

Integrating Underwater Videos and Local Ecological Knowledge to Assess Fish Assemblages in three Reef Passages around Ovalau Island, Fiji

Introduction

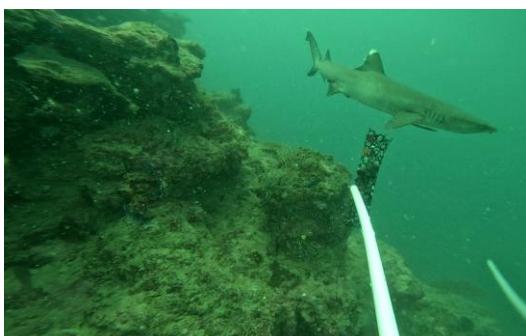
This poster presents the final results of the research work carried out on **Ovalau between 22/09 and 11/12/2025**. During the **first phase**, we interviewed local experts to get information on the reef passages around Ovalau and the fishing methods and species commonly observed or caught in or near these passages, other ecological characteristics and fishing bans. For the **second phase**, baited remote underwater videos (BRUVs) were used to provide an ecological snapshot of the fish species diversity present in Toki, Natubari and Nalulu passages.

Interview Results

From 16 interviews (10 first interviews + six follow-up interviews):

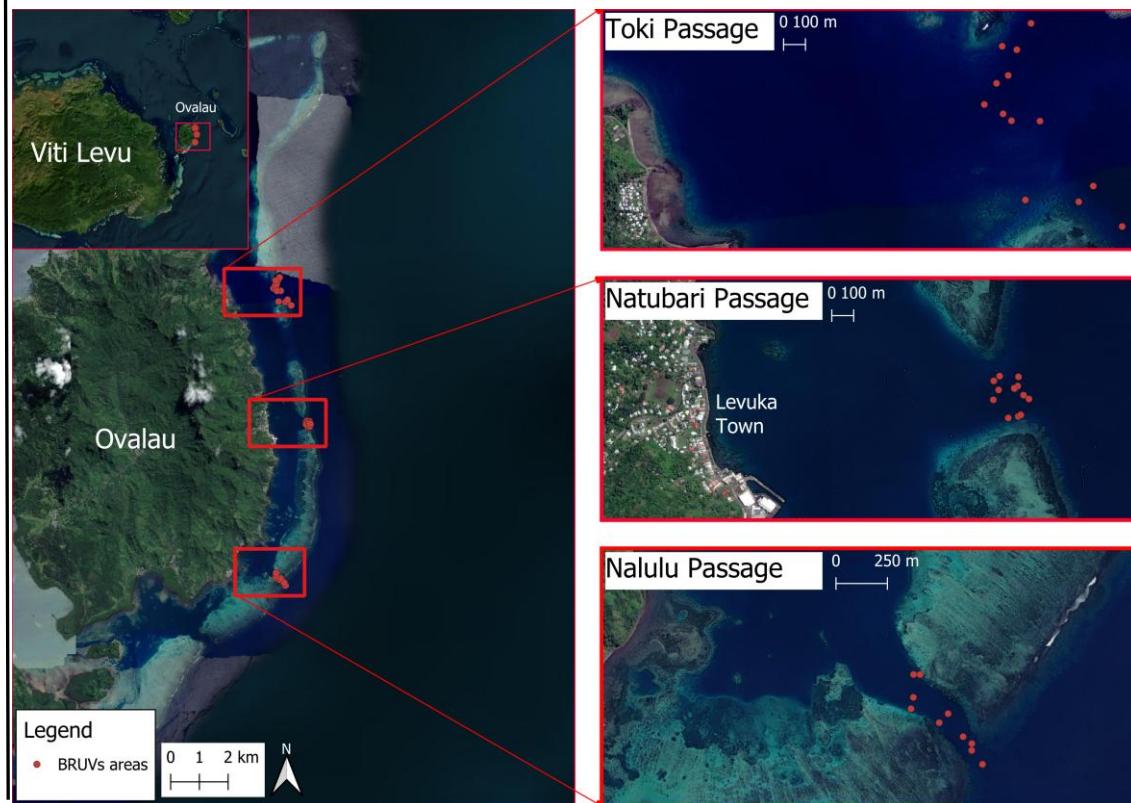
- Ten reef passages, namely: Nailobaloba, Navusovuso, Nuku, Toki, Waitovu, Natubari, Nalulu, Gavo, Daveta-tabu, and Kalavo were mentioned with a total of 64 marine species caught and/or observed spanning reef, pelagic, and megafaunal taxa. (Table 1, 2)
- Nine species mentioned are listed as Globally *Vulnerable*, *Endangered*, *Near Threatened* or *Critically Endangered* in the IUCN Red List.
- Common fishing methods included handline and spearfishing, with the mention of net fishing (including *qoli samu*) in shallow environments, with trolling used mainly outside the passages.
- 19 other fishing areas / qoliquoli's were mentioned (Table 1)
- Interviewees described reef passages from their own experiences often with different perceptions of depth and fishing techniques albeit collectively identifying the reef passages as important fishing and breeding grounds, often characterized by strong currents.

Qio dina
White-tip reef shark
Triaenodon obesus
Nalulu Passage



Underwater Videos

The baited remote underwater videos (BRUVs) were deployed in Toki, Natubari, and Nalulu passages during **Ebb (outgoing tide)** and **Flow (incoming tide)** in the areas shown below:



A total of **1001 individuals** were identified as raw counts from **33 videos** spanning –after video editing– almost **36hrs** (Toki – 12hrs, Natubari – 14hrs25mins, Nalulu – 9hrs34mins). From the BRUVs:

- A total of 60 individuals were identified to species level, 11 individuals to genus level and five identified to family (Table 3)
- The passage with the highest species diversity was **Natubari** – 825 individuals identified to 44 species, seven to genus and three to family; followed by **Nalulu** – 94 individuals identified to 21 species, five to genus and two to family; and **Toki** – 82 individuals identified to 16 species, five to genus and two to family level
- 11 species identified are listed as *near threatened* – *Critically Endangered* in the IUCN Red List of Threatened Species.

Conclusion

- Using semi-structured interviews alongside BRUVs provided a more holistic understanding of reef passage use than either method alone.
- Interviews offered context on fishing practices, habitat importance, and historically significant species, while BRUVs independently confirmed species presence and provided an ecological snapshot relevant to conservation status. Together, these methods strengthened inferences on biodiversity patterns and fisheries importance across reef passages.