1941.

NEW ZEALAND.

MARINE DEPARTMENT.

ANNUAL REPORT FOR THE YEAR 1940-41.

Presented to both Houses of the General Assembly by Command of His Excellency.

Marine Department, Wellington, 16th July, 1941.

YOUR EXCELLENCY,—

I do myself the honour to transmit for Your Excellency's information the report of the Marine Department for the financial year ended the 31st March last.

I have, &c.,
R. SEMPLE,
Minister of Marine.

His Excellency the Governor-General of the Dominion of New Zealand.

REPORT.

THE SECRETARY, MARINE DEPARTMENT, to the HON. the MINISTER OF MARINE.

SIR,— Marine Department, Wellington, 7th July, 1941.

I have the honour to submit the annual report on the activities of the Marine Department for the year ended 31st March, 1941.

Under war conditions it is inevitable that much of the work of the Department is directed to defence, involving close co-operation with the Services Departments and with the Ministry of Supply. Many vessels have been requisitioned for naval purposes and refitted for their new duties. S.s. "Maunganui" was chartered from Union Steam Ship Co. and extensive alterations undertaken for her equipment as a hospital ship. British troop transports have been met on arrival, and any refitting required has been attended to on behalf of the British Ministry of Shipping. Building is in hand in Auckland of three mine-sweepers on the lines of a well-known type of steel trawler, but modified to a composite construction of wood and steel. Plans are in hand for further mine-sweepers of all-steel construction.

Until early in 1941 G.s.s. "Matai" regularly serviced lighthouses, automatic lights, and other navigational aids, but on her being commissioned as a naval ship it became necessary to improvise transportation. Servicing is now carried out by overland routes where practicable, otherwise by means of vessels hired locally. The policy of progressively improving amenities at light-stations has been continued; also, an entirely new light-station has been built on the mainland at Cape Reinga, replacing the inaccessible island station at Cape Maria Van Diemen. This station is electrified, is fitted with wireless and radio beacon, and has its own hard-road access. Electrification and establishment of radio beacons have been completed at Moko Hinau and Cuvier Island. Reconstruction work is in hand at Puysegur Point and Godley Head.

HARBOURS.

The financial and engineering aspects of each application by Harbour Boards for loans are examined by the Department for the Local Bodies' Loans Board in conjunction with Treasury. This is a necessary feature to offset any desire to advance the parochial rather than the national viewpoint.

Direct administration of Kaipara, Picton, Little Wanganui, and Westport Harbours has been maintained by the Marine Department. All other Harbour Boards, except a few vested in already-existing local authorities, are administered by properly constituted Harbour Boards.

Kaipara Harbour.—Usual maintenance of buoys in the Kaipara Harbour has been given effect to during the year. The untimely death of the Harbourmaster, Captain McLeay, brought to a close an excellent career in the service. Captain Dutch has been appointed Harbourmaster in the meantime. The well-known river steamer s.s. "Wairua" has been repaired, and recommissioned in the Great Barrier to Auckland service.

Picton Harbour.—During the year 7 overseas vessels aggregating 40,611 tons, 12 intercolonial vessels aggregating 15,383 tons, and 341 coastal vessels aggregating 189,344 tons entered the port. Thirty-two fishing-vessels were licensed during the year. The Harbourmaster, in addition to acting as Collector of Customs for this port, maintains a supervision of lights, buoys, licensed launches, and foreshores. The departmental residence has been thoroughly renovated during the year.

Little Wanganui. This small wharf has been maintained in good order and the storage facilities improved.

Lake Whakatipu. The Railways Department representative at this lake acts in the interest of the Marine Department. The checking of passenger-carrying launches and general supervision have been carried out during the year.

Westport Harbour.—Shipment of coal, on which the revenue of the harbour largely depends, reached the satisfactory figure of 486,964 tons during the year under review, the highest figure since 1930 31, and almost 80,000 tons in excess of the previous year. Because of weather conditions on the bar the harbour was quite unworkable to shipping on 18 days only during the year, as against 31 days for the previous year. On the otner hand, on 12 days the bar was smooth, as against only 3 days during the previous year. A further index of the conditions which prevailed at the entrance to the port is that on 136 days tne seas on the bar exceeded "light" in intensity, whereas during the previous year seas were in excess of "light" on no less than 222 days. During the year 373 steamships and 43 auxiliary vessels, totalling 279,838 net tons, entered the port, as against 295 steamships and 47 auxiliary vessels, totalling 271,774 net tons, during the previous year, an increase of 74 vessels and an increase of 8,064 tons. Fewer of the larger overseas vessels work the port, but more of the smaller coastal craft have been pressed into the coastal trade, a reflex of war conditions.

During the past year 24 overseas vessels called at the port and shipped 8,203 tons of cargo coal for Noumea, Ocean Island, and Australia, as well as 16,409 tons as bunker coal.

At the commencement of the year we had the rather unfavourable minimum depth on the bar at L.W.O.S.T. of 10 ft. 9 in. only, with the mean depth of high waters for the first month of 21 ft. 3 in. No great improvement was realized until five months later, when, as a result of more favourable natural influences plus intensified dredging, the very satisfactory minimum depth of 15 ft. was obtained, with the high water average depth for the month (August) of 23 ft. the best for just on twelve months.

These circumstances favoured good operating results, and the returns for the month proved to be by far the best for ten years past both in respect to number of vessels which worked the port and the quantity of coal shipped. Fifty vessels cleared the port, which was 15 greater than the monthly average for the year. Also, the coal shipped, totalling 51,490 tons, was over 10,000 tons greater than the monthly average for the year.

It is interesting to note in this connection that such gratifying result was achieved despite the fact that the port's chief loading unit, an excellent electric crane, was out of commission during the period owing to acute shortage in power-supply. The crane was actually not used throughout a total period of three months, during which time the average monthly shipments of coal exceeded the average for the year by over 6,000 tons, in two out of the three months over 50,000 tons per month being loaded.

Following the good working depths achieved by and during August, a serious relapse occurred as a result of most unfavourable weather conditions. Serious shoaling occurred on the bar, and surface conditions prevented any real attempt to remove the trouble by dredging. At one stage of the month the minimum depth on the bar at L.W.O.S.T. fell to 8 ft. 9 in.—very definitely the worst for the year—and the outcome was the poorest high water monthly mean for the year of 20 ft. 3 in.

Six vessels experienced delay in departure due to the conditions, 5 departed under restricted loading, and on five occasions vessels touched on the bar when crossing out. In addition, 1 vessel only cleared the port drawing 18 ft. or more, whereas the previous month 8 vessels left loaded to 18 ft. or more, in three cases the draughts exceeding 19 ft.

Conditions did not materially improve for another month, but every endeavour was made per medium of bar-dredging to encourage improvement in the governing port operating depth—*i.e.*, on the bar. Due to the urgent need of the country for coal the port was at all times being worked by shipping to the limit of the available navigating depth, and unfortunately, due to the restrictions imposed by swells on the bar, for a time the restricted loading of vessels and touchings on the bar when crossing out were a matter of some concern.

In an endeavour to obviate these difficulties by the only means in our power—*i.e.*, by dredging the bar—the suction dredger "Eileen Ward" was worked throughout the year to the fullest consistent with anticipated results, and these were obtained when conditions favoured, so that during the later months of the year a progressive improvement was achieved.

As a result of these high-pressure operations the dredger lifted from the bar and the port operating channel, and conveyed to sea and dumped, the outstanding quantity of 746,340 cubic yards of sand and shingle, the greatest dredging performance of the vessel since the Government assumed control of the port over twenty years ago. During the month of July the vessel lifted just on 100,000 cubic yards of dredgings, the highest monthly result for twenty-four years.

During the closing month of the year under review the excellent minimum depth on the bar at L.W.O.S.T. of 15 ft. was again achieved, with the good mean high water working depth for the month of 23 ft. 4 in., the best since December, 1937.

The advantage in these favourable depths was borne out by the fact that during the final monthly period no vessel was delayed in despatch from the port, in no case was a vessel restricted in loading draught, and all vessels crossed the bar with adequate working depth of water. Also, during the final two months 15 vessels cleared the port drawing over 18 ft., 13 of such vessels being loaded to from 18 ft. 6 in. to 19 ft. 9 in. Paradoxically, however, with such favourable conditions the volume of shipping during the final month of the year was about the poorest recorded for the twelve months.

It is interesting to note that during the year one vessel, an overseas vessel with cargo coal, left the port drawing 19 ft. 10 in., the greatest draught of any vessel to leave the port for twelve years.

Ten vessels cleared the port drawing 19 ft. or more, as against 5 in the preceding year.

The mean of high-water depths on the bar for the year was 21 ft. 6 in., which was not as good as the mean of 22ft. for the previous year. This is illustrated more clearly in the following tabulation, which shows the number of days for the last three years on which the respective high-water depths obtained :-

Depth.	1940–41.	1939–40.	1938–39.
Over 14 ft.	365	366	365
,, 16 ft.	365	366	365
,, 18 ft.	363	366	363
,, 20 ft.	302	330	275
,, 22 ft.	118	184	126
,, 24 ft.	24	36	11

It will be noted that, as against the preceding twelve months, there were fewer days on which there was over 20 ft. of water on the bar at high water, but, on the other hand, this deficiency was greatly offset by the more favourable surface conditions quoted earlier in this report.

As with the two preceding years, there was no day on which there was not more than 16 ft. on the bar at high water.

Early in the year the port pilot and sounding launch " Kaiurunga " was subjected to a very extensive overhaul, with a considerable amount of the hull and framing timbers renewed, whilst a new heavy encircling hawser fender was fitted, and the vessel is now in first-class order. Due attention was given also where necessary to all other harbour structures and navigating aids and services.

The bucket dredger " Maui " continued in commission throughout the year, being utilized to deepen the fairway abreast the Staiths Wharf approaching to and alongside the Merchandise Wharf. As the vessel had to convey its dredgings to and dump at sea, adverse bar conditions at times hindered operations; nevertheless, good work was done. The dredger lifted some 121,550 cubic yards of shingle and sand from the areas mentioned, and soundings later in the period revealed an appreciable improvement in depths. Early in the closing month of the year the vessel proceeded to Wellington for bi-annual slip survey and overhaul.

In my last year's report I mentioned that the work of restoring and strengthening the stone facing of the Buller River bank protective work at the relief channel (Organ's Island) had been completed, and that the work of extending farther downstream the low stone training and control wall at the lower end of the island was continuing.

This latter work was completed during the year, and to assist the purpose of the wall in confining and directing the channel of the river, where otherwise it was meandering in a most undesirable manner and causing erosion of the bank at " Roselli's," and resulting in building up of banks of shingle in the bed of the river, a control and directed channel from the downstream end of the wall was cut by the use of two large bulldozers for a few days, and a very satisfactory result was achieved.

The rock for the stone work was quarried from the harbour quarry at Cape Foulwind and transported by our own railway to the job. Third-class stone was placed in the river-protection work, and the first-class stone was conveyed to and placed on the seaward end of the west mole of the harbour entrance, to strengthen and make good the ravages of heavy seas over a period of previous years.

Over the period of two to three years that this work was in hand some 4,000 tons of rock was used in effecting the breakwater repair, and 26,000 tons were deposited in the river protection and control work.

Now that this work is complete, a commencement has been made on taking up the railway-track connecting the Buller Gorge railway line to Organ's Island, and the rails and sleepers are being disposed of to the Railways and Lands Departments respectively for other governmental works. At the Cape Foulwind quarry the 25-ton crane has been thoroughly painted and housed in, and the two smaller cranes conveyed into Westport for overhaul attention. Old sheds have been dismantled, and useable material removed to Westport for further use.

Lighthouses.

Manukau Heads.—Repairs were carried out to the hot-water system.

Moko Hinau.—A fuel-oil store has been erected, the diesel engines overhauled, and repairs and maintenance carried out to the electrical equipment.

Cuvier Island.—Routine maintenance has been carried out on the diesel engines and electrical equipment.

Godley Head.—The site for the new lighthouse has been constructed, involving some 300 cubic yards of excavation in rock. All electrical equipment is on order, and the lens and lantern ex Cape Foulwind are being reconditioned ready for installation. Arrangements are in hand for the construction of the power-line to the new site.

Akaroa.—A contract has been let for the erection of a Blondin cableway over the inlet at this station to replace obsolete landing-equipment.

Puysegur Point.—The power-house in connection with electrification has been completed and the access road approximately two miles long constructed. All material and equipment for electrification and installation of radio beacon is being assembled at Invercargill ready for transport and installation.

Moeraki.—A small hut has been erected to accommodate an extra man, and power-lines have been run to the station for electrification. The cottages and buildings are now supplied with electricity, and equipment is on order to electrify the light.

Cape Saunders.—A shelter for the coast-watching organization has been erected on this station.

Centre Island.—Extension of the cottage drainage is in hand.

Portland Island.—A generating-set ex Stephens Island has been installed to provide power for radio-beacon purposes. Trial surveys have been carried out for the erection of a diesel winch and tramway to improve access to the station and also surveys of sites for three new cottages for the keepers.

Baring Head. Routine maintenance of plant and equipment has been carried out during the year. A cross-over connection between this station and the adjacent naval station has been provided to allow for an interchange of power in case of emergency.

Hen Island. The erection of a light-tower and the cableway necessary for servicing is in hand and is now nearing completion. The existing light on the Chickens will be extinguished on completion of this work.

Cape Reinga.—A considerable amount of work has been carried out during the year. This includes the erection of two keepers' dwellings, light-tower, and power-house. The construction of a combined garage and fuel-store is in hand, also the erection of a flashing beacon on the mainland at Cape Maria.

The installation of plant and equipment in connection with the radio beacon and electrification has been completed, and the work of erecting the tower, lantern, and equipment ex Cape Maria is in hand. With the exception of a 30 ft. bridge, which is in hand, the access road from Te Paki is now completed.

Cape Maria. This station was completely dismantled during the year, the keepers being transferred to Cape Reinga. Everything salvagable was taken off the island and the lighthouse lantern and equipment transferred to Reinga. When this light was extinguished a temporary electric light was exhibited at Reinga. Cape Maria Island no longer exists as a lighthouse-station.

Tutukaka Heads. An automatic flashing beacon has been erected on this location by the Whangarei Harbour Board under the direction of this Department.

Cape Campbell.—All buildings and the lighthouse-tower have been painted and minor repairs carried out. During the year all electrical equipment received routine maintenance. A fuel-oil store has been erected adjacent to the power-house.

Stephens Island.—Routine maintenance has been carried out on this station during the year, and the construction of a fuel-oil store is in hand.

Jackson Bay. The tower for an automatic flashing light and a cableway for servicing have been erected ready for the installation of the beacon.

Clay Point (Tory Channel).—A tower for an automatic flashing light has been erected and an approach track constructed on this location.

Castlepoint. Minor adjustments were carried out at this station, occasioned by the mechanism being displaced by an earthquake.

Marine Works.

Houhora Wharf. The contract for the erection of a bridge at Pukenui has been let, and work is in hand.

Orapiu Wharf - Beachlands Slipway - Waiheke Island.—The wharf at Beachlands was demolished and a slipway constructed with the materials therefrom. Reconstruction of Orapiu Wharf was also completed by the same contractors.

Tairua Wharf. The reconditioning of this wharf was completed by the Thames County Council.

Helensville Creek Beacon, Kaipara Harbour.—General maintenance was carried out during the year.

Bruce Bay. Surveys have been made and plans are being prepared for a proposed wharf at this location.

Westhaven Wharf. The construction of a breastwork and approach road is in hand on this site.

Havelock Wharf. Repairs and extensions are being undertaken, and all preliminary work is completed prior to letting a contract for construction of this wharf.

Momorangi Bay. The site has been surveyed and plans are in hand for a jetty on this site.

Elaine (Brown's) Bay. Plans have been prepared for a jetty and access track to be constructed here.

Endeavour Inlet. A 31-ft.-long jetty has been constructed on Endeavour Inlet during the year.

Fairy Bay Wharf.—Plans have been completed for this wharf.

Kumutoto Bay. Plans are in hand for the provision of a wharf with launch steps at this location.

Ships Cove. The construction of a jetty with launch steps has been completed.

Tennyson Inlet. A jetty complete with launch steps, access track, and approach has been constructed here.

Harbour Board Legislation.

The Acts enumerated below affecting harbour legislation were passed during the year, and the various Bills were investigated by the Department before presentation to Parliament:—

The Greymouth Harbour Board Loan Act, 1940, authorized the Board to borrow £10,000 for the purchase of a combined sounding launch and tug.

The Mokau Harbour Act, 1940, provided for the dissolving of the Board as a separate entity and transferred its functions to the Waitomo County Council.

The Waitara Harbour Act, 1940, dissolved the Board as from the 1st of April, 1941, and provided for the disposal of the assets to the Waitara Borough Council and the New Plymouth Harbour Board, whose constitution has been amended to provide for two additional members.

In addition to the above legislation, sections dealing with the Harbour Board legislation in other Acts are mentioned below.

(*a*) *The Local Legislation Act, 1940.*—Section 28 validated the payment of a compassionate allowance of £50 to J. K. McAlpine, a member of the Board, for injuries caused by an accident.

Section 29 validated the expenditure of £12 9s. 10d. in commemorating the inauguration of the Empire and Pan-American airways service to Auckland.

Section 30 validated certain leases granted by the Oamaru Harbour Board which could not be registered owing to the provisions of the Public Works Act, 1928.

Section 31 authorized the Napier Harbour Board to sell certain areas of land to the Napier Borough Council.

Section 32 authorized the Napier Harbour Board to exclude from its powers of sale certain land, and to include other lands in its power to sell.

(*b*) *The Reserves and other Lands Disposal Act, 1940.*—Section 6 transferred part of Opunake Harbour Board endowment to the Opunake Domain Board.

(*c*) *The Statutes Amendment Act, 1940.*—Section 3: Amending the By-laws Act, 1910, to provide for the issues of licenses for part of a year and for the apportionment of the fees charged.

Section 4 amended the Chattels Transfer Act, 1924, to enable the transfer or assignment of vessels not required to be registered under the provisions of the Merchant Shipping Act, 1894 (Imperial), to be registered under the Chattels Transfer Act, 1924.

Section 12 amended the Harbours Act, 1923, to enable Boards to insure members of Boards against personal accident while engaged in duties.

(*d*) In addition to the above legislation, alterations were made by Orders in Council affecting the representation of certain districts electing members to the Auckland and Lyttelton Harbour Boards.

(*e*) The Foreshore License Regulations 1940 were made for the purpose of saving space in the *Gazette*, and these regulations thus prevent the repetition of similar conditions in each license issued.

(*f*) In order that the Bay of Islands Harbour Board might recoup itself for the expense involved in erecting and maintaining certain beacons, an Order in Council was issued authorizing the Board to charge a harbour-light due of ¼d. per ton register on each vessel passing the beacon.

(*g*) The General Harbour Regulations were amended

(*a*) To remove the severe restriction on the handling of explosives carried in ships:

(*b*) To enable Harbourmasters to regulate the placing of moorings in harbours:

(*c*) To authorize Harbourmasters to permit the discharge of petrol from tank ships after daylight hours.

Adjustment and Inspection of Ships' Compasses.

The regulations for the adjustment of compasses have been carefully administered, and compasses continue to be maintained in a good state of efficiency. The results of the investigations of adjustments show that the work of the Inspectors and Adjustors has been carefully performed.

Admiralty Charts.

The Department acts as agent for the sale of Admiralty charts and maintains a stock at Head Office and at the Mercantile Marine offices at Auckland, Wellington, Lyttelton, and Dunedin. The stock includes all charts of the Dominion and also a considerable portion of the world which practically includes passages to all places where now regular traders are likely to go after discharging in the Dominion. A supply of 355 different charts is maintained to meet normal demands. The supplies until recently have been considerably affected by shipping losses, and at times it has not been possible to fully meet the demands of shipping and other Government Departments. In some cases where ships had been diverted to unforeseen routes it was possible to help by the loan of reference charts and sailing directions.

The charts after their receipt are periodically corrected to date, and, to ensure that purchasers receive any further information received between the dates of correction, a list of notices to Mariners affecting the charts is maintained at each office for inspection. The sales last year amounted to 1,787 copies, an increase of 21·4 per cent. for the year.

Examination of Masters and Mates.

During the year examinations were held in Auckland and Wellington on the scheduled dates. Examinations were also held in Wellington on many other dates to meet the convenience of candidates who, for some reason or other, were unable to present themselves on the due date. Examinations were conducted in a satisfactory manner and, in the case of foreign-going certificates, in accordance with the requirements of the Imperial Ministry of Shipping.

The regulations governing the examinations have been revised and should be published shortly. Amendments made to them provide for the acceptance of service in His Majesty's ships and other ships of war, and a reduction in the age-limit from twenty to nineteen for candidates for service as second mate (foreign going) and mate (home trade). Provision has also been made whereby officers in the Royal Naval Reserve who are prevented by the exigencies of war service from presenting themselves for examination for first mate on completion of the required period of qualifying service may count further service as qualifying for master.

Inquiries have been forwarded to the Ministry of Shipping concerning statements appearing in various publications about wartime alteration to the regulations in Great Britain, and as soon as confirmation is received similar alterations, so far as is necessary to comply with Imperial requirements, will be introduced.

The number of examinations, 225, shows an increase on last year of 29 per cent.: the percentage for foreign-going and home-trade certificates is as follows—Foreign going: Full pass, 15·3; partial pass, 35·9: failure, 18·8. Home trade: Full pass, 65·8: partial pass, 21·0: failure, 13·2. Two candidates passed for fore-and-aft sailing-ship endorsement and 1 for extra master.

Fifty-four yachtsmen passed for a certificate as "Master of a Pleasure Yacht in New Zealand Waters"; all of them went in for the certificate with the intention of joining the Royal Naval Volunteer Reserve.

Examination for Form and Colour Vision.

These examinations are held at Auckland, Wellington, Lyttelton, and Dunedin. During the year 94 candidates were examined, of whom 8 failed.

"New Zealand Nautical Almanac and Tide Tables."

This publication for 1941 (thirty-ninth edition) was issued for sale on the due date, 1st November. The publication provides mariners and others with much necessary and useful information, in addition to sailing directions and information concerning various ports of the Dominion. Port information is corrected by the various Harbour Boards, and at the time of going to press, about the middle of October, is the latest available. Subsequent alterations are made by Notices to Mariners.

Notices to Mariners.

Fifty-three Notices to Mariners concerning changes in navigational aids, dangers to navigation, and other general information for the use of mariners were published during the year.

Engagement of Seamen.

This service has been maintained. A record of seamen applying for work is kept for the purpose of filling vacancies.

Sick and Injured Seamen.

The total amount paid by shipowners to sick and injured seamen under the provisions of the Shipping and Seamen Act, 1908, and its amendments, was £18,564 12s. 4d., as against £16,567 0s. 9d. for the previous year, an increase of £1,997 11s. 7d.

Registration of Shipping.

On the 31st December, 1940, there were on the register of vessels in the Dominion 47 sailing-vessels of 3,592 net tons register, 144 steamers of 75,102 net tons register, and 305 motor-vessels of 20,095 net tons register, as compared with 48 sailing-vessels of 4,288 net tons register, 155 steamers of 76,905 net tons register, and 301 motor-vessels of 19,926 net tons register at the end of the previous year.

The number of seamen employed on board was 2,990, as compared with 2,954 for the year 1939.

Survey of Ships.

The following table shows the number of certificates issued to ships during the year, the figures for the previous year being shown in parentheses:—

Sea-going steam and motor ships	150	(158)
Restricted limit steam and motor ships	327	(345)
Total certificates	477	(503)

Two sea-going steamships not previously surveyed in the Dominion were surveyed and certificated during the year. For the first time for many years, no new ships from abroad or new ships built in New Zealand were surveyed for sea-going certificates.

Six restricted-limits ships, all of which were new, were surveyed for the first time for the issue of certificates. One ship, "Manuwai," is a small tug 42·9 ft. long by 12·3 ft. beam built by the owners, Messrs. Roose Shipping Co., at Mercer, for towing services on the Waikato River. The construction of this small ship was of particular interest. Butts and seams in plating and hull structure, including stem and stern frame, were welded by the electric-welding process. This is the first all-welded ship built in the Dominion to the Department's requirements. The "Manuwai" is single screw, and is powered with a six-cylinder Diesel engine of 132 b.h.p. supplied by Messrs. Bergius Co., Ltd., Glasgow. Another small tug, "Maro," 47·5 ft. long by 12·9 ft. beam, was built of wood by the Colonial Sugar Refining Co., Ltd., Auckland, and is used in the company's towing work in Auckland Harbour. She is powered with a single set of eight-cylinder Diesel engines of 136 b.h.p. supplied by Messrs. L. Gardner and Sons, Ltd., Patricroft, England.

A new oyster-trawler, s.s. "Torea," was built at Auckland for the Stewart Island Canneries, Ltd., Invercargill, and is now engaged in the oyster-dredging industry out of Bluff. Her registered dimensions are: Length, 64·75 ft.; breadth, 17·16 ft.; and depth, 7·38 ft.; and her tonnage is 42 tons gross and 13·4 tons register. She is of composite construction with frames, floors, and deck beams of steel, and stem, keel, stern frame, and hull planking of wood. "Torea" is powered with steam-engines and boiler formerly used in s.s. "Omana." A new steel tug, "Lyttelton II," owned by the Lyttelton Harbour Board, was surveyed for the first time during the year. The ship arrived in New Zealand in June, 1939, and carried on in service for twelve months from the date of completion of building under a classification certificate issued by Lloyd's register of shipping. "Lyttelton II" is a very handy tug of 303 tons gross and 106 tons register built by Messrs. Lobnitz and Co., Ltd, Glasgow. She is twin screw, and powered with steam-engines of 1,250 i.h.p. receiving steam from two Scotch boilers designed for a pressure of 200 lb. per square inch, and working at 180 lb. per square inch. The ship is fully equipped for fire-fighting and salvage services.

In addition to the annual surveys, 228 seaworthiness, efficiency, and tonnage surveys were made during the year. Thirty-one seaworthiness and efficiency surveys were made to overseas vessels not registered or normally surveyed in the Dominion. Three of these surveys were connected with very extensive hull damage sustained in collisions at sea under war conditions. The repairs required in each case were of a major nature, and complete repairs were satisfactorily carried out by engineering firms at Wellington and Auckland.

Inspection of Machinery.

The following statement shows the number of inspections of fired boilers, unfired steam-pressure vessels, and air-receivers made during the year, the corresponding figures for the previous year being shown in parentheses:—

Fired boilers	4,553	(4,778)
Unfired steam-pressure vessels	4,329	(4,245)
Air-receivers	2,127	(1,078)
Total inspections	11,009	(10,101)

The inspections include 89 new power boilers, aggregating 1,789 horse-power, manufactured within the Dominion, and 22 new power boilers, aggregating 602 horse-power, imported from abroad. They also include 189 new steam-pressure vessels and 50 new air-receivers manufactured within the Dominion and 216 new steam-pressure vessels and 29 new air-receivers imported from abroad. The total number of new boilers, pressure vessels, and air-receivers put into service during the year was 595, against 654 for the previous year. The figures for inspections show a comparatively large increase in the number of inspections of air-receivers. This is due to an alteration in the method of reporting air-receivers of 5 cubic feet capacity or less. Hitherto small receivers of this class were included in the general report of a machinery plant and in the certificate issued for a plant. In a new fees schedule gazetted in June, 1940, separate fees were charged for small air-receivers, and since 1st July, 1940, they have been separately reported and certificated.

No explosions of boilers, pressure vessels, or air-receivers certificated by the Department occurred during the year.

Machinery.

The following statement shows the number of inspections of machines, machinery plants, lifts, hoists, cranes, and tractors made during the year, the corresponding figures for the previous year being shown in parentheses:—

Machines not driven by steam power in 10,920 (11,233) plants	76,406	(77,450)
Machines driven by steam power in 2,036 (2,219) plants	10,211	(10,987)
Electric-power-supply stations	151	(150)
Lifts	3,323	(3,398)
Cranes	500	(513)
Hoists	1,618	(1,599)
Tractors	371	(360)
Total inspections	92,580	(94,457)

Included in the inspections are forty-one lifts and forty power cranes inspected for the first time. Among the new lifts, it is interesting to note, were two full automatic passenger-lifts designed and manufactured in New Zealand. They were the first lifts of this type to be made in the Dominion.

The numbers of accidents reported during the year in connection with boilers, pressure vessels, and power-driven machinery were 5 fatal and 101 non-fatal. The corresponding figures for the previous year were 4 fatal and 129 non-fatal accidents. In each case the circumstances of the accident were fully reported by a district Inspector of Machinery, and the matter was not closed until the Department was satisfied that all practicable steps had been taken to improve safeguards and eliminate hazards likely to cause accidents with the machine or similar machines. It is unfortunate that in many cases the accidents were due to lack of care or inexperience on the part of the operators, and no practical improvements could be made. The following are brief accounts of the five fatal accidents compiled from the reports:

(1) A flock-teasing machine was altered to suit the owner's requirements and, during the trial run, a cast iron drum burst when revolving at a speed of 800 revolutions per minute. A portion of the flying material struck a workman on the leg and caused injuries which led to death. The peripheral speed of the drum at the time of the accident was unsafe for material of cast iron, and the owners were advised that if a machine of similar design were made, the drum must be of cast steel.

(2) A typical breaking-down saw used in New Zealand sawmills consists of twin circular saws, one of which is arranged to work directly above the other. The saws are exposed, but there is little danger in normal working as the operators stand at the side well clear of the machine. In a northern mill the steam-engine had just been stopped, but before the machinery had come to rest a workman passed between a log on the platform of the breaking-down machine and the saws. The lower saw caught a portion of his clothing and drew him to the blade, with fatal results. There are no practical mechanical means of safeguarding an accident in such circumstances.

(3) During oil-well-boring operations in Hawke's Bay a rotary drill jammed. The machinery was stopped, and with the aid of a large spanner endeavours were made to reverse the motion and release the drill. Unfortunately a pawl within the power-transmission mechanism became disengaged under the unusually heavy load, and the spanner, swinging round, struck a workman and caused instant death. The pawl was a little worn at its leading edges, and failure may have been due partly to its condition and partly to the abnormal load it was carrying at the time of the accident. At the same time, it is not known whether the pawl was properly home. Steps were taken to recondition the pawl and to ensure that the pawl would, in future, drop properly into position.

(4) During roadmaking operations a large stone jammed in the lower portion of the hopper of a power-driven stone-crushing plant. The attendant attempted to clear the obstruction with a steel bar when a portion of the stone, split by the action of the crusher hammers, flew back through the

hopper opening and struck him on the throat. The injuries received proved fatal. The accident was of an unusual nature. It would not have happened had the machine been stopped before an attempt was made to clear the obstruction.

(5) At an Auckland quarry a belt was used for conveying stone. The conveyor was about 8 ft. from the ground, and a wooden guard was fitted to within a few inches of the underside of the belt. A maintenance mechanic observed that some loose metal had got on the underside of the belt and endeavoured to clear it by hand while the machine was running. His arm was caught between belt and pulley and was torn off from the shoulder. He died in hospital from shock and haemorrhage. In view of the circumstances of the accident, the safeguards have been improved to prevent the unsafe practice of clearing the belt whilst in motion.

The number of non-fatal accidents, 101, is somewhat less than the number reported during the previous four years. The average number reported during these years was 135. In 73 per cent. of the accidents, injuries were received to the fingers and hands. In two cases the injuries received led to the amputation of an arm, and in one case a foot was lost. On the whole, the number of distressing accidents was less than in previous years. Woodworking machinery was responsible for 31 accidents out of the total of 101, and of these, 17 accidents were due to circular saws, 6 to planers, 2 to shapers and moulders, 2 to transmission machinery, and 5 to other types of machinery. The circular saw with a total of 20 accidents in all industries again proves to be the most hazardous machine in use in industry. It is followed closely with the power press, which accounted for 17 accidents during the year. The power press is widely used in a number of industries, and the number of accidents reported from year to year indicates that the dangers connected with this class of machine are not fully appreciated by employers, foremen, and press operators. The accidents are in many cases serious, and usually result in the loss of fingers or other permanent mutilation of the hands. The majority of accidents may be attributed to the use of inefficient or defective guards, failure to use the guards provided, tripping the operating mechanism before the hands are clear of the tools, and the press ram falling when it should remain at the top of its stroke or making an unexpected repeat stroke. The hazards may be reduced by proper instruction of press operators, supervision by competent foremen, discipline, thorough maintenance of clutches, brakes, and other running mechanism of the machine. With the development of secondary industries in the Dominion under war conditions, it is expected that increased use will be made of the power press. The inspecting staff are fully informed as to the best accident preventive measures, and particular attention is given to the guarding and maintenance of this class of machine. A new safety poster directed to power-press operators was published and widely circulated to machinery-owners during the year. The poster is plainly printed, and advises a check up of press and guard before the machine is started up. It also directs that anything that does not seem right should be reported without fail.

A second new safety poster was also printed and circulated during the year. It is of a general-purpose nature, directed to all machinery operators, and instructs that they should make sure that guards are in position and properly adjusted before starting machinery. A danger notice calling attention to all dangerous practices connected with running machinery and quoting a section of the Inspection of Machinery Act relating to the guarding of machinery was printed in two colours and distributed during the year.

The safety poster is regarded as one of the most important means, next to mechanical safeguards, that can be adopted for the prevention of accidents. It can be said that no one lives safely these days: it is true some are exposed to great risks and live dangerously. No one, however, need live foolishly. The poster is a reminder of the many accidents due to foolish and careless actions. Owing to the necessity for the most efficient use of man-power, the work of accident-prevention is more important at present than in times of peace.

The following table shows the number of accidents, both fatal and non-fatal, which occurred during the year. The various machines at which the majority of the accidents occurred are mentioned, together with the leading industries in which they are engaged:

Machines.	Sawmilling and Woodworking.	Textile.	Refrigerating.	Printing.	Metal-working and Engineering.	Laundry.	Butchery.	Confectionery and Baking.	Boxmaking.	Other Industries.	Total (Machines).
Circular saws	17	1	1	..	1	..	..	..	..	..	20
Other saws	..	..	..	..	..	..	..	..	..	..	..
Planers (wood)	6	..	..	..	..	..	..	..	..	..	6
Shapers and moulders ..	2	..	..	..	..	..	..	..	..	..	2
Power presses	..	..	..	2	9	..	..	..	..	6	17
Guillotines	..	..	..	..	..	..	..	..	..	2	2
Laundry	..	..	..	..	..	..	..	..	..	..	..
Butchers' mincers ..	..	..	..	..	..	..	1	..	..	..	1
Lifts	..	..	..	..	..	..	..	..	..	1	1
Cranes and hoists ..	..	..	..	..	..	..	..	..	..	..	..
Belting	..	..	..	..	..	..	..	..	..	4	4
Shafting	..	..	..	..	..	..	..	..	..	1	1
Gearing	2	..	..	..	..	..	..	1	..	1	4
Other Machines	5	4	4	1	2	..	..	4	1	27	48
Total (industries) ..	32	5	5	3	12	..	1	5	1	42	106

New Zealand Standards.

The Department was again represented on the Mechanical Engineering Divisional Committee, the Executive Committee, and Fire-extinguishing Sub-committee of the New Zealand Standards Institute, and numerous meetings of these Committees were attended throughout the year. In addition, a number of draft and standard specifications were examined and written comments furnished.

General Harbour Regulations.

The number of accidents to persons engaged in loading or discharging or repairing ships, together with the failures of gear used in loading or unloading ships, notified under Regulation 103 of the General Harbour Regulations, was 305, of which 5 were fatal accidents. The corresponding figure last year was 270, of which 2 were fatal accidents.

The following is a classification of the accidents and failures :—

Handling goods	134
Persons falling or slipping	38
Persons struck by falling or swinging loads	72
Persons stepping on or striking fixed objects	6
Contact with power-driven machines	3
Failures of gear	34
Not otherwise classified	18
Total	305

Staff.

The office and field staffs at Auckland and Wellington, and to a lesser extent at some other ports, have been engaged in additional duties connected with the fitting-out of transports and the hospital ship, conversion of merchant ships to naval requirements, construction of mine-sweepers and other naval craft, and purchase of ships requisitioned for defence purposes.

Mr. H. McGregor, Inspector of Machinery, Auckland, retired for medical reasons during the year.

Several members of the staff who have the opportunity to do so by the kind assistance given by electric-welding specialists are practising the art of electric welding in their own time. They propose to continue until they reach the standard of competency of that of a qualified welding operator. The practical knowledge thus gained will be very valuable to them in their inspection of welded work.

Examinations of Land Engineers, Engine-drivers, and Electric-tram Drivers.

These examinations were held during the year at the various offices of the Inspectors of Machinery throughout the Dominion at the regular intervals provided for in the regulations. In addition, a few special examinations were granted, but the holding of special examinations is not encouraged, as it is considered that the regular examinations are of sufficient frequency, and, except in very exceptional circumstances, candidates are expected to arrange that they may attend the scheduled examinations.

The full list of places where the examinations were held is shown in an appended return, as also is the number of candidates examined at each place. The classes of certificates for which examinations were held were—

Extra First-class Stationary Engineer.
Electric-winding-engine Driver.
Steam-winding-engine Driver.
First-class Engine-driver.
Second-class Engine-driver.
Locomotive-engine Driver.
Traction-engine Driver.
Locomotive- and Traction-engine Driver.
Electric-tram Driver.
Electric-tram Driver (One-man Car).

The total number of candidates examined was 379. Of this number, 293 were successful and 86 failed in their examinations. Three hundred and sixty-five certificates were issued, which includes 293 to successful candidates, the remainder being replacements and issues under the provisions of sections 53, 59, and 62 of the Inspection of Machinery Act, 1928.

Examination of Marine Engineers.

Since October, 1939, candidates have been able to sit for Imperial validity certificates under one of two systems of examination as they so desired. For the purpose of this report, they will be called the old system and the new system.

During the year, 169 candidates were examined for Marine Engineer's Certificates of Competency at the various centres throughout the Dominion. Of these, 55 candidates were examined for First- and Second-class Certificates of Imperial validity and 57 candidates for Third-class and Coastal Motor Certificates of New Zealand validity.

Candidates sitting for Imperial certificates were 18 under the old system, of which 10 were successful and 8 unsuccessful, and 9 under the new system, of which 4 were successful, 2 partly successful, and 3 unsuccessful. Of the 19 candidates under the old system for Second-class, 11 were successful and 8 unsuccessful. Of the remaining 9 under the new system, 1 was successful, 5 partly successful, and 3 were unsuccessful in the examination.

Candidates for Certificates of New Zealand validity: 39 candidates were examined for Third-class, 33 being successful and 6 unsuccessful. Of the 14 candidates for Second-class Coastal Motor, all were successful at the first attempt. Of the 4 candidates for First-class Coastal Motor Examination, all were successful at the first attempt.

Attempts for First-class Certificates of Imperial validity: The above particulars under both systems are comprised of 6 candidates for Steam Certificate, of whom 3 were successful; 10 candidates for Motor Certificates, of whom 6 were successful; 6 candidates for Motor Endorsement, of whom 5 were successful; and 5 candidates partly passed the examination.

Attempts for Second-class Certificate of Imperial validity: The foregoing return for both systems comprised 12 candidates for Steam Certificates, of whom 9 were successful; 8 candidates for Motor Certificates, of whom 3 were successful, 5 candidates partly passed in the examination; and 1 Steam Endorsement failed.

The summary for First-, Second-, and Third-class Examination: 57 per cent. passed for certificates; 43 per cent. partly passed or failed.

The remaining 57 candidates were examined for River Engineer and Restricted-limits P.V.O.S. Certificates of Competency; of these 2 were successful for steam-driven vessels plying within restricted limits, and of the 55, 54 were successful for service in vessels plying within restricted limits propelled by some motive power other than steam.

In order that the new system of examination could be brought into operation with a minimum amount of interference with the arrangements of candidates and of the schools, the old system of examination was continued together with the new system as from October, 1939. Since then, however, there has been an increasing number of candidates under the new system, with a corresponding decrease of candidates under the old system.

The Marine Department have decided that on and from 1st April, 1941, these examinations shall be conducted under the new system only. Examination under the old system therefore ceased at the end of the financial year, 31st March, 1941.

Specimen papers of the new Examination for Imperial Validity Certificates, also specimen papers for First-class and Second-class Coastal Motor and Third-class Marine Examination, have been printed for candidates who desire them, and may be obtained from the Marine Department for 4d. per copy.

Examination for First-, Second-, and Third-class Certificates are held at the four main centres only. Examination for Certificates of Competency, Restricted Limits, P.V.O.S., River Engineer, and Marine-engine Driver are held at the fifteen centres throughout the Dominion.

Prosecutions.

Prosecutions instituted under the various statutes by the Department during the year amounted to 57 cases. Those instituted under the Fisheries Act comprised 46 cases, under the Inspection of Machinery Act, 6 cases, and under the Shipping and Seamen Act, 5 cases.

Fisheries.

The working of the Fisheries Branch of the Department is included in the separate report from the Chief Inspector of Fisheries and Director of Fishery Research.

Staff.

The work of the Department has been facilitated to a marked degree by the transfer to the present accommodation in the T. and G. Buildings.

Normal business of the Department, augmented by much war emergency work, has required an additional effort on the part of the staff, who have responded meritoriously both at Head Office and the district branches. Their efforts and support during the year are appreciated.

I have, &c.,
L. B. Campbell, Secretary.

ANNUAL REPORT ON FISHERIES FOR THE YEAR ENDED 31st MARCH, 1941.

The Dominion fishing industry may now be regarded as more or less settled down under the regime introduced by the Industrial Efficiency Regulations of 28th September, 1939, which came into force on 1st January, 1940. Under these regulations every fisherman is obliged to take out a license, issued by the Bureau of Industry, Department of Industries and Commerce. The granting of a license is subject to conditions which limit the licensee to certain methods of fishing and may also place restrictions on the locality of operations and the port of landing. Other aspects of Bureau of Industry control in connection with licenses for the retail, wholesale, canning, and export trades in fish are outside the field of this Department's administrative responsibilities (which are laid down by the Fisheries Act, 1908, and Amendments thereto) and are only of indirect

interest. Contact between the two Departments is maintained chiefly in the person of the Senior Fishery Officer, Mr. M. W. Young, whose work as a member of the Fishery Advisory Committee has been a major occupation during the year. More recently Mr. Young has been working on an inter-departmental committee appointed by the Minister of Supply to report and advise on the question of a fish-canning industry in the Dominion, a question in which the availability and geographical location of suitable supplies of fish and the best method of harvesting them are problems of fundamental importance. New, though somewhat tentative, developments in fish-canning have already taken place which will doubtless be reported upon by the appropriate Department. No special sea fisheries for the supply of material entirely for canning operations have yet been established in this country.

The utilization of fish-livers for the extraction of medicinal oil has been taken up on a small scale, and it is understood that as a result of the preliminary experimental work there is a likelihood of the establishment of a definite industry. Some of our New Zealand fish, such as ling, groper, and various shark species, yield liver-oils which compare favourably or more than favourably with the now universally appreciated cod-liver oil. Problems of supplies of raw material and its processing are the difficulties which have to be overcome.

The quantities and values of the principal classes of fishery products, estimated from returns received from the various ports, for the year are as follows :—

	Quantity.	Value. £
Wet fish	328,594 cwt.	440,308
Whitebait	3,982 cwt.	31,321
Oysters—		
Dredged	65,993 sacks	47,846
Rock	5,782 sacks	7,950
Mussels	18,088 sacks	6,355
Crayfish	10,615 cwt.	14,957
Toheroa (canned products)	169,576 lb.	10,071
Whale products—		
Oil	654 tons	18,000
Bone-dust	30 tons	70
Quinnat salmon (taken by selling licensees)		
Netted fish	1,343 lb.	255
Angled fish	3,751 lb.	
Total values		£577,133

In comparison with the figures for the previous year, the total quantity of wet fish landed shows a decline of 10,637 cwt. and 3·1 per cent. in value. This falling off in the total quantity of wet fish landed is exceeded by the decline in landings at Auckland. The position caused by the loss of four steam-trawlers has been eased to a certain extent by increased Danish-seine catches at Auckland and considerably increased trawler landings at Lyttelton and Port Chalmers.

Dredge-oyster supplies from Foveaux Strait show a decrease of 9,152 sacks, or 12·2 per cent., with a corresponding percentage decrease in value. The quantity of rock oysters taken decreased by 148 sacks (444 bushels), or 2·5 per cent. Commercial landings of mussels show an increase of 8·8 per cent. in quantity and 10·5 per cent. in value. Crayfish landings have increased in weight by 31·5 per cent. and in value by 32·1 per cent.

Fishing-vessels: Landings and Methods of Capture.

Particulars regarding the fishing-fleet at each port are given in Table I. The total number of fishing-vessels licensed during the official year was 822, which is 98 (13·5 per cent.) in excess of the number licensed in the previous year.

The value of the fishing-fleet—that is, vessels in operation as fishing-boats—as at 31st December, 1940, the last day of the licensing year, is estimated at £428,079, or, with the value of fishery gear added, £476,104.

The number of licensed steam-vessels increased from 9 to 13, motor-vessels from 549 to 678, while row-boats decreased from 166 to 131. An analysis according to size, classes, and manner of propulsion, of the vessels is given below. The numbers in parentheses are those for the previous year.

Length (overall).	Steam-vessels.	Motor-vessels.	Row-boats.	Total.
Under 15 ft.	..	22 (19)	55 (84)	77 (103)
15 ft. to 25 ft.	..	141 (136)	76 (82)	217 (218)
26 ft. to 35 ft.	..	277 (228)	..	277 (228)
36 ft. to 45 ft.	..	194 (131)	..	194 (131)
Over 45 ft.	13 (9)	44 (35)	..	57 (44)
Totals	13 (9)	678 (549)	131 (166)	822 (724)

The quantities of the different kinds or classes of fish constituting the grand total of all wet fish landed for the year, together with their value, are shown below in order of abundance: —

Kind or Class of Fish.	Quantity.		Value.	
	Hundredweight.	Percentage of Total.	£	Percentage of Total.
Snapper	116,854	35·56	114,221	25·95
Tarakihi	45,334	13·80	53,103	12·07
Groper	28,283	8·61	57,873	13·14
Blue cod	23,500	7·15	34,436	7·82
Flounder	22,611	6·88	57,487	13·05
Sole	14,682	4·47	30,987	7·03
Gurnard	11,908	3·62	9,908	2·26
Mixed round fish ..	11,671	3·55	11,931	2·71
Ling	8,750	2·66	12,250	2·78
Mixed flat fish	7,954	2·42	17,944	4·08
Red cod	6,011	1·83	5,527	1·26
Elephant-fish	5,089	1·55	6,302	1·44
Barracouta	4,677	1·42	1,856	0·42
Hake	4,297	1·31	7,585	1·72
Mullet	4,099	1·25	4,176	0·95
Moki	2,629	0·80	3,225	0·74
Sardine	1,830	0·56	1,308	0·29
Kingfish	1,669	0·51	1,592	0·36
Pioke	1,545	0·47	752	0·17
Butterfish	1,246	0·38	3,021	0·69
Warehou	1,080	0·33	1,134	0·25
Trevally	836	0·25	854	0·19
Whiting	745	0·23	1,248	0·29
Trumpeter	335	0·10	609	0·13
Kahawai	257	0·08	108	0·02
Garfish	121	0·04	63	0·02
Whiptail	112	0·04	158	0·03
Conger-eel	96	0·03	46	0·02
John-dory	77	0·02	119	0·02
Mackerel	75	0·02	47	0·01
Bonita	69	0·02	159	0·03
Skate	63	0·02	33	0·01
Herring	42	0·01	58	0·01
Brill	30	0·01	99	0·03
Frost-fish	10	..	11	0·01
Parore	3	..	..	..
Maomao	2	..	2	..
Turbot	2	..	4	..
Totals	328,594	..	440,308	..

Snapper still stands well at the head of the list in order of both relative abundance and value. The total catch of this species, however, has diminished by 16,203 cwt., or by 12·2 per cent., in comparison with last year's total, and represents 35·56 per cent. of all the wet fish landed in the Dominion, as against 39·22 per cent. last year. Tarakihi, which comes second in order of abundance, has fallen from 14·51 to 13·8 per cent. of the total catch; and groper, the third most important species, has decreased by 2,567 cwt., or 8·3 per cent. Another decrease of note occurred with blue cod, which is down by 4,588 cwt. or 16·3 per cent. Improved total yeilds are shown for flounder, 3,439 cwt., or 17·9 per cent.; gurnard, 3,104 cwt., or 35·3 per cent.; elephant-fish, 1,267 cwt., or 33·1 per cent. barracouta, 1,047 cwt., or 28·8 per cent.; and hake, 923 cwt., or 27·4 per cent.

With reference to the increase in the total crayfish catch, which no doubt was influenced by the lifting of the restriction on the taking of berried female crayfish in July of last year, the Wellington landings exceeded those of the previous year by 64·7 per cent., Karitane landings improved by 88·8 per cent., and Akaroa by 86·4 per cent. Those at Auckland fell by 32·0 per cent., while Napier and Moeraki showed a decline respectively of 28·7 per cent. and 4·7 per cent.

Method of Capture.

Of the total catch, 39,387 cwt. (12·0 per cent.) was landed from steam-vessels (principally trawling), motor-vessels accounted for 285,612 cwt. (86·9 per cent.), and row-boats 3,595 cwt. (1·1 per cent.).

The total fish caught by each of the more important methods of fishing is shown in the following analysis :—

Method of Fishing.	Quantity.		Value.	
	Hundredweight.	Percentage of Total.	£	Percentage of Total.
Trawl	86,818	26·4	124,163	28·2
Danish seine	131,176	39·9	144,457	32·8
Long- and hand-lines ..	82,441	25·1	126,841	28·8
Set and drag-nets or seine	28,159	8·6	44,847	10·2
Totals	328,594	..	440,308	..

Compared with the quantities for the year 1939–40, trawl-caught fish declined from 94,765 cwt. to 86,818 cwt., and long- and hand-line catches from 85,808 cwt. to 82,441 cwt., and set- and drag-net or seine fish from 31,956 cwt. to 28,159 cwt., while Danish-seine-caught fish increased from 126,702 cwt. to 131,176 cwt.

Three-fifths of the trawl catch was made up of tarakihi, sole, gurnard, and snapper, the respective percentages being 35·3, 15·8, 7·1, and 1·8. Of the Danish-seine catch, 70·8 per cent. was made up of snapper, while tarakihi formed a further 10·8 per cent. Flounders, snapper, and mullet were the principal species in the set net and drag-net landings, contributing together 69·7 per cent. of the total landed, while groper, blue cod, and snapper headed the line catches, the percentages being 32·9, 28·5, and 19·4 respectively.

Landings at Ports.

Of the total quantity of wet fish taken, 38·1 per cent. was landed at Auckland (excluding Manukau and Coromandel).

The most important increases occurred at Port Chalmers, 12,241 cwt., or 106·3 per cent. ; Lyttelton, 3,059 cwt., or 29·0 per cent. ; Napier, 2,724 cwt., or 19·8 per cent. ; Nelson, 1,813 cwt., or 46·6 per cent. ; Stewart Island, 1,460 cwt., or 14·8 per cent. ; and Paremata, 1,098 cwt., or 87·1 per cent.

The principle decreases were : Auckland, 13,028 cwt., or 9·4 per cent. ; Thames, 5,188 cwt., or 26·7 per cent. ; Wellington, 3,853 cwt., or 10·0 per cent. ; Timaru, 2,455 cwt., or 16·4 per cent. ; and Taieri Mouth, 1·019 cwt., or 42.8 per cent.

In the absence of any trawler landings at Auckland, the percentage of Danish-seined fish in the total catch has risen from 82·4 per cent. to 93·8 per cent., the actual landings by this method of fishing being 3,516 cwt. in excess of those in the previous year. The line boats also brought in increased catches compared with those in 1939–40, especially in regard to kingfish (for canning), the actual increase of this species expressed as a percentage being 533·2.

Comparative figures for the total landings (including those from Manukau and Coromandel) and for the three categories, snapper, tarakihi, and flounder, for the last six years are given below :—

Fish landed at Auckland.	1935–36.	1936–37.	1937–38.	1938–39.	1939–40.	1940–41.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total quantity landed	129,209	159,371	140,234	150,730	140,588	127,826
Snapper	88,374	112,656	97,296	107,252	101,006	91,715
Tarakihi	18,100	24,966	24,240	22,530	20,981	13,185
Flounders (including dabs)	7,560	3,743	4,968	7,082	8,680	13,379

The outstanding features from the foregoing table are the decline in snapper and tarakihi landings and the substantial increase in the flounder catch, which total includes the category returned as "mixed flat fish." The tarakihi catch is the lowest since 1932–33.

The combined returns of fish landings for Thames give a much lower total than last year, as will be seen in the following table, which gives the total quantity and value, and the landings for the two principal kinds of marketable fish, during the last six years :—

Fish landed at Thames.	1935–36.	1936–37.	1937–38.	1938–39.	1939–40.	1940–41.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total wet fish	19,134	15,447	18,692	17,199	19,399	14,211
Snapper	14,053	11,356	13,400	11,123	14,153	7,891
Flounder (including dabs and mixed flat fish)	3,305	3,216	3,998	5,157	4,331	5,335
Total value	14,593	16,690	23,174	23,616	24,501	21,252

Snapper landings, 44·2 per cent. lower than in 1939–40, were the poorest since 1932–33, and incidentally one has to go back to this year to find a better flounder catch.

There has been little change at Tauranga, but the Gisborne landings show an increase of 4·1 per cent. over the previous year, which, in its turn, produced 11·1 per cent. more than in 1938–39. Over half of the catch consisted of tarakihi landed from the trawlers.

The Napier fish returns show an increase compared with the previous year, the total being 16,469 cwt., as against 13,745 cwt., the total flat-fish landings having risen by 840 cwt. and the round fish by 1,884 cwt. Trawler landings increased from 1,327 to 1,556, Danish-seine landings from 215 to 254, and line landings from 639 to 706.

The diminution by 3,853 cwt. of the total catch of wet fish for Wellington is exceeded by the decline in steam-trawler landings, which fell from 26,706 cwt. in 1939–40 to 17,656 cwt. in 1940–41, a difference of 9,050 cwt. Only one steam-trawler was in full-time operation, supplies from this vessel being supplemented by catches from two part-time motor-trawlers. The steam-trawlers, operating for the most part on the Cape Campbell, Kaikoura, and Castlepoint grounds, made 78 voyages, in comparison with the 124 recorded in 1939–40, and brought in 51·2 per cent. of the total quantity of fish landed. Tarakihi constituted 65·8 per cent. of the catch, red cod 10·1 per cent., barracouta 4·4 per cent., moki 4·3 per cent., hake 2·6 per cent., and snapper 1·7 per cent.

The Italian fishing-fleet was idle for a period of six weeks, and a further restriction was put on these vessels by the placing of Cape Campbell out of bounds; gear was sometimes in short supply and fishing operations were thus more dependent on favourable weather conditions than hitherto. Nevertheless, the year was a good one for the Wellington long-line boats. Groper landings declined, but ling and hake landings, especially the former, showed a marked increase. The ling catch, which rose by 1,150 cwt., or 137·4 per cent., is due chiefly to the more intensive fishing for this species. Improved handling of bait was an aid to the more successful catching of hake, which was in good supply in Palliser Bay, especially during the months of March, November, and October.

The fish-carrier "South Sea" visited Wellington on two occasions during the early part of the year and landed a total of 2,697 cwt. of blue cod and 72 cwt. of groper, valued at £1,593, from the Chatham Islands.

A decrease of 60 cwt. is recorded in the quantity of fish shipped by steamer from the French Pass, which represents a decrease of 2·3 per cent. compared with the total for the preceding year. While the blue cod, groper, and snapper landings have fallen off slightly in this area, butterfish catches have shown a fairly substantial increase.

The main features of the fishery conditions for the other ports can be gathered from the appended tables. In the Otago District the flat-fish catches were much the same in quantity as in 1939–40, but the proportion of flat fish to the total quantity of fish caught was only 39·5 per cent., compared with 59·5 per cent. in the previous year. Then, however, the steam-trawler "Hananui" was only in operation for one month, whereas during the year under review she was fishing full time and, being a deep-sea trawler, brought in very little flat fish.

Exports and Imports.

The quantities and values of different classes of fishery products imported and exported are given in Table V (p. 31–32), supplied by the courtesy of the Customs Department.

The total value of imports for the year, consisting almost entirely of canned fish and shell-fish, amounted to £70,415, which is the lowest on record since 1909 with the exception of the slump year 1921. It is slightly exceeded by the total of £70,926 recorded for the year 1932, which also was affected by financial depression.

The total value of exported fish and shell-fish for the year is £166,353, an increase over last year's figure of £149,882, but below the totals for 1938–39 and the two preceding years. The total value of exports of frozen fish (£120,734) is slightly above that of last year (£119,999). The exports of snapper have fallen to less than half, and tarakihi shows some diminution. Flounder exports have increased; blue cod are slightly down in quantity but up in value; and the exports of various sorts of frozen fish under the heading "other kinds" have been doubled. Among canned goods exported, oysters remain at about the same level, but whitebait, crayfish, and toheroa all show substantial increases.

Rock Oysters.

The picking of rock oysters for the 1940 season commenced on 15th May. The Auckland depot was open for sales on 30th May, and closed on 10th August. The condition of the oysters was, on the whole, very good and the demand throughout the season was keen. The total production for the season was 5,782 sacks. This compares well with the average for the 1930–39 decade, which was 4,605, but it falls much below the average of 6,717 for the 1920–29 decade when, it is now considered, the beds were overpicked. It seems improbable that the annual production for the market can be maintained at its present figure without risking diminution of future production unless cultivated areas are extended; but it is of no use extending the beds by artificial help unless they can be adequately protected. The yield of oysters from the various areas is shown in Table III (page 31). It will be noticed that the beds in Whangaroa Harbour provided 24 sacks of oysters, thanks to the protection from poaching afforded by the local Inspector of Fisheries to the new stock that had been created as the result of an exceptionally good spawning season in 1934–35. Previously Whangaroa had yielded 21 sacks in 1929 and 164 sacks in 1922, but in the interim had remained for several years without surveillance.

Oyster-cultivation.

The nature, locality, and cost of oyster-cultivation work undertaken during the year are shown in the statement which follows:—

Area. *Oyster-cultivation for the Year ended 31st March, 1941.*

I. Bay of Islands: 7,468,000 borers and 4,570 pupus destroyed, 3,323 square yards of rock cleared of weeds, and 69 square yards cleared of dead shell. Cost, £429 1s.

II. Whangarei Harbour: 129,400 borers destroyed, 6,304 square yards cleared of grape-weed, and 1,949 square yards of mixed oyster-bearing and clean rock moved to better position. Cost, £54 10s.

III. Kaipara Harbour: 1,271,700 borers destroyed and 5,999 square yards of rock cleared of dead shell. Cost, £123 7s.

IV. Takatu to Gull Point: 124,000 borers destroyed. Cost, £8 2s.

V. Tamaki Strait: 124,000 borers and 56 pupus destroyed. Cost, £7 12s.

VI. Coromandel: 808,000 borers and 5,746 pupus destroyed, 5,890 square yards of rock cleared of grape-weed, and 170 square yards of capstones distributed. Cost, £40 10s.

VII. Kawau: 210 new concrete posts erected and 230 old posts cleaned. Cost, £47 8s.

XIII. Waiheke: 1,334,900 borers and 142 pupus destroyed, 7,073 square yards of rock cleared of weed, 3,381 square yards cleared of dead shell, 400 square yards of clean rock distributed, 86 yards of oyster-bearing rock moved to better position, and 200 square yards of drift-beds formed. Cost, £253 10s.

XIV. Ponui: 544,000 borers and 146 pupus destroyed, 2,825 square yards cleared of grape-weed, and 1,238 square yards cleared of dead shell. Cost, £86 2s.

XVI. Great Barrier Island: 282,000 borers destroyed, 100 square yards cleared of grape-weed, and 930 square yards of clean rock distributed. Cost, £49 7s.

XVII. Whangaroa Harbour: 30,000 borers destroyed, 320 square yards cleared of grape-weed, and 75 square yards cleared of dead shell. Cost, £27 18s.

Total for all areas: 12,116,000 borers and 10,660 pupus destroyed, 25,835 square yards cleared of weed, 10,762 square yards cleared of dead shell, 3,365 square yards of clean and oyster-bearing rock shifted, 170 square yards of capstones distributed, 200 square yards of drift-bed formed, 210 new concrete posts put down, and 230 old posts cleaned. Cost, £1,127 7s.

Dredge Oysters.

In the 1940 season, which began on 1st February and ended on 15th October, twelve oyster-dredging vessels worked the Foveaux Strait grounds throughout the season and one commenced late in August. The total number of landings for the year was 1,285, the maximum number of voyages (222) being made in July and the lowest (83) in February. Seventy-nine landings were made for the first half of October at the end of the season. A box of standard size was brought into universal use for measuring the catches on board in the course of this season. This will not only serve to minimize disputes connected with the payment of oystermen, for which reason its use was adopted, but will also make for greater accuracy in rendering returns of catches and will facilitate the compilation of accurate statistics.

The estimated total quantity of oysters landed for the season was 65,993 sacks (each 3 bushels). By way of making a tentative trial of the suggestion made by oyster-fishermen that an extended season would be to their advantage and would do no harm to the fishery, the 1940 season was extended for a fortnight and did not close until 16th October. The catches at the end of the season were marked by a more than usual proportion of oysters that were spawning or about to spawn, and were thus deteriorated as to their edible quality. The spawning season for oysters in Foveaux Strait appeared this year to be somewhat in advance of its normal incidence, a phenomenon connected with variations in temperature and food conditions which is not unusual and which occurs with sufficient frequency to cause uncertainty about the correct date for opening and closing the season if such dates are fixed with reference to spawning conditions alone. However, there was also evidence of an increased proportion of oysters that were below the usual commercial standard of size, and some complaints were voiced by dealers on this account. By no means all the oysters consigned to market and sold to consumers were deficient in size or quality. Some sacks, and some whole catches, of excellent quality were landed, but the increased proportion that fell below the average standard may be taken as an indication of a deterioration of stocks through the increased demands made on the available oyster population by intense fishing. Though further evidence by means of special investigation is desirable to enable one to come to a confident conclusion on this important question, an investigation which is unfortunately hardly possible under prevailing conditions, there is reason to believe that any substantial increase in the exploitation of these natural beds would result in depletion and subsequent economic loss.

Toheroa.

The toheroa stocks on both the Ninety Mile Beach and the North Kaipara Beach have shown improvement, especially the latter, since last season. Both canneries operated, and the total pack of toheroa and toheroa pulp amounted to 169,576 lb., valued at £10,071.

The extended close season, in which the taking of toheroa was prohibited for twelve months, on the North Kaipara Beach, in the Bay of Plenty, and on the west coast of the Wellington Provincial District came to an end on 1st January, 1941. All the beds which had been subject to this closure showed gratifying improvement, though nowhere has there been a return to the abundance of supplies which was the rule before the days of constant visitations by motor-car parties.

The conservation of toheroa stocks still calls, and must continue to call, for constant surveillance of the beaches and for restraint on the part of the beach-frequenting public. The amended regulations made on 10th December, 1940, require that no implement made of metal shall be used for digging toheroas on the beaches in the Wellington Provincial District, and the use of garden forks as well as

spades or shovels is prohibited everywhere. The daily "bag" limits per person have been maintained as before the closure, except that the daily quantity allowed to a Maori on the beaches of the Auckland Provincial District has been raised from fifty to eighty. Periodical inspections that have been made on different beaches show in most cases a promising abundance of half-grown toheroas and fair quantities of those that are about or just over the legal length of 3 in.; but there is still a deficiency of large toheroa (over 4 in.) in many areas, and especially on the Ninety Mile Beach, which was the only one which, owing to the desire to allow the local Natives to obtain their customary food-supplies, was exempt from the general closure of 1939–40.

Whitebait.

The 1940 whitebait season was definitely better than that of the previous year, and only in Marlborough and Hawke's Bay was a falling off in the fishing reported. The most marked improvement was noticed in the Waikato, Westland, and Otago fisheries, and some increase was reported for Taranaki, Bay of Plenty, and Nelson districts. The estimated total catch was about 3,982 cwt.—twice the total for last season, and somewhat higher than the average for the past five years. The weather conditions were generally favourable for fishing.

There is still some dissatisfaction with the control and regulation of whitebait-fishing operations in certain districts, where provision for supervision and ranging is not so good as might be desired. An effort has been made to overhaul existing regulations, which are necessarily somewhat complicated owing to the variety of conditions that have to be catered for. Owing to reduction in the inspecting staff and to present-day restriction in transport facilities, it has not been possible to do this as comprehensively as was desired.

The introduction of a licensing system for commercial whitebait-fishing which would rationalize administration and facilitate our understanding of the fisheries and the factors that affect production, and which has, moreover, been strongly advocated by the majority of those who give their whole attention to whitebait-fishing as an occupation, has been under consideration. However, in view of the obvious objections to the bringing in of such a scheme under present conditions, it has been decided to defer this particular measure.

A summary statement of the principal facts regarding the 1940 season, with estimated catches, is given below:—

Whitebait Fishery: 1940 Season.

Inspector's Centre.	Rivers fished.	Method of Fishing.	Fishing began.	Best Month.	Number of Fishermen. (Approximately.)		Total Quantity caught. (Approximately.)
					Whole Time.	Part Time.	
							Cwt.
Auckland ..	Waikato	Hand-nets ..	1st July	September ..	100	50	1,083
Auckland ..	Kaituna	Hand-nets ..	10th July	September ..	20	13	109
Auckland ..	Tarawera and Rangitaiki	Hand-nets ..	6th July	Last day of September	14	8	90
Napier ..	Tukituki, Ngaruroro, Wairoa	Set-nets ..	1st July	September ..	18	30	50
New Plymouth	Waitara, Mokau, Timaru, Onaero, Mimi, Waiongona, Waiwakaiho	Hand and set nets	1st July	September ..	..	110	58
Foxton ..	Manawatu.. ..	Hand and set nets	July ..	October ..	..	19	22
Wellington .. (no return)	Waikanae, Waimiha, Otaki, Waikawa, Ohau, Hokio, Rangitikei, Hutt, Ruamahanga, &c.	Hand and set nets	July ..	October.. ..	..	..	20*
Blenheim ..	Wairau, Rose's overflow, Opawa, Tuamarina	Hand-nets ..	October ..	Mid-October ..	5	50	47
Nelson (Motueka)	Motueka, Moutere ..	Hand and set nets	August ..	October ..	9	6	60
Nelson (Takaka)	Takaka, Motupipi ..	Hand and set nets	September	October ..	6	5	32
Westport	Buller, Orawaiti, Mokihinui, Big Totara, Little Totara, Nile	Hand-nets ..	September	October ..	25	150	220
Greymouth ..	Grey, Teremakau, Cameron's, Paroa	Hand-nets ..	September	October ..	4	150	180
Hokitika ..	Hokitika, Mahinapua, Totara, Waimea, Fisherman's, Fourmile, Wataroa	Hand and set nets	August ..	October.. ..	81	52	976
Wataroa ..	Waita, Waiatoto, Wataroa, Big and Little Wanganui	Hand and set nets	September	October ..	20	30	334
Christchurch..	Waimakariri, Styx, Ashley, Saltwater Creek, Kaiapoi, Avon, Hurunui	Hand and set nets	August ..	November ..	..	..	256
Temuka ..	Opihi, Orari ..	Set-nets ..	August ..	November ..	..	30	26
Dunedin ..	Molyneaux, Taieri, Kakanui, Waipori, Waikouaiti, Waikawa, Shag, Tokomariro, Pleasant, Waihakarua	Hand-nets ..	August ..	October and November	20	..	209
Invercargill (no return)	Mataura, Oreti, Aparima, Waiau, Titiroa Makarewa	Hand and set nets	August ..	October and November	..	..	200*
							3,982

* Estimated total, no local return having been obtained.

Whaling.

The statistical results of whaling operations each year are given in Table IV (see page 31). The year 1940 is noteworthy as having provided a record season for the Tory Channel (Marlborough Sounds) Station with a total capture of 107 humpback and 2 sperm whales killed between 9th June and 2nd September. The operations were helped by unusually favourable weather and good visibility. Preparations have been made during the year to resume whaling from the old station at Whangamumu, where the fishery has not been carried on since 1932.

Fresh-water Fisheries.

Quinnat Salmon.

To obtain fish for hatchery operations at Hakataramea a pound-trap of wire-netting was constructed between the 23rd and the 25th April, and secured its first salmon on the 26th April. The Waitaki was at first very low and gave poor access to the mouth of its tributary. An exceptionally high flood occurred early in May which washed out the trap on the 4th and caused a rise of 6 ft. in the Hakataramea on the 8th of the month. Operations were therefore transferred to the Awakino, a small tributary of the Waitaki entering from the south side three or four miles above the Hakataramea mouth.

The numbers of fish taken and of ova stripped for the hatchery were as follows: —

——	Males.	Females.	Ova.
Hakataramea River—			
April (25th to 30th)	17	15	66,000
May (1st to 5th)	41	73	325,000
Awakino River—			
May (15th to 23rd)	26	46	214,000
Totals	84	134	605,000

In addition to the stripped fish, there were captured and liberated above the trap to spawn naturally 16 male and 20 female salmon, 46 brown trout, and 1 rainbow trout. The high river induced a numerous run of fish into the Hakataramea, especially during the month of May. Numerous redds were made in the lower reaches of the river, but the salmon also travelled farther upstream than usual. The sizes of fish running in the Waitaki this season were reported to be below the usual average.

The hatchery output was as follows— 459,000 salmon fry liberated in Hakataramea River, 60,000 ova sent to Australia, 26,000 fry retained in ponds for marking experiment, and 60,000 lost during incubation or unfertile; total, 605,000.

The salmon-angling season of 1941 was spoilt by almost continual floods in the principal rivers, the conditions being even less favourable than in 1940. The table given below, summarizing the returns received from the rod and net fishermen who hold licenses permitting them to sell salmon, enables a comparison to be made with the records of previous years: —

Quinnat Salmon, 1941.

——	Males.	Females.	Sex not given.	Totals
Returns from Rods.				
Waimakariri River, 15/3/41 (1 rod)—				
Number of fish caught	..	2	..	2
Total weight	..	18·5 lb.	..	18·5 lb.
Average weight	..	9·2 lb.	..	9·2 lb.
Rakaia River, 18/1/41 to 17/4/41 (4 rods)—				
Number of fish caught	79	83	7	169
Total weight	1,266 lb.	1,195·5 lb.	112 lb.	2,577·5 lb.
Average weight	16·0 lb.	14·4 lb.	16 lb.	15·2 lb.
Rangitata River, 15/1/41 to 15/4/41 (7 rods)				
Number of fish caught	30	31	4	65
Total weight	550 lb.	534 lb.	71·5 lb.	1,155·5 lb.
Average weight	18·3 lb.	17·2 lb.	17·9 lb.	17·8 lb.
Combined rivers, 15/1/41 to 27/4/42 (10 rods*)				
Number of fish caught	109	116	11	236
Total weight	1,846 lb.	1,752 lb.	183·5 lb.	3,751·5 lb.
Average weight	16·6 lb.	15·1 lb.	16·7 lb.	15·9 lb.
Returns from Nets.				
Waimakariri River, 12/2/41 to 28/3/41 (2 nets)—				
Number of fish caught	44	71	Nil	115
Total weight	487·5 lb.	855·5 lb.	Nil	1,343 lb.
Average weight	11·1 lb.	12·0 lb.	Nil	11·7 lb.

* Two rods fished on two rivers during the season.

The two netsmen on the Waimakariri did somewhat better than last year, and the rod fishers in general not so well. Many salmon ran up to the higher waters without coming within the ken of fishermen, and the upper reaches and tributaries of the larger Canterbury rivers were reported to be carrying large numbers of spawners by the end of April.

Atlantic Salmon.

The rack and fish-trap for taking salmon for the hatchery operations, built on the usual site in the Upukororo River, were completed on 16th April, and the first salmon were captured on the following day. Fifty-one males and 36 females were caught up to the end of the month, 80 males and 93 females were trapped in May, and in June 17 females and 18 males were taken. A total of 295 fish (149 males and 146 females) was thus available for stripping, and yielded 401,500 ova for the hatchery. The losses during incubation were very slight, and after feeding in the hatchery boxes for two months the fry were liberated in different parts of the Upukororo River and in the lake shallows. Rainbow-trout ova numbering 72,000 and 45,000 brown-trout ova were also hatched and the fry fed for a period before liberation.

Atlantic-salmon yearlings reared in the ponds were used for a marking experiment, the left ventral fins of 5,393 fish being removed before liberation in the lake.

In the 1940–41 angling season fair numbers of salmon were caught in the Waiau River, in the lake, and in the Eglinton and Upukororo Rivers. The condition of the fish was reported to be above the average of recent years. Mr. C. G. McIvor recorded 184 salmon definitely known to have been taken to the neighbourhood of Te Anau. Of these, the 29 salmon whose individual weights were noted gave an average of 4·95 lb., but the average weight of the season's catch would probably be about 4 lb. Salmon of 12 lb., 11 lb., 10½ lb., and 9 lb. were taken, the two largest being from the Eglinton River.

Research.

Fresh-water Fisheries.

The work of the two fresh-water biologists has continued along lines that are a logical and necessary development or extension of the investigations described in last year's report.

During the past year the programme of research on the trout stock of the Horokiwi Stream has been continued by Mr. K. R. Allen, and the data regarding the present position of this stock and its relation to the food-supply are now almost complete.

The special study of the fish hatched in October, 1939, has been continued, and their growth, movements, and feeding habits have been observed. A considerable number of fish of this year class have been tagged and subsequently recaptured. These have provided information regarding the movements of fish within the stream, as well as giving a check on the determinations of the rate of growth which have been made by other methods. It has been found that the trout of the Horokiwi are remarkably stationary in their habits, and only about 10 per cent. of the recaptured fish have been taken more than 100 yards from the place where they were first caught, although the average interval between tagging and recapture is about three months. The stationary habit of these fish makes possible the striking difference in rate of growth shown by the trout in different parts of the stream. At the end of March, 1941, the average size of the fish of the 1939 hatch varied from 12 in. in the lower part of the stream to 9 in. in parts of the upper water. These variations are due partly to differences in rates of growth during the summer, but principally to the fact that, while practically no growth takes place in the upper waters between May and August, growth continues in the lower part of the stream throughout the winter. A further consequence of the stationary habit of the Horokiwi trout is that different areas of the stream appear to be characterized by the predominance of trout of different year classes. This effect may be the result of local differences in the success of the spawning season in different years, due possibly to the action of floods.

From the studies which have been made the following data have also been obtained regarding the number of fish which survive to different ages in the Horokiwi. The initial number of fry commencing life in an average year is probably in the neighbourhood of 100,000, but it is unlikely that more than 2,000 of these survive to the end of the first year. During the second year the mortality is much less, and despite the fact that from December onwards some of these fish are large enough to be killed by anglers, about 1,000 survive to the end of their second year. It is probable, however, that during the 1939–40 season only about 50 of these fish were taken by anglers. During the third year there is again a heavy mortality, due probably to two causes—angling and the effect of spawning. Of the fish which die in their third year, about 300 are taken by anglers. No definite estimate of the mortality after spawning has been made, but it is well known that mortality tends to be higher after spawning has commenced, and it has been found that in the Horokiwi 80 per cent. to 85 per cent. of the fish spawn at the end of their second year. Whether as a result of these or other causes, it appears that the number of trout more than three years old does not exceed a few hundred at any time.

It was stated in the previous report that during their first summer the principal food of trout in the Horokiwi was the nymphs of various mayflies. It has since been found that during the first winter a rapid change takes place in the nature of the food, and that as a result of this from September onwards 60 per cent. to 80 per cent. of the food consists of the case-building larvæ of various species of caddis-flies.

Among the minor observations which are of interest may be mentioned the effect of the heavy flood of February, 1941, on the growth of fish in their first year. This flood, in which the high level of the water was maintained for an unusually long period, had an exceptionally severe effect in altering and disturbing the stream-bed, and as a consequence there were heavy losses among the bottom-living animals on which the young trout feed. The effect of this on the fish was immediately shown. In those areas most affected by the flood their condition dropped about 10 per cent., and although they had previously been growing steadily at a rate of nearly ½ in. per month, they suddenly ceased to grow.

When these observations on the present conditions in the Horokiwi have been completed it is hoped to embark on a programme of experimental modifications of the stock in order to determine whether and to what extent it is possible to increase the yield of trout within the limits imposed by the available food-supply.

While Mr. Allen has thus concentrated on an intensive examination of trout and their environmental conditions in one local river, Mr. Hobbs has continued his investigation of natural propagation and survival in various rivers in both Islands, collecting information in the field in Wellington, North Canterbury, and Otago Acclimatization Districts. Mention was made in last year's report of the results of his studies of trout redds in sixty-four rivers and streams in Southland and in the North Island, a paper on which was then in the press (" Natural Production of Trout in New Zealand, and its Relation to Density of Population " : Fisheries Bulletin No. 8 (1940)). This extended and elaborated the information embodied in Fisheries Bulletin No. 6 (1937). Both papers have aroused interest among biologists, fish culturists, and anglers, abroad as well as in New Zealand, and have given rise to a demand for consideration of the bearing of this new knowledge on the practical management of trout fisheries. For many years the idea has prevailed, even among people regarded as authorities, that the trout made rather a poor job of spawning, the impression being that far more than half the eggs that a trout was capable of producing were either not impregnated, not properly covered in the redd, devoured by predators, or destroyed by climatic aberrations causing abnormally high or low water-flow, &c. Mr. Hobbs' observations of hundreds of redds in various waters, described in the above-mentioned papers, show that this is by no means the case in the New Zealand rivers and streams that he has studied. On the other hand, trout appear to be well guided by instinct both in the choosing and using of their spawning-sites, and, of the ova extruded, in the majority of cases there was comparatively slight loss at any stage or from any cause. Cases are known where extreme flooding with the consequent changing of the channel in a river-bed, or the exposure of redds by a greatly reduced flow of water, have caused large-scale destruction; and, as Mr. Hobbs has demonstrated, the deposit of silt among the stones of a redd is a known cause of embryo mortality. The losses from such causes are occasional and would appear to be a small proportion of the sum total of the egg-production of the whole trout population of the Dominion; but, as Mr. Hobbs has pointed out, long-term observations are still needed to show the frequency and extent of flood losses. Two questions arise here for consideration: If mortality during incubation does not account for the extremely great disparity between the total number of eggs that the mature fish among a trout population can produce and fertilize and the total fish that survive to become mature and of a takable size for anglers, at what stage and from what causes do the losses occur? Connected with this is the practical question of remedial measures. Mr. Allen's Horokiwi investigations are throwing light on this question so far as this and rivers of similar character are concerned. Another question is as to what proportion of a new generation in a trout stock is provided by artificial planting of fry produced by hatchery operations. Mr. Hobbs has rightly emphasized that the actual gain to a fishery is not measured by the number of fry liberated, but by the difference between that number and the number of fry that would have been produced if the fish had been left in the water to spawn naturally. It may be, and there are indications that such must be the case in some rivers, that fry liberations have contributed a negligible increase to the total fry population and consequently to the supply of fish for anglers. How the survival rate among artificially planted fry compares with that of the fry from natural redds is a further question that needs examination. Mr. Hobbs has been recently occupied in gathering data for the purpose of determining the relative efficiency of natural and artificial propagation and what is the proportion of the sum total of available eggs to which it is practicable to apply fish-cultural methods. The answer to both questions will vary considerably for different kinds of trout waters, and obviously have an important bearing on fish-cultural practice. To ascertain the degree of effectiveness of artificial aid to trout stocks calls for long-term investigation. The collection of past and present data has been undertaken and has already provided some illuminating facts, but for finally convincing conclusions schemes for the quantitative examinations of populations, of natural and artificial aids to stock, and of abstractions by predators and by fishermen are necessary, and experimental treatments must play some part in such investigations. The relative effect of the factors involved has varied, and will vary, from time to time and from place to place. In some quarters the work of Mr. Hobbs, or rather the abbreviated and ill-balanced version of it that has been reported in the press, has been misinterpreted as a campaign against hatcheries. It is true that he has opened up the question as to whether acclimatization societies are making the most economical and effective use of their funds by a continuation of the past rather indiscriminate collection of ova, which are rarely anything more than a small proportion of the total produced by the trout comprising wild populations, and the rather indiscriminate release of artificially reared young fish on the assumption that such releases are everywhere necessary or at least beneficial. He has pointed out that in certain waters the money spent on the provision of hatchery-reared fry might have been spent to better purpose on other methods of increasing the number of fish available for angling, as, for example, by the destruction of known predators such as eels. To draw attention to problems the solution of which must make for more efficient utilization of hatcheries is by no means the same as advocating the abolition of hatcheries. It is evident that there are many waters capable of holding a good head of trout which can never be fully stocked by natural propagation because of the inadequacy of suitable spawning-places. The work of Mr. Hobbs has greatly extended and corrected our knowledge of such habitats. The facts set forth in Fisheries Bulletin No. 8 indicate that the limit to natural increase of trout population is set by the availability of suitable spawning-places; in practically every river and stream examined the contents of earlier redds were found to be subject to some degree of destruction by being dug over by later spawners. This indicates superfluities of ova that could be utilized in hatcheries. The difference between the recently acquired point of view and that of the older fish culturists, in a word, is that they, without sufficient observations, emphasized the breeding limitations of the *individual*, while Hobbs throws light on the propagational limitations of the *stock* imposed on them by habitat conditions.

The question as to the best stage to liberate artificially reared trout is one to which a convincing answer has not yet been found. In recent years there has been a growing tendency to keep artifically fed fry in nursery ponds until they approach the yearling stage. Attention is being directed upon this subject, and some data have been obtained which afford a partial answer to the question as to what extent the loss in rearing-ponds is less than the loss in nature. An answer to the question of whether it is practicable to afford artificial protection to a significant proportion of the total number of young fish produced is being sought by an experiment in which a known number of marked yearlings have been released in the Manawatu River with a view to learning what proportion of anglers' catches they subsequently comprise. A report is in preparation setting out the results of inquiries into the relative efficiencies of natural and artificial production and into the proportion of available eggs to which it is practicable to apply fish-cultural methods. It will also contain a historical survey of the development and management of trout fisheries in New Zealand, with an examination of the usual practices in the light of present-day knowledge, together with a review of trout-fishing in New Zealand in its biological and economic aspects.

Sea Fisheries.

The work of the Marine Biologist, Mr. A. M. Rapson, during the year has been largely a continuation of studies already in hand. Toheroa observations, to get further data on food growth and reproduction in different regions, and surveys of beds with a view to determination of populations of various beaches, have occupied some time, but transport difficulties have prevented this work from being as detailed and extensive as would have been the normal aim. The blue-cod-marking experiments have been continued, 4,304 fish having been tagged during the year and liberated in Admiralty Bay, Pelorus Sound, and Queen Charlotte Sound. The recaptures of marked blue cod numbered 109. Mr. Rapson is also keeping in touch with the developing sardine (pilchard, or "Picton herring") fisheries, now pursued at intervals in Queen Charlotte Sound by the Cook Strait line fishermen for the purpose of obtaining bait. Data concerning food, migrations, growth, and racial characters are being obtained.

A new field of applied marine biological work in New Zealand has been opened up during the past year in connection with our seaweed supplies, which have assumed a new interest and potential importance as a possible, and probably the best, source of potash in the event of the failure of overseas supplies of potassic fertilizers. Collaborating with officers of the Departments of Agriculture and of Scientific and Industrial Research who are interested in the economic and biological aspects of seaweeds, Mr. Rapson has carried out surveys of the potash-rich *Macrocystis* (a kind of kelp) in the French Pass, D'Urville Island, Queen Charlotte Sound, and Foveaux Strait areas, estimating the quantities available and examining the possibilities of harvesting.

STAFF, ETC.

The pre-war personnel of the Fisheries Branch has not yet been seriously affected by the exigencies of the present time, though developments that had been hoped for and planned have necessarily been deferred. Our available staff, never entirely adequate for the many tasks that call for attention to enable the Department to deal with its growing problems in a rational and up-to-date manner, has been lessened by the transfer to military duties of one officer (satisfactorily replaced during the year by a temporary appointee) and by the total diversion of one and the partial allocation of another to functions necessitated by the existing conditions. There is indeed only one consideration that justifies continued application to our normal tasks, and that is the necessity to maintain such control over our fisheries as will ensure that these resources are utilized rationally in the general interest and conserved without depletion for the benefit of future generations. To enable such control to operate efficiently and equitably there must be provision for acquiring the relevant material facts and for reviewing them in proper perspective. Diminished transport and other facilities have inevitably retarded and curtailed our contacts with the widely dispersed fields of operation covered by fishery activities. A final point to appreciate at a time when the importance of national economy is becoming a matter of increasing significance is that present conservation is a much more possible and profitable proposition than subsequent restoration.

A. E. HEFFORD,
Chief Inspector of Fisheries
and Director of Fishery Research.

Wellington, 10th June, 1941.

TABLE SHOWING THE NUMBER OF SEAMEN ENGAGED AND DISCHARGED IN NEW ZEALAND, AND THE FEES RECEIVED, FOR THE YEAR ENDED 31ST MARCH, 1941.

Port.	Engagements and Discharges, Foreign and Intercolonial Trade.				Engagements and Discharges, Home Trade.				Total Engagements.		Total Discharges.		Grand Totals.	
	Engagements.		Discharges.		Engagements.		Discharges.							
	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.
		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.
Auckland	2,233	218 11 0	2,331	227 9 0	1,432	126 15 0	1,443	127 11 0	3,665	345 6 0	3,774	355 0 0	7,439	700 6 0
Blenheim	..	..	..	..	4	8 0	21	0 12 0	4	0 8 0	21	0 12 0	25	1 0 0
Dargaville	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dunedin	318	31 1 0	305	29 13 0	129	11 17 0	114	10 13 0	447	42 18 0	419	40 6 0	866	83 4 0
Foxton	..	..	..	..	7	0 14 0	18	1 16 0	7	0 14 0	18	1 16 0	25	2 10 0
Gisborne	7	0 14 0	13	1 6 0	43	3 16 0	45	4 0 0	50	4 10 0	58	5 6 0	108	9 16 0
Greymouth	54	5 8 0	52	5 4 0	41	2 17 0	20	1 9 0	95	8 5 0	72	6 13 0	167	14 18 0
Hokitika	..	..	..	..	15	0 14 0	15	0 14 0	15	0 14 0	15	0 14 0	30	1 8 0
Invercargill	10	1 0 0	10	1 0 0	40	2 1 0	39	3 4 0	50	3 1 0	49	4 4 0	99	7 5 0
Lyttelton	276	25 19 0	247	23 11 0	211	20 13 0	255	25 1 0	487	46 12 0	502	48 12 0	989	95 4 0
Napier	83	8 5 0	85	8 9 0	148	13 3 0	143	14 0 0	231	21 8 0	228	22 9 0	459	43 17 0
Nelson	2	0 4 0	2	0 4 0	361	27 8 0	375	27 6 0	363	27 12 0	377	27 10 0	740	55 2 0
New Plymouth	43	4 6 0	44	4 8 0	42	3 12 0	42	3 12 0	85	7 18 0	86	8 0 0	171	15 18 0
Oamaru	1	0 2 0	..	..	18	1 16 0	17	1 14 0	19	1 18 0	17	1 14 0	36	3 12 0
Onehunga	..	..	..	..	120	11 4 0	133	12 14 0	120	11 4 0	133	12 14 0	253	23 18 0
Patea	..	..	..	..	53	3 9 0	53	3 9 0	53	3 9 0	53	3 9 0	106	6 18 0
Picton	6	0 12 0	3	0 6 0	10	1 0 0	10	1 0 0	16	1 12 0	13	1 6 0	29	2 18 0
Tauranga	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Timaru	35	3 10 0	36	3 12 0	7	0 14 0	12	1 4 0	42	4 4 0	48	4 16 0	90	9 0 0
Wanganui	32	3 4 0	30	3 0 0	92	7 15 0	95	8 7 0	124	10 19 0	125	11 7 0	249	22 6 0
Wellington	2,983	287 18 0	2,646	258 12 0	2,409	203 1 0	2,551	209 7 0	5,392	490 19 0	5,197	467 19 0	10,589	958 18 0
Westport	29	2 18 0	28	2 14 0	49	4 6 0	48	4 4 0	78	7 4 0	76	6 18 0	154	14 2 0
Totals	6,112	593 12 0	5,832	569 8 0	5,231	447 3 0	5,449	461 17 0	11,343	1,040 15 0	11,281	1,031 5 0	22,624	2,072 0 0

RETURN OF ESTATES OF DECEASED SEAMEN RECEIVED AND ADMINISTERED IN PURSUANCE OF THE PROVISIONS OF THE SHIPPING AND SEAMEN ACT, 1908, DURING THE YEAR ENDED 31ST MARCH, 1941.

Name of Seaman.	Balance to Credit of Estate on 1st April, 1940.	Amount received.	Amount paid.	Balance to Credit of Estate on 31st March, 1941.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
J. Benton	..	5 18 10	5 18 10	..
F. W. Bolwell	..	25 11 7	25 11 7	..
J. Clark	..	16 1 2	..	16 1 2
H. Carr	..	16 8 1	16 8 1	..
J. Hare	9 14 4	1 2 0	10 16 4	..
R. E. Hollis	9 16 5	..	9 16 5	..
J. L. Hughes	..	49 5 4	..	49 5 4
J. Killenbank	5 2 5	6 17 5	9 11 6	2 8 4
G. Larsen	..	5 5 6	..	5 5 6
E. A. Lewis	..	1 4 9	..	1 4 9
T. A. Mack	..	18 19 11	18 19 11	..
D. McMurran	..	48 16 3	..	48 16 3
W. P. Rigg	..	7 19 0	..	7 19 0
G. T. Ripley	..	22 19 3	22 19 3	..
H. A. Scollay	10 9 11	..	10 9 11	..
J. Sharz	..	9 14 5	9 14 5	..
F. Smith	..	11 19 2	11 19 2	..
J. Tighe	..	31 15 5	15 6 5	16 9 0
O. A. Wood	..	40 16 6	40 16 6	..
Totals	35 3 1	320 14 7	208 8 4	117 9 4

RETURN SHOWING AMOUNTS RECEIVED PRIOR TO 1ST APRIL, 1940, STANDING TO CREDIT OF ESTATES OF DECEASED SEAMEN AND FOR WHICH CLAIMS HAVE NOT BEEN PROVED.

Name of Seaman.	Balance to Credit of Estate, 31st March, 1941.
	£ s. d.
G. Banks, late seaman, s.s. "Maranui"	6 16 6
J. Payne, late trimmer, s.s. "Omana"	14 19 8
	£21 16 2

Summary of Examinations of Marine Engineers for the Year ended 31st March, 1941.

Class of Certificate.	Auckland.				Wellington.				Christchurch.				Dunedin.				O.P.		Totals.				Grand Total.
	Passed.	Partial Pass.	Failed.	Partial Failure.	Passed.	Partial Pass.	Failed.	Partial Failure.	Passed.	Partial Pass.	Failed.	Partial Failure.	Passed.	Partial Pass.	Failed.	Partial Failure.	Passed.	Failed.	Passed.	Partial Pass.	Failed.	Partial Failure.	
Imperial Validity																							
First- and Second-class Steam	2	4	1	2	10	5	4	..	1	..	1	..	..	..	..	1	..	..	13	9	6	3	31
First- and Second-class Motor	3	1	1	..	1	..	7	..	2	..	..	..	..	1	..	..	..	..	9	2	8	..	19
First- and Second-class Steam Endorsement	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
First- and Second-class Motor Endorsement	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	4	..	1	..	5
Totals	5	5	2	2	18	5	12	..	3	..	1	..	..	1	..	1	..	..	26	11	15	3	55
Valid in New Zealand only																							
Third-class Steam	11	..	2	..	18	..	3	..	2	..	1	..	2	..	..	..	..	..	33	..	6	..	39
River Engineer Steam	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2
First- and Second-class Coastal Motor	12	..	..	..	4	..	..	..	1	..	..	..	1	..	..	..	..	..	18	..	..	..	18
Restricted-limits Engineer, P.V.O.S.	21	..	..	..	3	..	..	..	2	..	..	..	1	..	..	..	27	1	54	..	1	..	55
Totals	44	..	2	..	27	..	3	..	5	..	1	..	4	..	..	..	27	1	107	..	7	..	114
Grand totals	49	5	4	2	45	5	15	..	8	..	2	..	4	1	..	1	27	1	133	11	22	3	169

Return of the Number of Certificates issued to Land-engine Drivers and Electric-tram Drivers during the Year ended 31st March, 1941.

Class.	No.	Class.	No.
Service—		Competency—*continued.*	
First-class engine-driver	1	Locomotive- and traction-engine driver	56
Second-class Engine-driver	1	Locomotive-engine driver	10
Competency—		Traction-engine driver	22
First-class engine-driver	25	Electric-tram driver	54
Second-class engine-driver	189	Electric-tram driver (one-man car)	2
Steam-winding-engine driver	4		
Electric-winding-engine driver	1	Total	365

Return of Land Engineers', Engine-drivers', and Electric-tram Drivers' Examinations held throughout New Zealand during the Year ended 31st March, 1941, showing the Number of Successful and Unsuccessful Candidates.

Place.	Extra First Class.		First Class.		Second Class.		Locomotive and Traction.		Locomotive.		Traction.		Winding.				Electric-tram Driver.		Total.		Grand Total.
													Steam.		Electric.						
	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	
Auckland	..	..	2	4	23	4	2	..	2	..	1	..	1	..	..	..	..	..	31	8	39
Christchurch	..	..	..	..	28	3	2	..	..	..	7	..	..	..	..	..	14	..	51	3	54
Dunedin	..	..	2	3	6	6	..	1	1	1	3	2	..	..	..	..	17	1	29	14	43
Gisborne	..	..	..	..	3	2	..	..	..	1	..	..	..	..	..	..	..	..	3	3	6
Greymouth	..	..	3	2	4	2	4	1	4	1	..	..	..	..	1	..	..	..	16	6	22
Hamilton	..	..	2	3	19	7	1	..	1	..	..	..	1	..	..	..	..	..	24	10	34
Hanmer	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Invercargill	..	..	5	3	16	4	1	..	..	..	1	..	..	..	..	..	1	..	24	7	31
Kaikoura	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Napier	..	..	1	..	4	1	..	..	1	..	1	..	..	..	..	..	..	..	7	1	8
Nelson	..	..	..	..	5	3	1	..	..	..	..	..	..	..	..	..	..	..	6	3	9
New Plymouth	..	..	1	..	19	16	..	..	..	..	..	..	..	..	..	..	..	..	20	16	36
Oamaru	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1
Palmerston N.	..	..	1	..	9	2	..	..	..	..	..	..	..	..	..	..	..	..	10	2	12
Pongakawa	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Timaru	..	..	..	..	7	1	..	..	..	..	3	..	..	..	..	..	..	..	10	1	11
Wairoa	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2
Wanganui	..	..	..	..	10	..	1	..	..	..	1	..	..	..	..	..	1	..	13	..	13
Wellington	..	1	1	2	12	5	1	..	..	..	1	..	..	..	..	..	22	1	40	9	49
Whangarei	..	..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	4	2	6
Totals	..	1	21	17	173	58	13	2	10	4	18	2	2	..	1	..	55	2	293	86	379

Summary of Casualties to Shipping reported to the Marine Department during the Financial Year ended 31st March, 1941.

Nature of Casualty.	On or near the Coasts of Dominion.			Outside the Dominion.			Total Number of Casualties reported.		
	Number of Vessels.	Tonnage.	Number of Lives lost.	Number of Vessels.	Tonnage.	Number of Lives lost.	Number of Vessels.	Tonnage.	Number of Lives lost.
Strandings—									
Total loss	..	..	..	..	..	..	..	..	..
Damaged	6	4,801	..	..	..	..	6	4,801	..
Undamaged	2	1,496	..	..	..	..	2	1,496	..
Total strandings	8	6,297	..	..	..	..	8	6,297	..
Fires—									
Total loss	..	..	..	..	..	..	..	..	..
Damaged	4	11,348	..	1	4,542	..	5	15,890	..
Undamaged	..	..	..	..	..	..	..	..	..
Total fires	4	11,348	..	1	4,542	..	5	15,890	..
Collisions—									
Total loss	..	..	..	..	..	..	..	..	..
Damaged	14	10,961	..	2	12,741	..	16	23,702	..
Undamaged	2	399	..	..	..	..	2	399	..
Total collisions	16	11,360	..	2	12,741	..	18	24,101	..
Miscellaneous, including damage by heavy seas to hull and cargo, breakdown of machinery, &c.	11	6,038	..	1	2,854	..	12	8,892	..
Vessels lost by enemy action	1	7,581	..	2	2,274	2	3	9,855	2
Total reported	40	42,624	..	6	22,411	2	46	65,035	2

Summary of Examinations for Certificates of Competency as Masters and Mates for the Year ended 31st March, 1941.

Class of Certificate.	Auckland.				Wellington.				Lyttelton.		Dunedin.		Totals.				Total Examinations.
	Passed.	Partial Pass.	Failed.	Partial Failure.	Passed.	Partial Pass.	Failed.	Partial Pass.	Passed.	Failed.	Passed.	Failed.	Passed.	Partial Pass.	Failed.	Partial Failure.	
Foreign-going Masters and Mates	16	17	..	5	11	7	3	5	..	..	..	..	27	24	3	10	64
Home Trade Masters and Mates	10	4	1	5	15	3	..	..	..	..	..	..	25	7	1	5	38
Master, River Steam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Master of a Pleasure Yacht, New Zealand Waters	36	28	11	4	18	8	4	..	..	..	..	..	54	36	15	4	109
Fore-and-aft Sail Endorsement	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
License as New Zealand Pilot	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1
Examination in Navigation, R.N.V.R. Officers	3	..	1	..	3	..	..	..	1	..	2	1	9	..	2	..	11
Totals	66	49	13	14	48	18	7	5	1	..	2	1	117	67	21	19	224

TABLE I.—SHOWING THE NUMBER OF FISHING-VESSELS AND THE NUMBER OF FISHERMEN AND OTHER PERSONS ENGAGED IN THE INDUSTRY AT EACH PORT FOR THE YEAR ENDED 31ST MARCH, 1941.

Name of Port or District.	Vessels licensed 1st January, 1940–31st March, 1941.			Vessels engaged in Fishing for Wet Fish.										Vessels engaged in Shell-fishery.						Number of Persons employed.					
				Steam Trawlers.		Motor Trawlers.		Motor-vessels Danish-seining.		Motor-vessels, Set-net and Line Fishing.		Rowing-boats.		Oyster-dredging Vessels.		Mussel-dredging Vessels.		Crayfishing Vessels.		Fishermen.		Others.		Total.	
	Total Number.	Number Fishing.	Number not Fishing.	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.
North Island																									
Awanui and district	8	7	1	..	..	..	..	..	..	..	6	..	2	..	..	..	..	..	..	..	16	..	..	..	16
Mangonui	5	5	..	..	..	..	..	..	..	..	3	..	2	..	..	..	..	..	..	..	6	..	..	..	6
Whangaroa	12	10	2	..	..	..	..	..	..	..	6	..	4	..	..	..	..	..	3	..	16	..	..	..	16
Russell	20	18	2	..	..	..	..	..	..	3	15	..	1	..	..	..	..	..	..	5	29	..	..	5	29
Whangarei	16	12	4	..	..	..	..	..	1	1	10	..	1	..	..	..	..	..	1	4	21	2	1	6	22
Auckland	95	89	6	..	..	..	..	44*	1	9	27	..	7	..	..	1	1	..	6	189	56	120	40	309	96
Kaiaua	3	3	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	3	1	..	..	3	1
Thames	35	33	2	..	..	..	..	2	..	19	11	..	..	..	..	1	1	..	..	65	22	20	3	85	25
Coromandel	4	4	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	2	1	3	3	..	..	3	3
Mercury Bay	5	4	1	..	..	..	..	..	..	..	3	..	..	..	..	..	..	2	1	4	6	..	..	4	6
Whangamata	6	3	3	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	3	..	5	..	..	..	5
Waihi Beach	10	9	1	..	..	..	..	..	..	..	9	..	..	..	..	..	..	..	3	..	13	..	..	..	13
Tauranga and district	20	19	1	..	..	..	..	1	1	2	16	..	1	..	..	..	..	..	3	7	23	3	2	10	25
Whakatane	4	3	1	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	3	3	6	..	9	3
Ohiwa Harbour, Opotiki, and Cape Runaway	11	9	2	..	..	..	..	..	..	1	7	..	1	..	..	..	..	..	4	2	13	..	..	2	13
Gisborne	22	15	7	..	..	3	2	..	..	..	7	..	1	..	..	..	..	..	11	14	17	4	..	18	17
Waikokopu	2	2	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	..	3	..	..	..	3
Napier	25	24	1	..	1	6	6	1	1	2	8	..	2	..	..	..	..	2	9	41	18	9	3	50	21
Castlepoint	3	2	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	2	2	..	..	2	2
Wellington	42	40	2	1	1	..	2	..	..	14	20	..	3	..	..	..	..	2	13	90	33	56	3	146	36
Makara	3	2	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	2	2	..	..	2	2
Paremata	11	11	..	..	..	..	..	..	..	2	10	..	..	..	..	..	..	..	3	12	9	..	..	12	9
Paraparaumu Beach	9	6	3	..	..	..	..	..	..	1	3	..	2	..	..	..	..	..	..	2	11	..	..	2	11
Manawatu Heads	18	13	5	..	..	..	..	..	..	..	4	2	7	..	..	..	..	..	..	4	17	..	1	4	18
Tangimoana	6	5	1	..	..	..	..	..	..	..	4	..	2	..	..	..	..	..	..	..	8	..	..	..	8
Wanganui	7	7	..	..	..	..	..	..	..	..	7	..	..	..	..	..	..	..	..	..	13	..	..	..	13
New Plymouth	8	8	..	..	..	..	..	..	..	2	5	..	..	..	..	..	..	..	2	7	8	..	..	7	8
Kawhia	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..
Raglan	5	5	..	..	..	..	..	..	..	1	4	..	..	..	..	..	..	..	..	1	7	..	..	1	7
Manukau Harbour	22	21	1	..	..	..	..	..	..	11	3	4	2	..	..	..	..	1	..	30	7	..	..	30	7
Kaipara	23	21	2	..	..	..	..	..	..	12	9	..	..	..	..	..	..	..	..	15	9	8	6	23	15
Hokianga	6	6	..	..	..	..	..	..	..	1	4	..	1	..	..	..	..	..	..	2	8	..	..	2	8

TABLE I.—SHOWING THE NUMBER OF FISHING-VESSELS AND THE NUMBER OF FISHERMEN AND OTHER PERSONS ENGAGED IN THE INDUSTRY AT EACH PORT FOR THE YEAR ENDED 31ST MARCH, 1941—*continued*.

Name of Port or District.	Vessels licensed 1st January, 1940–31st March, 1941.			Vessels engaged in Fishing for Wet Fish.										Vessels engaged in Shell-fishery.						Number of Persons employed.					
				Steam Trawlers.		Motor Trawlers.		Motor-vessels Danish-seining.		Motor-vessels, Set-net and Line Fishing.		Rowing-boats.		Oyster-dredging Vessels.		Mussel-dredging Vessels.		Crayfishing Vessels.		Fishermen.		Others.		Total.	
	Total Number.	Number Fishing.	Number not Fishing.	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.*	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.
South Island.																									
Havelock	7	7	..	..	..	..	..	..	..	2	5	..	..	..	..	..	..	..	..	3	7	..	..	3	7
Picton	11	11	..	..	..	..	..	..	..	3	10	..	..	..	..	..	..	..	4	15	8	..	..	15	8
Blenheim (Wairau)	6	4	2	..	..	..	3	..	..	..	3	..	..	..	..	..	..	..	3	7	2	..	..	7	2
Kaikoura	17	16	1	..	..	1	..	..	..	6	8	..	1	..	..	..	..	..	7	15	16	1	..	16	16
Lyttelton	46‡	39	7	2	..	2	1	..	..	2	14	..	1	..	..	..	..	..	3	29	37	20	..	49	37
Akaroa	18	15	3	..	..	3	2	..	..	..	7	..	4	..	..	..	..	1	6	7	16	..	..	7	16
Lake Ellesmere	27	22	5	..	..	..	..	..	..	2	4	5	11	..	..	..	..	..	..	13	27	..	..	13	27
Timaru	25	24	1	..	..	7	9	2	..	5	10	..	..	..	..	..	..	..	1	45	5	2	..	47	5
Oamaru	10	10	..	..	..	..	..	..	..	4	6	..	..	..	..	..	..	..	1	8	12	..	1	8	13
Moeraki	15	13	2	..	..	..	1	..	..	4	10	..	..	..	..	..	..	..	5	12	7	1	..	13	7
Karitane	9	8	1	..	..	..	..	..	..	..	8	..	..	..	..	..	..	1	7	5	4	..	..	5	4
Port Chalmers	46	38	8	1	..	11	3	..	..	6	13	3	3	..	..	..	..	..	3	56	20	31	3	87	23
Taieri Mouth	6	5	1	..	..	3	2	..	..	..	2	..	..	..	..	..	..	..	..	10	..	..	..	10	..
Nuggets	6	6	..	..	..	..	6	..	..	..	6	..	..	..	..	..	..	..	2	10	..	..	..	10	..
Tautuku	2	2	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	1	1	..	..	1	1
Waikawa	10	10	..	..	..	3	8	..	..	..	7	..	..	..	..	..	..	..	..	14	4	..	..	14	4
Invercargill	7‡	3	4	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	11	..	..	..	11
Bluff	34	31	3	..	..	..	..	..	..	12	7	..	..	11	1	..	..	..	..	82	23	12	41	94	64
Stewart Island	50	48	2	..	..	..	..	..	..	25	23	..	..	..	..	..	..	..	..	68	45	2	6	70	51
Riverton district	15	10	5	..	..	..	1	..	..	2	8	..	2	..	..	..	..	..	..	3	18	..	..	3	18
Hokitika	2	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	4	..	5
Greymouth	4	4	..	2	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	8	..	3	1	11	1
Westport	5	4	1	..	1	..	1	..	..	..	4	..	..	..	..	..	..	..	3	2	1	..	..	2	1
Golden Bay	6	6	..	..	..	..	..	..	..	1	5	..	1	..	..	..	..	..	3	2	6	..	..	2	6
Motueka	12	9	3	..	..	..	..	..	..	1	6	..	3	..	..	..	..	..	2	1	13	..	..	1	13
Nelson	17	16	1	..	..	..	2	3	..	6	12	..	..	..	..	..	..	..	2	19	15	3	1	22	16
French Pass	31	21	10	..	..	..	..	..	..	8	12	..	2	..	..	..	..	..	..	15	21	..	..	15	21
Chatham Islands	11	11	..	..	1§	..	..	..	..	3	7	..	..	..	..	..	..	..	..	13	36	3	3	16	39
Totals	922	811	111	6	4	39	52	54	4	176	414	14	71	11	1	2	2	11	121	972	761	306	119	1,278	880

* Part-time vessels may appear in more than one place.
‡ Includes fishing-boats licensed in connection with whitebait catching.
† During the year four Danish-seiners were replaced by new units. In each instance the replacement and the old unit have been included together as one whole-time Danish-seiner.
§ Fish-carrier "South Sea." Vessel did not trawl, but engaged in line-fishing.

TABLE II.—SHOWING THE VARIOUS KINDS OF FISH CAUGHT AND APPROXIMATELY THE TOTAL QUANTITIES OF FISH* AND SHELL-FISH LANDED AT THE CHIEF FISHING-PORTS FOR THE YEAR ENDED 31ST MARCH, 1941.

Name of Port or District.	Principal Kinds of Fish caught.	Quantity landed (Fish).	Total Value (Fish).	Shell-fishery (excluding Toheroa).							Grand Total Value.
				Oysters.	Value.	Mussels.	Value.	Crayfish.	Value.	Total Value (Shell-fish).	
North Island.		Cwt.	£	Sacks.	£	Sacks.	£	Cwt.	£	£	£
Awanui and district	K, A, C	1,087	955	..	..	..	..	..	..	..	955
Mangonui	A, K, Y, E	162	173	..	..	..	..	..	..	..	173
Whangaroa	A, C, K, E	750	709	..	..	..	..	167	160	160	869
Russell	A, K, E, B	1,224	1,816	..	..	..	..	..	..	..	1,816
Whangarei	A, K, E, C	1,115	1,886	..	..	..	..	5	8	8	1,894
Auckland	A, B, E, C, H, V	125,220	133,864	5,782	7,950	12,706	4,494	684	1,101	13,545	147,409
Kaiaua	A, E	356	435	..	..	..	..	..	..	..	435
Thames	A, E, H, R	14,211	21,252	..	..	5,382	1,861	..	..	1,861	23,113
Coromandel	A	48	90	..	..	..	..	576	1,078	1,078	1,168
Mercury Bay	A, C, E, B	681	749	..	..	..	..	676	1,347	1,347	2,096
Whangamata	A	5	7	..	..	..	..	54	81	81	88
Waihi Beach	A, B	282	310	..	..	..	..	11	15	15	325
Tauranga and district	A, C, B, Q, E, H	4,624	4,663	..	..	..	..	33	50	50	4,713
Whakatane	A, B, Q, H	1,842	1,807	..	..	..	..	..	..	..	1,807
Ohiwa Harbour, Opotiki, and Cape Runaway	C, A, E	884	1,765	..	..	..	..	66	126	126	1,891
Gisborne	B, C, H	6,617	7,371	..	..	..	..	446	273	273	7,644
Waikokopu	R, A, C	140	219	..	..	..	..	116	220	220	439
Napier	H, B, C, F, L	16,469	23,352	..	..	..	..	504	838	838	24,190
Castlepoint	C, S, A	408	885	..	..	..	..	27	44	44	929
Wellington	B, C, M, G, I	37,280†	52,229	..	..	..	..	2,776	5,049	5,049	57,278
Makara	S, A, Q, B, L	427	748	..	..	..	..	230	371	371	1,119
Paremata	C, S, O, M, A	2,359	4,738	..	..	..	..	29	37	37	4,775
Paraparaumu Beach	A, S, C	891	1,301	..	..	..	..	..	..	..	1,301
Manawatu Heads	E, A, Y	292	625	..	..	..	..	..	..	..	625
Tangimoana	A, E, Y	28	47	..	..	..	..	..	..	..	47
Wanganui	A, C	459	590	..	..	..	..	..	..	..	590
New Plymouth	A, C	674	1,214	..	..	..	..	3	6	6	1,220
Kawhia	E, A, R	208	525	..	..	..	..	..	..	..	525
Raglan	E, A	161	385	..	..	..	..	..	..	..	385
Manukau Harbour	K, E, A, R	2,558	3,734	..	..	..	..	34	84	84	3,818
Kaipara	E, A, K	2,952	5,554	..	..	..	..	..	..	..	5,554
Hokianga	K, E, A	856	775	..	..	..	..	..	..	..	775
South Island.											
Havelock	E, D, C	463	1,642	..	..	..	..	..	..	..	1,642
Picton	C, D, S, E	2,479	4,846	..	..	..	..	124	135	135	4,981
Blenheim (Wairau)	F, G, B	781	1,224	..	..	..	..	152	190	190	1,414
Kaikoura	C, G	3,134	7,064	..	..	..	..	347	473	473	7,537
Lyttelton	B, G, J, C, I	13,601	23,934	..	..	..	..	231	202	202	24,136
Akaroa	J, B, H, G	3,002	4,978	..	..	..	..	630	779	779	5,757
Lake Ellesmere	E	1,584	4,022	..	..	..	..	..	..	..	4,022
Timaru	H, J, G, F, E	12,512	22,748	..	..	..	..	1	1	1	22,749
Oamaru	C, D, I	1,197	2,014	..	..	..	..	47	28	28	2,042
Moeraki	C, D, I, L	2,006	3,296	..	..	..	..	769	536	536	3,832
Karitane	D, C	118	225	..	..	..	..	1,809	1,559	1,559	1,784
Port Chalmers	B, F, N, I, E	23,753	27,555	..	..	..	..	18	18	18	27,573
Taieri Mouth	F, C, D	1,364	3,233	..	..	..	..	..	..	..	3,233
Nuggets	F, C, E, D	2,864	5,186	..	..	..	..	14	24	24	5,210
Tautuku	C, D, G	107	218	..	..	..	..	..	..	..	218
Waikawa	F, D, C, G	4,083	6,519	..	..	..	..	..	..	..	6,519
Invercargill	E	61	72	..	..	..	..	..	..	..	72
Bluff	D, E, C	3,033	5,307	65,993	47,846	..	..	..	..	47,846	53,153
Stewart Island	D, C, T, S, L	11,305	18,698	..	..	..	..	..	..	..	18,698
Riverton district	D, C, F	1,152	2,190	..	..	..	..	..	..	..	2,190
Hokitika	W, Y	32	49	..	..	..	..	..	..	..	49
Greymouth	F, I, C, H	1,799	2,920	..	..	..	..	..	..	..	2,920
Westport	F, C, H	309	544	..	..	..	..	80	102	102	646
Golden Bay	A, D, H	506	701	..	..	..	..	3	4	4	705
Motueka	A, H, E, C	177	290	..	..	..	..	5	6	6	296
Nelson	A, H, C, D	5,704	9,662	..	..	..	..	8	12	12	9,674
French Pass	D, C, A, S	2,496	4,233	..	..	..	..	..	..	..	4,233
Chatham Islands	D, C	3,702‡	2,165	..	..	..	..	..	..	..	2,165
	Totals	328,594	440,308	71,775	55,796	18,088	6,355	10,615	14,957	77,108	517,416

* Not including whitebait.

† Total includes 2,697 cwt. blue cod and 72 cwt. groper caught at the Chatham Islands and landed at Wellington.
‡ Exclusive of fish shipped direct to Wellington from fishing-boats by s.s. "South Sea."

KEY TO SYMBOLS USED.

A = Snapper.
B = Tarakihi.
C = Groper.
D = Blue cod.
E = Flounder.
F = Sole.
G = Ling.
H = Gurnard.
I = Red cod
J = Elephant-fish
K = Mullet.
L = Moki.
M = Hake.
N = Barracouta.
O = Warehou.
P = John-dory.
Q = Trevally.
R = Pioke.
S = Butterfish.
T = Trumpeter.
U = Whiting.
V = Kingfish.
W = Herring.
Y = Kahawai.
Z = Conger-eel.

TABLE IIA.—SHOWING APPROXIMATELY THE QUANTITIES OF DIFFERENT KINDS OF FISH LANDED AT CERTAIN PORTS DURING THE YEAR ENDED 31ST MARCH, 1941.

—	Russell.	Kaipara.	Whangarei.	Auckland.	Thames.	Mercury Bay.	Tauranga and District.	Gisborne.	Napier.	New Plymouth.	Wellington.	Blenheim (Wairau.)	French Pass.	Nelson.	Westport.	Greymouth.	Kaikoura.	Akaroa.	Lyttelton.	Timaru.	Oamaru.	Moeraki.	Port Chalmers.	Bluff.	Invercargill.	Riverton District.	Chatham Islands.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Barracouta ..	..	..	..	..	..	..	..	..	..	1	884	..	65	..	..	..	10	..	261	27	4	..	3,390	..	..	1	..
Blue cod	1	..	1	32	..	12	7	..	..	1	2,830	4	1,101	309	..	..	41	5	6	..	164	525	171	2,551	..	786	3,597
"Bonita" (*Brama*) ..	..	..	..	..	..	..	..	..	..	..	24	..	..	..	..	..	16	..	..	..	..	..	22	..	..	..	..
Brill	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	5	..	..	14	..	..	..	..
Butterfish (greenbone)	2	..	..	..	5	..	..	..	1	..	294	39	200	5	..	..	40	17	43	..	..	5	..	1	..	..	..
Conger-eel	..	..	..	..	..	..	..	..	..	..	40	..	27	3	..	..	2	1	..	1	..	..	..	..	..	..	..
Elephant-fish ..	..	..	..	..	..	..	..	..	..	..	38	2	..	..	..	..	25	857	1,579	1,931	..	..	546	246	..	..	..
Flounder	122	1,501	74	10,026	4,078	32	60	1	341	..	36	16	..	212	2	..	10	167	147	1,253	..	2	1,075	..	61	13	..
Frost-fish	..	..	..	..	..	..	..	..	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Garfish	..	..	..	99	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	3	..	..	..	..
Gurnard	..	1	4	1,639	702	..	55	425	3,933	..	85	7	8	744	17	107	4	405	276	3,149	..	..	244	..	..	3	..
Hake	..	..	..	12	..	..	..	..	..	..	2,848	..	..	1	..	1	23	23	461	13	26	..	853	..	..	..	..
Hapuku (groper) ..	10	..	46	1,725	1	212	289	581	2,430	54	7,903	10	467	552	78	107	1,560	103	580	1,168	871	1,184	1,123	217	..	191	105
Herring	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..
John-dory	..	..	..	9	..	..	..	..	..	..	17	..	..	35	..	..	..	..	..	..	..	4	12	..	..	..	..
Kahawai	6	..	..	8	8	..	4	..	1	1	116	..	..	15	..	..	2	..	..	..	..	..	..	..	..	..	..
Kingfish	..	..	1	1,564	2	8	..	..	3	2	37	..	37	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Ling	..	..	..	..	..	..	..	2	109	..	2,095	118	5	8	9	17	1,146	371	1,991	1,683	25	66	989	..	..	1	..
Mackerel	..	..	..	..	..	..	..	..	..	..	16	..	38	..	..	..	3	..	..	..	..	..	18	..	..	..	..
Maomao	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Moki	..	..	..	..	..	..	..	..	1,922	..	881	17	24	2	..	..	6	40	261	6	7	74	133	..	..	..	..
Mullet	395	467	95	496	23	..	29	..	2	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Parore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pioke	..	2	..	35	217	..	13	..	..	..	23	..	..	27	..	..	6	..	57	..	..	5	990	..	..	..	..
Red cod	..	..	..	4	..	..	1	..	22	..	1,948	32	..	..	6	159	30	32	562	72	100	111	2,879	3	..	..	..
Sardine	..	..	..	66	..	..	..	..	12	..	1,578	..	183	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Skate	..	..	..	..	..	..	..	..	4	..	24	..	..	..	..	..	..	4	5	2	..	..	23	..	..	..	..
Snapper	541	881	872	91,342	7,891	384	3,788	10	1,399	612	636	9	218	3,168	17	6	1	..	1	..	..	..	1	..	..	..	..
Sole	..	..	..	1	..	..	..	..	1,464	..	10	124	..	49	87	861	10	114	159	1,287	..	2	4,678	..	..	153	..
Tarakihi	73	..	..	13,185	..	29	300	3,008	3,138	..	12,138	118	3	..	..	21	6	618	6,050	108	..	7	6,107	..	..	..	..
Trevally	19	8	8	144	5	..	78	..	..	..	358	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trumpeter ..	..	..	..	1	..	..	..	..	..	..	59	..	..	..	..	..	152	..	..	..	..	1	2	6	..	..	..
Turbot	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..
Warehou	..	..	..	..	..	..	..	..	..	..	764	..	..	..	..	..	..	..	..	..	..	..	162	..	..	..	..
Whiptail	..	..	..	..	..	..	..	..	..	..	112	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whiting	..	..	..	..	..	..	..	..	..	..	361	..	..	..	..	..	..	..	384	..	..	..	..	..	..	..	..
Mixed flat fish ..	53	2	9	2,536	1,257	..	..	551	1,139	..	20	119	1	484	41	66	..	2	20	148	..	..	74	..	..	..	..
Mixed round fish and kinds not specified	..	90	5	2,296	22	4	..	2,039	1,456	3	1,088	166	119	98	50	454	41	243	756	1,659	..	19	240	9	..	4	..
Totals ..	1,224	2,952	1,115	125,220	14,211	681	4,624	6,617	16,469	674	37,280*	781	2,496	5,704	309	1,799	3,134	3,002	13,601	12,512	1,197	2,006	23,753	3,033	61	1,152	3,702†

* Total includes 2,097 cwt. blue cod and 72 cwt. groper landed at Wellington by fish-carrier "South Sea" from Chatham Islands.

† Exclusive of fish shipped direct to Wellington from fishing-boats by s.s. "South Sea."

TABLE IIB.—SHOWING THE QUANTITIES OF DIFFERENT KINDS OF FISH* CAUGHT BY THE DIFFERENT METHODS OF FISHING FOR THE YEAR ENDED 31ST MARCH, 1941.

—	Trawl.						Danish Seine.		Other Nets.						Lines.								Grand Total.	
	Steam.		Motor.		Total.		Motor.		Motor.		Row-boat.		Total.		Steam.		Motor.		Row-boat.		Total.			
	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£
Barracouta	2,063	840	..	..	2,063	840	..	..	..	..	..	..	..	..	..	..	2,565	997	49	19	2,614	1,016	4,677	1,856
Blue cod	..	..	2	2	2	2	6	10	..	..	..	..	..	..	30	17	23,457	34,401	5	6	23,492	34,424	23,500	34,436
"Bonita" (*Brama*)	..	..	2	3	2	3	..	..	..	..	..	..	..	..	..	..	67	156	..	..	67	156	69	159
Brill	..	..	30	99	30	99	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30	99
Butterfish (greenbone)	..	..	..	..	..	..	..	..	1,213	2,943	33	78	1,246	3,021	..	..	..	..	..	..	..	..	1,246	3,021
Conger-eel	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	95	46	..	..	95	46	96	46
Elephant-fish	1,430	1,832	3,200	4,040	4,630	5,872	449	419	10	11	..	..	10	11	..	..	..	..	..	..	..	..	5,089	6,302
Flounder	16	37	2,340	6,657	2,356	6,694	11,989	27,208	7,174	18,618	1,992	4,967	9,166	23,585	..	..	..	..	..	..	..	..	22,611	57,487
Frost-fish	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	11	..	..	10	11	10	11
Garfish	..	..	..	..	..	..	..	..	121	63	..	..	121	63	..	..	..	..	..	..	..	..	121	63
Gurnard	459	534	5,707	5,394	6,166	5,928	4,624	3,423	474	172	..	..	474	172	..	..	638	443	6	14	644	457	11,908	9,980
Hake	1,544	2,419	241	488	1,785	2,907	12	8	..	..	..	..	..	..	..	..	2,500	4,670	..	..	2,500	4,670	4,297	7,585
Hapuku (groper)	755	1,805	192	549	947	2,354	234	395	..	..	..	..	..	..	21	40	27,005	54,958	76	126	27,102	55,124	28,283	57,873
Herring	..	..	..	..	..	..	..	..	8	7	34	51	42	58	..	..	..	..	..	..	..	..	42	58
John-dory	23	41	15	22	38	63	35	54	..	..	..	..	..	..	..	..	4	2	..	..	4	2	77	119
Kahawai	..	..	..	..	..	..	..	..	149	55	95	47	244	102	..	..	13	6	..	..	13	6	257	108
Kingfish	..	..	..	..	..	..	109	98	..	..	..	..	..	..	..	..	1,556	1,487	4	7	1,560	1,494	1,669	1,592
Ling	1,928	3,006	1,775	2,566	3,703	5,572	43	70	1	1	..	..	1	1	1	1	4,962	6,526	40	80	5,003	6,607	8,750	12,250
Mackerel	34	19	..	..	34	19	..	..	41	28	..	..	41	28	..	..	..	..	..	..	..	..	75	47
Maomao	..	..	..	..	..	..	..	..	2	2	..	..	2	2	..	..	..	..	..	..	..	..	2	2
Moki	1,551	1,837	530	702	2,081	2,539	146	183	352	442	50	61	402	503	..	..	..	..	..	..	..	..	2,629	3,225
Mullet	..	..	..	..	..	..	..	..	3,948	4,020	151	156	4,099	4,176	..	..	..	..	..	..	..	..	4,099	4,176
Parore	..	..	..	..	..	..	..	..	3	..	..	..	3	..	..	..	..	..	..	..	..	..	3	..
Pioke	681	240	284	225	965	465	27	7	449	215	34	33	483	248	..	..	70	32	..	..	70	32	1,545	752
Red cod	3,030	3,702	2,078	1,131	5,108	4,833	37	35	107	82	17	13	124	95	2	3	732	552	8	9	742	564	6,011	5,527
Sardine	..	..	..	..	..	..	..	..	1,830	1,308	..	..	1,830	1,308	..	..	..	..	..	..	..	..	1,830	1,308
Skate	28	10	16	10	44	20	..	..	15	10	..	..	15	10	..	..	4	3	..	..	4	3	63	33
Snapper	481	574	1,070	1,386	1,551	1,960	92,909	87,354	6,348	6,021	24	37	6,372	6,058	8	12	15,665	18,413	349	424	16,022	18,849	116,854	114,221
Sole	815	1,556	12,937	27,033	13,752	28,589	897	2,306	33	92	..	..	33	92	..	..	..	..	..	..	..	..	14,682	30,987
Tarakihi	22,236	28,107	8,395	10,815	30,631	38,922	14,242	13,592	8	10	..	..	8	10	..	..	409	464	44	115	453	579	45,334	53,103
Trevally	51	48	..	..	51	48	159	350	477	312	149	144	626	456	..	..	..	..	..	..	..	..	836	854
Trumpeter	1	1	1	1	2	2	..	..	..	..	..	..	..	..	..	..	333	607	..	..	333	607	335	609
Turbot	..	..	2	4	2	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	4
Warehou	40	49	..	..	40	49	..	..	653	770	381	307	1,034	1,077	..	..	6	8	..	..	6	8	1,080	1,134
Whiptail	9	13	..	..	9	13	..	..	..	..	..	..	..	..	..	..	103	145	..	..	103	145	112	158
Whiting	361	590	..	..	361	590	..	..	384	658	..	..	384	658	..	..	..	..	..	..	..	..	745	1,248
Mixed flat fish	72	131	3,220	7,106	3,292	7,237	3,817	7,936	841	2,762	4	9	845	2,771	..	..	..	..	..	..	..	..	7,954	17,944
Mixed round fish and all kinds not specified	1,717	2,032	5,456	6,507	7,173	8,539	2,341	1,009	505	290	48	52	553	342	..	..	1,602	2,007	2	4	1,604	2,041	11,671	11,931
Totals	39,325	49,423	47,493	74,740	86,818	124,163	131,176	144,457	25,147	38,892	3,012	5,955	28,159	44,847	62	73	81,796	125,964	585	804	82,441	126,841	328,594	440,308

* Not including whitebait.

TABLE IIc.—SHOWING THE TOTAL QUANTITIES OF WET FISH LANDED AT EACH OF THE CHIEF FISHING PORTS IN EACH MONTH OF THE YEAR 1940-41.

Port or District.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	Totals.
North Island.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Awanui and district	102	70	66	108	67	74	89	99	120	95	105	92	1,087
Mangonui	62	9	8	19	7	6	10	5	15	7	6	8	162
Whangaroa	80	78	81	57	77	62	53	25	78	62	58	39	750
Russell	67	70	88	61	88	134	104	148	130	118	131	85	1,224
Whangarei	109	88	85	39	55	161	126	98	80	48	126	100	1,115
Auckland	9,257	8,492	9,940	11,246	13,347	12,813	13,207	11,307	13,142	6,929	9,644	5,896	125,220
Kaiaua	47	45	33	43	19	24	27	25	24	16	25	28	356
Thames	1,106	992	1,103	1,120	1,322	1,648	1,687	857	1,057	989	1,244	1,086	14,211
Coromandel	..	..	..	..	..	..	12	1	8	8	12	7	48
Mercury Bay	103	61	175	29	16	64	118	56	47	6	..	6	681
Whangamata	5	..	..	..	..	..	..	..	..	..	..	..	5
Waihi Beach	25	13	8	12	18	41	25	44	30	20	13	33	282
Tauranga and district	347	520	537	311	428	380	377	469	444	172	381	258	4,624
Whakatane	151	209	96	201	212	186	151	244	126	46	121	99	1,842
Ohiwa Harbour, Opotiki, and Cape Runaway	33	76	64	60	57	113	154	121	143	32	21	10	884
Gisborne	173	516	471	545	807	896	804	691	533	341	390	450	6,617
Waikokopu	2	1	3	2	22	44	36	28	2	..	..	..	140
Napier	782	964	1,588	1,390	1,407	1,614	1,692	1,698	1,583	1,052	1,496	1,203	16,469
Castlepoint	24	39	70	58	47	35	4	26	25	6	31	43	408
Wellington	3,193	3,284	3,081	2,875	2,495	2,303	2,219	1,974	3,270	2,521	3,109	4,187	*34,511
Makara	74	30	..	38	54	14	5	24	7	101	33	47	427
Paremata	136	132	208	137	29	108	173	410	228	170	260	368	2,359
Paraparaumu Beach	102	70	108	115	86	12	22	31	66	86	85	108	891
Manawatu Heads	31	13	17	19	13	8	13	16	49	48	33	32	292
Tangimoana	5	..	2	2	6	..	2	1	3	3	..	4	28
Wanganui	37	30	53	32	19	13	20	17	25	82	73	58	459
New Plymouth	39	21	61	82	63	29	53	55	100	96	46	29	674
Kawhia	17	22	5	17	19	23	26	11	22	..	24	22	208
Raglan	11	6	4	4	13	14	11	16	16	21	24	21	161
Manukau Harbour	175	207	177	175	240	199	252	210	238	160	248	277	2,558
Kaipara	436	262	310	188	291	257	181	161	248	151	249	218	2,952
Hokianga	75	89	62	72	71	83	115	75	68	26	66	54	856
South Island.													
Havelock	51	89	110	81	72	29	..	..	3	..	17	11	463
Picton	285	288	328	201	137	109	200	247	110	122	192	260	2,479
Blenheim (Wairau)	53	3	25	15	16	58	104	101	126	69	77	134	781
Kaikoura	89	143	432	225	178	204	458	382	470	117	233	203	3,134
Lyttelton	1,320	868	1,170	1,369	1,356	1,346	1,548	1,474	1,185	633	527	805	13,601
Akaroa	247	224	257	285	225	147	289	293	267	266	227	275	3,002
Lake Ellesmere	200	181	173	128	115	114	66	103	67	84	133	220	1,584
Timaru	1,037	968	1,279	988	1,330	836	921	916	916	1,060	1,380	881	12,512
Oamaru	90	98	68	62	122	77	44	90	168	105	182	91	1,197
Moeraki	131	60	204	154	174	184	213	192	154	120	248	172	2,006
Karitane	17	1	1	3	1	..	..	11	9	16	37	22	118
Port Chalmers	1,398	1,452	1,733	1,987	1,506	1,737	1,591	2,304	2,130	2,651	3,149	2,115	23,753
Taieri Mouth	72	36	112	78	60	81	98	222	226	104	178	97	1,364
Nuggets	178	26	50	491	420	99	170	572	232	239	173	214	2,864
Tautuku	14	..	10	18	16	10	5	15	6	6	..	7	107
Waikawa	488	262	208	242	168	361	406	735	172	207	310	524	4,083
Invercargill	13	15	7	..	3	13	6	3	1	..	..	..	61
Bluff	269	120	194	650	289	216	86	290	371	180	132	236	3,033
Stewart Island	2,352	787	1,135	2,373	1,198	652	167	671	120	2	683	1,165	11,305
Riverton district	104	36	40	299	65	46	84	68	51	149	62	148	1,152
Hokitika	..	2	1	1	2	1	4	7	4	6	3	1	32
Greymouth	198	144	121	232	97	66	169	174	122	140	126	210	1,799
Westport	39	33	26	31	..	..	..	..	12	15	73	80	309
Golden Bay	30	10	47	31	28	37	63	59	58	60	42	41	506
Motueka	26	12	4	2	2	2	6	31	24	7	37	24	177
Nelson	631	791	801	683	386	364	276	506	366	228	323	349	5,704
French Pass	248	365	318	360	159	129	86	112	56	106	212	345	2,496
Chatham Islands	1,192	849	896	892	633	743	239	96	..	87	376	468	6,471
Totals	27,578	24,272	28,254	30,938	30,153	29,019	29,067	28,617	29,353	20,191	27,186	23,966	328,594

* Exclusive of fish shipped to Wellington from the Chatham Islands.

TABLE III.—SHOWING THE NUMBER OF SACKS AND VALUE OF THE OYSTERS OBTAINED IN THE DOMINION DURING THE YEAR ENDED 31ST DECEMBER, 1940.

Locality.	Quantity.	Value
DREDGE OYSTERS.		
	Sacks (3 bushel).	£(N.Z.)
Foveaux Strait	65,993	47,846
ROCK OYSTERS.		
Bay of Islands	2,058	
Whangarei Harbour	126	
Kaipara Harbour	808	
Hauraki Gulf*	1,876	7,950
Coromandel	590	
Great Barrier Island	300	
Whangaroa Harbour	24	
Total	5,782	
Grand total	71,775	55,796

* Tamaki Strait, 19; Tamaki Point, 114; Motuhihi, 55; Rakino, 196; Rangiteto, 112; Motutapu, 145 Brown's Island, 60; Crusoe Island, 50; Ponui, 398; Waiheke, 711; Pakihi, 16.

TABLE IV.—SHOWING THE NUMBER AND SPECIES OF WHALES TAKEN OFF THE NEW ZEALAND COAST, WITH QUANTITY OF PRODUCTS, FOR THE YEAR ENDED 31ST MARCH, 1941.

Whaling-station.	Number of Whales taken.	Species.	Yield of Oil.	Quantity of Other Products. (Bonedust).
			Tons.	Tons.
Marlborough Sounds (Picton)..	107	Humpback ..	654	30
	2	Sperm ..		

TABLE V.—RETURN SHOWING PARTICULARS OF (*a*) THE IMPORTS INTO AND (*b*) THE EXPORTS FROM NEW ZEALAND OF FISH AND SHELL-FISH DURING THE YEAR ENDED 31ST MARCH, 1941.

(*a*) *Imports.*

Kind of Fish.	Quantity.	Value.
		£ (N.Z.).
Anchovies, salted, in containers of 28 lb. or over	9 cwt.	29
Other fish—		
Frozen, smoked, pickled, dried, or salted	404 cwt.	1,369
Potted or preserved in tins	1,511,366 lb.	69,017
Total value	..	70,415

TABLE V.—RETURN SHOWING PARTICULARS OF (*a*) THE IMPORTS INTO AND (*b*) THE EXPORTS FROM NEW ZEALAND OF FISH AND SHELL-FISH DURING THE YEAR ENDED 31ST MARCH, 1941—*continued.*

(*b*) *Exports.*

Kind of Fish.	Exporting Ports.	Quantity.	Value.
(*a*) *Produce of New Zealand.*			£(N.Z.)
Oysters, fresh	Auckland	1,077 doz.	39
	Wellington	4,728 doz.	122
	Invercargill	29,862 doz.	557
	Total	35,667 doz.	718
Blue cod, frozen	Auckland	5 cwt.	28
	Wellington	929 cwt.	3,533
	Lyttelton	13 cwt.	32
	Dunedin	454 cwt.	1,846
	Invercargill	11,107 cwt.	41,512
	Total	12,508 cwt.	46,951
Snapper, frozen	Auckland	3,225 cwt.	10,104
	Wellington	580 cwt.	2,302
	Total	3,805 cwt.	12,406
Flounder, frozen	Auckland	2,719 cwt.	11,169
	Wellington	1,325 cwt.	5,422
	Lyttelton	154 cwt.	589
	Dunedin	573 cwt.	2,313
	Invercargill	219 cwt.	830
	Total	4,990 cwt.	20,323
Tarakihi, frozen	Auckland	2,267 cwt.	7,659
	Wellington	936 cwt.	2,674
	Lyttelton	319 cwt.	906
	Dunedin	937 cwt.	2,954
	Invercargill	148 cwt.	359
	Total	4,607 cwt.	14,552
Other kinds, frozen	Auckland	88 cwt.	287
	Wellington	2,852 cwt.	9,383
	Lyttelton	686 cwt.	1,392
	Dunedin	5,230 cwt.	13,461
	Invercargill	612 cwt.	1,979
	Total	9,468 cwt.	26,502
Total exports of frozen fish from New Zealand		35,378 cwt.	120,734
Smoked, dried, pickled, or salted		502 cwt.	1,167
Preserved in tins—			
Oysters	Auckland	1,234 lb.	89
	Wellington	11,963 lb.	632
	Dunedin	37,992 lb.	3,534
	Invercargill	240,022 lb.	11,599
	Total	291,211 lb.	15,854
Toheroa	Auckland	87,475 lb.	6,035
	Dunedin	127 lb.	9
	Total	87,602 lb.	6,044
Whitebait	Auckland	72,681 lb.	10,979
	Wellington	12,669 lb.	1,745
	Dunedin	37,313 lb.	5,757
	Total	122,663 lb.	18,481
Crayfish	Auckland	105 lb.	6
	Wellington	137 lb.	12
	Dunedin	33,231 lb.	3,337
	Total	33,473 lb.	3,355
Value of total exports of New Zealand fish and shell-fish			166,353
(*b*) *Re-exports.*			
Potted and preserved in tins		13,249 lb.	551

APPENDICES.

APPENDIX I.

LEGISLATION.

ORDERS IN COUNCIL UNDER PARTS I AND II OF THE FISHERIES ACT, 1908.

Part I.

The Sea-fisheries Regulations 1939 were amended as follows:—

10th April, 1940	..	(*a*) Regarding the licensing and marking of fishing boats: (*b*) Altering the Danish Seine Regulations (fishing limits) for waters in the vicinity of Ohiwa and Opotiki Harbours: (*c*) Prohibiting power-netting in lagoons, lakes, and other fresh or estuarine waters.
12th June, 1940	..	Altering the close season for oysters in South Island.
3rd July, 1940	..	Prohibiting certain classes of vessels from Danish-seining in a certain portion of the Hauraki Gulf.
31st July, 1940	..	Revoking Crayfish Regulations.
9th October, 1940	..	Altering the close season for the taking of toheroas for canning purposes.
10th December, 1940	..	Altering the number of toheroa which may be taken as a daily limit and prohibiting the use of certain implements.
12th February, 1941	..	(*a*) Removing the restriction on the taking of mussels in Tauranga Harbour: (*b*) Raising the minimum size at which oysters may be taken in Foveaux Strait.
26th March, 1941	..	(*a*) Prohibiting the taking of crayfish carrying external eggs: (*b*) Restricting the use of set-nets in Lake Ellesmere and Lake Forsyth: (*c*) Restricting the rise of small-meshed nets in Lyttelton Harbour.

Part II.

3rd July, 1940	..	Amending regulations for trout-fishing in the Nelson Acclimatization District.
7th August, 1940	..	Amending regulations for trout-fishing in the Wellington Acclimatization District.
14th August, 1940	..	Amending the regulations for trout-fishing in the North Canterbury Acclimatization District.
21st August, 1940	..	Amending the Fresh-water Fisheries Regulations in the Southland Acclimatization District.
4th September, 1940	..	Amending regulations for trout-fishing in the Ashburton Acclimatization District.
4th September, 1940	..	Amending regulations for trout-fishing in the Auckland Acclimatization District.
11th September, 1940	..	Amending regulations for trout-fishing in the Otago Acclimatization District.
11th September, 1940	..	Amending regulations for trout-fishing in the Waimate Acclimatization Society.
18th September, 1940	..	Consolidating the Trout-fishing Regulations for the Lakes Acclimatization District.
20th November, 1940	..	Further amending the Fresh-water Fisheries Regulations for the Southland Acclimatization District.

APPENDIX II.

REPORT ON PORTOBELLO MARINE STATION.

Marine Fish Hatchery and Biological Station, Portobello, Dunedin,
31st March, 1941.

The Hon. the MINISTER OF MARINE, Wellington.

SIR,—

I have the honour to present the report of the Portobello Marine Station up to 31st December, 1940.

The amount of money at our disposal has just enabled the Station to be kept going and the plant and buildings kept in good order, but this only by using the most rigid economy with no balance left over as a reserve in case of need.

The well-maintained aquarium continues to be a source of great interest and instruction to visitors, including special classes and schools. Marine biological material has been supplied to Universities, students, and a few overseas scientists. Specimens sent in by local fishermen have been identified for them. Mr. W. Adams, as Curator, has sent in monthly reports, and a note of these in an abbreviated form follows:—

January: This month was exceptionally warm, with the water in the aquarium tanks as high as 21° C., but despite this the fish continued lively and healthy. In the vicinity of the Station whale-feed (*Munida gregaria*) was very plentiful, while small mullet (*Agonostomus forsteri*) were very numerous; but there was an absence of the usual larger fish. A large number of the eggs of the elephant-fish (*Callorhyncus millii*) were sent to the Station by Professor Percival, of Canterbury College, to be incubated to certain stages. They were placed in one of the outside ponds and an inside tank. The dinghy and launch were slipped and painted, and the launch engine was overhauled and improved. Visitors numbered 154 adults and 139 children.

February: The weather was disappointing. We had much rain and heavy winds, including a gale that carried away the lower end of the sea-water supply-pipe, causing a lot of extra work, as the specimens had to be removed to the outside ponds while repairs were effected. The stoppage was utilized to clean out the tanks and to repaint the ironwork. Shoals of clear shrimps (*Nyctiphanes* sp.) and whale-feed were still numerous in the vicinity of the Station. Large fish were not much in evidence, but there were plenty of medium-sized mullet about. The disturbed state of the water restricted the captures in the fish-trap. Elephant-fish eggs carried to the desired stage of incubation were returned to Christchurch. Visitors to the Station numbered 61 adults and 92 children, and also 60 pupils from the training-college. Biological material was supplied to the Otago University.

March was cold with unsettled weather, and except for mullet there were very few fish about, but whale-feed and clear shrimp were still in good supply. The fish-trap produced a good number of interesting specimens, including weed-fish (*Cristiceps australis*), sea-horses (*Hippocampus abdominalis*), pipe-fish (*Syngnathus blainvillianus*), seaweed-covered crabs, &c. A powerful light suspended over the jetty on suitable nights attracted small prawns, cucumber-smelt, and squid, as well as garfish. The attendance for the month was 212 adults and 146 children.

April also produced cold and changeable weather with the water temperature down to 10° C. None of the larger fish were noted in the vicinity of the Station, but the fish-trap produced an interesting selection, including a number of kelp-fish (*Odax vittatus*). Whale-feed had now disappeared from the surface and clear shrimp were not so numerous. The launch was placed on the slip for annual painting and overhaul and the moorings for both launch and dinghy were renewed. The continuous bad weather led to a poor attendance of visitors; only 42 adults and 17 children visited the Station.

May brought strong southerlies and heavy rain with further lowered temperatures, and the heater was started. All fish remained healthy. Through the kindness of Captain Black, of the trawler "Hananui," the aquarium was provided with a most interesting variety of specimens. Amongst the larger fish were two fine trumpeter (*Latris lineata*) 2 ft. in length. Although these were taken at 45 fathoms, they did not seem to be in any way affected by confinement in our shallow tanks. The fish-trap continued to produce interesting catches, including the rare bearded rockling (*Gaidropsarus novae-zelandiae*), the crested weed-fish (*Cristiceps aurantiacus*), along with a variety of blennies and crabs and plenty of the common spotty (*Pseudolabrus celidotus*) and wrasse (*P. pittensis*). Small slips on the adjacent hillsides caused by the bad weather frequently discoloured the sea, and caused trouble when fresh sea-water had to be pumped into the supply-tank. The ferry steamer "Tarewai" having discontinued Sunday running and the land track to Portobello being in a bad state, the attendance fell to 16 adults and 23 children. Despite the cold weather, the fish still took food well.

June was very cold, and the heater was kept in constant use. Repairs had to be made to a chimney in Mr. Adam's house as it had been badly cracked in a gale.

July: Although this was a month of frequent frosts, the fish all remained lively and in good healthy state. The ponds were all cleared of marine growth and the dinghy was placed on the slip and repaired. Visitors were very few.

August was unusually mild with the temperatures gradually becoming higher, and the heater was not continually in use. Most of the fish in the outside ponds survived the winter. Clear shrimp again appeared in large numbers, and garfish and small mullet were again in evidence. After giving three years' continuous service, the fish-trap was taken up for repairs. Further supplies of marine material were sent to the Otago University. A specimen of the yellow-banded hussar (*Lutianus amibilis*) was sent to the Station for identification by Mr. J. Smith, one of the local fishermen. This fish is a stranger to these waters but is common off the Australian coast. A live lamprey from the harbour water was brought in by Mr. R. Buck, and Captain Black sent in specimens of great interest. Mr. A. E. Hefford, Chief Inspector of Fisheries, visited the Station.

September temperatures were also mild, but the week-ends were marked by broken weather. Garfish came plentifully to the light. Strong weed-growth in the ponds had to be kept in check. The old-type oil-burning side lights of the launch were replaced with electric lights run off the battery, making a decided improvement.

October: The weather was mainly fine, but occasional heavy winds caused discoloration of the water. Whale-feed and clear shrimp were plentiful, but the ordinary line fish were scarce. The set-net produced a fair quantity of mullet, and the fish-trap a better variety of fish, including kelp-fish (*Odax vittatus*), black cod (*Epinephelus demaelii*), weed-fish, sea-horses, and large numbers of spotties and wrasse. The interior of the hatchery buildings and the pipes were cleaned and painted. The dinghy was slipped and painted. On Labour week-end we had 106 visitors.

November: Water temperatures became steadily higher. Large shoals of clear shrimp and whale-feed were on the surface, but the set-net caught few mullet as the bulk of the shoals were of small-sized individuals. The cleaning-up and overhaul of the Station and grounds was completed. One hundred and five adults and 35 children visited the Station, as well as 35 students from the training-college.

December: The weather was mostly fine, and at times very warm. Water temperatures were as high as 20° C. in the tanks, and special attention was necessary, but the fish were not affected. There was an abundant supply of whale-feed on the surface of the water of the harbour, but school fish and ordinary line fish were not much in evidence. Garfish, including some large females, were taken with the hand-net at the light. Visitors to the Station were numerous.

During this year there was no appearance of the large shoals of pilchards which in other years have visited the harbour. Although clear shrimp and whale-feed, which provides abundant food for both fish and birds, came into the harbour in great supply, there was a notable shortage of such fish as red cod, blue cod, trevally (warehou), and tarakihi.

Water-temperature records along with weather records have, as usual, been regularly taken. The buildings and grounds have been kept in good order and the tanks and ponds regularly cleaned. The Station is in good order except for the supply-pipe which delivers sea-water to the tanks. It still functions all right, but I would draw attention to the Hon. G. M. Thomson's report of 1924 in which he states: "It will be necessary ere long to renew the iron piping of the hatchery building, which has been in use for twenty years." The same piping is still in use, but we do not know how long it will remain in a usable condition.

I have, &c.,
WM. B. BENHAM, K.B.E., F.R.S.,
Chairman of the Board.

APPENDIX III.

AVERAGE TEMPERATURE OF SEA-WATER (AT THE SURFACE) FOR EACH MONTH OF THE YEAR AT FIVE DIFFERENT STATIONS.

Month.	Auckland Harbour (off Nelson Street Wharf).			Bay of Islands (off Russell).			Kaipara Harbour (Whakaipirau Estuary).			Coromandel (off Wharf).			Whangarei Harbour (Parua Bay).		
	1938–39.	1939–40.	1940–41.	1938–39.	1939–40.	1940–41.	1938–39.	1939–40.	1940–41.	1938–39.	1939–40.	1940–41.	1938–39.	1939–40.	1940–41.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
May ..	17·4	16·4	14·0	17·7	17·3	15·4	15·2	15·6	12·5	17·6	16·1	14·4	..	16·0	..
June ..	15·3	14·1	13·4	13·7	13·4	13·1	12·8	13·3	12·8	14·5	14·4	12·6	..	12·7	..
July ..	12·7	11·2	11·5	12·6	11·6	11·6	11·5	11·0	10·1	13·3	11·7	12·1	..	10·4	..
August..	12·7	11·8	12·3	12·8	11·5	13·3	11·9	10·0	11·1	13·2	12·8	12·7	..	11·3	..
Sept. ..	13·4	13·8	13·9	14·8	11·2	14·8	14·5	12·6	12·8	14·5	14·2	14·9	..	15·7	..
October	16·1	15·7	16·6	16·2	14·8	16·1	16·7	17·0	..	17·2	15·7	16·4	..	15·9	17·6
Nov. ..	18·3	17·8	16·4	16·0	14·7	15·4	18·3	18·6	17·6	19·4	18·4	18·3	..	16·3	17·6
Dec. ..	19·1	19·7	20·1	18·1	18·4	19·3	20·6	22·3	21·2	19·6	21·3	22·0	19·3	20·2	21·1
Jan. ..	18·7	21·5	21·5	18·2	19·2	20·2	21·3	23·1	..	19·6	20·9	22·2	20·4	21·5	22·3
Feb. ..	19·3	19·7	22·0	19·0	17·6	21·2	20·1	..	21·5	20·4	18·6	22·0	19·4	19·2	20·9
March ..	20·8	19·3	21·1	20·5	17·1	20·3	20·1	19·4	21·4	20·3	18·5	20·7	19·9	..	21·1
April ..	18·7	17·8	17·6	18·8	17·3	17·2	18·6	..	17·5	18·8	17·6	17·3	18·6	..	16·7

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