

IMPACTS OF CLIMATE CHANGE ON SALINITY

Sarah Hughes

Fisheries Research Services, Victoria Road, Aberdeen

Executive Summary

Offshore, salinity data are available from 4 standard sections: North Sea - JONSIS, Faroe-Shetland Channel – NOL, FIM and West Coast - Rockall. From these data, indices have been created, representing the salinity of waters flowing at key points around Scotland (Rockall, NAW, MNA, FIC).

From these data we can see that salinity in offshore waters has been rising steadily since 1980, a pattern that appears to be similar across the whole North Atlantic. In the North Sea, the variability in salinity is much larger than in offshore regions. This is because salinity is affected both by influx of water from the North Atlantic and also from freshwater inputs (rivers and rainfall).

Level of Confidence

Measurements of salinity at the offshore sites are made 1-3 times per year. Calibration is good, so high confidence can be put on actual measurements. Due to improvements in instrumentation and methods, data prior to 1970 are less reliable.

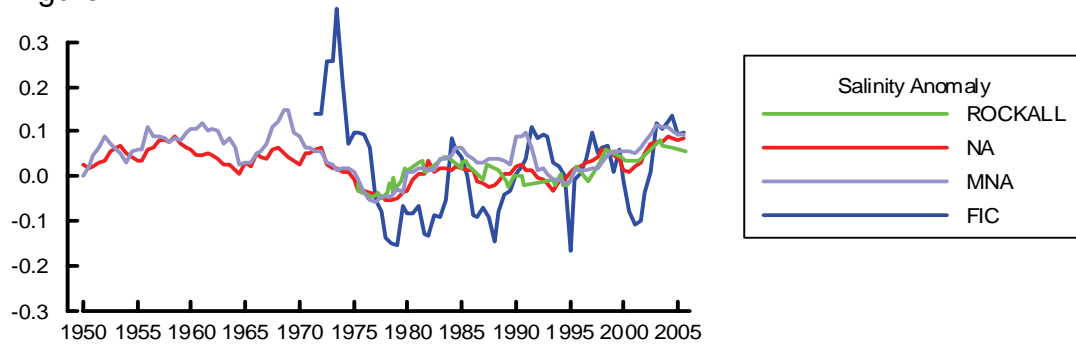
The number of offshore sites that we have long data series for are limited so it is difficult to make an overall assessment of changes in salinity for UK seas and how these changes may be linked to climate change.

Key sources of Information

Fisheries Research Services (In preparation) The Scottish Ocean Climate Status Report for 2004 and 2005. Hughes S.L (ed.) Aberdeen: Fisheries Research Services.

ICES (2006) The ICES Report on Ocean Climate. Available at http://www.noc.soton.ac.uk/JRD/ICES_WGOH/iroc.php.

Figure 1



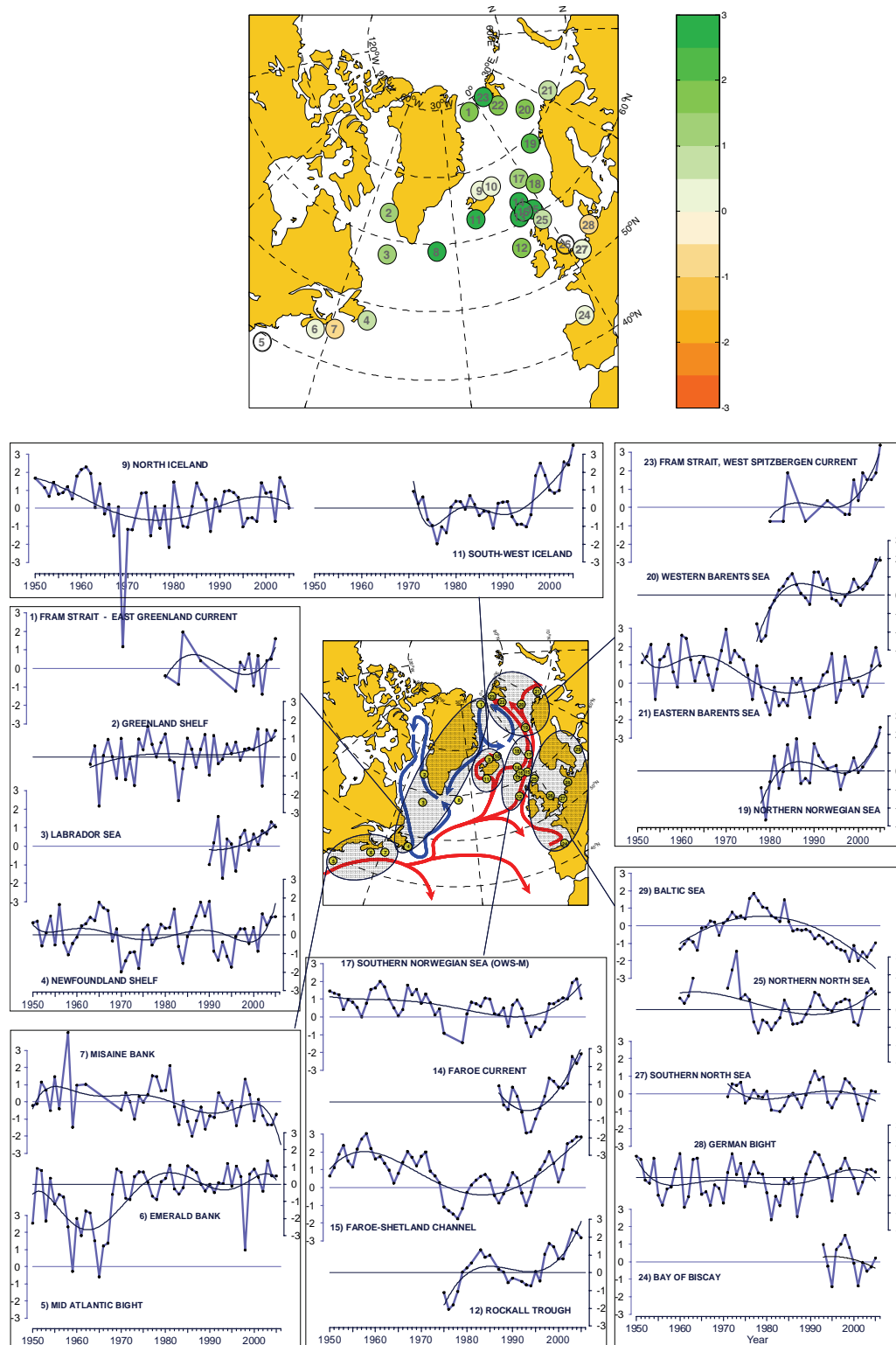


Figure 2: Upper ocean salinity anomalies across the North Atlantic. Salinity data are presented as anomalies from the long term mean; for consistency anomalies are normalized with respect to the standard deviation, e.g. a value of +2 indicates 2 standard deviations above normal. The maps show conditions in 2005 (colour intervals are 0.5, greens are positive/saline, oranges are negative/fresh); the curves below show selected timeseries. Figure extracted from ICES Report on Ocean Climate 2005 (ICES 2006).

Please acknowledge this document as: Hughes, S. (2006). Impacts of Climate Change on Ocean Salinity in Marine Climate Change Impacts Annual Report Card 2006 (Eds. Buckley, P.J, Dye, S.R. and Baxter, J.M), Online Summary Reports, MCCIP, Lowestoft, www.mccip.org.uk