

Assessing the Disposal Methods for End-of-Life Fishing Gears in Coastal Communities in Nigeria and its Implications on the Blue Economy



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1. INTRODUCTION

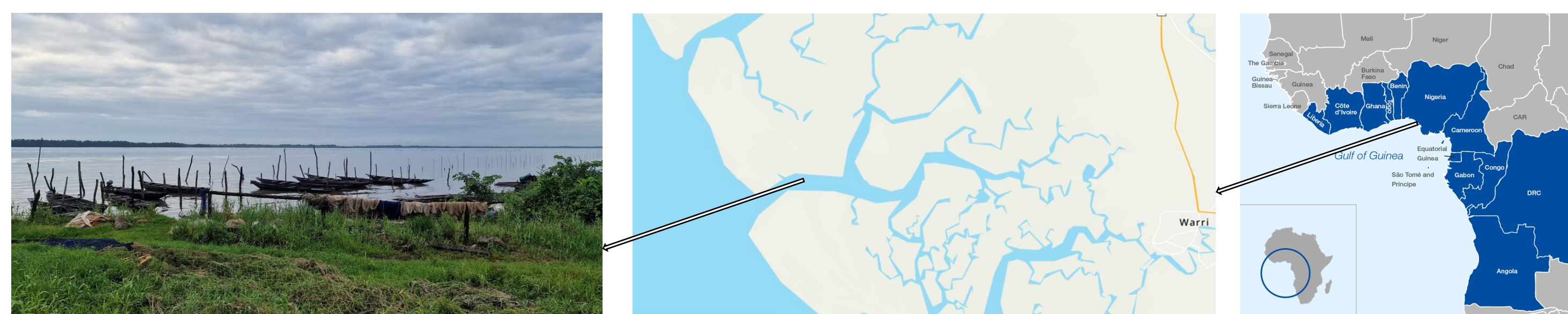
The blue economy is characterized by the sustainable use and conservation of ocean resources for economic development and environmental sustainability (UNEP, 2018). Central to the blue economy are fisheries, which provide livelihoods for millions of people worldwide, contribute to food security, economic growth, and cultural heritage (FAO, 2020). Fishing gears can be abandoned, lost, or discarded following environmental, operational or management pressures (Dagtekin *et al.*, 2019). Abandon and loss gears contributes significantly to ocean plastic pollution (Lebreton *et al.*, 2022). Proper management of fishing gear disposal is essential for preserving marine ecosystems, protecting marine biodiversity, and ensuring the long-term sustainability of the blue economy.

2. AIM AND OBJECTIVES

The aim of this study was to assess the disposal methods for the end-of-life fishing gears in coastal communities. The objectives include to 1) understand the demographics of fishers 2) assess the fishing gear types and quality in use and 3) ascertain the disposal methods for end-of-life fishing gears by fishers in the region.

3. MATERIALS AND METHOD

3.1 Study Population



3.2 Research Design and Data Collection

Structured questionnaire with open and closed-ended questions was administered on artisanal fishers in the region. The sample size determination - Taro Yamane formula (Yamane, 1973). Fifty (50) artisanal fishers were sampled and responses were collected for the study.

3.3 Data Analysis

Ms Excel 2016 and SPSS version 21. Data were summarised into mean, frequency distribution and percentages. Further analysis was done to compare mean where necessary.

3.4 Ethics

Informed consent was obtained from the participants before their involvement in the study.

4. RESULTS/DISCUSSION

4.1 Demographic Characteristics of Artisanal Fishers

Sex:	Male (42%) Female (58%)
Age:	21-30 (22%) 41-50 (28%) 61-70 (20%)
Education:	No Education (24%) Basic (24%) Secondary (46%) Degree (6%)
Occupation:	Part-time (56%) Full-time (44%)

- Sex related - Binyotubo *et al.* (2022) and Yamhere (2011)
- Artisanal fishers – low education - Eyen *et al.* (2018), Aghoghovwia *et al.* (2022)

4.2 Fishing Gear Types

Gears:	Gillnets (76%) Traps (10%) Dragnets (8%) Hook & line (4%) Cages (2%)
Gear quality:	Genuine (70%) Substandard (30%)

- Gillnets most prevalent - Binyotubo *et al.* (2022)

4.3 Gear Lifespan and Maintenance

Lifespan:	1yr (82%) 3yrs (12%) 5yrs (4%) 10 yrs (2%)
Duration/Intensity of use:	Yes (62%) No (38%)
Mending/Discard:	Mend (88%) Discard (12%)
Who Mends:	Self (75%) Menders (25%)

- Lifespan of fishing gears - Adebiyi (1998).

4.4 Fisher's Cooperative and Support System

- No cooperative - 67%, form of cooperative - 33%.
- No government support (federal, state, local council) - 88%
- Some government support - 12%
- Infrequent support - Niger Delta Development Commission, Presidential Amnesty Programme
- Lack of support could contribute to reliance on substandard fishing gear.

4.5 Inspection and Enforcement of Fishing Gear Regulations

- No fishing gear regulations - 96%
- Weak enforcement of gear regulations in developing countries (Adebiyi, 1998).

4.6 Disposal Methods for End-of-life Fishing Gears

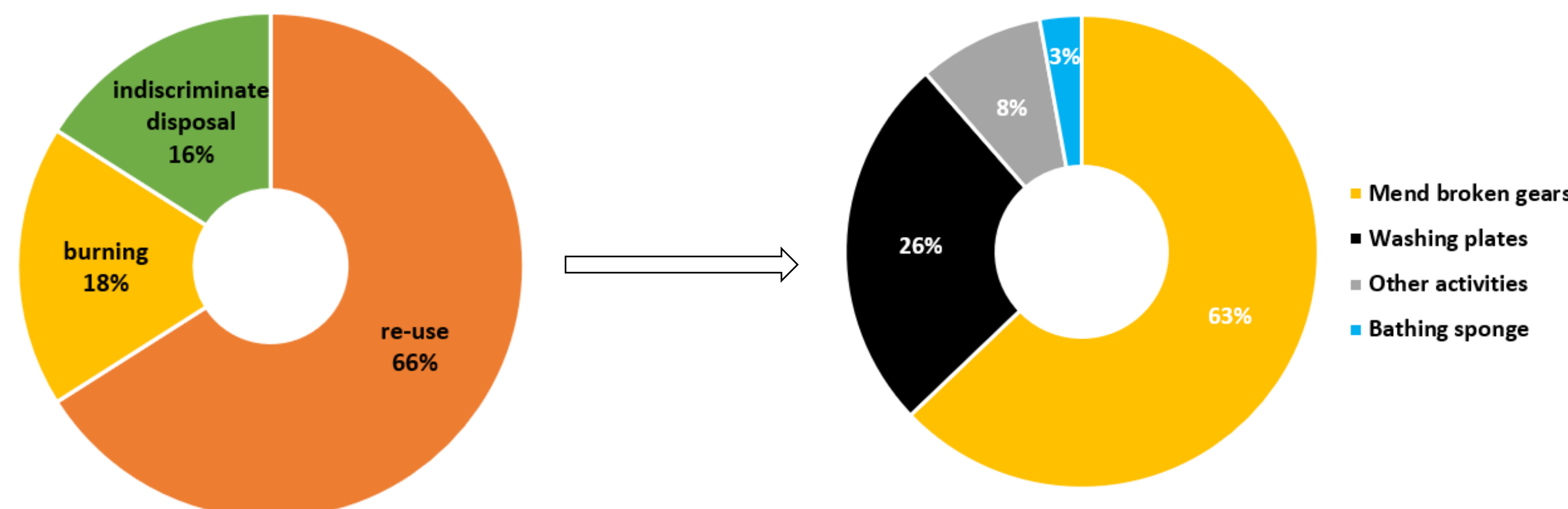


Fig. 2a. Fishing gear disposal methods among fishers. 2b. Re-use options for end-of-life fishing gears among fishers

- Reuse of end-of-life fishing gear is driven primarily by cost-saving motives
- No regulation against the indiscriminate disposal of fishing gears.

4.7 Environmental Impacts of Improper Disposal of Fishing Gears

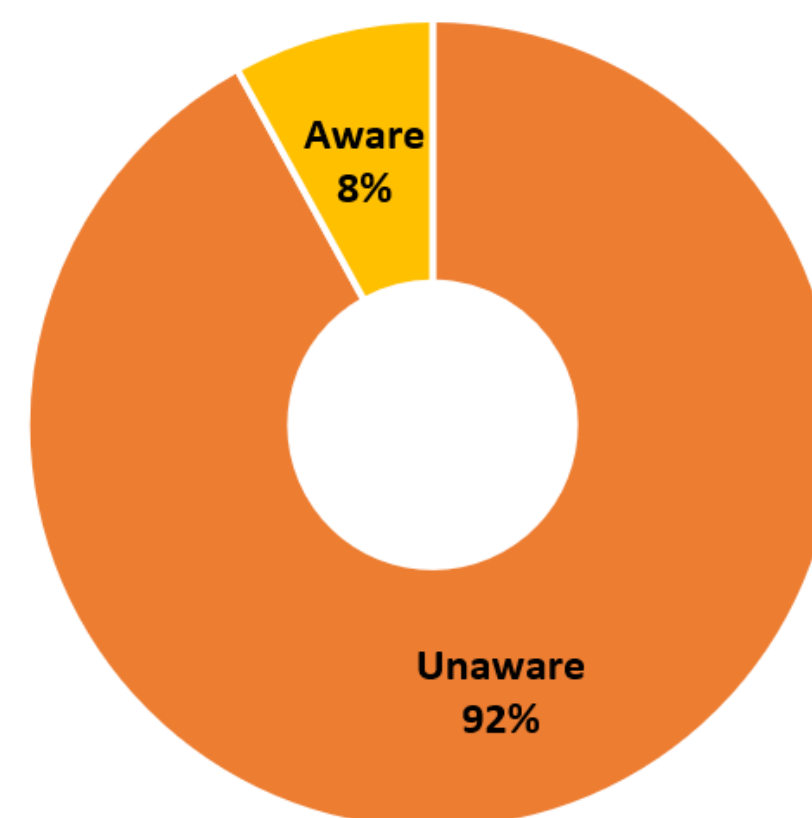


Fig. 3. Awareness of environmental impacts associated with improper disposal of fishing gears among fishers

- Severe lack of environmental education among fishers
- Underscore the need for programmes related to increasing awareness and knowledge among fishers on the need for proper disposal of fishing gears and implication for coastal and marine ecosystems and the blue economy of the region.

4.7.1 Identified Negative Impact from Improper Disposal of Fishing Gears

Among 4 (8%) fishers who believed improper disposal of fishing gear could have a negative impact on the environment and fishing activities;

- Interference with other fishing nets: reduce fish catch, catches derelicts gears
- Cause navigational hazards for speed boats, barges, and vessel propellers
- Entanglement of wildlife in coastal ecosystem: entangle fishes (ghost fishing)

4.7.2 Contribution to Environmental Pollution

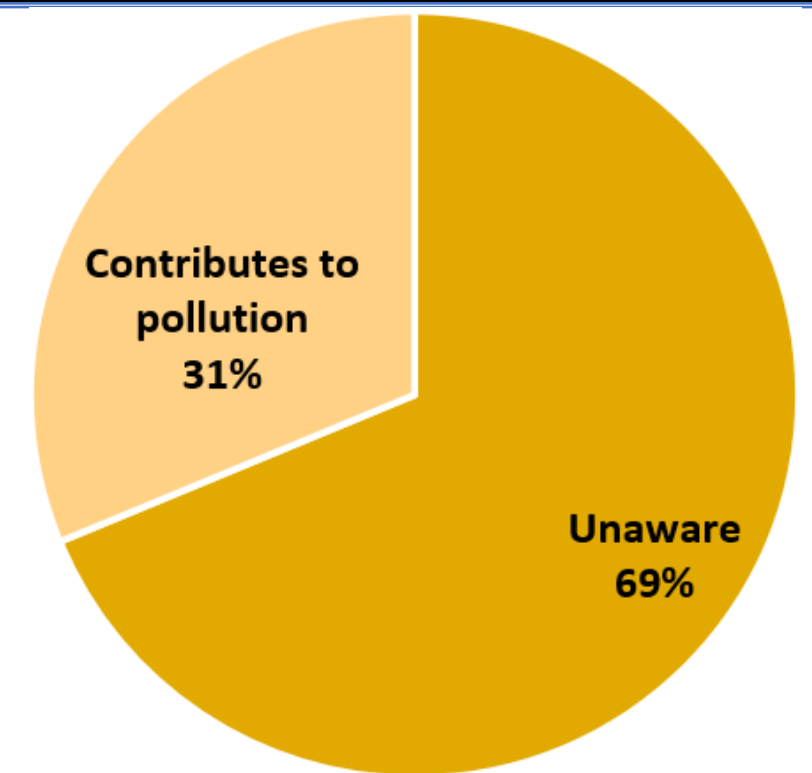


Fig. 4. Contribution of improper disposal of fishing gear to environmental pollution

- Improper disposal of fishing gear contributes to marine litters in the estuary, pollutes coastal environment and the southern Atlantic Ocean.
- Harm marine species and disrupts marine food webs.

4.7.3 Effects on Marine Life and Fisheries

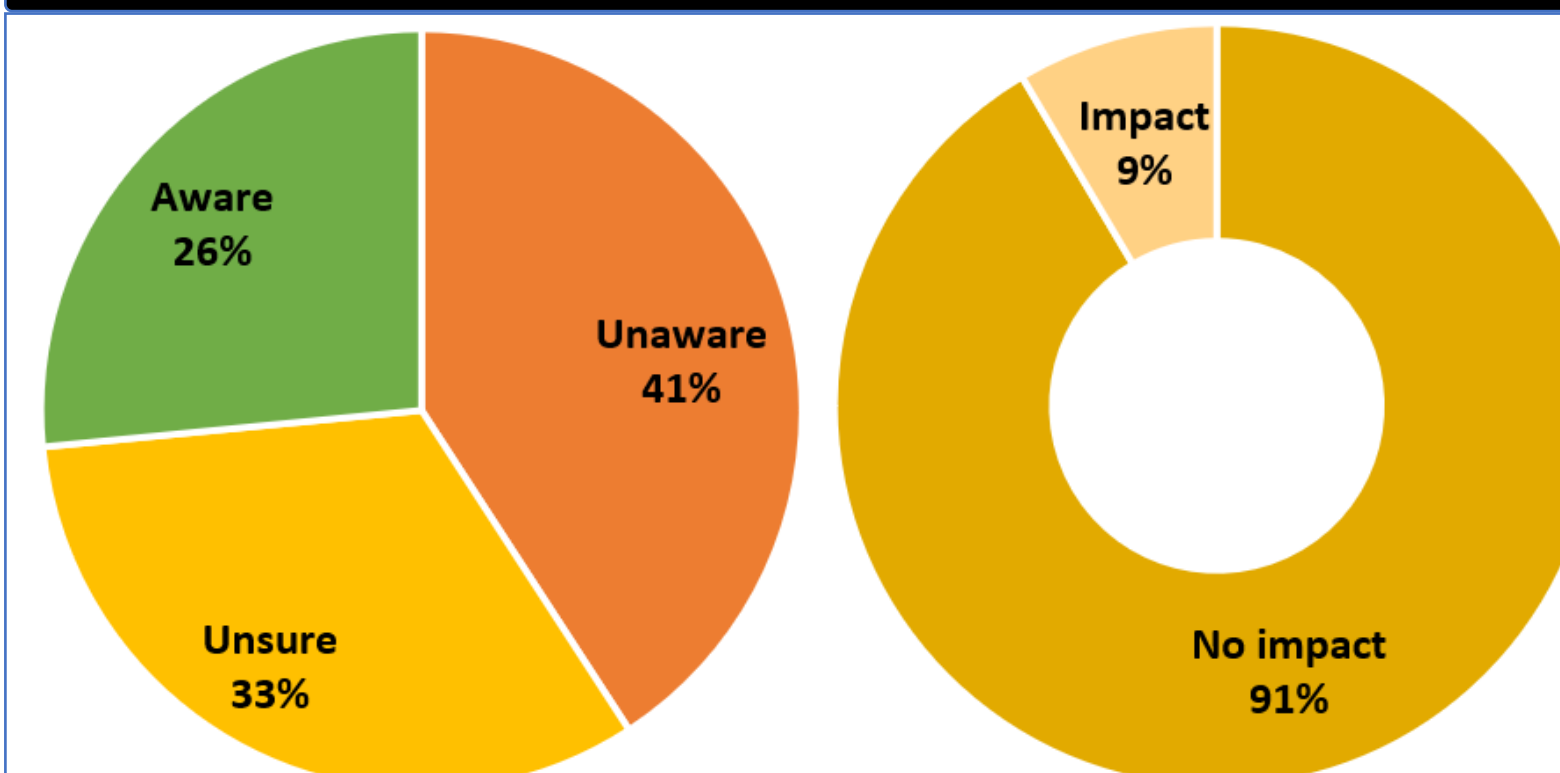


Fig. 5a-b. Effects of improper fishing gear disposal on marine life and fisheries

- 91% indicates improper disposal of fishing gears have no effects on coastal and marine fishery resources.
- Ocean is too large for their actions to have negative impact on fisheries

4.8 Willingness to Attend Awareness Programme for Disposal of Fishing Gears

- 52% - unwilling to attend due to time constraints, domestic duties, etc
- 48% were open to participating, based on availability.

5. CONCLUSION

Awareness initiatives and the enforcement of regulation will help to reduce the unsustainable methods of end-of-life gear disposal and mitigate the harmful effects on coastal and marine ecosystem and the blue economy.

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