

ANNUAL MEETING - JUNE 1965Annotated Papers pertinent to ICNAF
published in 1964compiled in the Secretariat¹⁾

I. HYDROGRAPHY

- Avilov, A.K. Contour and bottom sediments of the shelf and of the continental slope of the Northwest Atlantic. VNIRO, Trudy v. 53, Researches on the programme of IGY.
- The paper describes structure of shelf areas and continental slope adjacent to the West Greenland, Labrador and Newfoundland as well as characteristic features and distribution of bottom sediments including outcrop with the history of their formation.
- Bumpus, Dean F. Investigations of climate and oceanographic factors influencing the environment of fish. Woods Hole Ocean. Inst. unpublished ms. No. 64-22, 12 p. and charts.
- Releases and returns of drift bottles and sea-bed drifters in 1962. Non-tidal current patterns from drift bottles figured in charts.
- Bumpus, Dean F. Investigations of climate and oceanographic factors influencing the environment of fish. Woods Hole Ocean. Inst. unpublished ms. No. 64-47, 16 p. and charts.
- Release and return of drift bottles and sea-bed drifters in 1964 with charts showing deduced circulation patterns.
- Bumpus, D. F., and L. M. Lauzier. Surface circulation on the continental shelf off eastern North America between Newfoundland and Florida. Serial Atlas of the Marine Environment, Folio 7, 15 pp.
- This folio presents the non-tidal drift at the surface on the continental shelf off eastern North America between Newfoundland and Florida as inferred from the results of all available drift-bottle data between 1948 and 1962 inclusive. Twelve charts, one for each month, exhibit the annual cycle of the circulation. On the basis of a 30' rectangular grid, the charts show where drift bottles were released, the per cent recovery from each rectangle to the North American seaboard, and the velocity of the drift through those rectangles from which the bottles originated. Four final charts portray the surface circulation pattern on a seasonal basis.
- Chase, Joseph Oceanographic observations, 1961, east coast of the United States. Data Report U.S. Fish and Wildl. Service (Micro-Fiche.) No. 1, 176 p.
- Daily water temperature and salinity observations from 18 locations along the Atlantic seaboard are tabulated, plotted, and discussed. (Author's abstract).
- ¹⁾ Papers published in ICNAF publications have not been included

- Colton, John B., Jr. History of oceanography in the offshore waters of the Gulf of Maine. U.S. Fish and Wildl. Service Spec. Sci. Rep. Fisheries No. 496, 18 p.
- Includes a bibliography of 107 references arranged by the subjects (circulation, chemistry and physics, zooplankton, phytoplankton, bottom fauna, fishery hydrography and geology).
- Corwin, Nathaniel, V. W. Driggs, Alfred H. Franceschetti, R. E. Lenczyk, David A. McGill and R. M. O'Hagan. Report of the International Ice Patrol Service in the North Atlantic Ocean. U.S. Coast Guard Bulletin No. 49, 356 p.
- Reviews ice conditions of the Grand Banks region and the Labrador Sea in 1963 with many tables and charts of basic oceanographic data.
- Craig, R. E. Radiation measurement in photobiology - choice of units. Photochem. Photobiol., 3, 189-194, 1964.
- Reviews current measures of colour and intensity, and recommends the adoption of the electron volt as a measure of colour and the quantum as a measure of intensity.
- Dees, Lola T. List of Fish and Wildlife Service papers on physical and chemical oceanography, 1940-62. U.S. Fish and Wildl. Service, Fishery Leaflet No. 561, 14 p.
- As per title
- Hanks, Robert W. A benthic community in the Sheepscot River estuary, Maine. U.S. Fish and Wildl. Service Bur. Comm. Fisheries Bull., Vol. 63, No. 2, p. 343-353.
- Lists the animals found in the Nephthys-Nucula community and compares abundance of such communities in 3 other Northwest Atlantic coastal areas.
- Klimenkov, A. I. and V. V. Pachorukov. Hydrological observations in the west part of the Atlantic Ocean. PINRO, Trudy, v. XVI.
- The work gives a short account on the results of five research expeditions carried out in 1960-62. Matters on seasonal and annual fluctuation of oceanological conditions in the investigated area, conclusion on water warming in the area of Georges Bank are also considered here.
- Lebedev, A. A. Variability in ice condition of the Labrador Sea and of the Davis Strait. PINRO, Trudy, v. XVI.
- The problems in this work are concerned with forecasting of ice conditions in the northwestern part of the Atlantic Ocean. The author ascertains the relation of recent conditions to water temperature observed in waters off the Canadian coast in previous years and to density gradients between points of Newfoundland and West Greenland. These investigations resulted in obtaining empirical relations, which allow to determine ice conditions of the Labrador Sea and Davis Strait 3-4 months before.

- Marcotte, Alexandre Observations quotidiennes sur la température superficielle de l'eau de mer à Grande-Rivière (Baie-des-Chaleurs) 1951-1962. Cahiers d'Information no 20, pp. 1-4, tableaux I-XXIX, figs 1-12.
- Surface sea water temperatures taken daily at Grande-Rivière (4T) from 1951 to 1962. Monthly and annual means as well as minima and maxima are given.
- Raymond, Robert et Robert Boudreault. Observations d'océanographie physique dans la Baie-des-Chaleurs, mai-octobre 1962. Cahiers d'Information no 24, pp. 1-2, tableau I, fig. 1, planches 1-24.
- A series of hydrographic data (salinity, water temperatures and B. T.) collected in 1962 by the Marine Biological Station in Chaleur Bay area (4T).
- Stearns, Franklin Monthly sea-surface temperature anomaly graphs for Atlantic coast stations. U.S. Fish and Wildl. Service Spec. Sci. Rept. Fisheries, No. 491, 2 p. and foldout charts.
- Anomalies are presented for temperature records from 27 stations located between Maine and Florida. The years 1950-59 are taken as a common base period. The records cover various spans of time since 1873. (Author's abstract).
- Tiphane, Marcel et Robert Boudreault. Observations océanographiques dans la Baie-des-Chaleurs, été 1963. Cahiers d'Information no 21, p. 1, fig. 1, planches 1-16.
- A series of hydrographic data (salinity, water temperatures and B. T.) collected in 1963 by the Marine Biological Station in Chaleur Bay area (4T).
- Wigley, Roland L. and A. D. McIntyre. Some quantitative comparisons of off-shore and meiobenthos and macrobenthos south of Martha's Vineyard. Limnol. Oceanogr. Vol. 9, No. 4, p. 485-493.
- As per title.
- ## II. PLANKTON
- Brunel, Pierre Inventaire taxonomique des invertébrés benthiques marins du golfe Saint-Laurent. Rapp. ann. 1963, Sta. Biol. mar. Grande-Rivière, pp. 39-44, tableau I.
- A check-list of 29 species added to the collections of the Station de Biologie marine in 1963, with distributional information and records of taxonomic activity on these collections during the year.
- Colebrook, J. M. Continuous plankton records. A principal component analysis of the geographic distribution of zooplankton. Bull. mar. Ecol., 6, 78-100.
- A statistical method of correlating the distribution of plankton organisms with their environment, and the results obtained with this method in the north-east Atlantic and the North Sea using data from the Continuous Plankton Recorder surveys.

- Drobysheva, S.S.. Distribution of euphausiidae in the area of the Grand Newfoundland Bank in relation to the dynamics of water masses. PINRO, Trudy, v. XVI.

The work shows the relationship between species composition and quantity distribution of euphausiidae, an important feeding object for the pelagic fishes in the investigated area to the dynamics of water in this area. Three zones - oceanic, mixed and neritic - differing by the character of euphausiidae population are marked out by the author. South-east slope of the Grand Newfoundland Bank is the area of the largest euphausiidae concentrations.

- Henderson, G. T. D. Identity of larval redfish populations in the North Atlantic. Nature, Lond., 201, 419.

Redfish larvae cannot be separated into marinus and mentella types by the pigmentation and more fundamental research is needed before stocks of this fish can be separated.

- Lacroix, Guy et Julien Bergeron. Prélèvement de larves de poissons dans le sud-ouest du golfe Saint-Laurent. Rapp. ann. 1963, Sta. Biol. mar. Grande-Rivière, pp. 25-37

Information is given on the seasonal distribution of fish larvae in the South West part of the Gulf of St. Lawrence (4T). Though preliminary, this paper gives useful information on the species found as to their size, quantity and depths found.

- Movchan, O. A. On seasonal changes in composition and distribution of phytoplankton in the Newfoundland area. VNIRO, Trudy, v. 53 "Researches on the programme of IGY"

The work characterizes quality composition and quantity distribution of phytoplankton in different layers of water masses of Newfoundland area being of great fishery importance.

- Nesis, K. N. Biocoenosis and benthos in the Newfoundland-Labrador area. VNIRO, Trudy v. 53 "Researches on the programme of IGY"

The work describes the composition and distribution of biocoenosis and benthos biomass in the investigated area in relation to the character and distribution of soils and water masses. A new map within the paper shows the limits of the Arctic and boreal areas; author gives his viewpoint on time of penetration of the Pacific forms into the North Atlantic Ocean.

- Pavshtiks, E. A. and M. A. Drovetskaya. Distribution of plankton in the area of Georges and Browns Banks, 1962. PINRO, Trudy, v. XVI.

The paper gives data on the composition of plankton and its distribution and discusses certain problems on herring nutrition in the Georges and Browns Banks area and characterizes food resources of herring.

- Raitt, D. F. S. Scottish redfish larval investigations in 1962 with some observations on mid-oceanic echo-traces. J. Cons. int. Explor. Mer, 29, 65-72, 1964.
- The results of redfish larval surveys in the oceanic region to the southwest of Ireland are described, showing the distribution of and abundance of larvae and their association with layer-type echo-traces.
- Saville, A. Estimation of the abundance of a fish stock from egg and larval surveys. Rapp. Cons. Explor. Mer, 155, 164-170, 1964.
- Discussions of principles underlying these techniques.
- Semenova, T. N. On seasonal changes in plankton of the Labrador Shelf, the Grand Newfoundland and Flemish Cap Banks. PINRO, Trudy, v. XVI
- The author shows seasonal phenomena of plankton in the Newfoundland area. According to distribution of water masses, the investigated area is divided in separate divisions. The correctness of such a division is confirmed by the development of seasonal phenomena and plankton distribution.
- Vladimirskaia, E. V. Distribution of zooplankton in the Newfoundland area early in autumn in relation to the hydrological regime. VNIRO, Trudy, v. 53 "Researches on the programme of IGY"
- The work summarizes the results of investigations conducted in the area of the Grand Newfoundland and Flemish Cap Banks in autumn 1961. Data given in this work permit to discuss in detail peculiarities of composition and quantity distribution of zooplankton of the investigated area and to associate peculiarities with those of the hydrological regime.
- Williamson, M. H. 1963. The relation of plankton to some parameters of the herring population of the north-western North Sea. Rapp. Cons. Explor. Mer, 154, 179-185.
- The data are from the north-western North Sea but the principles are of wider application and refer to the relationship of the principal components of the plankton to the herring parameters by multiple regressions.

III. FISHES

A. Cod Group

- Biester, E. First Report on codfish taggings 1961-62 near West Greenland (Translated from German by ICNAF) Fischereiforsch. 2 (1964) 1, p. 1-16
- A report from the Rostock Laboratory on cod tagging and recoveries in Subarea 1.
- Bratberg, E. and A. Høyen. A study of the relationship between water temperature and the concentration of cod in West Greenland waters. Rep. Norw. Fish. Invest. 13(7): 17-26.

The relation between catch of cod/per unit effort and temperature in West Greenland waters has been studied by material from bottom long line fishing experiments and from official fishery statistics. When the data from more years were considered, the stock size was taken into account. This involved only smaller differences in the cod/temperature relation. The highest yield was obtained at the temperature interval 0.75-3.24°C.

Brunel, Pierre

Food as a factor or indicator of vertical migrations of cod in the western Gulf of St. Lawrence. In: ICNAF Environmental Symposium, Rome 27 January-1 February 1964, Contribution No. C-2. International Commission for the Northwest Atlantic Fisheries (ICNAF), Serial No. 1215, pp. 1-16, figs. 1-6, table 1 (mimeographed).

Preliminary results of a study of the feeding habits of cod as related to its vertical migrations and to the seasonal aspects of availability and vertical migrations of swimming prey. Echograms, a horizontally bipartitioned otter-trawl, and a pair of gill-nets at two levels were used at a single locality to obtain day and night samples at bimonthly intervals from spring to fall 1961-62. Previous less systematic work of cod feeding in 1951-54 is also used. An introduction discusses at some length previous work the problems involved and the objectives of the study. Graphs indicate for cod both large-scale nocturnal vertical migrations, mostly in late summer and fall, and small-scale presumably trophic vernal migrations, independent of day and night. Cod would then be visually attracted in midwater, by capelin and euphausiids when herring is scarce, in proportions detectable by bottom fishing.

Brunel, Pierre

Recherches sur l'alimentation et les migrations verticales de la Morue. Rapp. ann. 1963, Sta. Biol. mar. Grande-Rivière, pp. 45-50.

A brief progress report on the study of cod feeding, summarizing the different kinds of evidence (1) indicating the local occurrence of cod vertical migrations, and (2) supporting light as a main factor of the migrations, (3) swimming prey (mostly capelin and euphausiids) as a secondary and modifying factor, and (4) spawning as an uncertain factor. The migratory cycle of cod in the western Gulf of St. Lawrence is examined in the light of these findings and of other works.

Jean, Yves

Seasonal distribution of cod (Gadus morhua L.) along the Canadian Atlantic coast in relation to water temperature. J. Fish. Res. Bd. Canada, 21(3): 429-460.

Seasonal relationships between size, bottom temperature, and distribution of cod are described for the western Gulf of St. Lawrence and Nova Scotia Banks.

In summer, in the western Gulf of St. Lawrence (4T), cod are distributed from 35 to 145 m at bottom temperatures from -0° to 6°C. They are most abundant at about 100 m where the temperature is around 1°C. In winter they are concentrated in 130-180 m along the western slope of the Laurentian Channel at bottom temperatures from 1° to 3°C.

On the Nova Scotia Banks (4Vn, 4Vs, 4W) cod are less abundant than in the Gulf of St. Lawrence. They are found mainly around Banquereau, Middle Ground, and the northern edges of Sable Island Bank. Further to the west cod are replaced by haddock as the dominant species. Nova Scotia Banks cod are found in shallower and warmer waters than Gulf cod, both in summer and winter. In summer they are present from 65 to 110 m at bottom temperatures varying from about 1° to 8°C. In winter they are taken primarily at 90 to 135 m at bottom temperatures from 2° to 4°C.

Area and depth distributions of commercial catches reflect the seasonal pattern of cod migrations and distributions demonstrated in surveys and tagging studies.

Kohler, A.C.

Variations in the growth of Atlantic cod (Gadus morhua L.). J. Fish. Res. Bd. Canada, 21(1): 57-100.

Growth rates of Atlantic cod have been found to vary both between populations in the same year and within a population over a series of years. A change in growth over a series of years in the western Gulf of St. Lawrence (ICNAF Division 4T) has been selected for detailed study. The growth change was verified by examining ageing methods, selectivity of sampling, tagging returns, and by measuring increments on otoliths. Laboratory growth experiments on cod showed that when food supply is unlimited food consumption increases with increasing temperature, and that growth increases with increasing food consumption. The fluctuations in cod growth in Division 4T were found to be the result of changes in abundance and availability of herring as food plus changes in competition for food resulting from density changes in fish-eating members of the cod population.

Marcotte, Alexandre

Etiquetage de morues dans la région d'Anticosti. Rapp. ann. Sta. Biol. mar. Grande-Rivière, 1963, pp. 61-62.

Preliminary results of tagging of codfish in Anticosti area (4S) indicating a migration towards South West Point of Newfoundland during the winter and return to Anticosti region in the summer season.

Marcotte, Alexandre

Echantillonnage des captures de morue. Rapp. ann. Station Biol. mar. Grande-Rivière, 1963, pp. 101-108.

A summary, accompanied with figures, is given of sampling of codfish made from 1940 to 1963, for long-line, otter-trawl and experimental fishing in Subarea 4T.

Marcotte, Alexandre

Essai d'un guindeau pour relever les rets à morue. Rapp. ann. Sta. Biol. mar. Grande-Rivière, 1963, pp. 115-116.

Martin, W.R. and Yves Jean. Winter cod tagging off Cape Breton and on off-shore Nova Scotia banks, 1959-62. J. Fish. Res. Bd. Canada, 21(2): 215-238.

Most returns for cod tagged between February and April in subareas 4Vn, 4Vs and 4W were from the tagging area, and very few crossed the Laurentian Channel. Various patterns of movement were detected. In general cod move south in autumn and north in spring. Fish tagged off Cape Breton (4Vn) migrated into the southwestern Gulf of St. Lawrence (4T) in summer but those tagged in 4W did not.

Cod remain in temperatures of 1° to 4°C during winter by moving into deeper water. In spring cod disperse and feed in shoaler water. Gulf of St. Lawrence cod move up through the cold water layer and northward to inshore feeding near the Magdalen Islands and the Gaspé peninsula.

Pavlov, M. A.

Formation of cod stock in the area of West Greenland. Magazine Rybnoye Khozaistvo No. 6

The paper describes the regularities of marine fish migrations which are especially characteristic of the boreal area of the Atlantic Ocean, which is in conformity with periodic changes of the thermal regime. The work concerns the extension of the area of habitat of the Icelandic cod which depends on two main factors: abundance of cod stock and hydrologic conditions formed in waters of West Greenland.

Based on catches of cod in the Icelandic area (328.4 thousand tons in 1924-1928; 476.9 thousand tons in 1929-1933) the author shows the increase in the abundance of cod stock which resulted in the increase of stock density, which in its turn caused changes in supplying the cod with food.

B. Flat Fishes

Kohler, A. C.

Movements of halibut off the Nova Scotian and Grand Banks. J. Fish. Res. Bd. Canada, 21(4): 837-840.

Results of taggings of halibut carried out by the St. Andrews Station between 1958 and 1963 are summarized. Results from returns show that those fish that move, generally move to the eastward. A number of fish tagged in Sable Island Gully (ICNAF Division 4V-W) have crossed the Laurentian Channel to the southwestern edge of the Grand Bank (ICNAF Division 3O).

Pitt, T. K.

Fecundity of the American plaice Hippoglossoides platessoides (Fabr.) from Grand Bank and Newfoundland areas. J. Fish. Res. Bd. Canada, 21(3): 597-612

Although no differences in the fecundity-length relationships of plaice on the southern and northern slopes of the Grand Bank and in St. Mary's Bay were found, there is the suggestion that within areas there may be annual differences in egg production. At comparable ages plaice on the southern slope of the Grand Bank are larger and produce more eggs than those from the northern slope and in St. Mary's Bay.

C. Redfish

Corlett, J.

Fecundity of redfish from East Greenland. Ann. biol. Copenhagen, 19, 78.

Redfish of between 45 and 73 cm long contained between 13 and 300 thousand eggs.

Elwertowski, J.

Observations sur les poissons du genre Sebastes (campagne océanographique de la "Thalassa" en juillet-août 1962 dans l'Atlantique nord-ouest). Rev. Tr. Inst. Pêches marit. XXVIII (4), 1964.

Kelly, George F.

Some recent redfish (Sebastes) publications ICES/ICNAF Redfish Symposium. Copeia, 1964, No. 2, p. 460-464.

As per title

D. Others

- Aasen, O. Kjønnfordelingen hos pigghåen. Fiskets Gang 50: 377-379.
- The paper is in Norwegian with a summary in English. Embryos of spiny dogfish have been measured and sexed. The proportion of males to females were found to be 50:50. The number of embryos was in average 6.2 for a mean length of mother fish of 91.9 cm. The mean length of the fully grown embryos was 26.5 cm for both males and females.
- Aasen, O. The exploitation of the spiny dogfish (Squalus acanthias L.) in European waters. Rep. Norw. Fish. Invest. 13(7):5-16.
- The paper is a short account of the state of the stock in recent years of the spiny dogfish in European waters. The average total instantaneous mortality rate in the years 1960-1963 amounts to 0.72 and this figure is interpreted as a danger signal. Using Schaeffer's model for stock assessment a maximum equilibrium catch of about 50,000 tons is found. This level was reached in 1961. The available data are not considered sufficient for a precise stock assessment but the present exploitation of the stock of spiny dogfish in European waters is undoubtedly very high.
- Beaulieu, Gérard et Etienne Corbeil. Extension d'aire du Merlu, Merluccius bilinearis (Mitchill) en Amérique du Nord. Le Naturaliste Canadien 91 (10): 249-254.
- Mention is made of the capture for the first time of a silver hake in the St. Lawrence River, seventy miles northeast of Québec, proving the extension of distribution of this species for North America.
- Casey, John G. Anglers' guide to sharks of the Northeastern United States, Maine to Chesapeake Bay. U. S. Fish and Wildl. Service, Circular No. 179, 32 p. and 1 foldout drawing.
- Illustrated guide to identification of 34 species with note on size, biology, etc.
- Fisher, L. R. Vitamin A, carotenoids and total lipids in the livers of some elasmobranches. Mar. Res. Scot., 1964, no.2, pp.18.
- Voluminous results for a wide range of elasmobranch fishes are listed along with published data. The biochemical role of vitamin A and carotenoids is elaborated for these fish.
- Gambell, R. and J. Messtorff. Age determination in the whiting (Merlangius merlangus (L.)) by means of the otolith. J. Cons. int. Explor. Mer, 28, 393-404, 1964.
- This paper describes the methods used in and results of age determination of the whiting from otoliths in the North Sea and adjacent areas.
- Hempel, G. and J. H. S. Blaxter. 1963. On the condition of herring larvae. Rapp. Cons. Explor. Mer, 154, 35-40, 1963.
- The results of detailed studies of eggsize and the condition and survival of herring larvae in the sea and in aquarium tanks in relation to parental and environmental factors are discussed.
- Higham, Joseph R. and William R. Nicholson. Sexual maturation and spawning of Atlantic menhaden. U. S. Fish and Wildl. Service Bur. Comm. Fisheries Bull., Vol. 63, No. 2, p. 255-271.
- Study based on ovaries collected during routine age and length sampling of commercial catch at Atlantic coast ports, including Portland, Maine, Gloucester, Massachusetts, Amagansett, New York, etc.

Holden, M. and P. S. Meadows. The fecundity of the spur dog Squalus acanthias L. and its relation to fishing intensity. J. Cons. int. Explor. Mer, 28, 418-424, 1964.

Estimates of the percentage maturity and fecundity of female spur-dogs and their variation with length and age are given, together with calculations of the reproductive potential of the spur-dog population off the north west coast of Scotland.

June, Fred C. and William R. Nicholson. Age and size of the menhaden catch along the Atlantic coast of the United States, 1958; with a brief review of the commercial fishery. U. S. Fish and Wildl. Service, Spec. Sci. Rept. Fisheries No. 478, 34 p.

Reviews seasonal changes in the 1958 landings by major fishing areas including the North Atlantic. Presents data on age, length, and weight composition by sea and by area. Discusses the mixing and movements of stocks and the relative contribution of year-classes 1955-1958.

McKenzie, R. A. Observations on herring spawn off southwestern Nova Scotia. J. Fish. Res. Bd. Canada, 21(1): 203-204.

The density of eggs at various points on a flat, bare, sandy spawning ground, 400 x 250 m was determined and the total number of eggs estimated as 2.1×10^{11} or the product of 13,700 metric tons of herring. Haddock seemed to be the main predator on the eggs.

McKenzie, R. A. and S. N. Tibbo. A morphometric description of Blue Shark (Prionace glauca) from Canadian Atlantic Waters. J. Fish. Res. Bd. Canada, 21(4): 865-866.

Detailed measurements of 124 blue sharks in four size categories are presented and expressed as percentage of total length.

McKenzie, R. A. and S. N. Tibbo. A morphometric description of Porbeagle (Lamna nasus) from Canadian Atlantic waters. J. Fish. Res. Bd. Canada, 21(4): 863-864.

Detailed measurements of 24 porbeagles in three size categories are presented and expressed as percentage of total length.

Nicholson, William R. and Joseph R. Higham, Jr. Age and size composition of the menhaden catch along the Atlantic coast of the United States, 1959, with a brief review of the commercial fishery. U. S. Fish and Wildl. Service Spec. Sci. Rept. Fisheries, No. 478, 34 p.

Reviews the seasonal changes in the 1959 landings by major fishing areas including the North Atlantic. Presents data on age, length, and weight, composition by sex for each area to show that the large catch in 1959 resulted from the abundance of the 1958 year class.

Nicholson, William R. and Joseph R. Higham, Jr. Age and size composition of the 1960 menhaden catch along the U. S. Atlantic Coast with a brief review of the commercial fishery. U. S. Fish and Wildl. Service Spec. Sci. Rept. Fisheries, No. 479, 41 p.

Reviews the 1960 purse seine fishery by season and by area. Presents data on age, length, and weight composition by sex and by area. Concludes that one of the reasons for the small catch in 1960 was the decreased abundance of older fish in the Middle and North Atlantic.

- Rees, E. I. S. Nessorhamphus ingolfianus Schmidt, an oceanic eel, recorded in Canadian continental waters. J. Fish. Res. Bd. Canada, 21(1): 209-211.

Although Nessorhamphus larvae were primarily found in large numbers over a wide area of the North Atlantic, 4 specimens are reported as the first adult records from Canadian continental waters. Descriptions and some morphometric details of the specimens are given.

- Tibbo, S. N. and R. A. McKenzie. Northwest Atlantic tunas and bonitos. Canada Department of Fisheries Trade News, 17(2): 7-10.

Five species of tuna (bluefin, yellowfin, bigeye, albacore and blackfin) and three bonitos (skipjack, common bonito and false albacore) in the Northwest Atlantic are described including their known distribution in the Atlantic.

IV. SHELLFISH

- Bourne, N. Scallops and the offshore fishery of the Maritimes. Bull. Fish. Res. Bd. Canada, No. 145, 60 pp.

Gives a general account of the biology of the sea scallop and the development of the Canadian offshore fishery. The type of boats used, the gear, and the operations of the boats are described in detail. In the initial stage of its development, the offshore fleet fished several areas, but in recent years almost all its effort has been concentrated on Georges Bank. The distribution of scallops and fishing effort on Georges Bank is given. The nature of some problems encountered by the fishery and the necessity for further research studies are discussed.

- Doherty, Richard M., G. Paul Draheim, Donald J. White and Charles L. Vaughn. Economic study of sea scallop production in the United States and Canada. Fishery Industrial Research, Vol. 2, No. 3, p. 57-79.

This report presents an assessment of the competitive position of the sea scallop industries of the United States and Canada. By description and analysis of the industries and of social and economic milieu in which they operate, with special attention to those items directly affecting production and revenue, the report attempts to isolate the factors that account for the competitive position of each. (Part of the author's abstract).

- Dow, Robert L. Supply, sustained yield, and management of the Maine lobster resource. Canadian Fisheries Review (suppl. 26) 1963: 1-26.

Covers landings for the period 1880-1963, and examines the relationship between effort, sea water temperature, and production.

Galtsoff, Paul S. The American oyster. U.S. Dept. Interior, Fish and Wildl. Service, Fish. Bull. 64.

Monograph on the morphology, physiology, ecology, etc.

Medcof, J.C. and Neil Bourne. Causes of mortality of the sea scallop. (Placopecten magellanicus). Proc. Nat. Shellfisheries Assoc., Vol. 53, 33-50.

Reviews the known causes of natural and fishing mortality of sea scallops and assesses their roles in the Canadian scallop fishery. Results are presented to show that as high as 20% of the small scallops (discards) landed on deck may be lethally damaged during the fishing operation.

V: OTHER MARINE ORGANISMS

Dow, Robert L. Changes in abundance of the marine work, Glycera dibranchiata, associated with sea water temperature fluctuations. Comm. Fisheries Rev. 26(8), 7-9.

As per title.

Squires, H. J. Pagurus pubescens and a proposed new name for a related species in the Northwest Atlantic (Decapoda : Anomura). J. Fish. Res. Bd. Canada, 21(2): 355-365.

A common hermit crab in the northwest Atlantic, Pagurus pubescens, had been inadvertently given an additional name, P. krøyeri, in an attempt to distinguish it from a closely related species. This unnamed species is here named P. arcuatus.

Squires, H. J. Neotype of Argis lar compared with Argis dentata (Crustacea: Decapoda). J. Fish. Res. Bd. Canada, 21(3): 461-467.

Argis lar and A. dentata are redescribed to show their differences as species. A neotype of A. lar is set up because the original Type material had been lost.

Wigley, Roland L. Part I. Order Mysidacea. In: Ralph I. Smith (Editor) Keys to Marine Invertebrates of the Woods Hole Region, p. 93-97.

As per title.

Wigley, Roland L. Part 2. Order Cumacea. In: Ralph I. Smith (Editor) Keys to Marine Invertebrates of the Woods Hole Region, p. 98-102.

VI. FISHERIES AND FISHING INDUSTRY

Anon. Jahresfischereibericht, 1963. Fischereiforsch. 2 (1964) 2.

Pages 9-61 contain the statistics and results of research from the Rostock Laboratory in the Northwest Atlantic area in 1963.

- Anon. Russian trawler traffic in United States territorial waters. Report of the Subcommittee for Special Investigations of the Committee on Armed Services, United States House of Representatives 88th Congress, 1st Session. H. Res. 84, 24 p.
- This report considers the activities of Russian vessels in waters along the Atlantic coast, the policy and authority for surveillance of our territorial waters.
- Bouchard, Loyal G. Overall view of Soviet fisheries in 1963, with emphasis on activities off United States coasts. Comm. Fisheries Rev. (suppl.) 26(11a): 15-18.
- Including Northwest Atlantic.
- Hansen, P. M. Fiskeforekomsterne ved Grønland og deres udnyttelse. Betaenkning fra Gronlandsudvalget af 1960. - Betaenkning nr. 363, pp. 224-235, København 1964.
- printed in Danish
- Hansen, P. M. Grønlaendernes Fiskeri. - Danmarks Fiskerierhverv, pp. 365-377, København 1964.
- printed in Danish
- Hermann, F. and Sv. Aa. Horsted. De internationale fiskeriundersøgelser ved Gronland i 1963. - Tidsskriftet "Grønland", pp 361-372.
- printed in Danish. The same article is printed in Fiskeriundersøgelser 1963, Skrifter fra Danmarks Fiskeri - og Havundersøgelser, Nr. 24
- Hodder, V. M. Prospects for the Newfoundland squid fishery in 1964. Canada Department of Fisheries, Trade News, 17(1): 16-18.
- During a survey over the southwestern slope of the Grand Bank in early June large catches of squid were taken by otter trawl between 50 and 150 fathoms but in greatest abundance at 100 fathoms. On this basis it was predicted that squid would probably be abundant in the inshore coastal waters of Newfoundland later in the season.
- Marcotte, A., F. D. McCracken et Marcel Moussette. Distribution des captures commerciales de morue dans le golfe Saint-Laurent 1960-1962. Cahiers d'Information no 22, pp. 105, figs 1-2, tableau I, fig. 1, planches 1-24.
- This paper consists in a series of figures showing monthly distribution of the commercial catches of codfish in the gulf of St. Lawrence for the years 1960 to 1962.
- May, A. W. New cod fishing grounds off Labrador and the northeast coast of Newfoundland. Canada Department of Fisheries, Trade News, 16(12): 3-6.
- Up to 1959 most of the cod landed from the waters off Labrador and Northeast Newfoundland were taken by the a inshore fishery and trawlers during the summer and autumn. In 1959 a new spring fishery developed on spawning concentrations and annual cod landings from ICNAF Division 2J increased from less than 50 thousand metric tons before 1959 to more than 250 thousand metric tons in 1961 and 1962.

Neville, William C. and Gerald B. Talbot. The fishery for scup with special reference to fluctuations in yield and their causes. U. S. Fish and Wildl. Service Spec. Sci. Rept. Fisheries, No. 459, 61 p.

Begun in 1927 this report makes available for the first time much old data on the fishery and general biology of the species Stenotomus chrysops.

Saetersdal, G. and A. Hysten. The decline of the skrei fisheries. Rep. Norw. Fish. Invest. 13(7): 56-69.

The paper shows that during the last 90 years considerable fluctuations have occurred in the skrei fishery. The fluctuations up to recent years have probably been chiefly caused by the natural variations in the abundance. The average yield of the skrei fishery over the last seven years is, however, unusually low. This is not a result of a decrease in the fishing effort, but it is probably caused by a reduction in the abundance of the skrei in later years. A main part of this reduction is not of the same nature as the natural fluctuations because a similar reduction has apparently not taken place in the young immature part of the Arctic cod population. A striking decrease in the mean age of the skrei has occurred at the same time as the abundance has dropped. Although detailed statistics of the total international catch of Arctic cod is not available, there is no doubt that there has been a great increase of late years. The change-over to trawl as the main fishing gear has brought about a considerable decrease in the mean age of exploitation. It is concluded that the decrease of the yield of the skrei fisheries in recent years must be related to the increased total exploitation of the Arctic cod.

Scattergood, Leslie W. and Lewis J. Lozier. Herring fishery of the U. S. Passamaquoddy Region. U. S. Fish and Wildl. Service Spec. Sci. Rept. Fisheries, No. 476, 21 p.

Economic study of the commercial landings 1947-1959 by stop seine and by fish weir in view of the proposed tidal power project.

VII. GEAR.

Boudreault, Yves Progrès récent des recherches sur les engins de pêche. Actualités Marines 8 (1): 3-6.

The author attended the second FAO World Fishing Gear Congress in London. This article describes some of the last progress in fishing gear research. New fishfinding devices as well as new material and methods to be useful to the Québec Fishery industry are underlined.

Brandt, von A. and P. J. G. Carrothers. Test methods for fishing gear materials. Modern Fishing Gear of the World, 2, 9-49. Fishing News (Books) Ltd., London

Test methods used in various parts of the world for evaluating textile materials - twine and netting - for use in fishing gear are compiled. The unique nature of this application of textiles required appropriately unique methods for their evaluation. Test procedures were collected and edited at the request of FAO as a first step toward developing a

standard test procedure for evaluating each pertinent property, so that results obtained in different parts of the world may be directly comparable. Test methods are described for: Twine - strength (wet, dry, knotted), extensibility, elasticity, flexural stiffness, abrasion resistance, unit weight and buoyancy, diameter, surface roughness, length stability, effect of heat, weather resistance, processability, dyeability and treatability, and storability; netting - dimensions, mesh size, strength and extensibility, knot stability, unit weight, pollution, visibility, and hydrodynamic resistance.

Blaxter, J. H. S., B. B. Parrish and W. Dickson. The importance of vision in the reaction of fish to drift nets and trawls. Modern fishing gear of the world, 2, pp. 529-536, 1964.

This paper describes work carried out in large tanks on the reactions of herring and gadoid species to stationary nets and towed devices in daylight and darkness. The importance of visual stimuli is discussed.

Chapman, C. J. The importance of mechanical stimuli in fish behaviour, especially to trawls. Modern fishing gear of the world 2, 537-539, 1964.

A discussion of possible ways in which hearing and lateral-line senses may provide for escapement from trawls.

Craig, R. E. Fish population assessment and the possibilities of photography. Rapp. Cons. Explor. Mer, 155, 188-189, 1964.

A review of methods of measuring and identifying fish populations. Emphasises the need to combine all available methods of study. Refers to the range for counting and identification by camera.

Cushing, D. H. The counting of fish with an echo-sounder. Rapp. Cons. Explor. Mer, 155, 190-195.

The uses of echo-sounders of differing frequencies, and of sector-scanning equipment in (a) supplementing research vessel sampling, (b) to analyse some forms of 'availability', and (c) to provide a rapid method of oceanic exploration are described.

Dickson, W. Some comparative fishing experiments in trawl design. Modern fishing gear of the world 2, 181-191, 1964.

The role of comparative fishing experiments in the investigation of trawl design, and the factors governing fish capture are discussed.

Dickson, W. Performance of the Granton trawl. Modern fishing gear of the world 2, 521-525, 1964.

This paper describes instrumented tests of the performance of a heavy, 78 ft headline, 120 ft groundrope Granton Trawl, as used by the Humber fishing fleet. The instruments used and the measurements of warp tension, underwater loads, headline-height, net spread and warp divergence and declination are given.

- Gulland, J. A. A note on the interim effect on catches of changes in gear selectivity. J. Cons. int. Explor. Mer, 29, 61-4
- Describes method already used in work of ICNAF Assessment Subcommittee.
- Gulland, J. A. Variations on selection factors and mesh differentials. J. Cons. int. Explor. Mer, 29, 158-65.
- Points on the considerable variation in selection factors obtained on both sides of the Atlantic from different experiments made under apparently similar conditions (material, type of vessel, area etc.). This variation has important implications on the accuracy with which any differential in selectivity between nets of different materials can be estimated, and the amount of research needed to estimate such differentials with a prescribed degree of precision.
- Margetts, A.R. (ed.) Report of Mesh Selection Working Group 1959-1960. ICES Co-operative Research Report No. 2.
- Presents the very extensive results of the mesh selection experiments made in the ICES area in recent years.
- McCracken, F.D. and P.J.G. Carrothers. Report on Second Meeting of Subcommittee 9 Textile Products for Fishing Nets (TC/38 Textiles of the International Organization for Standardization). Canadian Textile Journal, 81(1): 41-42.
- This paper reports on results of a meeting which discussed and made resolutions on terminology and definitions for twine and netting and notations for twines used in netting. In addition, the meeting participants considered methods of testing twines, netting and ropes and decided on priorities for the tests most urgently needing attention.
- Parrish, B. B. and J. H. S. Blaxter. Notes on the importance of biological factors in fishing operations. Modern fishing gear of the world 2, 557-560, 1964.
- A brief review is given of the biological factors governing the success of fishing operations with special reference to horizontal and vertical distribution, and the behaviour of fish in the vicinity of the fishing gear.
- Parrish, B. B., J. H. S. Blaxter and W. B. Hall. Diurnal variations in size and composition of trawl catches. Rapp. Cons. Explor. Mer, 155, 27-34, 1964.
- The results of experiments on different species are described, and the biological factors governing them are discussed.
- Pope, J. A. and B. B. Parrish. The importance of fishing power studies in abundance estimation. Rapp. Cons. Explor. Mer, 155, 81-89, 1964.
- Examples of power-factors in fishing operations are discussed, with special reference to the Scottish, Danish

- Tolmachev, V. I. Effect of the weight of codend catch on trawl selectivity. VNIRO, Magazine Rybnoye Khozaistvo No. 12

The article summarizes the results of investigations on experimental trawl selectivity in relation to silver hake. Material was collected during the research cruises (1963) in the area of Georges Bank. When collecting material, the chafers recommended by ICNAF as well as methods of mesh measurements with ICNAF type gauge were used. The selection curves are plotted according to the analysis of data of the percent of fish retained by the trawl's codend. These investigations showed the effect of the weight of fish caught on trawl selectivity.

- Welsby, V. G., J. R. Dunn, C. J. Chapman, D. P. Sharman and R. Priestley. Further uses of electronically scanned sonar in the investigations of behaviour of fish. Nature, Lond., 203, 588-9, Aug. 8, 1964.

Sector-scanning sonar observations on reactions to sound and on shoaling behaviour in daylight and darkness.

VIII. MISCELLANEOUS

- Beverton, R. J. H. and S. J. Holt. Tables of yield functions for fishery assessment. FAO Fish. tech. Pap. No. 38.

Tabulates the yield as calculated from the usual Beverton-Holt constant parameter equation as a function of M/K , F/K and $C = 1_c/L_\infty$.

- Boudreault, Yves. Mesure du rayonnement solaire incident à Grande-Rivière en 1963, Rapp. ann. 1963, Sta. Biol. mar. Grande-Rivière, pp. 11-15, tableaux I-II, fig. 1.

Incident solar radiation measurements are recorded continuously at the Station de Biologie marine. The unit used is the gr-cal./min./cm². Tables of daily total intensities, hourly and monthly averages as well as the curve of the intensity of this radiation during the year 1963 are given.

- Boudreault, Yves. Utilisation du bathymètre Furuno avec le chalut mésopélagique "Isaac-Kidd". Rapp. ann. 1963, Sta. Biol. mar. Grande-Rivière, (1964): pp. 109-113, figs. 1-4.

The use of mid-water samplers and fishing gears require devices and methods to measure the working depth of the apparatus at any time.

Some of the techniques used with more or less precision and convenience are described.

For the purpose of monitoring the operating depth of an "Isaac-Kidd" plankton mid-water trawl, a commercially available Furuno Net-Sonde was successfully tested. The main advantage of this device is that information is sent to the boat wireless by the means of an ultrasonic beam. Methods of operation and results are discussed.

- Brigham, Robert K. and Albert C. Jensen. Photographing otoliths and scales. Progressive Fish-Culturist, 26(3): 131-135.

As per title

- Brunel, Pierre Recherches sur les invertébrés de fond à la Station de Biologie marine. Actualités marines, Vol. 7, (3) (Hiver 1963-1964): 3-8, 6 figs. dans le texte, 1 hors-texte en couleurs. (En réimpression: Le Jeune Scientifique, Vol. 3 (3): 65-71, ACFAS)
- Brief summaries of seven main research projects on marine bottom invertebrates in the Gaspé area from 1951 to 1962, viz. the food of cod, a taxonomic check-list of benthic invertebrates of the Gulf of St. Lawrence, quantitative surveys of bottom communities of Miscou Bank and Gaspé Bay, the distribution of amphipods in and off Baie des Chaleurs, amphipod taxonomy, and population biology of the crab Chionoecetes opilio.
- Clark, John R. and Roberta L. Clark (editors). 1964. Sea water systems for experimental aquariums: a collection of papers. U.S. Fish and Wildl. Service Res. Rep. No. 63, 192 p.
- A useful collection of 27 papers on the operation and maintenance of sea water systems covering installations in both tropical and temperate latitudes.
- Jones, R. A review of methods of estimating population size from marking experiments. Rapp. Cons. Explor. Mer, 155, 202-209.
- Jones, R. Estimating population size from commercial statistics when fishing mortality varies with age. Rapp. Cons. Explor. Mer, 155, 210-214, 1964.
- Deals mainly with the problem of estimating the instantaneous rate of fishing mortality when this is believed to change with age.
- Legendre, Vianney, W. B. Scott et Julien Bergeron. Nom français et anglais des poissons de l'Atlantique canadien. Cahiers d'Information no 23, pp. 1-178.
- A list of French and English names of Canadian Atlantic fishes classified under their scientific name. Bibliographic sources are given for each naming.
- Lucas, C. E. Report of the Director of Fisheries Research. Rep. Fish. Scot. (1963), 55-103, 1964.
- Lucas, C. E. Aspects of marine fisheries research. British Association Meeting - Southampton 1964. Advmt. Sci., Lond., 21, 286-296, 1964.
- Reviews the wide range of scientific endeavour involved and the need for international and inter-disciplinary collaboration.
- May, A. W. An asymmetrical pair of cod otoliths. J. Fish. Res. Bd. Canada, 21(2): 413-415.
- Bilateral symmetry of otolith pairs is usually taken for granted, and, when a pair exhibits difference in age and size, errors in handling are usually suspect. However, a cod caught on Hamilton Inlet Bank had such dissimilar otoliths that the normal one was aged as 4+ and the other much smaller one as 2+.

McIntyre, A. D. Meiobenthos of sub-littoral muds. J. mar. biol. Ass. U.K., 44, 665-674, 1964.

Gives quantitative estimates of metazoans which pass a 1/2 mm screen from grounds off Scotland at 100-140 m depth, and discusses the importance of these animals in the ecology of the benthos.

Øritsland, T. Klappmysshunnens forplantningsbiologi. Fiskets Gang. 50: 5-19.

The paper is in Norwegian with a summary in English. It is a study of the breeding of the female hooded seal, Cystophora cristata (Erxl.), based principally on examination of ovaries from 371 animals, all aged by dentine layers in the canine teeth.

Rasmussen, B. and T. Øritsland. Norwegian tagging of harp seals and hooded seals in North Atlantic waters. Rep. Norw. Fish. Invest. 13(7): 43-55.

The tail tag and the tagging method are described. Early recoveries in 1953 and 1955 illustrate the dispersion of weaned harp seal pups in the Jan Mayen area. One recovery indicates a connection between hooded seals breeding at Newfoundland and the moulting hoods in the Denmark Strait.

Wigley, R. L. and A. D. McIntyre. Some quantitative comparisons of offshore meiobenthos and macrobenthos south of Martha's Vineyard. Limnol. Oceanogr., 9, 485-493, 1964.

Compares metazoans which are retained by a 1 mm screen with those that pass through from various types of sediment at depths between 40 and 570 m.



ANNUAL MEETING - JUNE 1965

Annotated Papers pertinent to ICNAF
published in 1964

- Dr. J. Messtorff 4. Forschungsreise mit FFS "Walther Herwig" vom 10. 6 bis 9. 7. 1964 nach West-Grönland. Fischereibiologische Untersuchungen.
- Informationen für die Fischwirtschaft, Nr. 4, S. 143-145, 1964
- Dr. Arno Meyer Zusammenhang zwischen Eisdrift, atmosphärischer Zirkulation und Fischerei im Bereich der Fangplätze vor der südostgrönländischen Küste während der ersten Jahreshälfte.
- Archiv für Fischereiwissenschaft, Jg. XV, Nr. 1, S. 1-16, Berlin 1964
- " Die Eisverhältnisse während der ersten Jahreshälfte auf den Fischereibänken vor der südostgrönländischen Küste.
- Hansa, Jg. 101, Nr. 4, S. 401-407, 1964.
- " Die Fanggebiete der deutschen Fischerei.
- Informationen für die Fischwirtschaft, Jg. 11, Nr. 2, S. 64-76, 1964
- " Zur Rotbarschfischerei und ihren weiteren Aussichten.
- Hansa, 101. Jg, Nr. 23, S. 2445-2448, 1964