

Status and Threats to Fish Diversity and Water Quality of Semariang Mangrove Area, Sarawak, Malaysia

¹Nyanti Lee, ¹Nur 'Asikin Roslan, ¹Teck-Yee Ling and ²Jongkar Grinang

¹Faculty of Resource Science and Technology, Universiti Malaysia Sarawak,
94300 Kota Samarahan, Sarawak, Malaysia

²Institute of Biodiversity and Environmental Conservation, Universiti Malaysia Sarawak,
94300 Kota Samarahan, Sarawak, Malaysia

Corresponding author: Nyanti Lee, Faculty of Resource Science and Technology,
Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia.
email: lnyanti@frst.unimas.my

Abstract: This study aimed to document the status and threats to the fish diversity and water quality at Sungai Semariang mangrove area, which is located on the eastern part of Kuching Wetland National Park. A total of 32 families represented by 76 species of fish were caught from the area. The six dominant families in terms of the number of individuals caught were Ariidae (35 percent), Sciaenidae (11 percent), Engraulidae (9 percent), Leiognathidae, Mugilidae and Pristigasteridae (7 percent each). The four families with the most number of species were Sciaenidae (12 species), Ariidae (10 species), Engraulidae (6 species) and Leiognathidae (5 species). *Arius venosus* was the most common species with the highest number of individuals caught. Most of the individuals caught from the area were small sized individuals indicating the importance of the area as nursery, feeding, breeding and shelter areas for many species of fish. Water temperature ranged from 28.0 to 30.2 °C and pH from 6.9 to 7.3. Dissolved oxygen ranged from 2.4 to 3.8 mg/L. Low dissolved oxygen was found near flood mitigation works and downstream of residential areas. Among the threats to the area are residential areas and flood mitigation works.

Key words: fish diversity · water quality · Semariang mangroves · flood mitigation

INTRODUCTION

Mangroves are characteristic features of most tropical and subtropical estuaries. The low-energy intertidal zone encourages the development of this ecosystem [1] and is commonly associated with soft and muddy substrate. Mangrove forests are highly productive and valuable ecosystems [2]. They are important detritus contributor for the ecosystem food webs, which also benefit the estuarine and near shore fisheries. They also act as nursery, feeding, breeding and shelter areas for many species of aquatic life. In Sarawak, mangrove forest covers an area of approximately 174,000 hectares and occupies about 60% of the 800 km length of its coastline. Mangrove forests are located mainly along the sheltered coastlines and estuaries within the major bays of Kuching Division, Sri Aman Division, Rajang Delta and Limbang Division [3]. Over the past thirty years, the State of Sarawak had lost some of its pristine mangrove forests due to conversion into various types of land use including oil palm plantation, aquaculture, housing estate and other development projects [3]?

Traditionally, mangrove forests have been an essential resource for communities living in coastal areas and contribute high economic values in term of forest products, fisheries, aquaculture and eco-tourism. Bennett and Reynolds [4] reported that the Sarawak Mangrove Forest Reserve, of which Kuching Wetland National Park is part of, contributed about US\$25 million to the State's revenue per annum from marine fisheries, timber products and tourist