



NEW ZEALAND MARINE DEPARTMENT

FISHERIES TECHNICAL REPORT

No. 35

FISHERIES DIVISION PUBLICATIONS

TO 1968

B.T. CUNNINGHAM

WELLINGTON, NEW ZEALAND

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FISHERIES TECHNICAL REPORT

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CONTENTS

	<u>Page</u>
INTRODUCTION	1
FISHERIES TECHNICAL REPORTS	2
FISHERIES DIVISION PUBLICATIONS - REPRINTS	5
FRESHWATER FISHERIES ADVISORY SERVICE - INVESTIGATION REPORTS	7
FRESHWATER FISHERIES NEWS	14
REPORT ON FISHERIES	17
REFERENCES	17

INTRODUCTION

Before November 1964 both research and management functions in the New Zealand Marine Department were carried out in the Fisheries Division. Since then research has been the responsibility of a newly constituted Fisheries Research Division. Both research and management papers issued up to the time of the reorganisation into two Divisions are incorporated within the list of publications covering the period 1927-1966 issued by the Fisheries Research Division.

Technical Reports issued prior to 1964 are included in this report. Reports which are now out of print are identified by an asterisk. Limited numbers of others are available from -

The Fisheries Division,
Marine Department,
P.O. Box 10142,
Wellington,
New Zealand.

FISHERIES TECHNICAL REPORTSReport No.

1. *DICKINSON, P. 1958 - Experimental Trawling in Otago Waters - Winter 1957. 19 pp.
2. *CHOAT, J.H. 1960 - Scallop Investigation, Tasman Bay 1959-60. 51 pp.
3. *McKENZIE, M.K. 1961 - Fisheries Research in the East Cape Area. 9 pp.
4. *McKENZIE, M.K. 1961 - A review of Present Knowledge Relative to a possible Tuna Fishery in New Zealand. Reprinted with Amendments 1963. 48 pp.
5. *SAMPSON, W.G. 1962 - Tuna Fishing in Australia and its possible Application in New Zealand. 43 pp.
6. *TUNBRIDGE, B.R. 1962 - Occurrence and Distribution of the Dredge Oyster (Ostrea Sinuata) In Tasman and Golden Bays. 42 pp.
7. *GORMAN, T.B.S. 1962 - Yellow-Eyed Mullet Aldrichetta Forsteri Cuvier and Valenciennes in Lake Ellesmere. 20 pp.
8. *GORMAN, T.B.S. 1963 - Biological and Economic Aspects of the Elephant Fish Callorhynchus Millii Bory in Pegasus Bay and the Canterbury Bight. 54 pp.
9. *STREET, R.J. 1964 - Feeding Habits of the New Zealand Fur Seal Arctocephalus Forsteri. 20 pp.
10. *WOODS, C.S. 1964 - Fisheries Aspects of the Tongariro Power Development Project. 214 pp.

11. ELLIOTT, H. 1966 - Some Aspects of the Crassostrea species in Australian and New Zealand Waters, with Special Reference to the New Zealand Rock Oyster, C. Glomerata. 75 pp.
12. TUNBRIDGE, B.R. 1966 - Exploratory Trawling off the West Coast of New Zealand, January 1966. 18 pp.
13. TUNBRIDGE, B.R. 1966 - Growth and Movements of Tagged Flatfish in Tasman Bay. 19 pp.
14. RITCHIE, L.D. 1966 - Crayfish Pot Escapement Gap Survey, November 1965 - January 1966. 23 pp.
15. CLEAVER, B.K. 1966 - Body Proportions of Paua (Haliotis Iris) 14 pp.
16. GASKIN, D.E. 1967 - The Whaling Potential of the New Zealand Sub-Region. 28 pp.
17. BAIN, J. (Jnr) 1967 - Investigations into the Effectiveness of Escape Gaps in Crayfish Traps. 20 pp.
18. TUNBRIDGE, B.R. 1968 - The Tasman Bay Scallop Fishery. 78 pp.
19. BURNET, A.M.R. 1967 - Electric Fishing Design Notes. 48 pp.
20. TUNBRIDGE, B.R. 1967 - Feeding Habits of Paua. 18 pp.
21. TUNBRIDGE, B.R. 1967 - Toheroa Survey - Wellington West Coast Beaches. 17 pp.
22. HARDY, C.J. 1967 - The Fecundity of Brown Trout from Six Canterbury Streams.
23. BAIN, J. (Jnr) 1967 - Total Length/Carapace Length in Crayfish. 18 pp.

24. MANIKIAN, J.S. 1967 - The Occurrence of the Mud Crab, Scylla Serrata in New Zealand. 14 pp.
25. CURTIN, L. 1968 - Cultivated New Zealand Rock Oysters. 50 pp.
26. BURNET, A.M.R. 1968 - A Study of the Relationships between Brown Trout and Eels in a New Zealand Stream. 49 pp.
27. HARDY, C.J. 1968 - Freshwater Fisheries Field Techniques - Tagging; Transportation; Mortality and Drift Sampling. 35 pp.
28. SORENSEN, J.H. 1968 - Dredge Oyster Surveys, Foveaux Strait Pre - 1960. 30 pp.

FISHERIES DIVISION PUBLICATIONS - REPRINTSReprint No.

1. *SORENSEN, J.H. 1965 - Resources of the Ocean. N.Z. Science Review 23(2), 23-6.
2. *STREET, R.J. 1966 - Experiments with Escape Gaps in Crayfish Pots. N.Z. Commercial Fishing 4(9); 10-1.
3. *ANON, 1966 - Gear Testing Trials of the "W.J. Scott". Commercial Fishing 5(3), 14-15.
4. *STEAD, D.H. 1966 - Efficiency of Oyster Dredges - Underwater Observations in Foveaux Strait. N.Z. Commercial Fishing 5(4), 21-4.
5. *ANON 1967 - Purse Seining Operations of the "W. J. Scott". N.Z. Commercial Fishing 6(5) and 6(6).
6. *ANON 1967 - Purse Seining Operations of the "W.J. Scott", Report No. 3. N.Z. Marine Department Publication.

In Press - N.Z. Jl. Mar. Freshwat.

BURNET, A.M.R. - An Examination of the Use of Scales and Fin Rays for Age Determination of Brown Trout (Salmo Trutta).

GREENWAY, J.P.C. - Surveys on Stocks of Dredge Mussels, Perna Canaliculus Fleming, in the Firth of Thames.

BURNET, A.M.R. - The Growth of N.Z. Freshwater Eels in Three Canterbury Streams.

BURNET, A.M.R. - Migrating Eels in the South Branch.

BURNET, A.M.R. - Seasonal Growth of Brown Trout.

GREENWAY, J.P.C.

- Observations on Beach Populations of
Toheroa, Amphidesma Ventricosum Gray in
the North Auckland Peninsula.

FRESHWATER FISHERIES ADVISORY SERVICEINVESTIGATION REPORT

(Mimeographed reports distributed within New Zealand only,
but limited stocks of some jobs are available.)

Job No.

1. *BOUD. R., AND CUNNINGHAM B.T. 1956 - Stream and Spawning Survey, Sandy Creek, Lake Tutira. 23/30-7-56. 9 pp.
2. *BOUD. R., AND CUNNINGHAM B.T. 1956 - Stream Survey, Tamaki River Above Site of Proposed Weir. 3/4-12-56. 5 pp.
3. *BOUD. R., AND CUNNINGHAM B.T. 1957 - A Survey of Salmon Sport Fishery in the Rangitata, Rakaia and Ashburton Rivers. 10 pp.
4. *BOUD. R., AND WATSON. R.C. 1957 - Survey of the Trout Population of Rai and Pelorus Rivers. 17 pp.
5. *BOUD. R., AND CUNNINGHAM B.T. 1957 - Investigation of Waihao River. 5 pp.
6. *BOUD. R., AND CUNNINGHAM B.T. 1957 - Investigation of Feeding Habits of Black Billed Gulls in Rivers. 4 pp.
7. *BOUD. R., AND WATSON, R.C. 1958 - Investigation of the Shag River. 10 pp.
8. *BOUD. R., AND CUNNINGHAM B.T. 1958 - Investigation of the Kakanui River System. 7 pp.
9. *BOUD. R., AND WATSON R.C. 1958 - Survey of Spawning Conditions at Lake Kaniere. 10 pp.
10. *BOUD. R., ELDON, A.G, AND CUNNINGHAM B.T. 1958 - Investigation of the Motueka River System. 12 pp.

11. *BOUD. R., ELDON, A.G., AND WATSON, R.C. 1958 - An Investigation of the Trout Food Supply in Lakes Clearwater, Emma and Camp. 12 pp.
12. *BOUD. R., ELDON, A.G., AND CUNNINGHAM B.T. 1959 - Investigation of Mortality of Salmon in Mid-Canterbury Irrigation System and Water Removal from the Halswell River. 11 pp.
13. *BOUD. R., ELDON, A.G., AND CRANFIELD H.J. 1959 - A Survey of the Trout Stock of the Middle Reaches of the Oreti River, Southland. 17 pp.
14. *ELDON, G.A., AND WATSON, R.C. 1959 - Investigation of Trout Population and Condition in the Lake Brunner Streams. 15 pp.
15. BOUD. R., AND WATSON, R.C. 1959 - Spawning Survey of Lake Coleridge. 8 pp.
16. BOUD. R., ELDON, G.A. AND WATSON R.C. 1959 - Investigation of Lake Waitaki. 9 pp.
17. ELDON, G.A. AND WATSON, R.C. 1959 - Investigation of Waihopai and Avon Rivers. 7 pp.
18. BOUD. R., ELDON, G.A., AND WATSON, R.C. 1959 - Survey of Glenariffe Stream, Rakaia Gorge. 5 pp.
19. BOUD. R., ELDON, G.A., CUNNINGHAM, B.T. AND LITTLE, R.W. 1960 - Survey of Lake Middleton. 3 pp.
20. BOUD. R., ELDON, G.A. AND WATSON, R.C. 1959 - Investigation of Lake Heron, its Tributaries and Outlet Streams. 8 pp.
21. BOUD, R., ELDON, G.A. AND CUNNINGHAM, B.T. 1960 - Investigation of Large Black Shags in North Canterbury. 5 pp.

22. BOUD. R., AND CUNNINGHAM B.T. 1960 - A Survey of the Trout Population of the Teviot River. 6 pp.
23. BOUD. R., AND CUNNINGHAM B.T. 1960 - An Investigation of the Upstream Eel Migration at the Roxburgh Dam, on the Clutha River. 4 pp.
24. ELDON, G.A., CUNNINGHAM, B.T. AND LITTLE, R.W. 1960 - Investigation of the Opihi River Fishery. 14 pp.
25. BOUD. R., AND CUNNINGHAM, B.T. AND LITTLE, R.W. 1960 - Survey of the Kakanui River System. 8 pp.
26. BOUD. R., AND CUDBY, E., 1965 - Mataura River Pollution Survey. 10 pp.
27. ELDON, G.A. AND CUNNINGHAM, B.T. 1960 - Comprehensive Spawning Survey of Lake Coleridge Streams. 36 pp.
28. ELDON, G.A., CUNNINGHAM, B.T. AND LITTLE R.W. 1960 - Investigation of Lake Tennyson. 9 pp.
29. BOUD, R., ELDON G.A. AND LITTLE R.W. 1961 - Survey of Lake Brunner. 14 pp.
30. ANON. 1961 - An Investigation of Taylors and Bowyers Streams. 10 pp.
31. ELDON, G.A. AND LITTLE R.W. 1961 - Investigation of the Karamea and Oparara Rivers. 13 pp.
32. BOUD, R., CUNNINGHAM B.T., AND LEWALL, E.F. 1962 - Survey of Upper Reaches of the Oreti and Aparima Rivers and Their Tributaries. 10 pp.

33. MOORE, E., GALLOWAY, - Limnological and Biological Survey of the
J., LANE, E.D, AND Kaihoka Lakes. 6 pp.
LEWELL, E.F. 1963
34. MOORE, E., GALLOWAY, - Limnological and Biological Survey of
J., AND HOPKINS, C.L. Lake Emma. 8 pp.
1963
35. MOORE, E., CUNNINGHAM - An Investigation into the Removal of
B.T., AND LEWELL E.F. Water and Irrigation from the Halswell
1967 River. 14 pp.
36. ELDON, G.A., BOUD. - Survey of Hakataramea River. 10 pp.
R., LITTLE, R.W. AND
FRANCE, D. 1961
37. MOORE, E., CUNNINGHAM - Spawning Surveys of Tributaries of Lakes
B.T., AND LEWELL, Heron and Clearwater. 34 pp.
E.F. 1961
38. BOUD. R., AND - To Determine the Suitability of the Round
CUNNINGHAM, B.T. 1962 Hill Ponds for Trout. 4 pp.
39. MOORE, E., AND - A Survey of the Ashley River System.
LANE, E.D. 1962 12 pp.
40. MOORE, E., CUNNINGHAM - Spawning Survey of Lake Alexandrina and
B.T., LANE, E.D. AND Adjacent Waters. 40 pp.
LEWELL, E.F. 1962
41. BOUD. R., CUNNINGHAM, - An Investigation of the Effects of Drag
B.T. AND LANE, E.D. Lines on Stream Bottom Fauna. 5 pp.
1962
42. CUDBY, E., GALLOWAY, - An Investigation of the Fish and Food
J., BOUD. R., MOORE, Supplies of Lakes Coleridge and Lyndon.
E., AND CUNNINGHAM, 29 pp.
B.T. 1966

43. MOORE. E., GALLOWAY, J., CUDBY, E., CUNNINGHAM, B.T. AND LEWELL, E.F. 1962 - Salmon Spawning Survey - 1962. 5 pp.
44. MOORE, E., GALLOWAY, J., CUNNINGHAM, B.T. AND LEWELL, E.F. 1963 - Trolling Restriction Investigation on Lake Ohau. 2 pp.
45. CUDBY, E., AND GALLOWAY, J. 1964 - Limnological and Biological Survey of Lake Waitaki. 9 pp.
49. GALLOWAY, J., MOORE, E., LANE, E.D. AND LEWELL, E.F. 1963 - West Coast Creeks Survey. 11 pp.
50. BOUD, R., AND CUNNINGHAM, B.T. 1962 - Spawning Survey of Manorburn Dam. 4 pp.
51. MOORE, E., GALLOWAY, J., AND LEWELL, E.F. 1963 - Salmon Spawning Survey 1963. 6 pp.
52. MOORE, E., GALLOWAY, J., AND LEWELL, E.F. 1963 - Limnological Survey of Lake Haupiri. 6 pp.
53. GALLOWAY, J., MOORE, E., CUDBY, E., AND LANE, E.D. 1963 - A Survey of the Fish Stocks of the Hinds River. 21 pp.
54. GALLOWAY, J., MOORE, E., LEWELL, E.F., AND LANE, E.D. 1963 - A Survey of the Trout Stocks and Trout Food in the Wairoa River. 10 pp.
55. BOUD, R., AND CUDBY, E. 1966 - A Survey of the Otapiri Stream. 7 pp.

57. MOORE, E., GALLOWAY, J., AND HOPKINS, C.L. - Limnological and Biological Survey of Cobb Reservoir. 10 pp. 1964
58. BOUD, R., GALLOWAY, J. AND CUNNINGHAM, B.T. - Salmon Spawning Survey 1965. 15 pp. 1965
59. CUDBY, E., MOORE, E., AND LEWELL, E., 1965 - Spawning Survey of Lake Brunner Streams. 26 pp.
61. GALLOWAY, J., AND CUDBY, E., 1965 - Spawning Survey of the Waiau River and Tributaries. 32 pp.
63. GALLOWAY, J., AND CUDBY, E., 1965 - Salmon Spawning Survey, 1965. 8 pp.
65. GALLOWAY, J., CUDBY, E.J., WING, F.J. AND DOUGHERTY, R. 1965 - Salmon Trapping and Spawning Survey of Glenariffe Stream. 27 pp.
67. WING, F.J. AND JOHNSON, W.S. 1966 - Salmon Spawning Survey 1966. 6 pp.
69. CUDBY, E.J., DOUGHERTY, R.A., CUNNINGHAM, B.T., AND LITTLE R.W. 1966 - Great Moss Swamp Hydro-Electric Investigation. 14 pp.

NOTE: The summaries of certain investigation reports have been published as follows -

- Job No. 3: Boud R., and Cunningham B.T. 1959:
Feeding habits of the Black-Billed Gull
Notornis 8: 119-20. (Fisheries Research Reprint No. 43).
- Job Nos 27 and 37: Anon. 1962:
The Study of Fish Populations of South Island Lakes:
Ammohouse Bulletin. Vol. 1 No. 12: 8-10.

Job No. 53 Lane E.D., 1963:
Large Numbers of Fish in the Hinds River.
Ammohouse Bulletin Vol.1. No. 14: 8.

Job Nos 53, Anon. 1963:
59, 61 and Technical Field Service Projects. Ammohouse
63. Bulletin. Vol. 1 No. 20:7-8.

FRESHWATER FISHERIES NEWS PUBLISHED UNDER THE TITLE
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AMMOHOUSE BULLETIN PUBLISHED BY AMMUNITION HOUSE,
BOX 1810, WELLINGTON, NEW ZEALAND

Some issues are available from Marine Department,
 Fisheries Division, Box 10142, Wellington.

Ammoouse Bulletin

- Vol. 1 No. 3* Dec. 1957. 9-11 Where is that Fishing Diary?
 K.R. Allen, Fisheries Branch, Marine
 Department. B.T. Cunningham.
- Vol. 1 No. 4* Mar. 1958. 9-11 Are Our Regulations Up to Date?
 K.R. Allen.
 Winter Fishing at Lake Tutira.
 R.C. Watson.
- Vol. 1 No. 5* Oct. 1958. 9-11 Taupo and Rotorua Fisheries - The
 1956/7 Fishing Season. B.T. Cunningham
 Distribution of Trout in the North
 Island. K.R. Allen.
 Fishing at Lake Paringa. R.C. Watson.
- Vol. 1 No. 6* Mar. 1959. 9-11 Trees and Trout. K.R. Allen.
 What is Conidition Factor? R.C. Watson.
- Vol. 1 No. 7* Oct. 1959. 9-11 The South Branch Experiment. C. Hardy.
 Smelt - An Important Trout Food.
 R.C. Watson.
- Vol. 1 No. 8 Mar. 1960. 9-11 Trout and Predators. H.J.C.
- Vol. 1 No. 9 Sept. 1960. 9-12 Angling Records 1957/8 Season.
 Edt. B.T. Cunningham.
- Vol 1. No. 11 Oct. 1961. 6-9 Agricultural Chemicals and Fish
 Problems Associated with their Use.
 R.W. Little.

- Vol. 1 No. 12 Mar. 1962. 6-10 The Study of Fish Populations of South Island Lakes. Anon.
- Vol. 1. No. 13 Oct. 1962. 6-8 1962-3 Angling Diary Scheme. L.J.P.
- Vol. 1. No. 14 Mar. 1963. 6-8 Your Angling Diary. L.J. Paul
Large Numbers of Fish in Hinds River.
E.D. Lane.
- Vol. 1 No. 15 Sept. 1963. 6-8 Introduction of a Large Mayfly to New Zealand Lakes. C.L. Hopkins.
Stranded Redds in Selwyn River.
H. Elliott.
- Vol. 1 No. 16 Mar. 1964. 6-8 Transport of Live Fish. H. Elliott.
- Vol. 1 No. 17 Oct. 1964. 6-8 Freshwater Fisheries Research and Investigations - A Brief Progress report of some Investigations being Completed by Research Officers of the Marine Department. Anon.
- Vol 1 No. 18 Mar. 1965. 6-10 Winter Fishing. Anon.
- Vol. 1 No. 19. Sept. 1965. 6-9 Southern Lakes Fisheries. Anon.
Insecticide Research. Anon.
- Vol. 1 No. 20 Mar. 1966. 6-8 Technical Field Service Projects. Anon.
- Vol. 1 No. 21 Sept. 1966. 6-8 Salmon 1966. Anon.
- Vol. 1 No. 22 Mar. 1967. 6-8 Winter Fishing in Hawkes Bay. Anon.
- Vol. 1 No. 23 Sept. 1967. 6 A Quest for Knowledge. Anon.
- Vol. 1 No. 24 Mar. 1968 6-8 Salmon Investigation at Glenariffe.
and Anon. Electricity Versus Trout. Anon.
4 Your 1967-68 Angling Diary - Where is it? Anon.

Vol. 1 No. 25 Sept. 1968 7-8 Electric Fishing Comes of Age. Anon.

REPORT ON FISHERIES

(Fisheries Extract from the Annual Report of the
New Zealand Marine Department)

1964*; 1965; 1966; 1967; and 1968.

REFERENCES

Fisheries Research Division, Marine Department 1966.

Fisheries Research Publications, 1927-66 Occasional
Publication No. 1.



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