

COASTAL AND MARINE MANAGEMENT WITH EMPHASIS ON CORAL REEF ECOSYSTEM: A Case Study in Awaiama Village, Papua New Guinea

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**MASTER PROGRAM
COASTAL AND MARINE RESOURCES MANAGEMENT
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2025**

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SUMMARY

LISA IPAMBONJ. Coastal and Marine Management with Emphasis on Coral Reef Ecosystem: A Case Study in Awaiama Village, Papua New Guinea. Supervised by MOHAMMAD MUKHLIS KAMAL, TARYONO, and RALPH MANA

Coral reef ecosystems in the Coral Triangle, including those in Awaiama Village, Papua New Guinea, are under increasing pressure from both natural and anthropogenic stressors. The local community heavily relies on these ecosystems for food, income, and cultural identity. This study aims to assess the condition of the coral reef ecosystem, analyze the influence of fishing and livelihood activities on reef health, and evaluate community characteristics and participation in reef conservation and management.

The research employed a mixed-methods approach, integrating ecological surveys and social interviews. Ecological data were collected through the Point Intercept Transect (PIT) and Underwater Visual Census (UVC) methods across three reef sites. Socio-cultural data were gathered through structured and semi-structured interviews with local residents to explore fishing behaviour, reef use patterns, and community governance involvement.

The findings showed that coral cover across the three transects ranged from 30% to 34%, classifying the reef condition as fair. Thirteen coral genera and twelve fish genera were identified, with moderate diversity and evenness levels. Traditional fishing methods were common, though destructive practices such as poison fishing were historically used. Community members expressed awareness of reef degradation and a strong willingness to participate in reef protection.

The study highlights that reef resilience in Awaiama is closely tied to community behaviours, traditional knowledge, and informal governance structures. Strengthening participatory reef management, incorporating customary marine tenure, and providing sustainable livelihood alternatives are essential strategies to enhance both ecological and social resilience.

Keywords: Community-Based Management, Coral Reef Ecosystem, Milne Bay Province, Papua New Guinea, Socio-Ecological System

RINGKASAN

LISA IPAMBONJ. Pengelolaan Pesisir dan Laut dengan Penekanan pada Ekosistem Terumbu Karang: Studi Kasus di Desa Awaiama, Papua Nugini. Dibimbing oleh MOHAMMAD MUKHLIS KAMAL, TARYONO, dan RALPH MANA

Ekosistem terumbu karang di Segitiga Karang, termasuk yang berada di Desa Awaiama, Papua Nugini, menghadapi tekanan yang semakin meningkat dari faktor alam maupun aktivitas manusia. Masyarakat setempat sangat bergantung pada ekosistem ini untuk kebutuhan pangan, penghasilan, dan identitas budaya. Penelitian ini bertujuan untuk menilai kondisi ekosistem terumbu karang, menganalisis pengaruh kegiatan perikanan dan mata pencaharian terhadap kesehatan terumbu, serta mengevaluasi karakteristik masyarakat dan partisipasinya dalam konservasi dan pengelolaan terumbu karang.

Penelitian ini menggunakan pendekatan metode campuran, yang mengintegrasikan survei ekologi dan wawancara sosial. Data ekologi dikumpulkan melalui metode Point Intercept Transect (PIT) dan Underwater Visual Census (UVC) di tiga lokasi terumbu karang. Data sosial-budaya diperoleh melalui wawancara terstruktur dan semi-terstruktur dengan warga setempat untuk menggali perilaku penangkapan ikan, pola pemanfaatan terumbu, dan keterlibatan masyarakat dalam tata kelola.

Hasil penelitian menunjukkan bahwa tutupan karang di tiga transek berkisar antara 30% hingga 34%, yang mengklasifikasikan kondisi terumbu sebagai “cukup baik”. Terdapat tiga belas genus karang dan dua belas genus ikan yang teridentifikasi, dengan tingkat keanekaragaman dan pemerataan yang sedang. Metode penangkapan ikan tradisional masih banyak digunakan, meskipun praktik merusak seperti penangkapan ikan dengan racun pernah terjadi di masa lalu. Masyarakat menyadari adanya penurunan kondisi terumbu dan menunjukkan kemauan yang kuat untuk berpartisipasi dalam perlindungan terumbu.

Penelitian ini menyoroti bahwa ketahanan terumbu karang di Awaiama sangat terkait dengan perilaku masyarakat, pengetahuan tradisional, dan struktur tata kelola informal. Penguatan pengelolaan terumbu secara partisipatif, pengakuan terhadap hak kelola laut adat, serta penyediaan alternatif mata pencaharian yang berkelanjutan merupakan strategi penting untuk meningkatkan ketahanan ekologi dan sosial secara bersamaan.

Keywords: Pengelolaan Berbasis Masyarakat, Ekosistem Terumbu Karang, Provinsi Milne Bay, Papua Nugini, Sistem Sosial-Ekologis



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COASTAL AND MARINE MANAGEMENT WITH EMPHASIS ON CORAL REEF ECOSYSTEM: A Case Study in Awaiama Village, Papua New Guinea.

LISA IPAMBONJ

Thesis
as one of the requirements to obtain
a Master of Science Degree
in the Coastal and Marine Resources Management Study Program

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PREFACE

This scientific work was conducted in October 2024 under the title *Coastal and Marine Management with Emphasis on Coral Reef Ecosystems: A Case Study in Awaiaama Village, Papua New Guinea*. The motivation for this research arises from a sincere commitment to supporting the sustainable management of coastal and marine resources. It is my hope that the findings presented here will be of value to those working in this field and will meaningfully contribute to both scientific understanding and the strengthening of local governance practices.

I extend my deepest gratitude to God Almighty for His abundant grace and blessings, without which the completion of this work would not have been possible. My sincere appreciation also goes to the Government of Indonesia, IPB University as the host institution, and the UNDP Archipelagic and Island States (AIS) Forum for their generous support through the AIS Innovator Scholarship, which made this research possible.

I am especially grateful to my supervisors Dr. Mohammad Mukhlis Kamal, Dr. Taryono, and Dr. Ralph Mana for their invaluable guidance, encouragement, and unwavering support throughout this research and writing process. I also wish to thank the academic community at IPB University for their insights and expertise, particularly Dr. Zairion (Associate Professor), Dr. Sebastian C.A. Fers, Dr. Fery Kurniawan (Associate Professor), Prof. Dr. Luky Adrianto, Prof. Dr. Ario Damar, Prof. Dr. Hefni Effendi and all the lecturers who have contributed to my academic development.

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Bogor, July 2025

Lisa Ipambonj

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