

ABSTRACT

The occurrence of sea tides greatly influences the abundance and distribution of plankton in river. Apart from tidal factors, various activities such as the disposal of domestic and industrial waste, fishing boat traffic lanes, tourist areas, and fishery activities take place along river can also result in changes of water environment at Morosari River. The purpose of this study was to determine the dynamics of plankton populations and the relationship between quality based on tides, knowing the diversity, similarities, and dominance of plankton in the waters of Morosari River. Plankton was collected every week in October 2023 for 4 weeks during different tidal conditions at five stations. Determination of the sampling point was carried out by purposive random sampling method. Plankton samples were taken as much as 30L using a plankton net. Water quality measurements were carried out with the Horiba water checker, and total phosphate testing was performed at the Laboratory of The Ministry of Industry, Semarang. The process of observing plankton using a binocular microscope while identification using several plankton books and the Algaebase website. During the high tide, *Chlorella vulgaris* dominated in SM 1 (Main Pantura Bridge), SM 2 (Residential areas) and SM 3 (Factories areas), together with *Brachionus* sp. During the low tide, there is an increase in species dominance of *Chlorococcum* sp. The diversity index (H') ranges between 1.02-2.51, indicating that the conditions of the Morosari River have medium stability. Evenness index (E) ranges between 0.20-0.91, describing an even distribution. Dominance index (D) ranges between 0.10-0.55 shows that there are no dominant species. Based on the saprobic index between 0.66 and 3.00, it indicates that all stations belong to the β/α -Mesosaprobic - Oligo/saprobic category. Several types of plankton that can be used as bioindicators of water quality include *Navicula* spp., *Cyclotella* spp., and *Fragilaria* spp., and zooplankton, namely *Brachionus calyciflorus* and *Brachionus plicatilis*

Keywords: Plankton, Tide, Dynamic, Morosari river, Saprobic index

ABSTRAK

Kondisi pasang surut berperan besar dalam kemelimpahan dan distribusi plankton di Sungai. Selain factor pasang-surut, berbagai kegiatan domestic seperti buangan sampah rumah tangga dan industri, kegiatan kapal perikanan dan aktivitas tambak dapat mempengaruhi kualitas perairan di Sungai Morosari. Tujuan dari penelitian ini untuk mengkaji dinamika populasi plankton dan hubungan antara kualitas berdasarkan pasang surut untuk mengetahui keanekaragaman, similaritas dan dominansi plankton di Sungai Morosari. Pengambilan sampel plankton dilakukan setiap minggu di Bulan Oktober selama 4 minggu dengan kondisi pasang surut yang berbeda di 5 stasiun. Penentuan titik sampling dilakukan dengan metode *purposive random sampling*. Sampel plankton diambil di 10 stasiun sebanyak 30L dengan menggunakan *plankton net*. Pengukuran kualitas perairan dilakukan dengan *waterchecker* Horiba dan pengujian fosfat di Laboratorium Kementerian Industri, Semarang. Proses pengamatan plankton dengan menggunakan mikroskop binokuler sedangkan identifikasi menggunakan beberapa buku plankton dan *website Algaebase*. Selama pasang, *Chlorella vulgaris* dan *Brachionus* sp mendominasi di SM 1 (Jembatan utama), SM 2 (Pemukiman) dan SM 3 (Area industri). Selama surut, terdapat peningkatan dominasi *Chlorococcum* sp. Indeks keanekaragaman (H') dengan kategori sedang hingga tinggi mengindikasikan ekosistem stabil, Indeks Kemerataan (e) dengan kemerataan cukup merata hingga merata serta Indeks Dominansi (D) seluruh stasiun tidak ada spesies yang mendominasi. Berdasarkan indeks saprobik antara 0,66 dan 3,00 yang menandakan bahwa semua stasiun termasuk kategori β/α -Mesosaprobik - Oligo/saprobik. Beberapa jenis plankton yang dapat dipergunakan sebagai bioindikator kualitas perairan antara lain *Navicula* spp., *Cyclotella* spp., and *Fragilaria* spp., and zooplankton, namely *Brachionus calyciflorus* and *Brachionus plicatilis*

Keywords: Plankton, Pasang-Surut, Dinamika, Sungai Morosari, Indeks Saprobit