Tingkat serapan karbon dan kandungan klorofil fitoplankton serta analisis sampah dan sedimen di perairan setu, kampus Universitas Indonesia, Depok = The level of carbon uptake and phytoplankton chlorophyll content and analysis of trash and sediment in the waters of the Setu, the campus of the University of Indonesia, Depok

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Abstrak

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Telah dilakukan penelitian mengenai tingkat serapan karbon dan kandungan klorofil serta analisis sampah, sedimen, dan volume di lima situ Kampus UI Depok. Penelitian bertujuan untuk menganalisis tingkat serapan karbon dan kandungan klorofil, serta materi organik dalam sampah, sedimen dan volume di lima situ Kampus UI Depok. Penelitian dilakukan di lima situ Kampus UI Depok, yaitu Situ Agathis, Situ Mahoni, Situ Puspa, Situ Ulin, dan Situ Salam. Pengambilan sampel dilakukan pada bulan Maret--April 2014. Pengukuran produktivitas primer perairan menggunakan metode botol gelap-terang. Botol gelap dan botol terang diletakkan pada kedalaman 0 cm, 10 cm, 30 cm, 50 cm, 70 cm, dan 80 cm. Pengambilan sampel fitoplankton dilakukan menggunakan plankton net. Pengukuran kandungan klorofil-a dan klorofil-b menggunakan spektrofotometer dengan panjang gelombang 750, 664, 647 dan 630 nm. Perangkap sampah organik berupa kain nylon dengan ukuran pori 1 mm2 diletakkan pada inlet dan outlet secara bersamaan di lima situ Kampus UI Depok. Pengambilan sampel sedimen dilakukan menggunakan Peterson Grab. Sampel sedimen dianalisis kadar karbon organik dengan metode Walkley-Black. Metode 3D Analyst ArcView 10.1 digunakan untuk menghitung volume situ. Tingkat serapan karbon di lima situ Kampus UI Depok memiliki potensi menyerap karbon rata-rata sebesar 48,61 mgC/m3/jam. Kandungan klorofil-a dan klorofil-b di lima situ Kampus UI Depok rata-rata sebesar 2,59 mg/l dan 0,35 mg/l. Hasil identifikasi sampel fitoplankton diperoleh empat kelas, yaitu Chlorophyceae, Cyanophyceae, Euglenophyceae, dan Bacillariophyceae. Kepadatan tertinggi dan nilai dominansi tertinggi pada sampel fitoplankton di lima situ Kampus UI Depok terdapat pada kelas Chlorophyceae. Terjadi penumpukan sampah organik sebesar 0,55 gr/m3/jam. Tipe sedimen pasir mendominasi di perairan lima situ Kampus UI Depok. Kandungn karbon pada sampel sedimen kerikil sebesar 19,75--26,58 ppm, pasir sebesar 28,47--38,55 ppm, dan lumpur sebesar 36,79--42,05 ppm. Perairan lima situ di Kampus UI Depok memiliki potensi dalam menampung volume air sebesar 654.830 m3.
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ABSTRACT

Research has conducted about the level of carbon uptake and chlorophyll content as well as the analysis of trash, sediment, and volume in five lakes at Campus UI Depok. The study aimed to analyze the level of carbon uptake and chlorophyll content, and organic matter in the litter, sediment and volume in five lakes at Campus UI Depok. The study was conducted in five lakes at Campus UI Depok, namely Agathis, Mahoni, Puspa, Ulin, and Salam. Sampling was conducted in March-April 2014. Measurements of primary productivity in the water using light-dark bottle method. Dark bottle and light bottle placed at a depth of 0 cm, 10 cm, 30 cm, 50 cm, 70 cm, and 80 cm. Sampling of phytoplankton was conducted using a plankton net. Measurement of chlorophyll-a and chlorophyll-b using a spectrophotometer with a wavelength of 750, 664, 647 and 630 nm. Pitfalls of organic waste in the form of nylon fabric with a pore size of 1 mm2 placed at the inlet and outlet simultaneously in five lakes at Campus UI Depok. Sampling of sediment was conducted using a Peterson Grab. Sediment samples were analyzed with the organic carbon content of the Walkley-Black method. 3D Analyst ArcView 10.1 method used to calculate the volume of the lakes. The rate of carbon uptake in five UI Depok it has the potential to absorb carbon by an average of 48.61 mgC/m3/hour. The content of chlorophyll-a and chlorophyll-b in five lakes at Campus UI Depok was average of 2.59 mg/l and 0.35 mg/l. The results of the identification of phytoplankton samples obtained four classes, namely Chlorophyceae, Cyanophyceae, Euglenophyceae, and Bacillariophyceae. The highest density and highest dominance values in samples of phytoplankton in five lakes at Campus UI Depok contained in the class Chlorophyceae. Build up of organic waste by 0.55 gr/m3/hour. Sand sediment types dominate in five lakes at Campus UI Depok. Carbon content in sediment samples gravel at 19.75 to 26.58 ppm, the sand at 28.47 to 38.55 ppm, and the mud of 36.79 to 42.05 ppm. The five lakes at Campus UI Depok has the potential to accommodate the volume of waters at 654.830 m3.;Research has conducted about the level of carbon uptake and chlorophyll content as well as the analysis of trash, sediment, and volume in five lakes at Campus UI Depok. The study aimed to analyze the level of carbon uptake and chlorophyll content, and organic matter in the litter, sediment and volume in five lakes at Campus UI Depok. The study was conducted in five lakes at Campus UI Depok, namely Agathis, Mahoni, Puspa, Ulin, and Salam. Sampling was conducted in March-April 2014. Measurements of primary productivity in the water using light-dark bottle method. Dark bottle and light bottle placed at a depth of 0 cm, 10 cm, 30 cm, 50 cm, 70 cm, and 80 cm. Sampling of phytoplankton was conducted using a plankton net. Measurement of chlorophyll-a and chlorophyll-b using a spectrophotometer with a wavelength of 750, 664, 647 and 630 nm. Pitfalls of organic waste in the form of nylon fabric with a pore size of 1 mm2 placed at the inlet and outlet simultaneously in five lakes at Campus UI Depok. Sampling of sediment was conducted using a Peterson Grab. Sediment samples were analyzed with the organic carbon content of the Walkley-Black method. 3D

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