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The decade of observations of optical properties of Chromophoric Dissolved Organic Matter in the Baltic Sea.

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The Chromphoric Dissolves Organic Matter is one of most important optically active constituent of sea water that affects both availability and spectral quality of light in the global ocean. CDOM dominates light absorption in the ultraviolet and blue wavelengths. Through its effects on underwater solar radiation CDOM may stimulate or hinder biological activity. In coastal water in particular, quantitative descriptions of the dynamics and variability of CDOM optical properties are often required in order to accurately predict light penetration and hereafter for example, primary productivity. Another area where quantitative and qualitative assessment of CDOM optics is important is within remote sensing. The Baltic Sea has unique optical properties because of its semi-enclosed character, very high outflow of fresh water from the drainage area and limited water exchange with the North Sea through the Danish Straits. Studies of the optical properties of the Baltic Sea waters have been reported by Scandinavian researchers, showed that characteristic optical properties of Baltic Sea waters are determined to a large extent by absorption of light by CDOM. In 1993 the Institute of Oceanology, Polish Academy of Sciences has undertaken a long term systematic observation program of optical properties of CDOM in the Baltic Sea. Data set collected during last 12 years enabled to establish a pattern of seasonal dynamics of CDOM optical properties as well as asses their impact on apparent optical properties of Baltic Sea waters. The simple algorithm for estimation of CDOM absorption coefficient from in water irradiance measurements or from satellite imagery will be presented. Comparison optical properties of CDOM derived from theoretical conservative mixing model with real distribution of observed values of CDOM absorption coefficient and spectral slope coefficient enabled to understand a role of conservative mixing of CDOM from

terrestrial sources and autochthonous CDOM in shaping effective optical properties of CDOM in the Baltic Sea.