

## KEMELIMPAHAN KOMUNITAS FITOPLANKTON DI EKOSISTEM PERAIRAN HUTAN BAKAU SEGARA ANAKAN, CILACAP

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### INTISARI

Penelitian ini bertujuan untuk mempelajari kemelimpahan komunitas fitoplankton di ekosistem perairan hutan bakau Segara Anakan (SA), Cilacap pada awal musim kemarau 2020. Perairan ekosistem hutan bakau SA buruk akibat laju sedimentasi dan turbiditas tinggi, kerusakan hutan bakau, serta *surface-run off* yang membawa nutrisi limbah pertanian. Kondisi demikian direspon komunitas fitoplankton. Pada tiap titik sampling, sampel fitoplankton dicuplik menggunakan modifikasi Van Dorn 5 L sebanyak empat kali hingga mencapai 20 L dengan 5 kali pengulangan. Sampel disaring dengan Wisconsin plankton net 120 mesh. Parameter yang diukur: *dissolve oxygen* (DO), suhu air dan udara, pH air, turbiditas, salinitas, kelembapan udara, kecepatan arus, jeluk, jeluk Secchi, dan nutrisi ( $\text{NH}_4\text{-N}$ ,  $\text{NO}_3$ ,  $\text{PO}_4$ , dan  $\text{SO}_4$ ). Hasil penelitian ini menunjukkan ada 6 fungsional grup, 98 spesies dan cacah individu tiap spesies 1-104.192 ind/100 L. Fungsional grup dominan diatom centric 237-248.343 ind/100 L dan persentase 42,26-98,08% di tiap lokasi. Fitoplankton laut mendominasi perairan Bondan, Klaces, dan Kali Gatal Bottom 42,71-98,08%, sedangkan fitoplankton air tawar mendominasi perairan Kali Gatal Surface 57,29%. Terjadi peledakan diatom centric laut *Chaetoceros decipiens* 8.856- 126.902 ind/100 L di perairan Bondan dan Klaces. Diatom centric laut *Coscinodiscus rothii* dominan di perairan Kali Gatal Bottom 11.425 ind/100 L. Alga unicell air tawar *Eremosphaera viridis* dominan di Kali Gatal Surface 5182 ind/100 L dan Kali Gatal Bottom 11.853 ind/100 L. Ketiga spesies dominan memiliki adaptasi terhadap perairan yang keruh. Adanya peledakan spesies berbahaya *C. decipiens* dan *C. rothii* memberikan efek berantai pada rantai makanan. Peledakan spesies fitoplankton berbahaya menunjukkan kondisi ekosistem perairan hutan bakau SA buruk.

Kata kunci : *Chaetoceros*, *Coscinodiscus*, diatom centric, salinitas, turbiditas

## ABUNDANCE OF PHYTOPLANKTON COMMUNITY IN MANGROVE FOREST WATERS ECOSYSTEM OF SEGARA ANAKAN, CILACAP

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### ABSTRACT

This research aims to study the abundance of phytoplankton community in the mangrove forest water ecosystem of Segara Anakan (SA), Cilacap during early dry season of 2020. The SA mangrove forest water ecosystem is poor due to high sedimentation and turbidity rates, mangrove forest damage, and surface-run off carrying agricultural waste nutrients. At each sampling point, samples were collected using the modification of Van Dorn 5 L four times to reach 20 L with 5 repetitions. Samples were filtered with a Wisconsin plankton net 120 mesh. Parameters measured: DO, water and air temperature, water pH, turbidity, salinity, air humidity, current rate, water depth, Secchi depth, and nutrients ( $\text{NH}_4\text{-N}$ ,  $\text{NO}_3$ ,  $\text{PO}_4$ , and  $\text{SO}_4$ ). This study found 6 functional groups, 98 species, and the number of individuals of each species 1-104,192 ind/100 L. The dominant functional group is centric diatom 237-248,343 ind/100 L. Marine phytoplankton dominates Bondan, Klaces, and Kali Gatal Bottom 42.71-98.08%, while freshwater phytoplankton dominates Kali Gatal Surface 57.29%. There was a blooming of marine centric diatom *Chaetoceros decipiens* 8,856-126,902 ind/100 L in Bondan and Klaces. Marine centric diatom *Coscinodiscus rothii* is the dominant species in Kali Gatal Botom 11,425 ind/100 L. Freshwater unicellular algae *Eremosphaera viridis* dominates in Kali Gatal Surface 5,182 ind/100 L. These species have adapted to turbid waters. The blooming of harmful species *C. decipiens* and *C. rothii* gives a chain effect on the food chain. The blooming of harmful phytoplankton species indicates the poor condition of the SA mangrove forest water ecosystem.

Keywords : *Chaetoceros*, *Coscinodiscus*, centric diatom, salinity, turbidity