

Marine monitoring, in order to be effective, requires a systematic observational effort allowing the quality status of the ocean and changes in marine climate and marine communities to be assessed. Marine environmental monitoring is needed as a contribution to the effort of predicting impacts of natural and man-made changes on living and non-living marine resources, the coastlines, and the coastal population. Marine environmental monitoring must support political decisionmaking and coastal zone management.

Effective marine monitoring can only be achieved through a combination of different monitoring methods including shipboard measurements, satellite observations, and quasi-continuous measurements at fixed monitoring stations. Each of the above observation methods has its particular advantages and disadvantages. Therefore, Bundesamt für Seeschifffahrt und Hydrographie (BSH, Federal Maritime and Hydrographic Agency of Germany) is using all three methods in its monitoring activities. Only the automated monitoring network of stations in the German Bight and western Baltic Sea (MARNET) will be dealt with here.

In the German Bight and western Baltic Sea, available time series of measurements of oceanographic parameters such as temperatures, salinities, and surface currents date back to 1872. Such measurements were made on board manned lightships. The last manned lightship (*Borkumriff*) was decommissioned in 1988. Some of the old lightships were replaced by smaller, unmanned lightships (*Ems, Deutsche Bucht, Elbe*). The complete datasets of all manned lightships have been archived at the BSH's German Oceanographic Data Centre (DOD, *Deutsches Ozeanographisches Datenzentrum*).

The first unmanned monitoring platform was installed in 1984. The unmanned lightship ELBE capsized in December 1999 and has not been replaced. Therefore, the measurement series at this station ends in that year.

The three stations off the coast of Mecklenburg-Vorpommern (Darßer Schwelle, Oder Bank, and Arkona Becken) were installed by the Leibniz Institute for Baltic Sea Research, Warnemünde (IOW) on behalf of the BSH and are also maintained by IOW on behalf of the BSH.