

**Strategies for trawl fisheries bycatch management project  
(REBYC-II CTI)**



**Project achievements and policy recommendations  
for  
Papua New Guinea**



## **Purpose of the policy brief**

The purpose of the policy brief is to provide key information and recommendations to policy and decision makers, fisheries managers, fisheries resource users and other relevant stakeholders on issues, challenges and opportunities to improve the management of trawl fisheries. This should in the long run lead to healthier fish stocks and habitats, increased economic benefits from resource use, and sustainable development.

## **Trawl fisheries**

Fisheries, in particular trawl fisheries, are important in meeting the demand of fish for human consumption, export and as aquaculture feed. Trawling is considered an efficient fishing method where a fishing vessel drags a cone-shaped net over the sea bed (sometimes also through the water column, i.e. mid-water trawling).

However, excessive amount of bottom trawling in inappropriate locations is for a number of reasons not sustainable due to various potential negative impacts to marine resources and ecosystems. There is a need to minimize those impacts through improved management, and to strengthen compliance with the required management measures.

## **Impacts of trawl fisheries**

Trawl fisheries, when not well managed, has in many regions of the world led to overfishing, as shown by decreases of average size of landed fish and declining catch per unit effort. Moreover, bottom trawling can lead to alteration and degradation of sea bed habitats, thus further reducing biodiversity and productivity. Changes in the structure, function and integrity of ecosystems, including effects on the food web and multispecies predator-prey relationships, are further consequences of unmanaged trawling. Even if targeting only certain economically important fish species, tropical bottom trawling almost invariably leads to large amounts of bycatch due to the highly multispecies nature of the fishing grounds. This constitutes one of the major negative impacts of trawling.

### **The trawl fishery of Papua New Guinea**

- PNG has three commercial prawn fisheries; the Gulf of Papua prawn fishery (GOPPF) with 15 licenses, Torres Strait (TSPF) with seven licenses and Orangerie Bay with two licenses. In total, 24 licenses are available to trawl in PNG prawn fisheries.
- Size of vessels deployed in these fisheries varies with GOPPF less than 30m length, TSPF less than 20m length and OBPF 9-16m length.
- The Gulf of Papua Management Plan came into effect in the late 1980s; however, commercial fishing was established since around the 1960s. The Gulf of Papua Management Plan is being revised now.

## **Bycatch**

Bycatch largely consists of small-sized non-targeted and unwanted species, juveniles of economically important fish, and sometimes also of endangered, threatened and protected (ETP) species such as marine turtles and bottom invertebrates (e.g. sponges). In some fisheries, at least a part of the bycatch is discarded. However, in many countries the bycatch is utilized for aquaculture feed or for direct human consumption, and forms part of the income for the fishing crews.

The capture of large number of non-targeted species and juveniles (bycatch) has a range of potential negative impacts. It contributes to unsustainable resource use, reduction of biodiversity and productivity and therefore – while sometimes producing short-term economic benefits for some – general long-term reduction of economic benefits from resource use. This is clearly evident when fish are caught before they reach marketable size, or before they have spawned at least once.

Many countries have issued fisheries regulations and laws aimed at minimizing bycatch through technical or other regulatory measures. The Food and Agriculture Organization of the United Nations (FAO), through funding obtained from the Global Environment Facility (GEF), continues to assist countries in addressing bycatch and other negative impacts of trawl fisheries management through a series of regional projects started in 2004 in West Africa, the Caribbean and Latin America, the Middle East and in Southeast Asia and the Coral Triangle region, and through a range of publications, including the FAO International Guidelines on Bycatch Management and Reduction of Discards.



## **The strategies for trawl fisheries bycatch management Project**

### **Project overview**

The Strategies for trawl Fisheries Bycatch Management (REBYC-II CTI) Project was implemented in Papua New Guinea together with other participating countries, Indonesia, Philippines, Thailand and Vietnam, aiming to address some challenges on trawl fisheries management by promoting sustainable fishing practices and improving fisheries management. The Project contributes to more sustainable use of fisheries resources and healthier marine ecosystems in PNG waters by reducing non-sustainable bycatch and other fishing impacts from trawl fisheries. The Food and Agriculture Organization of the United Nations (FAO) was the Global Environment Facility (GEF) agency for the Project that was funded jointly by GEF and the implementing and executing partners. The regional project implementation partner was the Southeast Asian Fisheries Development Center (SEAFDEC) through its Training Department in Thailand.

The project was structured around four interrelated components:

1. The *Policy, legal and institutional frameworks component* worked towards the establishment of national or area specific trawl fisheries bycatch management plans and the building of institutional capacity for their implementation.
2. The *Resource management and fishing operations component* lead to the adoption of more selective fishing gear and practices for implementation of the zoning of fishing areas, developing spatial-temporal closure management measures, and for gathering other necessary information for development of trawl fisheries management plan.
3. The *Information management and communication component* included the establishment of standardized data collection methods and implementing data collection at landing sites and onboard vessels.
4. The *Awareness and knowledge component* addressed awareness and knowledge of trawl fisheries bycatch management issues and how they relate to sustainability, and what measures are available to make fishing more responsible.

## **What is Sustainable Fisheries Resources Management?**

The sustainable use of fisheries resources and healthier marine ecosystems requires management systems that deliver ecological and economic benefits. Tropical trawl fisheries management aims to increase the social, environmental and economic benefits from harvesting natural fisheries resources. It also attempts to reduce the negative impacts of the many complex issues that affect the sustainable development of fisheries.

## **How to manage sustainably trawl fisheries with the aim to contribute to sustainable development, delivering ecological and economic benefits now and for future generations?**

Sustainable development of fisheries is implemented through the ecosystem approach to fisheries (EAF) management, which has become internationally accepted as a guide to planning and managing human activities in relation to the natural environment. The EAF takes account of the fact that fisheries operate in (and indeed rely on) the ecosystems in which they occur. EAF therefore seeks to manage fisheries holistically, incorporating impacts that the fishery (and various management measures) may have on interacting species and the broader ecosystem, of which human society is part. In order to manage sustainably, fisheries management needs to consider the impact of fisheries on the habitats and other resources, as well as impacts of other economic activities on the fisheries.

In Papua New Guinea, these considerations include the following:

- Manage the trawl fisheries in a manner that promotes the conservation of biological diversity in the marine environment;
- Maintain stocks of primary and key secondary species harvested by the trawl fisheries at sustainable levels;
- Promote the conservation of threatened species, populations and ecological communities likely to be impacted by the operation of the trawl fisheries;
- Avoid sensitive fishing grounds;
- Appropriately share the resource and carry out fishing in a manner that minimizes negative social impacts;
- Promote a viable trawl fisheries, consistent with ecological sustainability;
- Facilitate effective and efficient compliance with management and regulatory measures;
- Improve knowledge about the trawl fisheries and the resources on which it relies.

**Project components and main achievements in Papua New Guinea**

**Component 1: Policy, legal and institutional frameworks:**

At regional level, the project supported the development of the International Guidelines on Bycatch Management and Reduction of Discards in which PNG also participated. These were used for the revision of the Gulf of Papua Prawn Fisheries Management Plan. Socio-economic study, commercial trawl fisheries study, and Bycatch Reduction Device (BRD) trials - with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) also supported the revision of the Gulf of Papua Prawn Fishery Management Plan. After capacity development on the Ecosystem Approach to Fisheries Management (EAFM), more stakeholder consultations were held for revising the Papua Prawn Fishery Management Plan.

**Component 2: Resource management and fishing operations:**

SEAFDEC carried out a study of the commercial trawl fisheries.

**Component 3: Information management and communication:**

A socio-economic survey of Gulf of Papua crescent communities was done. The practice of using vessel logbooks for bycatch data collection was adopted. The observer-onboard data collection system was also put in place. Contributions were made to regional socio-economic studies of trawl fisheries.

**Component 4: Awareness and knowledge:**

Public consultations were carried out in advance of the socio-economic study. One-day training and awareness raising on bycatch data collection, for vessel captains, selected crews for trawl area and briefing of observers onboard before data collection exercises, was carried out. A trawl fisheries industry workshop was carried out.

Participation in Workshop on Data Collection – Trawl Fisheries Management Information and Data Requirements, participation in regional training course on co-management and locally based approaches for responsible fisheries were other achievements.

## **Recommendations on trawl fisheries management**

- 1. Reduce incidences and impacts of bycatch**
  - Compulsory use of bycatch reducing technologies and turtle excluding devices
  - Greater reduction in bigger commonly caught bycatch, e.g. jewfish, snappers, sharks, rays, and turtles
- 2. Establish appropriate and standard data collection system and archive**
  - This will allow future managers and management to build on work that has already been done rather than starting from scratch
  - Establish system of observers on board
- 3. Fisheries management**
  - Develop and implement scientific stock assessment to support management decisions
  - The Management Plans need to review current capture fishing practice, trends and move towards meeting world standards and best practice
  - Manage prawn : bycatch ratio
  - Spatial closures to be established (e.g. to protect nursery areas, and spawning population)
  - Move towards value added fishery (MSC certification/US market access)
- 4. Intensify collaboration with relevant international agencies and public private partnership approach for incentives, and adopt efficient regulation**

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