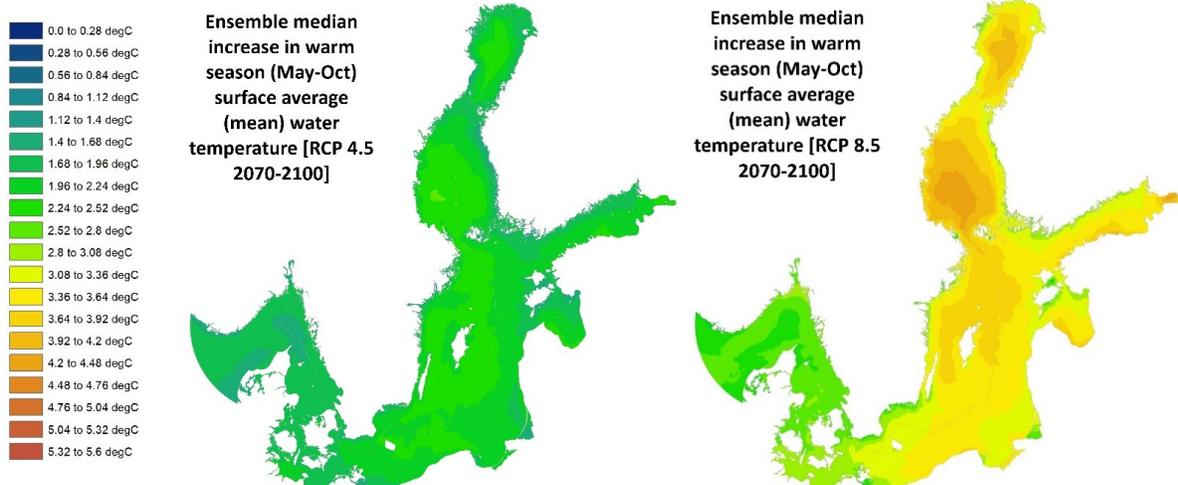


COMPLEMENTARY INFORMATION TO SUPPORT THE FACT SHEET

The ClimeMarine project sourced projections for salinity, temperature and sea ice from SMHI's regional coupled atmosphere-ice-ocean model RCA4-NEMO. These marine projections were downscaled from an ensemble of five global climate models under two conservative emissions scenarios (RCP4.5 and RCP8.5).

Marine climate changes were calculated as the difference in median annual (salinity) and seasonal (ice and temperature) conditions between the current climate period (1970-1999) until the end of century. These were calculated for each emission scenario, for both surface and bottom conditions and for the full range (minimum, median and maximum) of outcomes projected by the climate models. The maps shown here illustrate the median projected change for surface conditions.

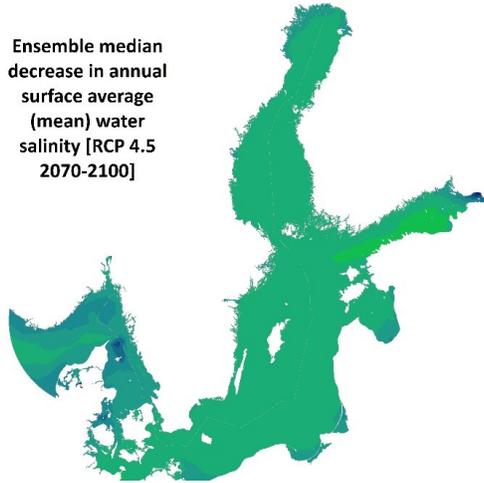
SURFACE WATER TEMPERATURE



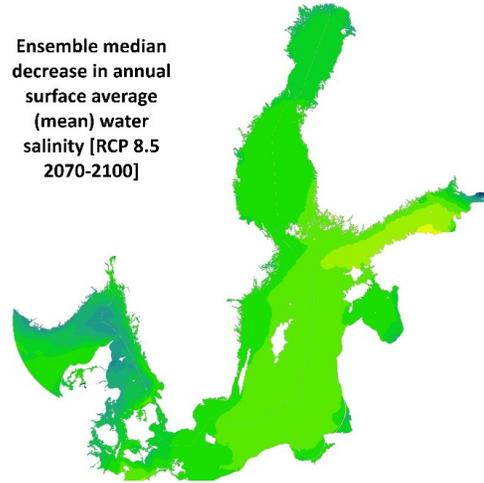
SURFACE SALINITY



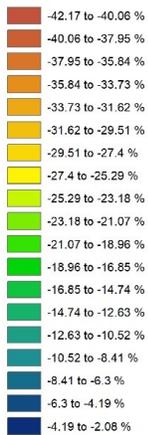
Ensemble median decrease in annual surface average (mean) water salinity [RCP 4.5 2070-2100]



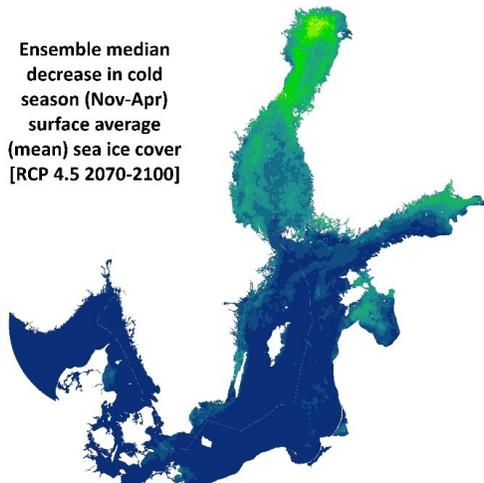
Ensemble median decrease in annual surface average (mean) water salinity [RCP 8.5 2070-2100]



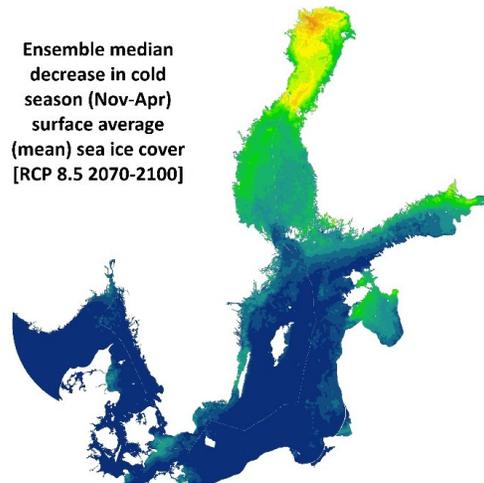
ICE COVER



Ensemble median decrease in cold season (Nov-Apr) surface average (mean) sea ice cover [RCP 4.5 2070-2100]



Ensemble median decrease in cold season (Nov-Apr) surface average (mean) sea ice cover [RCP 8.5 2070-2100]



UNCERTAINTIES

Uncertainty measures the range of possible outcomes in economics, politics and climate science. We know that temperature is rising. How much it is rising until 2100 comes with some uncertainty. That depends on future fossil fuel consumption (RCP scenarios) and on limited and improving knowledge about the climate system. A large uncertainty is a very strong impetus to do something about it. Large uncertainty includes the risk of large changes. ClimeMarine shows the uncertainty in projections as two distinct scenarios and as a range of climate change in the year 2100 from minimum, median, and

maximum of the changes projected by the 5 different downscaled global climate models (Wåhlström *et al.*, in prep.). For temperature, the climate change signal is larger than the difference between the various projections which means that uncertainty is rather small that there will be significant temperature increases similar to the magnitude shown. For salinity there is larger variability between the various projections. In addition, these projections do not include the influence of sea level rise, which will increase the inflows of saline water, and thereby counteract the general trend of decreasing salinities. In the new [HELCOM fact sheets on climate change in the Baltic Sea](#), there are therefore no conclusions on the actual trend of salinity in the future, and the results presented here do probably overestimate the salinity decrease. For sea ice, the present projections do have a bias towards too small ice cover, but we expect the relative decreases to be of medium uncertainty, i.e. there will be a decrease in ice cover but the relative decrease may be over- or underestimated, specially when looking at specific locations.