1947
NEW ZEALAND

MARINE DEPARTMENT

ANNUAL REPORT FOR THE YEAR 1946–47

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

Marine Department,
Wellington, 30th June, 1947.

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.,
J. O'BRIEN,
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.

Marine Department, Wellington, 20th June, 1947.

SIR,—

I have the honour to submit the annual report on the activities of the Marine Department for the year ended 31st March, 1947.

It had been hoped that at this period, after the cessation of hostilities, the work of the Department would be back to normal, but such is not so. My staff have performed splendidly in carrying out the normal duties of the Department, plus the additional work entailed in post-war activities such as the redelivery to previous owners of vessels taken over for war service ; the sale of other units which are not required by the previous owners ; the completion of war vessels which were almost constructed when hostilities ceased ; the disposal of shipbuilding and other stores in Auckland, Wellington, and Port Chalmers through the War Assets Realization Board ; the clearing and handing over of areas taken for shipbuilding purposes ; the supervision of running accounts of the barque " Pamir " ; and many other minor activities consequent on the war.

The receipt of the report of the British engineers, Messrs. Buckton and Clarke, on the west coast harbours was of outstanding importance during the year. In the main the report confirmed the opinion of the majority of engineers who had previously reported on the west coast harbours and narrowed the opinions in regard to other points on the coast where deep-sea harbours had been advocated. At the time of going to press, all the reports available are being studied and collated by a committee of engineers which is expected to make a final report and recommendation in the near future.

The repatriation of British seamen from this area has been carried out during the year, and the reciprocal repatriation of our own New Zealand seamen from other parts of the world has steadily proceeded, along with the arranging of passages and provision for the care and comfort of the wives and families of seamen involved.

Normality has more or less returned to our lighthouses, and those which were extinguished for security reasons are now relighted or in process of being so. One of the most important of these—Fairchild Rock, at the southernmost portion of the South Island—is not yet reinstalled, for the reason that the heavy tackle for this buoy requires lifting from buoys in the Whangaparaoa Passage, at Auckland. The reinstallation is, however, considered an urgent matter. Discussions have been held with members of the Merchant Service Guild and others in the nautical profession, as a result of which a programme of necessary lights and navigational aids has been mapped out for consideration and installation as early as the necessary plant can be imported.

There were twenty-one casualties to shipping involving twenty-three vessels during the year. Of these, eighteen were more or less minor, requiring only the usual preliminary inquiry by the Superintendent of Mercantile Marine; three others were of major importance—viz., the stranding of the motor-ship "Wanganella" on Barret Reef, at the entrance to Port Nicholson, on the 19th January, 1947; the stranding of the fishing-vessel "Futurist" at Long Point, south of Cape Campbell, on the 19th March; and the collision of the vessel "Tamahine" with a Fairmile patrol vessel at the Queen's Wharf, Wellington. The Court's decisions in these cases are conveyed later in this report.

ADMIRALTY CHARTS

The Department acts as agent for the sale of Admiralty charts and maintains a stock at Head Office and the main Mercantile Marine offices in the Dominion. The stock includes all charts of the Dominion and many other parts of the world to which ships trading to or visiting the Dominion may be diverted from the usual run.

The stock of charts for areas outside the Dominion is fairly large at present as the result of ships resuming their normal trade. The number of corrections to these charts as navigational aids have been re-established and danger areas removed has been a big undertaking occupying a considerable amount of the nautical staff's time. The main factor underlying the Marine Department's undertaking this agency is that of providing mariners with charts corrected to the date of issue in order to avoid, as far as possible, any accident which might result from the use of the incorrect charts.

During the year the existing chart of the north coast of the Dominion, No. 2525, was cancelled and replaced by one showing the amended coast-line and new soundings from Tutukaka Head to Takou Bay, north side of the Bay of Islands, as found by the H.M.S. "Endeavour's" survey. With this corrected chart the coastal charts from Poverty Bay to Takou and the approaches to the Hauraki Gulf are now covered by charts from the data supplied by the H.M.S. "Penguin" and the H.M.S. "Endeavour." The remainder of the coastal charts, excepting No. 2532, which has been corrected, are from surveys by H.M.S. "Pandora" and H.M.S. "Acheron" and differ from the New Zealand Government's survey, and a note drawing attention to these inaccuracies is borne on each of the charts.

In the Magisterial inquiry into the stranding of the "Wanganella" a determined attempt was made to show that a difference of longitude of about fifty seconds existing on chart 695 had a bearing on the casualty, and it was necessary to explain to the Court that such difference was actually mentioned on the chart and that it had no navigational significance so far as the casualty was concerned.

COASTAL SURVEY

It is realized by the Department that the survey of our coasts should be recommenced as early as possible in order to restore confidence in mariners when navigating those parts of the coast covered by charts from surveys made by the H.M.S. "Acheron" and H.M.S. "Pandora" between the years 1848 and 1855. The differences in the positions of the coast-line and hydrographical features of these charts from those of the New Zealand Government survey and the absence of any detailed soundings in some areas is apt to cause a lack of confidence in navigators using these charts.

In 1901 H.M.S. " Penguin " commenced a survey of the coast at Poverty Bay, and reached Mercury Bay in 1905 when the survey ceased. Subsequent to this no survey was made until 1937, when the H.M.S. " Endeavour " commenced at Mercury Bay and carried on as far as the northern end of the Bay of Islands. At this point the survey was discontinued shortly after the outbreak of war.

Immediately hostilities ceased, Admiralty was approached by the direction of the Government on the question of resuming the survey, but, as the existing Naval survey ships are likely to be fully engaged on work of more importance, no prospect could be seen of undertaking our work in the near future. Admiralty, however, have offered the fullest co-operation, and suggest that the New Zealand Navy should undertake the work. This suggestion is at present being investigated by the New Zealand Naval Board, the Marine Department, and other authorities in regard to the practicability and the initial and yearly costs of the scheme.

BLUFF - STEWART ISLAND FERRY SERVICE

I am pleased to be able to state that the G.S.S. " Wairua " is performing a service which has been proclaimed as most satisfactory to everybody concerned. In addition to ensuring that the islanders have a regular service and that the tourist traffic is efficiently dealt with, our vessel also services the lighthouse at Puysegur Point and has successfully carried the mutton-birders to the southern islands in the autumn of the last two years.

Arrangements have now been made at the coming overhaul for the vessel to be fitted with twin Diesel engines in place of the present boilers and to improve the accommodation so that in the future a service even more efficient than at present will be forthcoming.

G.S.S. " MATAI "

This vessel is at present under refit at Auckland, opportunity being taken to complete her conversion from war service. It was not possible to have this attended to at the time she was released from Naval service, for the reason that she was required for trips to Norfolk Island for servicing the aerodrome there, to Australia in connection with the delivery of minesweepers, also to Lyttelton in connection with the de-storing of Ashburton Naval Stores Depot. The vessel's present refit and overhaul, which is taking place at the Devonport Naval Base, will not be completed until near the end of the current year.

DISPOSAL OF SHIPPING

Departmental officers continue to act as agents of the War Assets Realization Board in the disposal of ships, minesweepers, launches, &c., which had been requisitioned or purchased for war use previously. Requisitioned vessels were sold under an arrangement whereby the former owners were given a prior right of purchase at a price based on the amount originally paid by the Government for these units. Apart from these, all other vessels were sold by public tender after selling-prices had been fixed by valuations made by Marine Department Surveyors and by outside valuers experienced in the particular type of construction.

Altogether, to date, 131 vessels have been sold, with 14 units at present under disposal and 7 on hire to various interests.

SHIPBUILDING

During the year the Department completed on behalf of the Government six 55 ft. steel fishing-vessels for the UNRRA authorities in China. These vessels, together with eight 45 ft. tow-boats, three 75 ft. steel tugs, and the trawler " Sylvia K," were delivered in Auckland recently and loaded in the holds of the British vessel, " Empire Charmian." The loading of these into the holds of the vessel by utilizing the ship's own gear was a feat of no mean importance.

Apart from this shipbuilding, the Department's officers have been engaged in realizing the assets comprised of buildings, plant, material, &c., through the War Assets Realization Board.

AIDS TO NAVIGATION

Captain W. Whiteford, Nautical Adviser, represented the Department at the Radio Aids to Navigation Conference in London early last year.

Through the courtesy of the High Commissioner in London, this officer presented letters of introduction to the Secretary of Trinity House, London, and the Northern Lights Commissioners in Edinburgh. At these interviews and subsequent talks with the Engineer-in-Chief, Trinity House, our officer found that lighthouse practice and lighthouse work in general in the United Kingdom are much the same as in New Zealand and that most of our present and proposed improvements compare favourably with those in Britain. The lights in the United Kingdom are generally on higher power than those in use here, owing to the lower coefficient of atmospheric transmission.

It is felt, however, that we lag behind in some cases where very old lenses of the fixed type have been changed to the flashing type with the result that the efficiency is much below that which would be obtained with a modern lense of the flashing type. Fixed lights such as Centre Island, and long-interval lights such as are installed at Farewell Spit, Cape Saunders, and Cape Campbell that flash every minute, are out of date, and consideration is now being given to the replacement of the fixed lenses at Baring Head, Godley Head, Nugget Point, and Centre Island with modern revolving lenses of the fourth order which would, using the same light power, increase the power of Baring Head from about 83,000 candle-power to over 2,500,000.

As a result of conferences with shipping experts, plans are in mind for the establishment of a further twenty-three lights around the coast at a suggested rate of about three each year, and during the present financial year it is proposed to commence with the establishment of lights on Slope Point, between Nugget and Waipapapa Points; Gibson Point, between Lyttelton and Kaikoura; and Motuara Island, at the entrance to Queen Charlotte Sound.

During the year the illuminant of Godley Head light was changed from incandescent gas to electricity, power being taken from the main reticulation, and a stand-by generator being installed for emergency use.

The erection of radio beacons at lighthouses had perforce to be discontinued at the outbreak of war. Up to that stage beacons had been established at Cape Reinga, Moko Hinau Island, Cuvier Island, Baring Head, Cape Campbell, Stephens Island, and Puysegur Point Lighthouses. These beacons operate continuously in weather of low visibility and at stated intervals during clear weather. At Tiri Tiri, Portland Island, and the coast stations of the Post and Telegraph Department at Auckland, Wellington, and Awarua, arrangements exist whereby ships fitted with direction-finders can obtain direction-finding signals on request.

At the close of the war the programme could not be resumed until it was known whether this type of beacon would be replaced by one of the radio direction-finding systems which have been developed during the war and which were for some time afterwards more or less secret. The British Government, with a view to the examination of pre-war radio aids to navigation and those developed by the Allied Governments during the war, convened the International Conference in London which, as before mentioned, was attended by the Nautical Adviser of this Department, Dr. E. Marsden, Director of the Department of Scientific and Industrial Research, and Dr. Bogle, of the same Department, who, at that stage, was attached to an Admiralty signalling establishment in England.

The Conference discussed all radio methods of position-finding used by air and surface craft, with particular attention to radar, which is the most valuable aid to navigation discovered up to the present. So far as medium-frequency beacons are concerned, which is the type in general use for shipping all over the world, the Conference decided that it could still be considered a valuable aid to navigation. The limitations attached to the use of the beacons by ships are generally recognized, but until a better medium-range aid to navigation is operationally proved and widely desired by the navigators there should be no change.

Consequent on the decision of the Conference and in common with other maritime countries, a decision will probably be reached to proceed with our programme and the establishment of the existing type of beacon with the latest improvements at selected lighthouses, points in view for these being East Cape, Godley Head, Portland Island, Taiaroa Head, Dog Island, and replacement of the present temporary beacon at Tiri Tiri.

PROSECUTIONS

During the year there were 132 prosecutions instituted under the various statutes of the Department. Of these, 122 were concerned with breaches of the Fisheries Act, 2 with the Harbours Act, 1 with the Inspection of Machinery Act, and 7 in reference to the Shipping and Seamen Act.

The great increase in prosecutions under the Fisheries Act is due to the more rigid patrol now exercised by the Department by reason of the replacement of our fisheries patrol vessels with faster and more suitable units. In this regard, also, the air services have been utilized for fisheries patrol work.

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 amendments was £17,165 11s. 11d., as against £16,215 17s. 2d. for the previous year, an increase of £949 14s. 9d.

REGISTRATION OF SHIPPING

On the 31st December, 1946, there were on the register of vessels in the Dominion 44 sailing-vessels of 3,541 net tons register, 128 steamers of 61,350 net tons register, and 291 motor-vessels of 20,378 net tons register, as compared with 45 sailing-vessels of 3,553 net tons register, 127 steamers of 61,606 net tons register, and 279 motor-vessels of 18,770 net tons register at the end of the previous year.

The number of seamen employed on board was 2,469, as compared with 2,174 for the year 1945.

SHIPPING CASUALTIES

A Court of Inquiry was held at Wellington from the 25th to 28th February, 1947, in respect of the stranding of the motor-ship "Wanganella" on Barret Reef, at the entrance to Port Nicholson, on the 19th January, 1947, the ship being eventually refloated and towed to the floating dock, Wellington. The ship sustained extensive damage.

The Court's decision in this case was as follows:—

(1) The Court, having carefully inquired into the circumstances attending the casualty, found that the cause of the stranding was due to the master's belief that the Barret Reef flashing buoy light near the entrance to Port Nicholson was the No. 1 or southernmost leading light in the Wellington Harbour (which latter light is approximately two and a half miles north of the Barret Reef light). The master steered the vessel upon a course passing slightly west of Barret Reef light and heading for the aforesaid No. 1 leading light, whereby the ship ran upon the outer rock of Barret Reef and remained stranded. In his belief that the Barret Reef buoy light was the southernmost leading light in the harbour, the master was quite mistaken.

(2) The Court found that the casualty was caused by default on the part of the master, in that at a distance of not less than seven miles westward of it the Barret Reef buoy flashing light was visible from the ship and remained so visible from that time on to the time of the stranding. When the Barret Reef light first became visible to the ship and for some miles thereafter, the No. 1 leading light in Wellington Harbour was hidden behind land and invisible to the ship, and an examination of the charts during that time should have satisfied the master that the visible flashing light was the Barret buoy light.

(3) The Court found that the casualty was not in any way caused or contributed to or brought about by the actions or default of any officer or member of the crew other than the master, whose certificate was suspended for a period of three months.

(4) The Court ordered each party to bear its own costs.

A Court of inquiry was also held at Wellington on the 2nd May, 1947, in respect of the stranding of the steam fishing-vessel "Futurist" at Long Point, about ten miles south of Cape Campbell, early on the morning of the 19th March, 1947, as the result of which she was subsequently abandoned as a total loss.

The Court's decision in this case was as follows:—

(1) The Court, having carefully inquired into the circumstances attending the above-mentioned casualty, found that the immediate cause was due to the faulty lookout kept from 2 a.m. until 3.30 a.m. on the morning of the 19th March, 1947, in that the fireman on duty was incompetent and inexperienced in lookout duties and that he neglected to notify the master of the poor visibility at that time, a change of wind, and a set from the south.

(2) A contributory cause of the casualty was the strong set from the south, which could not reasonably have been foreseen when the master retired and which carried the ship some six miles north into the shore.

(3) The Court found that the casualty was not caused or contributed to by the wrongful act or default of the master or crew, other than the fireman on lookout duty. No order was made as to costs.

A further Court of inquiry was held at Wellington on the 5th May, 1947, in respect of a collision between the Picton ferry steamer "Tamahine" with a Fairmile patrol vessel at the Queen's Wharf on the 28th February, 1947.

The Court's decision in this case was as follows:—

(1) The Court, having carefully inquired into the circumstances surrounding the collision, found that the third engineer was solely to blame for the mishap, in that he put the engine full ahead instead of full astern.

(2) In finding that the third engineer was solely to blame for the mishap, the Court found that the casualty was caused by the inadvertence or fault of the officer in question and was in no way caused or contributed to by the master or any other engineer or officer of the ship.

(3) In coming to its decision the Court thought that it should, in fairness to the third officer, make known its views that he had been continuously on duty for a long period without sleep and that factor alone may have contributed to his mistake. The Court did not interfere in any way with his certificate, nor did it make any order as to costs.

HARBOURS

The Department has continued to control the harbours of Westport, Picton, and Dargaville.

The work at Picton includes the maintenance of lights in the Cook Strait area and the regular servicing of the Brothers Lighthouse by the Harbourmaster's launch.

At Dargaville the Harbourmaster maintains the harbour services, including the replenishment of navigation lights in the wide Kaipara Harbour area.

WESTPORT HARBOUR

As is no doubt well understood, the governing factor in the successful operation of a river port is the depth available at high water at the entrance or, otherwise, the mouth of the river. It is the inevitable situation that, due to several variable physical circumstances, what is so generally known as a bar or patch of shoal water occurs at such entrance, and it is the depth of water on this shoal which fixes the working depth at and draught to which vessels may work for their outward loading of cargoes; in the case of Westport, as with Greymouth, predominately coal for transport to the North Island.

A factor which further affects the available depth is the tidal rise—appreciably better at times of "spring" tides as compared to "neap" tides—and intensity of swell or sea running over the bar. The circumstances differ on an average basis from year to year, month to month, and even from day to day.

It is interesting to note, then, that in respect to the year now under review—*i.e.*, 1st April, 1946, to 31st March, 1947—the mean of daily available high-water (working) depths, taken month by month, is the best for many years, and, with the exception of one year, the best for the last fifteen years. As immediate comparison, for instance, the yearly means of high-water depths are: 1944–45, 21 feet 4 inches; 1945–46, 20 feet 8 inches; 1946–47, 22 feet 2 inches.

In my report covering the previous year—*i.e.*, 1945–46—I stated that, as at the close of that year, the low-water depth (low water spring tide datum) on the bar had improved to 12 feet, as against the very low depth of 9 feet which had obtained three months or so earlier.

Such improvement in low-water depth remarked upon, however, did not continue consistently into the earlier few months of this year, falling to 10 feet 6 inches in July. It was not a long period of recession, the mean of high-water depths throughout being, on the average, consistently better than during the preceding period of several months.

The weather conditions during July and August were the very worst consistently experienced for many years, with continuous freshets of considerable strength in the river and strong seas on the bar. These conditions more appreciably were to the disadvantage of shipping, with loss of coal shipments to the North Island of probably several thousand tons, but, on the other hand, a decided improvement to the depth on the bar resulted—a most satisfactory condition which maintained until just prior to the close of the year.

From the time of the improvement mentioned until late in December, however, rather consistently adverse weather conditions with rough seas and freshets in the river somewhat depreciated the good working depths which were available, though not to an extent which should have mitigated against the maintenance of good coal shipments, which for the year totalled 384,800 tons, slightly less than the total shipments during the previous year.

From New Year on the weather vastly improved, extending into the driest period known in the district, with the Buller River falling to its lowest recorded level. Nevertheless— an uncommon circumstance under such conditions, due to absence of the usually prevailing strong south-westerly winds during fine weather which actuate littoral drift in favour of bar shoaling—the good depth of water maintained until March, for which month the mean of high-water working depths fell to 20 feet 8 inches, as against the 22 feet to 24 feet which had obtained for seven months previously, with the least depth at low water ("spring" tide datum) of 11 ft., as against 13 ft. to 14 ft. extending over the same previous months.

More particular comparisons of high-water depths over some previous years are indicated in the following tabulation :—

NUMBER OF DAYS ON WHICH DEPTH OBTAINED ON THE BAR AT HIGH WATER

Depth.	1917.	1927.	1931.	1939.	1942.	1944.	1945.	1946.	1947.
14′ to 16′ ..	..	..	..	..	..	1	..	2	..
16′ to 18′ ..	..	..	25	2	1	39	23	35	..
18′ to 20′ ..	..	..	132	88	33	96	69	124	35
20′ to 22′ ..	..	26	165	149	181	150	142	117	151
22′ to 24′ ..	22	112	43	115	143	75	87	62	126
24′ to 26′ ..	143	125	..	11	7	5	43	24	51
26′ to 28′ ..	137	70	..	..	..	..	1	1	2
Over 28′ ..	63	32	..	..	..	..	..	..	..
Mean for year	26′ 3″	24′ 10″	20′ 2″	21′ 3″	21′ 9″	20′ 8″	21′ 4″	20′ 8″	22′ 2″

NOTES.—In the foregoing tabulation the years quoted are as at 31st March. In the history of the port 1917 was the year of best depth conditions. This was during the year following completion of the last breakwaters extension plus a period of very intensive dredging.

The good return of working depths for 1927 was the result of many floods in the river that year, topped by the exceptionally great flood of 5th November, 1926.

The figures for 1931, except for 1934 (depression circumstances), represent the poorest working depth conditions for over forty years.

During the past year, 254 (316) vessels aggregating 184,943 (198,643) tons net register worked the port, the figures in parentheses being those corresponding for the previous year. In all, the in and out vessels for the year totalled 508 (633), with total net register tonnage of 368,869 (398,565).

Bunker-coal trade in respect to overseas and intercolonial cargo-vessels was an appreciable feature in the port's activities in pre-war years, but fell away after Japan's entry into the war and has not yet returned, although two such vessels did work the port, lifting 3,950 tons of bunkers, as against " nil " the previous year.

Timber lifted from the port totalled 1,229,000 super feet, compared to 1,500,000 super feet in 1945–46.

The following record of annual shipments of coal, together with mean high-water depths on the bar—in respect to several past years—might be of interest :—

Year.	Mean of High Water Depths on Bar.	Total Quantity of Coal shipped.
	Ft. in.	Tons.
1931	20 2	513,500
1939	21 3	426,400
1942	21 9	487,500
1943	21 8	446,500
1944	20 8	401,300
1945	21 4	402,000
1946	20 8	385,300
1947	22 2	384,800

The port's three dredges were maintained in commission, more or less, throughout the year. The bar suction dredges "Eileen Ward" and "Rubi Seddon" operated predominantly on the bar, with incidental attention to the lower reach of the river fairway. The " Eileen Ward," which is the Department's most powerful dredge, was out of action for about three months whilst undergoing extensive dock overhaul and replacement of new internals in the gravel pumps.

In all, the two dredges lifted and disposed at sea 643,500 cubic yards of dredgings, 485,000 cubic yards of which were from the bar area and 158,500 cubic yards from the river fairway and wharf berths. The total dredged by the same two dredges the previous year was 697,350 cubic yards, 520,000 cubic yards of which were from the bar area.

The port's bucket dredge, "Maui," was also out of action for a period early in the year on dock survey and overhaul, and in the latter five months of the year, has been on hire to the Wanganui Harbour, doing excellent work there in restoration of depths at heavily silted berths at the Castlecliff wharves.

At Westport the function of the bucket dredge is the maintenance of adequate depths in the shipping berthage area, and in order to supplement the restricted availability of the "Maui" during the year the Greymouth Harbour bucket dredge "Mawhera" was secured for a short period. The total amount lifted by the "Maui" and "Mawhera" during the restricted period they were operated was 34,650 cubic yards, and depths at the berths were maintained satisfactorily.

Port equipment and property has been maintained in satisfactory condition throughout the year. Endeavours have been made to commence erection of our urgently required new workshops building and for the setting-up in which new tools and machinery have come and are coming to hand, but, due to contemplated harbour-improvement works —not yet decided—the order of which might affect location of the shops, progression is at a standstill.

Abreast of the wharves the half-tide stone wall which confines the river along that length had, over the period of years since its construction, wasted in places into gaps which permitted escape of water and consequent scouring medium. By means of a tractor crane traversing the wall these gaps have been closed with replacement of stone. The work extended in parts over some 1,500 ft. of wall.

At the lower end of the wall, abreast the main coal-loading berths, over a period of years a large shingle-bank extending over a length of some 700 ft. had accumulated from flood deposition to such an extent as to overflow into the channel and thereby press flood current undesirably against shipping in the berths. With the same tractor as bulldozer removing some 10,000 cubic yards of coarse gravel, this bank was reduced and a relief channel cut.

In my last annual report I mentioned fruition of the Hon. Minister's efforts to obtain expert overseas opinion as to steps which should be considered for the purpose of improvement to the port. In July–August, Mr. E J. Buckton and Mr. A. J. Clark, of Messrs. Rendel, Palmer, and Tritton, of Westminster, spent three weeks at Westport in a close study of the harbour, and shortly after the New Year their very comprehensive report was received. This report is at present under study and analysis by a committee of New Zealand engineers set up by the Hon. Minister for the purpose of final recommendation as to what work should be done.

In my last report I also referred to the setting-up during that year by the Hon. Minister of a Local Advisory Committee comprised of representatives of all interests concerned in the successful functioning of the port. This Committee has continued to meet regularly and consider various matters for the betterment of the port and its operation, though in the latter months little achievement has been realized materially owing to the lag pending the decision upon engineers' recommendations.

SCHOOL OF NAVIGATION

At the School of Navigation at Auckland classes for all grades of certificates have been held continuously throughout the year and a high standard of teaching has been maintained.

It is now possible to assess the number of students taking advantage of the school as being in the vicinity of 80 annually :—

Year.	Students.
1944–45	.. 75
1945–46	.. 84
1946–47	.. 81

During 1946–47 the following grades of candidates attended the school :—

11 Master, Foreign-going.
7 First Mate, Foreign-going.
23 Second Mate, Foreign-going.
7 Master, Home Trade.
12 Mate, Home Trade.
1 Second Mate, Home Trade.
2 Master, 25-ton Cargo-vessel.
9 Master, River S.S.
2 Yacht Master (N.Z.)
7 Vol. Exam. Comp. Dev.

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The Rehabilitation Department is still assisting students financially, and while this assistance may be an inducement for a small number of men to qualify for certificates, in the great majority of cases the students by their keenness have demonstrated their ambition to become officers of ships and leaders of the profession.

Inquiries from Army Headquarters regarding correspondence courses for members of J Force have been received, and the school is doing everything possible for members of the Forces who have a desire to study navigation.

During the year, in response to representations from shipping interests, a branch of the school was opened at Wellington, and is proving very beneficial to candidates in the Wellington Province and in the South Island.

EXAMINATION OF MASTERS AND MATES

The examinations have been held in Auckland and Wellington on the statutory days, and on occasions special examinations have been held where candidates from overseas ships are unable to attend on the regular days.

The examinations have been conducted in a satisfactory manner, and in the case of Foreign-going Certificates in accordance with the requirements of the Imperial Ministry of Transport.

The Chief Examiner of Masters and Mates, Captain Whiteford, took the oportunity whilst in the United Kingdom attending a radar conference to confer with the Principal Examiner of Masters and Mates there, and found that the examinations in the Dominion are conducted on a standard similar to those in Great Britain.

The number of examinations, 134, shows a decrease of 27 on the figures for last year, and it is to be expected that there will be a gradual decrease until normal requirements are reached. The passes and failures are as follows :—

	Per Cent.
Foreign-going Certificates—	
Full pass	55·6
Partial pass	28·4
Partial failure	1·2
Failure	14·8
Home-trade Certificates—	
Full pass	90
Partial pass	5
Partial failure	5

Examinations in sight tests during the year amounted to 105, of whom 101 passed.

NOTICES TO MARINERS

Information relative to changes in navigational aids, dangers to navigation, and general information to mariners is published in the above form. During the year 46 notices were issued.

Notices of an urgent nature are sent out in the form of a radio warning through the Post and Telegraph coast stations to vessels carrying an operator, and to other vessels through the National Broadcasting Stations.

The service for the distribution of hydrographical information which obtained before the war has been restored, and notices to mariners from the following countries are available for inspection at the Mercantile Marine offices at the main ports: Britain, United States, Canada, Norway, Sweden, India, Siam, France, and Australia.

SAFETY OF SMALL SHIPS

In an effort to prevent further loss of life through boats, yachts, and fishing-vessels proceeding to sea in an unseaworthy condition or inadequately equipped with life-saving applicances or with incompetent crew, regulations have been drafted for their safety.

These have been circulated for comment to the various yachting clubs and fishermen's associations, and up to the end of the year a large number of the replies received showed an appreciation of the need for the regulations along with their desire to co-operate with the Department in their requirements.

Some replies have evidenced suggestion for an extension of the requirements or for minor alterations, and these will receive consideration in the final draft.

RADIO REGULATIONS

The Radio Regulations for ship installations are under revision, but action is delayed until it is clear whether alterations will be required when the result of the recent International Radio Conference in Washington is available.

"NEW ZEALAND ALMANAC" AND TIDE TABLES

This publication for 1947 (forty-fifth edition) was published in good time for circulation before the beginning of the year.

During the war, for paper-conservation purposes, one Part only was published, but this year it was published again in one volume, as in this form it is of maximum value to mariners.

In co-operation with the various Harbour Boards, every effort is made to keep the port information and harbour plans up to date and to maintain it during the year by notices to mariners. New plans of the Auckland berthage and Bluff Harbour, provided by the local Boards, and a new plan of Westport Harbour, appear in this year's edition of the "Almanac."

COMPASSES

The regulations for ships' compasses were under revision at the end of the year and are now brought into force. The existing regulations have been carefully administered and compasses continue to be maintained in a good state of efficiency.

The investigation of adjustments show that the work of the various Compass Adjusters and Inspectors throughout New Zealand has been carefully performed.

BARQUE "PAMIR"

The supervision of the operation of this vessel, through the agency of the Union Steam Ship Co., has been the responsibility of this Department. For various reasons voyages to the east coast of America and Canada have been less profitable, chiefly because the earlier voyages were made with highly remunerative cargoes.

Towards the end of last year a decision was made to utilize the vessel for a trip from Lyttelton to Australia with timber and back to New Zealand with cement. Unfortunately, shipping trouble in Sydney necessitated the tie-up of the vessel at the wharf for several weeks, and it is not anticipated that that particular trip will show a profit.

At the time of going to press consideration was being given to the future disposition of this vessel, having regard to the many requests from societies interested that the vessel should be utilized for the purposes of a training-ship for New Zealand boys who desire to take up a seafaring profession.

EXAMINATION OF MARINE ENGINEERS

During the year 351 candidates were examined for Marine Engineer Certificates of Competency at the various centres throughout the Dominion. Of these, 119 were examined for First- and Second-class Certificates of Imperial validity, 124 were examined for Third-class Marine Certificates, and 16 were examined for Second-class Coastal Motor Certificates of New Zealand validity.

Candidates sitting for First-class Imperial Validity Certificates total 36, of which 15 passed for Certificates, 7 passed Part "A," and 14 failed in the examination.

Candidates sitting for Second-class Imperial Validity Certificates total 87, of which 22 passed for Certificates, 29 passed Part "A," and 36 failed in the examination.

The passes for First-class Imperial Validity Certificates issued by the Department were subdivided as follows: 1 Combined Steam and Motor, 8 Steam, and 6 Motor Endorsements. The passes for Second-class Imperial Validity Certificates issued by the Department were subdivided as follows: 11 Steam, 10 Motor, and 1 Motor Endorsement; totalling 37 Certificates issued, as shown in the following table:—

Class.	Steam and Motor.	Steam.	Steam Endorsement.	Motor.	Motor Endorsement.	Total.
First ..	1	8	..	..	6	15
Second ..	..	11	..	10	1	22

Candidates for Third Marine Examination total 123, of these 87 passed and 36 failed. Sixty-five passed at the first attempt, 15 at the second attempt, 5 at the third attempt, and 2 at the fourth attempt. Candidates for Second-class Coastal Motor Examination total 16, and all passed at the first attempt. The remaining 92 candidates were examined for River Engineer (Steam) and Restricted Limits P.V.O.S. (Oil) Certificates of Competency. Of these, 15 passed and 1 failed for River Engineer, and 70 passed and 6 failed for Retricted Limits P.V.O.S. Examination.

During the year there has been a considerable increase in candidates for both Imperial Validity and for the Third-class Marine Examination amounting to 105 per cent. and 112 per cent. respectively. This increase and the number of candidates presenting themselves for examination for these certificates is the greatest ever recorded by the Marine Department.

SURVEY OF SHIPS

Survey Certificates were issued during the year ended 31st March, 1947, for 7 steam and 9 motor foreign-going, 28 steam and 75 motor home-trade ships, and 43 steam and 246 motor restricted-limits ships and launches.

Equipment Certificates were issued for 12 foreign-going, 28 home-trade, and 3 restricted limits ships, all of which carry certificates of class issued by classification societies.

Survey and Equipment Certificates issued for the year ended 31st March, 1947, total 451, as compared with a total of 434 for the year ended 31st March, 1946, and 389 for 1945.

Surveys were also made in 297 cases for seaworthiness, efficiency of equipment, tonnage, radio-telegraphy, &c., as against 247 such cases surveyed during the year ended 31st March, 1946, and 221 during 1945.

Forty-nine of these surveys made in 1946–47 were in respect of overseas ships not registered nor normally surveyed in the Dominion.

Two wooden ships, "Avon" and "Melva," built by the New Zealand Government, have been chartered to Holm and Co., Ltd., and are engaged in the coastwise cargo trade. Each vessel has a cargo-carrying capacity of 250 tons. These vessels are sister ships of "Rosalie" and "Aranui," which were also built during the 1939–45 war and have since been employed in the New Zealand coastwise cargo trade.

A notable addition to the New Zealand merchant fleet during the year ended 31st March, 1947, is the turbo electric vessel "Hinemoa," which entered the Wellington–Lyttelton express steamer service early in 1947. She is of nearly similar dimensions to the "Rangatira," built in 1931, but incorporated many improvements in detail, both in her amenities for passengers and crew and in her technical design. "Hinemoa" is one of the first important post-war liners built in the United Kingdom. Under a new name, "Hwalein," of Shanghai, the veteran passenger-steamer "Maori" entered during 1946 a further period of usefulness as a passenger-steamer trading in the China Seas. The "Maori" was built by Denny and Co., of Dumbarton, in 1907, and for nearly forty years under that name she had traded in the Wellington–Lyttelton express steamer service without serious mishap. The "Maori" was distinguished as the pioneer fast triple-screw turbine steamer in New Zealand coastal waters.

The passenger-steamer "Maunganui" was sold to Greek owners during the year and renamed "Cyrenia." "Maunganui" was built in Scotland in 1911 for the Wellington–San Francisco mail-service. She was employed as a troop transport during the 1914–18 war and was a hospital ship during the 1939–45 war.

The New Zealand trans-Pacific cargo service has been augmented by the large American-built vessel "Waitemata."

In Auckland Harbour the ferry fleet has been enlarged during the year by two vehicular ferries, "George Peat" and "Frances Peat." Both vessels are propelled by Diesel engines. The hulls were built in Australia, and the vessels were originally used in the Hunter River, New South Wales, ferry service. Both vessels were delivered from Australia to Auckland under their own power and without abnormal incident. Structural alterations have been made at Auckland to fit these vessels to suit local conditions. Each vessel can carry 45 cars and 300 passengers in Auckland river limits with a service speed of 12 knots.

There has been much activity in the building of the small class of off-shore trawler propelled by Diesel engines. These vessels average about 50 ft. to 55 ft. in length, are single screw, and of about 30 tons to 35 tons gross and slightly under 10 tons register. They are fitted with a trawl winch and the usual trawling-gear. The design and construction of these vessels have been approved by the Marine Department. They are not required by law to be subsequently surveyed periodically by the Department when of a register tonnage not exceeding 10 tons, nor for the same reason are they subject to the statutory requirements as to certificated officers and the manning scale. Timber, and particularly kauri, has been hitherto the staple material for the construction of these small ships in New Zealand. The present acute shortage of first-class kauri suitable for shipbuilding has presented a hard problem to the local shipbuilders, and there has been of necessity a search for alternative materials for the construction of these vessels. Two Auckland engineering firms have therefore developed satisfactorily designs of trawlers of all-welded steel construction which have been approved by the Department. The general design has undoubtedly produced an efficient trawler embodying a standard of living-conditions conducive to the improved comfort and health of the crews. Six steel trawlers were designed and built privately in Auckland under the Marine Department's supervision to the account of UNRRA, South-west Pacific area. They have recently been shipped to Shanghai for service in Chinese coastal waters. As yet there is insufficient operating experience to forecast any reliable comparison of the overall efficiencies between the all-welded steel trawler and the traditional wood trawler.

If, however, the present stringency in the supply of indigenous timbers for shipbuilding continues, both the fishing and coastal shipping interests and the shipbuilders also will be compelled to use either imported timber or imported steel plates and sections. Apart from new wood construction, the maintenance of existing wood ships in a satisfactory state of repair necessitates at present the approval of the Timber Controller to the release of supplies of the necessary timber to effect repairs.

The twelve Fairmiles, anti-submarine patrol vessels built in New Zealand during the war period, have been sold to various purchasers. Most of them are being converted into private motor-yachts; others are being converted into vessels suitable for the carriage of passengers for hire. One Fairmile, severely damaged by collision with the "Tamahine," is unlikely to be fit for further useful service.

Another wartime-built Naval vessel, the magnetic minesweeper "Tawhai," has been converted into a trawler and sold to UNRRA. She has made the voyage of delivery from Auckland to Shanghai under her own steam and will be employed in the China coast fishing industry.

In addition, eight 45 ft. and three 75 ft. motor-propelled tugs originally built in New Zealand for the United States Forces have been completed and transported aboard a British steamer to Shanghai to the account of UNRRA. Another war-built 75 ft. tug has been taken over by the Marine Department for service in Westport Harbour, and the necessary alterations are proceeding to fit her for the special requirements of her future service.

Demands by many ships, both New Zealand and overseas, for dry-dock accommodation continue to be sustained, especially for the dry docks of Wellington and Auckland, and the allocations, as in the war years, have been controlled in Wellington by the Central Docking Committee. This system of central allocation proves to be worthy of retention.

The outstanding shipping casualty requiring extensive repairs in dry dock is the trans-Tasman liner, "Wanganella." This vessel was docked at Wellington early in the year following her salvage from Barret Reef and a detailed survey of the underwater damage to the hull structure has been made.

The vessel will be redocked when the necessary steel plates and sections are delivered to enable permanent repairs to be effected. This work will constitute the largest single ship-repair work ever carried out in a New Zealand dry dock.

An unusual repair was carried out during the year under the supervision of the Marine Department at Port Chalmers on behalf of the United States Navy on the Antarctic Expeditionary ship "Merrick" by the construction and fitting of a large jury rudder to replace the original rudder lost in the south polar seas. The new temporary rudder was designed to enable the ship to reach a United States Pacific port for permanent repairs.

With the removal of ocean war hazards it has been practicable to withdraw many of the special wartime precautions to protect ships' crews and their ships from the worst results of enemy action at sea. In particular, most of the special wartime life-saving-appliance and fire-extinguishing-appliance requirements, &c., have been relaxed. But certain wartime safety requirements which experience has shown are of value in war and peace alike are being retained permanently.

Studies are now proceeding in all maritime countries whereby the lessons of the war at sea may be adapted to promote a higher standard of safety of life at sea for all time.

INSPECTION OF MACHINERY

Steam Boilers, Air-receivers, and other Unfired Pressure Vessels

The following statement sets out the number of inspections made during the year ended 31st March, 1947, of fired boilers, air-receivers, and other unfired pressure vessels (Group "A"), with the corresponding figures for 1945–46 shown also:—

	1946–47.	1945–46.
Fired boilers	4,593	4,551
Air-receivers	4,154	4,003
Other unfired pressure vessels	6,905	6,207
Total inspections in Group "A" ..	15,652	14,761

The inspections include 119 new power boilers, aggregating 1,467 horse-power, manufactured in the Dominion, and 6 new boilers, aggregating 857 horse-power, imported from abroad.

The inspections also include 74 new air-receivers made in the Dominion and 23 made abroad, and 572 new unfired pressure vessels, other than air-receivers, made in the Dominion and 118 made abroad.

The use of steam to drive machinery continues its downward trend. The number of such steam plants was 1,640 in 1944–45, 1,604 in 1945–46, and 1,500 in 1946–47. Despite the decline in the use of steam for power-generation, there is an overall increase in the number of steam boilers inspected annually (4,499 in 1944–45 (total); 4,551 in 1945–46; 4,593 in 1946–47), the increase being attributed to the more extensive use of steam for heating and industrial processes, other than power-generation, where precise control of temperature which steam can give is an essential requirement. There is an unsatisfied demand for most types of steam boiler.

Two explosions occurred from pressure vessels during the year ended 31st March, 1947, both with great potential danger to life and limb, yet fortunately causing no personal injury.

One explosion, the more serious because it involved ammonia gas, which is lethal, arose from the rupture of the gas-welded seams of an ammonia-receiver. The longitudinal seam of the shell ruptured for its whole length and the shell was projected vertically upwards and fractured a roof truss in its path. A few nearby residents were forced to leave their houses by reason of the presence of escaped ammonia gas, and gardens suffered considerably. The welds of the ammonia-receiver had been made about thirty years before and were extremely defective from the time of the vessel's construction.

The second explosion concerned an air-receiver installed in a garage. Here also, the welding failed around the seam which secured the end plate to the cylindrical shell. The explosion projected the shell and top end of the receiver through the roof of the building. The receiver fell into the street without causing any personal injury.

It is difficult without the aid of x-ray or gamma-ray equipment to detect internal defects in welded seams. Close control over the competency of welders of new air-receivers over 5-cubic-feet capacity and all ammonia pressure vessels is given by the Department, and welders are now required to weld test specimens in every case.

Machinery

The following statement shows the number of machines, machinery plants, lifts, cranes, hoists, and tractors (Group "B") inspected during the year ended 31st March, 1947, with the corresponding figures for 1946 also shown:—

	1946–47.	1945–46.
Machines driven by steam power in 1,500 plants	7,234	8,323 (1,604 plants)
Machines driven by power other than steam in 12,159 plants	87,074	83,291 (11,618 plants)
Electric-power-supply stations	138	140
Lifts	3,561	3,563
Cranes	595	571
Hoists	1,999	1,950
Tractors	337	363
Total inspections in Group "B"	100,938	98,201
Total inspections in Group "A"	15,652	14,761
Grand total of inspections (Group "A" plus Group "B")	116,590	112,962

There has been again an increase in the total number of inspections, the increase during 1946–47 being 3,628 over the previous year, including 45 power cranes and 25 lifts inspected for the first time, and the revenue from the machinery-inspection service again shows an increase over that for the year ended 31st March, 1946.

Plans of all new boilers, air-receivers, and other unfired pressure vessels and of new cranes and lifts totalling 982 units have been examined and approved during the year ended 31st March, 1947.

The design of power-driven cranes in New Zealand is governed by the Department's Rules for Power-driven Cranes issued in 1937. These rules, covering all parts of the machinery structure and fittings of cranes, have afforded during the past ten years a satisfactory and safe code of design and construction under which new cranes manufactured both in New Zealand and overseas have been built. The Power Crane Rules have proved to be of particular assistance to engineering firms in New Zealand during the war and post-war years who were suddenly faced with the urgent, and to them new, problem of manufacturing cranes vital to industry and defence which in pre-war circumstances would have been imported from overseas.

Many lifts recently installed in New Zealand multistory buildings include the most modern safety features. It is impracticable to require all old existing lifts to conform in all respects to the latest safety practices, but it is practicable in many of the oldest lifts to improve them by requiring moderate mechanical and electrical alterations to be carried out. The modernization work, where essential to safety, is proceeding under the Department's direction as fast as the post-war shortages of special materials and skilled man-power permit.

Accidents to life and limb during the year ended 31st March, 1947, arising from boilers, cranes, lifts, hoists, and general power-driven machinery inspected by the Inspection of Machinery Branch number 114, of which 7 were fatal. These figures repeat the incidence of accident for the previous year ended 31st March, 1946.

Of the 7 fatal accidents, 2 of the victims were crushed by cranes, 4, including a child of two years,, lost their lives from the entanglement of their clothing and their limbs with revolving shafting, gearing, or rollers, and 1 through being heavily struck by a moving belt fastener.

In the following table is given an analysis of the fatal and non-fatal machinery accidents which occurred during the year, indicating the principal machines and industries concerned :—

1946-47

Machine and Industry Analysis of Accidents

Description of Machines.	Industries.											Totals.	
	Woodworking.	Textile.	Refrigeration.	Printing.	Metal-working and Engineering.	Laundry.	Butchery.	Confectionery and Bakery.	Boxmaking.	Other Industries.	Total Accidents (Machines).	Fatal.	Non-fatal.
Circular saws	23	..	..	..	..	..	..	..	2	..	25	..	25
Planers	9	..	..	..	1	..	..	..	..	..	10	..	10
Shapers	3	..	..	..	1	..	..	..	..	..	4	..	4
Power press	..	..	1	3	8	..	..	..	3	1	16	..	16
Guillotines	..	..	..	..	1	..	..	..	..	..	1	..	1
Laundry machinery	..	..	..	..	..	3	..	..	..	..	3	..	3
Cranes and hoists	..	..	..	..	1	..	..	..	..	2	3	2	1
Lifts	..	1	..	..	..	..	1	..	..	4	6	..	6
Belting	1	..	..	..	..	..	..	..	..	2	3	1	2
Shafting	1	1	..	..	..	..	..	..	1	2	5	1	4
Gearing	4	2	..	..	..	..	..	..	1	2	9	2	7
Mincers and other cutting-machines	..	..	..	1	..	..	2	2	1	1	7	..	7
Other	..	6	1	3	1	..	..	..	2	9	22	1	21
Total accidents	41	10	2	7	13	3	3	2	10	23	114	7	107

An analysis of machinery accidents, both fatal and non-fatal, over a period of years establishes and confirms the fact that many accidents arise either from ignorance or want of skill, or recklessness, on the part of the victims. Such accidents will recur again and again for the same reasons, and accidents in these catagories cannot be prevented by any machine guards which it is practicable to design.

The losses to New Zealand arising from serious machinery accidents involving human life and limb are—

(1) Loss of life, or permanent serious physical disability which may impair the victim's future ability to earn his livelihood and enjoy his accustomed mode of life.
(2) Physical pain involved in the accident and the accompanying mental anguish suffered by the victim and his dependants.
(3) Damage to the economic life of the nation arising from the total or partial loss of the victim's productive potential.
(4) Economic loss to the nation from medical, hospital, and accident-compensation disbursements resulting from the machinery accident.

The sum of the social and economic damage arising from machinery accidents cannot be precisely evaluated, but it is known to be of such extent as to make worthwhile every possible effort to further reduce the accident rate in every country. Any substantial reduction in the present accident rate in New Zealand will be effected by means which succeed in creating in the minds of machine operators an acuter perception of the inherent dangers of power machinery and that it is their personal responsibility to themselves and others to use machinery intelligently and safely at all times. To this end the Department is extending its educational work amongst machine operators, foremen, and works-managers.

Arrangements are in hand to permit an extension of the Department's work in statistical analysis of accident causation; further studies will be made of accident-prevention by (*a*) engineering means and (*b*) educational means involving industrial psychology.

The enormous growth of the use of farm machinery during the past two decades is shown by the fact that milking plants in 1942 were 2½ times as numerous as in 1922, tractors 34 times, and electric motors 84½ times as numerous. Farm machinery not exceeding 6 horse-power has been exempt from Government inspections since 1931. Accidents are regularly occurring with farm machinery, in which most of the victims are children under six years old, most of whom are killed. That tragedy is crowned by the irony that most of the accidents are preventable by simple precautions which can be taken by the handy farmer. The Inspection of Machinery Branch has commenced the publication of a series of articles in farm journals of wide circulation to draw the attention of dairy farmers, sheep-farmers, agriculturalists, and orchardists to the dangers inherent in power-driven machinery and to indicate practical means by which the risk of accident may be reduced.

GENERAL HARBOUR REGULATIONS

For the year ended 31st March, 1947, 348 accidents were reported under Regulation 103 of the General Harbour Regulations. These accidents were suffered by persons engaged in the loading and unloading and repair of ships, and 5 of the accidents were fatal. The number of accidents for the previous year ended 31st March, 1946, was 301, of which 5 were fatal.

Of the 5 fatal accidents reported during 1946–47, 1 was due to natural causes. In 2 cases death resulted from the failure of ships' cargo-lifting gear, another death resulted from cargo falling from an improperly secured sling, and the fifth death arose from an oil-gas explosion in an auxiliary boiler of a passenger-ship. In the 3 cases of fatal accident arising from cargo-working processes the victims were aged sixty-two, sixty-eight, and seventy-four years respectively. It is a fact well authenticated by experience that human reactions to sudden emergency tend to become slower in persons advancing in years, from which it follows that these elderly men had less chance of avoiding sudden danger than younger men exposed to the same risks.

The following is an analysis of the accidents and their causes :—

Handling goods	102
Persons slipping and falling	63
Persons struck by swinging or falling loads	86
Persons slipping or striking fixed objects	7
Contact with power-driven machinery	7
Failures of gear	50
Not otherwise classified	33
Total	348

A large proportion of the accidents reported are attributable either to want of skill or to an imperfect realization by the victims of the need for constant vigilance in avoiding unsafe practices.

NEW ZEALAND STANDARDS INSTITUTE

The Marine Department has again been actively represented in the New Zealand Standards Institute on the Executive Committee of the Standards Council and the Mechanical Engineering Divisional Committee.

Draft specifications of Standards originating in New Zealand were examined, commented upon, and, where desirable, recommended for adoption as New Zealand Standards.

There has been a resurgence of activity during the year in the British Standards Institution, and many British Standard Specifications adapted to local conditions have been recommended for adoption as New Zealand Standards.

EXAMINATION OF LAND ENGINEERS, ENGINE-DRIVERS, AND ELECTRIC-TRAM DRIVERS

Examinations for certificates issued under this head were conducted at intervals during the year by Inspectors of Machinery throughout the country.

For the year ended 31st March, 1947, the candidates who presented themselves for examination totalled 705 ; of these, 611 passed and 94 failed, as compared with 392 successful candidates and 86 failures of the previous year. The total number of the candidates who presented themselves for examination during 1946–47 is 47 per cent. higher than that of the preceding year. Many ex-servicemen were examined during the year.

In addition to the 610 certificates issued in 1946–47 to successful candidates, 126 certificates were issued as replacements, &c., under the provision of sections 53, 59, and 62 of the Inspection of Machinery Act, 1928.

Provision has been made in the Tram-drivers Regulations 1947 for the issue of certificates to tram-drivers of cable trams as distinct from drivers of ordinary electric trams.

An analysis of the certificates issued during the year, with the corresponding figures for 1945–46, is given hereunder :—

Class.	1946–47.	1945–46.
Service—		
First-class Engine-driver	3	8
Competency—		
Extra First-class Stationary Engineer		2
First-class Engine-driver	43	30
Second-class Engine-driver	259	234
Locomotive and Traction	89	57
Locomotive-engine Driver	7	7
Traction-engine Driver	7	15
Electric-tram Driver	313	116
Electric-tram Driver (One-man Car)	10	9
Cable-tram Driver	3	..
Steam-winding-engine Driver	1	2
Electric-winding-engine Driver	1	..
	736	480

Appended to this report is a statement of the number of candidates examined at each examination centre for the year ended 31st March, 1947, showing the number of successful and unsuccessful candidates.

STAFF

The entire staff of the Department have carried out their duties and responsibilities in a splendid manner, notwithstanding the added burden of post-war reconstruction and the shortage of staff, particularly typists.

At the end of the year the Assistant Secretary, Mr. G. H. Tanner, retired after approximately forty-three years of faithful service in this Department. His particular knowledge of the Department's work was an asset which will be missed, and the name of Tanner will be for a long time associated with Marine Department affairs.

One of our lighthouse-keepers, Mr. T. B. Smith, of Godley Head, also retired on superannuation after long and faithful service in various parts of the Dominion.

The best wishes of the staff of the Marine Department and of all navigators go out to these officers in the hope that they will enjoy health and prosperity for the remainder of their days.

FISHERIES

An abridged report on the working of the Fisheries Branch of the Department follows hereon.

I have, &c.,

W. C. Smith, Secretary of Marine.

PORTOBELLO MARINE BIOLOGICAL STATION

Notwithstanding difficulties and limitation of facilities arising from the long period of financial straits and restricted material resources due to wartime conditions, the Station continues to provide the means for carrying out valuable researches in marine biology. These have been well utilized during the year by the staff and students of Otago University, by whose individual and combined work our knowledge of the marine fauna and flora of the area is being progressively advanced.

Among material awaiting publication is a study by Miss B. I. Brewin and Miss E. Batham of plankton taken at fortnightly intervals over a period of eighteen months. This is the first systematic investigation of the kind to be made in New Zealand waters. Plankton phenomena have an important bearing on some fishery problems. Miss Brewin's monograph on "Ascidians in the Vicinity of Portobello Marine Biological Station, Otago Harbour," has been published during the year in *Transactions of the Royal Society of New Zealand* (September, 1946). In it nineteen species are described and illustrated, four of them being new to science and two not hitherto known in New Zealand waters. Other published papers by Miss Brewin based on work at Portobello include studies on the breeding habits of a chiton, *Cryptoconchus porosus* (1943), and on "Some Alcyonaria of the Order Stolonifera from New Zealand Waters" (1946).

Miss Elizabeth Batham, who is now in Britain pursuing marine biological research as a post-graduate scholar of the University of New Zealand, has made investigations on barnacles at Portobello, having published in 1945 an account of the biology and anatomy of *Pollicipes spinosa*, and in 1946 a study of its embryonic and larval development together with a description of larval forms of the small stalked barnacle, *Ibla idiotica*.

Mr. W. H. I. Dawbin, of the Medical School Physiology Department, has worked at Portobello during the year on a study of holothurians, more especially on the process of regeneration of viscera in *Stichopus mollis*. Professor Eccles and his physiological research staff have used the Station in connection with studies of nerve physiology. It is hoped to provide proper facilities for extending such work in the near future.

Four honour students from Otago University are at present making use of the Station for research work in marine biology.

Professor Percival, with students from the Zoology Department of Canterbury College, has visited Portobello to make use of its special facilities during University vacations. Research on the embryonic development of the elephant-fish (*Callorhynchus milii*) is now being done by Professor Percival with the aid of the facilities available only at the Portobello laboratory.

The stocks of living fishes in the aquarium have been fewer than usual owing to the difficulty of maintaining a satisfactory water-supply with the ancient and defective pipes and from the absence of the deep-sea trawler from which frequent supplies of fresh specimens had previously been obtained. However, the aquarium continues to be an attraction of appreciable interest and educational value to visitors, though their numbers have fallen off since the war brought about a reduction in the ferry service from Port Chalmers. The problem of obtaining better access to the Station by land from Portobello Township—at present a matter of cross-country hiking—has received the Board's attention, but so far remains unsolved.

The principal problems confronting the Board are those arising from the necessity of carrying out urgent repairs and replacements at a time when the requisite materials and labour are abnormally expensive and for the most part virtually unobtainable. There is the pressing need for additional laboratory accommodation. Plans have been made for a small annexe to accommodate workers from the Zoological and Physiological Departments of the University, but various efforts to get our modest plans materialized have so far been unsuccessful. The desired alterations to the Curator's cottage have similarly been delayed, which is a great inconvenience to him and a hindrance to the most efficient utilization of the Station.

With the increased grant from the Marine Department and with the support of the University of Otago Council, which has shown its appreciation of the value of the Station for scientific research by making a capital grant of £250 and by providing for an annual grant of £100 from the Departments of Zoology and Physiology respectively, the state of financial crisis which existed at the beginning of the year has passed. Nevertheless, the financial position is much less favourable than it was in 1932. Without a substantial addition to its revenue the Station cannot be utilized to the degree that is desirable or that would make it comparable with similar institutions in other countries.

Sir William Benham resigned in August from his position as Chairman of the Board, which he had held since 1933, but still serves on the Board, on which he is the oldest member. Dr. J. Malcolm, formerly Professor of Physiology in the University of Otago Medical School, who has also given many years of valuable service as a Board member, resigned in May. Dr. J. C. Eccles, F.R.S., Professor of Physiology, and Mr. J. C. H. Somerville, member of the University Council, have been appointed as representatives of the University of Otago on the Board. Mr. J. Stuart Thomson was appointed Secretary to the Board in March, 1946, in succession to the late Mr. W. G. Howes, who for many years had acted as Honorary Secretary and Treasurer, identifying himself with much zeal and competence with the practical affairs of the Station. As a son of the late Hon. G. M. Thomson, Chairman of the Board since its establishment till his death in 1933, Mr. Stuart Thomson had been in close touch with the affairs of the Board for many years and had given personal assistance at Portobello at various times. Mr. J. McG. Wilkie was appointed Treasurer in May, 1946.

The Curator, Mr. W. Adams, retired in February, 1946. He had carried out his duties, which were always exacting and often heavy, with great conscientiousness and competence for many years. The Board wishes to place on record their appreciation of the value of his long and faithful service. Mr. J. Aitken, who has been engaged as Curator in his stead, is showing zeal and resourcefulness in the performance of his duties under the present difficult conditions.

REPORT ON FISHERIES FOR THE YEAR ENDED 31ST MARCH, 1947

Attention is drawn to the fact that all fisheries statistical data in this report is for the calendar year ended 31st December, 1946.

The estimated total quantity and value of the principal classes of fishery products marketed in the year 1946 are as follows :—

	Quantity.	Value. £
Wet fish	380,321 cwt.	660,096
Whitebait	6,578 cwt.	73,674
Oysters—		
Dredged	89,356 sacks	67,017
Rock	5,103 sacks	8,933
Mussels	10,568 sacks	3,687
Crayfish	16,766 cwt.	30,801
Toheroa (canned products)	69,043 lb.	4,567
Whale-oil	700 tons	21,000
Total values		£869,775

The detailed landings are summarized in Tables I to IX (pp. 36 to 46).

The total landings of wet fish show an increase of 48,548 cwt. over the previous year's total of 331,773 cwt., while the total value has increased by £101,692. The quantity of oysters dredged from Foveaux Strait has increased by 13,318 sacks, and a decrease of 373 sacks is shown for rock oysters. The crayfish total is up by 842 cwt., but the mussel figures show a decline of 2,588 sacks.

In the most important group, the " wet fish "—*i.e.*, all the ordinary fishes caught by all methods of sea fishing—the annual totals for successive years are as follows :—

Year.	Total Quantity. Cwt.	Total Value. £
1934–35	331,415	294,267
1935–36	363,448	313,106
1936–37	363,128	360,406
1937–38	355,687	413,516
1938–39	356,114	424,643
1939–40	339,231	416,480
1940–41	328,594	440,308
1941–42	326,863	458,393
1942–43	311,971	442,976
1943–44	294,445	489,268
1944	308,237	522,954
1945	331,773	558,404
1946	380,321	660,096

The total weight of wet fish, 380,321 cwt., is the highest for many years—this result is even better than I predicted in last year's report. The good result is attributable to divers causes : (1) the return of several large catching units after war service ; (2) the re-engining and replacement of many vessels after the war ; (3) exceptionally fine weather on many of the fishing-grounds during the period of seasonal congregation of some of the more important types of fish.

Fishing-vessels and Personnel

The number of licensed fishing-vessels operating in 1946 was 797, an increase of 76 over last year—some of these are first-class modern units and have done much to boost the total production figure. Of the more important units, steam-trawlers increased by 1 ; motor-trawlers increased by 14 ; Danish-seine boats decreased by 2, which became motor-trawlers ; vessels engaged in both trawling and line fishing increased by 8. A total of 1,550 men were engaged in fishing, either whole time or part time, during the year. The full details of these changes are shown in Table I.

Fish Landings

The total landings of fish and shell-fish landed at the various ports are shown in Table II.

Snapper retains pride of place as the most abundant species, and the other species remain very nearly in the same proportion to one another, as is shown by the following comparative table :—

Kind or Class of Fish.	Quantity.				Value.			
	Cwt.		Percentage of Total.		£		Percentage of Total.	
	1946.	1945.	1946.	1945.	1946.	1945.	1946.	1945.
Snapper	116,832	109,009	30·72	32·86	158,973	147,685	24·08	26·45
Tarakihi	77,927	63,829	20·49	19·24	127,589	97,007	19·33	17·37
Hapuku	27,522	21,672	7·24	6·53	82,156	62,446	12·45	11·18
Gurnard	24,168	20,354	6·36	6·14	25,003	21,683	3·79	3·89
Sole	22,434	17,990	5·90	5·42	65,558	52,671	9·93	9·43
Blue Cod	21,036	19,160	5·53	5·78	51,366	47,288	7·78	8·47
Flounder	14,442	16,070	3·80	4·85	47,010	51,648	7·12	9·25
Ling	11,584	8,202	3·05	2·47	25,317	16,879	3·84	3·02
Barracouta	11,440	9,726	3·01	2·93	6,999	5,403	1·06	0·97
Red Cod	9,796	8,971	2·58	2·70	8,754	5,956	1·33	1·07
"Mixed rounds" ..	7,478	5,730	1·97	1·73	8,467	7,226	1·28	1·30
Trevally	6,819	6,725	1·80	2·03	6,075	5,107	0·92	0·92
Elephant-fish ..	4,639	4,269	1·22	1·29	8,266	8,759	1·25	1·57
Mullet	2,786	3,517	0·73	1·06	4,026	4,015	0·61	0·72
Pioke	2,247	2,060	0·59	0·62	2,851	2,309	0·43	0·41
Kahawai	2,092	2,330	0·55	0·71	1,743	1,805	0·27	0·32
Shark	2,041	1,335	0·54	0·40	2,181	1,328	0·33	0·24
Moki	1,975	946	0·52	0·29	3,536	1,736	0·54	0·31
Butterfish	1,920	1,462	0·50	0·44	5,040	3,972	0·76	0·71
"Mixed flats" ..	1,873	1,064	0·49	0·32	6,097	3,049	0·92	0·55
Hake	1,737	1,349	0·46	0·41	4,909	3,762	0·74	0·68
Parore	1,574	854	0·41	0·26	1,212	607	0·18	0·11
Herring	1,307	373	0·35	0·11	994	684	0·15	0·12
Sardine	1,197	1,458	0·31	0·44	988	1,025	0·15	0·18
John-dory	730	381	0·19	0·12	1,020	502	0·16	0·09
Swordfish	449	672	0·12	0·20	483	629	0·07	0·11
Warehou	443	306	0·12	0·09	931	597	0·14	0·11
Kingfish	330	737	0·09	0·22	387	843	0·06	0·15
Whiting	316	287	0·08	0·09	223	201	0·03	0·04
Trumpeter	310	208	0·08	0·06	872	591	0·13	0·11
Whiptail	289	69	0·07	0·02	352	84	0·05	0·01
Mackerel	195	158	0·05	0·05	201	164	0·03	0·03
Conger-eel	173	140	0·04	0·04	135	109	0·02	0·02
Skate	70	78	0·02	0·02	56	54	0·01	..
Perch	50	43	0·01	0·01	42	41	0·01	..
Garfish	49	148	0·01	0·04	168	297	0·03	0·06
Brill	20	44	..	0·01	56	151	0·01	0·03
Bonita	17	19	..	..	43	53	0·01	..
Maomao	10	24	..	..	13	35	..	..
Frost-fish	4	4	..	..	4	3	..	..
Totals ..	380,321	331,773	..	..	660,096	558,404	..	..

Methods of Capture

Of the total catch, 68,084 cwt. (17·90 per cent.) was landed from steam-trawlers, 91,347 cwt. (24·01 per cent.) from motor-trawlers, while motor-vessels (line and net fishing) accounted for 115,802 cwt. (30·45 per cent.) and row-boats 1,885 cwt. (0·50 per cent.).

The total quantity of wet fish caught by each of the common methods of fishing is shown below (the figures in parentheses represent the 1945 quantities and values) :—

Method of Fishing.	Quantity.		Value.	
	Cwt.	Percentage of Total.	£	Percentage of Total.
Trawl ..	159,431 (115,268)	41·92 (34·74)	286,908 (206,176)	43·46 (36·92)
Danish seine ..	103,203 (105,093)	27·14 (31·68)	133,191 (139,597)	20·18 (25·00)
Long and hand lines	84,006 (72,226)	22·09 (21·77)	184,450 (152,483)	27·94 (27·31)
Set and drag-nets	33,681 (39,186)	8·85 (11·81)	55,547 (60,148)	8·42 (10·77)
Totals ..	380,321 (331,773)	..	660,096 (558,404)	..

Landings at Ports

Of the total quantity of wet fish, 37·18 per cent. was landed at Auckland, 10·45 per cent. at Wellington, 6·11 per cent. at Port Chalmers, 5·85 per cent. at Napier, and 5·58 per cent. at Timaru.

In the following statement the total weights and values are given for some of the main ports alongside those for the previous two years, 1945 and 1944 :—

Port.	Quantity.			Value.		
	1944.	1945.	1946.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	£	£	£
Russell	2,350	4,194	5,032	3,199	5,093	6,027
Whangarei	4,104	1,766	2,325	4,262	2,264	2,886
Auckland	111,078	122,789	141,406	138,872	156,979	179,341
Thames district	19,825	17,245	10,824	29,852	25,746	17,589
Tauranga district	10,485	7,459	6,416	11,242	7,745	7,853
Gisborne	7,703	8,236	10,052	10,475	9,160	13,309
Napier	17,865	19,194	22,249	26,529	29,186	36,979
Wellington	14,019	31,554	39,744	33,548	63,445	87,462
Manukau Harbour	1,118	1,229	1,215	1,825	2,217	2,426
Picton	7,230	4,358	4,913	10,438	8,522	9,616
Lyttelton	16,221	11,430	15,400	42,527	26,764	33,670
Timaru	13,022	11,386	21,223	37,759	33,106	49,870
Moeraki	1,658	2,017	1,964	4,728	5,551	4,870
Nuggets district	2,307	4,250	4,565	4,931	10,969	12,945
Port Chalmers	23,264	25,533	23,250	38,808	36,225	36,853
Waikawa	1,564	2,610	2,964	2,992	6,757	8,371
Bluff, with Stewart Island ..	12,163	13,649	15,161	27,860	32,802	38,571
Westport	814	738	527	2,013	2,103	1,416
Motueka	1,358	1,097	1,653	2,208	1,979	2,691
Nelson	5,541	6,372	7,078	13,635	13,603	14,194
French Pass	2,880	3,278	2,749	6,778	9,188	7,143
Chatham Islands	4,420	2,078	3,586	3,721	1,868	3,278

Auckland.—A total of 141,406 cwt. of wet fish was landed at Auckland, compared with 122,789 cwt. during 1945. This substantial increase was largely due to the full-time fishing of an additional steam-trawler. The steam-trawlers accounted for 36,964 cwt., as against 19,553 cwt. for 1945. This total comprised mainly snapper (20,440 cwt.), tarakihi (10,688 cwt.), and gurnard (1,529 cwt.). Danish-seine boats brought in 96,990 cwt. (97,608 cwt. in 1945), of which 70,964 cwt. was snapper and 17,014 cwt. tarakihi. Motor line-fishing boats landed 3,097 cwt., compared with 2,493 cwt. for the previous year, and the netting boats 4,125 cwt., compared with 3,092 cwt. in 1945.

The annual totals landed at Auckland over the past five years are given below :—

——	1942-43.	1943-44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total quantity landed	105,106	103,882	111,078	122,789	141,406
Snapper	73,604	75,153	79,844	81,706	93,792
Tarakihi	16,470	12,128	18,289	23,965	27,788
Flounder	3,904	5,489	1,857	2,047	1,457
Gurnard	1,447	1,361	3,206	5,570	7,370

Thames.—Out of the total catch of 10,824 cwt. landed at Thames during 1946, 9,437 cwt. was caught by nets, of which 3,777 cwt. was snapper and 3,591 cwt. flounder. A considerable drop in the total quantity of fish landed this year is evident. In 1945, 17,245 cwt. was caught, compared with 10,824 cwt. in 1946. A small proportion of this decrease can be accounted for by the fact that no Danish-seine boat operated from this port during 1946.

The methods of capture in the annual totals landed at Thames during the past five years are given below :—

Method of Fishing.	1942-43.	1943-44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Danish seine	1,864	2,229	1,273	582	..
Set-nets and drag-nets	9,833	15,545	18,361	16,483	9,437
Other methods	944	528	57	180	1,387
Totals	12,641	18,302	19,691	17,245	10,824

Tauranga.—A decrease of 1,043 cwt. is shown by the 1946 figures (6,416 cwt.) compared with 1945 (7,459 cwt.). This is mainly accounted for by the fact that although the trawl-caught fish has increased from 1,783 cwt. to 2,579 cwt. (due to the one trawler operating for nine months in 1946 instead of six months as in 1945), the catch landed by the motor line and net vessels has gone down. A Danish-seine-equipped boat commenced fishing in September and landed 364 cwt. of fish during the last four months.

The tables below summarize the methods of capture and kinds of fish respectively during the past five years :—

Method of Fishing.	1942-43.	1943-44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Danish seine	3,035	2,518	2,907	418	364
Set-nets and lines	4,664	7,008	7,578	5,228	3,415
Other methods	227	20	..	1,813	2,637
Totals	7,926	9,546	10,485	7,459	6,416

——	1942-43.	1943-44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total quantity landed	7,926	9,546	10,485	7,459	6,416
Snapper	4,154	4,032	4,152	2,513	1,459
Tarakihi	290	29	1,057	1,289	1,917
Trevally	1,113	1,826	2,509	1,219	1,091
Kahawai	294	649	732	1,070	1,029

Gisborne.—Of the total quantity landed (10,052 cwt.), 8,507 cwt. was caught by motor-trawlers, of which 6,662 cwt. was snapper and 1,319 cwt. gurnard. A notable addition to the Gisborne fishing-fleet was a steam-trawler, previously operating in the South Island, which fished for the concluding seven months of the year and landed 1,212 cwt. of fish, of which over 71 per cent. was tarakihi and 18 per cent. gurnard. There has been a steady rise in the quantity of fish landed at this port over the last few years, as is shown by the figures below :—

	1942–43.	1943–44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total quantity landed	7,034	5,275	7,703	8,236	10,052

Napier.—The annual increase in the amount of fish caught by boats operating out of this port during the last three years was continued in 1946, in spite of the fact that the steam-trawler previously working at Napier has ceased to do so.

Out of the total of 22,249 cwt. landed, 19,225 cwt. was accounted for by the motor-trawlers, while the one Danish-seine boat landed 2,628 cwt., of which 46 per cent. was gurnard. A fairly large decrease from 1,509 cwt. in 1945 to 342 cwt. in 1946 in the quantity of fish landed by motor-vessels line and net fishing should be noted. The fish mainly affected in this latter method of fishing was groper, which fell from 1,241 cwt. to 158 cwt.

The annual totals landed at Napier over the last five years are given below :—

	1942–43.	1943–44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total quantity landed	21,694	16,615	17,865	19,194	22,249
Tarakihi	6,005	4,931	8,966	9,744	11,489
Sole	2,165	914	1,710	1,036	2,746
Hapuku	660	861	986	1,443	378
Gurnard	5,825	4,263	4,621	5,362	5,994

Wellington.—A new steam-trawler commenced operations in September, which brings the number of Wellington steam-trawlers up to three. This addition was largely responsible for the increase in the amount of fish caught by this method, and brought the total of 20,241 cwt. in 1945 up to 25,237 cwt. in 1946. Of this total, tarakihi was by far the largest catch, being 21,043 cwt. One motor-trawler worked throughout the year in comparison with seven months during 1945 and brought the total for this type of trawling from 687 cwt. to 1,532 cwt. The Island Bay line-fishing fleet landed 12,277 cwt., an increase of 2,515 cwt. over the previous year. Out of the total of 12,277 cwt. caught by these line boats, 7,034 cwt. was hapuku and 3,958 cwt. ling.

Lyttelton.—The total catch landed was 15,400 cwt., an increase of 3,970 cwt. compared with the 1945 total of 11,430 cwt., which, however, was an exceptionally low figure. Of this 15,400 cwt., 11,528 cwt. came from the motor-trawlers and 3,651 cwt. from the one steam-trawler.

The figures for the main types of fish landed at Lyttelton for the last five years are given below :—

——	1942–43.	1943–44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total quantity landed	16,504	14,050	16,221	11,430	15,400
Tarakihi	7,010	4,614	6,202	4,840	7,094
Ling	936	864	1,556	1,447	2,133
Elephant-fish	1,954	2,862	2,611	1,632	1,805
Gurnard	1,943	2,383	2,537	1,203	1,269
Red cod	1,128	451	191	46	200

Timaru.—As with Lyttelton, the Timaru figures show a considerable increase over the previous year's totals, although the Danish-seiner previously operating from this port has ceased to do so.

The annual catches of the main types of fish and the methods by which they were obtained are given below :—

——	1942–43.	1943–44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total quantity landed	14,548	15,898	13,022	11,386	21,223
Red cod	2,287	1,672	919	432	3,823
Ling	2,700	2,887	1,568	1,047	3,136
Gurnard	2,710	2,634	2,265	1,879	2,946
Hapuku	1,610	1,897	1,635	1,275	2,796
Elephant-fish	837	1,149	1,795	2,155	2,445
Flounder	1,353	2,209	1,600	1,819	2,367
Sole	2,268	2,511	2,278	1,903	2,571

——	1942–43.	1943–44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total quantity landed	14,548	15,898	13,022	11,386	21,223
Motor-trawling	7,398	8,517	8,142	7,880	15,794
Danish-seining	2,797	2,508	1,804	1,292	..
Line-fishing (motor-vessels) ..	4,353	4,873	3,076	2,214	5,429

Port Chalmers.—This year the amount of fish landed has decreased from 25,533 cwt. in 1945 to 23,250 cwt. This drop is mainly accounted for by the trawling dropping from 16,260 cwt. to 14,326 cwt. and the line boats from 9,091 cwt. to 8,825 cwt.

The figures for the main types of fish caught over the last five years are given below :—

——	1942–43.	1943–44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total quantity landed	33,603	21,523	23,264	25,533	23,250
Tarakihi	2,886	3,361	3,166	173	81
Sole	5,410	4,114	4,993	6,282	8,366
Red cod	10,377	4,501	4,033	7,605	3,846
Barracouta	9,878	5,157	6,300	7,502	8,171
Flounder	840	885	1,163	1,366	745

Nelson.—As can be seen from the table below, there has been a substantial increase in the total amount of fish landed over the last four years. Of the 1946 catch, 3,260 cwt. was trawl-caught and 2,648 cwt. by Danish-seiners :—

——	1942–43.	1943–44.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Total quantity landed	4,469	3,833	5,541	6,372	7,078
Danish seine	2,837	3,250	2,714	3,081	2,648
Trawl (motor)	11	93	878	1,888	3,260
Lines (motor)	1,601	475	1,936	1,138	1,043
Other methods	20	15	13	265	127

Exports and Imports

Imports of fish for the year amounted to 2,845 cwt. of tinned fish such as herring and 208 cwt. of fish otherwise preserved, with a total value of £25,959.

The total value of New Zealand fish and shell-fish exported in 1946 was £231,234, which represents a substantial increase on the previous year's figures of £187,381.

Totals for the principal classes of fishery products exported for the past three years are given below :—

——	Quantity.			Value.		
	1944.	1945.	1946.	1944.	1945.	1946.
				£	£	£
Oysters, fresh ..	21,100 doz.	640 doz.	85,400 doz.	578	18	2,819
Fish, frozen ..	16,628 cwt.	22,663 cwt.	27,698 cwt.	73,500	104,046	139,065
Crayfish, frozen ..	1,921 cwt.	1,346 cwt.	1,487 cwt.	6,608	6,462	7,455
Fish, smoked, dried, &c.	3,319 cwt.	4,276 cwt.	2,602 cwt.	20,476	26,390	15,277
Fish and shell-fish (tinned)	181,338 lb.	371,776 lb.	450,044 lb.	25,814	50,465	66,618
Total values ..	..	..	..	126,976	187,381	231,234

The following table shows the incidence of the principal kinds of fish exported during the years 1944, 1945, and 1946 :—

Fish.	Quantity.			Value.		
	1944.	1945.	1946.	1944.	1945.	1946.
	Cwt.	Cwt.	Cwt.	£	£	£
Blue cod	3,530	7,644	8,236	18,117	38,682	42,605
Red cod	1,104	3,255	1,407	3,046	3,255	4,518
Barracouta	3,786	2,369	4,825	14,014	8,883	18,164
Sole	1,394	2,207	3,334	7,119	11,452	17,974
Tarakihi	959	1,037	1,886	4,030	4,895	10,740
Flounder	762	947	901	4,142	5,374	5,308
Snapper	1,029	752	844	6,044	4,244	5,584

A more detailed report than the above figures is given in Table IX.

Sardines

The landings of sardines at Picton again showed a decline over the previous year's figures.

The figures for the total sardine catch at Picton for the last five years are as follows :—

	Cwt.
1946	1,191
1945	1,458
1944	4,281
1943–44	5,339
1942–43	5,487

Fish-liver Oil

This branch of the industry again showed a steady increase in production. Fish livers treated, 670,664 lb., an increase of 106,267 lb., and fish-liver oil produced, 29,923 gallons, an increase of 4,900 gallons. A total of 19,221 gallons of fish-liver oil was exported. During the year one boat in Kaipara developed a school shark fishery. The venture showed good results from July to November, when the sharks were caught near the Kaipara Heads. When the sharks moved further inshore, apparently for spawning, the weight of liver per shark dropped to about one-quarter of what it had been previously and the fishery became uneconomic, as at the same time there was a drop in the demand for the flesh. Throughout the season the catch consisted practically entirely of female sharks in the proportion of approximately 1,000 females to 3 males.

Whaling

Five vessels with a total complement of ten men were engaged in the whale-fishing based on Marlborough Sounds and fourteen men were employed ashore at the whale-factory. The total catch of 110 whales were all hump-backs and yielded 700 tons of oil, approximately 90 tons of bone-dust, and approximately 40 tons of whale meat (canned). Whaling commenced very early, the first one taken on 17th May, and the last one on the 15th August. July was the month in which the most whales were taken, but a record number of 13 were caught during the month of May.

Seals

Following on representations from fishermen in the South that seal colonies were depleting the fish-supplies, a short open season for taking seals in a restricted area was approved. The area opened was from Jackson's Bay on the west coast to Windsor Point in the south, portion of Stewart Island, certain islands in the vicinity, and a small part of the Otago coast in the vicinity of the Nuggets.

The season was open from 29th May to 30th September. Each person engaged had to hold a licence. The number of licences issued was 41, and the skins taken totalled 6,187.

Rock Oysters

Picking started on the 15th May, the last oysters of the season being picked on 30th July.

The yield of oysters in sacks from each of the various areas was as follows : Bay of Islands, 2,396 ; Whangarei Harbour, 212 ; Kaipara Harbour, 669 ; Coromandel, 500; Hauraki Gulf, 1,326.

The quantities from Hauraki Gulf were obtained from the following areas: Waiheke, 786 ; Ponui, 358 ; Rotoroa, 121 ; Pakatoa, 15 ; Rangitoto, 46.

Oyster-cultivation for the Year ended 31st March, 1946

Area.

I. Bay of Islands : 394,000 borers and 1,200 pupu destroyed, 1,770 square yards of rock cleared of weeds. Cost, £237 16s.

II. Whangarei Harbour : 231,400 borers and 1,293 pupu destroyed, 201 square yards of rock cleared of dead shell, 50 square yards cleared of grape weed. Cost, £102 14s. 8d.

III. Kaipara Harbour : 99,308 square yards of new stone laid down. Cost, £5,025 18s. 2d.

IV. Takatu Point to Gull Point : 44,500 borers destroyed, 58 square yards of rock cleared of dead shell. No cost.

V. South Shore : 93,000 borers and 51 pupu destroyed. Cost, 12s. 6d.

X. Motutapu : 136,000 borers and 56 pupu destroyed, 37 square yards of rock cleared of dead shell. No cost.

XIII. Waiheke : 602,000 borers and 335 pupu destroyed, 1,168 square yards of rock cleared of dead shell. Cost, £8 15s.

XIV. Ponui : 346,800 borers and 108 pupu destroyed, 371 square yards of rock cleared of dead shell. Cost, £8 7s. 6d.

XVI. Great Barrier : 265,000 borers and 96 pupu destroyed, 9 square yards of rock cleared of dead shell. Cost, £22 7s. 4d.

Total for all areas : 2,112,700 borers and 3,139 pupu destroyed, 1,844 square yards of rock cleared of dead shell, 1,770 square yards cleared of weeds, and 50 square yards cleared of grape weeds. Cost, £5,406 11s. 2d.

Dredge Oysters : Foveaux Strait, 1946

The 1946 season was most successful, a total of 94,459 sacks being taken from the beds, an increase of 18,421 sacks over the previous year. This increase, in the main, was due to the East Bed again being available for steady dredging. For some years now there has been a heavy growth of weed on this bed, but it has now been cleared away. Further, the weather for most of the season was exceptionally good.

Paua

The table given below summarizes the information obtained from the principal centres during 1946 :—

District.	Total Number collected.	Number used as Shell.	Value of Shell.	Number used as Paua Meat.	Value of Paua Meat.
			£		£
Wellington ..	16,994	2,515	285	14,760	126
Canterbury ..	48,000	5,900	245	..	..
Southland ..	14,338	13,068	2,654	1,320	31
Totals ..	79,332	21,483	3,184	16,080	157

With the development of this fishing, more information is available, but the statistics are by no means as complete as is desirable. While there is a great discrepancy between the number used as paua meat and the total number collected, it must be borne in mind that many of the fishermen who collect paua use the flesh as bait.

Toheroas

The state of the toheroa-beds on the Ninety-mile Beach is still a matter of concern to this Department. The beds are taking a long time to recover from the heavy mortality of a few years ago. The position is being closely watched, to avoid any over-exploitation.

Mussels

The catch of mussels in the Thames-Coromandel-Auckland area fell from 13,156 sacks in 1945 to 10,568 sacks in 1946.

Whitebait Fishery, 1946 Season

The table given below summarizes the information obtained from the principal whitebait-fishing centres for the 1946 season :—

Whitebait Fishery, 1946 Season

District.	Rivers fished.	Fishing began.	Best Month.	Number of Fishermen (Approximately).		Total Quantity caught (Approximately).
				Whole Time.	Part Time.	
						Cwt.
Auckland ..	Waikato	July..	Sept.–Oct.	210	..	795
Bay of Plenty ..	Kaituna, Tarawera, Rangitaiki	July..	Sept. ..	20	24	42
Hawke's Bay ..	Tukituki, Ngaruroro	July..	Oct. ..	15	60	27
Wairarapa ..	Lake Onoke	Aug..	Nov. ..	2	18	120
Wellington ..	Waikanae, Waimeha, Mangone, Otaki, Waikawa, Ohau, Hokio, Manawatu, Rangitikei	July..	Oct.–Nov.	56	231	1,000
Wanganui ..	Turakina, Wanganui, Kai Iwi	Sept.	Nov. ..	..	12	8
Patea.. ..	Waitotara, Whenuakura, Patea, Tangahoe, Ohawe	Sept.	Oct. ..	..	..	10
Taranaki ..	Mokau, Waitara, Awakino, Urenui, Waiongona, Mimi, Waiwakaiho, Te Henui	July..	Oct. ..	..	150	52
Nelson ..	Aorere, Takaka, Motueka	Aug...	Dec. ..	17	43	65
Marlborough ..	Wairau, Opawa, Omaka	Aug...	Nov. ..	10	20	64
North Canterbury	Clarence, Kahautara, Conway, Waiau, Hurunui, Waipara	Aug...	Late Nov.	8	80	22
Christchurch ..	Ashley, Waimakariri, Styx, Avon, Heathcote, Selwyn, Ellesmere	Aug...	Nov. ..	76	260	197
South Canterbury	Ashburton, Rangitata, Orari, Opihi.. ..	Aug...	Nov. ..	12	160	32
Otago ..	Waitaki, Wainakaroa, Shag, Pleasant, Kakanui, Waikouiti, Taieri, Tokomairiro, Molyneaux, Pueriua, Owaka, Waikawa	Aug...	Sept.–Oct.	15	30	93
Southland ..	Mataura, Titiroa, Waihopai, Oreti, Waimatuku, Aparima, Waiau	Aug...	Sept.–Oct.	35	50	215
West coast—						
Wataroa ..	Wanganui, Wataroa, Waiho, Karangarua, Jacobs, Paringa, Blue, Haast, Okura, Arawhata, Cascade	Aug...	Oct. ..	270	20	1,245
Ross ..	Totara, Waitaha, Mikonui	Aug...	Oct.–Nov.	14	23	96
Hokitika ..	Arahura, Hokitika, Mahinapua	Aug...	Late Nov.–Dec.	157	450	673
Greymouth ..	Grey, New, Teremakau	Aug...	Nov. ..	3	221	263
Westport ..	Kowhai, Karamea, Little Wanganui, Mokihinui, Ngakawhau, Waimangaroa, Orawaiti, Buller, Little and Big Totara, Nile	Aug...	Oct.–Nov.	30	500	1,568
						6,578

While the estimated total, 6,578 cwt., compares favourably with that of previous years, 8,698 cwt. in 1945 (the highest recorded) and 5,002 cwt. in 1944, nevertheless the season generally was a poor one.

The phenomenal quantities of whitebait taken in the Wellington west coast rivers compared with the quantities usually taken there had a marked effect on the total. On the other hand, the Waikato River and Bay of Plenty and Hawke's Bay rivers fished very poorly indeed.

There were good runs in these rivers, but the runs were not sustained and the season, with the exception of Wellington, was very disappointing.

In the South Island, Westland rivers fished very differently this year. Westport and the northern part of the west coast fished very well, but the rivers farther south were progressively more disappointing. South Island east coast rivers, too, did not come up to expectations.

Weather, in all probability, had a marked effect. Early in the season the weather was mild and bid well for a good season, but as the season progressed bad weather and melting snows kept the rivers high and cold. The whitebait showed a marked preference this year for swamp-fed streams, rather than those carrying snow-water.

Adverse weather, resulting in many rivers carrying snow-water until late in the season, is probably one of the factors responsible for the abnormal distribution of the catch.

Quinnat Salmon, 1946

The table below shows the fishing results as given by licensee's returns :—

——	Males.	Females.	Sex not given.	Total.
Returns from Rods				
Waimakariri River, 25/2/46 to 8/3/46 (1 rod)—				
Number of fish caught	2	5	..	7
Total weight	21 lb.	51·5 lb.	..	72·5 lb.
Average weight	10·5 lb.	10·3 lb.	..	10·3 lb.
Rakaia River, 9/3/46 to 6/4/46 (4 rods)—				
Number of fish caught	28	12	72	112
Total weight	356 lb.	176·5 lb.	1,236 lb.	1,768·5 lb.
Average weight	12·7 lb.	14·7 lb.	17·1 lb.	15·7 lb.
Ashburton River, 13/3/46 (1 rod)—				
Number of fish caught	..	1	..	1
Total weight	..	13 lb.	..	13 lb.
Average weight	..	13 lb.	..	13 lb.
Rangitata River, 26/2/46 to 25/3/46 (1 rod)—				
Number of fish caught	19	22	11	52
Total weight	254·5 lb.	307 lb.	158 lb.	719·5 lb.
Average weight	13·4 lb.	13·9 lb.	14·3 lb.	13·8 lb.
Opihi River, 28/1/46 to 31/3/46 (1 rod)—				
Number of fish caught	4	6	26	36
Total weight	52 lb.	76 lb.	314 lb.	442 lb.
Average weight	13 lb.	12·6 lb.	12 lb.	12·2 lb.
Combined rivers, 28/1/46 to 31/3/46 (8 rods)—				
Number of fish caught	52	46	109	207
Total weight	673·5 lb.	624 lb.	1,708 lb.	3,005·5 lb.
Average weight	12·9 lb.	13·5 lb.	15·6 lb.	14·5 lb.
Returns from Nets				
Waimakariri River, 21/2/46 to 20/3/46 (2 nets)—				
Number of fish caught	69	48	..	117
Total weight	665 lb.	559·5 lb.	..	1,224·5 lb.
Average weight	9·6 lb.	11·6 lb.	..	10·4 lb.

Although a poor season, there was considerable improvement on the previous season, 1945 (the lowest on record).

Fresh-water Fisheries

Staffing.—A reallocation of duties, deferred during the war years, was carried out following the retirement of the former Chief Inspector of Fisheries and Director of Fisheries Research and the release from war service of the senior members of the Fisheries staff. The administrative and research directional services, which formerly were discharged personally by one officer having similar responsibilities in relation to marine fisheries, have been substantially delegated to the Senior Fisheries Officer (fresh water) and the Senior Research Officer (fresh water). The respective positions have been filled by the appointment of Messrs. D. F. Hobbs and K. R. Allen, the two former fresh-water biologists. Their work will be co-ordinated under the new Chief Inspector of Fisheries.

The Senior Fisheries Officer is now responsible for central administration, such supervision of local administration as may be necessary, and for advising and helping local administrations to frame and carry out programmes of practical management in harmony with the results of research conducted in New Zealand and elsewhere.

The Senior Research Officer is responsible for the planning and organization of research programmes, for directing the work of the research staff, and for the publication of the results of research carried out in New Zealand.

Co-ordination of Fresh-water Fisheries Policy.—Two important steps have been taken to ensure the better co-ordination of the activities of the different Departments and local bodies among which the responsibility for fisheries administration has been divided.

The advisory and research services of this Department, hitherto employed exclusively in districts administered by acclimatization societies, have now been extended to the important Rotorua, Taupo, and Southern Lakes fisheries, administered by the Department of Internal Affairs.

There has also been established a Fresh-water Fisheries Advisory Council, comprising representatives of the Departments of Marine, Internal Affairs, and Scientific and Industrial Research, together with nominees of the acclimatization societies. This Council provides a much more adequate liaison between the different interests represented, and is already functioning as a useful consultative body on questions of fisheries administration and research.

Legislation.—By section 29 of the Statutes Amendment Act, 1946, all appointments of honorary officers, for the purposes of Part II of the Fisheries Act, 1908, will lapse on 31st March, 1947, and further appointments will be for a maximum term of three years.

Modifications of Natural Streams.—There is need to assure that the present and potential values of fresh-water fisheries are taken into account when modifications of natural waterways are being planned so that, where necessary and feasible, concessions may be made to the needs of fisheries. To this end representation of the Fisheries Branch has been obtained on the central standing committee of the Soil Conservation and Rivers Control Council.

Pollution.—It has been decided to make available for the coming year the services of a science-trained officer to carry out a general fact-finding survey of the extent and incidence of pollution. This work has been planned and will be executed with the assistance of an inter-departmental committee.

Salmon Fisheries.—It is not proposed to operate the Hakataramea Salmon Hatchery in future years. The property is being disposed of, and equipment is being taken over by the Department of Internal Affairs for trout-hatchery work in the Southern Lakes district.

The Hakataramea Hatchery was instrumental in establishing the quinnat salmon in the Waitaki River, whence it has spread, long since, by natural dispersal to most major rivers on the east coast of the South Island, and in which stocks have for long been maintained by natural reproduction. The Department's attempts over years to broaden the dispersal of salmon by transfers of stock from the hatchery to waters of other provinces have proved substantially abortive. As regards the maintenance of the run in the Waitaki, it is not considered that the hatchery could handle a significant proportion of the total eggs produced, or hatch them at an appreciably lower rate of mortality than occurs in natural spawning. It is therefore considered that, the acclimatization phase of salmon work having concluded, funds, instead of being spent for a problematical benefit at the Waitaki River, could be better spent on fisheries work of more national character.

Eel Fisheries.—Following a recommendation of the former Chief Inspector of Fisheries in 1945, utilization of eels for UNRRA was embarked on this year. UNRRA requires a canned product, and this limits the exploitation to areas where firms have suitable plant available at the right season of the year. Up to 31st March, 1947, approximately 110,000 eels, weighing 288,000 lb., had been taken by one firm in Southland; and operations involving the utilization of migrant eels in the coming autumn at Lake Ellesmere in Canterbury, and also in Westland, are planned by two other firms. The three areas are ones in which survey work had been carried out by, or with the assistance of, this Department in earlier years.

Advisory and Technical Services.—With staff again available, and the body of factual matter arising from research growing, it has been possible to resume the technical and advisory services formerly available to acclimatization societies. A progressive increase and improvement of this service will become possible as the staff overtakes wartime arrears. A major report, dealing particularly with the practical aspects of fisheries management, will be ready for publication in the coming year. This is designed as a "popular" summarization of knowledge arising from research here and abroad and as a critical review of past policies in the light of such knowledge.

Fresh-water Research

During the past year the fresh-water research organization has undergone a complete overhaul, involving increased and reorganized staff and much improved technical facilities.

The appointment of a Senior Research Officer has placed the technical control of research in the hands of an officer who is not burdened with general administrative responsibilities. As a consequence, more attention can be given to the general planning and supervision of the work than was previously possible. The loss of a former biologist on appointment as Senior Fishery Officer (fresh water) was offset by the appointment of two assistant biologists, Messrs A. M. R. Burnet and B. T. Cunningham, who have joined the staff with excellent biological qualifications and are rapidly gaining experience in the special problems and methods of fresh-water fisheries research. In order to increase the output of research results, it is also proposed to free the scientific staff from the purely mechanical work on equipment by the appointment of technical assistants.

The accommodation previously occupied by the laboratory was barely adequate for the staff as it then existed and rendered any expansion completely impossible. After a search, new premises were found which required almost complete reconstruction internally, but were otherwise ideally suited for use as a fisheries laboratory, and these were occupied in February, 1947. The new premises provide adequate laboratory, office, and storage accommodation for both marine and fresh-water research staffs. They include an enclosed yard and open sheds suitable for the handling of nets, as well as a garage to house the mobile laboratory.

The use of cars and trucks from the Government pool has often been unsatisfactory on account of the bulk of much fisheries gear, and lack of facilities for delicate work in the field. A special vehicle was therefore designed to be equipped as a miniature laboratory and fitted to carry all types of research equipment. This has been built on a chassis specially suited for work in rough country. This mobile laboratory will enable most types of work to be carried out at the water's edge under almost all conditions.

In order to make good use of the improved facilities, a programme has been drawn up covering most major fisheries problems, and work has been begun on most points in this. This programme was laid before the Fresh-water Fisheries Advisory Council at its second meeting, and the Council expressed its approval of the proposals.

Among the research subjects on which work is being undertaken are the following :—

Eels.—Previous investigations carried out by officers of this Department have shown that the long-finned eel has important relationships with trout, both as a competitor when small and a predator when large. Thus, it appears that the destruction of eels is probably beneficial to trout fisheries. The actual amount of damage done by eels must determine what expenditure upon eel-destruction is economically justifiable. To investigate this it is planned to measure the amount of food eaten by individuals and the density of the eel population of various types of trout waters. The examination now being made of the results of the large-scale trapping of eels for UNRRA in Southland last season will yield useful information on the latter point.

Erosion.—The influence of erosion upon fish stocks is a matter much debated at present, and it is therefore desirable that accurate information should be obtained as to the nature and importance of its effects. It is known that severe flooding may have harmful effects, as may instability of river-beds, and the influence of these factors have already been considered in previous investigations by the Department. A distinction must, however, be made between harmful effects which may occur due to natural conditions and those arising from man-made accelerated erosion, which may be corrected. It is therefore planned to carry out long-term observations on rivers in areas where erosion is being checked and the land restored. A preliminary survey in this connection has already been made of the rivers on the Molesworth Station.

Horokiwi Investigation.—Progress has been made with the final analysis of the data accumulated during the intensive study of this stream. The collection and analysis of information regarding anglers' catches has been continued during the present season.

Development of Improved Research Methods.—Work is being undertaken on the development of improved methods of sampling both fish populations and food-supply. The object of this work is to enable estimates of these very important factors to be made more speedily and with greater accuracy.

Marine Research

The various projects in hand were carried forward by the Marine Biologist, and arrangements have now been finalized to commence certain classes of work with the research vessel " Ikatere."

Legislation

The licensing system was changed at the commencement of the licensing year by decentralization. The officer in charge at each port of registry now issues all boat and crew licences where there has been no change. All new or amended licences have first to be approved by the licensing authority and are then issued by the local officer.

Staff

The provision of adequate trained staff continues to be a problem and hinders many fresh developments. This position will no doubt rectify itself in due course. The Marine Biologist, Mr. Rapson, accepted a position in Australia during the year, and Miss White, who has been in charge of the statistical work for some years, left for England. The loss of these highly trained officers has been keenly felt.

M. W. Young,
Chief Inspector of Fisheries.

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 DECEMBER, 1946

Name of Port or District.	Vessels licensed, 1st January, 1946, to 31st December, 1946.			Vessels engaged in Fishing for Wet Fish.												Vessels engaged in Shell-fishery.						Number of Fishermen.	
				Motor-vessels Danish-seining.		Steam-trawlers.		Motor-trawlers.		Motor-vessels Set-net and Line-fishing.		Boats engaged in Part-time Trawling and Part-time Line-fishing not included in Previous Columns.	Rowing-boats.			Oyster-dredging Vessels.		Mussel-dredging Vessels.		Crayfishing-vessels.			
	Total Number.	Number Operating.	Number not Operating.	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	16	14	2	..	..	..	..	..	..	4	9	..	..	1		..	..	..	..	..	..	7	19
Mangonui	10	7	3	..	..	..	..	..	..	1	6	..	..	..		..	..	..	..	..	2	2	8
Whangaroa ..	18	12	6	..	..	..	..	..	..	1	7	..	..	4		..	..	..	..	..	3	1	16
Russell	36	23	13	..	..	..	..	..	..	9	11	..	1	2		..	..	..	..	..	1	19	17
Whangarei ..	25	12	13	..	..	..	..	..	..	3	8	..	..	1		..	..	..	..	..	..	7	10
Auckland	129	92	37	36	4	2	..	..	1	11	24	..	..	7		..	..	2	..	3	6	176	52
Thames district ..	32	25	7	..	..	..	..	..	..	13	9	..	..	3		..	..	..	1	..	..	40	28
Coromandel ..	4	4	..	..	..	..	..	..	..	..	3	..	..	1		..	..	..	..	..	..	..	5
Mercury Bay ..	10	8	2	..	..	..	..	..	..	1	6	..	..	..		..	..	..	..	..	6	4	7
Whangamata ..	9	4	5	..	..	..	..	..	..	1	3	..	..	..		..	..	..	..	..	2	1	3
Waihi Beach ..	7	5	2	..	..	..	..	..	..	..	5	..	..	..		..	..	..	..	..	1	..	6
Tauranga and district	38	22	16	..	1	..	..	1*	..	4	15	..	..	1		..	..	..	..	..	..	15	40
Whakatane ..	8	7	1	..	1	..	..	..	..	1	4	..	..	1		..	..	..	..	..	2	3	8
Ohiwa Harbour, Opotiki, and Cape Runaway ..	9	4	5	..	..	..	..	..	..	1	1	..	..	2		..	..	..	..	..	..	3	6
Gisborne	17	13	4	..	..	..	1	3	1	..	3	1	..	..		..	..	..	..	..	5	14	14
Napier	33	25	8	1	..	..	..	9	6	..	5	1	..	2		..	..	..	..	1	5	35	26
Castlepoint ..	10	5	5	..	..	..	..	..	..	..	4	..	..	1		..	..	..	..	..	2	..	9
Wellington ..	55	36	19	..	..	2	1	1	..	10	13	..	1	7		..	..	..	..	4†	8	70	36
Makara	4	4	..	..	..	..	..	..	..	..	4	..	..	..		..	..	..	..	..	3	4	3
Paremata	18	15	3	..	..	..	..	..	..	4	9	1	..	2		..	..	..	..	..	1	13	14
Paraparaumu Beach	11	7	4	..	..	..	..	..	..	..	7	..	..	..		..	..	..	..	..	..	..	12
Manawatu Heads ..	13	10	3	..	..	..	..	..	..	..	2	..	..	8		..	..	..	..	..	..	..	14
Tangimoana ..	6	5	1	..	..	..	..	..	..	..	3	..	..	1		..	..	..	..	..	..	..	6
Wanganui ..	18	12	6	..	..	..	..	..	..	1	10	..	..	1		..	..	..	..	..	..	2	17
New Plymouth ..	15	8	7	..	..	..	..	..	..	2	6	..	..	..		..	..	..	..	..	2	5	8
Kawhia	10	7	3	..	..	..	..	..	..	3	3	..	..	1		..	..	..	..	..	..	5	6
Raglan	4	4	..	..	..	..	..	..	..	..	4	..	..	..		..	..	..	..	..	..	..	4
Manukau Harbour ..	17	11	6	..	..	..	..	..	..	5	6	..	..	..		..	..	..	..	..	..	5	6
Kaipara	36	27	9	..	..	..	..	..	..	10	17	..	..	..		..	..	..	..	..	1	14	22
Hokianga	20	14	6	..	..	..	..	..	..	1	9	..	..	4		..	..	..	..	..	..	1	16

South Island																							
Havelock	28	24	4	..	..	..	..	1	7	4	11	1	..	1	..	..	..	..	..	..	10	24
Picton	19	13	6	..	..	..	..	1	..	5	7	..	..	..	..	..	..	1	6	23	5
Blenheim (Wairau)	7	4	3	..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	..	1	6
Kaikoura	25	20	5	..	..	..	..	..	1	6	8	1	..	1	..	..	..	2	8	16	14
Lyttelton	25	15	10	..	..	1	..	8	3	..	2	..	..	1	..	..	..	..	..	30	8
Akaroa	18	13	5	..	..	..	..	1	2	1	7	..	..	3	..	..	..	1	6	5	15
Lake Ellesmere	26	15	11	..	..	..	..	..	..	1	5	..	1	8	..	..	..	..	..	6	15
Timaru	29	29	..	..	..	..	..	11	7	5	2	4	..	..	..	..	..	..	..	40	17
Oamaru	13	9	4	..	..	..	..	..	..	5	4	..	..	..	..	..	..	..	..	10	5
Moeraki	13	13	..	..	..	..	..	..	..	4	9	..	..	..	..	..	..	..	3	7	9
Karitane	14	11	3	..	..	..	..	..	..	..	9	1	..	..	..	..	..	3	8	7	10
Port Chalmers	44	31	13	..	..	..	..	13	6	5	9	..	..	1	..	..	..	..	..	33	20
Taieri Mouth	4	4	..	..	..	..	..	..	2	..	1	1	..	..	..	..	..	..	..	2	5
Nuggets district	15	13	2	..	..	..	..	4	5	1	2	1	..	..	..	..	..	..	..	14	10
Waikawa	8	5	3	..	..	..	..	4	..	..	..	1	..	..	..	..	..	..	..	9	..
Invercargill	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
Bluff	23	21	2	..	..	..	1	..	3	4	6	..	..	..	9	..	..	..	..	59	14
Stewart Island	45	39	6	..	..	..	..	..	..	13	28	..	..	..	..	..	..	..	..	32	54
Riverton district	8	7	1	..	..	..	..	..	..	1	5	..	..	1	..	..	..	..	..	2	11
Hokitika	3	1	2	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
Greymouth	5	3	2	..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	5	1
Westport	13	9	4	..	..	1	1	..	..	..	5	2	..	..	..	..	..	..	..	3	9
Golden Bay	6	5	1	..	..	..	..	..	1	1	3	..	..	..	..	..	..	..	..	2	6
Motueka	7	5	2	..	..	..	..	..	1	1	3	1	..	..	..	..	..	..	..	4	4
Nelson	21	15	6	4	..	..	..	2	1	3	5	1	..	..	..	..	..	..	2	19	8
French Pass	34	25	9	..	..	..	..	..	..	10	15	..	..	..	..	..	..	..	..	20	19
Chatham Islands	5	5	..	..	..	..	..	..	..	3	2	..	..	..	..	..	..	..	..	10	6
Totals	1,097	797	300	41	6	7	4	60	50	159	365	19	3	67	9	..	2	1	15	83	815	735

* Also licensed for purse-seining. † Excludes three trawlers bringing in large catches of crayfish.

Table II.—Showing approximately the Total Quantities of Fish and Shell-fish landed at the Fishing Ports for the Year ended 31st December, 1946

Name of Port or District.	Quantity landed (Fish).	Total Value (Fish).	Shell-fishery (excluding Toheroa).							Grand Total Value.
			Oysters.	Value.	Mussels.	Value.	Crayfish.	Value.	Total Value (Shellfish).	
North Island	Cwt.	£	Sacks.	£	Sacks.	£	Cwt.	£	£	£
Awanui and district	2,638	3,312	..	..	..	..	..	..	..	3,312
Mangonui	662	999	..	..	..	..	40	90	90	1,089
Whangaroa	573	882	..	..	..	..	249	493	493	1,375
Russell	5,032	6,027	..	..	..	..	159	274	274	6,301
Whangarei	2,325	2,886	..	..	..	..	..	..	..	2,886
Auckland	141,406	179,341	5,103	8,933	8,300	3,006	1,319	2,958	14,897	194,238
Thames district	10,824	17,589	..	..	2,268	681	..	..	681	18,270
Coromandel	156	249	..	..	..	..	..	..	..	249
Mercury Bay	1,109	1,838	..	..	..	..	872	2,079	2,079	3,917
Whangamata	208	326	..	..	..	..	..	..	..	326
Waihi Beach	159	286	..	..	..	..	16	29	29	315
Tauranga and district	6,416	7,853	..	..	..	..	66	152	152	8,005
Whakatane	1,283	1,820	..	..	..	..	26	77	77	1,897
Ohiwa Harbour, Opotiki, and Cape Runaway	275	527	..	..	..	..	2	2	2	529
Gisborne	10,052	13,309	..	..	..	..	763	1,414	1,414	14,723
Napier	22,249	36,979	..	..	..	..	749	1,439	1,439	38,418
Castlepoint	40	153	..	..	..	..	37	76	76	229
Wellington	39,744	87,462	..	..	..	..	3,322	7,685	7,685	95,147
Makara	396	889	..	..	..	..	196	524	524	1,413
Paremata	3,816	10,195	..	..	..	..	132	315	315	10,510
Paraparaumu Beach	706	1,642	..	..	..	..	..	..	..	1,642
Manawatu Heads	147	559	..	..	..	..	..	..	..	559
Tangimoana	32	87	..	..	..	..	..	..	..	87
Wanganui	631	1,416	..	..	..	..	..	..	..	1,416
New Plymouth	2,643	6,315	..	..	..	..	130	436	436	6,751
Kawhia	445	1,200	..	..	..	..	..	..	..	1,200
Raglan	124	326	..	..	..	..	..	..	..	326
Manukau Harbour	1,215	2,426	..	..	..	..	..	..	..	2,426
Kaipara	3,608	7,914	..	..	..	..	1,275	1,981	1,981	9,895
Hokianga	575	985	..	..	..	..	..	..	..	985
South Island										
Havelock	1,968	5,928	..	..	..	..	..	..	..	5,928
Picton	4,913	9,616	..	..	..	..	1,560	3,276	3,276	12,892
Blenheim (Wairau)	1,215	2,437	..	..	..	..	12	22	22	2,459
Kaikoura	2,703	7,341	..	..	..	..	1,020	1,962	1,962	9,303
Lyttelton	15,400	33,670	..	..	..	..	291	482	482	34,152
Akaroa	2,394	6,114	..	..	..	..	1,061	1,764	1,764	7,878
Lake Ellesmere	480	1,769	..	..	..	..	..	..	..	1,769
Timaru	21,223	49,870	..	..	..	..	..	..	..	49,870
Oamaru	2,020	5,913	..	..	..	..	..	..	..	5,913
Moeraki	1,964	4,870	..	..	..	..	589	562	562	5,432
Karitane	1,153	2,272	..	..	..	..	2,745	2,507	2,507	4,779
Port Chalmers	23,250	36,853	..	..	..	..	24	22	22	36,875
Taieri Mouth	989	2,933	..	..	..	..	1	1	1	2,934
Nuggets district	4,565	12,945	..	..	..	..	21	21	21	12,966
Waikawa	2,964	8,371	..	..	..	..	..	..	..	8,371
Invercargill	1	2	..	..	..	..	..	..	..	2
Bluff	3,035	8,511	89,356	67,017	..	..	1	2	67,019	75,530
Stewart Island	12,126	30,060	..	..	..	..	..	..	..	30,060
Riverton district	687	1,541	..	..	..	..	..	..	..	1,541
Hokitika	12	23	..	..	..	..	..	..	..	23
Greymouth	909	2,623	..	..	..	..	..	..	..	2,623
Westport	527	1,416	..	..	..	..	28	44	44	1,460
Golden Bay	1,268	1,920	..	..	..	..	2	5	5	1,925
Motueka	1,653	2,691	..	..	..	..	28	51	51	2,742
Nelson	7,078	14,194	..	..	..	..	30	56	56	14,250
French Pass	2,749	7,143	..	..	..	..	..	..	..	7,143
Chatham Islands	3,586	3,278	..	..	..	..	..	..	..	3,278
Totals	380,321	660,096	94,459	75,950	10,568	3,687	16,766	30,801	110,438	770,534

TABLE III.—SHOWING THE QUANTITIES OF DIFFERENT KINDS OF FISH CAUGHT BY THE DIFFERENT METHODS OF FISHING FOR THE YEAR ENDED 31ST DECEMBER, 1946

	Trawl.						Danish Seine.		Other Nets.					
	Steam.		Motor.		Total.		Motor.		Motor.		Row-boat.		Total.	
	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£
Barracouta	1,638	1,211	86	66	1,724	1,277	37	103	..	..	2	5	2	5
Blue cod	1	2	39	109	40	111	..	..	14	43	..	..	14	43
"Bonita" (*Brama*)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Brill	..	..	20	56	20	56	..	..	..	..	..	..	..	..
Butterfish (greenbone)	..	..	..	..	..	..	..	..	1,871	4,883	49	157	1,920	5,040
Conger-eel	..	..	9	7	9	7	..	..	14	12	3	2	17	14
Elephant-fish	316	628	4,218	7,454	4,534	8,082	..	..	69	108	..	..	69	108
Flounder	24	61	5,074	18,433	5,098	18,494	1,917	6,616	6,648	19,129	779	2,771	7,427	21,900
Frost-fish	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Garfish	..	..	..	..	..	..	..	..	49	168	..	..	49	168
Gurnard	2,216	1,884	12,652	15,628	14,868	17,512	8,173	6,502	691	549	1	1	692	550
Hake	544	1,370	414	1,159	958	2,529	1	1	1	1	..	..	1	1
Hapuku (groper)	512	1,297	719	2,273	1,231	3,570	350	848	21	65	1	2	22	67
Herring	..	..	..	..	..	..	..	..	1,287	956	20	38	1,307	994
John-dory	533	695	173	276	706	971	18	40	..	..	..	..	..	..
Kahawai	..	..	188	132	188	132	..	..	1,303	1,017	37	27	1,340	1,044
Kingfish	23	22	1	2	24	24	9	7	53	57	2	4	55	61
Ling	817	1,693	2,580	5,069	3,397	6,762	4	6	7	19	1	1	8	20
Mackerel	69	63	1	1	70	64	..	..	125	137	..	..	125	137
Maomao	..	..	..	..	..	..	2	3	8	10	..	..	8	10
Moki	571	1,050	1,081	1,834	1,652	2,884	..	..	276	555	32	71	308	626
Mullet	..	..	..	..	..	..	..	..	2,753	3,964	33	62	2,786	4,026
Parore	..	..	97	137	97	137	..	..	1,321	964	85	54	1,406	1,018
Perch	..	..	8	6	8	6	..	..	5	5	..	..	5	5
Pioke	132	111	355	375	487	486	719	986	423	555	17	16	440	571
Red cod	596	650	8,721	7,594	9,317	8,244	15	16	1	2	9	13	10	15
Sardine	..	..	..	..	..	..	..	..	1,191	977	6	11	1,197	988
Shark	493	686	242	187	735	873	34	50	101	129	6	5	107	134
Skate	..	..	40	29	40	29	..	..	..	..	..	..	..	..
Snapper	20,749	27,298	4,812	8,442	25,561	35,740	71,565	90,766	7,927	11,177	63	103	7,990	11,280
Sole	338	976	21,113	61,661	21,451	62,637	976	2,904	7	17	..	..	7	17
Swordfish (marlin)	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tarakihi	34,696	62,331	24,757	41,144	59,453	103,475	17,954	23,162	74	116	1	2	75	118
Trevally	1,737	1,404	7	6	1,744	1,410	478	341	4,393	4,099	84	106	4,477	4,205
Trumpeter	2	5	271	757	273	762	..	..	..	..	..	..	..	..
Warehou	16	72	..	..	16	72	..	..	409	815	18	44	427	859
Whiptail	287	349	1	1	288	350	..	..	..	..	..	..	..	..
Whiting	313	219	..	..	313	219	..	..	3	4	..	..	3	4
Mixed flat fish	177	593	1,506	5,035	1,683	5,628	39	89	136	330	15	50	151	380
Mixed round fish and all fish not specified	1,284	1,107	2,162	3,258	3,446	4,365	912	751	1,170	1,057	66	82	1,236	1,139
Totals	68,084	105,777	91,347	181,131	159,431	286,908	103,203	133,191	32,351	51,920	1,330	3,627	33,681	55,547

TABLE III.—SHOWING THE QUANTITIES OF DIFFERENT KINDS OF FISH CAUGHT BY THE DIFFERENT METHODS OF FISHING FOR THE YEAR ENDED 31ST DECEMBER, 1946—*continued*

	Lines.								Grand Total.	
	Steam.		Motor.		Row-boat.		Total.			
	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£	Cwt.	£
Barracouta	..	..	9,674	5,610	3	4	9,677	5,614	11,440	6,999
Blue cod	..	..	20,968	51,175	14	37	20,982	51,212	21,036	51,366
"Bonita" (*Brama*)	..	..	17	43	..	..	17	43	17	43
Brill	..	..	..	..	..	..	..	..	20	56
Butterfish (greenbone)	..	..	..	..	..	..	..	..	1,920	5,040
Conger-eel	..	..	147	114	..	..	147	114	173	135
Elephant-fish	..	..	36	76	..	..	36	76	4,639	8,266
Flounder	..	..	..	..	..	..	..	..	14,442	47,010
Frost-fish	..	..	4	4	..	..	4	4	4	4
Garfish	..	..	..	..	..	..	..	..	49	168
Gurnard	..	..	435	439	..	..	435	439	24,168	25,003
Hake	..	..	776	2,376	1	2	777	2,378	1,737	4,909
Hapuku (groper)	..	..	25,873	77,503	46	168	25,919	77,671	27,522	82,156
Herring	..	..	..	..	..	..	..	..	1,307	994
John-dory	..	..	6	9	..	..	6	9	730	1,020
Kahawai	..	..	553	558	11	9	564	567	2,092	1,743
Kingfish	..	..	239	292	3	3	242	295	330	387
Ling	..	..	8,175	18,529	..	..	8,175	18,529	11,584	25,317
Mackerel	..	..	..	..	..	..	..	..	195	201
Maomao	..	..	..	..	..	..	..	..	10	13
Moki	..	..	15	26	..	..	15	26	1,975	3,536
Mullet	..	..	..	..	..	..	..	..	2,786	4,026
Parore	..	..	71	57	..	..	71	57	1,574	1,212
Perch	..	..	37	31	..	..	37	31	50	42
Pioke	..	..	601	808	..	..	601	808	2,247	2,851
Red cod	..	..	437	454	17	25	454	479	9,796	8,754
Sardine	..	..	..	..	..	..	..	..	1,197	988
Shark	..	..	1,143	1,104	22	20	1,165	1,124	2,041	2,181
Skate	..	..	30	27	..	..	30	27	70	56
Snapper	..	..	11,391	20,625	325	562	11,716	21,187	116,832	158,973
Sole	..	..	..	..	..	..	..	..	22,434	65,558
Swordfish (marlin)	..	..	449	483	..	..	449	483	449	483
Tarakihi	..	..	434	813	11	21	445	834	77,927	127,589
Trevally	..	..	119	118	1	1	120	119	6,819	6,075
Trumpeter	..	..	37	110	..	..	37	110	310	872
Warehou	..	..	..	..	..	..	..	..	443	931
Whiptail	..	..	1	2	..	..	1	2	289	352
Whiting	..	..	..	..	..	..	..	..	316	223
Mixed flat fish	..	..	..	..	..	..	..	..	1,873	6,097
Mixed round fish and all fish not specified	..	..	1,783	2,035	101	177	1,884	2,212	7,478	8,467
Totals	..	..	83,451	183,421	555	1,029	84,006	184,450	380,321	660,096

TABLE IV.—SHOWING APPROXIMATELY THE QUANTITIES OF DIFFERENT KINDS OF FISH LANDED AT CERTAIN PORTS DURING THE YEAR ENDED 31ST DECEMBER, 1946

——	Awanui and District.	Mangonui.	Whangaroa.	Russell.	Whangarei.	Auckland.	Thames.	Coromandel.	Mercury Bay.	Whangamata.	Waihi Beach.	Tauranga and District.	Whakatane.	Opotiki.	Gisborne.	Napier.	Castlepoint.	Wellington.	Makara.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Barracouta ..	..	..	..	4	..	1,246	..	..	..	..	..	..	..	..	..	..	..	394	..
Blue cod ..	6	1	7	18	1	96	2	..	87	2	..	5	..	..	1	..	4	165	11
"Bonita" (*Brama*)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	..
Butterfish ..	..	..	..	..	..	744	8	..	12	..	..	21	..	..	..	..	..	275	129
Brill ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Conger-eel ..	..	..	..	..	..	3	..	..	1	..	..	..	..	..	..	..	..	65	2
Elephant-fish ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	18	..
Flounder ..	2	1	17	95	15	1,457	3,706	9	3	..	..	..	53	12	42	267	..	3	..
Frost-fish ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..
Garfish	..	..	..	..	..	29	..	..	..	..	..	..	..	4	..	..	..	..	..
Gurnard	..	..	..	17	..	7,370	657	1	1	..	..	71	106	..	1,549	5,994	..	317	..
Hake	..	..	..	..	..	96	1	..	..	..	..	1	..	..	1	..	..	973	1
Hapuku (groper) ..	130	132	56	171	205	1,814	1	..	147	11	..	126	20	20	358	378	26	7,132	24
Herring	..	..	..	1,013	..	11	..	..	1	..	..	..	..	..	..	7	..	..	..
John-dory ..	..	..	..	..	..	507	..	..	..	..	..	..	3	..	87	..	..	29	..
Kahawai ..	174	2	77	53	69	297	107	..	2	33	..	1,029	..	..	..	..	1	5	..
Kingfish ..	17	1	68	91	19	76	4	1	5	..	..	27	..	..	..	..	..	5	..
Ling	..	..	..	..	..	..	2	..	..	..	..	..	..	..	1	66	..	4,046	..
Mackerel ..	..	..	..	..	..	67	..	..	..	..	..	..	..	..	..	..	..	2	..
Maomao	..	..	..	2	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..
Moki	..	..	..	..	..	8	1	..	..	..	..	..	..	7	94	374	3	1,143	21
Mullet	188	18	28	184	60	593	2	2	..	1	..	12	..	..	1	..	..	..	..
Parore	74	..	..	516	127	207	503	..	1	..	..	49	..	..	..	..	..	..	..
Perch	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pioke	2	..	14	..	..	1,031	252	..	24	3	..	7	4	8	18	3	..	226	..
Red cod ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18	1	..	578	..
Sardine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..
Shark	5	..	..	210	262	622	4	..	23	..	..	2	..	..	..	..	..	35	..
Skate	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
Snapper ..	637	505	264	1,844	586	93,792	4,754	142	766	79	75	1,459	809	218	206	869	3	431	9
Sole	..	..	..	..	..	6	..	..	..	..	..	..	..	..	92	2,746	..	17	..
Swordfish ..	..	..	..	30	..	18	..	..	..	..	..	401	..	..	..	..	..	..	..
Tarakihi ..	52	..	10	8	8	27,788	..	..	12	52	73	1,917	56	..	7,547	11,489	1	21,204	10
Trevally ..	1,262	..	6	538	876	2,015	530	..	..	27	..	1,091	82	..	..	..	..	325	9
Trumpeter ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1
Warehou ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	124	158
Whiptail ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	289	..
Whiting ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	313	..
Mixed flat fish ..	..	..	15	1	..	32	130	..	..	..	..	7	..	..	..	..	..	11	..
Mixed round fish and kinds not specified	89	2	11	237	21	1,473	160	1	24	..	11	198	143	6	36	55	1	1,544	21
Totals ..	2,638	662	573	5,032	2,325	141,406	10,824	156	1,109	208	159	6,416	1,283	275	10,052	22,249	40	39,744	396

TABLE IV.—SHOWING APPROXIMATELY THE QUANTITIES OF DIFFERENT KINDS OF FISH LANDED AT CERTAIN PORTS DURING THE YEAR ENDED 31ST DECEMBER, 1946—*continued*

——	Parenaata.	Paraparaumu Beach.	Manawatu Heads.	Tangimoana.	Wanganui.	New Plymouth.	Kawhia.	Raglan.	Manukau Harbour.	Kaipara.	Hokianga.	Havelock.	Picton.	Blenheim (Wairau).	Kaikoura.	Lyttelton.	Akaroa.	Lake Ellesmere.	Timaru.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Barracouta ..	1	1	..	..	..	1	..	..	..	..	..	45	435	..	82	9	22	..	4
Blue cod ..	23	3	..	..	2	2	..	..	..	..	..	628	170	..	33	..	1	..	..
"Bonita" (*Brama*)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..
Butterfish ..	105	77	..	..	..	..	..	..	..	..	3	40	49	2	72	..	3	..	..
Brill	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Conger-eel ..	5	..	..	..	..	..	..	..	..	..	..	8	34	..	1	4	1	..	..
Elephant-fish ..	..	..	..	..	..	..	..	..	..	..	..	44	34	..	2	1,805	74	..	2,445
Flounder ..	24	..	77	4	1	..	164	71	442	1,430	36	388	78	140	..	677	125	477	2,367
Frost-fish ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Garfish	..	..	..	..	..	..	..	..	..	..	..	..	16	..	..	..	..	..	..
Gurnard ..	69	7	8	3	7	4	..	..	2	11	..	24	10	..	37	1,269	531	..	2,946
Hake	23	1	..	..	..	..	..	..	..	..	..	..	31	..	9	510	61	..	3
Hapuku (groper) ..	2,696	72	1	..	28	341	29	..	..	..	..	105	2,153	8	1,078	370	500	..	2,796
Herring	..	9	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	3	..
John-dory ..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..
Kahawai ..	6	2	2	..	137	..	1	..	2	9	..	2	29	..	9	2	..	..	..
Kingfish ..	..	1	..	..	..	13	1	..	..	..	..	1	..	..	..	..	..	..	..
Ling	143	..	..	..	..	..	..	..	..	..	..	1	13	14	1,170	2,133	312	..	3,136
Mackerel ..	..	..	..	..	..	..	..	..	..	..	..	..	125	..	..	..	..	..	..
Maomao ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Moki	35	10	..	..	..	..	..	..	..	..	..	76	1	8	4	81	15	..	..
Mullet	..	..	1	..	..	..	3	..	472	767	454	..	..	..	..	..	..	..	..
Parore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Perch	..	..	..	..	..	..	..	..	..	..	..	7	..	..	..	4	..	..	..
Pioke	144	4	..	..	..	4	30	..	34	2	..	39	..	..	..	3	..	..	7
Red cod	1	1	1	..	..	..	..	..	..	..	..	152	84	321	14	200	46	..	3,823
Sardine	..	..	..	..	..	..	..	..	..	..	..	..	1,191	..	..	..	..	..	..
Shark	..	..	..	..	8	3	..	..	11	292	2	51	290	..	5	..	..	..	..
Skate	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	4
Snapper ..	38	445	53	24	441	2,270	208	53	185	1,020	66	155	10	16	..	6	1	..	2
Sole	..	..	..	..	..	..	..	..	..	..	..	..	..	139	30	417	141	..	2,571
Swordfish ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tarakihi	15	8	..	..	..	1	..	..	..	..	7	20	16	30	41	7,094	206	..	118
Trevally	18	..	..	..	..	..	7	..	12	18	3	..	..	..	..	..	..	..	..
Trumpeter ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	1	268	..	..
Warehou ..	108	45	..	..	..	..	..	..	..	..	..	..	8	..	..	..	..	..	..
Whiptail ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whiting	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Mixed flat fish ..	34	2	..	..	..	..	..	..	..	..	1	109	18	371	36	243	19	..	463
Mixed round fish and kinds not specified	327	18	4	1	7	4	2	..	55	59	3	67	118	166	45	563	68	..	538
Totals ..	3,816	706	147	32	631	2,643	445	124	1,215	3,608	575	1,968	4,913	1,215	2,703	15,400	2,394	480	21,223

TABLE IV.—SHOWING APPROXIMATELY THE QUANTITIES OF DIFFERENT KINDS OF FISH LANDED AT CERTAIN PORTS DURING THE YEAR ENDED 31ST DECEMBER, 1946—*continued*

—	Oamaru.	Moeraki.	Kaiteriteri.	Port Chalmers and Dunedin.	Taieri Mouth.	Nuggets and District.	Waikawa.	Invercargill.	Bluff.	Stewart Island.	Riverton district.	Hokitika.	Greymouth.	Westport.	Golden Bay.	Motueka.	Nelson.	French Pass.	Chatham Islands.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Barracouta ..	..	12	429	8,171	..	1	..	..	..	..	..	..	..	..	1	48	309	186	..
Blue cod ..	138	383	279	58	42	111	55	..	2,452	10,770	597	..	1	..	26	79	21	1,353	3,442
"Bonita" (*Brama*)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Butterfish ..	..	..	3	..	..	..	..	..	7	44	..	..	..	..	1	..	40	209	..
Brill	..	..	..	16	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..
Conger-eel ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49	..
Elephant-fish ..	..	..	..	211	..	..	..	..	..	..	..	..	..	..	1	4	..	..	..
Flounder ..	..	..	..	745	..	427	22	1	77	..	5	..	..	2	23	62	893	1	..
Frost-fish ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Garfish	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gurnard ..	1	..	..	291	..	47	10	..	13	..	..	..	85	112	361	221	2,012	4	..
Hake	..	..	..	5	..	1	..	..	..	..	..	..	1	..	..	..	..	19	..
Hapuku (groper) ..	1,840	1,352	158	562	83	290	24	..	157	612	83	..	376	76	12	72	246	507	144
Herring	..	..	..	..	..	..	..	..	..	..	..	11	..	2	27	221	..	..	..
John-dory ..	..	5	..	1	..	..	..	..	..	..	..	..	..	..	72	5	15	..	..
Kahawai ..	..	5	..	1	..	..	..	..	..	..	..	..	..	2	..	29	..	5	..
Kingfish ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ling	15	14	102	363	..	25	2	..	2	..	..	..	16	8	..	..	..	..	..
Mackerel ..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Maomao ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Moki	9	1	8	16	..	..	..	..	..	..	..	..	..	..	1	1	21	37	..
Mullet	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Parore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Perch	4	24	..	4	..	6	..	..	..	..	..	..	..	..	..	..	1	..	..
Pioke	..	..	..	108	..	..	..	..	..	..	..	..	..	..	73	25	268	11	..
Red cod ..	7	153	123	3,846	10	83	29	..	22	..	..	..	21	11	189	1	33	28	..
Sardine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Shark	..	6	..	169	..	7	..	..	..	..	..	..	..	..	..	..	1	33	..
Skate	..	..	..	12	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Snapper ..	..	..	..	2	..	..	..	..	..	..	..	..	4	8	471	806	2,974	126	..
Sole	..	..	..	8,366	849	3,528	2,818	..	135	..	..	..	327	52	4	4	192	..	..
Swordfish ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tarakihi ..	5	1	..	81	..	..	..	..	..	..	..	..	5	1	..	..	..	51	..
Trevally ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trumpeter ..	..	1	1	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..
Warehou ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whiptail ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whiting ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mixed flat fish ..	..	..	50	140	5	..	3	..	..	..	..	..	5	177	..	..	..	..	..
Mixed round fish and kinds not specified	1	7	..	81	..	33	1	..	169	700	2	1	68	76	6	75	52	129	..
Totals ..	2,020	1,964	1,153	23,250	989	4,565	2,964	1	3,035	12,126	687	12	909	527	1,268	1,653	7,078	2,749	3,586

TABLE V.—SHOWING TOTAL QUANTITIES OF WET FISH LANDED AT EACH OF THE CHIEF FISHING PORTS EACH MONTH OF THE YEAR 1946

Port or District.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
North Island	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Awanui and district	29	190	189	227	149	79	172	137	125	623	417	301	2,638
Mangonui	145	64	58	38	63	76	37	48	49	20	35	29	662
Whangaroa	56	39	47	78	81	68	34	12	27	26	51	54	573
Russell	386	389	520	297	335	273	398	289	432	711	492	510	5,032
Whangarei	194	212	166	142	197	93	172	207	237	212	273	220	2,325
Auckland	9,466	12,363	10,315	10,177	9,498	10,072	13,093	11,607	13,874	15,508	12,447	12,986	141,406
Thames district	1,533	1,178	939	717	783	558	1,061	811	1,188	1,002	491	563	10,824
Coromandel	7	10	10	21	..	5	9	2	19	38	19	16	156
Mercury Bay	141	232	248	66	86	69	36	32	8	6	2	183	1,109
Whangamata	36	4	25	30	19	10	3	3	1	2	23	52	208
Waihi Beach	41	22	9	9	17	13	10	5	3	8	2	20	159
Tauranga and district	377	392	610	496	226	250	668	397	506	920	720	854	6,416
Whakatane	26	97	160	54	53	71	54	49	188	252	120	159	1,283
Ohiwa Harbour, Opotiki, and Cape Runaway	41	15	3	24	9	36	24	25	16	26	32	24	275
Gisborne	696	772	209	137	416	601	1,248	736	1,180	1,983	918	1,156	10,052
Napier	2,019	1,306	601	716	1,265	1,694	2,236	1,800	2,845	3,199	2,091	2,477	22,249
Castlepoint	8	2	5	2	2	..	..	1	1	3	6	10	40
Wellington	2,848	3,787	3,690	3,477	3,279	3,382	4,158	1,681	2,110	3,910	4,612	2,810	39,744
Makara	17	54	98	28	29	29	97	16	18	3	7	..	396
Paremata	341	394	301	266	265	282	597	77	186	367	436	304	3,816
Paraparaumu Beach	63	72	77	117	117	108	54	17	8	15	24	34	706
Manawatu Heads	26	27	36	22	2	3	7	1	..	3	8	12	147
Tangimoana	5	9	8	5	2	1	..	..	1	..	..	1	32
Wanganui	94	95	55	39	118	88	32	1	1	20	41	47	631
New Plymouth	474	265	154	147	241	237	213	54	77	62	233	486	2,643
Kawhia	23	82	59	24	37	27	17	6	24	26	45	75	445
Raglan	13	17	8	1	3	6	13	6	8	15	8	26	124
Manukau Harbour	103	90	146	84	133	98	79	41	90	153	103	95	1,215
Kaipara	199	246	402	260	336	331	323	171	371	343	293	333	3,608
Hokianga	7	23	28	24	34	54	42	55	63	71	84	90	575
South Island													
Havelock	71	126	149	211	368	401	215	93	65	108	103	58	1,968
Picton	346	421	398	365	473	492	483	68	103	356	856	552	4,913
Blenheim (Wairau)	50	82	141	158	251	118	60	51	73	79	24	128	1,215
Kaikoura	111	206	270	151	235	238	111	55	203	359	312	452	2,703
Lyttelton	501	902	1,518	1,128	1,640	1,126	1,595	1,515	1,366	1,761	1,452	896	15,400
Akaroa	148	135	308	32	259	260	192	88	172	171	277	352	2,394
Lake Ellesmere	13	13	46	57	70	35	43	10	26	64	55	48	480
Timaru	1,366	1,618	1,622	2,242	2,862	2,315	1,172	877	1,195	1,793	2,349	1,812	21,223
Oamaru	236	376	448	213	147	56	55	40	41	105	145	158	2,020
Moeraki	194	204	174	211	348	168	79	44	90	114	153	185	1,964
Karitane	78	80	93	102	147	58	9	13	46	64	122	341	1,153
Port Chalmers	1,810	3,111	2,715	2,229	3,597	1,340	1,503	565	351	1,542	1,661	2,826	23,250
Taieri Mouth	103	156	182	68	128	12	6	..	..	89	78	167	989
Nuggets district	757	839	693	107	285	73	201	3	100	534	335	638	4,565
Waikawa	284	394	211	65	179	196	476	7	165	360	304	323	2,964
Invercargill	..	..	..	1	..	..	..	..	..	..	..	..	1
Bluff	167	463	506	176	366	275	332	66	205	76	134	269	3,035
Stewart Island	857	2,170	1,727	939	2,543	1,390	1,458	387	342	138	161	14	12,126
Riverton district	15	80	91	28	91	82	118	18	77	20	30	37	687
Hokitika	6	5	1	..	..	..	..	..	..	..	..	..	12
Greymouth	74	81	206	79	236	66	86	39	30	3	8	1	909
Westport	53	57	88	27	43	18	36	31	47	23	50	54	527
Golden Bay	27	16	23	20	205	185	298	296	5	5	11	177	1,268
Motueka	158	122	118	86	173	137	38	65	185	106	333	132	1,653
Nelson	373	287	426	513	658	562	950	555	473	822	955	504	7,078
French Pass	138	370	415	167	283	346	340	213	110	162	138	67	2,749
Chatham Islands	..	488	1,049	569	530	120	443	27	360	..	..	..	3,586
Totals	27,350	35,250	32,794	27,669	33,912	28,683	35,186	23,413	29,486	38,381	34,079	34,118	380,321

TABLE VI.—SHOWING QUANTITIES OF THE MAIN SPECIES OF FISH LANDED AT THE CHIEF FISHING PORTS IN EACH MONTH OF THE YEAR ENDED 31ST DECEMBER, 1946

——	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
Auckland	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Flounder	210	436	246	182	54	32	2	27	16	80	81	91	1,457
Gurnard	446	851	533	618	525	589	686	528	625	879	568	522	7,370
Snapper	6,399	7,015	6,614	6,458	7,616	6,918	9,164	7,203	8,231	11,461	8,527	8,186	93,792
Tarakihi	1,411	2,642	2,301	2,050	417	1,804	2,319	2,977	4,140	2,129	2,498	3,100	27,788
Trevally	315	383	145	119	155	116	169	144	94	142	71	162	2,015
Thames													
Flounder	1,340	783	625	220	341	70	37	1	40	99	92	58	3,706
Gurnard	11	16	26	30	84	81	129	82	90	59	22	27	657
Snapper	171	356	260	443	208	340	667	548	603	606	195	357	4,754
Trevally	1	20	27	21	50	11	41	25	156	61	53	64	530
Tauranga													
Kahawai	30	7	12	24	..	15	14	41	93	228	180	385	1,029
Snapper	110	108	119	143	97	151	139	135	94	101	131	131	1,459
Tarakihi	204	38	263	276	54	39	247	..	94	158	292	252	1,917
Trevally	1	5	32	5	9	15	236	210	145	373	45	15	1,091
Gisborne													
Gurnard	102	199	115	66	35	49	106	49	144	283	150	251	1,549
Tarakihi	555	472	50	9	346	525	1,119	674	930	1,500	660	707	7,547
Napier													
Gurnard	501	337	113	264	615	412	522	421	738	860	670	541	5,994
Hapuku	82	21	23	36	3	18	35	9	30	59	28	34	378
Sole	270	129	23	123	122	48	109	205	220	479	553	465	2,746
Tarakihi	991	659	250	37	349	1,149	1,566	1,152	1,821	1,595	819	1,101	11,489
Wellington													
Hake	60	154	120	128	136	40	30	12	24	222	28	19	973
Hapuku	542	459	340	137	288	541	1,252	288	259	1,086	904	1,036	7,132
Ling	47	178	528	462	754	1,055	601	74	110	58	111	68	4,046
Tarakihi	1,687	2,124	2,089	2,024	1,520	1,129	1,908	1,150	1,325	2,118	2,843	1,287	21,204
Picton													
Barracouta	21	93	93	10	16	82	17	7	65	28	2	1	435
Blue cod	26	28	10	31	5	1	4	1	11	6	7	40	170
Hapuku	231	232	208	133	215	255	371	25	8	113	240	122	2,153
Sardine	..	..	31	40	53	..	..	..	..	200	553	314	1,191
Lyttelton													
Elephant-fish ..	164	211	79	69	49	30	40	98	114	490	368	93	1,805
Gurnard	78	121	185	67	28	5	29	87	118	324	141	86	1,269
Ling	15	258	384	162	179	189	148	120	94	85	179	320	2,133
Tarakihi	24	4	63	611	1,135	765	1,259	1,135	807	594	564	133	7,094
Timaru													
Elephant-fish ..	267	213	50	65	51	196	167	14	201	414	543	264	2,445
Flounder	224	226	138	174	370	153	129	188	155	108	181	321	2,367
Gurnard	105	185	216	506	182	381	221	158	287	333	256	116	2,946
Hapuku	218	256	245	236	421	285	4	..	..	299	436	396	2,796
Ling	158	187	268	338	720	670	92	30	28	154	249	242	3,136
Sole	118	134	318	236	148	209	227	169	351	244	290	127	2,571
Port Chalmers													
Barracouta	710	1,146	1,444	1,154	1,789	3	..	1	..	605	215	1,104	8,171
Flounder	113	108	31	50	72	92	62	24	30	13	54	96	745
Hapuku	24	83	58	48	50	88	57	19	4	34	60	37	562
Red cod	374	866	213	369	808	385	252	46	35	60	288	150	3,846
Sole	508	663	750	509	718	667	1,091	407	216	737	856	1,244	8,366
Stewart Island													
Blue cod	762	1,897	1,455	823	2,247	1,276	1,382	367	316	105	138	2	10,770
Hapuku	27	112	129	61	189	59	27	3	..	3	2	..	612
Nelson													
Flounder	33	22	27	75	109	99	149	84	54	90	101	50	893
Gurnard	43	46	94	82	163	167	446	299	201	281	141	49	2,012
Snapper	175	139	225	317	311	149	261	100	135	322	507	333	2,974
Sole	13	13	35	..	..	..	18	39	47	1	21	5	192

TABLE VII.—SHOWING THE NUMBER OF SACKS AND VALUE OF THE OYSTERS OBTAINED IN THE DOMINION DURING THE YEAR ENDED 31ST DECEMBER, 1946

Locality.	Quantity.	Value.
DREDGE OYSTERS		
	Sacks.	£(N.Z.)
Foveaux Strait	89,356	67,017
ROCK OYSTERS		
Bay of Islands	2,396	
Whangarei Harbour	212	
Kaipara Harbour	669	8,933
Hauraki Gulf*	1,326	
Coromandel	500	
Total	5,103	..
Grand total	94,459	75,950

* Rangitoto, 46; Pakatoa, 15; Rotoroa, 121; Waiheke, 786; Ponui, 358.

TABLE VIII.—SHOWING THE NUMBER AND SPECIES OF WHALES TAKEN OFF THE NEW ZEALAND COAST, WITH QUANTITY OF PRODUCTS, FOR THE YEAR ENDED 31ST DECEMBER, 1946

Whaling-station.	Number of Whales Taken.	Species.	Yield of Oil.	Quantity of Other Products.
			Tons.	Tons.
Marlborough Sounds (Picton)	110	Humpbacks	700	90 (bonedust) 40 (canned meat).

TABLE IX.—SHOWING THE TOTAL QUANTITY AND VALUE OF FISH AND SHELL-FISH IMPORTED INTO AND EXPORTED FROM NEW ZEALAND DURING THE YEAR ENDED 31ST DECEMBER, 1946

Fish and Shell-fish imported

Kind of Fish.	Quantity.	Value.
		£(N.Z.)
Herrings (tinned)	317,581 lb.	21,525
Other kinds (tinned)	1,023 lb.	478
Other fish, smoked, dried, or salted ..	208 cwt.	3,956
		25,959

Fish and Shell-fish exported

Kind of Fish.	Exporting Ports.	Quantity.	Value.
			£(N.Z.)
Oysters, fresh	Auckland	400 doz.	14
	Other ports	85,000 doz.	2,805
	Total ..	85,400 doz.	2,819
Blue cod, frozen	Auckland	7 cwt.	39
	Wellington	57 cwt.	373
	Dunedin	2,500 cwt.	12,533
	Other ports	5,672 cwt.	29,660
	Total ..	8,236 cwt.	42,605
Flounder, frozen	Auckland	35 cwt.	230
	Wellington	254 cwt.	1,541
	Dunedin	494 cwt.	2,845
	Other ports	118 cwt.	692
	Total ..	901 cwt.	5,308
Snapper, frozen	Auckland	105 cwt.	507
	Wellington	739 cwt.	5,507
	Total ..	844 cwt.	5,584
Tarakihi, frozen	Auckland	22 cwt.	67
	Wellington	1,842 cwt.	10,567
	Dunedin	22 cwt.	106
	Total ..	1,886 cwt.	10,740
Red cod, frozen	Auckland	6 cwt.	31
	Wellington	166 cwt.	850
	Dunedin	1,011 cwt.	2,960
	Other ports	224 cwt.	677
	Total ..	1,407 cwt.	4,518
Hapuku, frozen	Wellington	15 cwt.	96
	Dunedin	464 cwt.	2,487
	Other ports	218 cwt.	1,169
	Total ..	697 cwt.	3,752
Barracouta, frozen	Wellington	796 cwt.	4,058
	Dunedin	2,227 cwt.	7,794
	Other ports	1,802 cwt.	6,312
	Total ..	4,825 cwt.	18,164

Fish and Shell-fish exported—continued

Kind of Fish.	Exporting Ports.	Quantity.	Value.
			£(N.Z.)
Sole, frozen	Dunedin	2,455 cwt.	13,188
	Other ports	879 cwt.	4,786
	Total	3,334 cwt.	17,974
Crayfish, frozen	Auckland	50 cwt.	267
	Wellington	816 cwt.	4,183
	Dunedin	621 cwt.	3,005
	Total	1,487 cwt.	7,455
Other kinds*, frozen	Auckland	37 cwt.	230
	Wellington	3,484 cwt.	18,055
	Dunedin	1,245 cwt.	5,885
	Other ports	802 cwt.	3,431
	Total	5,568 cwt.	27,601
Total export of frozen fish (including crayfish) from New Zealand		29,185 cwt.	146,520
Smoked, dried, pickled, or salted	Auckland	247 cwt.	1,347
	Wellington	300 cwt.	2,018
	Lyttelton	1 cwt.	20
	Dunedin	1,310 cwt.	7,926
	Other ports	744 cwt.	3,966
	Total	2,602 cwt.	15,277
Preserved in tins— Oysters	Auckland	11,615 lb.	930
	Wellington	105 lb.	9
	Other ports	165 lb.	10
	Total	11,885 lb.	949
Whitebait	Auckland	96,583 lb.	17,114
	Wellington	116,945 lb.	23,445
	Lyttelton	21,431 lb.	4,576
	Dunedin	52,068 lb.	9,615
	Total	287,027 lb.	54,750
Toheroa	Auckland	5,014 lb.	390
	Wellington	94 lb.	9
	Total	5,108 lb.	399
Mussels	Auckland	37,379 lb.	2,178
Crayfish	Auckland	8,568 lb.	1,185
	Wellington	9,216 lb.	755
	Dunedin	15,688 lb.	2,309
	Total	33,472 lb.	4,249

* Includes mussels, 50 cwt., value, £326; whitebait, 30 cwt, value, £567.

Fish and Shell-fish exported—continued

Kind of Fish.	Exporting Ports.	Quantity.	Value.
Clam chowder	Auckland	70,241 lb.	£(N.Z.) 3,759
Other kinds	Auckland	132 lb.	14
	Dunedin	4,800 lb.	320
	Total ..	4,932 lb.	334
Value of total exports of New Zealand fish and shell-fish	..	..	231,234
Re-exports: Smoked, dried, or salted	Lyttelton	5 cwt.	125

TABLE X.—RETURN OF LAND ENGINEERS', ENGINE-DRIVERS', AND ELECTRIC-TRAM DRIVERS' EXAMINATIONS HELD THROUGHOUT NEW ZEALAND DURING THE YEAR ENDED 31ST MARCH, 1947, SHOWING THE NUMBER OF SUCCESSFUL AND UNSUCCESSFUL CANDIDATES

Place.	Extra First-class stationary Engineer.		First-class Engine-driver.		Second-class Engine-driver.		Locomotive and Traction Engine Driver.		Locomotive-engine Driver.		Traction-engine Driver.	
	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.
Auckland	..	..	9	10	41	11	1	..	2	..	1	..
Christchurch	..	..	4	..	29	2	..	..	..	..	2	..
Dunedin	..	..	4	2	15	4	5	..	..	..	..	..
Gisborne	..	..	..	..	6	1	..	..	..	..	..	..
Greymouth	..	..	2	..	8	1	2	..	2	..	1	..
Hamilton	..	..	4	2	20	7	2	..	..	..	..	..
Invercargill	..	..	2	3	16	..	2	..	..	..	..	..
Napier	..	..	..	1	8	4	..	..	..	..	..	..
Nelson	..	..	..	..	3	1	..	..	..	..	..	..
New Plymouth	..	..	1	..	39	8	1	..	..	..	..	..
Palmerston North ..	..	..	3	1	9	5	..	..	..	..	..	..
Timaru	..	..	..	1	5	..	..	..	..	..	1	..
Wanganui	..	..	..	..	7	2	..	1	..	..	..	..
Wellington	..	..	8	4	23	12	..	..	1	..	1	..
Whangarei	..	..	1	..	1	..	1	1	..	..	..	..
Other places	..	..	..	..	5	3	..	..	1	..	..	..
Totals	..	..	38	24	235	61	14	2	6	..	6	..

Place.	Steam-winding-engine Driver.		Electric-winding-engine Driver.		Electric-tram Driver.		Electric-tram Driver (one-man Car)		Cable-tram Drivers.		Total.		Grand Total.
	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	
Auckland	..	..	..	..	103	5	..	..	..	..	157	26	183
Christchurch ..	..	..	..	..	83	..	..	..	..	..	118	2	120
Dunedin	..	..	..	..	21	..	..	..	..	..	45	6	51
Gisborne	..	..	..	..	..	..	..	..	..	..	6	1	7
Greymouth	..	..	2	..	..	..	..	..	..	..	17	1	18
Hamilton	1	..	..	..	..	..	..	..	..	..	27	9	36
Invercargill	..	..	..	..	..	..	4	..	..	..	24	3	27
Napier	..	..	..	..	..	..	..	..	..	..	8	5	13
Nelson	..	..	..	..	..	..	..	..	..	..	3	1	4
New Plymouth ..	..	..	..	..	11	..	..	..	..	..	52	8	60
Palmerston North ..	..	..	..	..	..	..	..	..	..	..	12	6	18
Timaru	..	..	..	..	..	..	..	..	..	..	6	1	7
Wanganui	..	..	..	..	..	..	5	1	..	..	12	4	16
Wellington	..	..	..	..	79	1	..	..	3	..	115	17	132
Whangarei	..	..	..	..	..	..	..	..	..	..	3	1	4
Other places	..	..	..	..	..	..	..	..	..	..	6	3	9
Totals	1	..	2	..	297	6	9	1	3	..	611	94	705

TABLE XI.—SUMMARY OF EXAMINATIONS FOR CERTIFICATES AS MASTERS AND MATES FOR THE YEAR ENDED 31ST MARCH, 1947

Class of Certificate.	Auckland.				Wellington.				Totals.				Total Examinations.
	P.	P.P.	F.	P.F.	P.	P.P.	F.	P.F.	P.	P.P.	F.	P.F.	
Foreign-going Masters and Mates	32	19	1	7	13	4	..	5	45	23	1	12	81
Home-trade Masters and Mates	12	..	1	..	6	1	..	..	18	1	1	..	20
River Masters	10	..	3	..	2	..	1	..	12	..	4	..	16
Examinations in Compass Deviation	6	..	5	..	1	..	1	..	7	..	6	..	13
Square-rigged Endorsements	1	..	1	..	1	..	..	..	2	..	1	..	3
Fore and Aft Endorsements ..	..	..	..	..	1	..	..	..	1	..	..	..	1
New Zealand Pilots ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	61	19	11	7	24	5	2	5	85	24	13	12	134

TABLE XII.—SUMMARY OF EXAMINATIONS OF MARINE ENGINEERS FOR THE YEAR ENDED 31ST MARCH, 1947

Class of Certificate.	Auckland.				Wellington.				Christchurch.				Dunedin.				Other Places.		Totals.				Grand Total.
	P.	P.P.	F.	P.F.	P.	P.P.	F.	P.F.	P.	P.P.	F.	P.F.	P.	P.P.	F.	P.F.	P.	F.	P.	P.P.	F.	P.F.	
IMPERIAL VALIDITY																							
1st and 2nd Class Steam	4	10	1	8	15	25	..	26	..	3	..	4	..	..	..	2	..	..	19	38	1	40	98
1st and 2nd Class Motor	..	..	..	..	10	1	..	1	1	..	..	..	..	..	..	..	..	..	11	1	..	1	13
1st and 2nd Class Steam Endorsement	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	2
1st and 2nd Class Motor Endorsement	..	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	6
	5	10	1	9	31	26	..	27	1	3	..	4	..	..	..	2	..	..	37	39	1	42	119
VALID IN NEW ZEALAND ONLY																							
3rd Class Steam	26	..	14	..	45	..	13	..	4	..	2	..	12	..	4	..	..	..	87	..	33	..	120
River Steam ..	14	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	15	..	1	..	16
1st and 2nd Coastal Motor	10	..	..	..	5	..	..	..	1	..	..	..	..	..	..	..	..	..	16	..	..	..	16
River Oil ..	31	..	3	..	8	..	1	..	2	..	..	..	2	..	..	..	27	2	70	..	6	..	76
	81	..	18	..	58	..	14	..	7	..	2	..	14	..	4	..	28	2	188	..	40	..	228
Totals ..	86	10	19	9	89	26	14	27	8	3	2	4	14	..	4	2	28	2	225	39	41	42	347

TABLE XIII.—SUMMARY OF CASUALTIES TO SHIPPING REPORTED TO THE MARINE DEPARTMENT DURING THE YEAR ENDED 31ST MARCH, 1947

Nature of Casualty.	On or near Coasts of Dominion.			Outside 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 ..	1	88	..	..	..	..	1	88	..
Damaged ..	5	5,807	..	..	..	..	5	5,807	..
Undamaged ..	3	7,178	..	..	..	..	3	7,178	..
	9	13,073	..	..	..	..	9	13,073	..
Fires—									
Total loss ..	..	..	..	..	..	..	..	..	..
Damaged ..	1	50	..	..	..	..	1	50	..
Undamaged ..	..	..	..	..	..	..	..	..	..
	1	50	..	..	..	..	1	50	..
Collisions—									
Total loss ..	..	..	..	..	..	..	..	..	..
Damaged ..	5	199	..	..	..	..	5	199	..
Undamaged ..	2	987	..	..	..	..	2	987	..
	7	1,186	..	..	..	..	7	1,186	..
Miscellaneous, including damage by heavy seas, breakdown of machinery, &c.	6	13,540	..	1	3,117	..	7	16,657	..
Totals	23	27,849	..	1	3,117	..	24	30,966	..

Approximate Cost of Paper.—Preparation, not given; printing (668 copies), £150.

By Authority: E. V. PAUL, Government Printer, Wellington.—1947.

Price 1s. 3d.]