

D e m e r s a l F i s h (N o r t h e r n) C o m m i t t e e

By G.V. NIKOLSKY

1967

Belgium

(P. Hovart)

- Biological study of dab.
- Biological study of whiting.
- Biological study of the cod in the coastal waters.

Denmark

(H. Knudsen & Sv.Aa. Horsted)

Cod

Length measurements and otoliths were collected at the Faroes in the usual scale. Also in this year a rather large stock of cod was found.

In the western Baltic the commercial catches per hour's trawling were a little higher than in the previous years. In the first part of the year they were dominated by the year-class 1963, later on by the year-classes 1964 and 1965. Investigations with the standard trawl in December showed an extremely small amount of the year's fry so the year-class 1967 will presumably be weak in the area.

Haddock

At the Faroes the tagging of haddock was continued in collaboration with the Marine Laboratory, Aberdeen.

Greater Weaver

Market sampling was continued and showed that the fishery in 1967 was based on the rich year-class 1958. Quantitative sampling of larvae was carried out around Anholt in August. Compared with previous years rather large numbers of larvae were found.

Gurnard

A large material of this species was collected during the year from commercial catches and from "Dana" in July. 2,254 individuals were tagged with internal tags at the Dogger Bank and the Bløden Area.

Lumpsucker

2,432 individuals were tagged in the southern Kattegat in April.

Eel.

2,000 silver eel were tagged at two localities in the Limfjord in September.

Plaice

Quantitative fishing for young plaice along the shore was carried out in July and August from the motorboat "Havkatten". The number of plaice of the year-class 1967 was high in the northern Kattegat, and about average in the southern Kattegat.



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The commercial catches in the Belt Sea and the western Baltic were of the same size as in 1965 and 1966.

Sole

Statistics on catch and effort were collected in three North Sea parts. The age-composition of the catch was investigated in May and October. The fishery is still mainly based on the year-class 1963, constituting about 65% of the catches.

Greenland

Cod. The normal investigations on larvae and small cod of age-groups I, II and III have not been carried out in 1967 due to the building of a new research vessel for Greenland waters.

Commercial-sized cod sampled from the Faroese trawler "Skalaberg" in May-June on offshore banks off Frederikshåb district (ICNAF Div. 1E) and from Greenlanders' landings in most Greenland ports. Altogether 14,533 specimens were sampled (of these 10,830 from offshore waters).

Studies on discards from Greenlanders' pound-net catches were carried out. 960 cod were tagged in West Greenland, of these 854 were small cod (less than 50 cm total length).

Redfish. 619 specimens tagged in the Godthåb Fjord were caught by pound nets. Length measurements of small redfish caught in prawn trawl in Godthåb district were carried out.

France

(Cl. Nédélec)

Morue

Les travaux entrepris depuis 1963 sur le stock de morue de la Manche orientale ont été poursuivis. Des observations portant principalement sur la longueur totale, le poids, l'âge, la maturité sexuelle, le contenu stomacal et les caractères raciaux (moyenne vertébrale, proportions du corps, nombre de rayons aux nageoires, caractéristiques des otolithes) sont réalisées sur des échantillons prélevés régulièrement à bord de chalutiers commerciaux. Les rendements et la composition des apports en taille et en âge font aussi l'objet d'une étude mensuelle.

Au cours d'une campagne de la "Thalassa" en Mer du Nord, en septembre 1967, 606 morues marquées ont été libérées dans la région sud du Dogger Bank.

Merlan

Une étude de la population de merlans du sud de la Mer du Nord, exploitée chaque hiver par les chalutiers de Gravelines et Boulogne, a été commencée à partir d'échantillons recueillis directement sur les lieux de pêche par les chalutiers. D'autre part, l'exploitation des observations effectuées et du matériel récolté à bord de la "Thalassa" en 1966 et 1967 a été achevée.

Des marquages portant sur 248 merlans ont été réalisés en septembre 1967 au cours d'une campagne du navire de recherches en Mer du Nord.

Germany

(A. Meyer)

Continuation of the biological studies on:

Cod (Baltic, North Sea, Iceland, E-Greenland, Norwegian Coast, Bear Island and Barents Sea)

Haddock (North Sea, Iceland, Norwegian Coast, Barents Sea)

Saithe (Iceland, Faroes, Norwegian Coast)

Whiting (North Sea)

Redfish (Iceland, E-Greenland, Norwegian Coast) with researches on ageing-techniques

Sole (North Sea)

Plaice (North Sea, Baltic)

Dab (North Sea, Baltic)

Flounder (Baltic)

Research trips of "Anton Dohrn"

January-February (Norwegian Coast-Bear Island-Barents Sea)
April-May and October-November (Iceland).

Ireland

(D. de G. Griffith)

Plaice (Pleuronectes platessa)

The results of tagging experiments, research cruises and commercial catch examinations over the past five years were analysed to determine parameters of growth and mortality in the Irish Sea.

Serum protein investigations were continued, using polyacrylamide gel electrophoresis.

Netherlands

(P. Korringa)

Work at Sea

The R.V. "Willem Beukelsz" made 21 cruises in the Committee's area. 16 cruises were mainly devoted to work within the scope of the Demersal Fish (Northern) Committee.

Work on Fish

Plaice. The stock analysis by means of market sampling was continued. In spring and summer a number of cruises was devoted to transplantation experiments with juvenile and adult plaice in order to study their sense of homing. The study of abnormal pigmentation in order to test its merits as a population character was continued and resulted in discovering an unknown trematode causing abnormal pigmentation in juvenile plaice.

Sole. The stock analysis by means of market sampling and racial investigations on sole from different localities in the southern North Sea was continued. Tin-tow net cruises were made in the Channel and in the coastal areas of Belgium, Netherlands, Germany and Denmark. An analysis of the catches of undersized sole in the Dutch coastal area on a standard network of stations was made in order to be able to predict commercial catches.

Comparative fishing was carried out by the R.V. "Willem Beukelsz" using its standard gear for sole catch prediction studies and by the commercial sole cutter "TX 18" using beam trawls.

In summer sole were tagged and transplantation experiments were carried out. Throughout the year a study was made on board of commercial ships of the damage to undersized sole and plaice caused by trawling.

Turbot and Brill. Occasionally turbot and brill were tagged together with plaice and sole.

Cod. A start was made with tagging experiments of cod in the central and southern North Sea.

Whiting. The stock analysis by means of market sampling was continued.

Poland

(W. Cieglewicz)

Baltic

During the investigations on the occurrence of juvenile demersal fish, 144 hauls were performed by means of a standard trawl from the R.V. "M. Siedlecki". In total 6,182 cod and 473 flatfish were measured and 1,047 otoliths were taken for age-reading.

For stock analysis of commercial catches length measurements were made of 39,650 cod and 5,050 flatfish and detailed biological analysis was made of 5,079 cod and 2,923 flatfish.

North Sea

Investigations on the by-catch of demersal fish in herring trawl catches were continued from the R.V. "Birkut" and S.T. "Walpusza".

In total 160 experimental hauls were performed and 9,862 fish were measured.

Sweden

(G. Otterlind)

Cod. Investigations concerning the recruitment of cod in the Baltic have been continued. Samples were examined especially from the central and northern parts of the area (1,337 fish) and large quantities of young cod have been measured. 4,778 cod were tagged with Lea tags in the Baltic.

Flounder and Plaice. About 600 flounder and 200 plaice have been tagged. The plaice experiments were done on the west coast of Sweden and most of the flounders were released in the Gotland area of the Baltic. Investigations concerning transferrins and esterases have been continued.

United Kingdom

1. England & Wales

(D.J. Garrod)

Market sampling of fish landings, and the collection of otoliths, spines (spurdogs) and vertebrae (rays) for age-determination, were continued on a level adequate for the monitoring of most of the demersal stocks in the north Atlantic which are fished by British vessels.

The research ship "Ernest Holt" made one voyage to the Faroes to make a survey of pre-recruit haddock, and to tag cod in the last of a series of experiments in the Faroes area. This ship also participated with vessels from Norway and U.S.S.R. on a survey of the distribution of 0-group fish in the north-east Arctic. Tagging experiments were continued to provide more data on stock differentiation of cod in the North Sea and English Channel.

A special study was made of the rejection of small fish by British vessels fishing in the North Sea.

Work on distributions of plaice larvae and cod larvae in the southern North Sea has been resumed. It appears from surveys made in the spring of 1968 that the German Bight spawning is much bigger than it was ten years ago and now much bigger than that in the Southern Bight.

Analysis of transferrins in cod blood throughout the North Atlantic has revealed that populations are probably distinct genetically.

2. Scotland

(R. Jones)

Routine sampling of demersal fish in the North Sea, West of Scotland and Faroes was carried out as usual by research ships. F.R.S. "Scotia" sampled the North Sea in March and June. F.R.S. "Explorer" sampled West Coast grounds in January and the Faroes in October.

Commercial trawl and seine-net landings at the principal Scottish fish markets were sampled as in previous years. The species dealt with were cod, haddock and whiting. Length measurements were taken and also scales, or otoliths for age-determination.

These data were used collectively to give forecasts to members of the industry, as well as to make up contributions for Annales Biologiques, the ICES Statistical News Letters and the U.K. Fish Stock Record.

Tagging of cod, haddock and whiting was continued throughout the year in Scottish waters. Thanks to the co-operation of the Fisheries Research Laboratory in Thorshavn it was again possible to tag hand-line caught haddock in Faroese waters.

Further underwater observations have been made to compare the relative survival rates of haddock tagged on the surface with those tagged on the sea-bed. As a result of these experiments attempts are being made both to improve the condition of fish brought to the surface and also to tag fish under water.

In April 1967, haddock spawned in the laboratory's aquarium for the first time; visual and auditory observations were made of their mating behaviour and of the success of fertilisation.

Further work has been done on the sound production of gadoids and also on their response to sounds.

During the year a number of cruises were made to the West of Scotland to investigate the abundance and distribution of blue whiting (Micromesistius poutassou).

Further work has been done in the aquarium to relate stomach content weights to actual rate of feeding in cod, haddock and whiting.

Further estimates have been made of the comparative fecundity of whiting from different areas.

U.S.S.R.

(G.V. Nikolsky)

The Polar Institute of Fisheries and Oceanography continued regular observations on bottom fish of the Barents Sea. In 1967 as in the previous years, the Institute carried out sampling for determination of the abundance, size, age-composition and distribution of cod, haddock, redfish, Greenland halibut and other bottom fish. The data collected by areas are shown in Tables 1-3. Information was gathered on board research and scouting ships.

The Murman Marine Biological Institute, (USSR Academy of Sciences) conducted investigations on temperature adaptations in bottom fish (cod, haddock, saida) under experimental conditions. The development of the jaw and gill apparatus in gadoids (cod, haddock, whiting, saida, navaga) was studied in connection with peculiarities of feeding.

The race characteristics of cod populations in the lake Mogilnoe on Kildin were investigated.

In the Ichthyological Laboratory, Moscow State University, the growth of different forms of cod was studied and also the racial interrelations between the White Sea cod and the Murman coastal cod.

Investigations in the Institute of Evolutional Morphology and Animal Ecology were continued of regularities of change of different stocks of Atlantic cod in connection with feeding. At the same time differences in its fat content were studied.

The Atlantic Institute of Marine Fisheries and Oceanography studied the biology of whiting and haddock and the hydrographical regime of the North Sea. During the year five cruises were undertaken by scientific vessels.

In all 1,312 hydrographical stations were worked. In the English region and on the Dogger Bank 60 stations were taken in September, and in October 30 to collect ichthyoplankton and plankton.

The number of length measurements comprise:-

haddock	-	6,154
whiting	-	2,154
Norway pout-		594
cod	-	100
saida	-	8,272

The following number of age-determinations were made:-

haddock	-	3,882
whiting	-	830
Norway Pout-		100

Three trawl surveys of the north and central parts of the sea (bottom trawl with small mesh, covering of 8-10 mm) were conducted in May-June and August-September.

The Baltic Institute of Fisheries continued to study the conditions of the stock of cod and flounder in the eastern Baltic.

Cod

Material was collected on board a research ship all over the Baltic from Ventpils to Arcona (altogether 11,600 samples were examined and 300 specimens were measured). The influence of some hydrographical factors on the cod distribution in different periods was analysed in order to determine forecasting methods of the distribution of fish catches during wintering, spawning and fattening. Main attention was paid to the regularities of cod distribution in summer. Catch statistics and information on the feeding of cod in different seasons were collected.

Flounder

In 1967 the Institute continued to collect material for studying the distribution, age- and size-composition of the flounder stock in the eastern Baltic. Data were collected on board the research ship and at the station.

In order to determine the migrations and the intensity of flounder fishery in the eastern Baltic, 2,650 fish were tagged with hydrostatic Lea tags and with paper-plastic suspended tags.

In April and May the quantity and quality of eggs on the spawning banks of the flounder in Ventpils region were studied.

Statistics of flounder catches in the eastern Baltic were collected.

Table 1. Data on cod and haddock collected in 1967.

Area	Mass measurements				Age samples				Quantitative analysis of feeding and sexual maturity		Fattening		Fish tagged	
	Adult fish		Young fish		Adult fish		Young fish		cod	haddock	cod	haddock	cod	haddock
	cod	haddock	cod	haddock	cod	haddock	cod	haddock						
Barents Sea Sub-area I	335,685	117,571	55,537	14,392	15,459	10,438	7,224	2,057	36,529	16,105	6,813	4,308	8,314	2,820
Bear Island-Spitsbergen area Division 2b	217,832	3,535	14,987	237	9,495	704	1,397	160	19,569	1,243	3,735	100	4,611	1
NW coast of Norway Division 2a	15,954	9,256	324	419	1,120	1,072			1,572	1,012	399	414		
T o t a l	569,471	130,362	70,848	15,048	26,074	12,214	8,621	2,217	57,670	18,360	10,947	4,822	12,925	2,821

Table 2. Data on redfish collected in 1967.

Area	Mass measurements		Age samples		Quantitative analysis of feeding and sexual maturity
	<u>Sebastes marinus</u>	<u>Sebastes mentella</u>	<u>Sebastes marinus</u>	<u>Sebastes mentella</u>	
Barents Sea Sub-area I	10,842	2,703	850	-	1,242
Bear Island-Spitsbergen area Division 2b	13,953	69,076	2,239	5,301	11,262
NW coast of Norway Division 2a	217	313	200	200	2,370
T o t a l	25,012	72,092	3,289	5,501	14,874

Table 3. Data on Greenland halibut collected in 1967.

Area	Mass measurements	Age	Quantitative analysis of feeding	Fish tagged
Barents Sea Sub-area I	3,032	470	1,011	461
Bear Island-Spitsbergen area Division 2b	17,006	1,918	3,143	1,191
NW coast of Norway Division 2a	2			
T o t a l	20,040	2,388	4,254	1,652