



LIMNOLOGY 11

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Dissolved oxygen

- Oxygen has two main sources in water:
- Atmosphere
- photosynthesis
- The hydro-mechanical distribution of oxygen in lakes and its presence in a biotic level depend on the balance between source (atmosphere-photosynthesis) and consumption.
- If consumption with resources is equal, there is biological balance in water (biotic waters).
- If the source is low and consumption is high, there is no oxygen balance in the water (abiotic waters).

the dissolution of oxygen in water affected by;

- Surface size of water body
- Water temperature
- Atmospheric pressure
- Salinity

Oxygen profiles in lakes

- Ortograd oxygen profile
 - Clinograde oxygen profile
 - Metalimnetic oxygen minimum / maximum
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- Trophogenic region
 - Tropholithic region

Classification of lakes according to productivity

- Oligotrophic lakes
- Eutrophic lakes
- Dystrophic lakes

Trophic classification of lakes (Anonymous 1982, Wetzel 1983)

parameters	Ultra oligotrophic	Oligotrophic	Mesotrophic	Eutrophic	Hypertrophic
Total phosphorus(mg/m ³)	≤ 4.0	≤ 10.0	10 - 35	35 – 100	≥ 100
	<1-5	5-10	10-30		30-5000
Chlorophyll <i>a</i> (mg/m ³)	≤ 1.0	≤ 2.5	2.5 – 8	8 – 25	≥ 25
	0.01-0.5	0.3-3	2-15	10-500	-
Secchi depth (m)	≥ 12.0	≥ 6.0	6 - 3	3 - 1.5	≤ 1.5