



## The geographical conditions of intensity of salty waters intrusions to coastal lakes on Polish Southern Baltic coast

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Lakes situated on the coast of the southern Baltic function in different conditions than those in which typically inland reservoirs occur. They are situated in the contact zone of two environments: land and sea. These reservoirs together with their direct catchments form specific hydrographic arrangement, in which the course of physical, chemical and biological processes depends on the fact which of these two environments exerts a stronger influence at a given moment.

This is important as the lakes situated in the shore zone of the southern Baltic are not exposed to phenomena caused by constant tides, as it is the case in open seas (Ataie-Ashtiani et al., 1999), but only to extreme hydrometeorological conditions, which lead to the formation of the phenomenon of intrusions of sea waters and of damming the free outflow of potamic waters (Demirel, 2004; Cieśliński, Drwal, 2005). What should also be remembered are the local hydrographic, hydrological and morphometric conditions. As a result of intrusions, in the waters of coastal lakes, apart from inland waters there are also waters of sea origin. The proportions of these genetically distinct waters are variable and differ in individual lakes (Grassi, Netti, 2000; Drwal, Cieśliński, 2007). Despite the difference in the causal factor triggering the phenomenon of salt water intrusions, the effect is usually the same as that observed, for instance, in lakes and lagoons of seas with tides (Ishitobi et al., 1999; De Louw, Oude Essink, 2001) and poorly flushed lagoon (Hsing-Juh et al., 2006) or estuaries (Uncles et al., 2002), though the scale of qualitative changes is greater in the case of open seas than in half-closed and closed seas.

The status of the research carried out so far enables proposing a hypothesis that chlorides concentrations, as the best indicators for establishing the occurrence of the phenomenon of intrusions, depend not only on the meteorological factor but in some of the lakes on various geographical conditions, especially on hydrographical and hydrological ones, which determine their variability and distribution.

The objects of research have been chosen to be the two largest coastal lakes in the Polish section of the southern Baltic shore, i.e. Łebsko and Gardno.

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