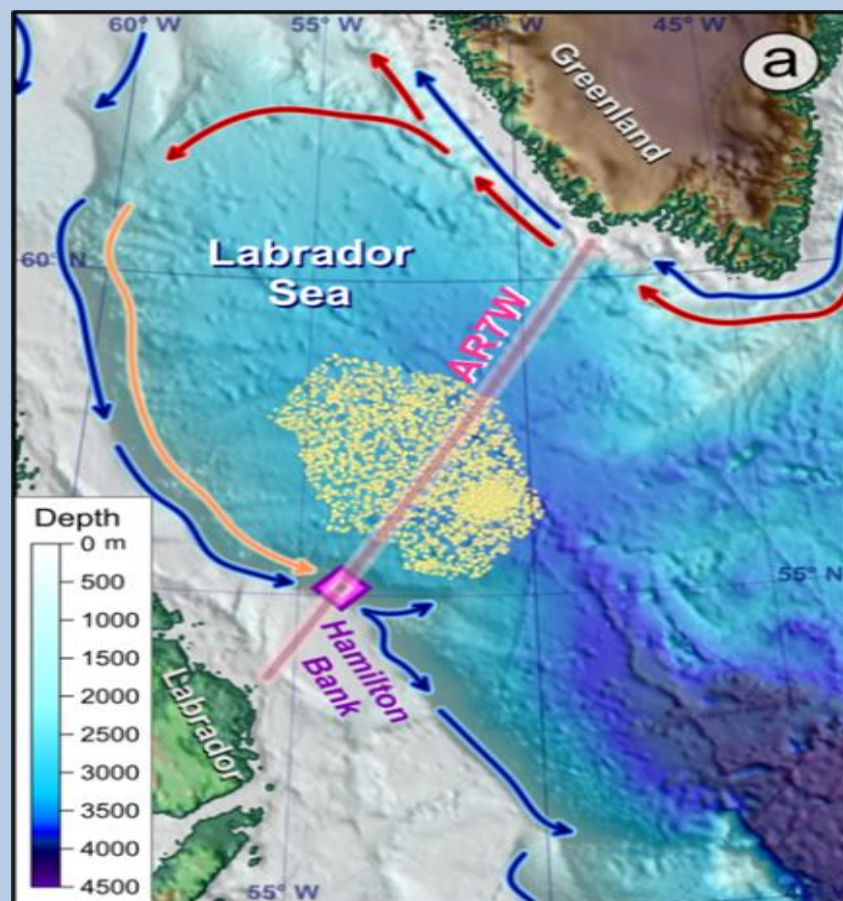


The 2017 Ocean Climate Status Summary for NAFO S. A. 1 and the Labrador Sea

West Greenland and the Labrador Sea.

Map showing DFO Atlantic Zone Off-Shelf Monitoring Program's section WOCE AR7W across the Labrador Sea and historical T/S data from vessels and Argo floats in the central Labrador Sea.

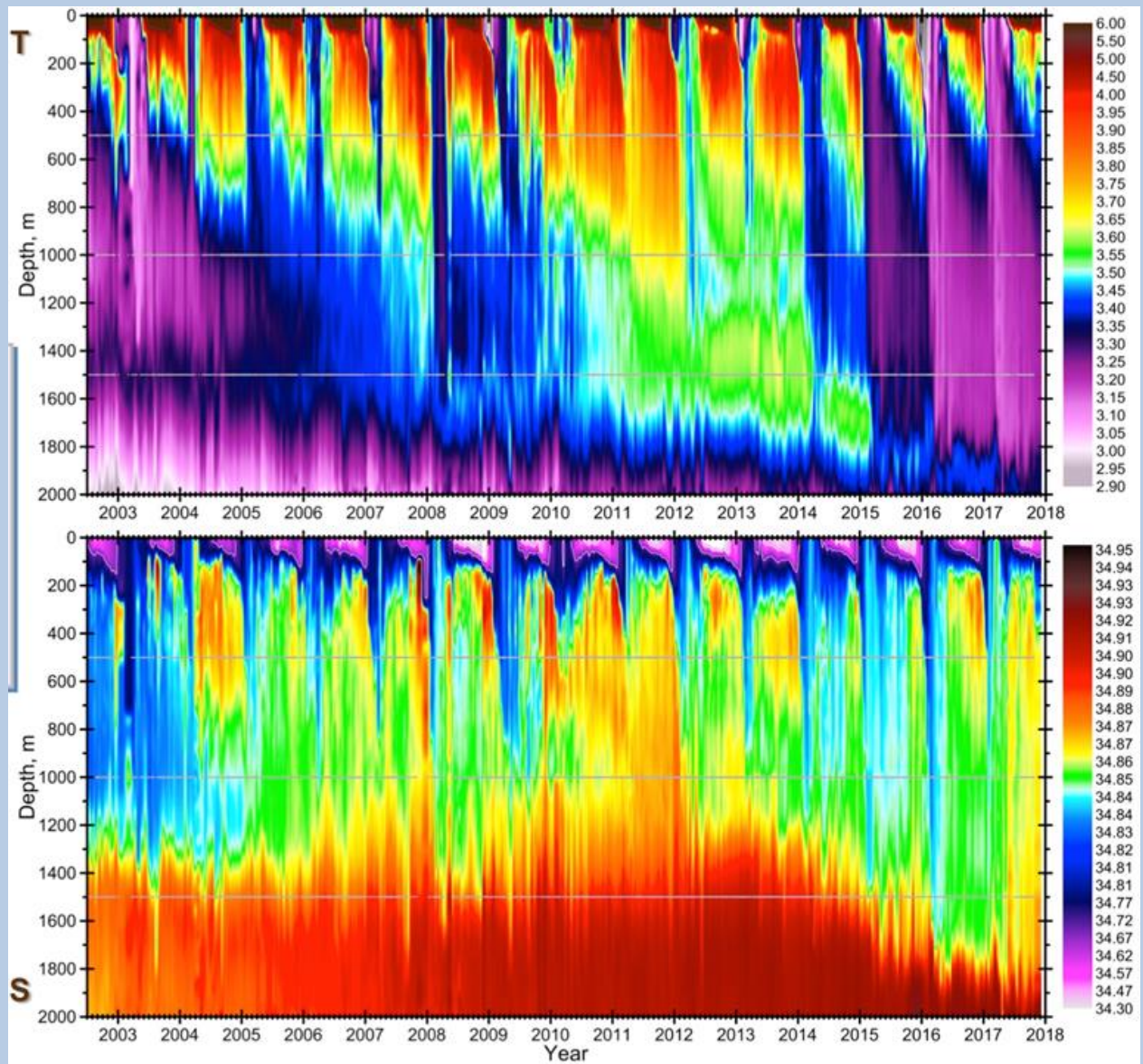


The 2017 winter convection in the Labrador Sea exceeded 2000 m making it the 4th consecutive year of increasing convection leading to increased production of Labrador Sea water.

LONG-TERM TEMPERATURE AND SALINITY TRENDS

Temperature and salinity time series in the Labrador Sea showing increasing winter convective overturning for the 4th consecutive year reaching a maximum depth of near 2000 m in the past three years.

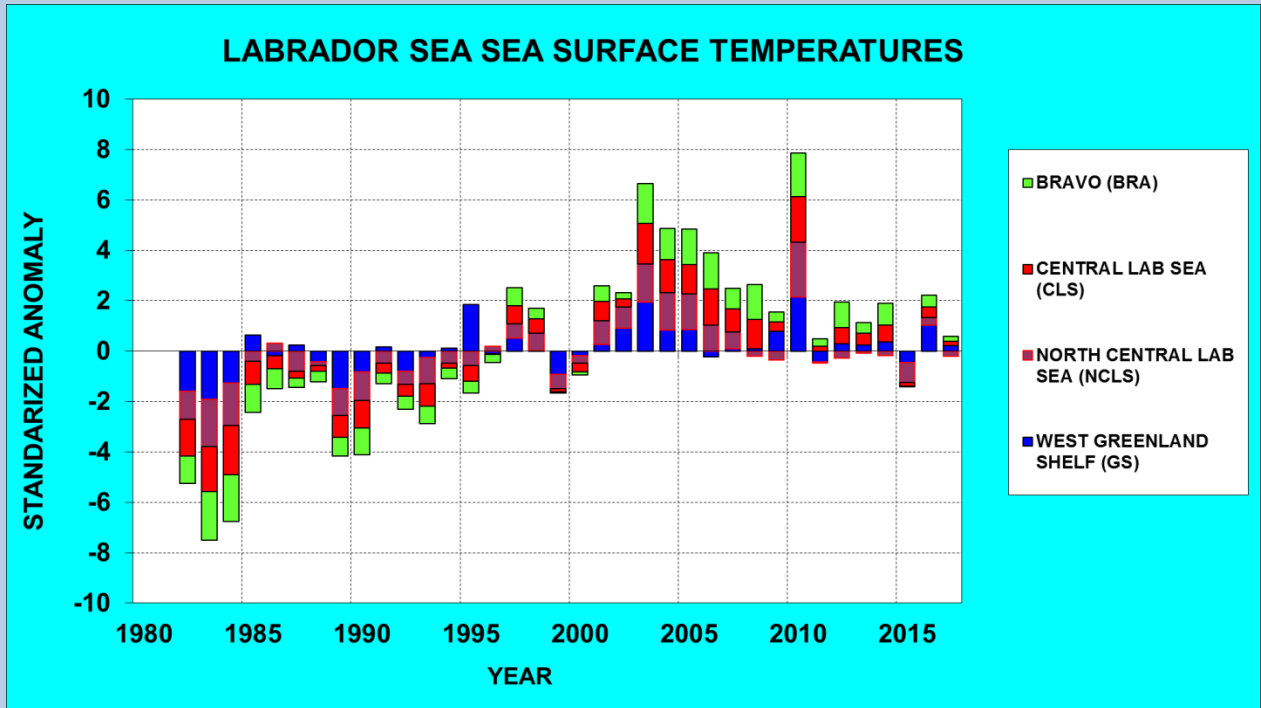
Recent strong winter convection in the Labrador Sea is similar to that observed in the early 1990s.



Data from the first 15 years of Argo profiling floats. I. Yashayaev.

SEA-SURFACE TEMPERATURE TRENDS

SST anomalies in the Labrador Sea showing a recent decreasing trend. In 2017 SST values were near-normal.



Sea surface temperature data provided by the Marine Ecosystem Section at the Bedford Institute of Oceanography.

West Greenland lies within an area that historically experienced warm conditions during the negative phase of the NAO.

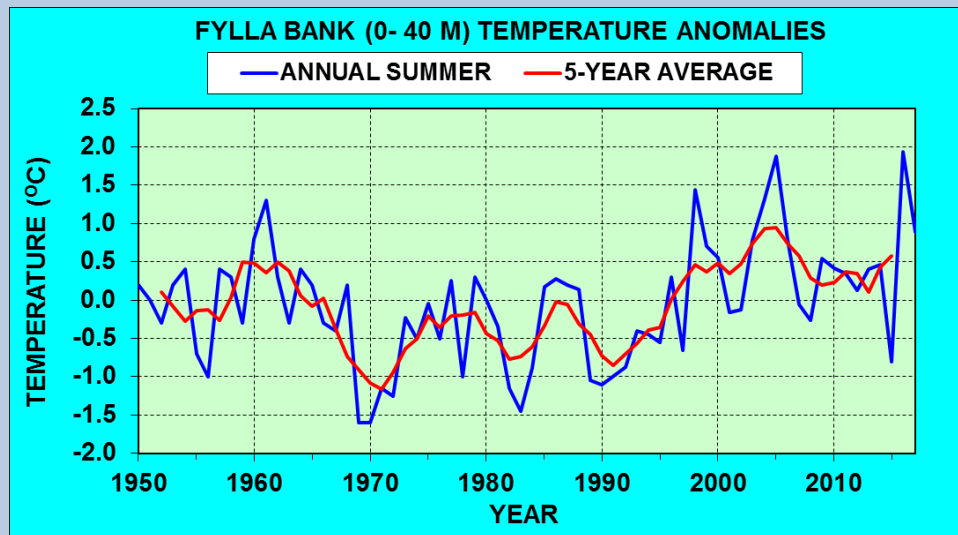


The map shows the location of standard sections and the positions of some of the stations sampled in June/July 2017 in West Greenland waters.

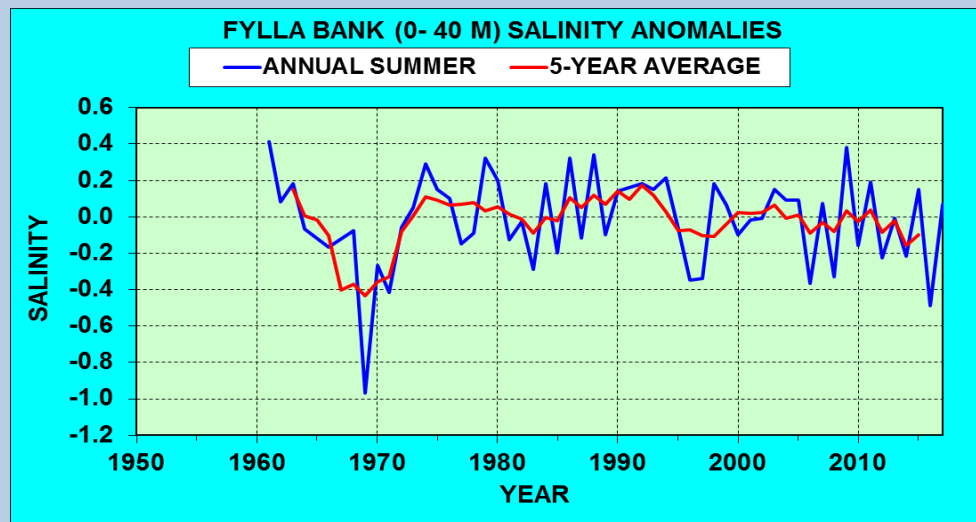
LONG-TERM TEMPERATURE TRENDS

Above normal air temperatures off West Greenland, combined with advection of warm water by the West Greenland Current led to above normal ocean temperatures on the slopes of Fylla Bank during 2004-2006.

Temperatures on Fylla Bank (0-40 m depth) in June have decreased substantially over the peak in 2005 reaching 0.8°C below normal in 2015, but rebounded sharply to a record high in 2016. In 2017 temperatures remained at near 1°C above normal.

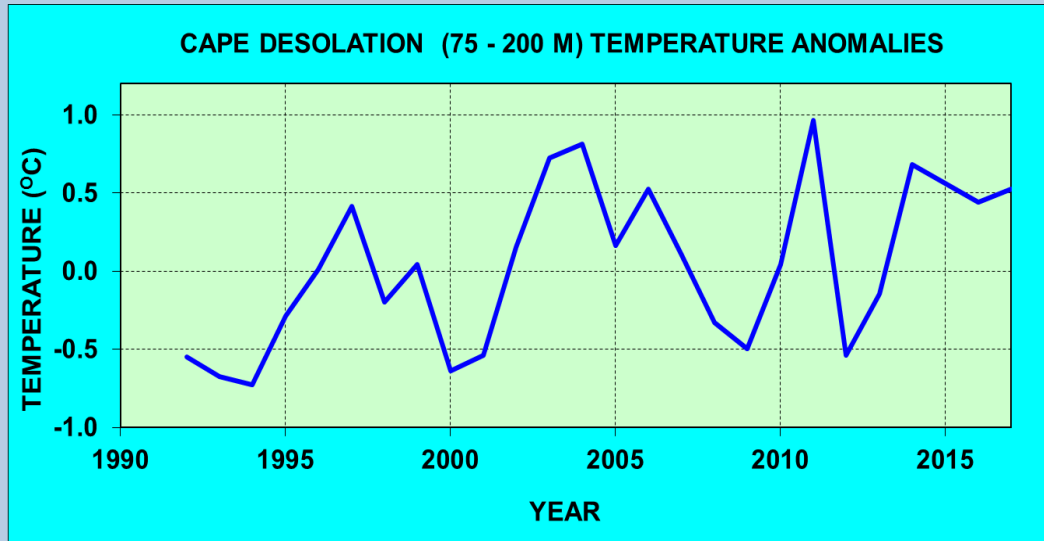


Salinities increased substantially in 2009 to the second highest in the record but decreased in 2010 to fresher than normal conditions. In 2015, salinities increased to about 0.15 above normal but then decreased sharply in 2016 to the 2nd lowest on record. In 2017 they rebounded to slightly above normal.

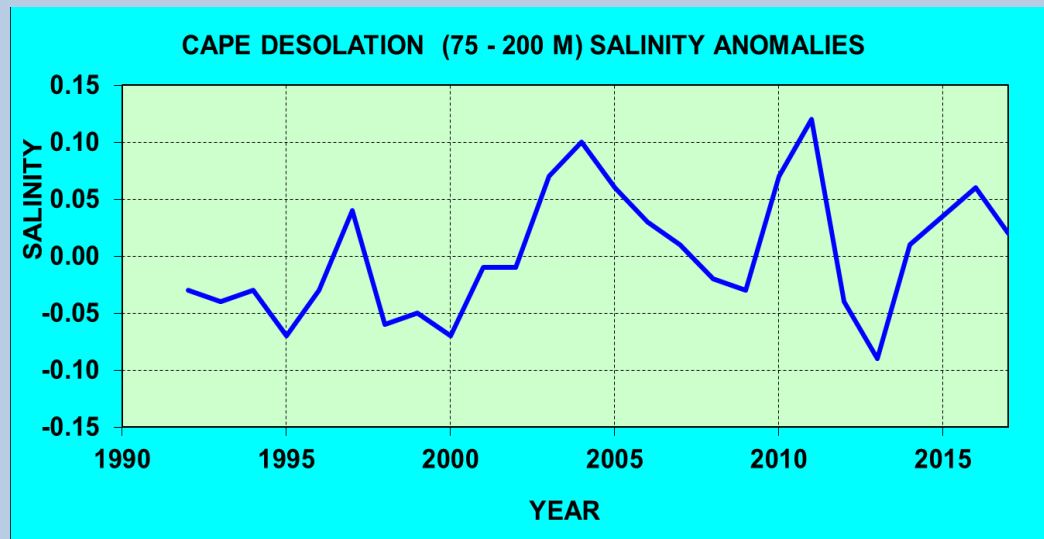


LONG-TERM TEMPERATURE TRENDS

The properties of the Irminger Sea Water (ISW) are monitored in the 75-200 m layer at Cape Desolation Station 3. In 2017, the water temperature of the ISW was 0.5°C above the long-term mean.



The properties of the Irminger Sea Water (ISW) are monitored in the 75-200 m layer at Cape Desolation Station 3. In 2017, the salinity of the ISW was 0.02 above the long-term mean. Temperature and Salinity of the ISW are highly correlated at $r=0.8$.



Highlights for 2017

- **Water temperatures at Fyllas Bank Station 2 (0-40 m depth) off West Greenland in June/July experienced a significant increase with temperatures 1.9°C/0.9°C (2.4/1.1 SD) higher than normal in 2016 and 2017, respectively.**
- **Salinity at Fyllas Bank Station 2 (0-40 m depth) off West Greenland however was near normal in 2017 at 0.07 (0.33 SD).**
- **Temperatures of the North Atlantic Deep Water (NADW) to the west of Greenland monitored at 2000 m depth at Cape Desolation Station 3 were 0.1°C above the long-term mean in 2016. No data were available for the fall of 2017.**
- **In 2017, temperature and salinity values of the Irminger Sea Water in the 75-200 m layer at Cape Desolation Station 3 were 5.3°C and 34.90, which were 0.6°C and 0.02 above the long-term mean, respectively.**
- **In 2017, temperature and salinity values of the fresh Polar Water component of the West Greenland current between 0-50 m on Fyllas Bank Station 4 were 0.8°C and 0.22 above normal, respectively.**
- **Sea Surface Temperatures over much of the Labrador Sea were mostly above normal, particularly during the winter when they were 1.4 SD above normal.**
- **The 2017 winter convection in the Labrador Sea exceeded 2000 m making it the 4th consecutive year of increasing convection or increased production of Labrador Sea water.**

For Further Information Contact:

Igor Yashayaeu
Department of Fisheries and Oceans, Maritimes Region
Ocean and Ecosystem Sciences Division
Bedford Institute of Oceanography
P.O. Box 1006, Dartmouth, N.S. B2Y 4A2
Igor.Yashayaeu@dfo-mpo.gc.ca

John Mortensen
Greenland Institute of Natural Resources
Kivioq 2, Box 570
3900 Nuuk, Greenland
jomo@natur.gl

Boris Cisewski
Thünen Institute of Sea Fisheries
Germany
boris.cisewski@thuenen.de

Reference:

Mortensen, J. 2018. Report on hydrographic conditions off Southwest Greenland June/July 2017. NAFO SCR Doc. 2018/005. Serial No. N6782.

Cisewski, B. 2018. Atmospheric conditions over West Greenland in 2017. NAFO SCR Doc. 2018/006. Serial No. N6789.