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Oceanographic Data from Baffin Bay Collected during Surveys Conducted in Division 0A in 2004.

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Abstract

Three oceanographic sections were completed during two surveys conducted in Division 0A, Baffin Bay, during September and October, 2004. They were at Cape Liverpool/Lancaster Sound, Cape Jameson and Cape Christian. This is the first time these particular sections have been surveyed. Temperature, salinity and fluorescence data were collected at 4-5 stations along each transect. In addition bottom temperature was collected at each of 101 fishing stations distributed between 400 m and 1 500 m bottom depth. Cold arctic polar water (-1.0 to -2.0°C) was clearly apparent between approx. 50 m to 300 m along the Baffin coast. A majority of bottom stations had temperatures less than 1.0°C.

Summary

Two stratified random surveys were carried out in the North West Atlantic Fisheries Organization (NAFO) Division 0A from September 4 to 12 and from October 14 to 24, 2004. This was a collaborative effort between Fisheries and Oceans Canada, the Nunavut Wildlife Management Board, Baffin Fisheries Coalition, Government of Nunavut, Nunavut Tungavik Inc., Indian and Northern Affairs Canada, and the Greenland Institute of Natural Resources. The Greenlandic research vessel Paamiut was used to carry out the surveys. The science crew was comprised of six Canadians and one scientist from Greenland. The first survey covered the northern portion of Div. 0A (72°N to 76°N) and the second survey covered the southern part of Baffin Bay. The objectives were:

1. Collect the data required to establish age structure, estimate population abundance, biomass, and recruitment of Greenland halibut;
2. Record numbers caught and collect length and weight data on all other commercial species caught, to allow calculation of abundance, biomass, and size structure of these species;
3. Record numbers and collect weight data on all non-commercial species caught, to allow calculation of abundance of these species;
4. Collect additional data and biological samples as desired and as time permits (e.g. lengths for by-catch, maturity information, coral samples, other special requests);
5. Collect oceanographic data at each fishing station and along several pre-determined transects.

A Seabird 19© conductivity, temperature and depth instrument equipped with a fluorometer was deployed at 4-5 stations along three transects in Baffin Bay, two during the September trip and one during the October trip. Readings were taken to the bottom or within the top approx. 600 m of the water column. Information on date, location and depth of each cast is given in Table 1.

A Seamon© temperature sensor (sensitive to within $\pm 0.1^{\circ}\text{C}$) was mounted on one of the trawl doors and provided bottom temperature data for most sets. In the few cases where there was no data from the trawl door sensor temperature data from the trawl eye sensor was used. The distribution of bottom temperature data is given in Fig. 1. Note that the majority of stations had bottom temperatures of less than 1.0°C . A summary of the mean and standard deviation by depth is provided in Table 2 along with data collected on previous surveys.

Data output from Ocean Data View© for three oceanographic transects at Cape Liverpool/Lancaster Sound, Cape Jameson and Cape Christian are shown in Fig. 2, 3 and 4, respectively.

References

- TREBLE, M. A. 2002. Analysis of data from the 2001 trawl survey in NAFO Subarea 0. NAFO SCR Doc. 02/46.
- TREBLE, M. A., and O. A. JORGENSEN. 2002. Summary of results for Greenland halibut from trawl surveys conducted in NAFO Subareas 0 and 1 from 61°N to 74°N in 2001. NAFO SCR Doc. 02/60.

Table 1. Oceanographic stations along three transects in Baffin Bay, sampled during a fisheries survey conducted in 2004.

Section	Deg. N	Min. N	Deg. W	Min. W	Date	Cast Depth (approx. m)	Water Depth (approx. m)
Cape Jameson	72	58.4	71	31.2	Sept. 5	650	1000-1250
Cape Jameson	73	5.9	70	52	Sept. 5	612	1300
Cape Jameson	72	41.5	72	53.3	Sept. 5	609	800
Cape Jameson	72	32.6	73	44.7	Sept. 5	410	400-500
Cape Liverpool/Lancaster Sound	73	39.1	77	24.4	Sept. 7	806	1116
Cape Liverpool/Lancaster Sound	73	53.5	77	34.7	Sept. 7	618	913
Cape Liverpool/Lancaster Sound	74	6.4	77	29.2	Sept. 7	615	850
Cape Liverpool/Lancaster Sound	74	21.5	77	20.6	Sept. 7	600	97
Cape Liverpool/Lancaster Sound	74	39.9	77	20.8	Sept. 8	353	378
Cape Christian	71	6.5	66	53.4	Oct. 15	600	1551
Cape Christian	71	3	67	3.7	Oct. 15	603	1276
Cape Christian	71	0.6	67	13.7	Oct. 15	601	1024
Cape Christian	70	57.1	67	26.2	Oct. 15	570	581
Cape Christian	70	54.1	67	35.6	Oct. 15	340	353

Table 2. Mean temperature and S.E. in () by depth stratum for NAFO Division 0A, 2004.

NAFO Division 0A	Depth Stratum (m)					
	301-400	401-500	501-750	751-1000	1001-1250	1251-1500
South-1999		1.6 (0.50)	1.4 (0.16)	1.0 (0.03)	0.6 (0.05)	0.1 (0.04)
2001		0.7 (0.10)	1.5 (0.22)	0.9 (0.07)	0.7 (0.05)	0.2 (0.05)
2004		1.3 (0.21)	1.5 (0.25)	1.0 (0.05)	0.6 (0.05)	0.1 (0.04)
North-2004	0.3	.	0.9 (0.04)	0.6 (0.04)	0.2 (0.04)	0.1 (0.06)

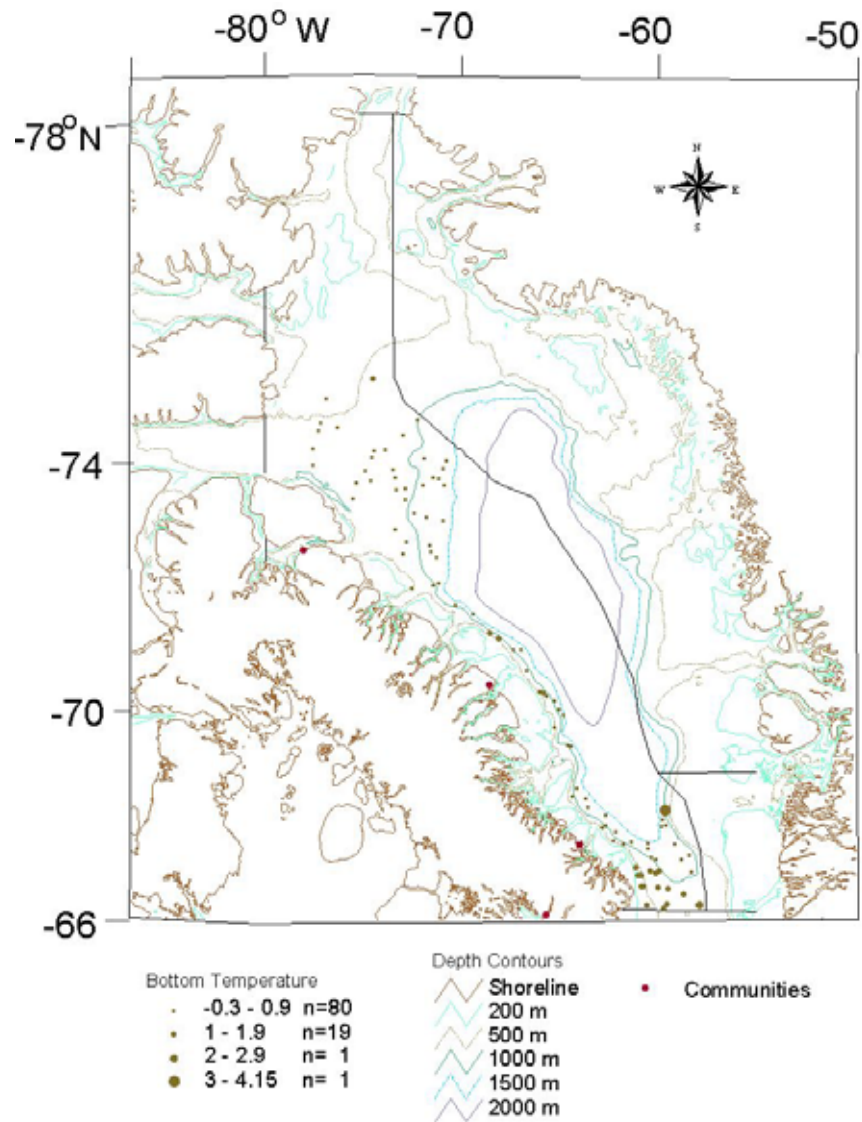


Fig. 1. Distribution of bottom temperatures (degrees Celsius) in Baffin Bay (Div. 0A) during fall surveys, 2004.

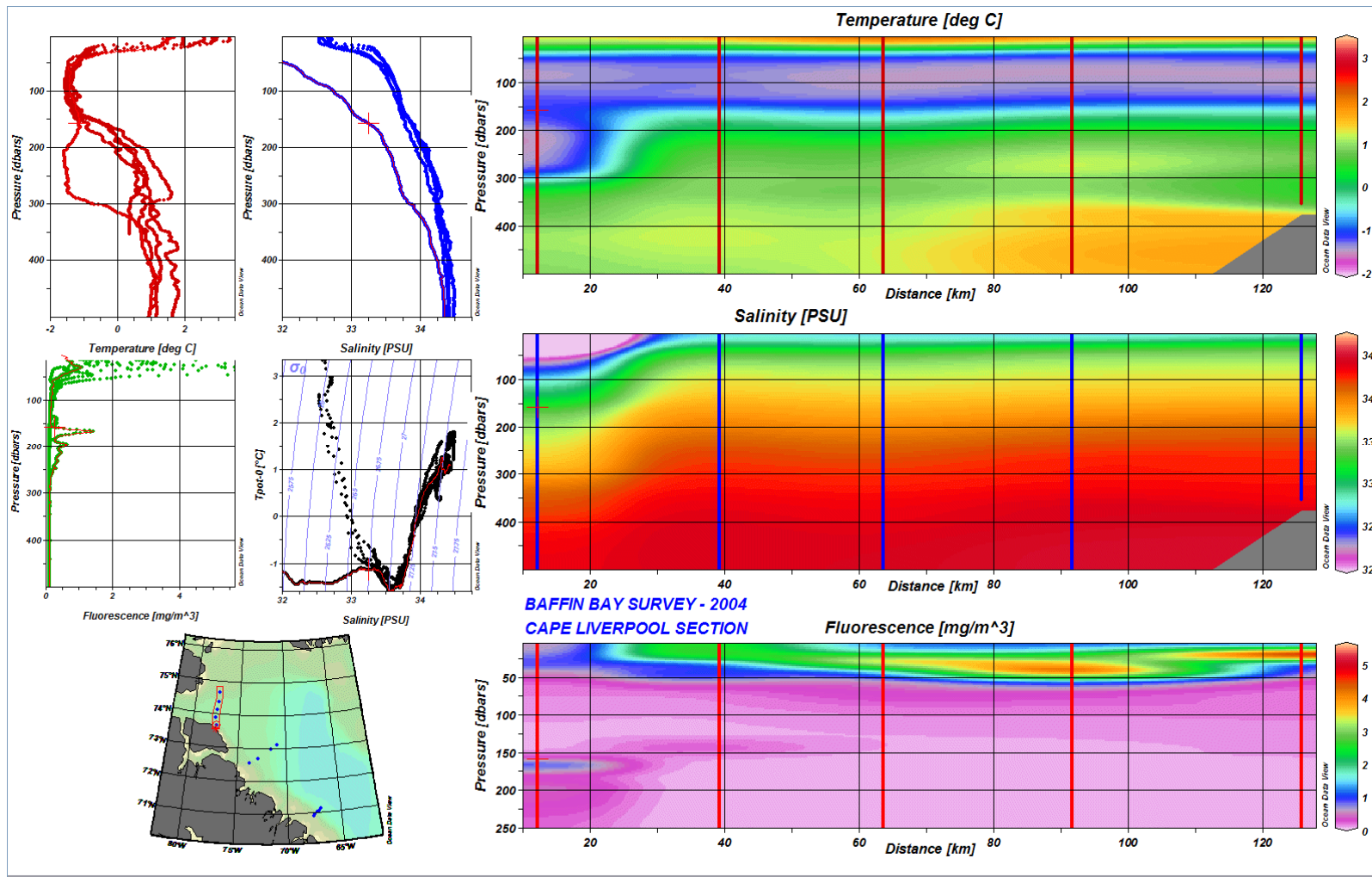


Fig. 2. Oceanographic data, temperature, salinity and fluorescence for the Cape Liverpool, Lancaster Sound transect sampled during September 7-8, 2004.

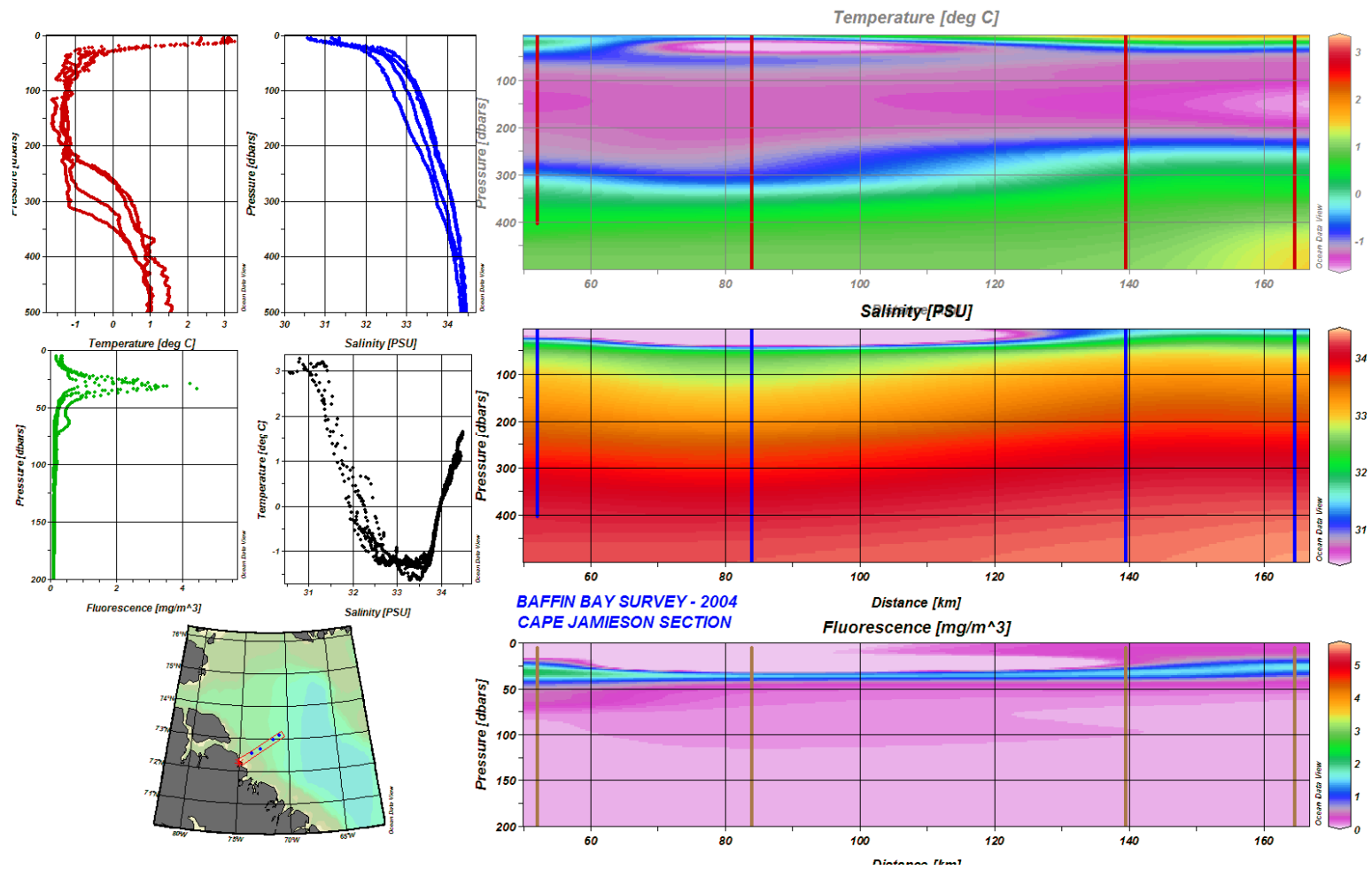


Fig. 3. Oceanographic data, temperature, salinity and fluorescence for the Cape Jameson transect, sampled September 5, 2004.

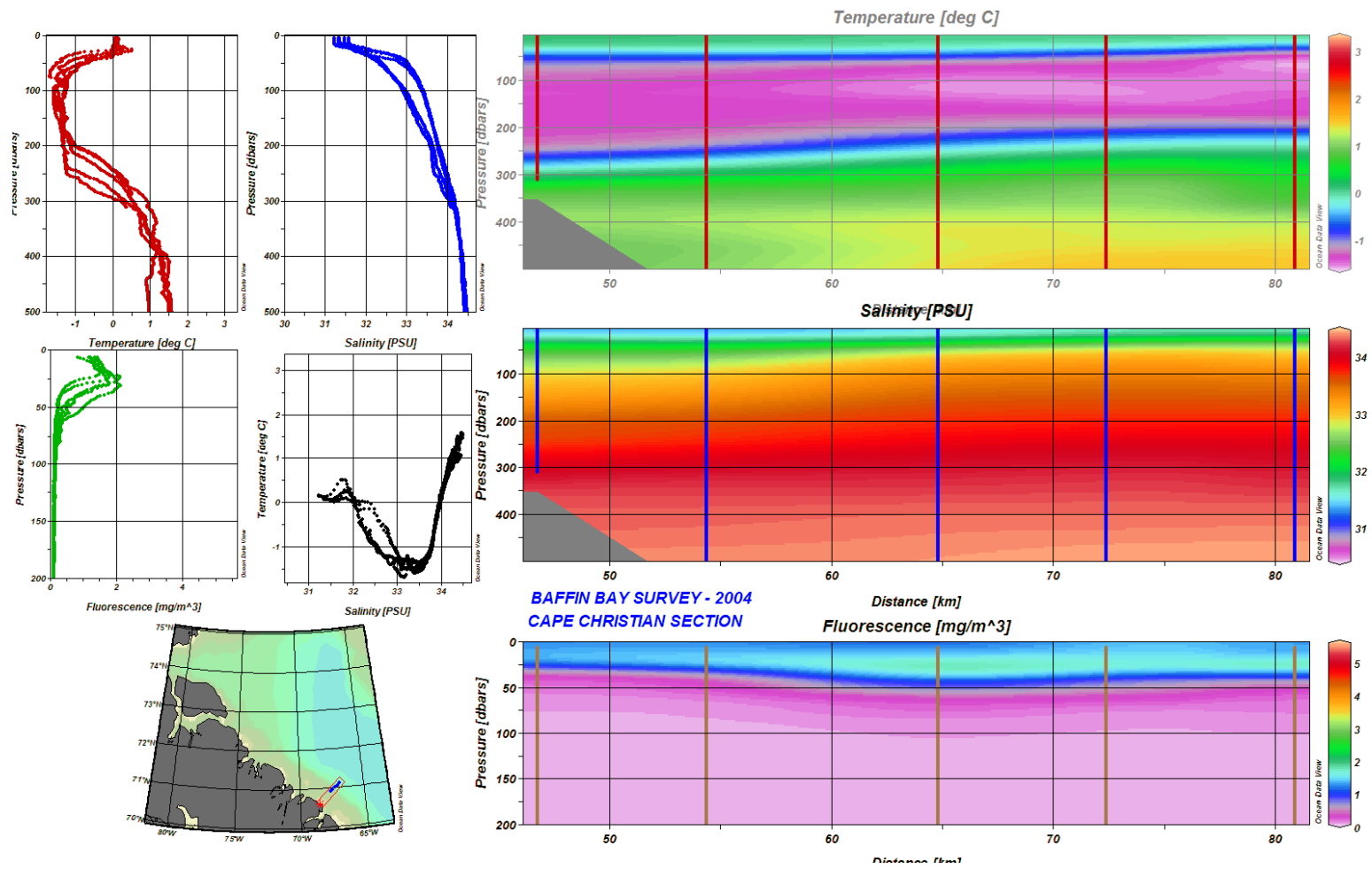


Fig. 4. Oceanographic data, temperature, salinity and fluorescence for the Cape Christian transect sampled during October 15, 2004.