

RINGKASAN

BAGUS FERI SUMANTRI. Tingkat Kepekaan Ekosistem Mangrove Berdasarkan Indeks Ekologi di Perairan Sei Enam Kabupaten Bintan. Dibimbing oleh FALMI YANDRI dan JELITA RAHMA HIDAYATI.

Ekosistem mangrove di Muara Sei Enam, Kabupaten Bintan, memiliki peranan penting dalam menjaga keseimbangan lingkungan pesisir secara fisik, biologis, dan ekologis. Berdasarkan survei pendahuluan, kawasan mangrove di perairan Sei Enam menunjukkan adanya berbagai aktivitas antropogenik, seperti permukiman, jalur pelayaran kapal nelayan, dermaga, galangan kapal, serta indikasi penebangan mangrove ilegal. Aktivitas tersebut berpotensi menimbulkan tekanan terhadap ekosistem mangrove melalui perubahan habitat dan penurunan kualitas lingkungan, sehingga perlu adanya analisis kepekaan ekosistem mangrove. Dalam hal ini yang digunakan untuk analisis tersebut adalah dengan menggunakan perhitungan Indeks Kepekaan Ekologi Mangrove (IKE). Penelitian ini bertujuan mengidentifikasi jenis vegetasi mangrove, menganalisis kondisi parameter kondisi lingkungan, serta menilai tingkat kepekaan ekosistem mangrove terhadap potensi tekanan oleh aktivitas antropogenik. Metode yang digunakan meliputi survei jenis vegetasi, pengukuran parameter fisik dan kimia perairan, serta penilaian Indeks Kepekaan Ekologi (IKE) berdasarkan struktur vegetasi dan kondisi lingkungan. Hasil penelitian menunjukkan jenis mangrove di temukan pada kawasan ini terdiri atas *Rhizophora apiculata*, *Rhizophora mucronata*, *Bruguiera gymnorhiza*, dan *Xylocarpus granatum* dengan didominasi dari genus *Rhizophora*. Parameter lingkungan seperti suhu, salinitas, pH, oksigen terlarut, dan substrat pasir berlumpur yang diukur masih mendukung pertumbuhan mangrove. Tingkat kepekaan ekologi diperoleh dalam kategori sedang (*moderate*) hingga peka (*sensitive*) dengan nilai 2,8–3, hal ini mengindikasikan bahwa ekosistem mangrove Sei Enam memiliki kerentanan yang tinggi terhadap kegiatan antropogenik terutama di lokasi dengan aktivitas manusia yang tinggi. Secara keseluruhan meskipun tingginya tingkat kepekaan ekologi mangrove di Sei Enam, ekosistem mangrovenya masih memiliki fungsi ekologis yang baik. Kondisi mangrove yang rapat dan didominasi genus *Rhizophora* dengan karakteristik morfologi dan tipologinya yang berada dikawasan pemukiman, membuat lokasi ini efektif terdampak dari kegiatan antropogenik.

Kata kunci: Mangrove, Kepekaan, Sei Enam, Antropogenik

SUMMARY

BAGUS FERI SUMANTRI. Sensitivity Levels of Mangrove Ecosystems Based on Ecological Indices in the Sei Enam Waters, Bintan Regency. Supervised by FALMI YANDRI and JELITA RAHMA HIDAYATI.

The mangrove ecosystem at the Sei Enam Estuary in Bintan Regency plays a vital role in maintaining the physical, biological, and ecological balance of the coastal environment. Based on a preliminary survey, the mangrove area in the waters of Sei Enam shows various anthropogenic activities, such as settlements, fishing boat routes, docks, shipyards, and indications of illegal mangrove logging. These activities have the potential to put pressure on the mangrove ecosystem through habitat changes and a decline in environmental quality, thus necessitating an analysis of the mangrove ecosystem's sensitivity. For this analysis, the Mangrove Ecological Sensitivity Index (IKE) was employed. This study aims to identify mangrove vegetation types, analyze environmental parameters, and assess the sensitivity of the mangrove ecosystem to potential pressures from anthropogenic activities. The methods used included vegetation surveys, measurements of physical and chemical water parameters, and an assessment of the Ecological Sensitivity Index (ESI) based on vegetation structure and environmental conditions. The results of the study show that the mangrove species found in this area consist of *Rhizophora apiculata*, *Rhizophora mucronata*, *Bruguiera gymnorhiza*, and *Xylocarpus granatum*, with the genus *Rhizophora* being dominant. Environmental parameters such as temperature, salinity, pH, dissolved oxygen, and the muddy-sandy substrate measured still support mangrove growth. The ecological sensitivity level was classified as moderate to sensitive, with a value of 2.8–3; this indicates that the Sei Enam mangrove ecosystem has a high vulnerability to anthropogenic activities, particularly in areas with high levels of human activity. Overall, despite the high level of ecological sensitivity of the mangroves in Sei Enam, the mangrove ecosystem still functions well ecologically. The dense mangrove stands, dominated by the *Rhizophora* genus and characterized by their morphological and typological features within a residential area, make this location particularly susceptible to the impacts of anthropogenic activities.

Keywords: Mangrove, Sensitivity, Sei Enam, Anthropogenic