## 380 Regional Oceanography: an Introduction

isohalines	contours of constant salinity		
isopycnals	contours of constant density		
isotherms	contours of constant temperature		
latitude	the north-south co-ordinate of a position on the earth's surface expressed in degrees, from $90^{\circ}$ S (- $90^{\circ}$ ) at the south pole to $0^{\circ}$ at the equator and $90^{\circ}$ N (+ $90^{\circ}$ ) at the north pole		
longitude	the east-west co-ordinate of a position on the earth's surface expressed in degrees, from 0° at the longitude of Greenwich to 180° at the date line in the Pacific Ocean, positive or °W to the west of 0° longitude, negative or °E to the east of 0° longitude		
meridian	a line of constant longitude		
meridional	in the direction of meridians, i.e. north-south		
nautical mile	unit of length used in navigation; for oceanographic purposes (taking the earth as perfectly spherical) the nautical mile can be defined as one minute of arc along the equator or along any meridian. One degree of arc has sixty minutes, so one degree of latitude corresponds to 60 nautical miles, which is very close to 111 km		
nutrients	in oceanography the name given to the group of dissolved mineral salts most important for marine life, usually comprising anorganic phosphate, nitrate, and silicate; sometimes nitrite and organic and particulate phosphate are included as well		
oxygen	in oceanography the amount of oxygen dissolved in seawater, given in millilitres per litre (ml/l) or in micromols per kilogram (_mol kg-1); an approximate conversion, exact near a temperature of $5^{\circ}$ C and $34.45$ salinity, is 1 ml/l = $44.66$ mol kg-1		
polar	pertaining to the regions under the influence of the easterly winds of very high latitudes		
potential temperature	temperature of a water particle, found at some depth, after it is moved adiabatically (i.e. without exchange of heat with its surroundings) to the surface		
pycnocline	the layer where density changes most rapidly with depth		
pycnostad	a layer where the vertical change of density is very small and displays a local minimum		
ring	an eddy formed by separation of part of a strong current (such as a western boundary current); it is characterized by a current band of roughly the width of the parent current and uniform large velocity, and by the trapping of water with properties different from the properties found outside the ring		

## units and conversions

property	unit	derived units
distance	metre (m)	1 nautical mile = 1853.2 m = 1.8532 km
velocity	metres per second (m s <sup>-1</sup> )	1 knot = 1 nautical mile per hour = $0.515 \text{ m s}^{-1}$ = 44.5 km/day = 16 234 km/year
transport	cubic metres per second $(m^3 s^{-1})$	1 Sverdrup (Sv) = $10^6 \text{ m}^3 \text{ s}^{-1}$ = 3.6 km <sup>3</sup> /hour
pressure	Pascal (Pa; 1 Pa = 1 kg m <sup>-1</sup> s <sup>-2</sup> )	1 dbar = 10 kPa (equivalent to 1 m depth increase)

Wind velocity is related to wind force, expressed in Beaufort, through the following table:

Beaufort force	knots	m s <sup>-1</sup>	km/hour	
0	under 1	0.0 - 0.2	under 1	
1	1 - 3	0.3 - 1.5	1 - 5	
2	4 - 6	1.6 - 3.3	6 - 11	
3	7 - 10	3.4 - 5.4	12 - 19	
4	11 - 16	5.5 - 7.9	20 - 28	
5	17 - 21	8.0 - 10.7	29 - 38	
6	22 - 27	10.8 - 13.8	39 - 49	
7	28 - 33	13.9 - 17.1	50 - 61	
8	34 - 40	17.2 - 20.7	62 - 74	
9	41 - 47	20.8 - 24.4	75 - 88	
10	48 - 55	24.5 - 28.4	89 - 102	
11	56 - 63	28.5 - 32.6	103 - 117	
12	over 63	over 32.6	over 117	

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