

## Searching for viable exploitation within small scale fisheries; the case of Solomon Islands

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### Abstract

The sustainable management of small-scale fisheries in coral reef ecosystems constitutes a difficult objective especially because these fisheries usually face several stringent pressures including demographic growth and climate changes. The implications are crucial in term of food security as fish represents the major protein source for local populations in those regions. The case of the Salomon Islands fishery presented in this paper represents a challenging example of these issues. The fishery is characterized by a high diversity of coral reef marine resources but faces an increasing local food demand due to the combined effect of demographic pressure and growing need for cash. The paper proposes a bio-economic model that accounts for multi-species and multi-fleets dynamic and integrates a calibrated Lotka-Volterra trophic dynamics. Several contrasted fishing scenarios including status quo, total closure, and viable strategies are then simulated and their results compared in relation to ecological and economical considerations. The appreciation is driven by 3 biological indicators (Simpson index, species richness and marine trophic index) and 2 economical indicators (kg of fish consumed per week and weekly earned money). Finally the simulations show the extent to which fishing outputs including subsistence supply and profitability of fishing can be viable for the next fifty years.