PENYUSUNAN DATA SPASIAL KUALITAS AIR DAN BATIMETRI DI RAWA PENING MENGGUNAKAN SISTEM INFORMASI GEOGRAFIS

Intisari

Rawa Pening terletak di Kabupaten Semarang, Provinsi Jawa Tengah dan merupakan ekosistem air tawar yang memiliki manfaat secara ekologi, ekonomi dan sosial bagi masyarakat dan kawasan sekitar. Sistem Informasi Geografis (SIG) dapat mempermudah dalam pengolahan dan penyajian data secara spasial. Manfaat SIG pada bidang limnologi antara lain untuk menyusun data spasial batimetri dan kualitas air seperti suhu permukaan danau, pH, konsentrasi klorofil-a dan oksigen terlarut. Penelitian ini bertujuan untuk menyusun data spasial kualitas air dan batimetri Rawa Pening menggunakan SIG. Pengambilan data dilakukan setiap bulan dari bulan September-Desember 2020 dan data hasil pengukuran diinterpolasi menggunakan metode *inverse distance weighting* (IDW). Hasil penelitian menunjukkan Rawa Pening memiliki kedalaman bervariasi antara 1 dan 8 m. Suhu permukaan air cenderung stabil dengan variasi 27,4-31,3^{o}C. Sebaran spasial pH menunjukan pada bagian inlet danau memiliki nilai pH tertinggi. Pola spasial oksigen terlarut dan klorofil-a secara umum menunjukkan semakin ke tengah nilainya semakin tinggi, diduga disebabkan masukkan material dari daratan dan sungai.

Kata kunci: Batimetri, data spasial, kualitas air, Rawa Pening, SIG.

COMPILATION OF WATER QUALITY AND BATHYMETRIC SPATIAL DATA IN RAWA PENING USING GEOGRAPHIC INFORMATION SYSTEM

Abstract

Rawa Pening is located in the Semarang Regency, Central Java Province and is a freshwater ecosystem that has ecological, economic and social benefits for the community and the surrounding area. Geographic Information System (GIS) can facilitate the processing and presentation of data spatially. The benefits of GIS in the field of limnology include compiling bathymetry and water quality spatial data such as lake surface temperature, pH, chlorophyll-a and dissolved oxygen concentrations. This study aims to compile spatial data of water quality and bathymetry of Rawa Pening using GIS. Monthly data collection was carried out from September to December 2020, and then the data were interpolated using the inverse distance weighting (IDW) method. The results showed that the depth of Rawa Pening ranged from 1 to 8 m. The lake surface temperature tends to be stable ranging from 27.4 to 31.3^{o}C. The spatial distribution of pH shows that the inlet of the lake has the highest value. The spatial pattern of dissolved oxygen and chlorophyll-a generally shows that the lake center has the higher values, presumably due to the input of material from land and rivers.

Key words: Bathymetry, data spatial, GIS, Rawa Pening, water quality.