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Exploration of the Sea

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Administrative Report

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

By G. HEMPEL

Belgium

(P. Hovart)

Report on the Activity during 1966

No research was carried out.

Programme for 1967

If the herring concentrations of the Central and Southern areas of the North Sea are exploited by Belgian fishermen and if regular herring landings are made at Ostend, a biological study of these concentrations will be carried out.

Denmark

(K. Popp Madsen)

Herring

North Sea. R.V. "Dana" was engaged in a herring survey of the north-eastern North Sea and Skagerrak in September. Sampling from commercial landings in Hirtshals was carried out during the autumn and a temporary scheme for collecting catch and effort data was started in December.

The young herring fishery from Esbjerg was followed by market measurements and statistics.

Faroes. The movement of the herring shoals was followed by information from Faroese fishing vessels in January-March. A few samples were obtained for analysis.

Capelin

Greenland. Material was collected from landings in various West-Greenland areas. This material is being worked up together with older material, including larvae (abt. 1900 specimens, collected in the period 1934-62).

Finland

(V. Sjöblom)

Catch statistics were carried out in the Gulf of Finland during May and June 1966 and hydrographical, chemical and plankton samples were collected in the pre-spawning and spawning area of the Baltic herring.

During August samples of Baltic herring and sprat were collected with a midwater trawl by R.V. "Aranda" from the open sea areas of the Bothnian Sea, the northern Baltic and the Gulf of Finland; 22 samples of herring and 22 of sprat were taken.

In all 3,884 Baltic herring and 3,287 sprat were analysed for length, weight, maturity and age.

France

(R. Letaconnoux)

a) Hareng

a) La composition du stock et les caractères biométriques du hareng du sud de la Mer du Nord et de la Manche orientale ont été étudiés sur des échantillons prélevés régulièrement à bord de chalutiers commerciaux.

Ces observations ont été complétées par des données statistiques concernant la production et les rendements sur les différents lieux de pêche.

Une prospection au sondeur de cette même région, effectuée en novembre-décembre à bord de la "Thalassa", a montré que les harengs y étaient extrêmement rares, à l'exception de quelques bancs peu nombreux localisés entre Galloper et Fairy Bank, ainsi que près du Sandettié. Au cours de cette campagne, des échantillons de harengs adultes et immatures, ces derniers localisés le long de la côte, ont été étudiés.

Quelques essais de chalutage pélagique du hareng ont été réalisés en juin dans le secteur de l'Halibut Bank et sur le Farn Deeps.

b) Maquereau

La production et les rendements de pêche de maquereau sur les fonds de la Mer Celtique, pendant les années 1965 et 1966, ont été précisés d'après les apports des chalutiers. Une carte préliminaire des lieux et des époques de pêche de cette espèce a été établie également; cette carte comporte en outre des indications similaires pour le hareng.

Germany

(G. Hempel)

In 1966 the research vessel "Anton Dohrn" made four cruises for herring investigations in the North Sea, Channel and the Skagerrak, whereas F.F.S. "Walter Herwig" made two cruises for fishing experiments on herring in the north-eastern North Sea and east of Iceland. The first cruise of F.F.S. "Anton Dohrn" from 5. to 17. January 1966 included the southern North Sea and the Channel; during the second, from 7. to 28. March 1966 the young herring area of the Dogger was examined; the third cruise from 10. August to 13. September 1966 was between 54° to 60°N and 1°20'W to 6°20'E; and the fourth covered the southern and north-eastern North Sea area from 16. November to 13. December 1966. On these cruises herring populations and their distribution in relation to the hydrographical conditions of the area were studied. Observations were made on the behaviour of the herring in different water-masses.

The investigations of the herring population in different areas of the North Sea and adjacent waters were continued by the Institut für See-fischerei along the same lines as previously. Eighty-four samples with 8,371 herrings from the research vessels and twentythree containing 2,300 herrings from trawlers and luggers were analysed. Measurements were made from 43,354 herrings. Samples were obtained from the following areas: Viking Bank to Ling Bank, Egersund area, Skagerrak, Shetland, Bressay, Fladen Ground, Gut, off the east coast of Great Britain, Dogger Bank, Southern Bight, Sandettié, Foula Bank, Hebrides, Bløden Ground, German Bight, off East Iceland, North of Faroe and Svinøy.

As in previous years the composition of oil herring catches was studied at the Institut für Küsten-und Binnenfischerei. 13 random samples of 3,950 fish (=123 kg) were analysed as to their species and length composition. The investigations which are to assess the number of juvenile herring caught as by-catch in the German shrimp fishery were also continued at the same Institute. A total of 502 samples of shrimp catches were taken on various fishing grounds and throughout the fishing season from March to December.

Samples of Baltic herring were taken for racial analysis and biochemical studies, as well as 26 samples from the German sprat fishery carried out during the winter months in the German Bight.

Iceland

(J. Jakobsson)

1. Surveys

The winter herring surveys were carried out on a 120 ft converted fishing boat, the "Hafthór". The surveys started during the first week of the year and were finished in early April. The main objective of the January and

February surveys were the winter migrations of the Norwegian and Icelandic herring stocks. During March and April the main objective was the locating of the spawning patches of the Icelandic spring-spawning herring. The "summer" surveys of the North and East coast began on May 5th and were continued right through the summer and autumn to the end of the year. These surveys were carried out on the "Ægir", the "Hafthór" and a third chartered 80´vessel. The main purpose of these surveys were the summer-feeding migrations of the Icelandic and Norwegian herring stocks as well as a study of their movements in the over-wintering areas during the last three months of the year.

2. Sampling

Sampling was carried out both at the main laboratory in Reykjavík and at an annex laboratory at Neskaupstaður on the east coast. As in previous years the following measurements and analyses were carried out: length, weight, intestinal fat, stage of maturity and weight of gonads, vertebral counts and age-determination. The sampling at various seasons and areas is shown in the following table:

Season	Area	Number of samples	Number of individuals
Winter and spring	South coast	11	1,040
Summer and autumn	North and East coasts	67	6,674
Summer	South coast	14	1,321
Autumn	South coast	5	500

3. Tagging

Herring tagging was carried out by internal tags only. The following table shows the number of herring tagged in each of the 3 tagging experiments:

Period	Area	Category	Number
April	South-west	Adult	4,300
July-August	South	Mixed	3,397
January-December	East	Adult	4,950
Total			12,647

Netherlands

(J.J. Zijlstra)

As in the preceding years an extensive sampling programme was carried out in the period July-December on herring caught in the north-western North Sea (July-August), the central North Sea (August-October), and in the Southern Bight (November-December).

For the first time since 1956 no samples were collected from drift-net caught herring in the southern North Sea, instead of these pair-trawl caught herring were sampled.

Two cruises in March of the "Willem Beukelsz" were allotted to investigate the abundance of juvenile herring in the central North Sea and to carry out a pilot-programme with the "Anton Dohrn" on the reliability of trawl catches as measurement of abundance.

In order to measure the production of herring larvae on the different spawning grounds four surveys were undertaken with the "Willem Beukelsz", one in January on the grounds in the Southern Bight and English Channel, two on the Dogger-Flamborough grounds in October-November, and one in the Southern Bight in December. During two cruises in September with R.V. "Willem Beukelsz" drift-net caught herring were tagged on spawning places in the central North Sea.

Norway

(O. Dragesund)

Herring

Sampling. During 1966 the routine sampling of biological data from the various fisheries were continued on the same general lines as in the previous years. From the fisheries on adult Atlanto-Scandian herring, the winter herring fisheries and summer fisheries in the Norwegian Sea, altogether 63 samples containing 6,684 herring were secured.

From the small and fat herring fisheries mainly off northern Norway 12 samples containing 1,145 herring were examined.

Also 53 samples, altogether 5,488 individuals, were examined from the Norwegain herring fisheries in the Skagerrak and North Sea area.

Cruises

From 3 January to 26 February the spawning migration of herring from the wintering grounds off Iceland was followed with R.V. "Johan Hjort". The location of the herring shoals were reported daily to the fishing fleet. As in 1963, 1964 and 1965 it was also possible to follow the immigration of spawning herring to the Vesterålen/Lofoten areas from the northern Norwegian waters.

After the spawning season a cruise was undertaken from 14 April to 3 May (R.V. "G.O. Sars" and R.V. "Helland-Hansen") in order to study the abundance and distribution of herring larvae near to the spawning grounds between Stad and Lofoten.

From 23 May to 19 June "G.O. Sars" took part in the joint investigations between Iceland, Norway and U.S.S.R. in the Norwegian Sea and Icelandic waters where herring distribution was studied in relation to plankton and hydrographical conditions.

From 15 June to 16 July a survey of herring in relation to temperature was studied on a cruise with "Johan Hjort" from northern Norway to Jan Mayen and Bear Island.

For assessment of year-class strength and the distribution of 0-group herring along the coast off northern Norway and in the Barents Sea a cruise was made with "G.O. Sars" and "Johan Hjort" from 15 August to 18 September in collaboration with one English and two Soviet research vessels.

The distribution of herring in the Skagerrak and North Sea during summer and autumn was charted on cruises, with "G.O.Sars" during 21-29 June, with "Peder Rønnestad" from 18 July to 5 August, with "Johan Hjort" from 18 October to 5 November and with M.S. "Stålvard" from 29 November to 5 December.

From 15 November to 15 December a survey was made with "Johan Hjort" off the coast of northern Norway in order to locate the wintering grounds of the herring spawning in the Lofoten area.

As in previous years the hydrographical condition between the Norwegian west coast and the wintering grounds east of Iceland was investigated before the spawning migration started. The cruise was undertaken from 5 December to 18 December with "G.O. Sars".

The investigation on immature herring in the fjords of northern Norway was also in 1966 carried out in collaboration with Tromsø Museum using the R.V. "Asterias" about 125 days during the year.

Tagging

Tagging experiments were carried out during the winter herring fisheries, 3,300 herring were tagged.

Also 1,500 herring were tagged on one locality in the Norwegian Sea in June.

Again in June 4,000 herring were tagged in the Egersund Bank area and in July 4,000 off Shetland.

In August 1,989 herring were tagged in Varangerfjord.

All tagging experiments in 1966 were carried out with internal tags.

Sprat

Tagging experiments on 2-years old and older sprats were planned to take place in March and August 1966.

In March a shoal of sprat were caught by light and purse-seine in Håvikosen in Sunnhordland south of Bergen. Of this quantity 1,167 sprat were tagged internally with tags of stainless steel, and the whole shoal was liberated in the Bømmelfjord 31. March.

In August one failed to get sprat at the time available.

Rathcut komt in bij

Poland

(J. Popiel)

Baltic herring

During 1966, 34 samples of herring were examined. The main regions of investigations were the Gulf of Gdańsk and the Bornholm Bassin.

The table below shows the number of herring examined from different kinds of fishing grounds:

	Number of samples	Number measured	Number investigated
Spawning grounds	6	3,771	550 [1]
Nursery grounds	11	5,028	550 [2]
Feeding grounds	17	11,567	1,650 [3]
Total	34	20,366	2,750

1) Length, weight, age, otolith characters, maturity, V.S., gill rackers.

2) Length, weight, age, otolith characters.

3) Length, weight, age, otolith characters, maturity.

Baltic sprat

During 1966, 23 samples of sprat were examined. The main regions of investigations were: The Gulf of Gdańsk and the Bornholm Bassin.

The table below shows the number of sprat examined:

	Number of samples	Number measured	Number investigated [1]
Gulf of Gdańsk	18	6,982	674
Bornholm Bassin	5	2,671	265
Total	23	9,693	939

1) Length, weight, age, maturity.

The fat content in 30 samples of sprat was determined.

North Sea herring

Material on the composition of the Polish North Sea herring catches were collected by the mother ship "Pułaski" on board scouting trawlers, and in the harbour.

The main regions of investigations were: the Farn Deeps-Dogger Bank area, the Fladen Ground and the north-eastern North Sea. The samples were mainly taken from feeding and over-wintering concentrations of fish. Only 3 samples from the Aberdeen and Berwick Bank area were composed of spawning fish.

In all 111 samples were examined, 54,448 herring were measured and 11,039 were investigated for length, weight, age, maturity and otolith character. The age/length keys were prepared for publication in the Fisheries News Letter.

Sweden

(G. Otterlind)

Herring

The department for herring investigation has missed scientific staff for nearly all the year 1966. However, Dr. Höglund has even after his pensionning worked to follow the herring population at the west coast. Thus, samples from commercial catches made in the following areas have been analysed: 9 samples from the North Sea, 1 sample from Skagerrak, 1 sample from Kattegat (spawning population), 3 samples from the spring-spawning population in Skagerrak caught inshore with herring set-net and purse-seine. Furthermore, 1 sample has been taken during the Norwegian herring winter fishery (by Swedish fishermen).

4 samples of Baltic herring were also analysed and 349 herring were tagged in the Stockholm archipelago.

Sprat

Samples have been taken in the Skagerrak-Kattegat area in order to study the composition of the stock according to year-classes. The difficulties involved in using meristic and morphometric characters have been further studied.

United Kingdom

I. England

(D. Cushing)

Herring

During 1966 11,753 herring were measured at North Shields and 18,805 were measured at Whitby. At the East Anglian ports of Lowestoft and Yarmouth 14,670 herring were measured, and at Milford Haven 378 herring from the Dunmore fishery were also examined.

The following numbers of fish were examined for age, length, maturity, VS and in addition K_2 counts and otolith characters were examined for the spawning fish:-

Fishery	Number of herring examined
Dunmore	200
North Shields	2,155
Longstone	575
Whitby	500
Haisboro	835
East Anglia	1,440
Hinder	275
Plymouth	117
Cleethorpes (Saltfleet)	107
Southwold	100

Three tin tow-net surveys to ascertain the distribution of herring larvae were carried out in the southern North Sea and English Channel in January, November and December. Some material for a comparison of feeding behaviour for sprat and herring was collected in January and July. In July herring surveys were carried out north-west of Ireland and in the Smalls area. Echo-traces thought to be due to herring were obtained off the entrance to Donegal Bay and the most advanced fish were in maturity stage IV. Traces also thought to be due to herring were most abundant in an area near the south-east coast of Ireland and at one location south-west of the Smalls. Most traces were well clear of the bottom both by day and by night.

In July, August and November cruises were made along the English east coast to obtain beach seine and trawl samples of 0-group herring. North of Hartlepool the abundance of autumn spawned 0-group herring inshore was lower than in the previous year, but between Hartlepool and Bridlington the overall abundance was much higher than in 1965. In the south high VS Channel fish were more abundant than in 1965, particularly along the East Anglian coast, but the larger Hinder fish were far less numerous than in the previous year. In November the abundance of 0-group herring was extremely low everywhere.

In November an echo-survey was carried out using the 100 Kc/s counter in the Southern Bight and eastern English Channel. Very few traces were recorded throughout the survey, with just a few in the area of the Vergoyer Fairy Bank and Thorton Ridge. A further survey over the same area was made in December and there was an almost complete absence of pelagic fish traces over the whole of this region.

Sprat

During 1966 the following sprat samples were taken (due to the seasonal nature of this fishery these samples cover the later part of the 1965-66 and first part of the 1966-67 season).

Area	Number of samples	Numbers measured	Numbers taken for biological examination
Torbay	6	1,452	200
Westbay	1	200	100
Poole	1	200	100
Thames	5	949	300
Wash	34	7,203	600
North Shields	3	551	168

During the latter part of January-early February 1966, an echo- and fishing survey was carried out in the Thames Estuary. This indicated very dispersed traces over the whole area with, apart from a localised patch in the Middle Deep, no commercially exploitable concentrations of sprat.

In July-August a chartered inshore vessel was used to collect sprat and herring whitebait off the East Anglian coast for comparative feeding studies.

Finally in December, a high frequency (100 Kcs) echo- and fish counting survey was carried out in the Wash area. Fish were very thinly dispersed with no signs of economically exploitable concentrations. This was reflected in the average countrate which was down to about 1/10 that recorded in this region at the same time the previous year.

Mackerel

Four mackerel tagging experiments were carried out during 1966. All fish were caught on feathers. Details are as follows:-

Experiment number	Area	Month	Numbers liberated	Recaptures to date
1	Celtic Sea - Jones', Labadie and Little Sole Bank	April	1,515	6
2	Newhaven, Sussex	June	484	3
3	Newhaven, Sussex	Sept./Oct.	260	3
4	Mevagissey, Cornwall	October	1,257	Nil

The returns show movement from the Celtic Sea spawning areas to the Irish coast and to the North Sea; and from Newhaven to the Dogger. Recaptures made during 1966 of mackerel tagged in the previous year include those from Cornwall to the west coast of Scotland (4), and Bay of Biscay (2); and from Co. Cork to the Celtic Sea (11), and to the Irish coast (5).

Twenty-five samples, comprising 2,347 mackerel, were examined for length, weight, sex and maturity. Otoliths were taken for age determination.

The 1962 year-class has shown as a very high percentage of four-year-olds this year in the drift-net caught samples (50 per cent).

In the samples of feather-caught fish the 1962, 1963 and 1964 year-classes are strong, but there is a falling off in the percentage of six- to nine-year-old fish; and the mean lengths of the seven-, eight-, and nine-year-old fish are less than they are for the years 1960-65.

II. Scotland

(A. Saville)

Routine statistics collection and sampling of the Scottish adult herring fisheries in the northern North Sea and off the Scottish west coast (Minch and Clyde) were continued in 1966 along the same general lines as in previous years. The routine statistics, and the biological information collected from samples, are being prepared for publication in the Annales Biologiques, Volume 23, and in the Statistical News Letters.

Sampling was also carried out in the fisheries for immature herring in the Moray Firth and Firth of Forth; this was supplemented by research vessel trawling surveys of the immature herring of the Moray Firth, at intervals throughout the year, and by a trawl survey for immature herring in the central North Sea in the autumn. Data from these surveys are being used to study the recruitment to the adult stocks.

Studies of larval production and dispersal were continued in the north-western North Sea in the autumn with associated hydrographic observations of temperatures, salinities and water movements. In the Clyde, in spring, grab and aqualung diver observations were made on a patch of herring eggs on Ballantrae Bank to study its extent, the rate of mortality and the development of the eggs.

The programme of fecundity studies of herring in maturity stages III - V in the north-western North Sea was continued to provide data on the rates of mixing of 'Banks' and 'Downs' herring in the summer-feeding concentrations.

Studies of the relations between herring distribution and environmental factors in the northern North Sea in summer were continued in collaboration with the Oceanographic Laboratory of the Scottish Marine Biological Association.

Tank experiments were continued on the reactions of herring to sound and visual stimuli.

In April a tagging experiment was carried out on over-wintering herring in the Utsire area during which 5,163 herring were tagged and released.

In June a herring-trawling survey of the area to the west and south of the Hebrides was made by F.R.S. "Explorer". The data collected on this survey are being prepared for publication in Annales Biologiques, Volume 23.

Routine statistics collection and sampling of the Scottish sprat fisheries were continued in the Firth of Forth, Moray Firth and at Shetland.

U.S.S.R.

1. Northern Atlantic

Throughout 1966 the laboratory of pelagic fish of the Polar Institute of Fisheries and Oceanography (PINRO) continued to study fluctuations in the abundance of the stocks of herring and capelin, in order to determine the state of the resources of those species.

Investigations on herring were undertaken in the Norwegian, Barents and White Seas, and on capelin in the Barents Sea. Regularities of migrations and the formation of commercial concentrations of the species were studied and the methods for long-term and short-term predictions were improved.

Studies were made on the efficiency on spawning of herring on their spawning grounds, the speed of passive drift of the larvae, and on the distribution of juvenile herring at the end of their first year of life.

Data were collected on the distribution and behaviour of herring and capelin by season and area, depending on the distribution of food objects, oceanographic conditions and age and size composition of the spawning populations.

R.V. "Akademik Knipovich", "F. Nansen", "Professor Somov", and several vessels for exploratory fishing ("Akademik Berg", "Professor Mesyatsev", "Boguchar", "Balaklava", "Argun", "Bayan" and "Vozrozhdenie") participated in the study of the resources and collected material.

Besides, "Akademik Knipovich", "F. Nansen" and "Professor Somov" participated in the international oceanographical surveys together with scientists from Norway and Iceland. "Akademik Knipovich" and "Fritjof Nansen" participated in the study of the distribution, as well as in estimating the abundance of the 0-group of commercial species in the Barents Sea and the north-eastern part of the Norwegian Sea (together with scientists from England and Norway).

The following material on pelagic species was collected and worked-up from the Norwegian, White and Barents Seas, 1966:

Area	Species	Mass measurement	Biological analysis	Age		Stomachs			Fecundity		fish tagged	ichthyoplankton samples
				Collected	Treated	Rate of Growth	Collected	Treated	Collected	Treated		
Norwegian Sea	herring	228,247	40,431	11,612	7,650	6,248	3,600	3,377	341	341	7,181	485
Barents Sea	herring capelin	20,582 16,162	2,451 1,800	2,360 1,075	2,355 200	1,600	50	50				
White Sea	herring	10,500	1,000	1,000	700	500			35	30		

In 1967, studies will be continued on changes in the age and size composition and on the abundance of the commercial stocks of Atlanto-Scandian herring in the Norwegian, Barents and White Seas, as well as those on capelin in the Barents Sea. More regular observations will be started on the distribution, behaviour and age and size composition of blue whiting (Micromesistius) in the Norwegian Sea and those of Arctic cod in the Barents Sea.

Tagging of herring will be continued in the Norwegian, White and Barents Seas.

As in 1966, international investigations will be organised on the distribution and the abundance of the 0-group of commercial species in the Barents Sea and the north-eastern part of the Norwegian Sea.

It is supposed that studies will be undertaken in 1967 on the race composition of the White Sea herring by immunological-serological analysis.

2. The North Sea

Work was carried out by Atlant-NIRO. Investigations of the oceanographic regime and the biology of herring in the North Sea were continued, and statistical data on the North Sea herring fishery were collected.

During 1966 6 exploratory fishing vessels of the Institute participated in the research.

The distribution and stock composition of the herring was studied, the age composition and the status of the stocks was analysed , and the intra-specific structure of the North Sea herring was investigated by immunological and histophysiological methods.

Early in August the distribution of young herring in the area of 54°00 to 57°00N and 03°00 to 07°00E was studied.

Ichthyoplankton samples were collected on 13th-27th September and 16th-21st November. In September 60 stations were worked in the area 54°00 to 57°00N and 03°00E (eastern coast of England), in November 30 stations in the area 53°00 to 55°00N and 03°00E (eastern coast of England).

Throughout 1966 880 oceanographical stations were taken, the following samples were collected:-

a) herring from drift catches, length measurements	-	11,990 specimens
biological analysis	-	2,276 specimens
age determination	-	800 specimens
b) herring from trawl catches:		
length measurements	-	2,065 specimens
biological analysis	-	5,320 specimens
age determination	-	1,300 specimens

The work to be carried out in 1967 is the same as in 1966.

3. The Baltic Sea

Baltic herring. The research was conducted by Balt-NIIRKH and Atlant-NIRO along the following lines:

1. Assessment of the success of reproduction of the herring, estimation of the abundance of spawners and of larvae at different development stages, and of young herring, food availability for larvae and youngs, study of time and conditions of spawning.

2. Studies of the quality of the parents (growth-rate, age, fat content) and its effect on the fecundity, egg quality and the success of incubation.

3. The effect of fishery on the size and structure of herring stocks as well as on the stock of spawners.

4. The relationship between the abundance of parents and the yield of offspring.

5. The effect of cod on herring stocks.

6. The race composition and groups of herring (studies on the growth-rate, otolith structure, immunological analysis).

7. The influence of the hydrological regime and the state of food resources (zooplankton) on the growth-rate and the strength of herring year-classes.

Estimations of the condition of the herring stocks in the eastern Baltic, the Gulf of Riga and the Gulf of Finland in 1965-1966, and the predictions for 1967-1969 are based on the above-mentioned studies.

The amount of samples collected was as follows:-

a) spawning stock of herring:
   - length measurements - 7,500 specimens
   - biological analysis - 11,200 specimens
   - age determination and growth-rate - 10,000 specimens

b) herring from trawl catches:
   - biological analysis - 35,000 specimens
   - age determination and growth-rate - 15,000 specimens
   - immunological analysis - 1,200 specimens

c) larvae and young herring -------- 380 samples taken by a special trawl and ichthyoplankton net;
   zooplankton - 220 samples.

Baltic sprat. The work on sprat is, in general, similar to that on the Baltic herring. Studies were undertaken on the area of spawning, and collections were made of egg and larvae in the eastern Baltic and the Gdańsk Bay.

The following problems were studied; the condition and the size of the stocks of sprat, the structure of the commercial stock in the Baltic and the Gulf of Finland (age and race composition), the effect of cod on sprat stocks, regularities in the distribution of sprat by areas and depths, food composition, maturation of gonads. Thereby the effect of the fishery on the stocks of the Baltic sprat was studied.

Assessment was given of the stocks of sprat in 1966 and prediction was made for 1967-1968.