

Objective from DHI proposal for the Hydrodynamic Studies (ATR 8, Hydrauliske beregninger for baseline og endeligt projektforslag, 13. februar 2020). Google translate.

Calculations are carried out for a one-year period (2018) with one hydrodynamic 3D model covering the area from the section Gilleleje - Kullen in the north to the section Stevns - Skanör in the south. The model describes water depths, wind and tidal generated currents as well as salt and temperature in the Sound and Copenhagen Harbour. Wave calculations are also performed with a spectral wave model covering the same area. The models are used to evaluate the project proposal's impact on the water and salt balance through the Sound, as well as the exchange of water between the Kattegat and the Baltic Sea. The filling impact on local current, wave and water level conditions. The filling influence on Amagerværket's use of cooling water. The significance of the filling for changes in coastal morphology, as well as filling potential morphological impact on the Middelgrunden. In addition, the model is used for dilution calculations of excess water from the landfill.

In the initial work, it was estimated that Lynetteholm would create a blockage of water and the salt balance, which could potentially be perceived as critical from what was accepted in connection with the Øresund connection. As the blocking target is difficult to relate to, parallel calculations are performed with a sea level rise of 5 cm for both baseline and project proposals. The to these conditions associated blockage will make it possible to quantify how large a sea level rise required to eliminate the estimated impact from the project of water and salt balance through the Sound. The latter study is important for three reasons:

1. It is difficult to relate to what the previously estimated blockage was means purely physical (in addition to a dampening of the dynamics).
2. There is something pedagogical in showing that one does not really exist zero solution, due to the climate-derived sea level rises.
3. The calculations will show that the establishment of Lynetteholm counteracts the effect of climate-derived sea level rises.
4. It will be possible to quantify how large a sea level rise there is is needed to remove the blockage added by the project proposal water and salt exchange through the Sound.
5. The calculations will show that the expected future sea level rises have a far greater impact on water and the salt balance through the Sound.