

# **Socio-Economic Dependency and Limited Adaptive Capacity in Indonesian Tuna Fishing Households**

## ***Evidence from Kendari and Ternate***

Presented at:  
The 3rd Working Party on Socio-Economics (WPSE03), IOTC  
April, 2026



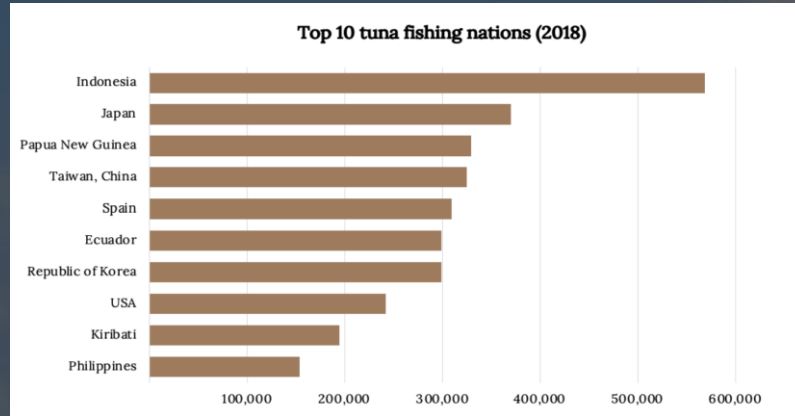
**Umi Muawanah, Dedi Adhuri, Freshty Yulia Arthatiani, Armen Zulham, Hikmah Madani, Reninta Dewi, Ari Permana, Richard Stanford, Nick McClean, Kate Barclay, Michael Fabinyi, Emily Sheppard**

# Background and Objectives



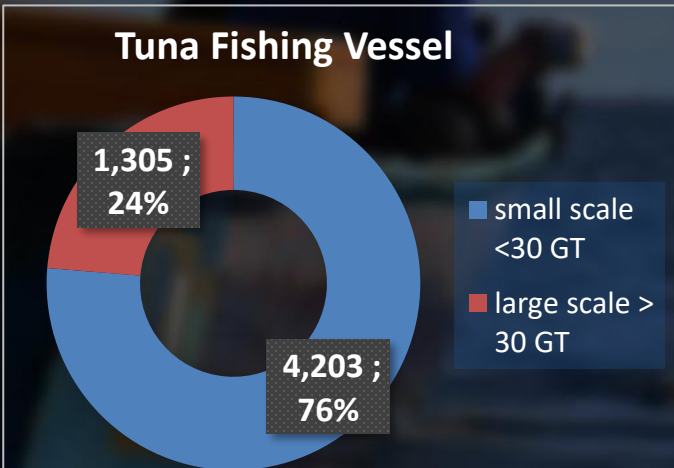
## Importance of Tuna Fisheries

Indonesia is among the largest tuna fishing nations: **17–22%** of global production



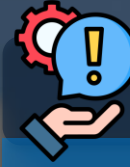
Source: Orth, Donald (2023).

## Tuna Fisheries Characteristics



- Highly diverse fleet — **76%+ from small-scale fishers (under 30 GT fishing vessel)**
- Fishing & trading across **archipelago**
- Supports **livelihoods & food security**

Indonesia stands out with tuna fisheries **closely linked to small-scale livelihoods**



## Issue

- Limited socio-economic indicators
- Weak integration into fisheries management



## Research Objectives

### Dependency & Vulnerability Analysis

- Socio-economic dependency on tuna
- Adaptive capacity of households



## Focus Indicators

- **Poverty (income-based)**
- **Food security**

# Research Methodology



## Research Design



### Study Locations

- **Kendari** • **Ternate**



### Approach

Quantitative + Qualitative



### Analysis

- Income structure and Poverty
- Food security
- Dependency



## Data Sources & Timeline

- **Primary Data**

Quantitative survey: 279 tuna households (Kendari & Ternate), including traders, processors, crew, captains, and vessel owners.

- **Secondary Data**

SUSENAS (National Socio-Economic Survey) from Statistics Indonesia (BPS), providing data on food security, consumption, and household socio-economic conditions.

- **Additional**

Interviews (qualitative insights) with primarily small-scale tuna fishers in Ternate

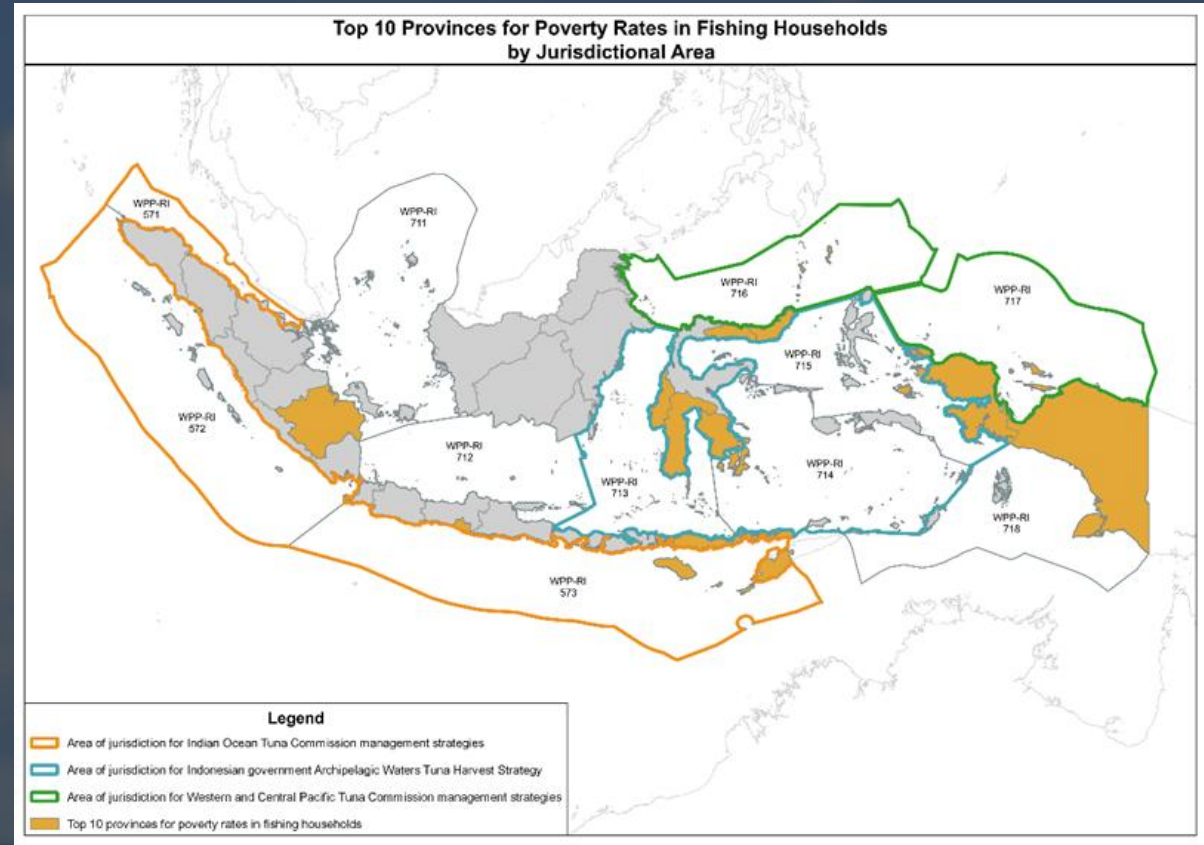
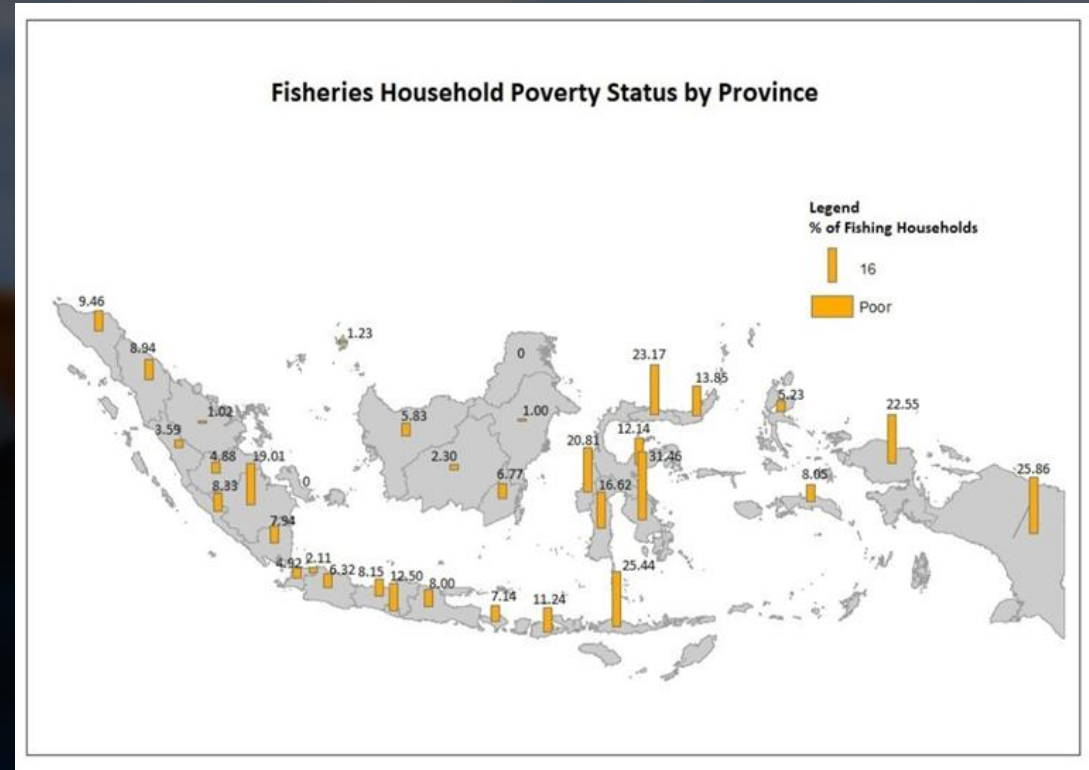
- **Timeline**

Data collection **2021-2022**

Analysis & interpretation **2024-2025**

# Provincial Assessment Utilizing SUSENAS HH Surveys

Poverty rates in fishing households

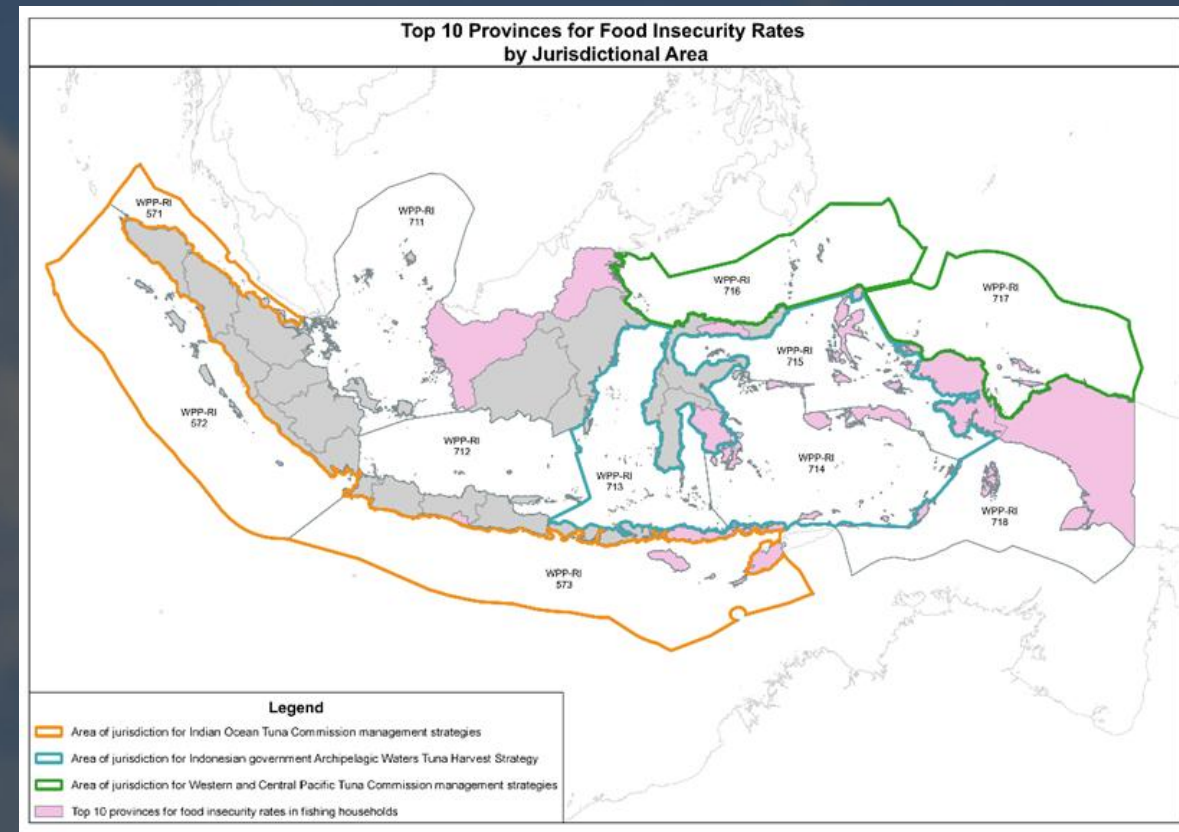
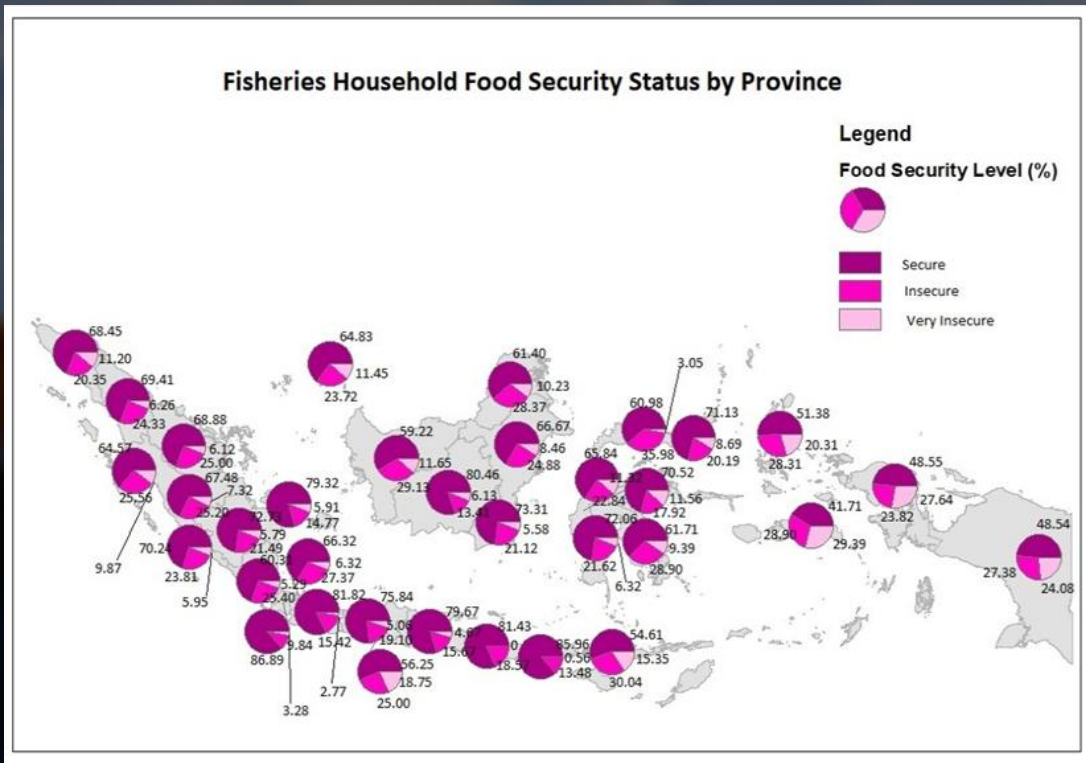


## Top 10 provinces poverty rates

1. South Sulawesi (31.46%)
2. Papua (25.86%)
3. East Nusa Tenggara (25.44%)
4. Gorontalo (23.17%)
5. West Papua (22.55%)
6. West Sulawesi (20.81%)
7. South Sumatra (19.01%)
8. South Sulawesi (16.62%)
9. North Sulawesi (13.85%)
10. D.I. Yogyakarta (12.50%)

# Provincial Assessment Utilizing SUSENAS HH Surveys

Food security rates in fishing households



**Top 10 provinces food security**

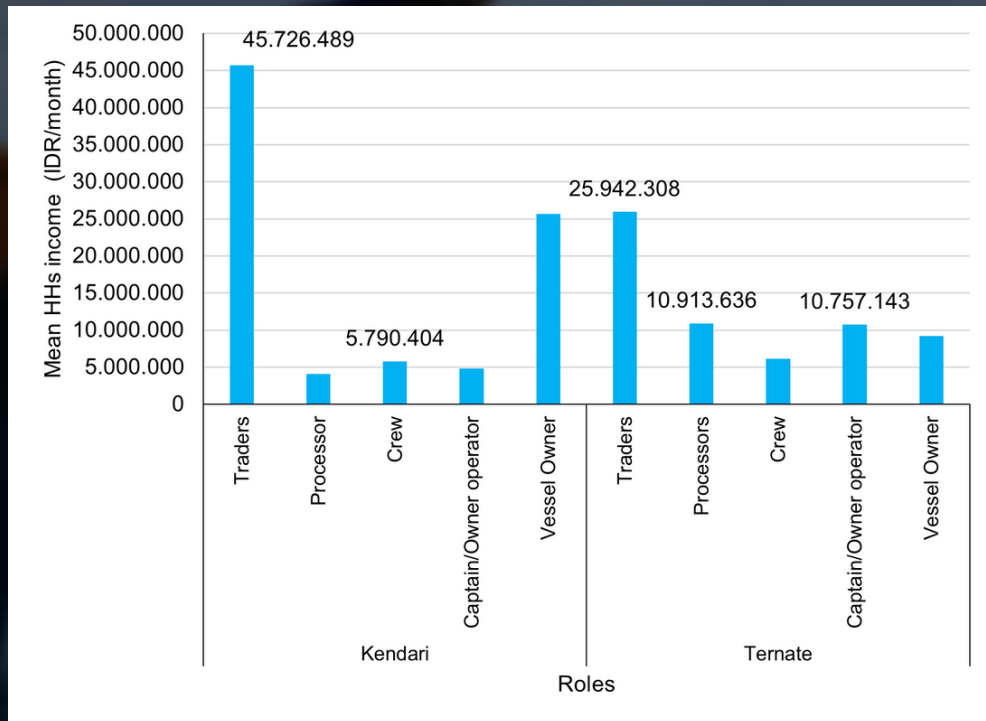
1. Maluku (58%)
2. Papua (51%)
3. West Papua (51%)
4. North Maluku (48%)
5. East Nusa Tenggara (45%)
6. D.I. Yogyakarta (44%)
7. West Kalimantan (41%)
8. Gorontalo (39%)
9. North Kalimantan (39%)
10. Southeast Sulawesi (12.50%)

# Survey and Interview data results.

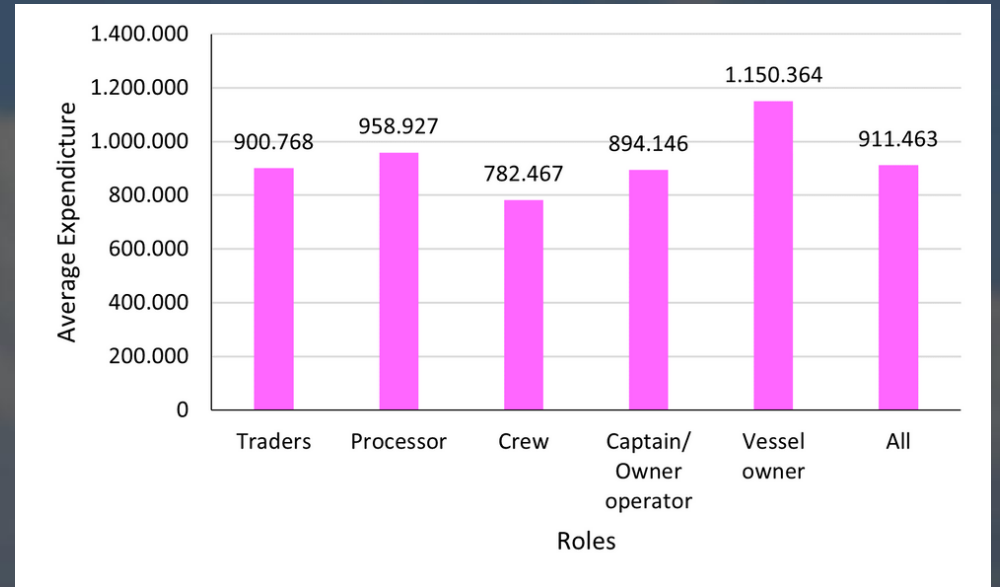
## Income and expenditure in tuna households

Average wages for both traders and vessel owners are skewed upwards significantly by a small number of very high values.

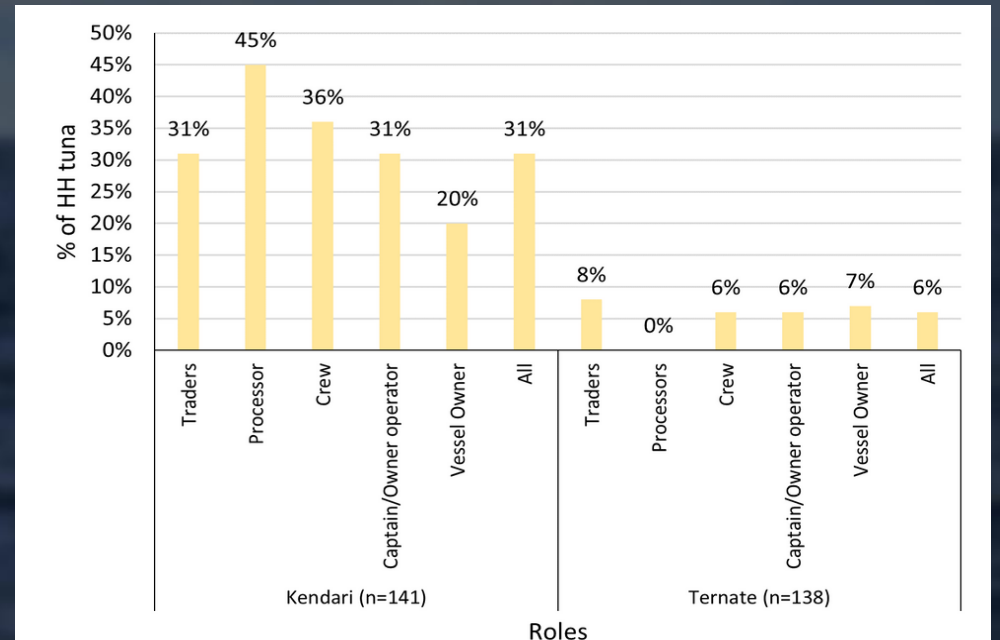
- AVERAGE INCOME TUNA HH**



- AVERAGE EXPENDITURE IN TUNA HHS**



- % INCOME TUNA HH BELOW MINIMUM WAGE**

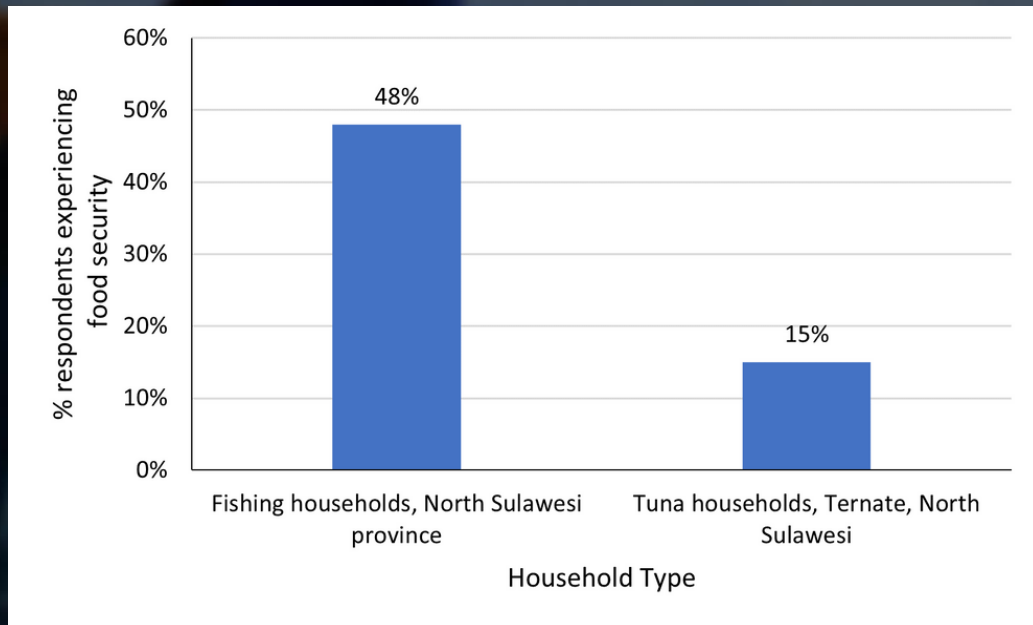


# Survey and Interview data results.

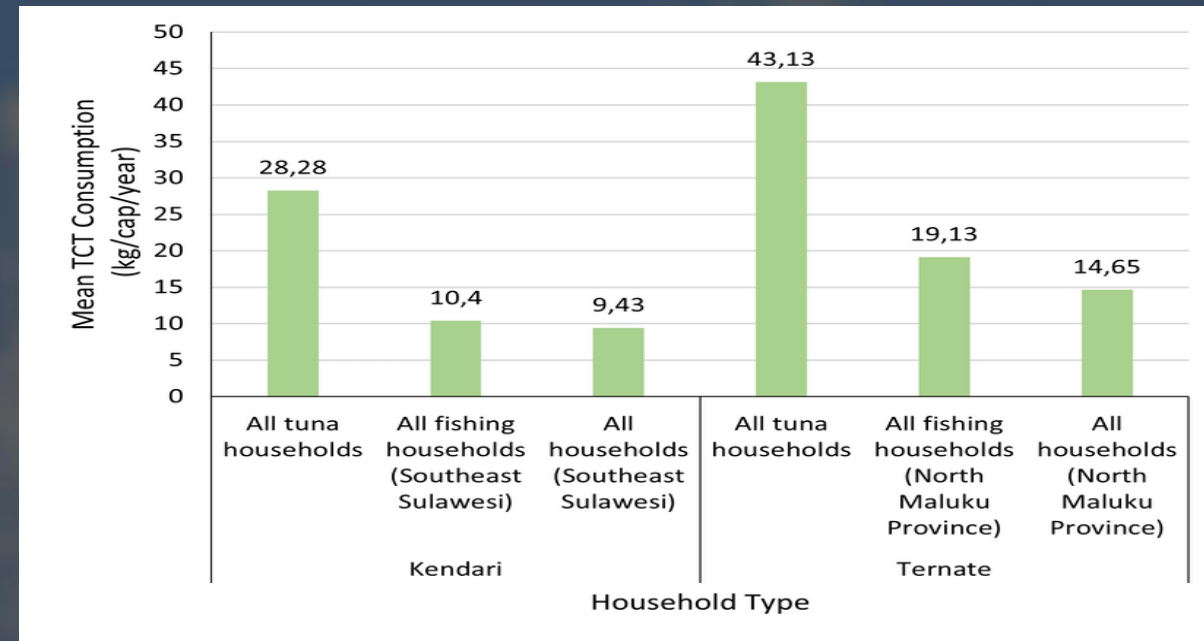
## Tuna consumption and food security

- Tuna species are a **very important** source of food in Eastern Indonesia, to both tuna and non-tuna earning households.
- It makes key contributions to **local diets** and to food and nutrition security in the region.

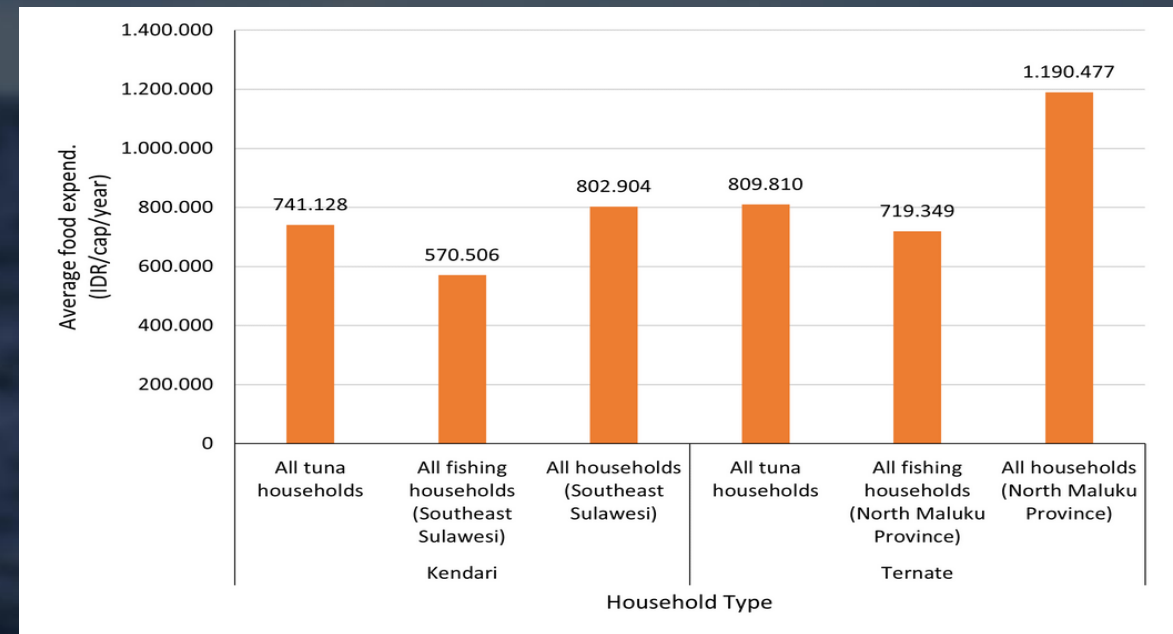
## RESPONDENTS EXPERIENCING IN FOOD SECURITY



## MEAN TCT CONSUMPTION



## AVERAGE OF FOOD EXPENDICTURE



# Survey and Interview data results.

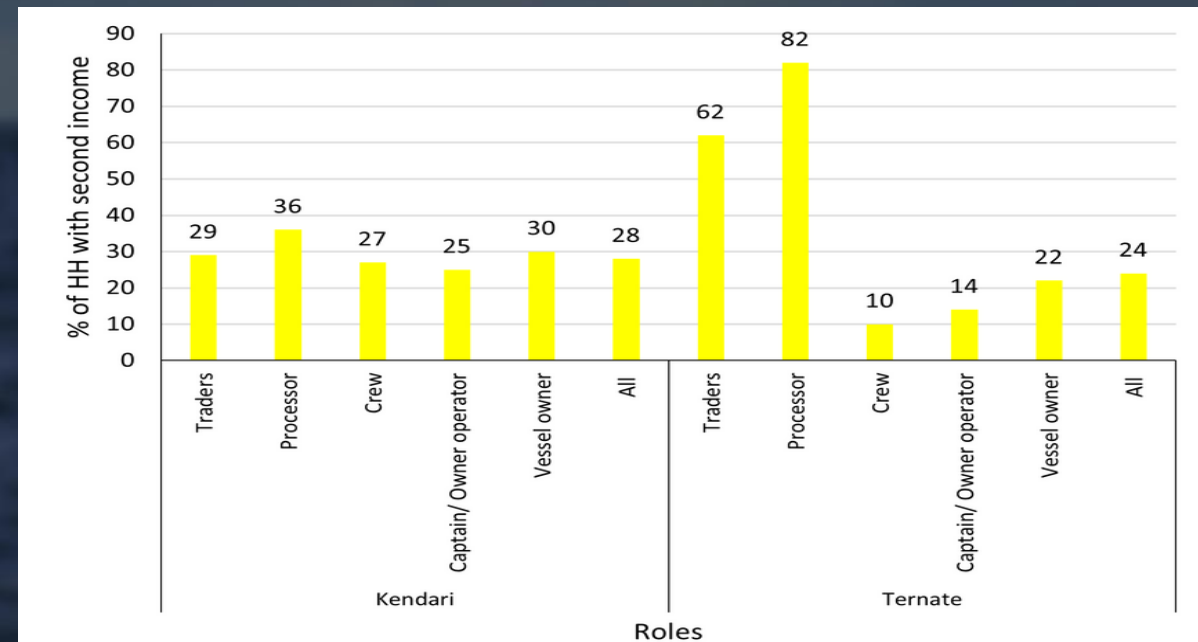
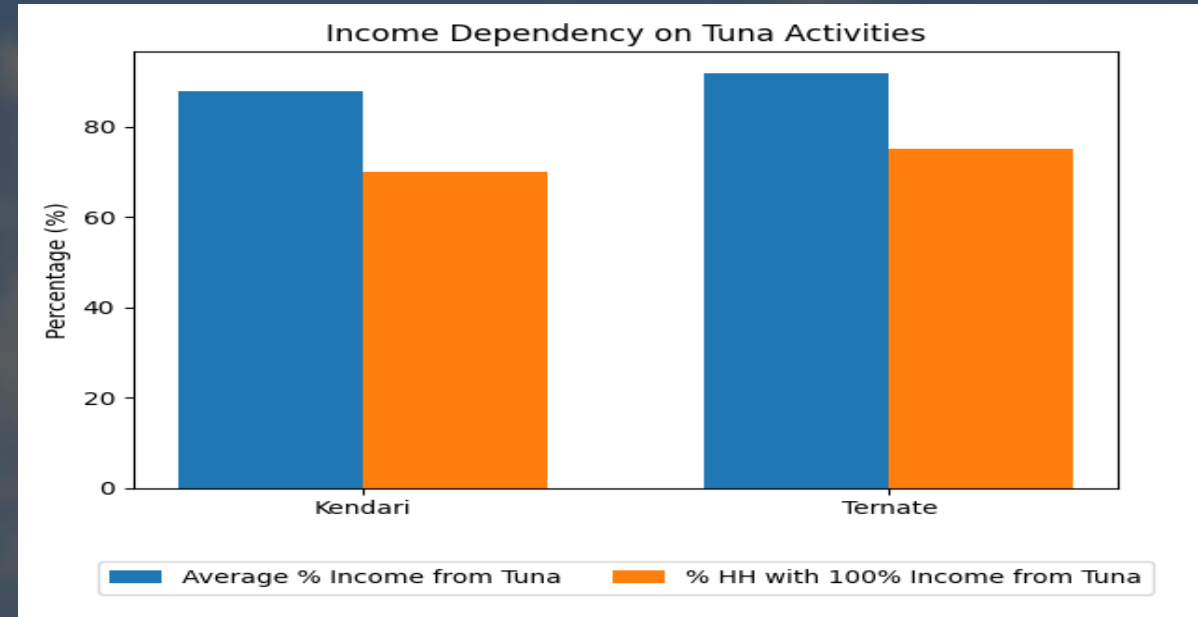
## Tuna dependency and livelihoods

- **Tuna income dependency is extremely high:** 88% (Kendari) and 92% (Ternate) of household income comes from tuna
- **A large share of households are fully dependent:** 70% (Kendari) and 75% (Ternate) rely entirely on tuna income
- **Very high economic dependency on tuna fisheries:** For most households, tuna is not just the main income it is often the only source

**Income diversification remains very limited:** Most households have <30% access to secondary income

**Adaptive capacity is lowest among core fishing actors:** Crew, captains, and vessel owners have minimal alternative livelihoods

**91% of tuna fishers** in Ternate stated they would **not move out** of a tuna related role even if their current role was no longer available to them



# Key Findings

1

## High dependency on tuna fisheries

88–92% of household income from tuna, with up to 75% fully dependent

2

## Very limited income diversification across households

Most households have <30% access to alternative income, especially core fishing actors

3

## Low adaptive capacity creates structural vulnerability

High dependency, low diversification, and reluctance to shift livelihoods increase exposure to shocks

The findings highlight the urgent need for WPSE to integrate socio-economic dependency, and adaptive capacity indicators into fisheries management frameworks to ensure that policy decisions adequately account for the vulnerability of tuna-dependent households.

---

---



**Thank You**