ABSTRAK

Perairan Selatan Jawa terdapat *coastal upwelling-downwelling* yang berhubungan dengan pembalikan arah angin secara musiman. Dalam periode penguatan angin, kedua proses tersebut dapat berubah intensitasnya. Penelitian ini bertujuan untuk mengetahui perubahan *coastal upwelling-downwelling* di Selatan Jawa dalam periode penguatan angin permukaan secara spasial maupun temporal selama 12 tahun (2007-2018). Perubahan variasi *coastal upwelling-downwelling* dapat dilihat dari *Frekuensi Brunt-Vaisala* (BVF), temperatur, salinitas, dan densitas. Metode yang digunakan adalah metode observasi. Data angin diperoleh dari *European Centre for Medium-range Weather Forecast* (ECMWF) resolusi 0,125^{o}. Data salinitas dan temperatur diperoleh dari *Copernicus Marine Environment Monitoring Service* (CMEMS) resolusi 0,083^{o}. Data dianalisis deskriptif dan statistik secara spasial dan temporal. Pada musim barat kecepatan angin 3,5-6 m.s^{-1} dengan nilai BVF yaitu 5x10^{-4} s^{-1}, isotherm 28-31^{o}C, isohalin 33,5-32 PSU dan densitas 20 kg.m^{-3}. Sedangkan pada musim timur kecepatan angin 5,4-8,09 m.*s^{-1}*, dengan nilai BVF 3,5x10^{-4} s^{-1}, isotherm 22-26^{o}C, isohalin 33,5 PSU dan densitas 22 kg.m^{-3}. *Upwelling* terjadi pada musim timur, ditandai dengan stabilitas massa air dan temperatur yang rendah serta salinitas dan densitas yang tinggi. Semakin besar kecepatan angin pada musim timur, maka intensitas *upwelling* juga semakin besar.

Kata kunci: *upwelling-downwelling, angin musim, stabilitas massa air.*

ABSTRACT

Coastal upwelling-downwelling is present in the southern waters of Java, and it is linked to seasonal wind direction reversal. The two processes may fluctuate in intensity during a period of wind strengthening. The goal of this study is to identify changes in coastal upwelling-downwelling in Southern Java throughout a 12-year period of increasing surface winds, both geographically and temporally (2007-2018). Variations in changes Brunt-Vaisala Frequency (BVF), temperature, salinity, and density are all indicators of coastal upwelling-downwelling. The observation approach was employed. Wind data with a resolution of 0,125º acquired from the European Center for Medium-Range Weather Forecast (ECMWF). The Copernicus Marine Environment Monitoring Service (CMEMS) provided salinity and temperature data at a precision of 0,083º. The data were spatially and temporally evaluated descriptively and statistically. In the west monsoon the wind speed is 3,5-6 ms^{-1} with BVF values of 5x10-4 s^{-1}, isotherm 28-31ºC, isohaline 33,5-32 PSU and density 20 $kg.m^{-3}$. While in the east monsoon wind velocity 5,4-8,09 $m.s^{-1}$,with a value of BVF 3,5x10-4 s^{-1},isotherm 22-26 ºC, 33,5 isohaline PSU and density of 22 kg m^{-3}. Upwelling occurs during the east monsoon and is characterized by water mass stability, low temperature, and high salinity and density. The greater the wind speed in the east monsoon, the greater the intensity of upwelling.

Keywords: *upwelling-downwelling, monsoon, water mass stability*