

			Click ranking	OPERATIONAL AREA (give distance from shore)
1	Main types of fishing gear used in pelagic fisheries (Rank according to level of dominant, 1: the most dominant)	*e.g: Purse seine*	*1*	*e.g: 8nm to 12 nm*
		Trawl	7	over 12nm for industrial
		Purse seine	2	over 12nm
		Drift net / gill net	1	over 12nm
		Trap	3	over 12nm
		Hook and lines	4	over 12nm
		Longlines	5	over 12nm
		Others, specify		over 12nm

		Name of port	Operator/Authority	Number of vessels serviced	Size of port area (meter square / acres / hectares)	Available facilities related to marine debris (eg: recycling bin, ALDFG collecting centre, crane)
2	List 5 main fish landing ports in your country and provide the details	1) PPS Nizam Zahman	KKP			
		2) PPN Bajomulyo	Provincial Government			
		3) PPN Tegalsari	Provincial Government			
		4) PPS Cilacap	KKP			
		5) PPN Muncar	Provincial Government			

PART 2: NATIONAL CONTEXT

Part 2 - Marine Debris Management at National Level

Please describe the current situation regarding marine debris:

		ANSWER (Full name of Agency)	Roles
1	Which government agencies are the **MOST** responsible for marine debris management? (Please include roles: policy, enforcement, monitoring, outreach)	1) Ministry of Environment	carrying out efforts to prevent and reduce land-based waste
		2) Ministry of Marine Affairs and Fisheries	carrying out efforts to prevent and reduce sea-based waste
		3) Ministry of Public Work	preparing facilities and infrastructure for waste prevention and reduction

		Name of regulation/policy	Year Enacted	Scope covered (E.g: collection of marine	Is the regulation currently enforced?
2	List existing regulations or policies addressing marine debris in your country	1) Law 18/2005	2005	concerning the Management of Household Wa	YES
		2) Perpres No. 83/2018	2018	concerning on marine debris waste manage	YES
		3) MMAF Regulation No. 26/2021	2021	concerning on Pollution Prevention, Damage f	YES

		ANSWER	Period of implementation
3	Please describe the national or local initiatives aimed at reducing marine debris. (e.g., beach clean-ups, recycling campaigns, single-use plastic bans, awareness campaign, community engagement)	1) beach clean up	2-5 years ago
		2) campaign and education	2-5 years ago
		3) national Movement of The Ocean Care Month	2-5 years ago
		4) Providing facilities and infrastructure for waste management in c	2-5 years ago

			CHOOSE THE RANK
4	Rank the main sources of marine debris in your country	Domestic waste	1
		Industrial waste	4
		Fishing activities	6
		Shipping/port operations	3
		Tourism	5
		River discharge	2
		Others (please specify):	7

			CHOOSE THE RANK
5	Waste materials that are mostly found in marine debris (Give ranking, 1= highest abundant, 5= least abundant):	Plastic	1
		Paper	3
		Glass	4
		Metal	5
		Rubber	2
		Others (please specify):	diapers

		ANSWER
6	Have any studies or research been conducted on marine debris in your country? (Government and/or research)	YES
	If YES, provide titles / authors or links to publications	Link/ authors: Authors Reza Cordova, Gede

			ANSWER
7	Has your government/university/NGO/private sector published any official reports on marine debris?		YES
	If YES, choose the organization and provide the link	Source of the publication:	Provide link:
		Government	Link: https://sampahlaut.id/
			Link:
			Link:
			Link:
			Link:

PART 2: NATIONAL CONTEXT			
Part 2 - ALDFG Management at National Level			
Existing Data and Research on ALDFG			
1	Is there any national or sub-national initiative or research on ALDFG?		**ANSWER**: YES
	If YES, name the main programme or research		1) Indonesia 3R ALDFG Pilot Project GGGI 2) 3)
2	What is the current research capacity status on ALDFG in your country?		**ANSWER**: Not available
3	Name the main fishing gear that contribute to ALDFG in your country		**FREQUENCY FOUND** / **LOCATION OF THE ALDFG FOUND**
		Nets	Sometimes / Near landing site
		Traps	Sometimes / Offshore
		Hook and longline	
		FADs (Fish Aggregating Devices)	
		Other (please specify):	
4	How severe is the issue of ALDFG in your country?		**ANSWER**: Moderate

5	Is there a reporting system for ALDFG incidents in your country?		**ANSWER**: NO
	If YES, give link or brief information		Link:
6	Socio-economic impacts of ALDFG in your country		**SELECT ALL THAT APPLY**
		Reduced aesthetic / tourism value	
		Economic loss from gear loss	
		Reduction in fish catch	
		Navigation hazard	
		Other (specify):	
7	Impacts of ALDFG include		**SELECT ALL THAT APPLY**
		Damage to coral / artificial reefs	
		Ghost fishing	
		Threats to marine mammals/turtles	
		Microplastics pollution	
		Contamination of food chain (health)	
		Diver entanglement	
		Increase cost for clean up	
		Other (specify):	
8	**Please attach photos or case reports on ALDFG, if available.** Please add related photos into the this googledrive link		https://drive.google.com/drive/folders/1dXyu0q-nC8yigcEwRD2SbcxLSk0lrTHr?usp=sharing

PART 3 : CAUSES AND SOURCES OF ALDFG			
1	Identify the main cause of ALDFG occurence in your country		**SELECT ALL THAT APPLY**
		Storms/extreme weather	YES
		Intentional discarding	NO
		Gear conflict (e.g. entanglement)	YES
		Theft	
		Poor construction/weak material	NO
		Lack of retrieval systems	YES
		Entanglement with natural/artificial reefs or seabed	YES
		Lack of regulations or disposal infrastructure	NO
		Other (please specify):	
2	Common hotspots for ALDFG accumulation in your country		**SELECT ALL THAT APPLY**
		Coral reefs	
		Artificial reefs	
		Shipwrecks	
		Rocky seabed	
		Jetties or landing sites	
		Mariculture farms	
		Fishing villages	
		Others (specify):	no available data

PART 4: EXISTING COUNTERMEASURES FOR ALDFG			
4.1 Prevention and Mitigation Measures			
1	Which of the following prevention or mitigation mechanisms are available in your country?		**SELECT ALL THAT APPLY**
		Gear marking/tracking systems	YES
		Licensing or reporting requirements	NO
		Training for fishers	NO
		Awareness campaigns	YES
		Penalties for gear discards	NO
		Incentives for bringing debris back	NO
		Use of biodegradable gear materials	NO
		Other (specify):	

PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.2 Retrieval and Cleanup

		ANSWER	HOW MANY YEARS NOW?
1	Is there any programme led by government to retrieve/remove ALDFG?	NO	2-5 year
2	Is there any programme led by local community to retrieve/remove ALDFG?	YES	2-5 year
3	Are there clean-up efforts organized by government?	YES	2-5 year
4	Are there clean-up efforts led by local communities?	YES	2-5 year
5	Do ports have facilities for receiving discarded or damaged gear?	YES	2-5 year
6	Are there any incentives for fishers or communities to engage in retrieval or clean-up?	NO	2-5 year

PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.3 Legal and Institutional Framework

			ANSWER
1	Are there any regulations or policies addressing ALDFG in your country?		YES
	If YES, provide name(s) and brief description.		Permen KP 26/2021 Circular Letter
2	What do these regulations/policies address?		SELECT ALL THAT APPLY
		Gear recycling	YES
		Bring-back schemes	YES
		Biodegradable gear materials	
		Effective disposal systems	YES
		Microplastics monitoring by agencies	
		Others (specify):	
3	Which agencies are responsible to manage ALDFG in your country? (if applicable)		ANSWER (Full name of Agency)
			1) MMAF
			2)
			3)

			ANSWER
4	If your country has relevant regulations on ALDFG, does current enforcement sufficient to prevent ALDFG occurence?		NEED IMPROVEMENT
5	If national laws / policies on ALDFG are absent, could other international framework (e.g the Codes of Conduct for Responsible Fisheries) be expanded to address ALDFG?		ANSWER
6	What is the level of compliance for		ANSWER (Level of compliance)
		1) FAO Code of Conduct for Responsible Fisheries	PARTIALLY
		2) FAO Voluntary Guidelines	
		3) Regional Fisheries Management Organizations (RFMOs)	
		4) MARPOL Annex V	
		5) United Nation Sustainable Development Goals (SDG 14 Life Below Water)	
		6) UNCLOS	
		7) UNEP's Global Partnership on Marine Litter (GPML)	
7	Are you aware about FAO Guidelines on ALDFG?		ANSWER
			YES

PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.4 Readiness and Capacity

			ANSWER
1	The level of awareness about ALDFG among fishers/coastal communities in your country is:		LOW
2	Please rate your country's readiness to tackle ALDFG:		ANSWER
			SOMEWHAT READY
3	Do your country have the capacity/availability to address ALDFG? (select all that apply):		SELECT ALL THAT APPLY
		Financial resources	NO
		Facilities	
		Expertise	YES
		Technology/innovation	
		None of the above	
		Other (please specify):	
4	The main motivators for ALDFG prevention in your country are		SELECT ALL THAT APPLY
		Compliance with law	YES
		Incentives/subsidies	
		Penalties/Fines	
		Awareness	
		Environmental protection	YES
		Other (please specify):	

PART 5: STAKEHOLDER ENGAGEMENT ON ALDFG MANAGEMENT

			SELECT ALL THAT APPLY
1	The fishers/ fishing communities are involved in the following efforts (regarding ALDFG)	Prevention	YES
		Gear retrieval	
		Local clean up initiatives	YES
		Reporting	
		Policy-making	YES
		None of above	
			SELECT ALL THAT APPLY
2	The fishers/ fishing communities have conducted ALDFG prevention activities with the following partner	Government	YES
		NGOs	YES
		Private sector (gear manufacturers, seafood companies, CSR)	YES
		Academia/researchers	YES
		International organizations	
			SELECT ALL THAT APPLY
3	Does your country respond to international pressures by these measures?	Develop policy	YES
		Adapt and comply	
		Participate in studies	
		Present existing data	
		Public communication campaigns	YES
		Other (please specify):	

PART 6: GAPS AND NEEDS IN ALDFG MANAGEMENT

			SELECT ALL THAT APPLY
1	The key challenges in addressing ALDFG in your country are	Data gaps	YES
		Lack of policy/govt initiative	
		Weak enforcement	
		Jurisdictional uncertainty of governing bodies	
		Poor infrastructure	YES
		Limited technical capacity	YES
		Low public awareness	YES
		Financial limitations	YES
		Geographic challenges	YES
		Others (please specify):	
			SELECT ALL THAT APPLY
2	The support/capacity building that your country need to address ALDFG include	Monitoring systems	YES
		Training	YES
		Community models	YES
		Policy guidance	YES
		Funding	YES
		R&D and technology support	YES
		Technical guidelines	YES
		Case studies	YES
		Facility upgrades	YES
		Inter-agency collaboration	YES
		International networking (e.g.CITES, WWF, GERF)	YES
		Other (please specify):	

PART 7: RECOMMENDATIONS

		ANSWER (Can give few suggestion)
1	What mitigation measures at national level should be prioritized to reduce ALDFG?	Study on ALDFG
2	What kind of suggestions for regional collaboration and knowledge sharing would you like to share?.	Workshop, Information sharing
3	How do you promote gear marking among fishers?	Our government's priority is now on management of ALDFG. For gear marking for better policy formulation we are still collecting data and doing research
4	How can recycling (ALDFG item processed into secondary materials) or upcycling (ALDFG item converted into valuable product) of ALDFG be implemented (or planned)?	by conducting community empowerment program and information dissemination workshop

Terima kasih



DIRECTORATE OF FISHING VESSELS AND FISHING GEAR
DIRECTORATE GENERAL OF CAPTURE FISHERIES
MINISTRY OF MARITIME AFFAIRS AND FISHERIES
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MINISTRY OF AGRICULTURE AND FOOD SECURITY
DEPARTMENT OF FISHERIES MALAYSIA

ASSESSMENT OF MARINE DEBRIS AND ABANDONED, LOST OR DISCARDED FISHING GEAR (ALDFG) IN MALAYSIA



PART 1: NATIONAL FISHING PROFILE

MAIN TYPE OF FISHING GEAR USED IN PELAGIC FISHERIES

Fishing Gear	Ranking	Operational Area (distance from shore)
Purse seine	1	from 5nm above except for Selangor, Perak, Pulau Pinang and Kedah from 8nm above, Sarawak from 12nm above
Drift net / gill net	2	from 0nm above except for Selangor, Perak and Kedah from 1nm above
Trawl	3	from 5nm above except for Selangor, Perak, Pulau Pinang and Kedah from 8nm above
Hook and lines	4	from 0nm above
Longlines	5	from 0nm above except for Selangor, Perak and Kedah from 1nm above
Trap	6	from 0nm above
Others, specify (Lift net)	7	from 0nm above



PART 1: NATIONAL FISHING PROFILE

TOP FIVE MAIN FISHING LANDING PORTS

Name of port	Operator/Authority	Number of vessels serviced				Size of port area	Available facilities related to marine debris
		A	B	C	C2		
1. Kuantan Port	PENERPA/LKIM	140	21	434	164	20 acres	Recycling bin
2. Lumut Port	PENGGERAK/LKIM	0	0	0	35	6.2 acres	Recycling bin
3. Tok Bali Port	LKIM	34	5	91	93	223 acres	Recycling bin
4. Kuala Perlis Port	PELARIS/LKIM	5	8	85	0	6.41 acres	Recycling bin
5. Pulau Kambing Port	PNKKTS/LKIM	56	33	44	0	0.5 acres	Recycling bin





PART 2: NATIONAL CONTEXT

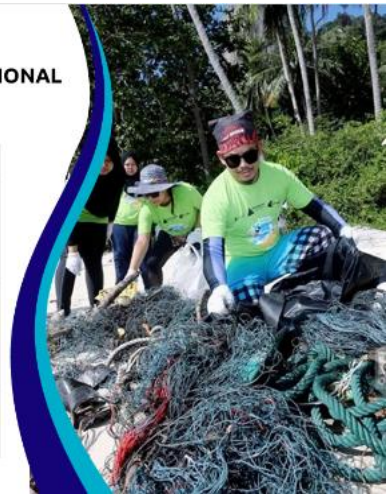
2. MARINE DEBRIS MANAGEMENT AT NATIONAL LEVEL - RESPONSIBLE AGENCIES

Agency	Roles
1. Policy: Ministry of Natural Resources and Environmental Sustainability (NRES)	NRES: Primary national policy maker on marine debris, plastics and environmental sustainability
2. Monitoring: Ministry of Energy Transition and Water Transformation (PETRA) Ministry of Housing and Local Government (KPKT) Department of Environment (DOE) Department of Fisheries (DOF)	PETRA: Conduct research on micro plastics KPKT-SWCorp: For land-based solid waste, KPKT, through SWCorp, enforces the Solid Waste and Public Cleansing Management Act 2007 with role in managing domestic waste and taking action against illegal dumpsites, which are major terrestrial contributors to marine litter. DOE: Enforces the Environmental Quality Act 1974. DOE can take action against land-based pollution from industries and commercial activities that can contribute to marine debris
3. Outreach programme: Department of Fisheries (DOF) LKIM	

PART 2: NATIONAL CONTEXT

PART 2: MARINE DEBRIS MANAGEMENT AT NATIONAL LEVEL - EXISTING REGULATIONS/POLICIES

Name of regulation/policy	Year Enacted	Scope covered	Is the regulation currently enforced?
1) National Marine Litter Policy and Action Plan (2021-2030)	2021	Policy and implementation, deployment of technology and innovation, monitoring and data collection, communication and public awareness, and a "whole-of-nation" approach	Yes
2) Malaysia's Roadmap Towards Zero Single-Use Plastics (2018-2030)	2018	Phase out single-use plastics; reducing plastic waste at its source through education; economic instruments like pollut on charges; promoting eco-friendly alternatives	Yes
3) Merchant Shipping Ordinance 1952	1952	Prohibits the discharge of oil or other harmful substances into the sea	Yes





PART 2: NATIONAL CONTEXT

PART 2: MARINE DEBRIS MANAGEMENT AT NATIONAL LEVEL - NATIONAL/LOCAL INITIATIVES AIMED AT REDUCING MARINE DEBRIS

Initiative	Period of implementation
1. Bans and charges on single-use plastics (based on local states)	5-10 years ago
2. National and local beach clean-up programs (ICC, authorities, CSR programs)	More than 10 years ago
3. Awareness campaigns and community engagement	More than 10 years ago
4. Recycling and waste segregation campaigns	5-10 years ago

PART 2: NATIONAL CONTEXT

PART 2: MARINE DEBRIS MANAGEMENT AT NATIONAL LEVEL

MAIN SOURCES OF MARINE DEBRIS

Sources	Rank
River Discharge	1
Domestic waste	2
Industrial waste	3
Tourism	4
Fishing activities	5
Shipping/port	6

WASTE MATERIAL THAT ARE MOSTLY FOUND IN MARINE DEBRIS

Material	Rank
Plastic	1
Paper	2
Glass	3
Metal	4
Rubber	5
Other: Cigarette butt, fabric, wood	6

PART 2: NATIONAL CONTEXT

PART 2: MARINE DEBRIS MANAGEMENT AT NATIONAL LEVEL

STUDIES/RESEARCH CONDUCTED ON MARINE DEBRIS



OFFICIAL REPORTS ON MARINE DEBRIS











PART 2: NATIONAL CONTEXT
2. ALDFG MANAGEMENT AT NATIONAL LEVEL

EXISTING DATA AND RESEARCH ON ALDFG

STUDIES/RESEARCH CONDUCTED ON MARINE DEBRIS

1. Inventory and impact of ALDFG on marine ecosystems and fisheries resources
2. Removing ghost nets from the ocean and recycling them into valuable products
3. Perceptions of stakeholders on the causes, impacts, and mitigation of ALDFG in Marine Park

CURRENT RESEARCH CAPACITY STATUS

Beginner

MAIN FISHING GEAR THAT CONTRIBUTE TO ALDFG

Fishing Gear	Frequent Found	Location of the ALDFG Found
Nets	Always	Coastal
Traps	Sometimes	Coastal
Hook and longline	Sometimes	Coastal
FADs (Fish Aggregating Devices)	Sometimes	Coastal

REPORTING SYSTEM FOR ALDFG INCIDENTS

Link: https://marinepark.dof.gov.my/en/services/ghost-net-alert-form/

PART 2: NATIONAL CONTEXT
ALDFG MANAGEMENT AT NATIONAL LEVEL
EXISTING DATA AND RESEARCH ON ALDFG

SOCIO-ECONOMIC IMPACTS OF ALDFG

Reduced aesthetic / tourism value	Yes
Economic loss from gear loss	Yes
Economic loss from gear loss	Yes
Economic loss from gear loss	Yes

IMPACTS OF ALDFG

Storms/extreme weather	Yes
Intentional discarding	Yes
Gear conflict (e.g. entanglement)	Yes
Theft	Yes
Poor construction/weak material	Yes
Lack of retrieval systems	Yes
Entanglement with natural/artificial reefs or seabed	Yes
Lack of regulations or disposal infrastructure	Yes

PART 3: CAUSES AND SOURCES OF ALDFG

MAIN COURSE OF ALDFG OCCURENCE

Storms/extreme weather	Yes
Intentional discarding	Yes
Gear conflict (e.g. entanglement)	Yes
Theft	Yes
Poor construction/weak material	Yes
Lack of retrieval systems	Yes
Entanglement with natural/artificial reefs or seabed	Yes
Lack of regulations or disposal infrastructure	Yes

COMMON HOTSPOTS FOR ALDFG ACCUMULATION

Coral reefs	Yes
Artificial reefs	Yes
Shipwrecks	Yes
Rocky seabed	Yes
Jetties or landing sites	Yes
Mariculture farms	No
Fishing villages	Yes

PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.1 PREVENTION AND MITIGATION MEASURES

AVAILABLE PREVENTION OR MITIGATION MECHANISMS

Gear marking/tracking systems	Yes
Licensing or reporting requirements	Yes
Training for fishers	Yes
Awareness campaigns	Yes
Penalties for gear discards	No
Incentives for bringing debris back	No
Use of biodegradable gear materials	No

4.2 RETRIEVAL AND CLEANUP

Is there any programme led by government to retrieve/remove ALDFG?	YES	More than 10 year
Is there any programme led by local community to retrieve/remove ALDFG?	YES	More than 10 year
Are there clean-up efforts organized by government?	YES	More than 10 year
Are there clean-up efforts led by local communities?	YES	5-10 year
Do ports have facilities for receiving discarded or damaged gear?	NO	
Are there any incentives for fishers or communities to engage in retrieval or clean-up?	NO	

PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.3 LEGAL AND INSTITUTIONAL FRAMEWORK

Regulations or policies addressing ALDFG	No
These regulations/policies are intended to address the following matters:	
Gear recycling	No
Bring-back schemes	No
Biodegradable gear materials	No
Effective disposal systems	No
Microplastics monitoring by agencies	No

RESPONSIBLE AGENCIES TO MANAGE ALDFG

1. Ministry of Housing and Local Government (KPKT)
2. Department of Fisheries (DOF)
3. Fisheries Development Authority Malaysia (LKIM)



PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.3 LEGAL AND INSTITUTIONAL FRAMEWORK

Other international framework have been expanded to address ALDFG	Yes
Level of compliance:	
1. FAO Code of Conduct for Responsible Fisheries	Fully
2. FAO Voluntary Guidelines	Partially
3. Regional Fisheries Management Organizations (RFMOs)	Fully
4. MARPOL Annex V	Partially
5. United Nation Sustainable Development Goals (SDG 14 Life Below Water)	Fully
6. UNCLOS	Fully
7. UNEP's Global Partnership on Marine Litter (GPML)	Fully

Malaysia is aware about FAO Guidelines on ALDFG

PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.4 READINESS AND CAPACITY

Level of awareness about ALDFG among fishers/coastal communities in the country	Moderate
Country's readiness to tackle ALDFG	Somewhat ready
Capacity/availability to address ALDFG:	
Financial resources	No
Facilities	No
Expertise	Yes
Technology/innovation	No

PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.4 READINESS AND CAPACITY

Main motivators for ALDFG prevention in the country:	
Compliance with law	No
Incentives/subsidies	No
Penalties/Fines	No
Awareness	Yes
Environmental protection	Yes



PART 5: STAKEHOLDER ENGAGEMENT ON ALDFG MANAGEMENT

Measures are implemented by the country in response to international pressures:	
Develop policy	No
Adapt and comply	No
Participate in studies	Yes
Present existing data	Yes
Public communication campaigns	Yes

PART 7: RECOMMENDATION

What mitigation measures at national level should be prioritized to reduce ALDFG?

- Awareness programme
- Policy development
- Regulatory enactment
- Facilities development (recycling facilities for fishing gear)

What kind of suggestion for regional collaboration and knowledge sharing would you like to share?

- Standardized reporting, Shared regional database, Joint scientific research and/or monitoring
- Established network of regional experts

How do you promote gear marking?

- Standardized reporting, Shared regional database, Joint scientific research and/or monitoring
- Established network of regional experts

How can recycling (ALDFG item processed into secondary materials) or upcycling (ALDFG item converted into valuable product) of ALDFG be implemented (or planned)?

1. Partnerships for ADLFG collection
2. Develop a sorting and processing system
3. Partnerships for upcycling and recycling
4. Create a self-sustaining circular economy

PART 5: STAKEHOLDER ENGAGEMENT ON ALDFG MANAGEMENT

The fishers/ fishing communities are involved in the following efforts (regarding ALDFG):	
Prevention	Yes
Gear retrieval	Yes
Local clean up initiatives	Yes
Reporting	Yes
Policy-making	Yes

The fishers/ fishing communities have conducted ALDFG prevention activities with the following partner:	
Government	Yes
NGOs	Yes
Private sector (gear manufacturers, seafood companies, CSR)	Yes
Academia/researchers	Yes
International organizations	Yes

PART 6: GAPS AND NEEDS IN ALDFG MANAGEMENT

The key challenges in addressing ALDFG:	
Data gaps	Yes
Lack of policy/govt initiative	Yes
Weak enforcement	Yes
Jurisdictional uncertainty of governing bodies (e.g. overlapping mandates, lack of coordination)	Yes
Poor infrastructure	Yes
Limited technical capacity	Yes
Low public awareness	Yes
Financial limitations	Yes
Geographic challenges	Yes

The support/capacity building that country need to address ALDFG:	
Monitoring systems	Yes
Training	Yes
Community models	Yes
Policy guidance	Yes
Funding	Yes
R&D and technology support	Yes
Technical guidelines	Yes
Case studies	Yes
Facility upgrades	Yes
International networking (e.g.CITES, WWF, GERF)	Yes




Thank you

Assessment of Marine Debris and Abandoned, Lost or Discarded Fishing Gear (ALDFG) in Southeast Asian Region

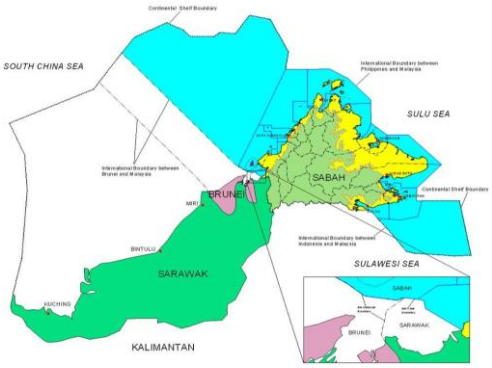
Sabah

21-23 January 2026
Seremban, Negeri Sembilan

1

SABAH

- Land Area 72,500km²
- Coastline ± 1700km
- Fishing ground 92,217km²
- Surrounded by 3 seas
  - South China Sea, Sulu Sea & Celebes sea
- Island & Bay
  - Natural sheltered area
  - ± 400 island



2



Marine Capture Fisheries (2024)

26,682 fishers

13,537 vessel

11,484 license gear (registered)

3



Photos by NSTP

ALDFG Cases - Sabah

2018 - TTAR - 13 unit of fishing gear removed
2022 - Sipadan Island - 900 meter of ghost net
2023 - Mantanani Island - 100kg of ghost net removed
2024 - Taman Tunku Abd. Rahman - 90kg of ghost net removed
2024 - Taman Tunku Abd. Rahman - 140kg of ghost net removed

4

Part 1- National Fishing Profile – Sabah

		Click ranking	OPERATIONAL AREA (give distance from shore)
	e.g: Purse seine	*1*	*e.g: 8nm to 12 nm*
Main types of fishing gear used in pelagic fisheries (Rank according to level of dominant, 1: the most dominant)	Trawl	3	<10GRT - 3nm 10-25GRT - 3nm 25-40GRT- 6nm 40-70GRT - 12nm >70GRT - 20nm
	Purse seine	5	<10GRT - 1nm 10-25GRT - 3nm 25-40GRT-6nm 40-70GRT - 12nm 70-100GRT - 20nm >100GRT - 30nm
	Drift net / gill net	1	Zone A and above
	Trap	6	Zone A and above
	Hook and lines	2	Zone A and above
	Longlines	4	Zone A and above
	Others, specify		

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Part 1- National Fishing Profile

	Name of port	Operator/Authority	Number of vessels serviced	Size of port area (meter square / acres / hectares)	Available facilities related to marine debris (eg: recycling bin, ALDFG collecting centre, crane)
List 5 main fish landing ports in your country and provide the details	1) Kota Kinabalu	SAFMA (semi-gov)	264	1ha	
	2) Sandakan	1 public jetty & 5 private jetty	419	3 ha	
	3) Semporna	1 private jetty (SEAFEST)	273	1ha	
	4) Kudat	15 Jetty (7 main)	123	5ha	
	5) Tawau	1 SAFMA Jetty/1 LKIM Jetty	72	0.5ha	

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Part 2 – National Context

Part 2 – Marine Debris Management at National Level

		ANSWER (Full name of Agency)	Roles
		Policy : NRES	Primary national policy maker on marine debris, plastics, and environmental sustainability
1	Which government agencies are the **MOST** responsible for marine debris management? (Please include roles: policy, enforcement, monitoring, outreach)	Enforcement Agencies MMEA Environmental Protection Department Municipal Council Dewan Bandaraya Kota Kinabalu Monitoring - Jabatan Pelabuhan & Dermaga (Port Authority) Outreach - NGO's (WWF, MRF, Reef Check)	 Campaign reduce 1x use plastic bag

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Part 2 – National Context

Part 2 – Marine Debris Management at National Level

		Name of regulation/policy	Year Enacted	Scope covered (E.g: collection of marine debris; prohibition on disposal)	Is the regulation currently enforced?
2	List existing regulations or policies addressing marine debris in your country	1) National Marine Litter Policy and Action Plan (NMLPAP) 2021 – 2030	2021		Yes
		2)			
		3)			

		ANSWER	Period of implementation
3	Please describe the national or local initiatives aimed at reducing marine debris. (e.g., beach clean-ups, recycling campaigns, single-use plastic bans, awareness campaign, community engagement)	1)Surveys (local initiatives) - Reef Check etc 2)Beach clean up (local initiatives, single-use plastic bans) 3) 4)	

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Part 2 – National Context

Part 2 – Marine Debris Management at National Level

			CHOOSE THE RANK
4	Rank the main sources of marine debris in your country	Domestic waste	2
		Industrial waste	3
		Fishing activities	5
		Shipping/port operations	4
		Tourism	6
		River discharge	1
		Others (please specify):	

			CHOOSE THE RANK
5	Waste materials that are mostly found in marine debris (Give ranking, 1 = highest abundant, 5= least abundant):	Plastic	1
		Paper	2
		Glass	4
		Metal	5
		Rubber	3
		Others (please specify):	

Part 2 – National Context

Part 2 – Marine Debris Management at National Level

			ANSWER
6	Have any studies or research been conducted on marine debris in your country? (Government and/or research)		YES
	If YES, provide titles / authors or links to publications		Distribution and Abundance of Marine Debris on Intertidal Zone at Three Selected Small Islands, Sabah - N.Z. Zahari *et al* 2022 Marine Debris Composition at the UMS Outdoor Development Center Beach Using Trash Analysis Method - Nur Nashrah *et al* 2023

			ANSWER
7	Has your government/university/NGO/private sector published any official reports on marine debris?		YES
	If YES, choose the organization and provide the link	Source of the publication:	Provide link:
		University	https://dx.doi.org/10.2139/ssrn.4866261
			https://doi.org/10.1016/j.marpolbul.2021.112258
			https://iopscience.iop.org/article/10.1088/1742-6596/2314/1/012001
			Link:
			Link:

Part 2 – National Context

Part 2 – ALDFG Management at National Level

Existing Data and Research on ALDFG

		ANSWER
1	Is there any national or sub-national initiative or research on ALDFG?	YES
	If YES, name the main programme or research	1) Student Final Year Project 2) 3)

		ANSWER
2	What is the current research capacity status on ALDFG in your country?	Intermediate

			FREQUENCY FOUND	LOCATION OF THE ALDFG FOUND
3	Name the main fishing gear that contribute to ALDFG in your country	Nets	Sometimes	Coastal/Beach
		Traps	Sometimes	Coastal/Beach
		Hook and longline	Sometimes	Coastal/Beach
		FADs (Fish Aggregating Devices)	Sometimes	Coastal/Beach
		Other (please specify):		

		ANSWER
4	How severe is the issue of ALDFG in your country?	not enough info

Part 2 – National Context

Part 2 – ALDFG Management at National Level

Existing Data and Research on ALDFG

		ANSWER
5	Is there a reporting system for ALDFG incidents in your country?	NO
	If YES, give link or brief information	Link:

			SELECT ALL THAT APPLY
6	Socio-economic impacts of ALDFG in your country	Reduced aesthetic / tourism value	YES
		Economic loss from gear loss	YES
		Reduction in fish catch	YES
		Navigation hazard	YES
		Other (specify):	

			SELECT ALL THAT APPLY
7	Impacts of ALDFG include	Damage to coral / artificial reefs	YES
		Ghost fishing	YES
		Threats to marine mammals/turtles	YES
		Microplastics pollution	YES
		Contamination of food chain (health)	
		Diver entanglement	
		Increase cost for clean up	YES
		Other (specify):	

Part 2 – National Context

Part 2 – ALDFG Management at National Level

Existing Data and Research on ALDFG

8	**Please attach photos or case reports on ALDFG, if available.**	1. https://www.nst.com.my/news/nation/2018/06/381933/ghost-nets-destroying-life-within-sabahs-marine-park 2. https://www.straitstimes.com/asia/se-asia/divers-remove-100kg-of-ghost-nets-stuck-on-coral-reefs-off-sabah-s-mantanani-island 3. https://www.theborneopost.com/2024/06/12/90-kg-of-ghost-nets-removed-from-sea-at-tunku-abdul-rahman-park 4. https://www.dailyexpress.com.my/news/242325/140kg-discarded-fishing-nets-cleared 5. https://divernet.com/scuba-news/ghost-net-nightmare-at-sipadan/
	Please add related photos into the this google drive link	

PART 3 : CAUSES AND SOURCES OF ALDFG

			SELECT ALL THAT APPLY
1	Identify the main cause of ALDFG occurrence in your country	Storms/extreme weather	YES
		Intentional discarding	NO
		Gear conflict (e.g. entanglement)	No info
		Theft	No info
		Poor construction/weak material	YES
		Lack of retrieval systems	YES
		Entanglement with natural/artificial reefs or seabed	YES
		Lack of regulations or disposal infrastructure	YES
		Other (please specify):	

			SELECT ALL THAT APPLY
2	Common hotspots for ALDFG accumulation in your country	Coral reefs	YES
		Artificial reefs	YES
		Shipwrecks	No Info
		Rocky seabed	No Info
		Jetties or landing sites	No Info
		Mariculture farms	No Info
		Fishing villages	YES
		Others (specify):	Beaches

PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.1 Prevention and Mitigation Measures

			SELECT ALL THAT APPLY
1	Which of the following prevention or mitigation mechanisms are available in your country?	Gear marking/tracking systems	NO
		Licensing or reporting requirements	YES
		Training for fishers	YES
		Awareness campaigns	YES
		Penalties for gear discards	NO
		Incentives for bringing debris back	NO
		Use of biodegradable gear materials	NO
		Other (specify):	

PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.2 Retrieval and Cleanup

		ANSWER	HOW MANY YEARS NOW?
1	Is there any programme led by government to retrieve/remove ALDFG?	NO	
2	Is there any programme led by local community to retrieve/remove ALDFG?	YES	
3	Are there clean-up efforts organized by government?	YES	
4	Are there clean-up efforts led by local communities?	YES	
5	Do ports have facilities for receiving discarded or damaged gear?	NO	
6	Are there any incentives for fishers or communities to engage in retrieval or clean-up?	NO	

PART 4: EXISTING COUNTERMEASURES FOR ALDFG
4.3 Legal and Institutional Framework

1	Are there any regulations or policies addressing ALDFG in your country?		ANSWER
			NO
	If YES, provide name(s) and brief description.		
2	What do these regulations/policies address?		SELECT ALL THAT APPLY
		Gear recycling	NO
		Bring-back schemes	NO
		Biodegradable gear materials	NO
		Effective disposal systems	NO
		Microplastics monitoring by agencies	NO
		Others (specify):	
3	Which agencies are responsible to manage ALDFG in your country? (if applicable)		ANSWER (Full name of Agency)
			1) Department of Fisheries
			2) Local Authorities
			3)

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PART 4: EXISTING COUNTERMEASURES FOR ALDFG
4.3 Legal and Institutional Framework

4	If your country has relevant regulations on ALDFG, does current enforcement sufficient to prevent ALDFG occurrence?		ANSWER
			NEED IMPROVEMENT
5	If national laws / policies on ALDFG are absent, could other international framework (e.g the Codes of Conduct for Responsible Fisheries) be expanded to address ALDFG?		ANSWER
			YES
6	What is the level of compliance for		ANSWER (Level of compliance)
		1) FAO Code of Conduct for Responsible Fisheries	FULLY
		2) FAO Voluntary Guidelines	PARTIALLY
		3) Regional Fisheries Management Organizations (RFMOs)	FULLY
		4) MARPOL Annex V	PARTIALLY
		5) United Nation Sustainable Development Goals (SDG 14 Life Below Water)	FULLY
		6) UNCLOS	FULLY
		7) UNEP's Global Partnership on Marine Litter (GPML)	FULLY
7	Are you aware about FAO Guidelines on ALDFG?		ANSWER
			YES

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PART 4: EXISTING COUNTERMEASURES FOR ALDFG
4.4 Readiness and Capacity

1	The level of awareness about ALDFG among fishers/coastal communities in your country is:		ANSWER
			LOW
2	Please rate your country's readiness to tackle ALDFG:		ANSWER
			NOT READY
3	Do your country have the capacity/availability to address ALDFG? (select all that apply):		SELECT ALL THAT APPLY
		Financial resources	NO
		Facilities	NO
		Expertise	YES
		Technology/innovation	NO
		None of the above	
		Other (please specify):	
4	The main motivators for ALDFG prevention in your country are		SELECT ALL THAT APPLY
		Compliance with law	NO
		Incentives/subsidies	NO
		Penalties/Fines	NO
		Awareness	YES
		Environmental protection	YES
		Other (please specify):	

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PART 5: STAKEHOLDER ENGAGEMENT ON ALDFG MANAGEMENT

1	The fishers/ fishing communities are involved in the following efforts (regarding ALDFG)		SELECT ALL THAT APPLY
		Prevention	NO
		Gear retrieval	NO
		Local clean up initiatives	NO
		Reporting	NO
		Policy-making	NO
		None of above	YES
2	The fishers/ fishing communities have conducted ALDFG prevention activities with the following partner		SELECT ALL THAT APPLY
		Government	YES
		NGOs	YES
		Private sector (gear manufacturers, seafood companies, CSR)	
		Academia/researchers	YES
		International organizations	

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PART 5: STAKEHOLDER ENGAGEMENT ON ALDFG MANAGEMENT

			SELECT ALL THAT APPLY
3	Does your country respond to international pressures by these measures?	Develop policy	YES
		Adapt and comply	YES
		Participate in studies	YES
		Present existing data	YES
		Public communication campaigns	YES
		Other (please specify):	

PART 6: GAPS AND NEEDS IN ALDFG MANAGEMENT

			SELECT ALL THAT APPLY
1	The key challenges in addressing ALDFG in your country are	Data gaps	YES
		Lack of policy/govt initiative	YES
		Weak enforcement	YES
		Jurisdictional uncertainty of governing bodies (e.g. overlapping mandates, lack of coordination)	YES
		Poor infrastructure	YES
		Limited technical capacity	YES
		Low public awareness	YES
		Financial limitations	YES
		Geographic challenges	YES
		Others (please specify):	

PART 6: GAPS AND NEEDS IN ALDFG MANAGEMENT

			SELECT ALL THAT APPLY
2	The support/capacity building that your country need to address ALDFG include	Monitoring systems	YES
		Training	YES
		Community models	YES
		Policy guidance	YES
		Funding	YES
		R&D and technology support	YES
		Technical guidelines	YES
		Case studies	YES
		Facility upgrades	YES
		Inter-agency collaboration	YES
		International networking (e.g. CITES, WWF, GERF)	YES
		Other (please specify):	

PART 7: RECOMMENDATIONS

		ANSWER (Can give few suggestion)
1	What mitigation measures at national level should be prioritized to reduce ALDFG?	1) Incentives 2) Awareness Campaign
2	What kind of suggestions for regional collaboration and knowledge sharing would you like to share?.	1) Data sharing 2) Centralized data center 3) Strengthen collaboration & network
3	How do you promote gear marking among fishers?	1) Engagement among fishers to promote gear marking 2) Awareness & Campaign
4	How can recycling (ALDFG item processed into secondary materials) or upcycling (ALDFG item converted into valuable product) of ALDFG be implemented (or planned)?	1) Promote upcycling & recycling

Thank you

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Assessment of Marine Debris and Abandoned, Lost or Discarded Fishing Gear (ALDFG)

PHILIPPINES

Isidro C. Tanangonan
Aquaculturist II, BFAR CFD



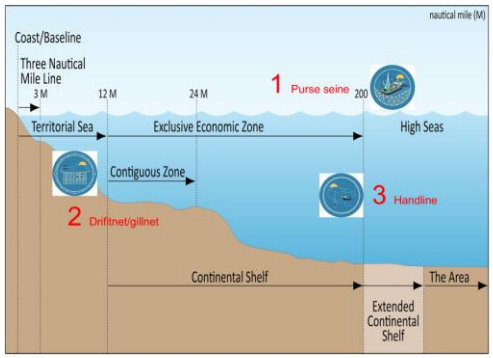
Republic of the Philippines
Department of Agriculture
BUREAU OF FISHERIES AND AQUATIC RESOURCES

General Information

Name of country	Philippines
Name of responding Agency/ Institution	Department of Agriculture - Bureau of Fisheries and Aquatic Resources
Department/Division (if applicable)	Capture Fisheries Division
NAME OF RESPONDENT	Joeren S. Yleaña
Designation	Officer-in-Charge
Email address	cfd@bfar.da.gov.ph
Telephone number (with country code)	(02) 8539-5664
Address	Fisheries Building Complex, BPI Compound, Visayas Ave, Quezon City, Philippines 1128
Date of survey completion	17 November 2025

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Part 1:National Fishing Profiles





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Part 2.1 NATIONAL CONTEXT - Marine Debris Management at National Level

1. Most Responsible Government Agency

The Department of Environment and Natural Resources (DENR) is the primary government agency responsible for conserving, managing, and sustainably using the Philippines' environment and natural resources, including leading the implementation of the National Plan of Action for the Prevention, Reduction, and Management of Marine Litter.

The Department of the Interior and Local Government (DILG) ensures the enforcement of the Ecological Solid Waste Management Act (RA 9003 of 2000) and compliance by local government units.

2. Existing regulations or policies

- **RA 9003 – Ecological Solid Waste Management Act of 2000**
  Provides a comprehensive system for waste reduction, segregation, collection, and safe disposal, and prohibits improper dumping and incineration to prevent marine debris and protect aquatic ecosystems.
- **RA 11898 – Extended Producer Responsibility Act of 2022**
  Requires producers to take responsibility for the full lifecycle of plastic packaging, promoting waste reduction, recycling, and eco-friendly product design to support a circular economy and reduce plastic pollution.
- **National Plan of Action for Marine Litter (NPOA-ML), 2021**
  Serves as the national framework to prevent and reduce marine litter through multi-sectoral strategies, aiming for zero waste leakage into Philippine waters by 2040.
- **Local Government Ordinances on Single-Use Plastics**
  Over 480 ordinances across more than 1,500 LGUs and cities banning or regulating single-use plastics to reduce plastic waste at the local level.



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PART 2.1 NATIONAL CONTEXT - Marine Debris Management at National Level

3. National and Local Initiatives

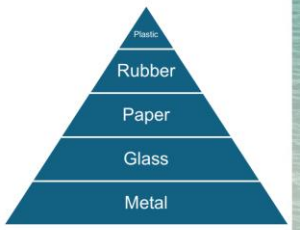
1) Manila Bay Coastal Strategy 2017–2022- *2-5 years*

2) Annual National Coastal Clean-Up Drive- *2-5 years*

4. Main Source of Marine Debris



5. Waste Material



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Part 2.1 NATIONAL CONTEXT - Marine Debris Management at National Level

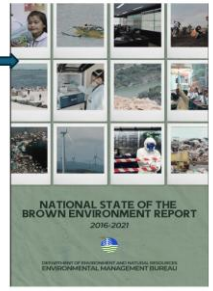
6. Research



The **National State of the Brown Environment Report (2016–2021)** is the DENR-EMB's authoritative technical guide on the Philippines' environmental status, covering sectors like air and water quality, waste management, and pandemic-era adaptations. By documenting best practices and the collaborative efforts of various stakeholders, the report serves as a vital strategic tool for policymakers and academics to improve environmental administration and public awareness.

Microplastic Contamination Determination on Selected Major Water Bodies of the Philippines.
The global accumulation of over 240 million tons of marine plastic waste has created a severe environmental crisis, specifically through the proliferation of toxic microplastics 20-5000 µm that devastate marine health and biodiversity. In the Philippines, this issue is driven by systemic waste management failures, where up to 60% of the 35,580 tons of daily garbage is improperly dumped or burned. This pollution is further intensified by a growing ecotourism industry and significant littering from maritime vessels, ultimately damaging sensitive habitats, threatening commercially valuable seafood species, and endangering vulnerable marine life.

7. Government Publication

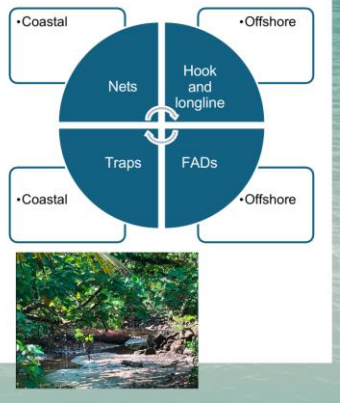


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Part 2.2 National Context - ALDFG Management at National Level

1 Any national or sub-national initiative or research on ALDFG- **Not sure**
2. Current research capacity status on ALDFG- **Intermediate**
3. Main Fishing Gear Contribution - ***Sometimes***
4. How severe is the issue of ALDFG in your country?- ***Moderate***
5. Reporting system for ALDFG incidents- **No**
6. Socio-economic impacts of ALDFG
   - Reduced aesthetic / tourism value
   - Navigation hazard
7. Impacts of ALDFG
   - Damage to coral / artificial reefs
   - Ghost fishing
   - Threats to marine mammals/turtles





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PART 3 : CAUSES AND SOURCES OF ALDFG

1. Main cause of ALDFG occurrence

Storms/extreme weather

Gear conflict (e.g entanglement)





2. Common hotspots for ALDFG accumulation

Fishing villages



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PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.1 Prevention and Mitigation Measures

Gear marking/tracking systems

Licensing or reporting requirements

Awareness campaigns

Use of biodegradable gear materials





PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.2 Retrieval and Cleanup

- programme led by government to retrieve/remove ALDFG- Coastal cleanup - *Done for more than 10 years*
- programme led by local community to retrieve/remove ALDFG
- clean-up efforts organized by government
- ports facilities for receiving discarded or damaged gear- *PSMA and major fish ports*



PART 4: EXISTING COUNTERMEASURES FOR ALDFG

4.3 Legal and Institutional Framework

- Regulations or policies addressing ALDFG programme led by local community to retrieve/remove ALDFG
- Regulations/policies address:
  - Biodegradable gear materials - *On gear-swap programs/livelihood*
  - Microplastics monitoring by agencies - *Initiated by academe*

PART 4: EXISTING COUNTER MEASURES FOR ALDFG

4.3 Legal and Institutional Framework

- Agencies responsible:

DA BFAR | DENR-EMB | DILG

- Need Improvement to the relevant regulations on ALDFG, and current enforcement to prevent ALDFG occurrence
- Yes, other international framework (e.g the Codes of Conduct for Responsible Fisheries) be expanded to address ALDFG
- Positive awareness to FAO Guidelines on ALDFG

Level of Compliance

- FAO Code of Conduct for Responsible Fisheries-Fully
- FAO Voluntary Guidelines-Partially
- Regional Fisheries Management Organizations (RFMOs)-Fully
- MARPOL Annex V-Fully
- United Nation Sustainable Development Goals (SDG 14 Life Below Water)-Fully
- UNCLOS-Fully
- UNEP's Global Partnership on Marine Litter (GPML)-Fully

PART 4: EXISTING COUNTER MEASURES FOR ALDFG

4.4 Readiness and Capacity

- Level of awareness about ALDFG among fishers/coastal communities - *Moderate*
- Country's readiness to tackle ALDFG - *Ready*
- Capacity/availability to address ALDFG - *Expertise*
- Main motivators for ALDFG prevention
  - Compliance with law
  - Incentives/subsidies
  - Awareness

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PART 5: STAKEHOLDER ENGAGEMENT ON ALDFG MANAGEMENT

Fishers/ fishing communities are involved in the following efforts (regarding ALDFG)

- Prevention
- Local clean up initiatives

The fishers/ fishing communities have conducted ALDFG prevention activities with the following partners:

- Government
- NGOs
- Private sector (gear manufacturers, seafood companies, CSR)
- Academia/researchers

Country response to international pressures by these measures

- Present existing data
- Public communication campaigns

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PART 6: GAPS AND NEEDS IN ALDFG MANAGEMENT

Key challenges in addressing ALDFG

- Data gaps
- Poor infrastructure
- Geographic challenges



Support/capacity building that need to address ALDFG

- Monitoring systems
- Funding
- R&D and technology support



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PART 7: RECOMMENDATIONS

- Mitigation measures at national level should be prioritized to reduce ALDFG;
  - Gear Zonification guidelines, reporting system suggestions for regional collaboration and knowledge sharing;
- Suggestions for regional collaboration and knowledge sharing
  - Knowledge sharing and best practices promote gear marking among fishers;
- Promote gear marking among fishers
  - Incorporate in the National Regulations and local ordinances the requirement for gear markings
- Recycling (ALDFG item processed into secondary materials) or upcycling (ALDFG item converted into valuable product) of ALDFG be implemented (or planned);
  - Repurposing of old materials into new fishing gears or into another usable materials.



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THANK YOU
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Current Status of ALDFG and ALDFG Management in Singapore

Food Export and Fisheries Management Department,
Singapore Food Agency

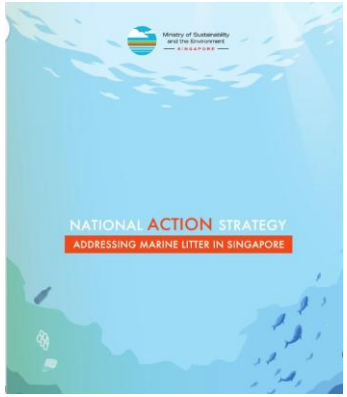


Marine Debris in Singapore

- Almost 4,000 tonnes of marine debris was collected along Singapore's coasts in 2021
- Most common macro-debris: styrofoam pieces, hard plastic fragments, film plastic pieces, food wrappers and straws
- Most common micro-debris: styrofoam, film, hard plastic fragments and pellets

Source: Ministry of Sustainability and the Environment

National Marine Debris Managementl



National Action Strategy on Marine Litter
(helmed by the Ministry of Sustainability and the Environment)

- **6 priority areas**:
  - Reduction of land-based sources of litter
  - Reduction of sea-based sources of litter
  - Circular economy approach
  - Research and development
  - Maintaining and strengthening outreach and stakeholder engagement
  - International engagement and collaboration

National Fishing Gear Management

Singapore's fishing industry is small, consisting of 16 licensed fishing vessels, all of which engage in artisanal fishing within Singapore waters .

- Singapore regulates the use of fishing gear under the Fisheries Act 1966
  - All fishing gear must be licensed
  - Licences are issued on a one-off basis. New licence applications must be made whenever new gear types are used
- Legislative powers under the Act
  - Powers to require all fishing gear to bear appropriate markings
  - Powers to authorise fisheries officers to inspect fishing gear
  - Powers to authorise fisheries officers to remove or demolish fishing gear if the owner thereof does not comply with the Act



ALDFG situation in Singapore

- ALDFG is a **minor issue** in Singapore, due to the small size of our fishing fleet and the small volume of fishing gear deployed
- The number of gear loss cases from our fishing fleet is low
  - Reasons for gear losses include **theft, collision with other vessels and snagging on seabed/rocks**



ALDFG countermeasures: proper gear disposal

- Under Singapore's Prevention of Pollution of the Sea Act, the **disposal of fishing gear into the sea is prohibited**
  - Part of Singapore's compliance to the International Convention for the Prevention of Pollution from Ships (MARPOL), to which Singapore is a party
  - Fines of up to $20,000 or imprisonment for a term not exceeding 2 years, or to both, for offences committed
- **All fishermen currently utilise proper gear disposal methods**, and find these adequate and sufficient
  - Disposal methods include disposal at jetty and public bins, and paid collection services

ALDFG countermeasures: clean-up efforts

(managed by the Ministry of Sustainability and the Environment)



- Regular cleaning of **coastal waters**
  - Crafts deployed by the Maritime Port Authority to remove flotsam from the sea on a daily basis
- Regular cleaning of **coasts**
  - Frequent clearing of marine litter washed onto beaches and coastlines by the National Environment Agency
- Regular cleaning **by community groups**
  - Public outreach programs run by non-profit groups include underwater clean-ups and litter-picking activities on the water surface and on shores
  - Dive clean-ups organised by community groups

Summary

- Singapore recognises the importance of tackling ALDFG. Although it is a minor issue in Singapore, we have national regulatory measures in place to address it, such as a gear licensing regime and gear disposal legislation.
- Moving forward, we are working to amend our Fisheries Act to strengthen and tighten enforcement measures, allowing us to better tackle ALDFG.



Thailand's Country Presentation on Marine Debris and ALDFG

Watcharapong CHUMCHUEN

Chumphon Marine Fisheries Research and Development Center
Marine Fisheries Research and Development Division
Department of Fisheries (DOF) Thailand

Present at The Regional Technical Meeting (RTM) on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region, 21 to 23 January 2026 at Seremban, Negeri Sembilan, Malaysia

Outline

1. National Fishing Profile on Marine Capture Fisheries
2. National Context on Marine Debris and ALDFG Management
3. Causes and Sources of ALDFG
4. Existing Countermeasures for ALDFG
5. Stakeholder Engagement on ALDFG Management
6. Gaps and Needs in ALDFG Management
7. Recommendations

2

1. National Fishing Profile on Marine Capture Fisheries

3

Marine capture fisheries of Thailand

- 23 coastal provinces
- Coastline: ≈ 2,600 km along the Gulf of Thailand and Andaman Sea
- Fishing area: ≈ 298,600 km²
- Annual production: ≈ 1.5 million t/year



4

Main types of fishing gear used in pelagic fisheries

• In terms of vessel no.

Ranking	Fishing gear	Operational area
1	Gillnets	> 0 nm
2	Falling nets	> 0 nm
3	Traps	> 0 nm
4	Trawls	> 1.6 nm
5	Purse seines	> 1.6 nm


Source: thethaiger.com


Source: www4.fisheries.go.th

Main fish landing ports

• In terms of vessel no.

Ranking	Name of ports	Province
1	Pattani Port	Pattani
2	Jarin Port	Chonburi
3	Phuket Port	Phuket
4	Leam Yai Port	Phang Nga
5	Klong Wan Port	Prachuap Khiri Khan

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2. National Context on Marine Debris and ALDFG Management

7

Marine debris management: Responsible agency and roles

Pollution Control Department	Marine Department	Department of Marine and Coastal Resources	Department of Fisheries
• Policy • Enforcement • Monitoring • Outreach	• Policy • Enforcement • Outreach	• Monitoring • Outreach	• Enforcement • Monitoring • Outreach

8

Marine debris management:
Existing regulations or policies addressing marine debris

2015
- Prohibition on disposal
- Royal Ordinance on Fisheries B.E. 2558 (2015) and the amendment

2023
- Prohibition on disposal
- Navigation in the Thai Waters Act (No. 18), B.E. 2566 (2023)

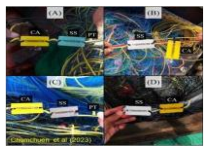
2023
- Prohibition on disposal
- Reduce marine debris in the National Parks

2026
- Waste disposal management
- The Sustainable Packaging Management Law

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Marine debris management:
Initiatives aimed at reducing marine debris

- Coastal cleanup
- Recycling
- Fishing gear marking
- Awareness raising
- Seabed/Floating marine debris monitoring
- Single-use plastic bag reducing







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Marine debris management:
Main sources and waste materials of marine debris

- In terms of abundance

Ranking	Main source
1	Domestic waste
2	River discharge
3	Tourism
4	Industrial waste
5	Shipping/port operations

Ranking	Waste materials
1	Plastic
2	Glass
3	Metal
4	Paper
5	Others (Styrofoam)

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Marine Debris Management: Studies on marine debris

- Ballesteros et al (2018) Pollution and coral damage caused by derelict fishing gear on coral reefs around Koh Tao, Gulf of Thailand
- Thongphaijit (2020) Fishermen's participation in marine litter collection schemes in Thailand
- Chalayonnawin and Chalayonnawin (2021) Community Participation in Marine Debris Management: A Case Study of A Coastal Community in Chonburi Province
- Wongnutpranontet al (2021) Derelict fishing gears and other marine debris from coral communities on underwater pinnacles in Chumphon Province, Thailand
- Phattananuruch and Pokavanich (2024) Monsoon-Driven Dispersal of River-Sourced Floating Marine Debris in Tropical Semi-Enclosed Waters: A Case Study in the Gulf of Thailand[2]

Marine debris management:
Official reports by government/university

Source	Provide link
Government	www.dmcr.go.th/detailLib/8276
	www.pcd.go.th/publication/36174
	www4.fisheries.go.th/local/index.php/main/view_activities413/95368
	www.pcd.go.th/water/ขยะทะเลตายแห่งท้องทะเล
University	www.sustainability.chula.ac.th/th/report/3035

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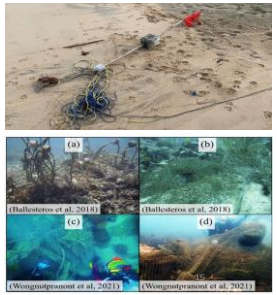
ALDFG management: Initiative or research on ALDFG

- Ballesteros et al (2018) Pollution and coral damage caused by derelict fishing gear on coral reefs around Koh Tao, Gulf of Thailand
- Thongphaijit (2020) Fishermen's participation in marine litter collection schemes in Thailand
- Wongnutpranontet al (2021) Derelict fishing gears and other marine debris from coral communities on underwater pinnacles in Chumphon Province, Thailand
- Phattananuruch and Pokavanich (2024) Monsoon-Driven Dispersal of River-Sourced Floating Marine Debris in Tropical Semi-Enclosed Waters: A Case Study in the Gulf of Thailand
- The current research capacity status on ALDFG in Thailand: Beginner

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ALDFG management:
Main fishing gear that contribute to ALDFG

Fishing gear	Frequency found
Nets (gillnet/trawl/purse seine)	Sometimes
Traps	Sometimes
Hooks and lines	Sometimes
FADs (Fish Aggregating Devices)	Sometimes
Others: ropes, floats	Sometimes



- Severe of ALDFG issue: Moderate
- Reporting system for ALDFG: Not official

ALDFG management:
Impacts of ALDFG

Ecological/Socio-economic impacts
Reduced aesthetic/tourism value
Economic loss from gear loss
Reduction in fish catch
Navigation hazard
Damage to other gears
Damage to coral/artificial reefs
Threats to marine mammals/turtles
Increase cost for clean up
Ghost fishing
Microplastics pollution



3. Causes and Sources of ALDFG

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Main cause of ALDFG occurrence

- Storms/extreme weather
- Intentional discarding
- Gear conflict
- Entanglement with natural/artificial reefs or seabed
- Involve with IUU fishing
- Error in fishing operation
- Strong current and tide

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Common hotspots for ALDFG accumulation

- Natural/artificial reefs
- Shipwrecks
- Rocky seabed
- Landing sites
- Mariculture farms
- Fishing villages
- Beach or shoreline





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4. Existing Countermeasures for ALDFG

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Prevention and mitigation measures: Available mechanisms

- Gear marking/tracking systems
- Licensing or reporting requirements
- Training for fishers
- Awareness campaigns
- Penalties for gear discards
- Incentives for bringing debris back
- Use of biodegradable gear materials







Retrieval and cleanup

Implementation/activity	Years
Program led by government to retrieve/remove ALDFG	5-10
Program led by local community to retrieve/remove ALDFG	5-10
Clean-up efforts organized by government and local communities	5-10
Port facilities for receiving discarded or damaged gear	-
Incentives for fishers or communities to engage in retrieval or clean-up	-

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Legal and institutional framework: Regulations/policies

- Bring-back schemes
- Effective disposal systems
- Microplastics monitoring by agencies







Readiness and capacity: To address and prevent ALDFG

Capacity/availability	Main motivators
Financial resources	Compliance with law
Facilities	Incentives/subsidies
Expertise	Penalties/fines
	Awareness

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5. Stakeholder Engagement on ALDFG Management

25

Fishers/fishing communities' involvements/activities partnership

Involvements stage
Prevention
Gear retrieval
Reporting
Policy-making

Conduction partners
Government
NGOs
Academia/researchers
International organizations

- Thailand responses to: develop policy, participate in studies, present existing data, communication campaigns, and R&D

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6. Gaps and Needs in ALDFG Management

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Key challenges and support/need to address ALDFG

Key challenges
Data gaps
Limited technical capacity
Low public awareness
Financial limitations
Capacity building/poor incentive

Support/need
Training
Policy guidance
Monitoring systems (Quantitative)
Funding
R&D and technology support
Inter-agency collaboration
Regional collaboration

7. Recommendations

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- Prioritization on mitigation measures: awareness raising, ALDFG and EOLFG management, and reduce, reuse, and recycle campaign
- Suggestion for regional collaboration and knowledge sharing: ALDFG reporting platform, and regional quantitative ALDFG research/study
- Promotion on fishing gear marking among fishers: public awareness and regulation
- Implementation on recycling or upcycling of ALDFG: technological improvement for recycling and market-driven by customers/users

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Thank you very much for your attention





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MARINE DEBRIS AND ABANDONED, LOST OR DISCARDED FISHING GEAR (ALDFG) IN SOUTHEAST ASIAN REGION

Regional Technical Meeting

VIETNAM PROFILE

Status of debris and plastic waste from fishing activities



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Vietnam Marine Fisheries Science
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Email: Dinhhung4@gmail.com

21-23 January 2026, at Port Dickson, Malaysia

1. National fishing (2023)

Fishing type	Northern area		Middle area		Southern area		Whole country	
	<15m	>15m	<15m	>15m	<15m	>15m	<15m	>15m
Trawl	991	230	5.810	2.345	3.301	2.369	10.102	4.944
Purse seine	475	110	2.785	1.124	1.582	1.135	4.842	2.370
Gill net	2.189	508	12.837	5.181	7.292	5.233	22.318	10.922
hooks	1.096	254	6.429	2.595	3.652	2.621	11.177	5.470
Lift net	205	48	1.205	486	685	491	2.095	1.026
Trap	250	58	1.469	593	834	599	2.553	1.250
Others	815	189	4.779	1.929	2.715	1.948	8.309	4.067
Carried boat (transport)	206	48	1.208	487	686	492	2.100	1.027
Total (boat)	6.227	1.445	36.522	14.741	20.748	14.889	63.497	31.075

2. Marine Debris Management at National Level

2.1. Debris management agencies: Ministry of Agriculture and Environment

2.2. List existing regulations or policies addressing marine debris:

Decision No. 1216/QD-TTg dated September 5, 2012 Approving the national environmental protection strategy to 2020, vision to 2030 about debris

Resolution 36-NQ/TW dated October 22, 2018, of the 8th Conference of the Central Committee of the 12th Party Congress

Decision No. 1746/QD-TTg dated December 4, 2019, of the Prime Minister promulgating the National Action Plan on the Management of Marine Plastic Waste until 2030. And, Vietnam Issued the Implementation Plan on August 2020 by the Minister of Agriculture and Environment.

2.2. List existing regulations or policies addressing marine debris:

Directive No. 33/CT-TTg dated August 20, 2020, on strengthening the management, reuse, recycling, treatment, and reduction of plastic waste aims to further enhance the effectiveness of activities related to the management, treatment, reuse, and recycling of used plastics, and to minimize the release of plastic waste into the environment.

Resolution No. 26/NQ-CP dated March 5, 2020, promulgating the Government's overall plan and five-year plan. By 2025, implement the National Action Plan on Marine Plastic Waste Management; by 2030, promote the formation of a regional and international cooperation framework on preventing, combating, and reducing marine plastic waste; and establish and operate an International Center for Marine Plastic Waste in Vietnam.

2.2. List existing regulations or policies addressing marine debris:

Decision 687/QD-BNN-TCTS dated February 5, 2021, of the Minister of Agriculture and Rural Development on the promulgation of the "Action Plan for the Management of Marine Plastic Waste in the Fisheries Sector, 2020-2030".

Decree No. 38/2024/ND-CP dated April 5, 2024, of the Prime Minister on regulations on administrative sanctions in the field of fisheries, Article 27 stipulates administrative sanctions for the act of not marking fishing gear, marking fishing gear incorrectly, or illegally discarding fishing gear into natural waters.

3. ALDFG Management at National Level

3.1. Existing Data and Research on ALDFG

In 2022, the pilot project "Waste Collection by Bottom Trawl Fishing Vessels at Dan Phuoc Port, Phu Yen Province" aimed to support and encourage people engaged in marine fisheries to bring plastic waste and non-biodegradable marine waste ashore for processing.

IUCN (2022) implemented a research on marine debris in Vietnam, it is estimated that approximately 46,562 tons of plastic are replaced annually in the Vietnamese fisheries industry.

Research Institute for Marine Fisheries (2022), Preliminary results determine the density of plastic waste on the seabed of the Gulf of Tonkin. 6.681 kg/1km2 (plastic waste).

3.1 Existing Data and Research on ALDFG

WWF Vietnam, 2020, 2022: PP, PES, PA, PE, PVC is main material were found in fisheries activities for nets, buoys, rope, bag, tray, bottle, box, can, life jacket.

WWF Vietnam, 2020: Plastic waste amounts 92% in total waste from beaches. Plastic waste from aquaculture and fisheries reach 47%.

Project of prevention, reduction and recycling of fishnets polluting Vietnamese coastal waters
(2023 - 2026). It has not had final results yet.

3.2. National management on ALDFG

Not yet.

4. Causes and Sources of ALDFG

There is not any results for this.

5. Prevention and Mitigation Measures

There is not any results for this.

6. Retrieval and Cleanup of ALDFG

There is not any application for whole country. Some provinces require fishermen bring back land by bag.

7. Legal and Institutional Framework

Not yet. Only for plastic waste in general.



8. Stakeholder Engagement on ALDFG management

Not clear, somewhere, some NGOs collect beach waste, not the big programs.

Government and also local management have not any strong regulations

Fishermen and local communities have so low awareness.

Fisher, fishing communities: not any partner.

9. The key challenges in addressing ALDFG in Vietnam:

Data gaps
Lack of policy
Weak enforcement.
Poor infrastructure: at sea and at ports
Financial limitations
Fishermen knowledge
Geographic challenges: offshore area for long trips.
Lack of tools.

10. Recommendations

- Regional level:

Regional sharing, general policy.
Taking more technical conferences in regional level to supporting solutions developments.

- Each country:

Promoting research on technology for collection from Fishing Boats.
Disseminate information to fishermen.
Putting waste bins in each fishing port.
Making policies.
Buy the waste by government capital.



CẢM ƠN
THANK YOU
FOR YOUR ATTENTION!

Information Gathering on the Estimation of ALDFG in Gillnet and Trap Fisheries at Selected Sites in Thailand

21-23 January 2026
Regional Technical Meeting (RTM) on Marine Debris and ALDFG in Southeast Asian Region, in Port Dickson, Malaysia

Santiphong Putsa

Fishing Gear Technologist
Southeast Asian Fisheries Development Center/
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1

1. Introduction

Consultation meeting for ALDFG questionnaire survey in Thailand (9 April 2025)

Project	Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia
Activity 1.1.1	Information gathering to estimate the amount of ALDFG in gillnet and trap fisheries at selected sites in Thailand
Duration	April 2024 – March 2026
Total budget	30,000 USD

- ALDFG questionnaire?....Developed of ALDFG questionnaire-FAO
- Fishing gear type?.....Gillnet and Trap (small and commercial scale)

2

2. Objectives

- To assess the quantity and frequency of abandoned, lost, or otherwise discarded (ALDFG) gillnets and traps in small-scale and commercial fisheries along the coast of Thailand.
- To evaluate the associated economic impacts of gillnet and trap losses on coastal fisheries and livelihoods, and provide baseline data for policy development.

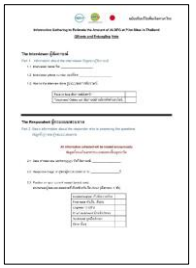


3. Methods

3.1 Gear Loss Questionnaire

- The survey uses FAO -developed ALDFG structured questionnaires, adapted to the Thai fisheries context.
- The questionnaires are designed to gather fishers' knowledge and experiences, comprises 8 parts:

Part 1. Information about the Interviewer
Part 2. Basic information about the responder who is answering the questions.
Part 3. Gear category in use, main regions, and depth zones
Part 4. Fishing effort, fishing operation and catch.
Part 5. Gear loss and reporting.
Part 6. End-of-life fishing gear and marine plastic waste management.
Part 7. Information of marking fishing gears.
Part 8. Past and future trends.



4

3. Methods (cont.)

3.2 Field Survey and Data Collection

- The field survey is conducted by researchers from SEAFDEC in collaboration with the Department of Fisheries (DOF), Thailand.
- The face -to-face interview with master fishermen, fishermen and fishing boat owners.
- The survey focuses on gillnets and traps used by small -scale and commercial fishers along the coast of Thailand.



3. Methods (cont.)

3.2 Field Survey and Data Collection

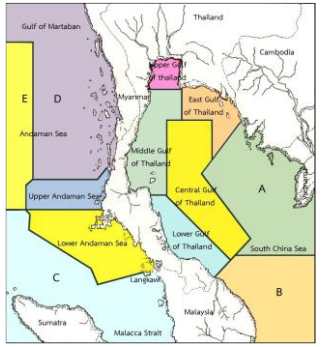
- **Target populations:** 33,538 small-scale fishers and 1,371 licensed commercial fishers operating in the Gulf of Thailand and the Andaman Sea.
- **Study areas:** Six zones —Eastern, Upper, Middle, and Lower Gulf of Thailand; Upper and Lower Andaman Sea.



Small-scale fishing vessels
(under 10 GT)



Commercial fishing vessels
(Over 10 GT)



Study area divided into 6 fishing zones: 4 in the Gulf of Thailand and 2 in the Andaman Sea.

3. Methods (cont.)

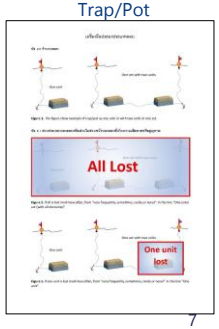
3.2 Field Survey and Data Collection



Gillnet



Trap/Pot



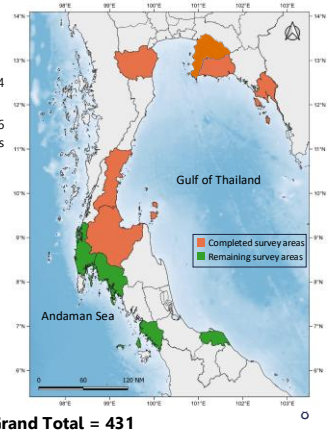
4. Results

4.1 General information, fishing operation, costs and catches

- **A total of 6 provinces** along the Gulf of Thailand were surveyed, remaining 4 provinces are planned to be surveyed in February 2026.
- **A total of 265 questionnaires** have interviews and collected, including 166 small scale fishers (138 gillnets and 28 traps/pots) and 99 commercial fishers (49 gillnets and 50 traps/pots).

	Provinces	Small-scale fishing vessels		Commercial fishing vessels	
		Gillnets	Traps/pots	Gillnets	Traps/pots
Oct – Nov 2025	Trat	49	15		
	Rayong			11	11
	Chonburi	46	4		
	Phetchaburi			24	16
	Chumphon	43	9		
	Surat Thani			14	23
Feb 2026	Phang Nga			0	3
	Krabi	38	7		
	Satun	30	9	0	7
	Pattani	47	2	7	16
	Total	253	46	56	76

Grand Total = 431



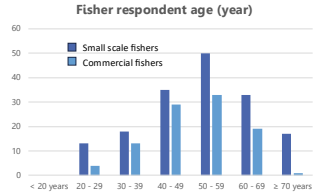
4. Results

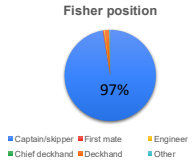
4.1 General information, fishing operation, costs and catches

- Fisher respondents ranged in **age from 21 to 84 years**, with an **average fishing experience of 30.09 years** (ranging from 2 to 60 years).
- The majority of interviewed fishers held the position of **captain or skipper (97%)**, deckhand (1%), and first mate & Engineer (1%).
- The averages of fishing depth
  - Small scale fishers = **13.5** m (1.5 to 40 m)
  - Commercial fishers = **25.7** m (7 to 63 m)









4. Results

4.1 General information, fishing operation, costs and catches

Crab Gillnets

	Small scale vessel (n=97)	Commercial vessel (n=19)
❖ How many single gillnet use when operation?	4 to 336 units	120 to 1,200 units
❖ How much the cost in single unit of gillnet?	15 to 35 USD	15 to 35 USD
❖ How much the total catches and income?	2 to 40 kg/trip (10 to 190 USD)	30 to 200 kg/trip (65 to 1,870 USD)





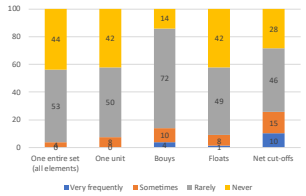


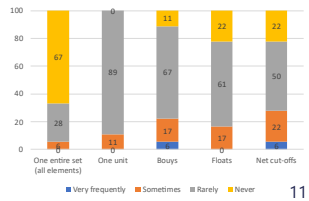
4. Results

4.2 Estimation of gear loss, reason of loss gear, and practices to prevent gear loss or damages

Crab Gillnets

	Small scale vessel (n=97)	Commercial vessel (n=19)
❖ How many single gillnet unit loss?	0 to 60 units/year Total = 840 units (78 respondents)	0 to 120 units Total = 574 units (18 respondents)
❖ Estimate the associated economic loss?	12,000 to 29,400 USD/year	14.07 to 18.29 USD (64%)

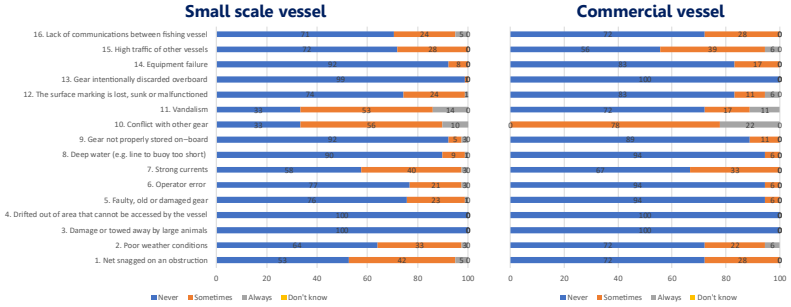




4. Results

4.2 Estimation of gear loss, reason of loss gear, and practices to prevent gear loss or damages (Cont.)

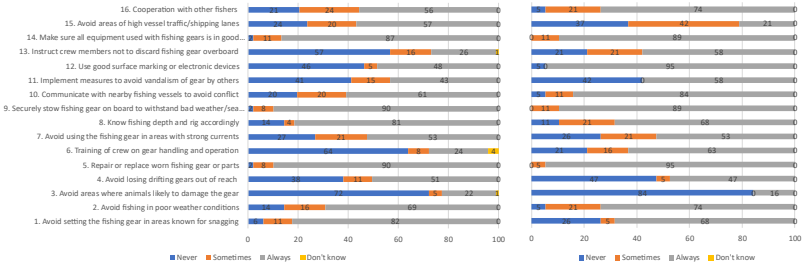
Crab Gillnets



4. Results

4.2 Estimation of gear loss, reason of loss gear, and practices to prevent gear loss or damages (Cont.)

Crab Gillnets



4. Results

4.3 Information on Fishing Gear Marking

- **Only 9 out of 97 small-scale fishers (9%)** were aware of or recognized fishing gear marking, while **none of the commercial fishers** had any knowledge of fishing gear marking (100% unaware).
- And more than **95%** of crab gillnet fishers marked their own fishing gear, primarily using surface buoys made from various materials, different flag colors, and flashing lights.
- However, more than **90%** of crab gillnet fishers used marks that did not include a name or identification number traceable to the owner or vessel.





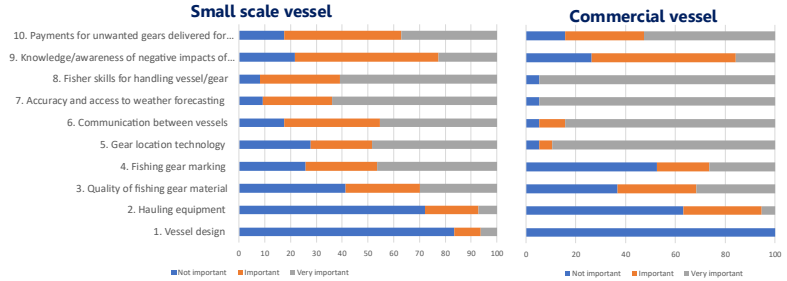
Crab Gillnets



4. Results

4.3 The important elements for avoiding or reducing quantities of ALDFG

Crab Gillnets



5. Concluding points on using the ALDFG questionnaire survey:

- Accurate and reliable data require that questionnaire users have a solid understanding of fishing gear and fishers' operational practices.
- The ALDFG questionnaire is an effective tool to study and understand overall fishing activities, providing baseline data to support policy and management of ALDFG issues.
- The survey results can help identify patterns of gear loss and inform targeted interventions to reduce environmental and economic impacts from ALDFG.



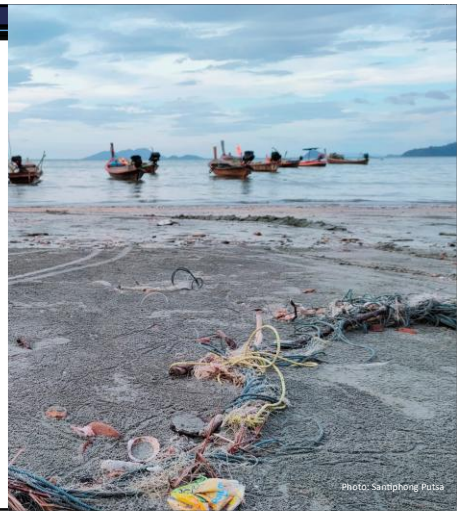
Thank you for your attention

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Regional Technical Meeting (RTM) on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region

21-23 January 2026

Seremban, Negeri Sembilan, Malaysia

Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia

Activity 1.1:
Information gathering to estimate the amount of ALDFG at pilot sites

Sub-Activity 1.1.1: Information gathering to estimate the amount of ALDFG at pilot sites (Malaysia)

By:
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SEAFDEC/MFRDMD
22.1.2026

Introduction

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INTRODUCTION OF PROJECT

- Marine debris is a transboundary issue that requires integrated regional cooperation, and strong collaboration among sectors is crucial, particularly in Asian region.
- In the fisheries sector, Abandoned, Lost, or otherwise Discarded Fishing Gear (ALDFG) has recently drawn attention as one of the significant sources of marine debris; and the reduction of the impacts from ALDFG is a key and distinct part of the global marine debris issue.
- Therefore, close cooperation among fisheries sector and other sectors, both public and private, of ASEAN Member States is important in combating the marine debris in Southeast Asia.
- The 34th ASEAN Summit held in Thailand in June 2019 issued two important documents related to the protection of the marine environment and combating marine debris.
  1) "Bangkok Declaration on Combating Marine Debris in the ASEAN Region"
  2) "ASEAN Framework of Action on Marine Debris."

  These two regional policy frameworks reaffirm ASEAN's commitment to strategic measures to respond to and deal with the risk of pollution and threats to the coastal and marine ecosystem.
- This project is in relevance to the Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030



INTRODUCTION OF ACTIVITY 1.1.1

Output 1
A technical guideline outlining the status of ALDFG in ASEAN and measures to prevent and remove ALDFG

Activity 1.1
Information gathering on ALDFG situations to support policy planning and development

Sub-activity 1.1.1
Information gathering to estimate the amount of ALDFG at pilot sites

SEAFDEC/MFRDMD: 6 pilot sites in the East Coast (South China Sea) and West Coast (Andaman Sea) of Peninsular Malaysia

METHODOLOGY

Use **Questionnaire** as a tool to investigate estimate the amount of ALDFG

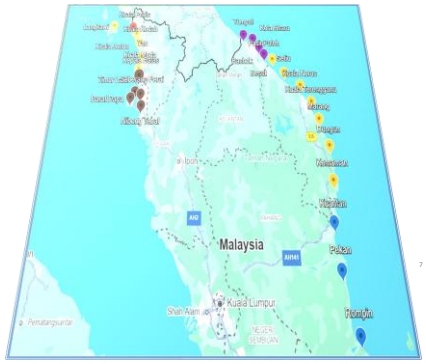
- (A) RESPONDENT'S INFORMATION
- (B) VESSEL INFORMATION AND OPERATION
- (C) FISHING GEAR
- (D) FISHING EFFORTS s CATCH
- (E) ALDFG
- (F) END-OF-LIFE GEAR
- (G) MARINE DEBRIS MANAGEMENT
- (H) GEAR MARKING

TargetGroups :
1) Trawlers,
2) Driftnetters,
3) Fishers using Traps



Pilot Sites

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South China Sea
(East Coast of Peninsular Malaysia)

- **Pahang** (3 coastal districts)
- **Terengganu** (7 coastal districts)
- **Kelantan** (4 coastal districts)

Andaman Sea
(West Coast of Peninsular Malaysia)

- **Perlis** (1 coastal district)
- **Kedah** (5 coastal districts)
- **Penang** (5 coastal districts)





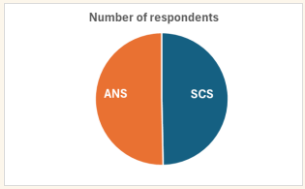
Results

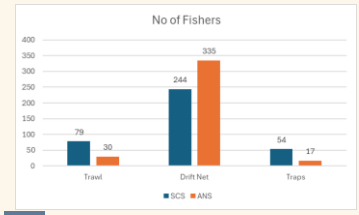
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Overall Respondents

	TRAWL	DRIFT NET	TRAPS	TOTAL RESPONDENT
PAHANG	30	34	16	**85**
TERENGGANU	21	111	31	**163**
KELANTAN	28	96	5	**129**
PERLIS	10	24	2	**36**
KEDAH	16	151	6	**174**
PENANG	4	158	10	**172**
TOTAL FISHERS	**109**	**579**	**71**	**759**

DEMOGRAPHIC





ANS = 382 (3 F, 379 M)

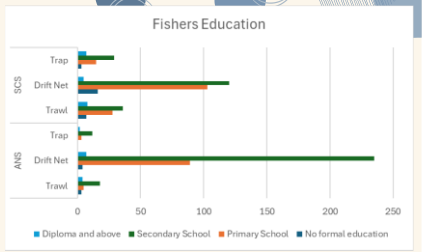
SCS = 377 (1 F, 376 M)

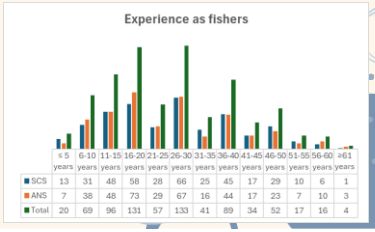
	ANS			SCS			
	Trawl	Drift Net	Traps	Trawl	Drift Net	Traps	Total
Male	29	333	17	78	244	54	755
Female	1	2	0	1	0	0	4
Total	30	335	17	79	244	54	759

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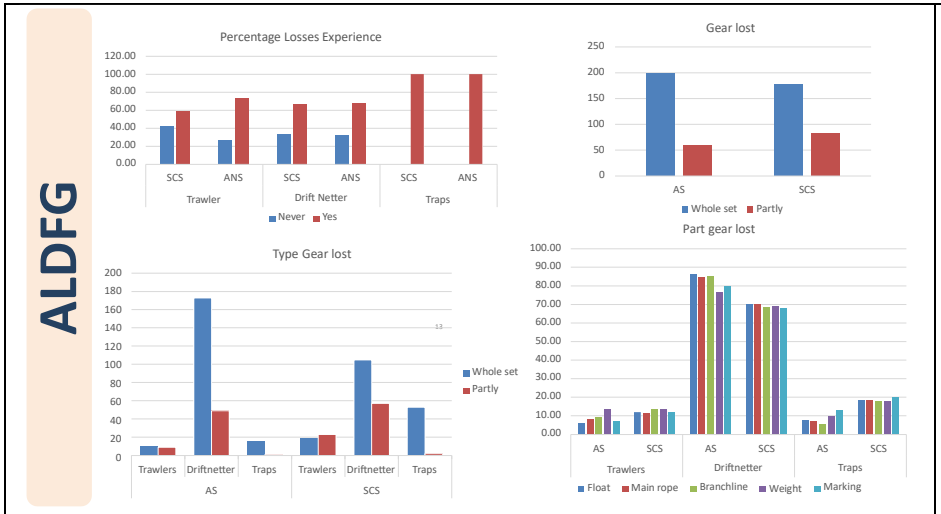
Years old	ANS			SCS		
	Trawl	Drift Net	Trap	Trawl	Drift Net	Trap
≤20	0	2	0	1	0	0
21-25	0	5	0	1	1	2
26-30	1	8	0	3	5	5
31-35	2	9	1	4	11	7
36-40	1	23	4	12	11	7
41-45	2	31	2	7	29	4
46-50	5	53	2	11	43	5
51-55	7	43	1	8	26	9
56-60	5	52	3	13	39	8
61-65	5	56	1	10	36	4
66-70	2	28	3	5	22	3
≥70	0	25	0	4	21	0

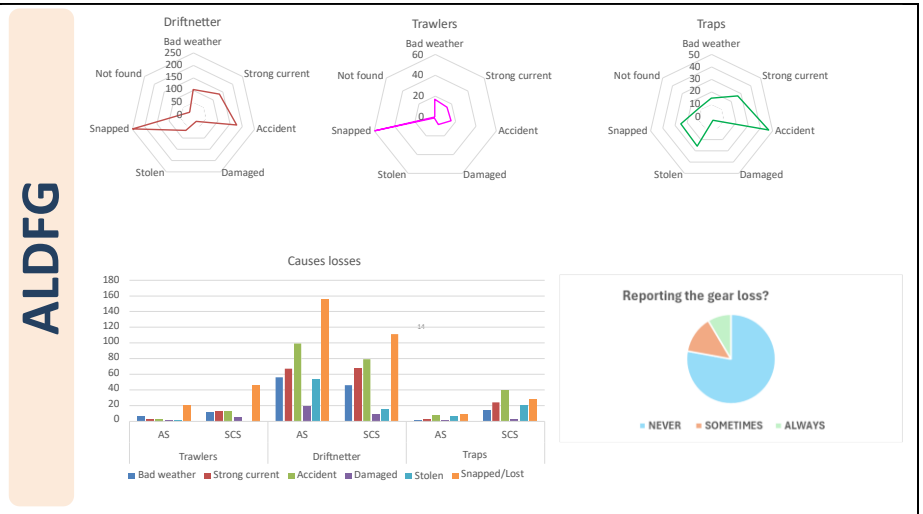
Fishers age group by gear

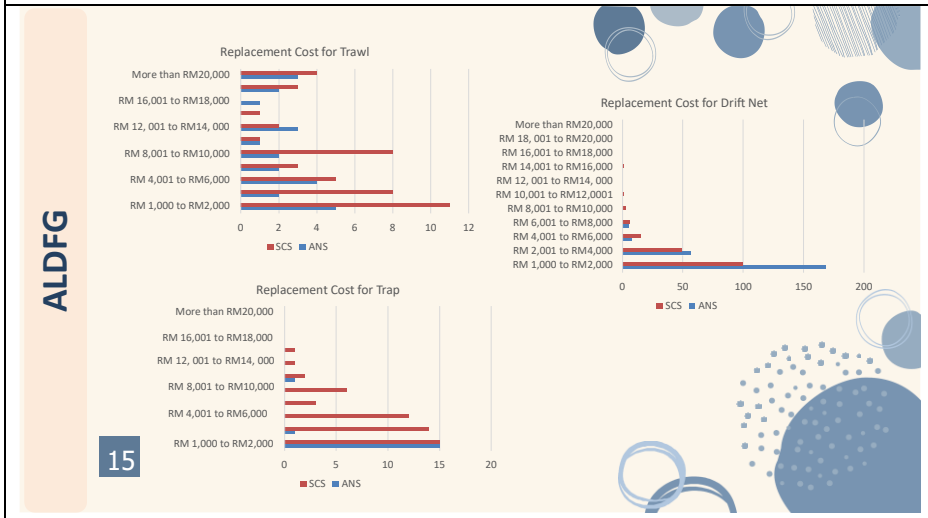


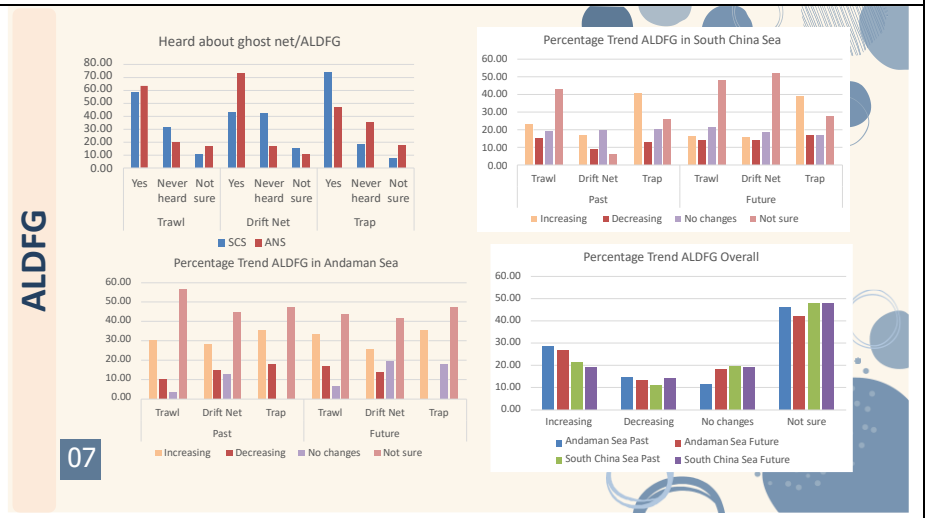


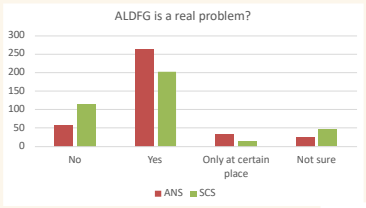
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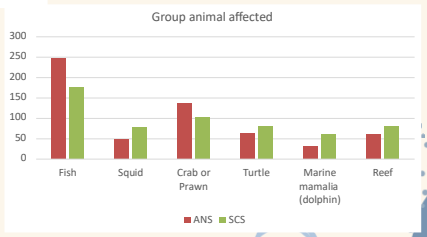

ALDFG
Percentage Losses Experience
120.00
100.00
80.00
60.00
40.00
20.00
0.00
SCS
ANS
SCS
ANS
SCS
ANS
Trawler
Drift Netter
Traps
Never
Yes
Gear lost
250
200
150
100
50
0
AS
SCS
Whole set
Partly
Type Gear lost
200
180
160
140
120
100
80
60
40
20
0
Trawlers
Driftnetter
Traps
Trawlers
Driftnetter
Traps
AS
SCS
Whole set
Partly
Part gear lost
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
AS
SCS
AS
SCS
AS
SCS
Trawlers
Driftnetter
Traps
Float
Main rope
Branchline
Weight
Marking


ALDFG
Driftnetter
Trawlers
Traps
Bad weather
Strong current
Accident
Damaged
Stolen
Snapped
Not found
Causes losses
180
160
140
120
100
80
60
40
20
0
AS
SCS
AS
SCS
AS
SCS
Trawlers
Driftnetter
Traps
Bad weather
Strong current
Accident
Damaged
Stolen
Snapped/Lost
Reporting the gear loss?
NEVER
SOMETIMES
ALWAYS


ALDFG
Replacement Cost for Trawl
More than RM20,000
RM 16,001 to RM18,000
RM 12, 001 to RM14, 000
RM 8,001 to RM10,000
RM 4,001 to RM6,000
RM 1,000 to RM2,000
0
2
4
6
8
10
12
SCS
ANS
Replacement Cost for Drift Net
More than RM20,000
RM 18, 001 to RM20,000
RM 16,001 to RM18,000
RM 14,001 to RM16,000
RM 12, 001 to RM14, 000
RM 10,001 to RM12,0001
RM 8,001 to RM10,000
RM 6,001 to RM8,000
RM 4,001 to RM6,000
RM 2,001 to RM4,000
RM 1,000 to RM2,000
0
50
100
150
200
SCS
ANS
Replacement Cost for Trap
More than RM20,000
RM 16,001 to RM18,000
RM 12, 001 to RM14, 000
RM 8,001 to RM10,000
RM 4,001 to RM6,000
RM 1,000 to RM2,000
0
5
10
15
20
SCS
ANS
15


ALDFG
Heard about ghost net/ALDFG
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Yes
Never heard
Not sure
Yes
Never heard
Not sure
Yes
Never heard
Not sure
Trawl
Drift Net
Trap
SCS
ANS
Percentage Trend ALDFG in Andaman Sea
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Trawl
Drift Net
Trap
Trawl
Drift Net
Trap
Past
Future
Increasing
Decreasing
No changes
Not sure
Percentage Trend ALDFG in South China Sea
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Trawl
Drift Net
Trap
Trawl
Drift Net
Trap
Past
Future
Increasing
Decreasing
No changes
Not sure
Percentage Trend ALDFG Overall
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Increasing
Decreasing
No changes
Not sure
Andaman Sea Past
Andaman Sea Future
South China Sea Past
South China Sea Future
07





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Conclusion

- A total of 759 respondents were interviewed, comprising 4 females and 755 males.
- All trap operators have experienced lost their gears.
- All fishers in ANS and SCS especially drift netters experiences lost whole their fishing gears.
- Main caused of their losses are snapped except for traps that because of accident.
- The replacement cost for trawl is highest followed by traps and drift netters.
- Most of fishers know about ghost fishing/ALDFG and many believe the trend is increasing in the past and future.
- Most of fishers believe ALDFG is real problem and affected mostly on fishes both in Andaman Sea and South China Sea.

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Thank you

Activity 1.1.2: Monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG

Lead Department:

MFRDMD

Lead Technical officer:

Muhammad Amirullah Al Amin Bin Ayob



Activity: 1-1-2

Priority Area: Policy support and planning

Output 1 Technical guideline outlining the status and ALDFG in ASEAN and measures to prevent and remove ALDFG

Activity 1.1.2: Monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG

- *The objective:*
  - An Information gathering to estimate the amount of ALDFG and development of removal guidance of the ALDFG.
- *Beneficiaries*
  - *AMSs can have a r*emoval guidelines suggested from the survey info.

Introduction

- The surge in global seafood demand has intensified marine fishing pressure, while the widespread use of durable synthetic fishing gear has created ALDFG crisis threatening marine ecosystems and biodiversity across Southeast Asia and the globe.
- To address this, SEAFDEC/MFRDMD is conducting preliminary surveys at 12 pilot sites along the east coast of Peninsular Malaysia to study ALDFG distribution intensity on artificial reef structures deployed between 2009 and 2024.
- These efforts aim to provide the insights necessary to establish regional guidance for the removal of ALDFG, ultimately empowering stakeholders to protect marine ecosystems for sustainable fisheries management.

Study Objectives

To achieve these goals, the study focuses on the following technical objectives:

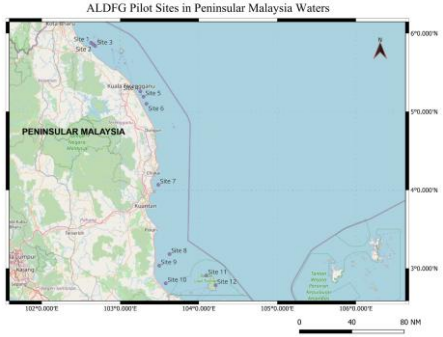
- Quantify the presence and intensity of ALDFG distribution across selected pilot sites.
- Understand the impacts of ALDFG coverage at these locations.
- Generate baseline data to inform regional policy planning and provide a framework for practical ALDFG removal guidelines.

Method

- Information gathering by SCUBA diving to estimate the amount and intensity of ALDFG occurrence at 12 Artificial reefs pilot sites in Terengganu and Pahang, Malaysia
- Monitoring were conducted at selected pilot sites between 21 Mei 2025 to 20 July 2025
- Visual observation conducted using video and still photo cameras to record the ALDFG occurrence at pilot site as well as fish assemblages and biodiversity to understand the impacts of ALDFG.
- Six divers equipped with underwater video and photo cameras were sent off to execute the monitoring tasks for 2 – 3 scheduled dives a day.
- Type and volume of ALDFG accumulated at the pilot sites will be estimated by the samples collected by the divers and from the video and photo recorded.
- Removal guidelines will be suggested from the data and information obtain throughout the survey course.

Locations of 12 artificial reef pilot sites in two (2) states of Peninsular Malaysia

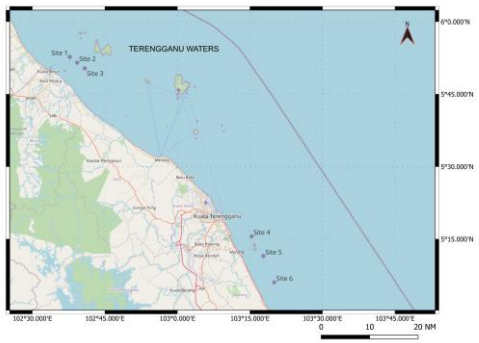
ALDFG Pilot Sites in Peninsular Malaysia Waters





PILOT SITES IN TERENGGANU

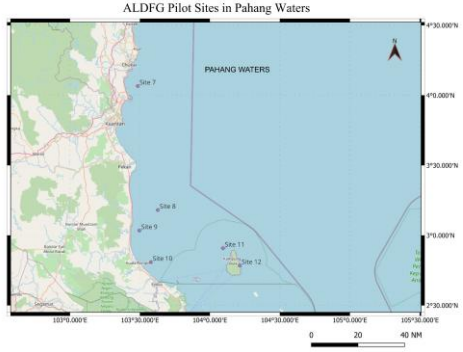
ALDFG Pilot Sites in Terengganu Waters



Pilot Site	Year of Deployment	Location	Type of ARs	No. of Unit
1	2021	Pulau Rhu, Besut	Concrete Cuboid AT	10
2	2018	Pulau Rhu, Besut	Concrete Cuboid AT	19
3	2009	Pulau Rhu, Besut	Concrete Soft-bottom	14
4	2009	Pulau Kapas, Marang	Concrete Cube	18
5	2017	Pulau Kapas, Marang	Oil Rigs 43 tons	1
6	2016	Merchang, Marang	Concrete Cuboid AT	12

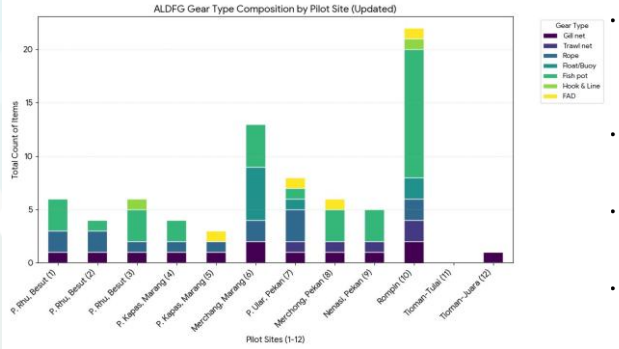
PILOT SITES IN PAHANG

ALDFG Pilot Sites in Pahang Waters



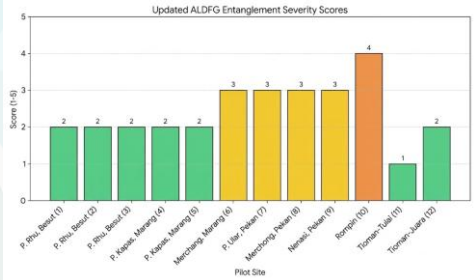
Pilot Site	Year of Deployment	Location	Type of ARs	No. of Unit
7	2009	Sungai Ular, Kuantan	Concrete Cube	18
8	2010	Merchong	Concrete Recreational Juv	18
9	2010	Nenasi	Concrete Cube Juvenil	15
10	2019	Rompin	Concrete Cuboid AT	20
11	2022	Tulai, Pulau Tioman	Concrete Cuboid Juvenil AT	7
12	2024	Juara, Pulau Tioman	Concrete Cuboid Juvenil AT	6

Results: ALDFG composition at Pilot Sites



- Main ALDFG type at all pilot sites are fish pots and gillnet
- Gillnet poses less treat as compare to fish pot to the mobile marine organism as only small fragment were observed at all pilot sites and very few fish entanglement were observed
- Pilot sites in marine protected area in Tioman Island recorded lowest ALDFG counts.
- Heavy fishing area in Pilot sites 6 and Pilot site 10 shows highest ALDFG counts.
- Floats, fish pots, ropes, and gill nets can be observed in all pilot sites except in Pilot site 11 and 12

Results: Severity score index



Score	Threat level	Visible Indicator	Ecological Impact
1	Negligible	No visible gear or only minor fragments (e.g., <20cm of line) found.	Minimal presence of ALDFG Reef functions naturally.
2	Low	Scattered monofilament or small pieces of netting; <10% of the reef surface covered.	Low risk to mobile fauna; Reef functions naturally.
3	Moderate	Multiple snags; 10–30% coverage. Lines or nets are beginning to "bridge" gaps in the structure.	Risk of "ghost fishing" (trapping fish); Moderate sessile growth inhibition.
4	High	Heavy accumulation; 30–60% coverage. Large nets draped over structure; multi-layered gear.	High mortality for mobile fauna; Reef function may be masked or compromised.
5	Severe	Complete "shrouding"; >60% coverage. Structure is barely visible through gear.	Massive "ghost fishing"; reef becomes a hazard rather than a habitat.

Activity 1-1-2: Monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG (pilot site: Malaysia)

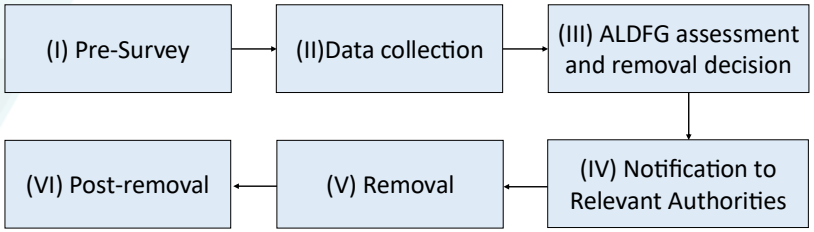
Discussion: Survey Findings

- Most surveyed pilot sites have a minimum severity score of 2 which there is presence of small ALDFG fragment with less than 10% coverage and mainly degraded.
- Pilot sites located in active fishing ground recorded high score of severity from 3 to 4 which indicate active and invasive fishing activity in the survey area.
- Artificial reefs located inside marine park shows lower score ranging from 1 to 2 which indicate no significant fishing activity in the area due to fishing restriction in the area.
- Generally, all fishing gear fragments at the reefs structure are mostly degraded and doesn't show severe treat to the fishes and other mobile marine organism.
- Only main ropes and small net fragment were left at all the pilot sites reefs structure which is no longer pose potential treat to the fishes and mobile marine organism. Most probably during early ALDFG settlement before the net were partially degraded there are high possibility of potential treat to the mobile marine fauna especially the gill net as observed in pilot site near Kapas Island.
- Other than fish net, abandoned fish pot also a main contributor to the severity score where this pot is very efficient in trapping fish even after it was abandoned due rope breaks or snagged to the seabed structure.

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30 March 2026, Bangkok-Thailand

Activity 1-1-2: Monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG (pilot site: Malaysia)

Discussion: ALDFG removal guidelines



Regional Symposium on Marine Debris and Microplastics in Southeast Asia
30 March 2026, Bangkok-Thailand

Activity 1-1-2: Monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG (pilot site: Malaysia)

Discussion: Pre-survey

ALDFG Pre-Survey / Assessment Methods

- **Ocean Modelling:**
Predicts debris transport and potential ALDFG accumulation zones.
- **Acoustic Sonar Surveys:**
Side-scan and multibeam sonar image the seafloor to detect ALDFG across large areas and depths up to ~1000 m.
- **Surface Visual Surveys:**
Boat-based observations to locate buoys or floating markers of lost traps and nets, effective in high-density areas.
- **Underwater Visual Surveys:**
Divers and drop cameras verify sonar targets and survey complex habitats where sonar is less effective.
- **Dragging / Grappling Surveys:**
Systematic towing of grapples to locate (and sometimes remove) gear, suitable for sandy or muddy seabed.
- **Fisheries Data & Local Knowledge:**
Fisher and diver inputs identify ALDFG "hotspots" and guide targeted survey and removal efforts.



ALDFG at Pilot site 1



Discussion: Data Collection

Data Collection for ALDFG Removal

- **Site Identification:**
  Accurate GPS coordinates and landmarks for safe access, relocation, and monitoring.
- **Visual Documentation:**
  Photos and videos to confirm presence, condition, extent, and support safe removal planning.
- **ALDFG Characteristics:**
  Type: (e.g. gillnet, trap, trawl, longline, FAD components)
  Size & Volume: Inform manpower, equipment, lifting, and transport needs.
- **Oceanographic Information:**
  Seabed type & condition (sandy, rocky, coral, stability)
  Water depth & visibility
  Tide and current patterns to ensure operational safety.
- **Marine Life Entanglement:**
  Documentation of impacts on marine mammals, sea turtles, fishes, and other organisms.



ALDFG at Pilot site 6



Discussion: Assessment and removal decision

(IV) Retrieval decision	Image of ALDFG condition	ALDFG condition	Reason for decision
Full retrieval		The ALDFG fully separated from coral or marine encrusting and sessile organism	In case of artificial reef or non-coral reef structure, we can easily remove any ALDFG fragments as it didn't compromise any coral or encrusting living organism at the structure.
Partial retrieval		The ALDFG partially merge with coral, encrusting or sessile marine organism	In case of coral reef, if the ALDFG structure shrouding the reefs it is very difficult to remove it without damaging or breaking the encrusting coral. Partially remove any removable or leaving ALDFG fragment is the best option to preserved the coral reefs unless the ALDFG will poses bigger threat to the surrounding marine fauna if not remove.
Abandon		The ALDFG fully merge with coral, encrusting or sessile marine organism	

Discussion: Notification to Relevant Authorities

Notification to Relevant Authorities
(Before and after ALDFG Removal)

- **Fisheries Department:** Coordination on fisheries management, gear ownership, and operational clearance.
- **Local Government / Communities:** Local awareness, community support, and access to nearshore areas.
- **Marine Department:** Navigation safety, vessel movement, and maritime operation permits.
- **Maritime Enforcement Agency:** Security, compliance, and enforcement support during operations.

ALDFG at Pilot site 7



Discussion: ALDFG removal methods

ALDFG Removal Methods

- **Free Diving (0–5 m):**
  - Small–medium ALDFG volumes
  - Shore dive or small support boat
  - Suitable for shallow, nearshore areas
- **Scuba Diving (5–25 m):**
  - Small–large ALDFG volumes
  - Diver boat and/or carrier boat
  - Systematic removal in deeper waters
- **ROV Retrieval (>6 m):**
  - Small–large ALDFG volumes
  - Operator boat with optional carrier boat
  - Safer option for deeper or complex sites
  - Effective in removing fish pots
- **Surface-Based Retrieval (Crane / Mechanical Claws, >6 m):**
  - Medium–large ALDFG volumes
  - Operator and carrier boats
  - Effective for heavy or deeply submerged gear



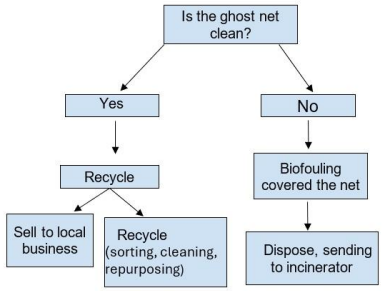
ALDFG at Pilot site 10



Discussion: Post retrieval assessment and disposal

e. Post retrieval

i. ALDFG assessment





ALDFG at Pilot site 5

Activity 1-1-2: Monitoring on the ALDFG at accumulated pilot sites and development of removal guidance of the ALDFG (pilot site: Malaysia)



Thank you

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30 March 2026, Bangkok-Thailand

SEAFDEC/MFRDMD
SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER
MARINE FISHERY RESOURCES DEVELOPMENT AND MANAGEMENT DEPARTMENT

REGIONAL COLLABORATIVE RESEARCH AND CAPACITY BUILDING FOR MONITORING AND REDUCTION OF MARINE DEBRIS FROM FISHERIES IN SOUTHEAST ASIA

Japan ASEAN Integration Fund (JAIF)

SEAFDEC/MFRDMD
SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER
MARINE FISHERY RESOURCES DEVELOPMENT AND MANAGEMENT DEPARTMENT

Activity Number and Name

Activity 2-2: Research and evaluation on amount of marine debris collected by different types of fishing gears during the fishing activities at sea

SEAFDEC Department and Lead Technical Officer

MFRDMD / Hamizah Nadia binti Alias@Yusof

Main Activities

Research and evaluation on amount of marine debris collected by different types of fishing gears during the fishing activities at sea (Pilot sites: Terengganu waters & Kelantan waters)

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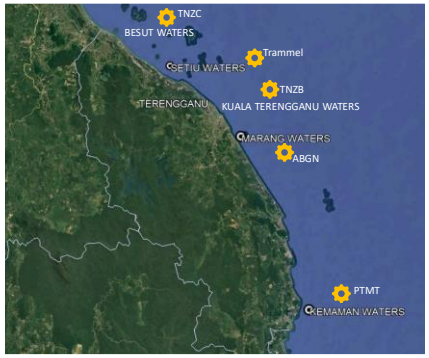
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Gears operation

Types of fishing gear	Group of gear	Zone	Duration per operation
Trammel net	Static	A	1 hour
Anchored bottom gill net	Static	A	24 hours
Monsoon season trawl net	Mobile	A	3 hours
Trawl net Zone B	Mobile	B	4 hours
Trawl net Zone C	Mobile	C	4 hours

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Sampling areas by fishing gears





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Marang waters: Anchored bottom gill net (4,5,8 Dec 2024)








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Marang waters: Anchored bottom gill net

No.	Categories	Wet weight (kg)	Dry weight (kg)	Items count
1	Plastics	0.9951	0.447	71
2	Fishing gears fragments	0.327	0.2628	21
3	Synthetic rubber	0.0454	0.0416	1
4	Metal	0.5352	0.503	2
	TOTAL	**1.9027**	**1.2544**	**95**

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Kemaman waters: Monsoon season trawl net (4-7 Feb 2025)







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Kemaman waters: Monsoon season trawl net

No.	Categories	Wet weight (kg)	Dry weight (kg)	Items count
1	Plastics	5.95	4.57	191
2	Fishing gears fragments	0.99	0.60	54
3	Synthetic rubber	0.0013	0.0012	1
4	Metal	1.07	1.07	4
5	Glass	0.39	0.39	1
6	Dispossable diaper	0.08	0.03	1
7	Others	1.39	0.52	
	TOTAL	**9.87**	**7.18**	**252**

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Setiu waters: Trammel net (17-19 Feb 2025)







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Setiu waters: Trammel net

No.	Categories	Wet weight (kg)	Dry weight (kg)	Items count
1	Plastics	0.003	0.001	6
	TOTAL	**0.003**	**0.001**	**6**

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Besut waters: Trawl net Zone C (4-5 May 2025)







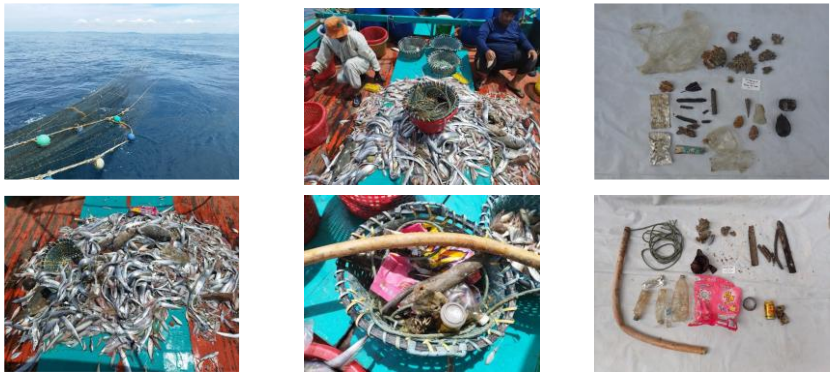
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Besut waters: Trawl net Zone C

No.	Categories	Wet weight (kg)	Dry weight (kg)	Items count
1	Plastics	1.25	1.14	3
2	Fishing gears (Discarded trawl net)	89	85.44	1
	TOTAL	**90.25**	**86.58**	**28**

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Kuala Terengganu waters: Trawl net Zone B (18-19 May 2025)



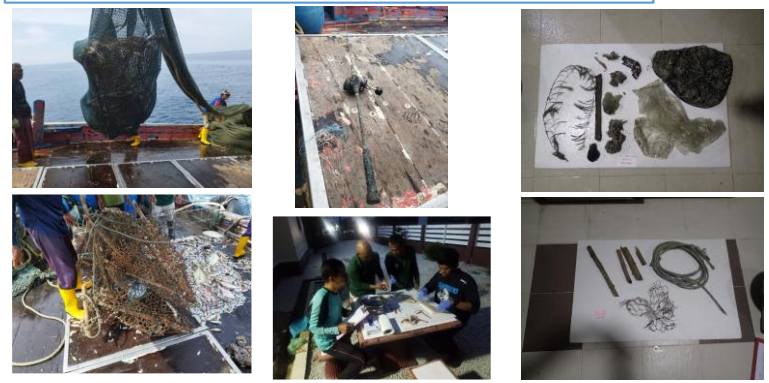
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Kuala Terengganu waters: Trawl net Zone B

No.	Categories	Wet weight (kg)	Dry weight (kg)	Items count
1	Plastics	0.7634	0.7019	13
2	Fishing gears fragments	0.2492	0.1743	1
3	Metal	0.0367	0.029	2
4	Cardboard	0.0485	0.0237	1
	TOTAL	**1.0978**	**0.9289**	**17**

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Pasir Puteh waters: Trawl net Zone C (2-3 Jun 2025)



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Pasir Puteh waters: Trawl net Zone C

No.	Categories	Wet weight (kg)	Dry weight (kg)	Items count
1	Plastics	0.5393	0.409	4
2	Fishing gears (Fish trap)	32.6	25.75	1
3	Fishing gears (Fishing rod)	0.4	0.384	1
4	Fishing gear fragments	0.48	0.4	3
5	Metal	0.0833	0.0756	2
	TOTAL	**34.1058**	**27.0223**	**11**

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Pasir Puteh waters: Anchored bottom gill net (2-4 Jul 2025)



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Pasir Puteh waters: Anchored bottom gill net

No.	Categories	Wet weight (kg)	Dry weight (kg)	Items count
1	Plastics	0.0061	0.0041	2
2	Fishing gear fragments	0.0001	0.0001	2
	TOTAL	**0.0062**	**0.0042**	**4**

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Tumpat waters: Trawl net Zone B (6-7 Aug 2025)



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Tumpat waters: Trawl net Zone B

No.	Categories	Wet weight (kg)	Dry weight (kg)	Items count
1	Fishing gears fragments	0.0902	0.0334	1
	TOTAL	**0.0902**	**0.0334**	**1**

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Tumpat waters: Monsoon season trawl net (9-11 Dec 2025)






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Tumpat waters: Monsoon season trawl net (9-11 Dec 2025)

No.	Categories	Wet weight (kg)	Dry weight (kg)	Items count
1	Plastics	0.3738	0.2393	23
	TOTAL	**0.3738**	**0.2393**	**23**

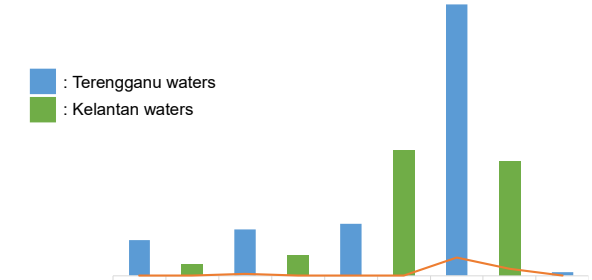
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Pasir Puteh waters: Trammel net

Trip date: 20 – 22 January 2026

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Trends in the proportion of marine debris relative to marine catches collected by fishing gear



	ABGN	ABGN	PTMT	PTMT	TNZB	TNZB	TNZC	TNZC	Trammel
Marine catches	179.562	57.564	231.4166	105.8134	260.61	630.06	1363	575.4248	19.35
Marine debris	1.9027	0.0062	9.87	0.3738	1.0978	0.0902	90.25	34.1058	0.003

- No direct or linear relationship between debris amount and fish catch
- The quantity of marine debris retrieved during fishing operations is strongly related to fishing effort, gear type, and habitat characteristics.

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General discussion:

Factors Influencing Marine Debris Distribution

- Oceanographic processes.
- Climate and seasonal factors.
- Geographical features.
- Debris material properties.

Marine Debris Composition **VS** Fishing Gear Type

- Marine debris composition is highly gear-dependent.
- Bottom trawls vs gillnets and traps.
- Static gears vs mobile gears.

Marine Debris Amount **VS** Fish Catch Amount

- No direct or linear relationship between debris amount and fish catch.
- Fish catch reflects biological stock availability, not debris density.

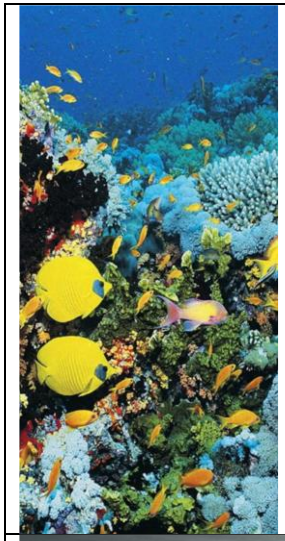
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General conclusion:

- The amount and types of marine debris collected varied depending on the fishing gear used, the sampling area, and the season.
- Bottom-trawled gears recorded a higher number of debris categories, as they operate close to the seabed where debris tends to accumulate. In contrast, gears operating in mid-water layers collected fewer debris items.
- Seasonal effects were also evident: trawl operations conducted during the monsoon season captured more debris, likely due to stronger currents transporting materials from coastal areas, whereas trawl operations outside the monsoon period recorded significantly less debris.
- ALDFG was mainly recorded in deeper areas because heavy or sunken gear naturally settles on the seabed, and larger bottom-trawl nets cover a wider area, making them more likely to encounter and retrieve these debris hotspots.

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THANK YOU



Activity 4-1: Development of Methods on Marking of Fishing Gears and Promotion on Marking of Fishing Gears

Nakaret Yasuk
SEAFDEC/TD





Ghost Gear is a Pervasive Threat to Marine Ecosystems and Livelihoods

Abandoned, Lost, or Otherwise Discarded Fishing Gear (ALDFG), or “ghost gear” creates a destructive cycle of environmental damage and economic loss for fishing communities

Environmental Damage
Leads to significant habitat degradation, smothering sensitive marine environments like coral reefs

Threat to Marine Life
Causes entanglement of marine species, including commercially important fish stocks

Economic Loss
Imposes direct financial losses on fishers who must replace lost gear and face reduced catches

Output 4.1 Marking of fishing gears is promoted

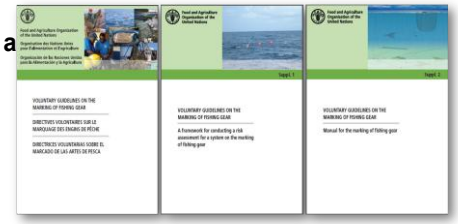
Development of methods on marking of fishing gears and promotion on marking of fishing gears

- Objectives: To provide a standardized and practical guide for marking of fishing gear to AMSs
- Activity:
  - Investigation of existing techniques for making fishing gears
  - Research on technical methods for marking fishing gears in pilot sites
  - Organized a technical meeting to discuss and develop the technical manual on marking fishing gears





Fishing Gear Marking (FGM) is the Globally Recognized Tool to Enable a Solution



FGM is a "vital management tool to tackle ALDFG" and combat Illegal, Unreported, and Unregulated (IUU) fishing

The project builds upon the FAO Voluntary Guidelines on the Marking of Fishing Gear (2023).The purpose is to bridge the gap between international guidelines and the practical needs of local fisheries through adaptation.





Pilot Testing of Fishing Gear Marking in Collapsible Crab Traps and Gillnets, Chumphor Province

Our Mission is to Develop and Test an Effective FGM System for Local Fishers

Overall Objective: To enhance sustainable fisheries management and reduce ALDFG through developing and testing effective FGM systems

Evaluate marking materials (bird rings, metal tags, plastic tags) for crab traps and gillnets	Assess durability, cost-effectiveness, and fisher acceptance	Generate field-based evidence to adapt FAO Guidelines for local contexts.

Our Pilot is Located in Chumphon Province, Thailand, chosen as a representative typical small-scale coastal fishery area







Key Partners:
Lead Agency is SEAFDEC/Training Department;
Collaborating Agency is the Department of Fisheries (DOF), Thailand.

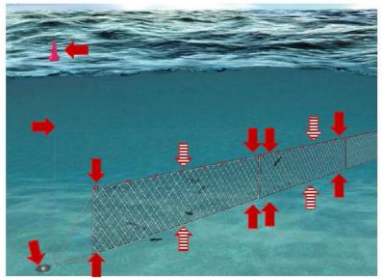
Direct Participants:
40 local fishers (20 of crab gillnet, 20 of crab trap)

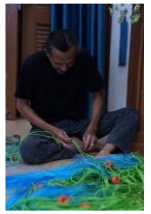






Marking positions

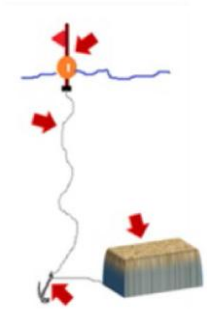


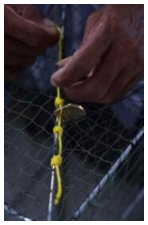


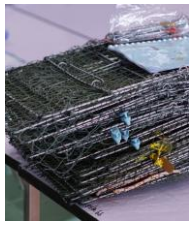




Marking positions

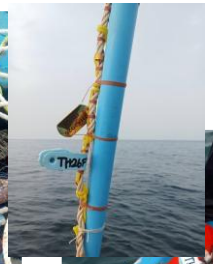


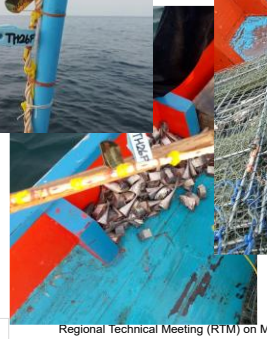








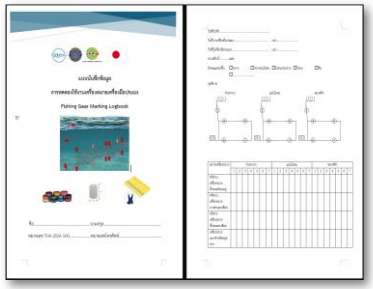


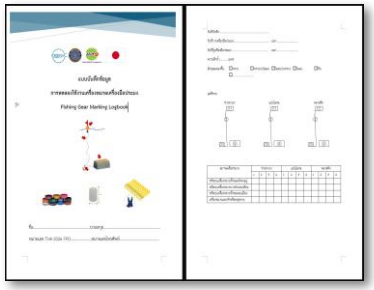






Logbooks





Field-tests marking gear on performance, durability, and a compressive evaluation of fisher acceptance

January
Pilot Testing

February
Monitoring & Data Analysis

March
Meeting & Reporting







ANNEX 22

OUTLINES

Title: Technical Guidelines to assess, prevent and remove Abandoned, Lost, or Otherwise Discarded Fishing Gear (ALDFG) in the Southeast Asian Region

Table of Content
Preface

Abbreviation
1) Background information

2) Objective
3) Definition
4) Status of ALDFG in AMSs

5) Assessment of ALDFG
- **Guidelines**

6) Prevention of ALDFG (gear marking)

- **Guidelines**

7) Removal of ALDFG

- **Guidelines**

Summary

References
Annexes

The Regional Technical Meeting on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region
21-23 January 2026, Royal Chulan Hotel, Seremban, Negeri Sembilan

WAY FORWARD

By
Mr. Mohammad Faisal Md Saleh
MFRDMD
23.1.2026

Way Forward Activity 1.2



Publish Report of the Regional Technical Meeting (RTM) on Marine Debris and ALDFG in Southeast Asian Region

Planned time: April 2026

Action:

- The report will be printed and disseminate to all participants of RTM.
- The report will be accessible to a wider audience through online publication. (SEAFDEC/MFRDMD Institutional Repository/ SMIR website)

Way Forward Activity 1.2



Draft of Technical Guidelines on the status of ALDFG and measures to prevent and remove ALDFG

Planned time: May 2026

Action:

- Circulate the draft Technical Guidelines to designated focal points for review.
- Collect and consolidate feedback from focal points. -
- Finalize the Technical Guidelines for adoption and dissemination.

The Regional Technical Meeting on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region
21-23 January 2026, Royal Chulan Hotel, Seremban, Negeri Sembilan

THANK YOU
TERIMA KASIH

ANNEX 24

CLOSING REMARKS

The Regional Technical Meeting (RTM) on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region
21-23 December 2026
Seremban, Negeri Sembilan, Malaysia

By Dr. Masahito Hirota, Deputy Chief of SEAFDEC/MFRDMD

Prof. Fauziah from University of Malaya

Mr. Joseph from ASEAN secretariat

Mr. Abd Haris Hilmi Armad Ahshad: chief of MFRDMD

Ms. Pattaratjit from SEAFDEC/SEC,

All representatives from ASEAN member countries,

Ladies and Gentlemen, Good afternoon.

Thank you very much for joining "The Regional Technical Meeting (RTM) on Marine Debris and Abandoned, Lost or Discarded Fishing Gear (ALDFG) in Southeast Asian Region". This activity is supported by JAPAN ASEAN Integration Fund (JAIF), the objective is to support all ASEAN member countries to establish the strong, dynamic and open system for ASEAN community. And this program is well expected to deepen the mutual understanding between Japan and ASEAN countries, in promotion of human resource communication, technology transferring, study and research activities.

I believe that this MFRDMD can complete to formulate a technical guideline for reducing ALDFG, in order to implement "ASEAN Framework of Action on Marine Debris" .

I think that this meeting will be a good contribution and can get a meaningful result for member countries, especially for the sustainable use method of marine resources in ASEAN water.

I would like to say thank you again and I hope we keep in touch with all.

Now, I would like to declare the meeting closed. Thank you very much.

APPENDIX

Meeting images photographed by Mr. Noredzuan Hakimi bin Ghani





Mr. Abd Haris Hilmi Ahmad Arshad, *Chief of MFRDMD*



Mr. Yosuke Kawamoto
First Secretary of the Mission of Japan to ASEAN



Mr. Ruzaidi Mamat
Keynote Speaker from DOF Malaysia



Assoc.Prof.Dr.Fauziah Shahul Hamid, *Resource Person from Universiti Malaya*



Dr. Masahito Hirota
Deputy Chief of MFRDMD



Ms. Mazalina Ali
Special Departmental Coordinator of MFRDMD



Mr. Mohammad Faisal Md Saleh, *Activity Leader from MFRDMD*



Mr. Joseph Arbiol
ASEAN Secretariat



Mr. Muhammad Fikri Kodri
ASEAN Secretariat



Ms. Khoo Tek Ying
Brunei Darussalam



Ms. Siti Nur Nisrina Matali
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Cambodia



Mr. Antonius Siregar
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Mr. Azlan Mohd Nor
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Ms. Haryati Abd Wahab
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Mr. Irman Isnain
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Mr. Abdul Wahab Abdullah
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Ms. Najihah Mohamad
FRI Batu Maung, Penang, Malaysia



Ms. Nur Amalina Mohd Razikin, *FRI Bintawa, Sarawak, Malaysia*



Mr. Isidro C. Tanangonan
Philippines



Ms. Shirley Chua
Singapore



Ms. Sarah Tang
Singapore



Dr. Watcharapong Chumchuen
Thailand



Mr. Dinh Xuan Hung
Viet Nam



Ms. Pattaratjit Kaewnuratchadasorn
SEAFDEC Secretariat



Mr. Fumiya Takahashi
SEAFDEC Secretariat



Mr. Nakaret Yasuk
SEAFDEC Training Department



Mr. Santiphong Putsa
SEAFDEC Training Department



Mr. Muhammad Amirullah Al-Amin Ayob, *MFRDMD*



Ms. Hamizah Nadia Alias @ Yusof, *MFRDMD*



Ms. Nurul Syazwani Mustaffa *MFRDMD*



Ms. Khairiah Jaafar *MDRDMD*



Ms. Fauzana Che Su *MFRDMD*



Ms. Nor Hanni Nasha Mahmod, *MFRDMD*



Mr. Rosdi Mohd Nor *MFRDMD*














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RESOURCE PERSON
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The Regional Technical Meeting on Marine Debris and Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) in Southeast Asian Region

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