

METAL CONTAMINATION IN GASTROPODS (MOLLUSCA) AND OTHER BIOTA OF MINAHASA PENINSULAR COASTAL WATERS, NORTH SULAWESI, INDONESIA

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Minahasa Peninsular Coastal Waters, North Sulawesi, Indonesia, receive drainage from various land-based activities (agriculture, rural, port, and mines), including tailings from mines industry. Five locations (Amurang, Manado, Likupang, and Buyat Bays, including Lembeh Strait) have been studied from March to December 1997 to investigate current metal contamination using gastropods, macroalgae, seagrass, and sea urchin. Nine elements of metal (K, Na, Mg, Zn, Cu, Fe, Pb, Cd, and Hg) were analysed by atomic absorption spectrophotometry (AAS) and compared to other data to define the metal pollution status. The levels of K, Na, Mg, Fe, Cd, and Hg in gastropods (*Littoraria* sp. and *Nerita* sp.) in Buyat Bay were at least one to three times greater than those from Lembeh Strait and Manado Bay, and Fe and Hg in *Drupella* sp. and *Oliva* sp. were higher than in other tested gastropods including *Turbo* sp. The levels of K, Na and Fe in macroalgae (*Euclima* sp. and *Halimeda* sp.) from Lembeh Strait were higher than those in Manado and Likupang Bays, while Pb, Cd, and Hg in seagrass (*Thalassia* sp. and *Enhalus* sp.), and K, Na in sea urchin (*Echinometra* sp. and *Diadema* sp.) from Likupang Bay were higher than those from Manado Bay and Lembeh Strait. In total, the levels of K, Na, Mg, Fe, Pb, Cd and Hg in gastropods from Buyat Bay were higher than those from Manado Bay and Lembeh Strait, and the levels of Zn and Fe in other biota were higher from Lembeh Strait than those from Manado and Likupang Bay. This implies that some locations were more polluted than the others. However, no statistical analysis was applied to the data.