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Fourth Report of Joint Russian/German Data Evaluation of Oceanographic Data from ICNAF/NAFO Standard Sections in the Davis Strait/Labrador Region

by

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A Workshop consisting of V. A. Borovkov (PINRO, Murmansk, Russia), M. Stein (ISH, Hamburg, Germany) and G. Nesvetova (PINRO, Murmansk, Interpreter) met at the Institut für Seefischerei Hamburg (ISH) during 21-26 April 1997. Terms of references and agenda as formulated during the first meeting in Hamburg, September 1995, formed the basis for the Fourth Workshop (see Annex I of this report).

Activities between Third and Fourth Workshop

According to the *recommendations* of the First Workshop V.A. Borovkov supplied the workshop with a Russian data set of ICNAF Standard Station data (**1431** oceanographic profiles of temperature and salinity) from the 1970s which are at present not available to international data centres. M. Stein provided 100 oceanographic standard depth profiles from the 1996 Greenland cruise of FRV „Walther Herwig III", and he presented the results of the previous workshop at the NAFO Scientific Council meeting in Dartmouth, Canada (June 6, 1996) during the session of the Standing Committee on Fisheries Environment (STACFEN), and during the September meeting of STACFEN in St. Petersburg, Russia (September 9, 1996). The scientific publication as prepared during the Third Workshop ("Climatic Variability of Deep Waters off Greenland and in the Labrador Sea" by M. Stein and V.A. Borovkov) is presently under review for the Journal of Northwest Atlantic Fisheries.

Results

Similar to the Third Workshop, this workshop concentrated on the achievement of a scientific publication entitled "***Variability of the Warm Water Supply off West Greenland and Labrador during Four Decades - 1950 to 1989***" (Abstract enclosed as Annex II of this report). This paper will be presented by M. Stein to the next NAFO Scientific Council Meeting in June 1997, in Dartmouth, N.S., Canada. It is planned to publish the manuscript in primary literature.

To reveal changes in the „Warm Water Supply" to the areas off West Greenland and Labrador, data were extracted from the World Ocean Atlas 94 (WOA94) which is provided by the National Oceanographic and Atmospheric Administration as a set of CD-ROM. To achieve a good station cover for the region around and in the Labrador Sea, all DTS-data from WMO rectangles 7504, 7505, 7506, 7604, 7605 and 7606 were taken. In total, about 15,000 oceanographic stations were used for the present analysis.

Realisation of the WOA94 data extraction and graphical evaluation of the variability aspects were performed by means of the OCEAN-DATA-VIEW 4.0 software (ODV). This software product was provided by R. Schlitzer from the Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, Germany through the INTERNET.
Hardware requirements to use this software in an economic way are: IBM-compatible PC with Pentium processor, 32MB RAM, >1GB Harddisk, ZIP-drive, color printer.

Next Meeting
The next and last Workshop meeting within the scope of the project will be held in PINRO, Murmansk, Russia, tentatively during 4 -11 August, 1997. During the Workshop in Murmansk ideas will be developed as to continue the valuable cooperation between the two institutions, PINRO and ISH.

Acknowledgements
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Abbreviations:

DTS	Depth Temperature Salinity
ICNAF	International Commission for Northwest Atlantic Fisheries
ISH	Institut für Seefischerei
NAFO	Northwest Atlantic Fisheries Organisation
PINRO	Polar Research Institute of Marine Fisheries and Oceanography
WMO	World Meteorological Organization

Annex I

Joint Russian/German Data Evaluation of Oceanographic Data from ICNAF/NAFO Standard Sections in the Davis Strait/Labrador Region

Provisional agenda

fourth meeting in Hamburg, 20 - 27 April 1997

0) housekeeping issues
1) definition of terms of references
   a) detection of variability on different time-scales
   b) parameters to be analyzed
   c) regional/basin-wide coherence of events

2) availability of data on Russian/German databases
   a) data not yet considered in previous workshops
   b) data products

3) possible use of other data sources (NODC, WDC, others)
   a) data formats
   b) data products

4) available literature to compare workshop results

5) publication of results (Report, NAFO, primary literature)
6) next workshop

Annex II

Variability of the Warm Water Supply off West Greenland and Labrador during Four Decades - 1950 to 1989

by
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Abstract

Based on a data set of about 15,000 oceanographic stations which are extracted from the digital CD-ROM World Ocean Atlas 94 (WOA94), a climatic analysis of the „Warm Water Supply" to the areas off West Greenland and Labador is performed. The analysis is concentrated along the path of the Irminger Current component, a branch of the Gulf Stream system, which follows approximately the 1,500m isobath around the Labrador Sea proper.
A special oceanographic software, the OCEAN-DATA-VIEW 4.0 programme as provided by the Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, was used to achieve a quick analysis of large data sets.
Compared to the climatic background of the data series, 1920s to 1980s, the paper elucidates how the inflow of warm water into the area changed in the decades of the 1950s to 1980s. It is shown that highest temperatures were encountered in the 1960s.
The authors emphasise that the present study might be a first step into a new way of viewing oceanographic data. The software ODV is an easy tool to enable this view on large data sets, and to reveal changes in the distribution of oceanographic properties.

Key words: Climatic variation of water masses, temperature, salinity, Irminger Current, Greenland, Labrador Sea