Northwest Atlantic Fisheries Organization

Serial No. N4310 **NAFO SCR Doc. 00/68**

SCIENTIFIC COUNCIL MEETING – SEPTEMBER 2000

Russian Research of and Fishery For Pelagic Redfish (*Sebastes mentella*) in the NAFO Regulatory Area (Division 1F)

by

V. I. Vinnichenko[1], A. F. Kakora[1], A. P. Ahramovich[2], and V. G. Anikeev[3].

[1] – Knipovich Polar Research Institute of Marine Fisheries and Oceanography (PINRO),
[2] – Atlantic Scientific Research Institute of Marine Fisheries and Oceanography (AtlantNIRO),
[3] – OOO "RybInfoService"

Abstract

Aggregations of pelagic redfish in the NAFO Regulatory Area were first found by the Soviet research and exploratory vessels in 1980. Thereafter fisheries research was repeatedly conducted in this area whereby comprehensive data were collected on oceanographic conditions, biology, distribution and conditions of formation of redfish aggregations. In certain years commercial fishery for redfish was conducted there, a total catch by the USSR/Russia was about 4.7 thousand tons.

The length of redfish was 21-45 cm, prevailing length 33-38 cm. The catch was composed primarily of mature individuals, with males predominating in number. The redfish fed on crustaceans and squid.

Key words: NAFO Regulatory Area, pelagic redfish, research, fishery, biology.

Introduction

Russian research of and fishery for pelagic redfish in the NAFO Regulatory Area (Div. 1F) has been conducted for about two decades. In this period complex fisheries research was repeatedly conducted in this area and provided an impressive array of scientific and fisheries data. In certain years a commercial fishery was conducted based on findings from scientific and exploratory fishing.

The purpose of this paper is to make most important results from pelagic redfish research and fishery conducted by the USSR/Russia in the NAFO Regulatory Area available to NAFO.

Materials and Methods

This paper used results from analysis of fisheries statistics and materials collected in 23 cruises made by research/exploratory and scientific vessels in the period from 1980 to 1999.

During those cruises ichthyological, meteorological and oceanographic reasearch was done in accordance with existing PINRO-VNIRO guidelines and methodologies. Catches of redfish were taken with pelagic trawls of various designs with and without small-mesh insertion.

Table 1 shows scientific material collected in the area by Soviet/Russian vessels.

Historic Overview of Research and Fishery

Pelagic redfish research in the NAFO Regulatory Area (Div. 1F, 2J, 3K, 3M) was first conducted by Soviet research/exploratory vessels "Kulikovo pole" and "Novocheboksarsk" in June and November 1980. A vast area between 48-57°N, 42-49°W (Fig.1) was covered, at ceratin sites the catch was 0.1-0.3 t per hour.

In the following decade fisheries research in the area was done in 14 research/exploratory and scientific cruises (Table 2). The area between 49-57°N, 42-50°W was surveyed (Fig. 1). In the course of those cruises a considerable amount of materials on oceanography of the area, biology, distribution and conditions of formation of redfish aggregations was collected. In the northern part of the research area aggregations of redfish were found which densities enabled to have catches of 0.4 -0.7 t per hour. These results allowed to recommend the area as suitable for commercial fishery.

In the 1990s the research in this area was done primarily by scientific vessels. Over decade in total 9 cruises were conducted, in 8 trawl-acoustic surveys for redfish were carried out, with 3 of them done in cooperation with foreign scientists (Table 2). Complex reasearch undertaken improved considerably understanding of oceanographic conditions in this area and allowed to collect new data on redfish biology, distribution and stock size.

Fishery for pelagic redfish in the NAFO Regulatory Area (Div. 1F) was carried out in 1990-1991 and 1999-2000. In 1990-1991, vessels operated in June and July in the sites to the south of the 200-mile limit of Greenland, from 53° to 55°20'N, between 42° and 45°W (Fig. 2 a,b).

In September 1999, the fishery took place beyond the 200-mile limit of Greenland in the area from 54°55'N to 56°15'N between 42° and 42°40'W (Fig. 2c).

This year the Russian vessels began fishery in late July and continue it now. The fleet operated both in the international waters and within the 200-mile limit of Greenland from 54°40' to 56°50'N between 42° and 45°W (Fig. 2 d).

Since the time when aggregations of pelagic redfish had been found in the NAFO Regulatory Area the total catch by the USSR/Russia amounted to more than 4.4 thousand tons (Table 3).

Brief Biological Description of Redfish

The length of pelagic redfish fished in the NAFO Regulatory Area was 21-45 cm, predominantly 33-38 cm. Catches were as a rule dominated by males, which were on the average 1.5 times more numerous than females. The majority of fish were mature, and in summer their gonads were usually in the condition of post-spawning recovery and ripenning. The redfish fed intensively on crustaceans (euphausiids, copepods, hyperiids) and squid in summer season.

Conclusions

1. Over the period of commercial fishery for pelagic redfish in the NAFO Regulatory Area the catch about 4.7 thousand tons was taken by the USSR/Russia.

2. By now oceanographic regime in the area of fishery has been studied, basic features of biology identified, peculiarities of distribution and condition of formation of pelagic redfish aggregations established and data on its stock status gathered.

3. Establishment of regulatory measures on the pelagic redfish fishery in the NAFO Regulatory Area requires further complex fisheries research.

Table 1. Inventory of scientific data collected in the NAFO Regulatory Area during pelagic redfish research in 1980-2000

Type of research	**Number**
Check and sampling hauls	148
Hydrographic stations, with hydrochemistry included	356/63
Fish measured	21 323
Fish staged	1 725
Diet analysis	1 725
Fish aged	1 076

Table 2. Russian investigations of the Irminger Sea redfish in the NAFO Regulatory Area from 1980 to 1999

Period of work	Vessels	Area of operation N, W	Tipe of research
1980 June	REV Kulikovo pole	48 00 - 57 00 42 00 - 49 00	exploratory scientific fishing
1980 November	REV Novocheboksarsk	52 00 - 57 00 42 00 - 45 00	exploratory scientific fishing
1981 October	REV M. Verbitsky	along GEZ 42 00 - 48 00	exploratory scientific fishing
1982 May	REV Zarhitca	51 20 - 53 00 42 00 - 49 00	exploratory scientific fishing
1982 September	REV Polyarnoe Syanie	56 00 - 57 00 42 00 - 50 00	exploratory scientific fishing, hydrogrphic survey
1983 February	REV Ì .Verbitsky	49 00 - 54 00 42 00 - 47 00	hydrographic survey
1983 July	REV Poisk	55 30 - GEZ 42 00 - 46 30	exploratory scientific fishing, acoustic survey
1983 July	REV Makeevka	55 00 - 56 20 42 00 - 45 30	exploratory scientific fishing
1983 August	REV N. Kuropatkin	along GEZ 42 00 - 43 00	exploratory scientific fishing
1986 July	REV M. Verbitsky	54 00 - GEZ 44 00 - 48 00	exploratory scientific fishing
1986 June-August	REV Artemida	54 00 –GEZ 42 00 - 50 00	exploratory scientific fishing, trawl-acoustic and hydrographic surveys
1987 July-September	REV Parallaks	52 00 - 55 30 44 00 - 49 00	exploratory scientific fishing
1987 September	REV F.Nansen	52 00 - 56 00 42 00 - 45 30	exploratory scientific fishingy, hydrographic and hydrobiological surveys
1989 June-July	REV PINRO	55 00 - 56 30 42 00 - 45 30	exploratory scientific fishing,trawl-acoustic , hydrographic and hydrobiological surveys
1990 June-July	RES Marti	53 00 - 56 30 42 00 - 45 00	exploratory scientific fishing, trawl-acoustic,hydrographic survey,microsurveys
1990 June-July	REV Zarnitsa	53 25 - 55 10 42 00 - 44 00	exploratory scientific fishing
1991 June-July	REV Marti	54 00 - 59 30 42 00 - 45 00	exploratory scientific fishing, trawl-acoustic survey,hydrographic survey
1992 June-July	REV F.Nansen	52 50 - 56 00 42 00 - 48 00	exploratory scientific fishing, hydrographic survey
1993 June-July	REV "Ï ÈÍÐÎ"	54 30 - 59 30 42 00 - 45 30	exploratory scientific fishing, trawl-acoustic and hydrographic surveys
1995 June-July	REV Atlantida	55 00 - 59 30 42 00 - 48 30	exploratory scientific fishing, hydrographic survey, hydrobiological and ichtyoplankton surveys
1996 June-July	REV Marty	54 00 - 59 00 42 00 - 49 00	exploratory scientific fishing, international trawl- acoustic survey, hydrographic, hydrobiological and ichtyoplankton serveys
1997 June-July	REV Atlantida	56 30 - 60 00 42 00 - 48 30	exploratory scientific fishing, trawl-acoustic, hydrographic,hydrobiological and ichtioplankton surveys
1999 June-July	REV AtlantNIRO	54 00 - 60 00 42 00 - 46 00	exploratory scientific fishing, enternational trawl-acoustic survey, hydrographic survey

Table 3. Preliminary resullts from the Russian fishery for redfish in the NAFO Regulatory Area in 1980-2000

Year	Month	Total catch, t	Number of vessels per fishing day	Catch per boat/fishing day, t	Number of trawling hours	Catch per hour, t	Number of vessels
1980*	June-Nowember	4,5	7	0,6	40	0,1	2
1982*	May-Desember	29.2	3,2	9,1	40,6	0,7	3
1983*	July	0,6	0,4	0,6	1,3	0,5	1
1989*	May-July	7,4	2	3,7	17,5	0,4	2
1990	June-July	384,9	27,7	13,9	322,1	1,2	6
1991	June-July	458,3	31	14,5	496,6	0,9	2
1992*	June-July	15,4	4	3,9	50	0,3	2
1999*	September	67,4	9	7,5	137	0,5	1
2000**	July-September	3729,0	161	24,0	-	-	6
Total		4696,7					

Number of vessels
* - results from research/exploratory vessels and scientific vessels
** - information as per 5 September 2000

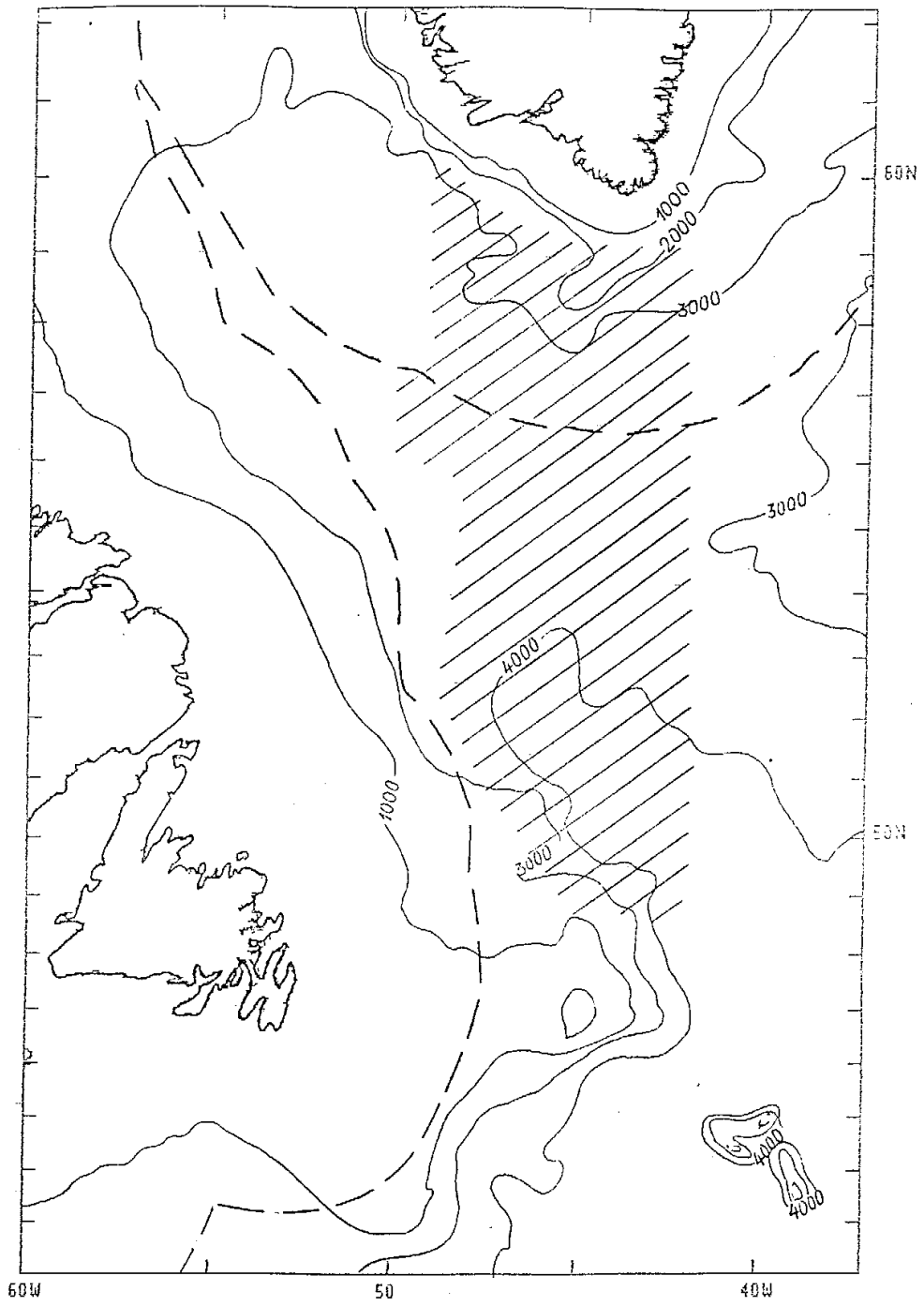

Fig. 1. Area of pelagic Sebastes mentella research in cruises by Russian research/exploratory and scientific vessels in the NAFO Regulatory Area

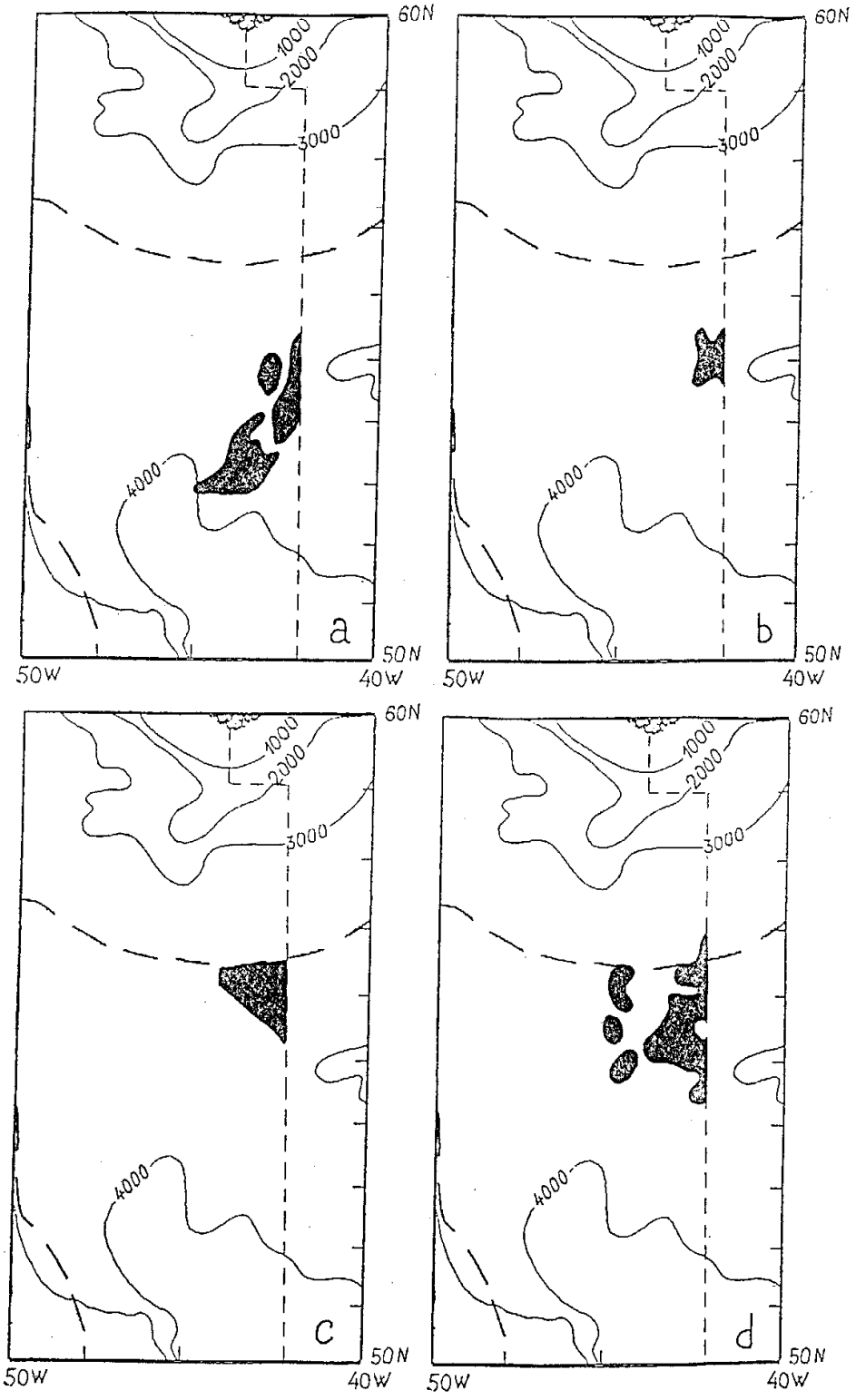

Fig.2. Distribution of the Russian fleet on the fishery for pelagic Sebastes mentella in the NAFO Regulatory Area (a – 1990, b – 1991, c – 1999, d – 2000).