

Bridging the Gap Between Industrial Fleets and Small-Scale Artisanal Tuna Fishers



GRÓ·FTP
Fisheries Training Programme

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INTRODUCTION

In the Solomon Islands, approximately 150,000 tonnes of tuna are caught annually, accounting for 10% of government revenue.

However, industrial anchored fish aggregating devices (FADs) that are misplaced nearshore intercept and overexploit fish stocks. This reduces access for small-scale fishers while accelerating juvenile depletion and increasing the risk of ecosystem collapse.

OBJECTIVES

- To analyse long-term trends in the distribution of offshore tuna catch and effort
- To estimate reference points for catch and effort, and vessel productivity
- To improve the efficiency of industrial tuna fisheries and create better conditions for small-scale fisheries through policy advice

METHODOLOGY

Gordon-Schaefer Model

- Natural Growth Function

$$\frac{dx}{dt} = F(X) = rX \left(1 - \frac{X}{K}\right) - H$$

- Harvest Function

$$H = (E, X) = qEX$$

- Economic Performance

$$\Pi = TR - TC = p \times H(E, X) - c \times E$$

RESULTS

Fig 1 Spatial Distribution of Fishing Records
Solid line = 12 nm; dashed line = 24 nm

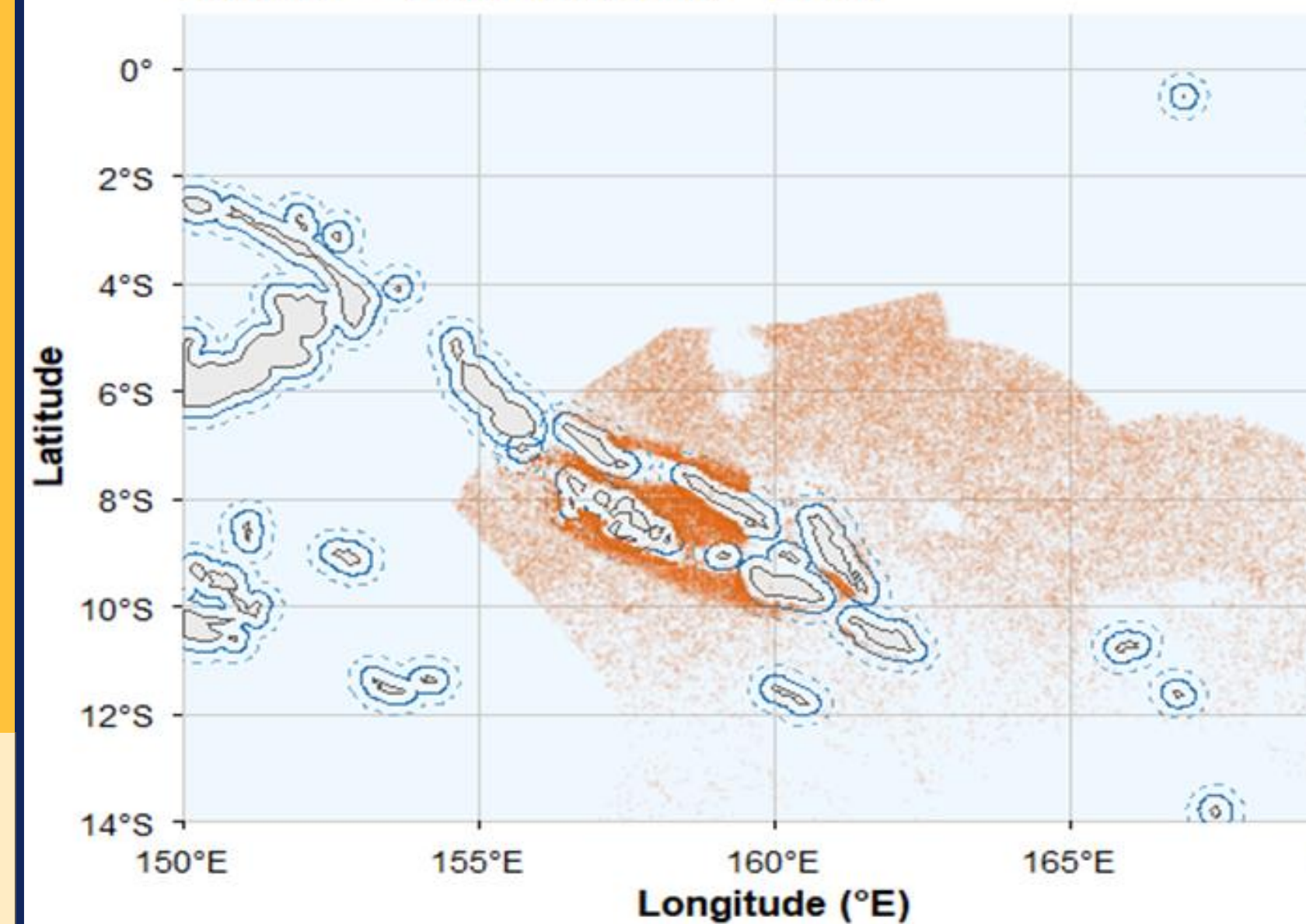


Fig 3

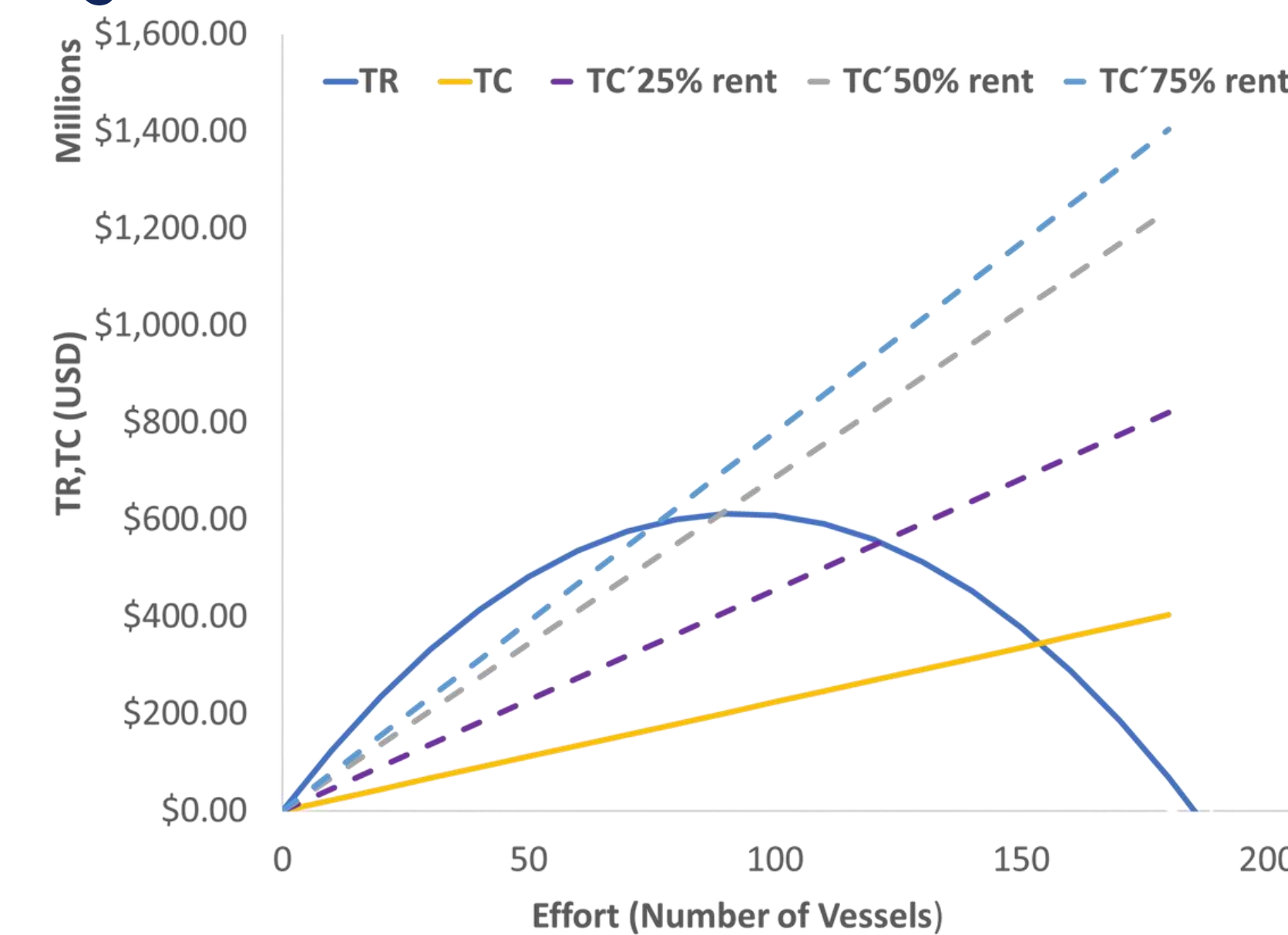


Fig 1: Spatial distribution of fishing effort relative to maritime boundaries in the Solomon Islands

Fig 2: Schaefer surplus production model: yield vs. number of vessels

Fig 3: Bioeconomic model showing total revenue and total cost under increasing license fees (three different scenarios with effort control)

Fig 4: Fishing on Industrial Fish Aggregating Devices (FADs) (anchored and drifting in the Solomon Islands)

Fig 2

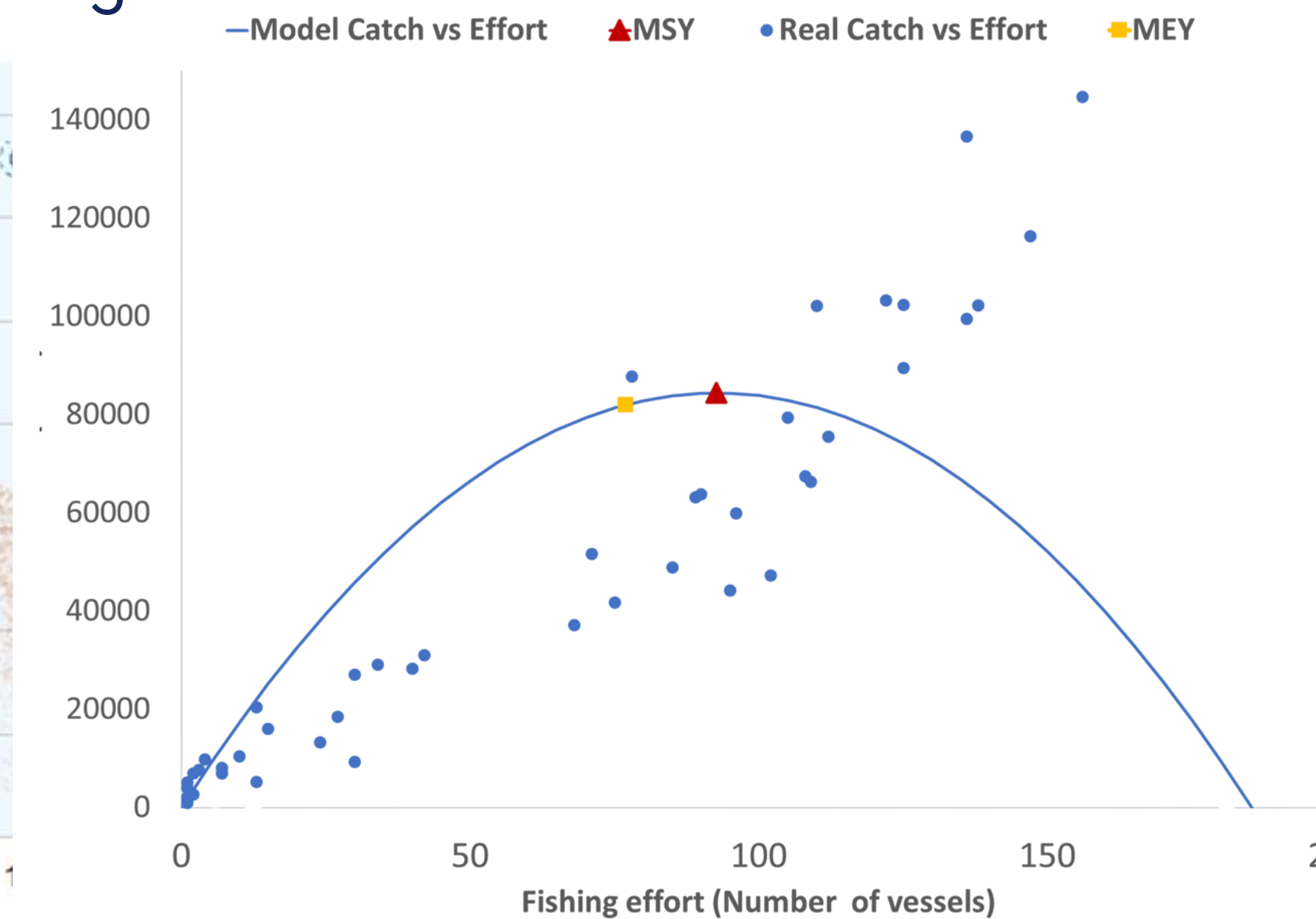
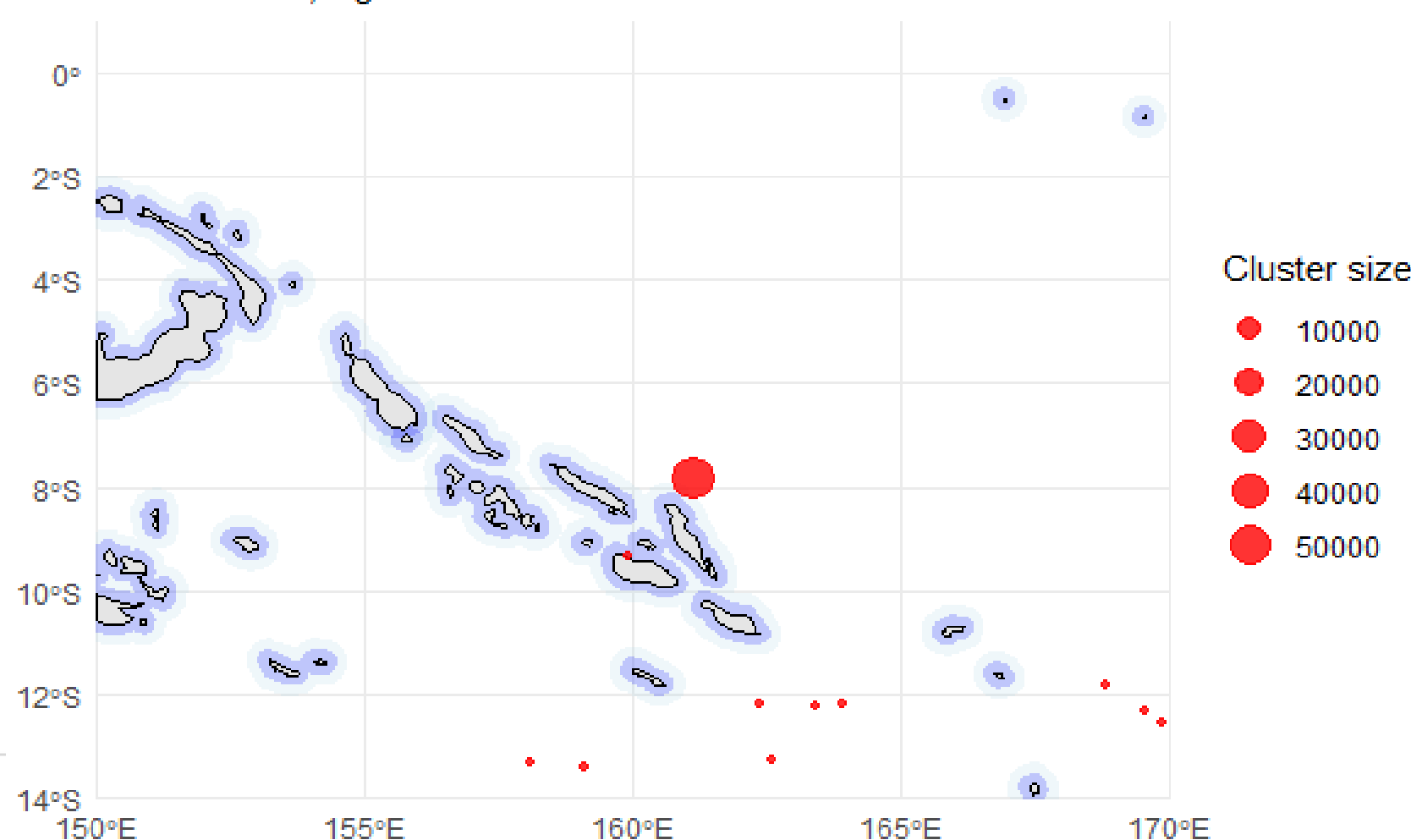


Fig 4

Estimated FAD locations with coastal zones
Blue = 12 nm, Light blue = 24 nm



RECOMMENDATIONS

- Review current legislation on Vessel entry and License Fees
- Develop a national anchored Fish Aggregating Devices (FAD) management Plan and implement FAD closures in the EEZ
- Strengthen data reporting and collection for Small-scale artisanal fishers in Solomon Islands

SOURCES

- Purse seine fishing vessels
- Catch logsheets
- TUFFMAN 2 database
- Statistic Unit, Offshore Division
- Ministry of Fisheries and Marine Resources (Solomon Islands EEZ)

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