

FISHERIES RESEARCH BOARD OF CANADA

UNDER THE CONTROL OF

THE HON. THE MINISTER OF FISHERIES

BULLETIN No. 87

LIST OF PUBLICATIONS
OF THE
FISHERIES RESEARCH BOARD OF CANADA
(formerly the Biological Board of Canada)
1901-1949

OTTAWA

1950

LIST OF PUBLICATIONS
OF THE
FISHERIES RESEARCH BOARD OF CANADA

(Formerly the Biological Board of Canada)

1901-1949

PREFACE

The lists to follow include publications issued by the Biological Board of Canada, and its successor the Fisheries Research Board of Canada, from its inception to the end of 1949. At the present time these publications report the work done at the seven research stations maintained by the Board:

Atlantic Biological Station, St. Andrews, N.B.
Central Fisheries Research Station, Winnipeg, Man.
Newfoundland Biological Station, St. John's, Nfld.
Pacific Biological Station, Nanaimo, B.C.
Atlantic Fisheries Experimental Station, Halifax, N.S.
Pacific Fisheries Experimental Station, Vancouver, B.C.
Station Expérimentale de Pêche de la Gaspésie, Grande Rivière, P.Q.

The Newfoundland station became one of the Board's stations only in 1949, but it is appropriate to include in this list the publications which it issued prior to Newfoundland's entry into confederation.

Prices are quoted for each Bulletin, each Progress Report and each section of the Fauna series, except that those which are out of print are so indicated. The Contributions and Journal may be purchased in three ways: each volume may be purchased in its entirety, or each number within a volume can be had separately, or each individual paper is usually available by itself. If an entire volume or number is now out of print it is so indicated on the list. When an individual paper is no longer available separately, that fact is indicated merely by the omission of the price. All prices listed include postage.

Free distribution of certain publications is permitted, under present regulations, to libraries and educational institutions, and to individuals who may have a special interest in or need for material dealing with a particular topic. Universities, learned societies and research institutions can obtain most publications by exchange.

Orders or requests for publications, or enquiries concerning exchanges, should be addressed to:

The Secretary, Fisheries Research Board of Canada,
West Block,
Ottawa, Canada.

Remittance should be by cheque, money order or bank draft made payable to the Receiver-General of Canada. (Note: United States postal notes are not negotiable in Canada.)

Publications issued by the Newfoundland Biological Station prior to 1949 are available in the same manner as those of the Fisheries Research Board, but requests should be addressed to:

Newfoundland Biological Station,
Water St. East,
St. John's, Nfld.

Supplementary lists of current publications will be prepared annually in a form suitable for insertion on the blank pages following the lists presented here. They will be obtainable free of charge from the Secretary of the Fisheries Research Board, at Ottawa.

ANNUAL REPORTS

Report on activities of Marine Biological Board for 1925. (App. 2, 59th Ann. Rep. Fisheries Branch, Dep. Marine and Fisheries 1925-26, pp. 76-81, 1926). (*Out of print.*)

Report on the work of the Biological Board

For 1926 (App. 2, 60th Ann. Rep. Fish. Branch, Dep. Mar. Fish. 1926-27, pp. 81-93, 1927). (*Out of print.*)

For 1927 (App. 2, 61st Ann. Rep. Fish. Branch, Dep. Mar. Fish. 1927-28, 100-118, 1928). (*Out of print.*)

For 1928-29 (App. 2, 62nd Ann. Rep. Fish. Branch, Dep. Mar. Fish. 1928-29, pp. 121-139, 1929). (*Out of print.*)

Annual Report on the work of the Biological Board of Canada

For the year 1929-30 (*English and French editions*), pp. 1-37, 1930. 25c.

For the year 1930, pp. 1-80, 1931. 25c.

For the year 1931, pp. 1-90, 1932. 25c.

For the year 1932, pp. 1-116, 1933. 25c.

For the year 1933, pp. 1-123, 1934. 25c.

Annual Report of the Biological Board of Canada (*English and French editions*)

For the year 1934, pp. 1-52, 1935. 25c.

For the year 1935, pp. 1-58, 1936. 25c.

For the year 1936, pp. 1-54, 1937. 25c.

For the year 1937, pp. 1-76, 1938. 25c.

Annual Report of the Fisheries Research Board of Canada (*English and French editions*)

For the year 1938, pp. 1-66, 1939. 25c.

For the year 1939, pp. 1-49, 1940. 25c.

For the year 1940, pp. 1-48, 1941. 25c.

For the year 1941, pp. 1-47, 1942. 25c.

For the year 1942, pp. 1-40, 1943. 25c.

For the year 1943, pp. 1-44, 1944. 25c.

For the year 1944, pp. 1-63, 1945. 25c.

For the year 1945, pp. 1-63, 1946. 25c.

For the year 1946, pp. 1-64, 1947. 25c.

For the year 1947, pp. 1-82, 1948. 25c.

For the year 1948, pp. 1-116, 1949. 25c.

Additional Titles

BULLETINS OF THE BIOLOGICAL BOARD OF CANADA

1. The Canadian plaice. By A. G. Huntsman, pp. 1-32, 1918. 30c.
2. The lumpfish. By Philip Cox, pp. 1-28, 1920. 30c.
3. The angler. By C. J. Connolly, pp. 1-17, 1920. 20c.
4. The muttonfish. By Wilbert A. Clemens, pp. 1-12, 1920. 15c.
5. Natural lobster breeding. By A. G. Huntsman, pp. 1-11, 1923. 15c.
6. A standard pickle for lobster canning. By A. P. Knight, pp. 1-7, 1923. 15c.
7. Insulin from fish. By N. A. McCormick, pp. 1-23, 1924. 25c.
8. The discoloration of canned lobster. By Guilford B. Reed, pp. 1-22, 1925. 25c.
9. Methods of handling fish. I. The processing of dried fish. By A. G. Huntsman, (*English and French editions*), pp. 1-16, 1927. 20c.
10. The preparation of lobster paste. By R. F. Ross, (*English and French editions*), pp. 1-24, 1927. 25c.
11. Fundamental principles of chemistry and physics. By H. Ritchie Chipman, pp. 1-44, 1928. 40c.
12. Discoloration of halibut. By F. C. Harrison and W. Sadler, pp. 1-18, 1929. (*Out of print.*)
13. Arctic ice on our eastern coast. By A. G. Huntsman, pp. 1-12, 1930. 15c.
14. Pacific salmon migration: the tagging of the pink salmon and the chum salmon in British Columbia in 1928. By Andrew L. Pritchard, pp. 1-17, 1930. 20c.
15. Pacific salmon migration: the tagging of the coho salmon on the east coast of Vancouver island in 1927 and 1928. By Wilbert A. Clemens, pp. 1-19, 1930. 20c.
16. Sockeye tagging on the Fraser river, 1928. By Lloyd L. Bolton, pp. 1-8, 1930. 15c.
17. Water fowl in relation to the spawning of herring in British Columbia. By J. A. Munro and W. A. Clemens, pp. 1-46, 1931. 40c.
18. Observations on the cod-fishery in the strait of Belle Isle. By George W. Jeffers, pp. 1-9, 1931. 15c.
19. Methods of handling fish. II. Instructions in curing and packing pickled mackerel. By Fisheries Experimental Station, Halifax, N.S., (*English and French editions*), pp. 1-17, 1931. 20c.
20. The processing and handling of frozen fish, as exemplified by ice fillets. By A. G. Huntsman, pp. 1-58, 1931. 50c.
21. The maritime salmon of Canada. By A. G. Huntsman, pp. 1-99, 1931. 75c.
22. The oysters of Malpeque bay. By A. W. H. Needler, pp. 1-35, 1931. (*Reprint*) 35c.
23. The fish trade of southern Ontario. By R. A. McKenzie, pp. 1-37, 1931. 35c.
24. The canning of brine-frozen mackerel. By Ernest Hess, pp. 1-13, 1931. 15c.
25. The haddock. By Alfreda Berkeley Needler, pp. 1-28, 1931. 30c.
26. Pacific salmon migration. The tagging operations at Quatsino and Kyuquot in 1927, with additional returns from the operations of 1925 and 1926. By H. Chas. Williamson and W. A. Clemens, pp. 1-16, 1932. 20c.
27. Pacific salmon migration. The tagging of the spring salmon on the east coast of Vancouver island in 1927 and 1928 with notes on incidental tagging of other fish. By W. A. Clemens, pp. 1-10, 1932. 15c.
28. List of publications in connection with the work of the Biological Board of Canada, 1922-1930. By M. S. Rigby, pp. 1-22, 1932. 25c.
29. Salt as a control of bacterial decomposition of halibut. By Robert H. Bedford, pp. 1-16, 1932. 20c.

30. The commercial crab, *Cancer magister* Dana, in Clayoquot sound, Vancouver island. By G. J. Spencer, pp. 1-18, 1932. 20c.
31. Pacific salmon migration. The tagging of the pink salmon and the chum salmon in British Columbia in 1929 and 1930. By Andrew L. Pritchard, pp. 1-16, 1932. 20c.
32. The trout and other game fishes of British Columbia. By J. R. Dymond, pp. 1-51, 1932. (*Out of print but also published by King's Printer, Ottawa, cloth bound, \$1.00*).
33. Factors in the shipment of live lobsters from eastern Nova Scotia. By A. F. Chaisson (*English and French editions*), pp. 1-29, 1932. 30c.
34. Oysters in British Columbia. By C. R. Elsey, pp. 1-34, 1933. 35c.
35. Losses in the effluent of pilchard reduction plants in British Columbia. By Desmond Beall, pp. 1-11, 1933. 15c.
36. The pilchard fishery of British Columbia. By John Lawson Hart, pp. 1-27, 1933. 30c.
37. The industrial chemistry of fish oils with particular reference to those of British Columbia. By H. N. Brocklesby and O. F. Denstedt, pp. 1-150, 1933. \$1.15.
38. Catch statistics of the British Columbia pilchard. By John Lawson Hart, pp. 1-12, 1933. 15c.
39. The extent of the pollution caused by pilchard reduction plants in British Columbia. By John Lawson Hart, H. Borden Marshall and Desmond Beall, pp. 1-11, 1933. 15c.
40. Pacific salmon migration: the tagging of the coho salmon in British Columbia in 1929 and 1930. By Andrew L. Pritchard, pp. 1-24, 1934. 25c.
41. Pacific salmon migration: the tagging of the spring salmon in British Columbia in 1929 and 1930. By Andrew L. Pritchard, pp. 1-31, 1934. 30c.
42. Productivity studies in lakes of the Kamloops region, British Columbia. By Donald S. Rawson, pp. 1-31, 1934. 30c.
43. Spring, summer and fall lobster fishing in the southern part of the gulf of St. Lawrence. By W. Templeman (*English and French editions*), pp. 1-13, 1934. 15c.
44. The storage of oysters in the shell. By A. W. H. Needler (*English and French editions*), pp. 1-4, 1934. 10c.
45. Fish-tapeworm. By Robert Arnold Wardle, pp. 1-25, 1935. 25c.
46. The production of high grade feeding oil from pilchards and similar fish. By H. N. Brocklesby and B. E. Bailey, pp. 1-8, 1935. 15c.
47. The herring fishery of British Columbia—past and present. By Albert L. Tester, pp. 1-37, 1935. 35c.
48. Rearing separate oyster spat on trays. By A. W. H. Needler, pp. 1-12, 1935. 15c.
49. The care of fresh halibut aboard ship. By R. H. Bedford, pp. 1-8, 1935. 15c.
50. Artificial spawning methods for sockeye salmon. By R. E. Foerster, pp. 1-13, 1936. 15c.
51. Return of salmon from the sea. By A. G. Huntsman, pp. 1-20, 1936. 20c.
52. Methods of handling fish. III. Instructions in curing and packing pickled herring by the Canadian method. By H. Ritchie Chipman and Robert Gray, pp. 1-8, 1936. 15c.
53. Sockeye salmon propagation in British Columbia. By R. E. Foerster, pp. 1-16, 1936. 20c.
54. The ling cod, *Ophiodon elongatus* Girard. By G. V. Wilby, pp. 1-24, 1937. 25c.
55. The American merganser in British Columbia and its relation to the fish population. By J. A. Munro and W. A. Clemens, pp. 1-50, 1937. 45c.

BULLETINS OF THE FISHERIES RESEARCH BOARD OF CANADA

56. A biological survey of Okanagan lake, British Columbia. By W. A. Clemens, D. S. Rawson and J. L. McHugh, pp. 1-70, 1939. 60c.
57. Salmon for angling in the Margaree river. By A. G. Huntsman, pp. 1-75, 1939. 65c.
58. Bird control to increase the Margaree river salmon. By H. C. White, pp. 1-30, 1939. 30c.

59. The chemistry and technology of marine animal oils with particular reference to those of Canada. Edited by H. N. Brocklesby, pp. 1-442, 1941. (*Out of print; new edition in press.*)
60. Oyster farming in Eastern Canada. By A. W. H. Needler, pp. 1-83, 1941. 70c.
61. Canadian Atlantic offshore cod fishery east of Halifax. By R. A. McKenzie, pp. 1-13, 1942. 15c.
62. The Pacific edible crab, *Cancer magister*. By Donald C. G. MacKay, pp. 1-32, 1942. 30c.
63. Use of the echo sounder to locate herring in British Columbia waters. By A. L. Tester, pp. 1-21, 1943. 25c.
64. The smelts (Osmeridae) of British Columbia. By J. L. Hart and J. L. McHugh, pp. 1-27, 1944. 30c.
65. Food of the spring and coho salmon in British Columbia. By A. L. Pritchard and A. L. Tester, pp. 1-23, 1944. 25c.
66. Migration of pink salmon (*Oncorhynchus gorbuscha*) in southern British Columbia and Washington in 1943. By A. L. Pritchard and Allan C. DeLacy, pp. 1-23, 1944. 25c.
67. Catch statistics of the British Columbia herring fishery to 1943-44. By A. L. Tester, pp. 1-47, 1945. 45c.
68. Fishes of the Pacific Coast of Canada. By W. A. Clemens and G. V. Wilby, pp. 1-368, 1946. (Cloth bound \$2.00) (Paper bound \$1.50).
69. The haddock fishery of grounds fished by Canadians. By R. A. McKenzie, pp. 1-30, 1946. 30c.
70. The smelt fishery of northeastern New Brunswick. By R. A. McKenzie, pp. 1-20, 1946. 20c.
71. The Canadian Atlantic halibut fishery. By R. A. McKenzie, pp. 1-29, 1946. 30c.
72. North west Canadian fisheries surveys in 1944-45. (Various authors), pp. 1-94, 1947. 80c.
73. Marine young fish from the Canadian eastern Arctic. By M. J. Dunbar, pp. 1-11, 1947. 15c.
74. Migration of pink salmon in southern British Columbia and Washington in 1945. By Allan C. DeLacy and Ferris Neave, pp. 1-11, 1947. 15c.
75. Paralytic shellfish poisoning on the Canadian Atlantic coast. By J. C. Medcof, A. H. Leim, Alfreda B. Needler, A. W. H. Needler, J. Gibbard and J. Naubert, pp. 1-32, 1947. 30c.
76. Sufficient samples for quality control in whitefish. By W. A. Kennedy, pp. 1-11, 1948. 15c.
77. Bivalve larvae of Malpeque bay, P.E.I. By Charlotte M. Sullivan, pp. 1-58, 1948. 50c.
78. *Pontoporeia* and *Mysis* in Athabaska, Great Bear and Great Slave lakes. By P. A. Larkin, pp. 1-33, 1948. 30c.
79. Speckled trout in the lower Nelson river region, Manitoba. By K. H. Doan, pp. 1-12, 1948. 15c.
80. Incidence of wood-borers in British Columbia waters. By Edgar C. Black and G. R. Elsey, pp. 1-20, 1948. 20c.
81. Relationship of length, weight and sexual maturity to age in three species of Lake Manitoba fish. By W. A. Kennedy, pp. 1-5, 1949. 10c.
82. Some observations on the coregonine fish of Great Bear Lake, N.W.T. By W. A. Kennedy, pp. 1-10, 1949. 10c.
83. Oceanography and prediction of pulp mill pollution in Alberni Inlet. By John P. Tully, 1-169, 1949. \$1.25.
84. Game fish populations of the Cowichan river. By Ferris Neave, pp. 1-32, 1949. 25c.
85. The Pinnipedia of the Arctic and Subarctic. By M. J. Dunbar, pp. 1-22, 1949. 25c.

Additional Titles

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**PROGRESS REPORTS OF ATLANTIC BIOLOGICAL STATION
AND ATLANTIC FISHERIES EXPERIMENTAL STATION**

No. 1. pp. 1-16, 1931. 20c.

Introduction, pp. 3-4.

Preserving scallops. By A. G. Huntsman, p. 5.

Canning brine-frozen mackerel. By A. G. Huntsman, p. 6.

Prevention of drying in cold storage. By A. H. Leim, pp. 7-8.

Preparation of cod liver oil by freezing. By A. H. Leim, p. 9.

Three haddock populations in North American waters. By A. W. H. Needler, pp. 10-11.

Metal in water kills fishes. By A. G. Huntsman, p. 12.

Fillet skinner. By A. G. Huntsman, pp. 13-14.

Fish-hatching investigations. By A. G. Huntsman, pp. 15-16.

No. 2. pp. 1-21, 1931. 25c.

Effect of haddock flesh and skin on gastric juice. By B. P. Babkin, p. 3.

Brine freezer, using ice and salt. By A. G. Huntsman, pp. 4-6.

Cold storage changes in frozen fish. By A. H. Leim, pp. 7-8.

Disappearance and return of Malpeque oysters. By A. W. H. Needler, pp. 9-11.

The cause and the prevention of drip in frozen fish. By S. A. Beatty, p. 12.

Course for fishermen. By A. H. Leim, p. 13.

Temperature and the Passamaquoddy fishery. By A. G. Huntsman, pp. 14-15.

Periodical scarcity in salmon. By A. G. Huntsman, pp. 16-17.

Big catch of Miramichi salmon every three years. By A. G. Huntsman, pp. 18-19.

Brook trout and temperature. By R. H. McGonigle, pp. 20-21.

No. 3. pp. 1-14, 1932. 20c.

The preparation of fish meal from oily fish. By H. Ritchie Chipman, pp. 3-4.

The moon and when to eat mussels. By Helen I. Battle, pp. 5-6.

Fertilizing water with herring meal. By M. W. Smith, pp. 7-9.

The soft-shelled clam, a Fundy fishery resource. By C. L. Newcombe, pp. 10-12.

Bait preservation. By A. G. Huntsman, pp. 13-14.

No. 4. pp. 1-15, 1932. 20c.

Recent short courses at the Fisheries Experimental Station. By A. H. Leim, pp. 3-4.

The reddenning of salt fish. By N. E. Gibbons, pp. 5-6.

The smoking of fillets and haddies. By A. H. Leim and A. S. McFarlane, pp. 7-8.

Scallops: A bay of Fundy resource. By J. A. Stevenson, pp. 8-10.

Water temperature and the haddock fishery of the Fundy area. By R. A. McKenzie, pp. 10-13.

Oxygen in water affected by fertilizing. By M. W. Smith, pp. 14-15.

No. 5. pp. 1-16, 1932. 20c.

American Atlantic oysters change their sex. By Alfreda Berkeley Needler, pp. 3-4.

The use of mackerel gibs for lobster bait. By A. F. Chaisson, pp. 5-7.

Mud bottoms hardened with sand for oyster farming. By A. W. H. Needler, pp. 7-8.

The canning of Nova Scotian tuna. By Ernest Hess, pp. 9-10.

- Successful shipment of frozen fish. By A. H. Leim, pp. 10-11.
 Disease in eel grass. By A. G. Huntsman, pp. 11-14.
 Fish meal in relation to maritime farming. By S. A. Beatty, pp. 14-16.
- No. 6. pp. 1-15, 1933. 20c.
 Ice for fishing vessels. By Robert H. Bedford, pp. 3-5.
 Female lobsters handicapped in growth by spawning. By W. Templeman, pp. 5-6.
 Saint John November salmon—the earliest run known. By A. G. Huntsman, pp. 7-10.
 The shipment of live lobsters. By A. F. Chaisson, pp. 10-12.
 Discoloration of halibut. By Ernest Hess, pp. 12-13.
 The reddening of salt mackerel. By S. A. Beatty, pp. 14-15.
- No. 7. pp. 1-16, 1933. 20c.
 Heat and cold make herring seasons in Passamaquoddy. By A. G. Huntsman, pp. 3-6.
 Salmon fry in still water. By H. C. White, pp. 6-8.
 Floats for the collection of oyster spat. By A. W. H. Needler, pp. 8-10.
 High temperature stops haddock fishing. By V. D. Vladykov, pp. 10-11.
 Brook trout survive torn gills. By H. C. White, pp. 12-13.
 Courses of instruction. By A. H. Leim, pp. 13-14.
 Artificial horn from fish flesh. By W. W. Johnston, pp. 14-16.
- No. 8. pp. 1-11, 1933. 15c.
 Failures in oyster spat production at Shediac. By A. W. H. Needler, pp. 3-4.
 Mackerel invade the herring nursery. By A. G. Huntsman, pp. 4-6.
 Passamaquoddy sardine fishing makes Tobique salmon angling. By A. G. Huntsman, pp. 6-9.
 Lobster a powerful stimulus for the stomach's juices. By A. Alley, pp. 10-11.
- No. 9. pp. 1-8, 1933. 15c.
 The *why* and *how* of vacuum in canned fish. By Ernest Hess, pp. 3-4.
 Banding on smoked fillets. By A. S. McFarlane, p. 4.
 Organisms causing reddening of salt fish. By N. E. Gibbons, p. 5.
 Minerals and fish meal in animal feeding. By S. A. Beatty, pp. 6-7.
 Storage temperature of canned fish. By Ernest Hess, pp. 7-8.
 Artificial horn from fish muscle. By W. W. Johnston, p. 8.
- No. 10. pp. 1-10, 1934. 15c.
 Frozen oysters survive unless jarred. By M. H. Friedman, pp. 3-4.
 The cod changes colour. By R. A. McKenzie, pp. 4-5.
 To stop spoilage keep fish very cold. By Ernest Hess, p. 6.
 Hydrochloric acid preserves fish. By N. E. Gibbons, p. 7.
 Maritime white fish meals highly digestible. By S. A. Beatty, p. 8.
 Constructing and operating a small bait storage. By A. S. McFarlane, pp. 8-9.
 Substances in juices explain digestive advantages of fish. By James Campbell, pp. 9-10.
- No. 11. pp. 1-16, 1934. (*Out of print.*)
 The trend of water temperatures on our Atlantic seaboard. By H. B. Hachey, pp. 3-5.
 North Atlantic cyclones and coastal waters. By H. B. Hachey, pp. 6-9.
 The growth-rate of Canadian scallops. By J. A. Stevenson, pp. 10-11.
 Hake fishery concentrated at mouth of bay of Fundy. By Helen I. Battle, pp. 12-14.
 Temperature and "clearing" time for the sardine. By Helen I. Battle, pp. 14-16.

No. 12. pp. 1-12, 1934. 15c.

Cod and water temperature. By R. A. McKenzie, pp. 3-6.

Canning scallops. By Ernest Hess, p. 7.

The smoke curing of fresh fillets, Part 1.—The quick drying of fillets to aid in the production of a satisfactory appearance. By D. LeB. Cooper and E. P. Linton, pp. 7-9.

The smoke curing of fresh fillets, Part 2.—A ready method for smoking fillets in two to three hours. By E. P. Linton and D. LeB. Cooper, pp. 10-12.

No. 13. pp. 1-15, 1934. 20c.

The smoke curing of fresh fillets, Part 3.—A method of measuring low air and smoke velocities. By D. LeB. Cooper and E. P. Linton, p. 3.

The smoke curing of fresh fillets, Part 4.—Commercial size tunnels for pre-drying. By D. LeB. Cooper and E. P. Linton, p. 5.

The grading of lobster canneries. By Ernest Hess, pp. 5-7.

Compartment ice and salt freezer. By A. S. McFarlane, pp. 7-9.

Estimated cost of freezing herring using ice and salt. By A. S. McFarlane, pp. 9-10.

Cod spawning in the bay of Fundy and about south western Nova Scotia. By R. A. McKenzie, pp. 10-14.

No. 14. pp. 1-16, 1935. 20c.

Haddock races along the North American coast. By V. D. Vladykov, pp. 3-7.

Canning mackerel fillets. By Ernest Hess, pp. 8-12.

The control of reddening of salted fish. By N. E. Gibbons, pp. 13-14.

The handling of shucked scallops. By S. A. Beatty, pp. 14-16.

No. 15. pp. 1-16, 1935. 20c.

Cod and haddock tagging. By A. H. Leim, p. 3.

An investigation into the main factors contributing to the spoilage of fresh fish. By S. A. Beatty and N. E. Gibbons, pp. 4-9.

Do haddock feed during the spawning period? By V. D. Vladykov and R. E. S. Homans, pp. 10-11.

Scientific protection and aid to the canner. By D. LeB. Cooper, pp. 12-14.

Courses given at the Atlantic Fisheries Experimental Station in the winter of 1935. By H. Ritchie Chipman, pp. 14-16.

No. 16. pp. 1-16, 1935. 20c.

The waters of the Scotian shelf. By H. B. Hachey, pp. 3-6.

Codfish in captivity. By R. A. McKenzie, pp. 7-10.

The effects of temperature and salinity on the early development of the oyster. By A. Elizabeth Clark, p. 10.

The manufacture of fish glue. By W. W. Johnston, pp. 11-13.

Index (covering all Progress Reports issued to date), pp. 14-16.

No. 17. pp. 1-12, 1936. 15c.

The 1936 short course for fishermen. By H. Ritchie Chipman, pp. 3-4.

Geographical distribution of fishermen attending short courses. By H. Ritchie Chipman, p. 5.

Sex ratios in oysters of known age. By (Mrs.) A. B. Needler, pp. 6-7.

Temperature as a factor in starfish distribution. By G. F. M. Smith, p. 7.

Copper sulphate and the destruction of undesirable fish in lakes. By M. W. Smith, pp. 8-9.
Rearing speckled trout in fertilized water. By M. W. Smith, pp. 10-11.
Cod and water temperatures. By R. A. McKenzie, pp. 11-12.

No. 18. pp. 1-15, 1936. 20c.

The preparation of "marinated herring." By D. W. Watson and E. Hess, pp. 3-6.
Preservation by salting. By D. B. Finn, pp. 7-11.
The preparation of leather bates from fish. By W. W. Johnston, pp. 11-15.

No. 19. pp. 1-14, 1937. 20c.

Jellied swordfish. By R. H. M'Gonigle and A. H. Leim, pp. 3-5.
A new protection for wood against shipworms. By A. W. H. Needler, pp. 6-7.
A satisfactory small smoke-house. By D. LeB. Cooper, pp. 7-9.
Chitinovorous bacteria on live lobsters. By Ernest Hess, pp. 10-11.
Yield in canning "chicken haddies." By Ernest Hess, pp. 11-14.

No. 20. pp. 1-15, 1937. 20c.

The measurement of the spoilage of fresh fish. By S. A. Beatty, pp. 3-5.
Fish production in three Nova Scotia lakes. By M. W. Smith, pp. 6-7.
Fish drying. By D. LeB. Cooper, pp. 8-10.
A new way to tell when to flake and when to pile salt fish. By D. LeB. Cooper, p. 10.
Is the Gulf Stream coming closer? By H. B. Hachey, pp. 11-14.
Index (covering Atlantic Progress Reports 17 to 20), p. 15.

**PROGRESS REPORTS OF ATLANTIC BIOLOGICAL STATION,
ATLANTIC FISHERIES EXPERIMENTAL STATION
AND GASPÉ FISHERIES EXPERIMENTAL STATION**

No. 21. pp. 1-18, 1937. 20c.

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