1929.

NEW ZEALAND.

MARINE DEPARTMENT.

ANNUAL REPORT FOR 1928–29.

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

YOUR EXCELLENCY,— Marine Department, Wellington, 30th July, 1929.

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

I have, &c.,
JOHN G. COBBE,
Minister of Marine.

His Excellency General Sir Charles Fergusson, Bart., LL.D., G.C.G., K.C.B., D.S.O., M.V.O., Governor-General of New Zealand.

REPORT.

The SECRETARY, MARINE DEPARTMENT, to the Hon. the MINISTER OF MARINE.

SIR,— Marine Department, Wellington, 25th July, 1929.

I have the honour to submit the annual report on the operations of the Marine Department for the financial year ended 31st March, 1929.

FINANCIAL.

The Department's cash position shows a considerable improvement on last year's figures, the surplus of receipts over payments being £4,697 for 1927–28 and £28,728 for 1928–29. The following comparative statements of receipts and payments for the past eight years are interesting, in that they show that the Cash Account has risen from a deficit of £78,000 in 1921–22 to a surplus of £28,728 in 1928–29.

Receipts.

Branch.	1921–22.	1922–23.	1923–24.	1924–25.	1925–26.	1926–27.	1927–28.	1928–29.
	£	£	£	£	£	£	£	£
Shipping Branch—								
Light dues	41,311	39,689	76,868	80,469	78,709	82,082	80,763	80,309
Engagements, discharges, &c.	3,968	4,108	4,027	4,155	4,532	4,074	3,658	3,427
Survey fees	3,354	3,202	4,666	5,027	5,750	5,310	4,957	5,137
Examination fees ..	586	396	370	417	431	379	322	272
Miscellaneous receipts ..	1,076	1,288	1,331	1,174	823	449	461	328
Harbours—								
Pilotage, port charges, &c.	648	765	769	843	871	934	1,768	1,971
Foreshore revenue ..	1,175	1,131	2,904	4,579	5,374	6,041	5,781	5,613
Fisheries—								
Sale of oysters	7,763	7,702	7,356	8,395	10,205	8,345	7,315	6,931
Sundry receipts	324	324	926	667	804	738	779	732
Inspection of Machinery—								
Inspection of boilers, &c.	13,102	17,300	16,568	18,417	17,289	19,136	19,969	19,473
Examination fees ..	602	618	635	649	568	464	425	354
Tramways Act—								
Examination fees ..	57	49	104	84	91	92	73	49
Ross Sea Revenue ..	..	..	200	200	1,721	2,921	7,177	13,962
Miscellaneous Receipts ..	..	..	653	307	2,278	2,519	327	382
Totals	73,696	76,572	117,377	125,383	129,446	133,484	133,775	138,940

Payments (Net Vote).

Branch.	1921–22.	1922–23.	1923–24.	1924–25.	1925–26.	1926–27.	1927–28.	1928–29.
	£	£	£	£	£	£	£	£
Head Office	*	9,169	8,433	9,378	9,148	9,687	9,214	9,269
Harbours	5,194	4,216	6,279	3,911	3,862	4,338	7,882	3,739
Lighthouses	37,085	27,734	25,503	26,018	26,038	25,273	24,119	23,441
Meteorological Office ..	3,909	5,314	5,671	6,009	6,007	..	..	..
Mercantile Marine ..	12,632	11,901	13,422	14,262	15,413	14,813	15,087	15,128
Inspection of Machinery ..	27,492	25,279	24,821	24,714	26,181	28,294	27,045	26,942
Fisheries	13,784	10,456	10,792	12,539	15,351	14,922	14,238	13,030
Government Steamers ..	34,184	19,675	21,155	19,956	18,642	21,215	19,638	17,580
Miscellaneous Services ..	17,415	3,460	1,573	2,676	1,359	1,240	1,855	1,083
Totals	151,695	117,204	117,649	119,463	122,001	119,782	119,078	110,212

* It was formerly the practice to include Head Office expenditure under miscellaneous services.

It will be observed that the receipts have increased from £73,696 in 1921–22 to £138,940 in 1928–29, while the payments have decreased from £151,695 in 1921–22 to £110,212 in 1928–29. Thus by an increase of £65,244 in receipts and a decrease of £41,483 in payments the Department has improved its cash position to the extent of £106,727 in seven years.

Turning to the Income and Expenditure Account, which is the really reliable index of the Department's financial position, the figures for the past four years in comparison with 1922–23 are as follows :—

Branch.	1922–23.	1925–26.	1926–27.	1927–28.	1928–29.
		Revenue.			
Shipping Branch—	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Light dues	39,688 16 8	82,875 6 3	81,064 9 8	81,247 11 8	80,979 13 11
Engagement and discharge fees	3,179 11 0	3,664 15 3	3,124 13 3	2,790 2 6	2,583 2 9
Survey fees	3,095 9 0	6,137 16 11	5,371 7 8	5,144 7 6	5,123 8 6
Examination fees ..	395 12 6	429 10 0	379 5 0	321 5 0	268 8 0
Miscellaneous	1,289 0 4	823 14 3	505 18 3	427 5 11	296 6 11
Harbours—					
Pilotage, port charges, &c.	764 14 6	870 11 8	920 17 1	1,801 18 10	1,998 18 5
Foreshore revenue ..	1,126 14 1	5,704 2 4	5,988 17 4	6,212 2 3	5,582 0 5
Inspection of Machinery—					
Inspection fees, &c. ..	17,126 19 0	18,005 8 10	19,531 8 3	19,549 16 9	19,922 9 4
Examination fees ..	667 0 0	657 5 0	556 4 0	497 5 0	402 5 0
Fisheries—					
Net profit from sale of oysters	2,546 9 6	2,517 3 11	1,347 11 7	1,003 17 11	1,160 0 11
Fishing-boat license fees, &c.	324 9 6	575 5 4	629 15 9	845 0 1	542 0 6
Rental of toheroa-beds ..	10 0 0	300 0 0	300 0 0	300 0 0	300 0 0
Government Steamers—					
Freight, passage-money, &c.	1,785 0 7	3,185 17 8	5,134 9 6	1,458 9 2	4,046 7 3
Ross Sea Revenue	..	1,720 12 6	2,921 5 0	7,176 15 0	13,961 17 6
Miscellaneous Revenue ..	2,800 11 4	1,818 1 10	1,693 12 2	1,616 3 7	2,719 13 3
Totals	74,800 8 0	129,285 11 9	129,469 14 6	130,392 1 2	139,886 12 8
		Expenditure.			
Head Office	9,612 2 8	9,626 13 9	10,007 16 10	9,721 15 2	9,397 4 4
Harbours	4,826 13 2	4,295 13 3	3,938 6 0	7,790 0 0	4,059 18 4
Lighthouses	26,995 19 5	24,220 2 2	24,157 5 4	24,266 9 2	23,919 13 11
Meteorological	5,374 0 3	6,124 12 6	..	..	..
Mercantile Marine	15,150 17 11	24,626 5 5	25,021 18 8	24,792 14 9	25,266 9 2
Inspection of Machinery ..	27,015 0 0	20,793 2 9	22,288 13 8	21,842 2 1	21,573 2 7
Fisheries	4,545 3 2	3,179 2 6	3,385 5 11	3,389 19 10	3,281 12 10
Government Steamers ..	21,697 19 6	24,309 19 11	22,605 0 4	20,733 16 9	21,559 12 3
Miscellaneous Services ..	2,655 3 8	2,189 17 10	2,861 17 4	2,161 11 7	2,146 4 0
Grants and Subsidies ..	1,510 0 0	540 0 0	290 0 0	594 0 0	260 0 0
Depreciation	8,035 4 9	8,862 19 6	9,032 5 3	9,158 5 10	9,662 2 8
Interest on Capital ..	15,716 7 3	17,811 11 0	18,005 6 0	18,119 18 0	17,285 17 5
Totals	143,134 11 9	146,580 0 7	141,593 15 4	142,570 13 2	138,411 17 6

During the year under review the Department, for the first time, succeeded in showing a surplus after allowing for depreciation and interest on capital. The following statement sets out the financial result of each of the past eight years, both before and after the payment of interest on capital:—

Year.	Before paying Interest on Capital.			After paying Interest on Capital.			
		£	s.	d.		£	s.	d.
1921–22	Deficiency	74,146	4	2	Deficiency	95,153	14	11
1922–23	,,	53,456	11	3	,,	69,172	18	6
1923–24	,,	9,759	8	1	,,	27,231	4	9
1924–25	,,	2,144	4	11	,,	19,882	0	6
1925–26	Surplus	517	2	2	,,	17,294	8	10
1926–27	,,	5,881	5	2	,,	12,124	0	10
1927–28	,,	5,941	6	0	,,	12,178	12	0
1928–29	,,	17,531	8	1	Surplus	1,474	15	2

Westport Harbour.

The following are the receipts and payments in respect of Westport Harbour for the past eight years:—

Year.	Receipts. £	Payments. £
1921–22	31,412	75,642
1922–23	44,020	50,303
1923–24	44,126	44,588
1924–25	49,566	40,949
1925–26	56,920	49,876
1926–27	63,181	46,907
1927–28	65,697	69,108
1928–29	63,933	72,034

The receipts have increased from £31,412 in 1921–22 to £63,933 in 1928–29, and the payments have decreased from £75,642 in 1921–22 to £72,034 in 1928–29, which means that a net annual improvement of £36,129 has been achieved as between 1921–22, when the Department took control of the port, and 1928–29. In this connection it must be borne in mind that during 1928–29 some of the items included under the heading of payments were of a special nature. I refer particularly to the following: Protective works, £8,744; special overhaul of and fitting new pumps to the suction dredge "Eileen Ward," £4,943.

With regard to the Income and Expenditure Account, owing to the heavy expenditure on protective works and the employment of an additional suction dredge it was necessary to transfer the sum of £4,657 7s. 6d. from harbour-maintenance reserve towards the cost of the special overhaul of the suction dredge "Eileen Ward," which, as mentioned above, amounted to £4,943. During this overhaul a good deal of expensive work was done which will not be required again during the life of the dredge.

The amount advanced by the Treasury to the Westport Harbour Account in earlier years when the harbour was running at a loss was £106,884 16s. 1d. The Department was in a position to repay £30,000 of this amount during the year, thus reducing the indebtedness to the Treasury to £76,884 16s. 1d.

The following statement shows the net tonnage of shipping which entered the port, the tonnage of coal exported, and the financial result for each year since the Department has had control of the port:—

Year.	Net Tonnage of Shipping entered.	Tonnage of Coal exported.	Financial Result.			
				£	s.	d.
1921–22	273,706	480,873	Deficiency	38,113	2	7
1922–23	332,401	573,487	,,	12,038	9	4
1923–24	275,762	442,070	,,	4,333	14	7
1924–25	334,827	556,669	Surplus	5,711	17	0
1925–26	386,669	552,949	,,	5,630	8	0
1926–27	459,670	637,165	,,	10,207	1	4
1927–28	466,021	623,256	,,	81	6	6
1928–29	458,712	604,778	Deficiency	4,657	7	6

From this statement it will be seen that the operations of the past five years have resulted in an average annual surplus of £3,394 13s. 1d.

There was no apparent cause for the decrease in coal-export apart from the usual trade fluctuations.

The bunkering trade continues to show a steady increase, the number of vessels having called for bunker coal during the past four years being as follows: 1925–26, 20; 1926–27, 44; 1927–28, 51; 1928–29, 54.

The coal-mining situation in New South Wales offered an excellent opportunity of increasing our export trade, and in the month of May had indeed resulted in the shipment of over 18,000 tons direct to Australia. The earthquake in June, however, disorganized both coal output and railage from the mines to the port, with the result that there was a serious falling-off in coal-output, but the position is gradually reverting to normal.

From an engineering viewpoint the past year has been a somewhat critical time for this harbour. In the earlier portion of the year the entrance was far from satisfactory, and the two suction dredges "Eileen Ward" and "Rubi Seddon" have been kept steadily at work, and for the latter portion of the year the position materially improved. In view of the necessity for definitely determining the underlying causes for the shoaling of the bar, a Resident Harbour Engineer was appointed, and has been very fully employed in such investigations. The information obtained indicates that the main cause of the shoaling on the bar is due to coastal drift of sand which has been deposited adjacent to the breakwaters.

To cope with this more effectively it has been decided to extend both the breakwaters another 250 ft., when it is anticipated better results will be obtained with less dredging. The present dredging expenditure is excessive, and is getting beyond the resources of our revenue.

During the period 690,230 cubic yards have been dredged from the bar by the "Eileen Ward" and the "Rubi Seddon." The bucket dredge "Maui" was employed for the whole year in the berthage area, and removed 184,597 cubic yards of material.

The depths at the Crane Wharf berthages were maintained to approximately 25 ft. at low water, ordinary spring tides, and a large quantity of material was dredged from the shoaling opposite the old Staiths Wharf and the Merchandise Wharf. A great deal of siltation takes place in these areas owing to the large amount of material brought down by freshes, but a reasonable depth has been maintained throughout the year.

The Priestman grab has been employed removing snags in the upper river, and also in the Western Lagoon, where it is hoped to increase the tidal compartment.

The protection work at Organ's Island was carried to completion during the year. The whole of the western side of the island, 55 chains in length, has been faced with rock, and a training-wall 8½ chains in length constructed on the down-stream end of the rock facing. A total of 27,665 tons of rock was used in this work, of which 21,765 tons were placed during the twelve months.

The willow plantations at Hannah's erosion have been fenced off and additional willows planted as required.

The Cape Foulwind quarry has been in operation for the greater part of the year, a total of 26,765 tons having been quarried and transported to the protection works at Organ's Island, the Western Breakwater, and for the Railway Department's use.

During the year the plant and buildings have been well maintained. The "Eileen Ward" and the "Maui" were sent to Wellington for annual overhaul, and the steam tug "Mana" and the launch "Erlin" were slipped and painted.

It may be mentioned that the bucket dredge "Maui" has now been purchased from the Gisborne Harbour Board at a cost of £16,000. Experience has proved that a bucket dredge has now become a requirement of the port, and now that the Department owns such a tool it will enable dredging to be carried out at a considerably lower cost than was the case when a dredge had to be hired.

Harbour Board's Special Legislation.

Lyttelton Harbour Board Loan Enabling.—This Bill conferred upon the Board the power conferred upon local authorities by section 32 of the Local Bodies' Loans Act, 1926—that is, to borrow on the table-mortgage system, which offers advantages over the sinking-fund method of repayment.

Napier Borough and Napier Harbour Board Enabling.—This Bill dealt with the following matters:—

(*a*) It authorized the Borough Council to enter into an agreement with the Harbour Board to raise a certain area of land, an endowment of the Board, and to road and subdivide it and bring it into use for residential purposes; to allocate the cost of the work as between the Board and the Borough Council; and as to the leasing of the land by the Board:

(*b*) It authorized the inclusion of this area, and another reclaimed area of Harbour Board endowment, in the Borough of Napier, and their exclusion from the Hawke's Bay County:

(*c*) It increases from 50 to 92 acres the area of harbour endowment on the reclamation of which the Board was by its Act of 1927 authorized to expend certain raised but unexpended loan-moneys.

Whakatane Harbour Amendment.—This Bill dealt with the following matters:—

(*a*) It redivided the existing harbour district into subdivisions, and authorized the Board by special order to alter the subdivisions from time to time:

(*b*) It reallocated the elective membership of the Board consequent on the redivision of the district.

Whangarei Harbour Board Vesting.—This Bill dealt with the following matters:—

(*a*) It vested the control and management of Ngunguru Harbour in the Board:

(*b*) It vested in the Board, as harbour endowments, certain reserves in the harbour district.

Harbour-works.

Karamea Harbour.—During the past year the preliminary work in connection with the reconstruction of the breakwater has been practically completed, and a start made to place stone along the line of the training-wall.

The laying of the tramway from the quarry to the outer end of the training-wall was completed. This included the ballasting of the track for a distance of 1 mile 50 chains; erection of 280 ft. of trestle from the end of the tram-line to the beginning of the training-wall; cutting down and recapping the old training-wall; and erecting stringers and laying rails a total distance of 15 chains.

The plant, consisting of petrol-locomotive and trucks, portable engine and compressor and 5-ton crane, came to hand early in the year, and a locomotive-shed and two extra workers' cottages were erected.

The opening-up of the quarry is well in hand, the work involved being increased by slips from above the high rock-face. It was found necessary to pass round a blunt spur of comparatively soft rock before tapping the outcrop of harder material farther up the Oparara River, and quarrying operations to the end of the year were confined thereto.

The recent disastrous earthquake has caused severe damage to the training-wall, and will involve considerable alteration to the staging and a probable increase in the amount of stone required.

Waikokopu Harbour.—Some time ago the old hulk "Talune" was sunk to form an experimental breakwater in order to provide shelter at the wharf. This hulk has been broken up by the heavy seas experienced here, but it lasted long enough to demonstrate that given similar shelter vessels could load and unload at the wharf under conditions where formerly they could not have approached the wharf. In view of this funds were provided for the construction of a stone breakwater, 5 chains long, and a contract has been let accordingly.

In order to carry out this contract it has been necessary to construct two miles and a half of tramway up the Tahaenui Valley, leading off the Waikokopu line, to obtain stone. A number of 20-ton trucks have been built, the quarry has been opened up, the installation of a crane, air-compressor, and other plant completed, and work should now proceed expeditiously.

The existing works have been adequately maintained, and the wiring of the Harbour Board's shed and wharf for electric light for future use with standard voltage has been carried out, and is now in use, in conjunction with a small lighting plant.

Karaka Point Wharf.—During the year all the timber and materials were landed on the site, and a contract let for erection. The work is now practically complete.

Raupo Ferry Slip Extension.—This work was completed early in the year, and can now operate in conjunction with the Tikinui Ferry Slip across the river.

Rawene Launch-landing and Motor-landing.—A contract for the construction of the pontoon landing and steps, together with ramp landing for cars, was let early in the year. The bulk of the work is now done, and it should be completed very shortly.

Tinopai Wharf.—A contract has been let for the erection of this wharf.

Totara Wharf.—A contract was let for the erection of this wharf in New Zealand timbers, and was completed, together with approaches, early in the year.

Whangaroa Wharf.—This reinforced-concrete wharf has been completed during the period, with a shed and cold store; the approaches were faced with rock.

Half-moon Bay Wharf, Stewart Island.—During the year an extension of 51 ft. long by 31 ft. wide was completed; the approach to the wharf was also widened and strengthened by fitting additional bracing.

Miranda Wharf.—This structure, consisting of a wharf and jetty of a total length of 105 ft. 6 in., a galvanized-iron shed, and three retaining-walls, was completed during the period.

Matakana Wharf.—This wharf, which is of reinforced concrete, 1,440 sq. ft. in area, and carrying a shed with a floor-area of 720 ft., was erected during the year.

Whangamata Wharf.—All the timber has been delivered for this wharf, and arrangements are in hand for its erection.

Howick Wharf.—Extensive repairs were carried out at this wharf.

Lighthouses.

North Cape Lighthouse.—This light, which consists of an automatic flashing outfit mounted on a concrete base, was erected during the period. The flasher is of the open-flame type, and is contained in an 800 mm. catadioptric lens, the whole being enclosed in a lantern-house and fitted with sun-valve. This light is visible for about seventeen miles in clear weather, and marks the turning-point in the courses of vessels proceeding round the northern portion of the North Island.

Manukau South Head.—This light was converted from a watched oil-burning light to an automatic acetylene outfit; the original lens and lantern-house have been retained, but the range has been reduced to about sixteen miles. This will result in a saving of several hundred pounds per annum.

Honeycomb Rock (commonly known as Kahau Rocks).—The erection of this light, which is of the Dalen automatic type, was completed, and the light exhibited in June. Its main purpose is to mark the position of the group of off-shore rocks in this locality. Owing to the great construction difficulty of building on the rocks themselves, the lighthouse has been erected on a prominent point on the foreshore and the exact position of the rocks defined by a red sector. The light itself consists of a 300 mm. catadioptric lens drum fitted with a Dalen incandescent burner with automatic mantle-exchanger and sun-valve. The apparatus is lodged in a lantern-house with cast-iron murette for the storage of the gas-accumulators, and is built on a concrete base on the top of what is locally known as the Honeycomb Rock, at a height of approximately 80 ft.

Cape Egmont.—The existing watched light at this station is one of the older fixed type, being one of the earliest provided by the service. The growth of motor traffic on the adjacent roads and the increasing number of electric lights in the locality make it difficult for shipmasters to quickly and surely pick up the fixed light at this station. It was therefore decided to provide a completely new and up-to-date revolving light giving a triple flash. The apparatus has now been received, and it is anticipated that the installation will shortly be completed.

Baring Head Lighthouse.—At present the entrance to Wellington Harbour is marked by two lights, one a second-order oil-burning watched light at an elevation of 322 ft., maintained by the Department, and the other a low-level Wigham light maintained by the Wellington Harbour Board. For some time past it has been felt that it would be much better if the existing Harbour Board light was strengthened and the Department's light shifted to Baring Head. As a situation for a coastal light Baring Head has a distinct advantage over Pencarrow, and arrangements are in hand to give effect to this policy, provision being made on this year's estimates accordingly.

Godley Head.—A new lightkeeper's cottage has been built at this station, and plans are in hand for the conversion of the light itself to automatic operation. The present light is a fixed one, and in these days of universal electric lighting and the use of powerful headlights on motor-cars it is necessary to provide a light which has a distinct flashing characteristic, to avoid any chance of confusing it with other lights in the vicinity. It is mainly for this reason that the conversion is being made.

Tory Channel Leading-lights.—An order has been placed for the necessary apparatus to convert these lights, which are at present oil-burning, to automatic acetylene operation.

Tory Channel Light on West Head.—Specifications have been prepared and an order placed for the supply of a 300 mm. lens with open-flame burner, sun-valve, &c., for erection on the West Head at the entrance of Tory Channel. At the present time difficulty is sometimes experienced in picking up the entrance in thick weather owing to the leading-lights being visible over a small arc only. It is anticipated that the provision of this additional light will be of considerable assistance in picking up the leading-lights and in coastal navigation generally.

Jack's Point.—It is proposed to install a new lens at this station, and an automatic open-flame flashing burner with sun-valve, and orders have been placed for the necessary apparatus.

Wireless at Lighthouses.—The Department now has fully-equipped transmitting and receiving stations at Cape Maria van Diemen, Stephen Island, and Puysegur Point, and it is proposed to install another station at Portland Island. It is interesting to note that the keepers own twenty-seven receiving sets located at eighteen stations.

Lighthouse-vessel.—Tenders were received for the building of a new lighthouse-ship to replace the "Tutanekai." Considerable negotiation over details has been necessary, but the Department was unable to finalize the contract with the firm whose tender was provisionally accepted. Negotiations are now in progress with another tenderer.

Inspection and Adjustment of Ships' Compasses.

During the year 183 compass adjustments were performed, and these were inspected by the Department's Compass Inspectors.

Marine Casualties.

A normal number of shipping casualties, the majority of which were of comparatively slight importance, have occurred during the past year. These embrace collisions with wharves, strandings, fires, founderings, &c. Those worthy of reference are the following: Three totally lost by stranding—the auxiliary schooner "Zingara," at Hokitika, Westland; the scow "Herald," at Flat Rock, Hauraki Gulf; and the trawler "Thomas Bryan," at Port Charles, Coromandel Peninsula. Three ships foundered owing to stress of weather—the scow "Maggie," at Auckland Harbour; the ketch "Glenae," at Hauraki Gulf; and the auxiliary schooner "Elsie Mary," at Bay of Plenty. The auxiliary ketch "Isabella de Fraine" capsized when entering Hokianga Harbour. It appears this regrettable casualty occurred owing to the ship being overwhelmed whilst negotiating the bar at the entrance to the harbour. The ship and her crew, comprising eight persons, were lost.

The collision cases were confined to harbours, and no collisions occurred at sea.

The influence of fog on the safety of ships in a locality in which fogs infrequently occur became pronounced on the night of 8th December last, when a dense fog existed in the locality of Cook Strait. This fog accounted for the stranding of three coastal ships. Fortunately the sea was fairly smooth, and only slight damage was caused to the stranded ships.

Magisterial inquiries were held in connection with ten casualties, six of which were strandings, two collisions between ships, one a total loss by capsizing, and one a missing launch.

"Notices to Mariners" and Navigational Warnings.

The distribution of navigational information of importance to shipping has been carried out as found desirable.

The fact that so many of our ships are now fitted with wireless telegraphy has been of invaluable assistance in sending urgent warnings to ships at sea.

Fifty "Notices to Mariners" had reference to navigation on New Zealand coasts and harbours, ten to navigation within the Commonwealth of Australia, and sixteen to the navigation of ships trading to and from New Zealand. "Notices to Mariners" are exchanged internationally, in which this Dominion suitably reciprocates.

Correction and Sale of Admiralty Charts.

The importance of mariners procuring up-to-date charts cannot be too strongly urged, as the value of a chart used for navigation must manifestly depend upon its accuracy and the inclusion thereon of the many corrections to which the chart has been subjected to subsequent to the survey. Many corrections to charts occur during the course of a year, and in all cases the charts when issued from Head Office at Wellington are corrected up to the date of their issue.

During the past year approximately 1,000 Admiralty charts were distributed for sale purposes to this Department's branch offices at the main ports within New Zealand.

Radio Direction-finding for Navigational Purposes.

The use of radio-beacons has been considerably extended, and there are many of these "aids" installed at salient points on the coasts of North America and Europe, and a few elsewhere. A considerable number of large ships are now equipped with a radio direction-finder so as to enable them to make use of adjacent radio-beacons during their voyages.

The development of the radio-beacon has resulted in the adoption of the valve system of transmission, the spark system being largely discarded; and some of these beacons recently installed on the coasts of England are operated automatically, and are giving efficient service to a large number of ships.

In this Dominion one spark-system radio-beacon was installed at Cape Maria in November, 1926, owing to a popular desire that a fog-signal should be provided to serve the locality of Three Kings Islands. This radio-beacon has operated continuously during foggy weather since its installation. It has satisfied the purpose for which it was installed, but it has not been extensively made use of, as few ships passing that locality are equipped with a radio direction-finder to enable them to make use of the service provided by the radio-beacon.

Appropriation was made for the installation of radio-beacons at Wellington and Lyttelton, but, in view of the few ships which are fitted with complementary equipment and the rapid development taking place, it is considered the money would be better spent in the meantime in improving existing lighthouses and providing further lights.

Examination of Masters and Mates.

The total number of examinations held in this Dominion for certificates of competency as master and as mate, and for certificate-holders who desired to have their certificates endorsed as having passed the voluntary examination in compass-deviation, was sixty-nine. Eight of these examinations were for certificates for restricted-limits ships.

The number of examinations held during each of the past ten years were: In 1919–20, 118; 1920–21, 107; 1921–22, 104; 1922–23, 91; 1923–24, 69; 1924–25, 105; 1925–26, 133; 1926–27, 96; 1927–28, 87; 1928–29, 69. From this it will be seen that the number of candidates each year varies considerably.

Twenty-one candidates were successful in passing their examination on first attempt—this number for last year, and the previous year also, being twenty-five. One candidate for the higher examination as extra master sat three times (unsuccessfully), and four succeeded in passing the voluntary examination in compass-deviation.

The proportion of passes to the total number of examinations held during the past ten years were: 63 per cent. in 1919–20, 50 per cent. in 1920–21, 53 per cent. in 1921–22, 43 per cent. in 1922–23, 51 per cent. in 1923–24, 46 per cent. in 1924–25, 34 per cent. in 1925–26, 38½ per cent. in 1926–27, 49½ per cent. in 1927–28, and 56½ per cent. in 1928–29.

Periodical changes in the syllabus tend to make the examinations more difficult for candidates immediately after the changes are made; but later, as the candidates become conversant with requirements, the passes show an increasing tendency. On the 1st January, 1929, the Board of Trade made a slight change in their examinations by resetting all astronomical papers to the year 1929, and simultaneously this Department made a similar change. Further changes in the syllabus are expected to be made in 1931, immediately after which it may be anticipated that the number of candidates offering and the percentages of passes will show a temporary reduction. Wellington continues to provide the greatest number of candidates, the percentages of the total number of examinations held for each of the three ports being: Wellington, 46 per cent.; Auckland, 44 per cent.; and Lyttelton, 10 per cent. These figures for 1927–28 were 69, 22, and 9 per cent.; for 1926–27 59, 23, and 18 per cent.; and for 1925–26 52, 28, and 19½ per cent. respectively. At Auckland, where tuition facilities have undergone some change, it would appear the examinations are on the increase, and to assist candidates it has been arranged to hold examinations there at six-weekly periods instead of quarterly.

An important departure is to be made in Board of Trade examinations for masters and mates, in that a candidate is to be given value for any subject in which he passes at first attempt, and may complete examination in subjects failed in at a later date.

Examinations in Form and Colour Vision.

A total of forty-five examinations in the sight tests were held at the four main ports. Of this number two candidates were unsuccessful, one failing to pass the letter test and one the lantern test.

Examination of Lightkeepers in Signalling.

Examinations in signalling for this Department's lighthouse-keepers have been carried out when necessary by the Examiners of Masters and Mates. Forty-one lighthouse-keepers have passed this examination since its inauguration in 1922.

Publication of "New Zealand Nautical Almanac and Tide-tables."

"The New Zealand Nautical Almanac and Tide-tables" for the year 1929 (twenty-seventh edition) was issued early in November last, so as to enable its contents to be available in ample time before the end of 1928 to ships proceeding beyond New Zealand.

Wireless Telegraphy on Ships.

The regulations as to ships being provided with wireless-telegraph installations, which came into force on the 1st January, 1926, provided that a certificated officer could qualify as wireless signaller for the purpose of operating the wireless equipment on certain ships employed in the home trade. During the year twenty certificated officers became so qualified, making a total number of 271 who have obtained this qualification since those regulations came into operation.

Survey of Ships.

Certificates of survey issued to ships during the year were as follows: To sea-going steamships and auxiliary-powered vessels, 193; sea-going sailing-vessels, 14; steamships and auxiliary-powered vessels plying within restricted limits, 522. The total number of certificates issued was 729, as compared with 757 for the previous year.

The Life-saving Appliances Rules have been brought up to date in accordance with the latest Board of Trade requirements, and came into force on the 1st February, 1929.

Examination of Marine Engineers.

During the year 147 (166) candidates passed their examinations and 61 (90) failed. Of those who passed, 58 (75) were engineers for sea-going steamships, 5 (7) were for engineers of steamers plying within restricted limits, 32 (18) were for engineers of sea-going vessels propelled by other mechanical power than steam, and 52 (66) were for engineers of vessels propelled by other mechanical power than steam plying within restricted limits. The figures in parentheses are those for the previous year.

An unfortunate difficulty has arisen in the case of a number of applicants desiring to sit for their first examination as third-class marine engineer. In order that Imperial validity be maintained for our certificates, the training of apprentices must comply with Board of Trade requirements, and specified periods of time must be spent on specified classes of work. It is found on investigation of a percentage of the applications that an insufficiency of time has been spent on qualifying-work during the period of apprenticeship, and the applicant has, unfortunately, to be rejected. It is proposed to amend the law so that an apprentice who during the period of his apprenticeship has failed to put in sufficient time on qualifying-work may make up the deficiency as a journeyman.

Regulations as to Safe Working-loads for Cargo Gear.

Now that these regulations and tables are better understood, they are of increasing value in preventing accidents in cargo-working. From time to time tests of fibre ropes are made to ensure that the standard of quality and strength is maintained.

Inspection of Boilers and Machinery.

The number of new boilers inspected during the year was 398, which is a considerable increase over the total for the previous year. The total number of boiler-inspections was 7,721, compared with 7,681 for the previous year.

During the year a lap-jointed steam-drum of a water-tube boiler which had been patched exploded, resulting in the death of the attendant engine-driver. A most exhaustive investigation was made to ascertain the cause of the explosion, and a special report is being prepared for circulation.

Our regulations for boiler design and construction require revision. The drafting of new regulations has been under way for some time, but as this work is of some magnitude and difficult to accomplish by intermittent effort the work will have to stand over until more pressing matters have been dealt with.

The total number of machinery-inspections during the year amounted to 39,672, last year's total being 40,957.

The following table shows the rapid increase during recent years in the number of inspections of both machinery and boilers:—

Year.	Number of Inspections.	Year.	Number of Inspections.
1915–16	17,857	1922–23	33,124
1916–17	19,362	1923–24	32,891
1917–18	21,118	1924–25	35,797
1918–19	22,614	1925–26	42,529
1919–20	25,824	1926–27	47,209
1920–21	28,553	1927–28	48,638
1921–22	31,876	1928–29	47,393

From this it will be seen that the number of inspections has increased by over 100 per cent. during the past ten years.

For some time past there has been a minor agitation against the annual inspection of farm machinery of a kind that comes within the scope of the Inspection of Machinery Act.

Prior to the New Zealand Farmers' Union Conference in July last, the Dominion Secretary submitted for an expression of the Department's view a remit which proposed that the Government be asked to have the Inspection of Machinery Act relating to farm and dairy machinery, other than steam plants, amended to make it compulsory to have an installation inspection only, and that no other inspection be made provided that no alteration was made to the original installation.

To this the following reply was sent:—

"Since I came into office as Minister in Charge of the Inspection of Machinery Department I have had occasion to give consideration to the existing law with regard to inspection of farm machinery, and note that in addition to the proposal in Remit No. 1 it has been suggested,—

"(*a*) That inspection should be abolished altogether;

"(*b*) That manufacturers of machinery (including engines in the term) should be compelled to provide the guarding as an integral part of the machine.

"Knowing the danger, and indeed the number of accidents, fatal and otherwise, that have arisen from unguarded, or inadequately guarded, machinery, I am of opinion that it would be a most retrograde step to abandon inspection, more particularly so because in very many cases the machinery is tended by inexperienced and inexpert persons, and often by women and children.

"The suggestion that it should be made compulsory for manufacturers to fit guarding integral with the machine is practicable only to a limited degree. The great bulk of the machinery comes from other countries, is installed on a different layout in different places, and is used for such diverse purposes that it would be exceedingly difficult to lay down satisfactory or workable specifications of guarding.

"As to the suggestion of an installation inspection, the prescription of guarding, and then no further inspection, it is evident that such system gives no guarantee that the guarding will ever be provided or, even if provided, that it will not later be removed. We have in the Department many cases where guarding ordered has not been provided as ordered, or later removed, with the result that fatal accidents or serious bodily injury has occurred.

"Owners should not lose sight of the fact that in the event of accident or death of an employee the possession of the Department's certificate and proof that the machine has been guarded in compliance with the Department's requirements is a complete defence against any claim for special damages for negligence on the part of the owner.

"The inspection fee in the case of the great bulk of farm machinery is only 2s. 6d. per annum if paid within the due date, which cannot be regarded as burdensome, and in all the circumstances I am of opinion that the continuance of inspection is necessary and in the owner's interest."

I am glad to be able to say that the conference took a broad view of the matter, and informed the Department that the reply was considered satisfactory.

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

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

The full list of places where the examinations were held is shown in an appended return, as also is the number of candidates examined at each place. The classes of certificates for which examinations were held were: Extra first-class stationary engineer, first-class engine-driver, second-class engine-driver, steam-winding-engine driver, electric-winding-engine driver, locomotive-engine driver, traction-engine driver, locomotive- and traction-engine driver, and electric-tram driver. The total number of candidates examined was 383; of this number 265 were successful and 118 failed in their examinations.

Government Shipping Offices.

In the Government shipping offices the administration of the Shipping and Seamen Act has been efficiently carried out. Appended is a statement showing the number of seamen engaged and discharged at the various ports during the year, and the fees received for such transactions. The total numbers engaged and discharged were 14,557 and 13,994 respectively, as against 15,397 and 15,313 respectively during the previous financial year. The transactions at the four main ports were as follows (the figures in parentheses being those of the previous year):—

Port.	Engagements.	Discharges.	Fees.	
			£ s. d.	£ s. d.
Auckland	4,452 (4,660)	4,547 (4,754)	815 16 0	(854 13 0)
Wellington	6,051 (5,378)	5,400 (5,300)	1,013 5 0	(954 7 0)
Lyttelton	1,180 (1,255)	1,127 (1,232)	198 4 0	(215 11 0)
Dunedin	976 (1,751)	1,013 (1,644)	174 10 0	(310 19 0)

Inspection of Seamen.

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

Sick and Injured Seamen.

The total amount paid by shipowners to sick and injured seamen under the provisions of the Shipping and Seamen Act, 1908, and its amendments, was £18,270 5s. 9d., as against £21,649 2s. 1d., a decrease of £3,378 16s. 4d.

Registration of Shipping.

On the 31st December, 1928, there were on the register of vessels in the Dominion 88 sailing-vessels, of 11,303 tons register; 250 steamers, of 93,771 tons register; and 222 motor-vessels, of 5,815 tons register; as compared with 90 sailing-vessels, of 11,418 tons register; 261 steamers, of 101,972 tons register; and 214 motor-vessels, of 4,414 tons register, at the end of the previous year.

The number of seamen and boys employed on board vessels registered in New Zealand was 3,611, as compared with 3,593 at the end of 1927.

Prosecutions.

Legal proceedings for offences under the various statutes administered by the Department were instituted in fifty cases. Prosecutions under each Act were as follows: Fisheries Act, 23; Harbours Act, 2; Inspection of Machinery Act, 13; Shipping and Seamen Act, 12.

Ross Sea Dependency.

The following table shows the number of whales captured, the quantity of oil obtained, and the royalty paid since the Ross Sea Dependency was placed under New Zealand administration:—

Year.	Number of Whales.	Barrels of Oil.	Revenue.
			£ s. d.
1923–24	221	17,791	200 0 0
1924–25	427	32,165	200 0 0
1925–26	531	37,700	1,720 12 6
1926–27	786	70,300	2,921 5 0
1927–28	1,455	124,000	7,176 15 0
1928–29	1,340	122,000	13,961 17 6

Note.—One barrel=40 imperial gallons.

During the 1928–29 season three floating factories operated in the Ross Sea Dependency, two of them under license and one not licensed. Two further companies are in process of formation with the object of whaling in the same waters, and both have been promised licenses if flotation is successful. One of these companies is purely English, and the other New Zealand and Australian. It is understood that the unlicensed factory which has previously operated in the Ross Sea will return for the 1929–30 season, and that another very large vessel is being fitted out with the same intent. There is at present insufficient data available to enable any one to say just what degree of intensity of fishing the waters will stand without unduly depleting the whales, but it is clear that if pelagic whaling continues to increase as it has been doing there must come a time when reproduction of whales will be seriously affected. There is always one safeguard, however, which should prevent the fishing becoming too intensive, and that is that these Antarctic expeditions involve a huge capital outlay and operating expenditure, and when competition becomes more intensive than the supply of whales justifies some of the expeditions must go to the wall. Therefore fishing expeditions will have to be adjusted to economic result.

The possibility of such a state of affairs will, it is hoped, force all concerned to realize the necessity for international agreement for the regulation of whaling operations to an extent that will ensure the continuance of the industry by maintaining the required standard of reproduction.

It is hoped that the "Discovery" scientific expedition, which will work in the Antarctic during the 1929–30 season, will add materially to our knowledge on the subject.

Fisheries.

The work of the Fisheries Branch of the Department is dealt with exhaustively in a special appended report by the Chief Inspector of Fisheries (Mr. A. E. Hefford).

Apart from the ordinary administration and investigation work of the Branch, special attention has been given to the controversy which has been waged over the methods of fishing in Hauraki Gulf and the restrictions which have been, or should be, placed upon them. These methods are trawling, Danish-seining, set-nets, and long-lining. Those interested in each of these particular classes of fishing contend that the next most effective method of catching is ruining the industry and the fishing-grounds. All four methods are more or less necessary to keep the market supplied. The Department's function and responsibility is to impose such restrictive measures as are deemed to be necessary to protect the fisheries, in order that a sufficiency of fish may be left for natural production and maintenance of the fisheries.

It must be borne in mind that the waters in which the various methods of fishing can be carried on are limited. The smaller vessels such as are used by the line and set-net fishermen can operate, as a rule, only in the more inshore and sheltered waters. The Danish-seining, for which a somewhat larger launch is used, is also restricted in its operations by weather conditions and by the fact that it

cannot haul its net in greater than a certain depth of water. If it is pushed out too far these men would have to revert to set-net or lining, methods not nearly so effective. As to the trawler, it is to be noted that area of fishable water is restricted by foul sea bottom and depth. A glance at the New Zealand chart will show that the 100-fathom line, which is about the limit in which our largest trawlers can operate, is fairly close inshore all round the coast.

From time to time restrictions have been imposed as to size of mesh of nets and areas in which the various classes of fishing may be undertaken. Although a considerable amount of investigation has been undertaken in this area, it is by no means complete, and we cannot be at all positive until it relates to a period of years and variety of seasons.

Because one particular class of fisherman objects to the fishing-methods of another class of fisherman is not a good reason for imposing restriction or prohibition. The Department is loath to impose restrictions, and can only justifiably do so when it is obviously necessary for the protection of the fishery. The restrictions which have so far been imposed have been progressive and, to some extent, tentative. Additional regulations are in course of preparation, but will not be put into operation until further investigation has been carried out.

Whitebait Fisheries.—For some time past there has been much discussion, particularly amongst acclimatization societies, on the question of decreased supplies of whitebait in our rivers. The Department sent out a questionnaire to societies and others interested in order to gather information wherever possible. There is almost a consensus of opinion that there has been a serious diminution in the run. The Department must naturally consider the points of view of the acclimatization societies, the professional whitebait fishermen who supply the market, and the private persons who fish for their own consumption.

It is clear from the information gathered that steps must be taken to regulate the methods of fishing in such a way as to ensure the maintenance of the fishery. In many places where the waters are narrow the method of fishing is such that the running whitebait have very little chance of escaping the nets, while in others it is the practice of the Maoris to net the mature inanga on its way to spawning, in large quantities. The escape, both going upstream and coming down, of a sufficient percentage of the fish is essential, and it is necessary that steps should be taken to that end.

Draft regulations, based on the information gathered from replies to the questionnaire previously referred to, have been issued to all parties interested for their comment, and this is now coming forward.

It is not proposed to make the regulations effective this season except in one case where, owing to the intensive fishing which the physical conditions permit, urgent action is necessary; but, in the meantime, full consideration will be given to the representations of those concerned.

Staff.

At the end of last financial year Mr. William Cullen, who had been in the Department's service for twenty-five years as Inspector of Machinery and Surveyor of Ships, Senior Inspector, and Surveyor, and five years as Chief, retired on superannuation. During the whole period he was devoted to his work and earned the highest regard of all with whom he came in contact.

G. C. Godfrey, Secretary.

FISHERIES.

Sir,— 18th July, 1929.

I have the honour to submit my report for the year ended 31st March, 1929, in which I have endeavoured to give a brief account of the condition of the fisheries, and more especially of those aspects of the fisheries with which the activities of the Fisheries Branch of the Marine Department have been principally concerned during the year.

A summary statement showing the main features of the fishing industry of the Dominion and the quantities of fish landed at the principal stations is given in Tables 1 and 2. The information upon which these tables are based is lacking in those particulars which are essential to a proper statistical record of fishing operations, and the figures obtained from the different parts vary in their degree of accuracy. It is very desirable that provision should be made for obtaining more detailed returns as to the fishing operations and their yield in order that adequate statistical records may be kept.

The total landings show a decrease as compared with last year. Diminished landings for Auckland have very largely contributed to this. In the year 1927–28 the landings for Auckland amounted to a total weight of 134,040 cwt. of fish. This year only 83,040 cwt. have been landed, a difference of 51,000 cwt. The deficit is almost entirely in the landings from steam trawlers, tarakihi being a species which is notably less abundant on the market than last year. The steam trawler "James Cosgrove" had left Auckland and was working from Wellington for nine months of the year. The new trawler "Thomas Bryan" was wrecked near Port Charles on the 10th June, 1928, and was not replaced until the arrival of the "Humphrey" in January, 1929. It has not been possible to obtain comprehensive figures for the catches made by different classes of vessels. From the figures that we have been able to get for individual vessels of the Danish seining fleet it would appear that on the whole the yield from this kind of fishing has been maintained. Some boats, especially those fishing the more distant grounds, have done fairly well, others indifferently. At times, mainly but not entirely in the snapper-spawning season, some Danish seiners have left off using their nets and have fished with the long line, as there were occasions when snapper could be more readily taken by the latter method of fishing.

The landings for the Port of Thames also show a considerable reduction, the total being 14,644 cwt., as compared with 19,370 cwt. in the previous year, a decrease of 4,726 cwt. This has affected the fishermen more than the distributors, who now obtain a considerable proportion of their supplies, especially of snapper, from Mercury Bay, where the landings have in consequence considerably increased.

During the year new regulations (gazetted on the 9th April, 1929) were submitted in connection with trawling and Danish seining in the Hauraki Gulf, by which further areas were added to the waters in which these methods of fishing are prohibited. The object was to prevent overfishing of the nearer and more confined grounds, leaving the stocks thereon to be fished for by the older and less intensive methods. The new regulations have not had the effect of entirely settling the controversy which had been stirred up over this question. They go too far for some and not far enough for others. Their aim was to put a check on the overfishing of the local grounds without unduly penalizing the numerous fishermen engaged in these methods of fishing or interfering too much with the steady supply of fish to the markets.

In order to show what light it has been possible to obtain on this question, and to show the grounds upon which the modified regulations are based, a special report which has been submitted on this subject is given as an appendix to the present report.

The past year has seen a new development—or, at least, the initial stage of a new development—in the fisheries of Hauraki Gulf. A syndicate is being formed to exploit the sardines which occur in these waters. The method of fishing which is being tentatively practised is one which has been developed in the Adriatic Sea, and has been followed during recent years in the Californian sardine fishery. The shoals of sardines are attracted by a bright light, which brings them together near the surface, where they may be netted. The promoters hope to establish a canning industry the principal product of which will be the New Zealand sardine (*Sardinia neopilchardus*). Fish of this species appear to be present in the Hauraki Gulf during the greater part of the year, and apparently are in their best (fattest) condition in winter. So far as quality is concerned, these fish appear to be suitable for the production of tinned sardines of the highest grade, being of a species which is closely related biologically to the true sardine of European seas and practically identical with it as regards flavour. It still remains to be seen whether this fishery will yield supplies in sufficient quantity and with the necessary regularity to afford material for a stable industry. For many years shoals of sardines have been noticed at times off different parts of the New Zealand coasts, and in the past they were netted in Picton Sound and marketed under the name of the "Picton herring"; but their appearance inshore appears to have been irregular. Whether this apparent irregularity is a matter of inadequate observation, or whether it is due to variation in the migrations, or to widely different rates of natural propagation in different years, are questions which still remain to be elucidated. It is clear that the satisfactory industrial exploitation of the fishery will depend upon light being thrown on these questions.

The past year has witnessed the discovery or rediscovery of a further new groper-ground, known as the Mana Bank, in Cook Strait. This turned out to be even more productive for a time than "The Reef," discovered the previous year, which is four or five miles distant from the new bank. Great quantities of groper were taken here for a few weeks after its location, and the Wellington markets were glutted, to the disadvantage of the fishermen.

The export trade in frozen blue cod for the Melbourne market has recently suffered a set-back. This has been due to a variety of causes, among which may be mentioned competition from fish imported from South Africa and elsewhere, and the peculiarities of the Melbourne market. But the main lesson which is indicated for New Zealand exporters is the necessity of seeing that nothing but the highest-quality fish is sent out. This implies more careful handling from the moment the fish is caught, and the employment of the best method of freezing. The refrigeration of fish as practised in New Zealand is undoubtedly inferior to the more recent methods which have been adopted in Europe and North America, and, apparently, in South Africa. It seems certain that whatever the profits of the past may have been, future success in the export trade will fall mainly, or only, to those who can satisfactorily bring into operation the latest methods of freezing in brine and ensuring that the brine-frozen fish is transported to its ultimate destination in undeteriorated condition.

The leading fish-dealers and exporters of the Dominion are not unaware of this improved method of fish-refrigeration. The fish-trade journals of England, Canada, and the United States have made frequent references to it in the last few years, during which period various modifications of the brine-freezing method have been used in the industry in the Northern Hemisphere. In North America especially the new methods are rapidly replacing the freezing-in-air systems. It must of course be recognized that the quantities of fish handled in the centres of the industry in America are on a very large scale compared with the quantities dealt with in New Zealand. Their fishery resources are considerably greater than ours, the consumers are numbered by millions, and there are great centres of population situated a thousand miles or more from the fishing-ports which are the sources of supply. All this, together with the already established universal application of mechanical refrigeration (industrial and domestic), has both stimulated and facilitated the new developments in the United States. The question to be solved is whether the same methods are economically applicable on the smaller scale of the Dominion's fish industry. The highly mechanized plants which reduce labour to a minimum involve a capital expenditure that can only be borne by a big output. On the other hand, the smaller-capacity brine-freezing plants necessitates more labour than the ordinary fish-freezing process, and labour that is not kept in constant operation is dear everywhere. These are the horns of the dilemma with which the New Zealand trade is confronted. To get any nearer to the rock-bottom of the proposition requires a knowledge of quantities of materials, of prices, and of costs which are not available to me, and therefore I must leave it at that. The suggestion might be made, however, as to whether the acquisition of a small-scale industrial brine-freezing plant by the Government, for experimental and demonstration purposes by the Department of Scientific and Industrial Research, would be justified. It may be said with confidence that the process has

developed beyond the experimental stage so far as the quality of the product is concerned. Brine-frozen fish can be kept for days in the ordinary way, and for months in cold storage, and it will maintain the quality of fresh fish. The question to be settled relates only to the cost of the process under the conditions which would apply in this country. Its adoption would undoubtedly raise the quality and market value of fish exported to the Australian markets, and would go far to overcome the difficulties which have hitherto harassed and hindered the distribution of fish to inland places in the Dominion.

Rock-oysters.

The season for picking opened on the 27th June and finished 19th October. The number of sacks of oysters picked from the different areas in the 1928 season was as follows: Bay of Islands, 2,143; Whangarei, 244; Kaipara, 968; Hauraki Gulf, 1,435 (Takatu to Gull Point, 252; Kawau Island, 74; Rakino, 97; Motutapu, 133; Waiheke, 418; Ponui, 409; Pakihi and Pakatoa, 52); Coromandel, 231; Great Barrier Island, 523: total, 5,544.

For the first two months the demand was usually greater than the supply, but the condition of the beds, owing to the poor spawning seasons which have been the rule during the past few years, was such that light picking was necessary in order to maintain good reserves for the future. Great credit is due to Mr. Flinn, Senior Inspector in charge of oyster-picking operations, for the energy and care devoted to the organization and supervision of the work on the beds and the transport to the depot in Auckland.

It is satisfactory to be able to report that there has been a good spawning season over most of the beds in all the districts, with the exception of Coromandel and Ponui Island. The increased spatting is almost certainly due to the finer summer and autumn weather of 1927–28.

Oyster-cultivation.

A principal feature of the cultivation work has again been the destruction of the "borer," which had become very abundant on many of the beds of recent years. This task was rendered the more urgent in view of the abundant fixing of young oysters, which are particularly liable to attack and are easy prey for the "borer." No fresh walls were built, but the capstones of old walls were turned where necessary, and in some cases carried down to the best growing zone on the beach and replaced by new capstones for further catchment of spat. The class of work which has hitherto proved most productive—namely, the moving-down of oyster-bearing boulders from near high-water mark—has been continued in the Bay of Islands, in the Kaipara, in the Mahurangi, on Waiheke, and on Great Barrier Island. The following gives a summary of the work done, with costs:—

Area.	Number of "Borers" destroyed.	High-water Oyster-rock removed.	Other Work.	Cost.
		Yards.		£ s. d.
I. Bay of Islands	872,400	1,890	Thirteen fattening-trays, containing 16 gallons oysters each	203 12 8
III. Kaipara Harbour ..	176,900	8,498	Eighteen fattening-trays, containing altogether 1,170 gallons oysters	187 3 4
IV. Takatu to Gull Point (with Mahurangi Harbour)	438,300	1,500	One new fattening-tray, 675 yards oyster-wall recapped, and old capstones spread	105 3 4
V. Tamaki Strait (south shore)	2,400	..	..	2 0 0
VI. Coromandel coast ..	308,400	..	..	30 0 0
VII. Kawau..	103,000	..	Four fattening-trays, containing altogether 140 gallons oysters, 604 yards oyster-wall recapped, and old capstones spread	36 16 8
XIII. Waiheke	346,900	1,060	..	52 13 4
XIV. Ponui	165,500	..	..	14 5 0
XVI. Great Barrier Island ..	364,700	170	420 yards oyster-walls recapped and old capstones spread	54 0 0
			Cost of material, fuel, and transport ..	76 17 0
Totals ..	2,778,500	13,118	..	762 11 4

This work was carried out by means of temporary employees, most of whom had served as pickers during the season. In addition, a considerable number of "borers" have been destroyed by Inspectors in the course of their patrols of the oyster-beds.

In connection with the experimental tray cultivation, in all cases it has been found that very satisfactory growth has taken place, and oysters which left in their original place would never have been marketable have become good-quality oysters. Some mistakes had been made in the first experiments through lack of expert supervision, especially in overcrowding the oysters on the trays and including clusters instead of single oysters. An unexpected complication has been the covering of these tray oysters with young which were spatted during the 1927–28 summer. As was expected from the physical conditions, the trays in the Bay of Islands and Kaipara Harbour have produced the best results. Whether this method can be worked commercially, as in Australia, depends on the question of the expense involved. It is too early as yet to come to conclusions on this point. It must be borne in mind that oysters are much dearer in New South Wales than in Auckland, and that methods which are profitable there would not necessarily pay in this country.

An account of the oyster industry of New South Wales is given in a report submitted by Mr. M. W. Young, Marine Biologist, who visited Sydney in January, 1929, which is given as an appendix to this report. This is of particular interest in connection with the views, which from time to time have been brought forward, that the rock-oyster beds of the Dominion should be leased out to be worked by private enterprise.

Dredge-oysters.

The Foveaux Strait oyster-dredgers had a satisfactory season. Five steamers were continuously employed. Except when the boats were hindered by stormy weather, supplies were landed fairly uniformly throughout the period March to October inclusive. About 99 per cent. of the oysters were obtained from the eastern area, and about 88 per cent. of the total supplies came from the East Bed, which apparently continued to yield good catches to the end of the season. The total landings amounted to 38,793 sacks, valued (wholesale) at £29,095.

Toheroas.

The toheroa-beds on the North Kaipara Beach and on the Ahipara (Ninety-mile) Beach are well stocked, and appear capable of comfortably meeting the demands of the established canneries and the normal picking by the public. At times supplies find their way into the Auckland fish-shops, but we have no means of obtaining returns of the quantities which are supplied for sale. It is desirable that all persons exploiting these and other shell-fish for commercial purposes should do so under license. We still lack that comprehensive and quantitative knowledge of the Dominion's toheroa resources, obtainable by an organized survey of the beds, which is desirable as a basis for the best administration of this fishery and for the guidance of its future exploitation. During the last season 2,030 cases, valued (wholesale) at £5,260, were packed at the two canneries.

Quinnat Salmon.

The collection of ova for the Hakataramea Hatchery was again confined to the Hakataramea River. The rack was completed on the 18th April, and the first of the fish for stripping were taken on that date. Steady catches were obtained till the 28th April, when an exceptionally high flood came down and swept away the rack. The river continued high until the 8th May, when a pound net was erected, which remained in operation till the 23rd May. 603 fish were taken for the hatchery, of which 285 were males and 318 females. The total number of eggs put down to hatch was 1,300,000. On reaching the "eyed" stage 500,000 were sent to the Maori Creek Hatchery, Te Rou, for continuing the stocking of the River Wairau (Marlborough); 400,000 were sent to the Westland Acclimatization Society for continuing the stocking of the Hokitika River system; 150,000 were sent to Tasmania; the balance were hatched out and liberated as fry in the Hakataramea, with the exception of 12,000 kept for rearing to the yearling stage in the ponds.

The spawning run of quinnat salmon in the Waitaki and its tributaries in the winter of 1928 was judged to be the biggest which has yet appeared. The Ahuriri and Otamatata Rivers especially held considerable numbers of fish, and salmon were seen spawning in small creeks where they had never previously been seen. Increased numbers were also reported to be present in the waters of the upper Clutha, especially in the Motukituki tributary, and in the Hunter and Dingle Rivers at the head of Lake Hawea.

A few definite cases of quinnat spawning in the Wairau River (Marlborough) were observed in the 1928 season, indicating that the fry that have been planted yearly since 1921 have produced a certain return of adults. In addition to a first assignment of 500,000 ova to the newly erected hatchery for the Wairau in 1917, a total of 4,750,000 ova has been utilized for the stocking of this river since 1921, making an average of 593,750 each year for the last eight years. The results have not come up to the expectations entertained when the stocking of this river was undertaken. There are two sets of conditions either or both of which may have been mainly concerned in producing a relatively unsuccessful result from this experiment. Maori Creek, where the hatchery is located, flows into Timms Creek, which joins the Wairau River in its middle or lower course. The upper tributaries of the Wairau, which would probably afford more suitable and more ample feeding-grounds for the young quinnat, have thus never been stocked.* This may have limited the number of "smolts" which would survive to make their way to the sea. However, I do not think that this could have been the decisive factor. It appears more probable that the conditions in the sea off Marlborough are less suitable for the species than is the case off the coast of Canterbury and Otago. It is known that off the south-eastern coasts of South Island the water in the sea is of Antarctic origin. There is a general set or drift in a north-easterly direction of cold water from the south, and this water produces the prevailing conditions in the sea off the Otago and Canterbury coasts where the quinnat have been established for some years. The South Equatorial Drift, which sets from the eastward and impinges upon the east coast of North Island, may be said to dominate the conditions to the northward of East Cape; while between that point and Cook Strait there is a mixture of this subtropical water with water from the south. For a long time navigators have been familiar with these "sets" or surface movements of the sea, but it was not until the Danish research steamer "Dana" had applied physical and chemical tests to the water sampled at intervals between the east coast of Auckland and the coast of Otago, in January, 1929, that the significant differences in the character of the water along this line were ascertained. It seems clear from the "Dana's" observations that the present distribution of quinnat salmon off the New Zealand coasts coincides with the occurrence of practically unmixed Antarctic water, with its characteristic physical and chemical qualities. Not a single individual of the quinnat species has ever been planted in a Canterbury stream, yet the Canterbury rivers now provide the best quinnat-fishing in the Dominion, the species having migrated to their mouths from the Waitaki, where the original fry were planted. The Wairau has been fairly generously stocked and yet shows no appreciable run of fish. The inference is that it is probably too far north—outside the influence of the purely Antarctic water which attracts the bulk of the species—though an odd few are known to run into the Wairau, and, in fact, into some of the southern rivers of the North Island. This season an indubitable quinnat was caught in the Tukituki River, Hawke's Bay. It does not follow that these

* It should be added that at the time when the Maori Creek Hatchery was established it was impossible to obtain access by road to the upper waters of the Wairau system.

parts are suitable for the permanent establishment of the species in abundance. The limit to which the influence of hydrographical factors pertaining to Antarctic waters extends will doubtless vary at different times, and it may be that in odd years the Cook Strait neighbourhood, or even farther north, may provide suitable and congenial conditions for the quinnat salmon. But the indications afforded both by experience and by theoretical considerations seem to emphasize the probability of the fundamental relationship between the nature of the sea-water and the distribution of these salmon. There is also the case of the attempted acclimatization of the quinnat in the Hokitika River, on the west coast of South Island. Our departmental reports show that between 1910 and 1924 the fry from over three million ova were planted in the headwaters of this river. The only apparent outcome has been a stock of lake-dwelling quinnat which has established itself in Lake Kanieri. As is well known, the west coast of the Dominion is washed by a warm current which has eddied across the Tasman Sea from the coast of eastern Australia, and which was originally a branch of a westerly-trending sub-equatorial current. Again it seems to be a case of the wrong sort of sea-water for a salmon species. Where the quinnat smolts, which have presumably entered the Tasman Sea to the number of thousands or hundreds of thousands, have disappeared to is a mystery which may never be solved. This discussion is admittedly somewhat speculative, but it seems necessary to ventilate these considerations in view of the frequent recommendations, based rather on what is desirable than on what is probably feasible, to stock this or that river with salmon.

The run of quinnat during the early months of 1929, within which the angling season falls, has shown notably different features from that of the previous year. The first salmon seen in the Waitaki appeared on the 1st February. Throughout January the river had been dirty and in flood. The main run moved up between the end of February and the end of March and petered out earlier than usual. The fish caught were few in number, which was largely due to the unfavourable condition of the water. They were of bigger size than average, and were in excellent condition. In the Rangitata the run started on the 9th February and consisted of exceptionally big fish of 20 lb. and over. The greatest number came up in the month of March, the main body appeared between the 12th and 16th of this month. There was a lack of medium-sized fish, the runs consisting of large quinnat over 25 lb. together with small fish from 3 lb. to 5 lb.—a similar condition to what was noticed four years ago in this river. One fish of 45 lb. was taken with rod and line. A further run consisting of fish between 12 lb. and 16 lb. appeared at the beginning of April. Although the numbers of salmon running appeared to be less than in the previous year, the anglers on the Rangitata enjoyed very good fishing on the whole. No statistical returns of the numbers caught are available, but it is estimated by a local observer that about two thousand fish were caught by anglers in this river. Although no net fishing was allowed in the Waimakariri this season, the numerous rod fishermen on this river did not obtain so many fish as usual. There are no detailed reports from the Rakaia. Apparently the fishing here was better than in the Waimakariri but not so good as in the Rangitata.

On the whole the quinnat-fishing season in point of numbers was not so good as last year, but the fish were remarkable for their fine condition, and a high proportion of heavyweights came into the rivers.

This season a larger number than usual appear to have run up the smaller rivers of Canterbury—for example, the Opihi and Orari—a circumstance which has given rise to some fears as to the effect upon the trout-fishery. The local acclimatization society officials are inclined to think that, with the limited amount of spawning-ground available in these rivers, the trout may be crowded out from their accustomed "redds," and also that there may be too much competition for food between the young of the two species, and the growth of the trout suffer in consequence. There seems to be some ground for these fears, and the conditions require to be studied. It would appear to be quite feasible to prevent quinnat from getting to the trout spawning-beds if deemed necessary.

The following table, compiled from particulars given in licensees' returns of rod-caught quinnat taken in the Waimakariri, Rakaia, and Rangitata Rivers during the season 1929, gives an indication of the average weights of the fish (male and female) caught in the three principal quinnat-angling rivers this year. It should be noted that these returns are made only by those licensed to catch salmon for sale.

——	Males.	Females.	Sex not given.	Total.
Waimakariri River, 12/2/29 to 10/4/29—				
Number of fish caught	30	40	9	79
Weight of fish, in pounds	302	592	133	1,027
Average weight, in pounds	10·0	14·8	14·8	13·0
Rakaia River, 1/1/29 to 23/4/29—				
Number of fish caught	103	74	10	187
Weight of fish, in pounds	1,805	1,244	211	3,260
Average weight, in pounds	17·5	16·8	21·1	17·4
Rangitata River, 12/2/29 to 10/4/29—				
Number of fish caught	81	106	29	216
Weight of fish, in pounds	1,423	1,972	502	3,897
Average weight, in pounds	17·6	18·6	17·3	18·0
Combined rivers, 1/1/29 to 23/4/29—				
Number of fish caught	214	220	48	482*
Weight of fish, in pounds	3,530	3,808	846	8,184
Average weight, in pounds	16·5	17·3	17·6	17·0

* Fifteen fish omitted, particulars of weight not having been given.

Atlantic Salmon.

The hatchery operations at Te Anau were not so productive this year as usual. For the capture of ripe fish for stripping a pound net was set up on the Upokororo River in the usual place, and was completed on the 13th April. The first salmon was taken on the 13th April, after which the net was washed out by a flood. All catches were made under similar conditions—at the beginning of a sudden spate in the river. The best day's catch (of sixty-eight fish) was taken on the 4th July, all the fish entering the net within two hours as the river rose after a night of heavy rain. The total number of salmon taken for stripping was 211, of which 75 were males and 136 females. The number of eggs collected was 396,000. 367,000 eggs were sent to Kakahi for stocking the Wanganui River. 26,000 ova and 3,000 fry were handed over to the Southland Acclimatization Society for liberation in the Waiau tributaries.

The poor total catch of ripe fish is ascribed to the difficulties arising from weather conditions, which produced very sudden spates, making it impossible to maintain the net in fishing order when the fish were running best. It has also been pointed out that the considerable catches of fish made by fishermen off the mouth of the Upokororo towards the end of the fishing season accounted for many salmon which would otherwise have found their way into the trap. Trolling off the mouth of the Upokororo was carried on as a regular practice for the first time in the 1927–28 season. It has now been restricted by a regulation gazetted on the 15th January, 1929, by which fishing in this part of Te Anau is prohibited after the 1st April.

From local reports it would appear that the catch of Atlantic salmon made during the 1928–29 fishing season has exceeded the total for any previous season, but we have no data from which the total number of fish taken can be estimated. From the opening of the season (1st October) up to the middle of November over two hundred fish had been caught, and it is probable that the total catch for the season exceeded one thousand.

The Wanganui River still shows no apparent sign of results from the stocking with the fry of Atlantic salmon, which has been carried out yearly since 1923. Since that date the fry from approximately 2,927,000 ova have been liberated from the Kakahi hatchery in its upper waters, but no salmon run has eventuated, and it now seems probable that the attempt to make the Wanganui a salmon river, which was entered upon with optimistic hopes, may prove to be fruitless. On the assumption that some salmon would reach maturity at three years old, and the majority at four years (which is the case in Britain, although apparently the Waiau salmon mature at an earlier age), by this time four generations of adult salmon should have been produced; but no authentic record of a single fish of this species having been caught or seen has come to hand. The Wanganui River system is indeed of vast extent, and much of it is somewhat inaccessible, so it is possible that fish may be in existence without the fact being recognized. It seems to me, however, to be more probable that the fact of the Wanganui flowing into a sea which is outside the influence of Antarctic water, and is, so to speak, quite *foreign* to this species, is the decisive factor, and that the explanation of the Wanganui failure is analagous to the failure of the Hokitika in respect to quinnat acclimatization, which I have already discussed in the paragraph dealing with that species.

Whitebait.

It is difficult to get anything like complete information about the widespread fisheries for this species. It is certain that the runs of whitebait are subject to considerable variation from year to year, and it is also recognized that weather conditions, in their effect upon the height and turbidity of the water in the rivers, have a great deal to do with the success of the fishing. It follows that abundance of catches in any year is not necessarily commensurate with the abundance of the runs of the juvenile inanga.

The 1928 season for whitebait was poor on both east and west coasts of the South Island, and catches were markedly below those of the previous season. The Waikato fishing was poor at the beginning of the season, but in the early part of October heavy catches were made which, in the absence of a demand for canning (one of the two Waikato canneries being closed down), caused a glut on the local markets. The non-operation of this cannery was apparently due to a decline in the export trade.

The following returns of the season's total catches have been received; the figures in brackets show the previous season's totals for comparison: Hokitika and neighbourhood, 463 (925) cwt.; Westport and neighbourhood, 600 (538) cwt.; Greymouth and neighbourhood, 100 (160) cwt.; Kaiapoi and neighbourhood, 85 (361) cwt.

A very brief acquaintance with the present-day conditions and with the past history of the fisheries is sufficient to convince one of the difficulties which lie in the way of the administration of the whitebait fisheries.

The species, being indigenous to New Zealand, has not received the attention which has been given by the various fishery authorities to the acclimatized fresh-water fishes. Its great abundance—at any rate, in the past—has also tended to the neglect of conservational measures. There is, moreover, considerable variation in the local conditions under which whitebait fisheries are conducted in different parts of the Dominion.

The regulations made in the past have been mainly for the purpose of adjusting matters between competing fishermen rather than from the point of view of conservation of the stock. Of recent years, however, in various parts of the Dominion the opinion has been expressed by people who are in a position to judge conditions without bias that the natural abundance of this species is becoming seriously diminished, and that steps should be taken to limit the quantities caught by commercial methods of fishing. This, together with the difficulties which have been experienced in the administration and enforcing of existing regulations, has led to the conclusion that a thoroughgoing revision of the regulations is desirable.

It is impossible to refer to all the statements which have been made on this subject—in the press, in letters to the Department, and in conversation—by interested and disinterested observers of the trend of the fishery, including some engaged in the industry and some officials of acclimatization societies. There has not been unanimity of opinion. In the newspaper-correspondence controversy there have been two opposing schools—(*a*) the trout-fishing enthusiasts, who urge that whitebait-fishing should be restricted, mainly in order that the condition of the trout may be improved, and (*b*) those commercially interested in the whitebait-fishing, who declare that acclimatized trout are the greatest enemies of whitebait and the principal cause of their decrease in abundance, and that if trout were exterminated no further measures would be necessary for the conservation of whitebait stocks. I do not find myself in agreement with either. Certainly trout eat whitebait when they can, and without doubt thrive on the diet, but so do many indigenous fishes and birds. The full-grown whitebait, known under the names of "minnow," "inanga" or "inaka" (*Galaxias attenuatus*), also devours trout-fry. To determine with some approach to accuracy the effect which one species has on the other would require a special biological investigation—and I think that is the sort of investigation which is well worth doing, and which sooner or later must be carried out. But I am convinced that the predominating factor in bringing about the diminution of whitebait-supplies, which has undoubtedly taken place, has been that of human agency. Where the population is most dense and fishing has been most continually and most intensively carried on, the depletion of whitebait-fisheries is most apparent. One has only to refer to the many statements as to the ease with which large catches of whitebait were made in the old days, when they were used as manure, fed to pigs and poultry, and sold at a very low price, and compare this with present-day conditions, to realize that the natural supplies are considerably diminished even in the best whitebait waters. Undoubtedly very large quantities are still brought to market. There are more people than ever who engage in fishing for whitebait, both as a seasonal occupation for a livelihood and as a profitable recreation. This fact in itself emphasizes the importance of regulating the fishery.

The necessity of safeguarding future supplies of whitebait by imposing restrictions upon the fishing operations as conducted at present has been pointed out by several who have had a long and intimate practical acquaintance with this fishery in different parts of the Dominion.

The leading professional whitebait fishermen at Hokitika and elsewhere are in favour of the introduction of a licensing system to enable the fishery to be kept under better control, and to prevent the personal disagreements which, frequently attended by breaches of the peace and acts of violence, have been associated with this fishery in the past.

Mr. D. Hope, of Christchurch, Fish-hatchery Curator to the North Canterbury Acclimatization Society, has written and said a great deal on the subject of whitebait depletion and the need for immediate measures for their conservation. He considers whitebait as the most important of all foods for the nourishment of big trout. In this opinion he is not alone; but whether one agrees or disagrees with him as to the importance of this point, his evidence as to the enormous diminution which has taken place in the whitebait stocks in the rivers of Canterbury is indisputable.

In order to obtain comprehensive information about the condition of the whitebait-fishery in all parts of the Dominion a questionnaire was circulated last year to all acclimatization societies. To the question as to the present condition of the fishery the replies received were somewhat vague, and no information of a quantitative or statistical nature was forthcoming. (The departmental records also contain no statistical data whatever, and although in the last year or two an attempt has been made to remedy this lack, we are still too much in the dark to deal satisfactorily with the administration and regulation of this fishery.)

The statement of returns of catches given at the beginning of this section will afford an indication as to the present value of the industry in some of the most important whitebait-fishing districts. To these should be added the Waikato, which is an important whitebait river, providing supplies for two canneries and for a large retail trade in Auckland and district, for which no figures are available. According to a recent newspaper article,* "It is authoritatively estimated that on an average the industry on the Waikato is worth £10,000 a year."

To the question as to how present conditions compare with the past, the following answers were received: "Satisfactory" (Auckland); "Very poorly" (North Canterbury); "Fallen off considerably" (Wanganui); "Favourably" (Westland); "Poorly" (Grey District); "Very unfavourably" (Rotorua District); "Not so favourable" (Hawke's Bay District); "Steadily declining" (South Canterbury); "Favourably" (Waimate); "Not nearly so numerous" (Otago); "Not so plentiful" (Southland).

It will be noted that, with two exceptions, in all the districts where whitebait-fishing is pursued for purposes of sale on an appreciable scale it is reported that the present conditions show deterioration. These exceptions are Auckland and Westland. With regard to Auckland it may be said that the Acclimatization Society officials admitted extreme ignorance of the whitebait-fisheries; and on the other side we have the testimony of Mr. Frost, who has been in the industry for many years, that, good as it is, the whitebait-fishery on the Waikato is deteriorated in comparison with the past.

As regards Westland, I have given special attention to the conditions there, and I am of opinion that in the overfished Hokitika River the runs of whitebait are provided mainly from stock which matured in the less-fished rivers of Westland. The earliest stages of life are spent in the sea, which affords a means of recruiting a depleted river by whitebait whose parents belonged to other rivers in the district, provided that these rivers have not also been overfished.

In reply to the question "Has depletion occurred?" the following replies are given: "Yes" (Auckland, Rotorua, Wanganui, Grey District, Otago); "Seriously" (North Canterbury, South Canterbury); "By nine-tenths in the last ten years" (Southland); "Not seriously" (Marlborough); "No" (Westland, Waimate); "Doubtful," or "No data" (Waitaki, Hawke's Bay).

* Article in *New Zealand Herald* of 30th September, 1927.

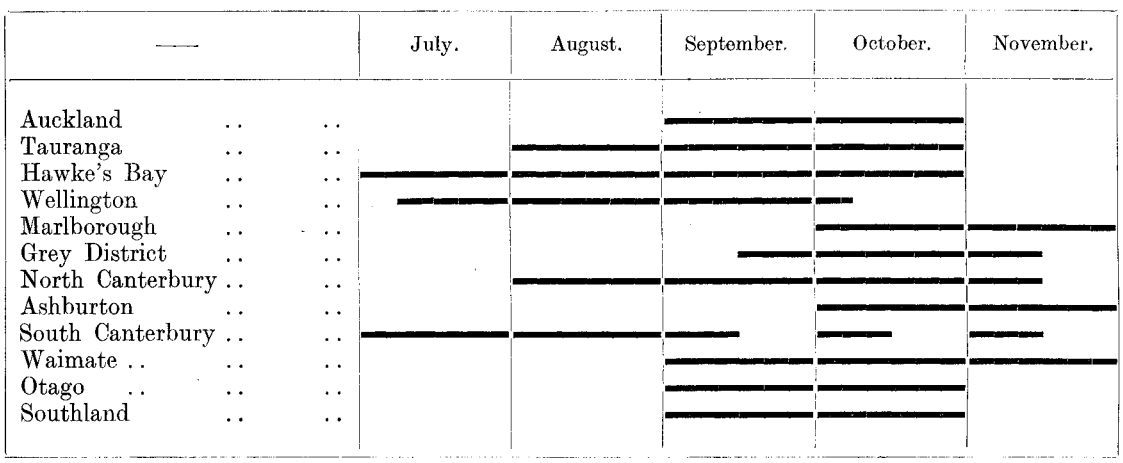
Among the causes to which depletion is ascribed are—Overfishing or increased fishing (Auckland, Grey District, North Canterbury, South Canterbury); pollution by sawdust (Grey District); dams and weirs erected by Power Boards (Taranaki); clearing of bush and consequent silting of rivers (Waiapu); trout feeding on them (Wanganui); perch feeding on them (Otago); the taking of adults by Maoris on their downward spawning migration (Auckland, Hawke's Bay—Inspector's report, 1922.)

Among the above reasons I think that by far the most weight must be attached to overfishing. The other factors mentioned, which hold good in varying degree, are of local or minor improtance. There is no doubt that where pollution by sawdust occurs (which is, of course, an offence against the regulations) it is inimical to the welfare of all fishes.

In reply to the question whether a limited whitebait-fishing season is favoured by the society, the following were the replies: "Yes" (Auckland, Waiapu, Tauranga, Rotorua, Wellington, Marlborough, Grey District, North Canterbury, South Canterbury, Ashburton, Waitaki, Southland, Otago (for some rivers), Hawke's Bay); "No" (Taranaki, Waimate, Westland). Wanganui and Otago (in the case of the Shag River), replied that a limited season was unnecessary. But in both these cases the whitebait-fishing is of relatively little importance.

It is clear that the majority of societies are in favour of a limited fishing season, and some of them are very emphatic about it.

Suggested Duration of Fishing Season.—The replies of the societies to the request to suggest when a limited season should open and close may be represented graphically. The thick lines show the suggested duration of fishing season.



The return from the South Canterbury Society contained the suggestion for closing the season during the second half of September and again during the second half of October and finally on the 10th November. This would certainly admit of escapement for a proportion of the runs, which normally take place during September, October, and November. It might be difficult in practice to enforce these short-period closures or to bring them to the notice of whitebaiters. A further suggestion has been made, by an experienced acclimatization society official, that it would be best to close only one river in a district at a time, so that while one river was closed others would remain open, in succession. The idea is to enable the closed waters to be efficiently watched. This policy might be somewhat cumbersome to carry into practice with regard to the notification of the particular waters closed at a particular period, but it has much to recommend it.

For the present, however, it seems most necessary to concentrate on the importance of the *general* administration of the whitebait-fisheries.

Since the consolidated Fishery Regulations were gazetted in 1906, seventeen additional or amending regulations relating to whitebait have been made. A review of these shows that the fishery was administered in a somewhat uncertain and tentative manner. On the whole the tendency has been to relax restrictions rather than increase them.

Our primary and principal duty is, while providing for their rational exploitation, to ensure the maintenance of these valuable fisheries for the future. This has to be done by providing that a sufficient quantity of the species in each river is allowed to survive to form a breeding-stock for the next generation. It must be admitted that to do this with anything like the precision that is obtained in husbandry is impossible. It must be admitted also that our fund of information as to the natural history of the whitebait and the statistical history of the fishery is at present lamentably little. But in a problem like this it would be disastrous to wait until the depletion and deterioration were so marked as to be patent to all. I am certain in my own mind that the time has come for, at any rate, a modicum of restriction upon the fishing. It has been frequently stated that in the old days the Maoris religiously refrained from catching the first and last of the whitebait run.

One of the chief objects to be gained from the restrictions I am proposing is a better knowledge of the fishing operations and the produce which they yield in different places from year to year. For this reason I think it is highly desirable that all commercial whitebait fishing should be done under license. Licenses should be issued on the condition that the licensee agrees to make a return of his catches and their value (on special forms to be provided by the Department). Alternatively—and I think it is a better system—the onus of making the return might be placed upon the wholesale buyer, as in the Californian system of collecting fishery statistics.

The revised regulations which have been proposed contain two entirely new provisions—(1) The licensing of all persons fishing for whitebait for purposes of sale (10s. for a hand-net license and £1 for a set-net license); (2) the prescription of a close season. It is proposed that the season during which

commercial fishing is allowed be as follows: In the North Island, from the 15th August to the 31st October; in the South Island (with the exception of Westland), from the 1st September to the 15th November; in Westland, from the 1st September to the 30th November. Apart from these measures no considerable departure from the previous conditions is proposed. At present it is proposed that the amateur who fishes for a feed for himself, his family, or his friends, but not for purposes of selling whitebait, be exempted from both close-season and licensing regulations, but that his catch be limited to 2 quarts per day. It remains to be seen whether it might be desirable at a later stage to further restrict amateur whitebait-fishing.

SCIENTIFIC RESEARCH.

In the absence of a research staff suitably equipped with laboratory accommodation and with facilities for pursuing investigations at sea the rudimentary branch of our organization concerned with scientific research cannot be expected to produce any monumental results. Several problems, all important and some really urgent, await elucidation, but there are tasks for the Fisheries Branch which must take precedence of special researches unless these are necessitated by immediate administrative problems. In spite of the indubitable importance of a basis of scientific understanding of the fish-life in Dominion waters to fishery administration and the rational development of the industry, it must be recognized that we are not at present in a position to embark upon a comprehensive programme of fishery investigation. It should be equally recognized that the trend of development must be in that direction unless we are to be left groping in the rear of the march of events and the necessities of the times.

Fishery Statistics.

As mentioned at the beginning of this report, the branch of fishery investigational work which is in most urgent need of attention is the subject of fishery statistics. It is in this connection that a large proportion of the Marine Biologist's time and energies have been devoted in the past year—in the compilation and analysis of statistical data gathered mainly from returns from log-books kept by skippers of certain fishing-boats. Such work does not produce results of striking interest to the outside world, and indeed its scope is too restricted at present to provide matter suitable for publication; but it does provide us with information of immediate and, still more perhaps, of ultimate value to our administrative problems. The widening of the scope of this work into a comprehensive scheme of statistics for the Dominion fisheries is a step of urgent importance. It will require more work and extra staff to do it, but the acquisition of a comprehensive mass of organized information in place of the incomplete piecemeal collection which is all we can achieve with our present facilities would prove ultimately to have been a measure of economy. I need not dwell upon the point any further here. It is necessary to draw attention to it in order to place on record the direction in which Mr. Young's assistance has been largely employed, and to express the hope that in future he will be enabled to act in a supervisory capacity rather than in mechanically dealing with the details involved in such work. His time will then be more available for the many other tasks which call for scientific collaboration.

Oysters.

Mr. Young has given a great deal of attention to the rock-oyster beds of the North, especially the experiments in oyster-cultivation which are being carried on in the Hauraki Gulf, in the Bay of Islands, and in Kaipara Harbour. In the absence of a scientifically trained staff in the past, the oyster-cultivation work which was undertaken was necessarily carried on with a very limited understanding of the essential factors involved in the growth and reproduction of these molluscs, and even the industrial aspect of the oyster work was defective in that no records were kept of work done or results obtained. With the help of Mr. Young a systematic record of oyster-cultivation and production (with costs) is now being kept, which will grow in significance and value as time goes on. Experiments in the Australian method of tray cultivation are being continued, and by the end of the next oyster-picking season it is expected that we shall be in a position to judge as to how far this method is biologically and economically applicable to New Zealand conditions.

Though very much remains to be elucidated in this connection, some progress has been made in the study of the environmental factors affecting rock-oysters, especially with regard to the chief enemy of the rock-oyster, the whelk-like animal (*Thais scobina*) commonly known as the "borer." The spawn of this enemy has been identified and its spawning season determined. As a result of these discoveries it is realized that our former plan of destroying "borers" at the time when other cultivation work was being carried on was not the best possible. The "borer" spawns in October and November, and it is therefore very much more effective to set about its destruction earlier than that period and before it can leave its brood behind to carry on its deadly work. Moreover, the spawn when observed in crevices of the rocks can now be recognized and destroyed. Much of the credit for the elucidation of the spawning-habits of the "borer" must be given to Inspector Daniel, whose interest in marine life and aptitude for biological observation has throughout been of real service.

The system commenced last year by which the temperature of the sea-water is taken as frequently as possible by the officers in charge of each fishery inspection launch in various parts of the rock-oyster region has been continued and extended. The time period covered by the data is not yet sufficient for any special inferences to be drawn from them, since, like other meteorological records, their significance depends on the variation or agreement shown for different years. Their real use will appear when we come to review and analyse those features of oyster growth and propagation for which we are collecting observations so far as circumstances allow. It may, however, be of some immediate interest to publish here the monthly average temperatures shown at three stations for the first year period of the observations.

Average Temperatures of Sea-water (at the Surface) for each Month of the Year at Three Different Stations.

	Auckland Harbour (off Nelson Street Wharf).	Tamaki River (off Panmure).	Bay of Islands (off Russell).
1928.			
May	17·7° C. (64° F.)	16·5° C. (62° F.)	16·9° C. (62·5° F.).
June	(No readings)	11·2° C. (52° F.)	15·3° C. (60° F.).
July	12·9° C. (55° F.)	12·0° C. (54° F.)	13·8° C. (57° F.).
August	13·9° C. (57° F.)	12·8° C. (55° F.)	15·2° C. (59° F.).
September	13·9° C. (57° F.)	14·3° C. (58° F.)	15·1° C. (59° F.).
October	15·3° C. (60° F.)	15·9° C. (61° F.)	16·0° C. (61° F.).
November	17·2° C. (63° F.)	19·1° C. (66·5° F.)	16·0° C. (61° F.).
December	19·3° C. (67° F.)	20·3° C. (69° F.)	19·3° C. (67° F.).
1929.			
January	20·6° C. (69° F.)	22·7° C. (73° F.)	20·1° C. (68° F.).
February	20·2° C. (68° F.)	21·2° C. (70° F.)	20·3° C. (69° F.).
March	19·4° C. (67° F.)	21·0° C. (70° F.)	20·6° C. (69° F.).
April	17·1° C. (63° F.)	17·4° C. (63° F.)	19·0° C. (66° F.).

Snapper Investigations.

The observations on the food of this species, commenced in connection with our Danish seining investigations in 1927–28, have been continued by Captain Daniel, who has examined the stomachs of samples of snapper from the fish landed by the commercial fishing-boats. Commencing July, 1928, the number of snapper-stomachs examined up to March, 1929, was 1,940. The diet of the snapper has been found to show variation at different times of the year. Crustaceans, molluscs, fish, and echinoderms ("sea-eggs") are the principal items. In July, fish occurred in 35 per cent. of the stomachs examined, and consisted mainly of pilchards. Crustacea (mainly crabs) seem to afford the staple diet, though molluscan food (chiefly in the form of various bivalves) predominated in the months of August and December. A full synopsis of these records will be given when we are in a position to publish a comprehensive account of the snapper natural history and fishery, for which material is being collected as far as possible.

A further interesting observation by Captain Daniel was on the great abundance of snapper-spawn in the Hauraki Gulf during the summer schooling season. He was able to obtain samples of the eggs by dipping water from the surface with a bucket, and he hatched out the larval fishes in jars of sea-water, repeating our experiment of the 1925–26 summer.

Salmon.

It has not been possible to make very substantial advance in the task of elucidating the life-history of our acclimatized salmon. Data in the form of scale samples are being collected and studied as the opportunity occurs, but these casual methods afford only glimpses which are to be considered as preliminary to the more comprehensive study which should be made as soon as provision can be made for an extension of research work. The collection of quinnat-salmon scales made in the course of the experimental netting of the Waimakariri in 1928, together with others collected at Hakataramea, have been examined by Dr. H. J. Finlay, whose services were made available through a grant in aid from the Department of Scientific and Industrial Research. His final report is not yet to hand, but it would appear from his analysis of the age composition of the Waimakariri run that the majority of the salmon consisted of three-year-old fish with a small number of two-year-old, more four-year-old, and a few five-year-old fish.

Visit of Danish Research Steamer.

A noteworthy event of the year in connection with fishery science was the visit to New Zealand of the Danish Government's investigation steamer "Dana," which is at present engaged upon a world cruise under the leadership of Professor J. Schmidt, Director of the Carlsberg Laboratory, Copenhagen, and member of the International Council for the Investigation of the Sea. With him is a scientific staff consisting of fish, plankton, botanical, and hydrographical specialists, who are engaged in the study of the forms of life, about which comparatively little has hitherto been made known, which inhabit the Pacific and Indian Oceans. The "Dana" arrived at Auckland from Tahiti on the 19th December, 1928, carried on some fishing, tow-netting, and hydrographical observations in the Hauraki Gulf, and made a cruise off the east coasts as far south as the latitude of Stewart Island before putting into Wellington on the 13th January, 1929. She sailed for Newcastle and Sydney on the 19th January, with our Marine Biologist, Mr. M. W. Young, aboard as the guest of Professor Schmidt. On the passage northward off the west coast very bad weather was encountered, which cut down to a minimum the observations in this part of the Tasman Sea, but from the North Cape across to the New South Wales coast Mr. Young was able to get useful experience of the methods employed in the plankton and hydrographical work, an account of which will be given in a special report now in preparation. He also made excellent use of the visit to New South Wales by inquiring into the condition of the fishing industry and fishery administration of that State, particularly into the oyster-fisheries of the Sydney neighbourhood, an account of which is contained in his very informative reports. The one on the oyster-fishery is annexed as an appendix to this report.

The hydrographical investigations of the "Dana," the first scientific observations on the physical and chemical character of the open-sea water that have been made off these coasts, provide us with our first glimpse of those obscure phenomena which, as has been amply proved in other parts

of the world, are of profound significance in their bearing upon all life in the sea, including—what is of more immediate importance to us—the fishes. A more particular account of the results obtained must await the completion of the "Dana's" voyage. My own information was obtained verbally from the "Dana's" scientific staff, on the strength of the results of temperature-readings and chemical analyses of water at stations off the New Zealand coast. This information forms the basis of my reflections on the problem of salmon acclimatization expressed in an earlier part of this report. I would like to emphasize my conviction that until provision can be made for hydrographical investigations of this kind in our seas, continued over a period of years, we shall never obtain a complete understanding of the migrations and distribution of many of our important food fishes.

Fresh-water Research.

With reference to other fishery work of a scientific character which has been carried on during the past year in the Dominion, the most important and interesting fact to record is the definite progress which has been made with the attempt to grapple scientifically with the problems of the trout-fisheries. The results and conclusions from the year's research which has been carried on by Captain J. S. Phillips, the holder of the appointment of Fresh-water Research Student in the Victoria University College, are now to hand. This research scheme was created by a grant from the Wellington Acclimatization Society in 1927, and the programme of preliminary investigations was drawn up by a sub-committee appointed by the Council of the society, and including Professor Kirk and myself as scientific advisers. Captain Phillips has now written a report covering the work of the past year and making certain recommendations. This report will be published by the Department as a Fisheries Bulletin.

Prompted by a similar recognition of the need for throwing light on the biological conditions in rivers in relation to the food problems of acclimatized trout, the North Canterbury Acclimatization Society has also made noteworthy progress in a scheme of investigations. Mr. A. W. Parrott, a student in the Biological Department of the Canterbury College, has been engaged in making observations in certain of the Canterbury trout-waters. His preliminary results and recommendations have been published in the annual report of the North Canterbury Acclimatization Society for the year ended 31st March, 1929.

I regard these researches, rendered possible by the enlightened attitude of the Councils of two of our leading Acclimatization Societies, as definitely marking the beginning of a new era in the history of New Zealand fisheries. It does not imply an immediate improvement of the fresh-water fisheries, but it does afford promise, if the researches are followed up, that the future management of fishing-waters will be placed on an increasingly rational footing. The previous and prevailing lack of knowledge of the conditions of aquatic life and of scientific principles of fishery management has led on the one hand to doing nothing because of not knowing what to do, or else to fruitless and wasteful operations of a casual nature without due preparatory consideration and without subsequent study of effects. The results to be obtained by fresh-water research are of fundamental interest to the Fisheries Branch of this Department. It is therefore encumbent upon us to do all in our power to further the work, and it is hoped that the interest and support of the Government will be forthcoming.

Other Fishery Research.

In Volume 59, Part I, of the "Transactions of the New Zealand Institute," Professor Malcolm has published a further paper on "Food Value of New Zealand Fish." In this (Part 9 of the series) the author describes experiments made in the Medical School of Otago University to determine the vitamin content of tinned toheroa and toheroa-soup. To quote from Professor Malcolm's paper: "While these experiments were in progress similar work was being done on Stewart Island oysters, both fresh and tinned, and on the whole the toheroas were the richer of the two, although both are valuable sources of vitamin A."

"Food Values of New Zealand Fish: Part 10—Seasonal Variation in Stewart Island Oysters" appears in Volume 59, Part IV, of the "Transactions of the New Zealand Institute." Dr. Malcolm's analysis of these oysters monthly from March to late October showed a high glycogen ("fat") content early in the season and a more or less gradual fall up to October. The vitamin A content was lower in the winter months of June, July, and August than in March to May, and showed a marked increase in September. Both the spawn and the spawned oysters, and also tinned oysters, were found to contain considerable amounts of vitamin A.

"Studies in New Zealand Fishes," a further taxonomic paper by Mr. L. T. Griffin, of the Auckland Museum, in Volume 59, Part II, of the "Transactions of the New Zealand Institute," contains a description of ten species, one of them being new to science.

"Sharks of New Zealand: No. 2," by Mr. W. J. Phillipps, of the Dominion Museum, being the second part of a paper published in *New Zealand Journal of Science and Technology* (Volume 6, 1924) appears in Volume 10, No. 4 (December, 1928), of the same journal. It gives a description of nine species of sharks and dogfish found off the coasts of the Dominion. In the same issue of the journal Mr. Phillipps has a paper on "The Dried Swim-bladder of the Ling as a Commercial Product."

"Notes on the Pilchard (*Sardinia neopilchardus*) in Queen Charlotte Sound," "Note on an Anchovy (*Engraulis australis*)," and "Note on a Fish ascending with Whitebait," are further contributions from Mr. W. J. Phillipps published in Volume 10, No. 6, of the *New Zealand Journal of Science and Technology*.

A report on the work of the Marine Fisheries Investigation Station, Portobello, has been submitted by the Hon. G. M. Thomson, Chairman of the Board of Management (see pages 22 and 23).

I have, &c.,
A. E. Hefford,
Chief Inspector of Fisheries.

The Secretary, Marine Department, Wellington.

MARINE FISHERIES INVESTIGATION STATION.

SIR,—

I have the honour to submit the following report of the Board of the Marine Biological Station for the year ending 31st March, 1929.

EUROPEAN LOBSTERS.

At the date of the last annual report the stock of these crustaceans in the pond numbered thirty-nine—viz., seventeen males and twenty-two females—the majority of the latter egg-bearing. The animals moulted at intervals throughout the year, and the first lot of eggs were thus lost. This was no doubt due to the disturbance in their habits caused by the change of season. The majority moulted during the winter months, and they did not acclimatize quickly. Probably the low temperature of the ponds—lower than they were accustomed to in the English Channel from which they came—had a good deal to do with this, as of the four lobsters which were lost, three died in July, when the temperature of the pond-water was as low as 4° C.

The stock now stands at thirty-five—viz., sixteen males and nineteen females—and all appear to be thoroughly acclimatized and to be thriving well. Most of the females are carrying batches of eggs, so that when the hatching season is on, during the coming November and December, it is anticipated that there will be a liberation of numerous larvæ—probably from 250,000 to 300,000.

There has been no appearance of mature lobsters reported from any part of the New Zealand coast. Last July Mrs. Dougall, formerly of Quarantine Island, sent down the carapace of what was thought to be a large lobster from Motuihi Island, in Hauraki Gulf. It proved, however, to be that of a large crayfish—*Palinurus hugelli*—a species found occasionally in bays of the North Auckland region, and which is not uncommon on the shores of Tasmania and Australia.

BIOLOGICAL WORK.

During the year Dr. Harold Finlay has received from the station all tow-nettings, contents of fish-stomachs, fish-scales, and otoliths. As he has been working under Mr. Hefford's department, his reports are made direct to him. In regard to tow-nettings, the whole of the material has been returned to the station because there is no one in New Zealand at the present time who can work it up. This is disappointing but unavoidable. Much of the recently collected nettings is of an extremely interesting character, containing quantities of Cumaceans, Ostracods, and other groups of crustaceans. Unfortunately our position appears to be one common to all biological stations and museums throughout the world, as, from inquiries made by the Chairman of the Board, the British Museun, the Washington, Melbourne, and Sydney Museums all have immense stocks of similar material waiting to be worked up, while specialists in this group are few. The Board has hopes during the current year of securing the services of a senior student who has recently been specializing in this direction.

Trawling has been carried out throughout the year on all grounds in the vicinity of Otago Heads worked by the local trawlers. This work is done every week when weather permits, but a good deal of broken time occurred this past season on account of adverse weather conditions. The engine in the launch is only of $7\frac{1}{2}$ horse-power, and it is not possible to trawl at a greater depth than 18 fathoms. But the Board is importing a new 15-horse-power engine, and this will enable the trawl to be worked to a depth of about 25 fathoms, which is approximately the limit of the trawling-ground off Otago Heads. It is probably much greater, but the local fishing fleet is not of sufficiently heavy craft to work in much deeper water. With larger and more powerfully equipped vessels it should be possible to test the sea-bottom down to 100 fathoms, which is about the limit of fishing in the Northern Hemisphere.

The spawning season for all flat fishes was later last year than in several previous seasons. The eggs of the common sole are usually ripe in July and August, but the first ripe ova were taken on the 27th August last, and it was well-nigh into September before spawning generally took place. The fish were by no means abundant, but those taken were large and in good condition. Only 1,200,000 eggs were hatched out, and the fry liberated in one of the outside ponds, where there were no fish to interfere with them, and from which they would gradually find their way to the bay at every high-water period.

Usually both common or sand flounders and lemon soles spawn in August, but both species of fish examined at the end of August were found this year to be unripe, showing the general lateness of of the season. All flat fish taken in November were found to have spawned and to be in poor condition. In all species of flat fish examined the males were mature before the females were ripe for the extrusion of the ova.

The lateness of the season was further shown by the data of occurrence of kelp-fish (*Coridodax pullus*) and moki (*Latridopsis ciliaris*). These fish mostly leave the harbour on the approach of winter, returning in spring. In 1927 kelp-fish were taken in the set-nets in the channel between the station and Quarantine Island in the latter part of September. In 1928 they were first met with in the early part of November. Subsequently both species were plentiful during the summer months. Kelp-fish are not a common fish in the Dunedin market, but in Wellington they are abundant, and are sold under the name of "butterfish."

Whale-feed (*Munida gregaria*) have been scarcer in the harbour than for some years past. For a short time in November large quantities were on the surface outside and inside the harbour. From November to the end of March only small scattered schools of them appeared. It would seem that they had mostly gone to the bottom, for right through the season the stomachs of most fish caught, both inside and outside the harbour, contained large quantities of these crustaceans. The mature animal lives most of its life at the bottom of the sea, and the swimming stage, during which it is

known as "whale-feed," is only one phase of its existence. But in this swimming stage they appear to be the principal article of food for a considerable part of the year to most species of fish. Hence it is desirable to keep a close record of their occurrence both in Otago waters and in other centres along the cost from the Bluff to the North. The correlation of their occurrence with that of diatoms and Peridineae, which appear to be the basis of all fish-food, together with the variations of temperature and salinity of the waters they frequent, would furnish valuable data towards a knowledge of the seasonal movements and migrations of fish.

Hydrographic Work.

Throughout the year visits to the fixed station—three miles east of Taiaroa Head—have been made as frequently as possible, only interrupted from time to time by spells of bad weather, when the launch could not go out. Surface temperatures and water-samples have been taken, and the salinity of the latter determined by the Government Analyst's department in Dunedin. At the same time the direction of currents, state of tide, and weather conditions have been carefully noted. Similar observations of temperature and collection of water-samples have been regularly made by Mr. Scofield, lightkeeper at Cape Saunders, whose work and assistance are much appreciated by the Board. These observations only touch the fringe of the subject. They are only taken at the surface, as are the collections of animal species. Occasionally dredgings from the bottom of the sea down to 20 fathoms are collected.

With a scientific observer on the staff, such as the Board hopes to secure during the year now to be entered on, it should be possible to take temperatures, water-samples, and collection of plankton at varying depths. Estimation of phosphates and nitrates are also required. Results from all this class of work cannot be utilized at present, but the accumulation of such data must come sooner or later, and these, together with fishery statistics from all parts of the country, will place the fisheries of this country on a scientific basis. At present knowledge of the whole subject is infinitesimal.

During the year 120 drift-bottles were liberated on the ebb tide from one to one and a half miles north of Otago Heads. Up to date twenty-one have been reported, the printed forms giving the date and locality of finding being returned to the station. All the bottles recovered were found on the beaches within six miles of the point of liberation. This only bears out what was found in the drift-bottle experiments of eight years ago, when 450 bottles were set adrift. All liberated within five miles of Otago Heads came ashore on the beaches to the north, one or two inside the harbour. Those set free six miles or more outside the Heads drifted much farther north, and actually four of them were recorded from the Chatham Islands, showing that the set of the north-east current off the east coast of Otago is largely deflected to the east by Banks Peninsula. The chances of a glass bottle being picked up on a sandy beach in such a sparsely peopled region as the Chatham Islands appears very small indeed. This fact of the steady flow of the current along the northern coast, and particularly of its swing into Blueskin Bay from the North Heads, coupled with the fact that lobster larvæ seek the bottom mostly within fifteen days of being hatched, has always appeared to the Board as the strongest argument in favour of liberating larvæ from the station. There is always a probability of some finding lodgment and growing ultimately to maturity in the rocky portions of the coast north of the Heads.

General Station Work.

During the year Mr. S. Broadley, Assistant Curator at the station, in his capacity of Inspector of Fisheries for the Otago District, made two visits of inspection to the outlying fishing-ports from Oamaru to Waikawa. He also visited the Dunedin Fish-market at regular intervals, keeping a record of the fish-supply and prices. This information is reported to the Chief Inspector of Fisheries, Wellington.

Mr. W. Adams, Curator, regularly sends monthly reports of the weather at the station, temperatures, rainfall, &c., to the Director of the Meteorological Office, Wellington. He has kept the buildings, launch and dinghy, and pumping-plant in first-class order throughout the year. The trawl, drift, and seine nets are in good repair, and will not need renewal for some considerable time.

The library continues to receive additions from many outside sources, and the card cataloguing of the pamphlets and articles in journals dealing with marine-fishery problems is kept up to date.

I have, &c.,

Geo. M. Thomson,

Chairman of the Board.

The Hon. the Minister of Marine, Wellington.

TABLES.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR ENDED 31ST MARCH, 1929, IN COMPARISON WITH THE TWO PREVIOUS YEARS.

Revenue.

Item.	1926–27.	1927–28	1928–29.
	£ s. d.	£ s. d.	£ s. d.
Shipping Branch—			
Light dues	81,064 9 8	81,247 11 8	80,979 13 11
Engagement and discharge of seamen, &c.	3,124 13 3	2,790 2 6	2,583 2 9
Survey of ships	5,371 7 8	5,144 7 6	5,123 8 6
Examination fees	379 5 0	321 5 0	268 8 0
Miscellaneous receipts	505 18 3	427 5 11	296 6 11
Harbours—			
Port dues, &c.	920 17 1	1,801 18 10	1,998 18 5
Foreshore revenue	5,988 17 4	6,212 2 3	5,582 0 5
Inspection of machinery—			
Inspection fees	19,523 5 3	19,503 0 9	19,912 11 4
Examination fees	556 4 0	497 5 0	402 5 0
Miscellaneous receipts	8 3 0	46 16 0	9 18 0
Fisheries—			
Net profit from sale of oysters	1,347 11 7	1,003 17 11	1,160 0 11
Fishing-boat license fees, &c.	443 17 5	483 16 5	437 7 11
Rental of toheroa areas	300 0 0	300 0 0	300 0 0
Sale of trout-ova, &c.	185 18 4	361 3 8	104 12 7
Government steamers—			
Fares, freights, &c.	5,134 9 6	1,458 9 2	4,046 7 3
Ross Dependency—			
Royalties on whale-oil	2,921 5 0	7,176 15 0	13,961 17 6
Miscellaneous revenue—			
Sale of charts, books, and forms	1,336 4 4	1,228 19 4	1,121 16 10
Sale of "New Zealand Nautical Almanac"	137 6 4	160 12 0	149 15 5
Rents of buildings and reserves	199 13 0	185 19 5	177 10 2
Miscellaneous receipts	20 8 6	40 12 10	41 6 4
Totals, general accounts	129,469 14 6	130,392 1 2	138,657 8 2
Westport Harbour Account	62,976 13 10	65,909 8 1	64,214 5 6
Totals	192,446 8 4	196,301 9 3	202,871 13 8

Expenditure.

Branch.	1926–27.	1927–28.	1928–29.
	£ s. d.	£ s. d.	£ s. d.
Head Office	10,007 16 10	9,721 15 2	9,397 4 4
Harbours	3,938 6 0	7,790 0 0	4,059 18 4
Lighthouses	24,157 5 4	24,266 9 2	23,919 13 11
Mercantile marine	25,021 18 8	24,792 14 9	25,266 9 2
Inspection of machinery	22,288 13 8	21,842 2 1	21,573 2 7
Fisheries	3,385 5 11	3,389 19 10	3,281 12 10
Government steamers	22,605 0 4	20,733 16 9	21,559 12 3
Miscellaneous services	2,861 17 4	2,161 11 7	2,146 4 0
Grants and subsidies	290 0 0	594 0 0	260 0 0
Depreciation	9,032 5 3	9,158 5 10	9,662 2 8
Interest on capital	18,005 6 0	18,119 18 0	17,285 17 5
Totals, general accounts	141,593 15 4	142,570 13 2	138,411 17 6
Westport Harbour Account	52,769 12 6	65,828 1 7	68,871 13 0
Totals	194,363 7 10	208,398 14 9	207,283 10 6

N.B.—The figures quoted for 1928–29 are subject to audit.

TABLE SHOWING THE NUMBER OF SEAMEN ENGAGED AND DISCHARGED IN NEW ZEALAND, AND THE FEES RECEIVED, FOR THE YEAR ENDED 31ST MARCH, 1929.

Port.	Engagements and Discharges, Foreign and Intercolonial Trade.				Engagements and Discharges, Home Trade.				Total Engagements.		Total Discharges.		Grand Totals.	
	Engagements.		Discharges.		Engagements.		Discharges.							
	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.
		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.
Auckland	2,334	227 12 0	2,410	232 1 0	2,118	173 19 0	2,137	182 4 0	4,452	401 11 0	4,547	414 5 0	8,999	815 16 0
Dunedin	583	51 19 0	586	53 19 0	393	33 12 0	427	35 0 0	976	85 11 0	1,013	88 19 0	1,989	174 10 0
Gisborne	3	0 6 0	4	0 8 0	150	9 4 0	158	9 10 0	153	9 10 0	162	9 18 0	315	19 8 0
Greymouth	54	5 4 0	51	4 18 0	50	3 14 0	51	3 14 0	104	8 18 0	102	8 12 0	206	17 10 0
Hokianga	3	6 0	1	2 0	..	..	..	..	3	0 6 0	1	0 2 0	4	0 8 0
Hokitika	..	..	..	..	13	1 0 0	20	0 16 0	13	1 0 0	20	0 16 0	33	1 16 0
Invercargill	42	3 7 0	41	3 5 0	57	3 1 0	49	3 0 0	99	6 8 0	90	6 5 0	189	12 13 0
Kaipara	2	0 4 0	..	..	..	..	..	..	2	0 4 0	..	..	2	0 4 0
Lyttelton	489	48 18 0	453	45 6 0	691	52 14 0	674	51 6 0	1,180	101 12 0	1,127	96 12 0	2,307	198 4 0
Napier	29	2 18 0	33	3 6 0	239	18 12 0	267	19 17 0	268	21 10 0	300	23 3 0	568	44 13 0
New Plymouth	18	1 16 0	17	1 14 0	65	4 11 0	64	4 14 0	83	6 7 0	81	6 8 0	164	12 15 0
Nelson	9	0 18 0	5	0 10 0	539	39 3 0	526	36 11 0	548	40 1 0	531	37 1 0	1,079	77 2 0
Oamaru	1	0 2 0	1	0 2 0	18	1 14 0	23	2 4 0	19	1 16 0	24	2 6 0	43	4 2 0
Onehunga	..	..	..	..	246	23 4 0	257	24 6 0	246	23 4 0	257	24 6 0	503	47 10 0
Patea	..	..	..	..	20	0 14 0	20	0 14 0	20	0 14 0	20	0 14 0	40	1 8 0
Picton	5	0 10 0	5	0 10 0	23	1 10 0	21	1 6 0	28	2 0 0	26	1 16 0	54	3 16 0
Tauranga	..	..	..	..	1	0 2 0	2	0 4 0	1	0 2 0	2	0 4 0	3	0 6 0
Thames	..	..	..	..	13	1 2 0	23	2 0 0	13	1 2 0	23	2 0 0	36	3 2 0
Timaru	25	2 10 0	7	0 14 0	47	4 7 0	41	3 15 0	72	6 17 0	48	4 9 0	120	11 6 0
Wairau	..	..	..	..	57	2 1 0	60	1 17 0	57	2 1 0	60	1 17 0	117	3 18 0
Wanganui	14	0 15 0	4	0 8 0	63	3 14 0	69	4 10 0	77	4 9 0	73	4 18 0	150	9 7 0
Wellington	4,071	361 19 0	3,382	301 16 0	1,980	172 9 0	2,018	177 1 0	6,051	534 8 0	5,400	478 17 0	11,451	1,013 5 0
Westport	31	3 2 0	27	2 10 0	61	4 16 0	58	4 10 0	92	7 18 0	85	7 0 0	177	14 18 0
Whangarei	..	..	2	0 4 0	..	..	..	..	..	..	2	0 4 0	2	0 4 0
Totals	7,713	712 6 0	7,029	651 13 0	6,844	555 3 0	6,965	568 19 0	14,557	1,267 9 0	13,994	1,220 12 0	28,551	2,488 1 0

TABLE SHOWING TOTAL COST OF MAINTENANCE (EXCLUDING INTEREST ON CAPITAL AND DEPRECIATION) OF NEW ZEALAND COASTAL LIGHTHOUSES FOR THE YEAR ENDED 31ST MARCH, 1929.

Name of Lighthouse.	Salaries and Wages.	Oil consumed.		Stores and Maintenance.	Totals.
		Gallons.	Value.		
	£ s. d.		£ s. d.	£ s. d.	£ s. d.
Akaroa Head	523 18 4	650	45 8 3	132 8 6	701 15 1
Brothers	856 3 2	798	55 12 7	280 6 6	1,192 2 3
Cape Brett	747 18 7	735	51 4 10	376 4 0	1,175 7 5
Cape Campbell	504 15 0	749	52 11 0	140 19 6	698 5 6
Cape Egmont	511 15 0	601	42 7 4	70 10 7	624 12 11
Cape Maria	899 8 7	840	59 6 10	536 4 3	1,494 19 8
Cape Palliser	544 1 9	659	45 7 9	150 12 1	740 1 7
Cape Saunders	444 4 9	761	55 15 6	151 0 10	651 1 1
Castlepoint	479 1 8	643	45 2 4	100 7 5	624 11 5
Centre Island	755 0 10	648	45 5 11	242 14 10	1,043 1 7
Cuvier Island	705 12 0	795	41 17 8	354 17 1	1,102 6 9
Dog Island	537 10 7	756	52 12 11	131 10 5	721 13 11
East Cape	491 14 7	857	50 14 7	306 15 10	849 5 0
Farewell Spit	803 13 1	769	54 7 5	230 12 6	1,088 13 0
French Pass	235 1 8	133	9 11 7	39 8 1	284 1 4
Godley Head	523 16 8	828	55 16 6	155 1 5	734 14 7
Jacks Point	286 0 0	293	21 2 2	23 13 8	330 15 10
Kaipara Heads	783 3 4	970	67 11 11	251 18 1	1,102 13 4
Manukau Heads*	448 15 0	621	43 5 11	76 5 10	568 6 9
Moeraki	459 15 0	645	44 19 5	120 7 6	625 1 11
Moko Hinou	747 7 1	723	50 7 5	243 8 3	1,041 2 9
Nugget Point	465 8 1	685	48 5 2	91 19 8	605 12 11
Pencarrow Head	543 3 1	764	53 19 11	139 8 3	736 11 3
Portland Island	717 7 4	775	52 11 11	340 1 2	1,110 0 5
Puysegur Point	798 7 0	735	52 3 10	207 5 7	1,057 16 5
Stephens Island	775 18 8	826	57 14 4	289 3 3	1,122 16 3
Tory Channel	100 0 0	185	25 17 4	15 9 0	141 6 4
Waipapapa Point	515 5 0	684	48 9 3	145 15 3	709 9 6
Automatic lights	..	..	..	906 13 0	906 13 0
Fog-signals	..	..	..	134 14 2	134 14 2
	16,204 5 10	19,128	1,329 11 7	6,385 16 6	23,919 13 11

* Converted to automatic as from 5th March, 1929.

RETURN OF ESTATES OF DECEASED SEAMEN RECEIVED AND ADMINISTERED IN PURSUANCE OF THE PROVISIONS OF THE SHIPPING AND SEAMEN ACT, 1908, DURING THE YEAR ENDED 31ST MARCH, 1929.

Name of Seaman.	Balance to Credit of the Estate on 31st March, 1928.	Amount received.	Amount paid.	Balance to Credit of the Estate on 31st March, 1929.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Alexander, S.	0 9 2	..	0 9 2	..
Anderson, M.	..	25 5 2	..	25 5 2
Bass, F. C.	..	47 18 4	47 18 4	..
Bedwell, E.	14 3 9	..	14 3 9	..
Briginshaw, R.	..	12 8 3	12 8 3	..
Clarke, J.	44 0 10	3 0 0	47 0 10	..
Edminston, J.	..	9 4 10	9 4 10	..
Evans, W.	..	8 10 4	..	8 10 4
Fowler, C.	5 18 4	..	5 18 4	..
Freeman, T.	..	1 1 2	1 1 2	..
Kake, Jioni	11 10 5	..	11 10 5	..
Kendrick, A.	..	13 10 8	13 10 8	..
Kennedy, M.	..	5 16 8	5 16 8	..
Landreth, J.	..	234 1 9	234 1 9	..
Liewendahl, J.	..	24 12 2	24 12 2	..
Mazone, A.	..	3 3 0	..	3 3 0
Manchin, J.	26 12 9	..	26 12 9	..
Merritt, E.	..	8 9 11	8 9 11	..
Murray, J. J.	6 11 11	..	6 11 11	..
McMahon, S. G.	10 11 3	10 10 11	8 0 0	13 2 2
Saran, J.	..	19 12 7	19 12 7	..
Suvanto, A.	7 1 11	38 5 1	45 7 0	..
Teixeira, D.	..	10 10 0	10 10 0	..
Thomassen, T.	..	0 9 0	0 9 0	..
Trevarthen, H.	..	4 13 4	4 13 4	..
Urwin, W.	..	10 2 8	10 2 8	..
Williams, E. C.	..	5 18 9	3 0 0	2 18 9
	127 0 4	497 4 7	571 5 6	52 19 5

RETURN SHOWING AMOUNTS RECEIVED PRIOR TO 1ST APRIL, 1928, STANDING TO CREDIT OF ESTATES OF DECEASED SEAMEN, AND FOR WHICH CLAIMS HAVE NOT BEEN PROVED.

	£ s. d.
Cliffe, F., late A.B., s.s. "Storm"	5 10 6
Darling, J., late deck hand, s.s. "Aotea"	1 8 8
King, C., late A.B., scow "Herald"	8 5 2
Lancaster, J. A., late A.B., s.s. "Gale"	50 1 11
Morley, J., late fireman, s.s. "Waimarino"	1 11 10
Nelson, R., late fireman, s.s. "Ripple"	1 1 7
Peterson, F., late A.B., s.s. "Tiroa"	34 10 1
Small, T., late fireman, s.s. "Arahura"	12 15 6
Welsh, T. B., late second cook, s.s. "Marama"	8 7 0
	£123 12 3

TABLE SHOWING THE NUMBER OF FISHING-VESSELS AND THE NUMBER OF FISHERMEN AND OTHER PERSONS ENGAGED IN THE FISHING INDUSTRY AT EACH PORT FOR THE YEAR ENDED 31ST MARCH, 1929.

Name of Port.	Vessels engaged in Fishing for Wet Fish.														Vessels engaged in Shell-fishery.						Number of Persons employed.					
	Steamers Trawling.		Motor Trawlers.		Steamers Danish-seining.		Motor-vessels Danish-seining.		Motor-vessels, Set-net and Line Fishing.		Sailing-boats.		Rowing-boats.		Oyster-dredging Vessels		Mussel-dredging Vessels.		Crayfishing Vessels.		Fishermen.		Others.		Total.	
	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.	Whole Time.	Part Time.
Mongonui	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	1	..	..	1	1
Hokianga	..	..	..	..	..	..	..	..	7	..	..	..	..	9	..	..	..	..	..	..	..	16	..	..	..	16
Russell	..	..	..	..	..	..	..	1	15	25	1	1	2	2	..	..	..	..	..	3	30	50	..	7	30	57
Kaipara	..	..	..	..	..	..	..	..	24	20	..	..	..	4	..	..	..	..	..	..	31	34	..	12	31	46
Whangarei	..	..	..	..	..	..	..	..	6	18	..	..	..	2	..	..	..	1	..	..	12	36	6	..	18	36
Auckland*	..	..	2	3	..	..	1	22	..	100	9	1	5	30	40	..	..	..	1	..	30	300	100	130	..	430	100
Thames	..	..	..	..	..	..	..	4	1	31	..	..	..	..	2	..	..	..	2	..	..	95	4	24	..	119	4
Tauranga	..	..	..	..	..	..	..	5	..	25	..	..	..	..	..	..	..	..	..	..	..	30	..	12	..	42	..
Gisborne	..	..	1	..	..	..	..	..	..	4	..	..	..	..	6	..	..	..	..	..	10	10	9	8	4	18	13
Napier	..	..	9	..	..	..	..	..	..	1	24	..	..	..	60	..	..	..	5	..	15	35	126	22	8	57	134
New Plymouth	..	..	..	..	..	..	..	..	..	..	21	..	1	..	19	..	..	..	..	..	9	..	70	..	..	..	70
Wanganui	..	..	..	..	..	..	..	..	..	5	19	..	..	..	..	..	..	..	..	..	..	12	..	3	..	15	..
Foxton	..	..	..	..	..	..	..	..	..	..	3	..	..	..	25	..	..	..	..	..	..	..	56	..	..	..	56
Wellington	..	..	2	..	..	..	..	..	..	54	..	1	..	10	19	..	..	..	..	4	70	168	30	21	..	189	30
Picton	..	..	..	..	..	..	..	..	..	29	19	..	..	4	4	..	..	..	..	..	..	51	28	..	..	51	28
Blenheim	..	..	..	..	..	11	..	..	..	..	11	..	..	..	..	..	..	..	..	..	..	14	9	..	..	14	9
Nelson	..	..	..	..	..	..	1	..	6	..	8	7	..	..	..	2	..	..	..	..	12	..	32	18	..	..	32	18
Westport	..	..	..	..	..	8	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	2	6	1	2	3	8
Greymouth	..	..	..	..	..	2	..	..	..	..	..	6	..	11	..	..	..	..	..	..	..	..	23	..	..	..	23
Hokitika	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	2	..	..	..	2
Kaikoura	..	..	..	..	..	..	..	..	..	..	..	14	..	..	..	..	..	..	..	..	3	..	24	1	..	1	24
Kaiapoi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30	..	..	..	..	..	..	3	27	..	..	3	27
Akaroa	..	..	..	2	3	4	..	..	1	..	9	7	..	..	..	4	..	..	..	..	..	16	38	..	..	16	38
Lyttelton	..	..	2	..	7	..	..	1	..	..	4	8	..	..	..	..	..	..	..	..	..	35	14	12	..	47	14
Timaru	..	..	..	..	..	24	..	..	..	..	..	27	..	..	..	..	..	..	..	..	..	31	..	8	..	39	..
Oamaru (including Moeraki)	..	..	..	..	..	..	..	..	..	37	1	..	..	1	..	..	..	..	..	..	8	56	1	5	1	61	2
Dunedin and Otago District	..	3	..	16	12	..	..	..	..	40	16	..	..	6	20	..	..	..	..	..	8	100	120	12	..	112	120
Invercargill	..	..	..	..	..	..	..	..	..	40	..	..	..	8	..	..	..	..	..	..	..	140	..	..	..	140	..
Bluff	..	..	..	..	..	..	..	..	..	48	..	..	..	..	3	5	2	..	..	..	..	145	..	20	..	165	..
Stewart Island	..	..	..	..	..	..	..	..	..	..	32	..	..	..	..	..	..	..	..	..	..	..	78	..	12	..	90
Chatham Islands	..	..	..	..	..	..	..	..	..	12	2	..	..	..	..	..	..	..	..	..	..	24	9	7	1	31	10
Totals	..	..	19	5	26	61	1	2	38	2	492	298	3	18	62	254	5	2	..	9	16	157	1,373	929	292	47	1,665	976

* Including Manukau, Mercury Bay, and Coromandel.

TABLE SHOWING THE VARIOUS KINDS OF FISH CAUGHT AND APPROXIMATELY THE TOTAL QUANTITIES OF FISH AND SHELL-FISH LANDED AT THE DIFFERENT FISHING-PORTS FOR THE YEAR ENDED 31ST MARCH, 1929.

Name of Port.	Principal Kinds of Fish caught.	Quantity landed.	Total Value (Fish).	Shell Fishery (excluding Toheroa).							Grand Total Value.
				Mussels.	Value.	Oysters (Dredge).	Value.	Crayfish.	Value.	Total Value (Shell-fish)	
		Cwt.	£	Sacks.	£	Sacks.	£	Sacks.	£	£	£
Mongonui	Snapper, flounder, rock-cod, tarakihi, hapuku, mullet, kahawai, kingfish	65	21	..	..	..	..	..	..	..	21
Hokianga	Snapper, mullet, flounder, kahawai (no other records)	..	..	..	..	..	..	..	..	..	..
Russell	Mullet, flounder, hapuku, snapper, crayfish	7,025	6,810	..	..	..	..	..	..	..	6,810
Kaipara	Snapper, mullet, flounder, trevally, gurnard, toheroa	4,975	10,533	..	..	..	..	..	..	..	10,533
Whangarei	Snapper, hapuku, flounder, mullet, tarakihi, blue cod	4,000	1,200	..	..	..	..	..	..	..	1,200
Auckland	Snapper, tarakihi, flounder, dabs, sole, hapuku, gurnard, mullet, trevally, john-dory, kingfish, cod, moki	83,040	72,583	4,337	1,182	..	..	3,228	3,630	4,812	77,395
Thames	Snapper, flats, hapuku, gurnard, trevally, john-dory, butterfish, cod, kingfish, mullet, moki, tarakihi	14,644	16,939	981	278	..	..	..	..	278	17,217
Tauranga	Hapuku, kahawai, snapper, moki, tarakihi, flounder, mullet, blue cod, rock-cod, red cod, gurnard, garfish, barracouta, trevally, kingfish	5,600	5,168	..	..	..	..	..	..	..	5,168
Gisborne	Tarakihi, gurnard, snapper, hapuku, sole, flounder, kahawai, crayfish	3,465	4,852	..	..	..	..	..	..	..	4,852
Napier	Flat fish, round fish, whitebait, crayfish, shell-fish	17,062	25,023	480	300	..	..	250	468	768	25,791
New Plymouth	Snapper, flounder, mullet, hapuku	1,300	1,820	..	..	..	..	..	..	..	1,820
Wanganui	Snapper, hapuku, flounder	486	695	..	..	..	..	..	..	..	695
Foxton	Snapper, hapuku, flounder, kahawai, mullet, whitebait	800	2,500	..	..	..	..	..	..	..	2,500
Wellington	Hapuku, warehou, tarakihi, moki, crayfish, butterfish, flounder, sole, hake, barracouta, ling, snapper, cod, bass, gurnard, whitebait	45,458	47,841	..	..	..	..	1,704	1,596	1,596	49,437
Picton	Hapuku, blue cod, moki, ling, crayfish, kingfish, kahawai (bait), herring (bait), snapper, tarakihi, warehou, butterfish, flounder, sole	6,260	5,842	..	..	..	..	..	..	..	5,842
Blenheim	Sole, flounder, red cod, moki, mackerel, hapuku, tarakihi, ling, crayfish	2,450	3,970	..	..	..	..	100	60	60	4,030
Nelson	Flat fish, snapper, bream, hapuku, gurnard, blue cod	2,755	5,109	..	..	..	..	146D	75	75	5,184
Westport	Whitebait, groper, sole, kahawai, flounder, turbot, snapper, crayfish, cod, skate, ling, barracouta, herring, gurnard	811	2,263	..	..	..	..	..	..	..	2,263
Greymouth	Hapuku, herring, snapper, sole, flounder, cod, ling	142	419	..	..	..	..	..	..	..	419
Hokitika	Whitebait, herring, trevally, kahawai	602	5,349	..	..	..	..	..	..	..	5,349
Kaikoura	Hapuku, ling, kingfish, trumpeter, tarakihi, stony-eye, blue cod, crayfish	3,046	7,110	..	..	..	..	..	..	..	7,110
Kaiapoi	Whitebait	5,039	7,607	..	..	..	..	..	..	..	7,607
Akaroa	Hapuku, crayfish, flounder, sole, ling, moki, butterfish, barracouta, kingfish										
Lyttelton	Hapuku, sole, flounder, kingfish, tarakihi, ling, gurnard, moki										
Timaru	Flounder, sole, brill, groper, ling, red cod, gurnard, kingfish, barracouta	6,800	14,600	..	..	..	..	..	..	..	14,600
Oamaru	Hapuku, blue cod, moki, red cod, barracouta, ling, crayfish	5,190	7,712	..	..	..	..	191	142	142	7,854
Moeraki	Hapuku, blue cod, red cod, ling, barracouta, moki, crayfish										
Dunedin and Otago Districts	Hapuku, flat fish, blue cod, kingfish, tarakihi, trevally, moki, bream, trumpeter, ling, red cod, barracouta	41,320	45,452	..	..	..	..	..	..	..	45,452
Invercargill	Blue cod, hapuku, whitebait, flounder, sole, kingfish, ling, mullet, moki, barracouta, green-bone, crayfish	3,500	6,500	..	..	..	..	..	..	..	6,500
Bluff	Blue cod, hapuku, flounder, oysters	5,616	14,345	..	..	38,793	29,095	..	..	29,095	43,440
Stewart Island	Blue cod, hapuku, trumpeter, moki, green-bone	7,482	9,547	..	..	..	..	..	..	..	9,547
Chatham Islands	Blue cod, groper	6,867	18,600	..	..	..	..	..	..	..	18,600
Returns from minor ports		1,157	2,042	..	..	..	..	5	18	18	2,060
	Totals	286,957	352,452	5,798	1,760	38,793	29,095	5,478S 146D	5,989	36,844	389,296

S = Sacks; D = Dozen.

TABLE SHOWING THE NUMBER OF SACKS AND VALUE OF THE OYSTERS OBTAINED IN THE DOMINION DURING THE YEAR ENDED 31ST DECEMBER, 1928.

Locality.	Quantity.	Value (Wholesale).
DREDGE-OYSTERS.		
	Sacks.	£ s. d.
Foveaux Strait	38,793	29,095 0 0
ROCK-OYSTERS.		
Bay of Islands	2,143	
Kaipara Harbour	968	
Hauraki Gulf*	1,435	6,652 0 0
Coromandel	231	
Great Barrier Island	523	
Whangarei Harbour	244	
Total	5,544	
Grand total	44,337	35,747 0 0

* Takatu to Gull Point, 252; Kawau Island, 74; Rakino, 97; Motutapu, 133; Waiheke, 418; Ponui, 409; Pahiki and Pakatoa, 52.

TABLE SHOWING NUMBER AND SPECIES OF WHALES TAKEN OFF NEW ZEALAND COAST, AND VALUE OF PRODUCTS FOR THE YEAR ENDED 31ST MARCH, 1929.

Whaling-station.	Number of Whales taken.	Species.	Yield of Oil.	Quantity of Bonedust and Fertilizer.	Total Value.
			Tons.	Tons.	£
Whangamumu (Russell)	50	Humpback ..	237	45	5,766
Marlborough Sounds (Picton)	55	,, ..	270	..	5,400
Totals ..	105	..	507	45	11,166

TABLE SHOWING THE TOTAL QUANTITY AND VALUE OF FISH IMPORTED INTO AND EXPORTED FROM NEW ZEALAND DURING THE YEAR ENDED 31ST DECEMBER, 1928.

Fish imported.

Description of Fish.	Quantity.	Value.
		£
Oysters	Nil	..
Other fish—		
Frozen or fresh	350 cwt.	1,730
Smoked, dried, pickled, or salted	1,640 cwt.	5,401
Preserved in tins	4,029,583 lb.	174,959

Fish exported.

Description of Fish.	Produce of New Zealand.		Re-exports.		Total Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		£		£		£
Oysters, fresh	60,746 doz.	772	..	..	60,746 doz.	772
Other fish—						
Frozen or fresh	21,481 cwt.	62,433	..	..	21,481 cwt.	62,433
Smoked, dried, &c. ..	351 cwt.	1,095	..	..	351 cwt.	1,095
Preserved in tins, &c. (including tinned oysters)	171,621 lb.	21,355	47,741 lb.	1,729	219,362 lb.	23,084

SUMMARY OF EXAMINATIONS FOR CERTIFICATES OF COMPETENCY AS MASTER, MATE, OR ENGINEER FOR THE YEAR ENDED 31ST MARCH, 1929.

Class of Certificate.	Auckland.			Wellington.			Lyttelton.			Dunedin.			Other Places.			Totals.		
	Passed.	Failed.	Total.	Passed.	Failed.	Total.	Passed.	Failed.	Total.	Passed.	Failed.	Total.	Passed.	Failed.	Total.	Passed.	Failed.	Total.
Foreign-going masters and mates	3	6	9	10	12	22	..	..	..	..	..	..	..	..	..	13	18	31
Voluntary examination in compass deviation	2	..	2	1	..	1	1	..	1	..	..	..	..	..	..	4	..	4
Voluntary examination in yachtmaster in New Zealand waters	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Voluntary examination in steam	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	1
Home-trade masters and mates	6	4	10	6	3	9	4	2	6	..	..	..	..	..	..	16	9	25
Masters of river-steamers ..	6	2	8	..	..	..	..	..	..	..	..	..	..	..	..	6	2	8
Seagoing engineers (steam) ..	17	14	31	6	2	8	10	7	17	6	4	10	19	12	31	58	39	97
River-steamer engineers ..	3	..	3	..	..	..	..	..	..	..	..	..	2	2	4	5	2	7
Marine engine-driver ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1
Seagoing engineers (oil) ..	18	5	23	1	..	1	1	..	1	1	2	3	11	4	15	32	11	43
River engineers (oil) ..	20	5	25	1	..	1	3	..	3	5	..	5	23	3	26	52	8	60
Totals	75	37	112	25	18	43	19	9	28	12	6	18	55	22	77	186	92	278

RETURN OF STEAMERS AND OIL-ENGINE VESSELS TO WHICH CERTIFICATES OF SURVEY WERE ISSUED IN NEW ZEALAND DURING THE YEAR ENDED 31ST MARCH, 1929. (RIVER-LIMIT VESSELS NOT INCLUDED.)

Name of Vessel.	Tons Register.	Nominal Horse-power of Steam-engines and Brake Horse-power of Oil-engines.	Indicated Horse-power of Steam-engines.	Nature of Engines.	Nature of Propeller.	Class of Certificate.	Minimum Number of following Classes of Crew Law requires to be carried.			
							Able Seamen.	Firemen.	Trimmers.	Greasers.
Ahuriri	33	17	70	Compound	Screw	Home trade	2	1	..	..
Akaroa	24	28	108	,,	,,	,,	1	2	..	..
Alexander	185	72	343	,,	Twin screw	,,	4	3	..	..
Alma	21	45	..	Oil-engine	Screw	,,	1	..	..	..
Altair	30	48	..	,,	Twin screw	,,	2	..	..	..
Alwin G.	4	20	..	,,	Screw	,,	1	..	..	..
Apanui	135	28	224	Triple expansion	,,	,,	4	2	..	..
Arahura	796	145	1,038	,,	Twin screw	,,	7	3	2	3
Arapawa	128	47	273	,,	Screw	,,	4	3	..	..
Aratapu	68	170	..	Oil-engine	,,	,,	2	..	..	..
Awahou	152	74	262	Compound	Twin screw	,,	4	3	..	..
Awarua	87	50	163	,,	,,	,,	2	2	..	..
Baroona	54	24	149	,,	Screw	,,	2	2	..	..
Breeze	275	84	376	Triple expansion	,,	,,	4	3	..	..
Britannia	10	12	..	Oil-engine	,,	,,	1	..	..	..
Calm	523	550	696	Triple expansion	,,	,,	6	3	..	..
Canopus	834	250	1,039	,,	,,	,,	6	3	2	3
Clansman	338	99	584	Compound	,,	,,	5	3	..	..
Claymore	119	54	375	Triple expansion	,,	,,	4	3	..	..
Comet	9	20	..	Oil-engine	Twin screw	,,	1	..	..	..
Corinna	791	141	863	Compound	Screw	,,	6	3	2	3
Coronation	59	100	..	Oil-engine	,,	,,	2	..	..	..
Cygnet	70	43	215	Compound	,,	,,	2	2	..	..
Dominion	5	30	..	Oil-engine	,,	,,	1	..	..	..
Dredge 350	488	117	739	Triple expansion	Twin screw	,,	5	3	..	..
Dunedin	125	500	1,066	,,	,,	,,	4	3	2	3
Echo	100	95	..	Oil-engine	,,	,,	4	..	..	..
Elsie Mary	60	100	..	,,	Screw	,,	2	..	..	..
Excelsior	6	46	..	,,	Twin screw	,,	1	..	..	..
Fairburn	60	90	..	,,	,,	,,	2	..	..	..
Gael	55	20	93	Compound	Screw	,,	2	1	..	..
Gale	287	450	351	Triple expansion	,,	,,	4	3	..	..
Glenelg	156	75	215	Compound	,,	,,	4	2	..	..
Gunbar	196	89	588	,,	Twin screw	,,	4	3	..	..
Haere	59	60	..	Oil-engine	,,	,,	2	..	..	..
Hananui II	44	58	278	Triple expansion	Screw	,,	2	3	..	..
Hauturu	162	300	..	Oil-engine	Twin screw	,,	4	..	..	..
Hawera	92	31	201	Compound	Screw	,,	2	2	..	..
Herekino	185	76	457	Triple expansion	,,	,,	4	3	..	..
Hikurangi	163	64	216	,,	,,	,,	4	2	..	..
Hokianga	76	200	..	Oil-engine	Twin screw	,,	2	..	..	..
Holmdale*	295	99	484	Triple expansion	Screw	,,	4	3	..	..
Huanui	56	60	..	Oil-engine	,,	,,	2	..	..	..
Huia	166	160	..	,,	,,	Foreign	4	..	..	..
Humphrey f.v.	79	57	..	Triple expansion	,,	Home trade	..	..	..	..
Huon Belle	22	30	..	Oil-engine	,,	,,	1	..	..	..
Inaha	116	300	..	Motor	Twin screw	,,	4	..	..	..
Invercargill	123	41	247	Compound	Screw	,,	4	2	..	..
James C.	14	100	60	,,	,,	,,	1	1	..	..
Jane Gifford	6	24	..	Oil-engine	Twin screw	,,	1	..	..	..
Jean Gordon	5	40	..	,,	Screw	,,	1	..	..	..
John	134	90	244	Compound	,,	,,	4	2	..	..
John Anderson	30	25	80	,,	,,	,,	2	1	..	..
Kahika	528	103	672	Triple expansion	,,	,,	5	3	..	..
Kahanui	70	170	800	,,	Twin screw	,,	2	3	2	3
Kaiapoi	1,246	201	968	,,	Screw	Foreign	7	3	2	3
Kaikorai*	1,860	430	1,736	,,	,,	,,	8	6	3	3
Kaimai	784	126	748	Compound	,,	Home trade	6	3	..	..
Kaimanawa	1,247	213	1,175	Triple expansion	,,	Foreign	7	3	2	3
Kairanga†	1,726	148	1,177	,,	,,	,,	8	3	2	3
Kaitangata*	1,195	200	865	,,	,,	,,	7	3	2	3
Kaitoa	141	65	319	Compound	Twin screw	Home trade	4	3	..	..
Kaitoke	1,862	434	1,548	Triple expansion	Screw	Foreign	8	6	3	3
Kaituna	1,208	200	1,073	,,	,,	,,	7	3	2	3
Kaiwarra	1,847	358	1,759	,,	,,	,,	8	6	3	3
Kamona	903	117	748	,,	,,	,,	6	3	..	..
Kamona	903	117	724	,,	,,	Home trade	6	3	..	..
Kanna	1,049	158	1,146	,,	,,	Foreign	7	3	2	3
Kapiti	114	35	210	Compound	,,	Home trade	4	2	..	..
Kaponga	1,167	274	1,213	Triple expansion	,,	Foreign	7	3	2	3
Kapua	6	31	..	Oil-engine	,,	Home trade	1	..	..	..
Kapuni	97	30	184	Compound	,,	,,	2	2	..	..
Kartigi	1,167	274	1,248	Triple expansion	,,	Foreign	7	3	2	3
Katie S.	6	12	..	Oil-engine	,,	Home trade	1	..	..	..
Katoa	1,382	335	1,526	Triple expansion	,,	,,	7	6	3	3

* Surveyed twice. † Surveyed three times.

RETURN OF STEAMERS AND OIL-ENGINE VESSELS TO WHICH CERTIFICATES OF SURVEY WERE ISSUED, ETC.—*continued.*

Name of Vessel.	Tons Register.	Nominal Horse-power of Steam-engines and Brake Horse-power of Oil-engines.	Indicated Horse-power of Steam-engines.	Nature of Engines.	Nature of Propeller.	Class of Certificate.	Minimum Number of following Classes of Crew Law requires to be carried.			
							Able Seamen.	Firemen.	Trimmers.	Greasers.
Kawatiri ..	1,856	429	1,622	Triple expansion	Screw ..	Foreign ..	8	6	3	3
Kawau	53	20	97	Compound ..	Twin screw	Home trade ..	2	1	..	..
Kawau	17	50	80	,, ..	Screw ..	,, ..	1	1	..	..
Kekeno	19	50	..	Oil-engine ..	Screw ..	Home trade ..	1	..	..	..
Kennedy ..	131	38	165	Compound ..	Twin screw	,, ..	4	2	..	..
Kiritona	75	150	..	Oil-engine ..	Screw ..	,, ..	2	..	..	..
Koau	77	170	..	,, ..	Twin-screw	,, ..	2	..	..	..
Kohi	20	90	..	,, ..	,,	,, ..	1	..	..	..
Komata* ..	1,294	260	1,234	Triple expansion	Screw ..	,, ..	8	3	2	3
Kotare	83	20	119	Compound ..	,, ..	,, ..	2	2	..	..
Kotiti	18	58	..	Oil-engine ..	,, ..	,, ..	1	..	..	..
Koutunui ..	93	26	148	Compound ..	Twin screw	,, ..	2	2	..	..
Kurow	1,540	330	1,760	Triple expansion	Screw ..	Foreign ..	8	6	3	3
Lady Eva ..	3	120	..	Oil-engine ..	,, ..	Home trade ..	1	..	..	..
Lyttelton ..	24	108	257	Compound ..	Paddle ..	,, ..	1	3	..	..
Maggie	6	8	..	Oil-engine ..	Screw ..	,, ..	1	..	..	..
Mahurangi ..	95	80	236	Compound ..	,, ..	,, ..	2	2	..	..
Maheno	3,318	600	6,188	Turbines ..	Twin screw	Foreign ..	12	18	9	3
Mako	247	92	458	Triple expansion	Screw ..	Home trade ..	5	3	..	..
Manuka	2,813	357	3,155	,,	Twin screw	Foreign ..	11	9	6	3
Maori	1,567	5,600	5,859	Turbines ..	Triple screw	Home trade ..	9	15	9	3
Margaret W. ..	290	160	..	Oil-engine ..	Screw ..	Foreign ..	5	..	..	..
Matangi	635	233	1,196	Triple expansion	Twin screw	Home trade ..	7	3	2	3
Maui	251	78	560	,,	,,	,, ..	4	3	..	..
Maui Pomare ..	749	1,200	..	Oil-engine ..	,,	Foreign ..	7	..	..	..
Minnie Moller ..	1,830	304	1,250	Triple expansion	Screw ..	,, ..	8	6	3	3
Miro	29	60	..	Oil-engine ..	,, ..	Home trade ..	1	..	..	..
Moa	54	90	..	,, ..	Twin screw	,, ..	2	..	..	..
Moeraki*	2,735	357	3,170	Triple expansion	,,	Foreign ..	11	9	6	3
Motu	109	160	..	Oil-engine ..	,,	Home trade ..	4	..	..	..
Muriel*	22	18	134	Compound ..	Screw ..	,, ..	1	2	..	..
Ngahau	21	80	..	Oil-engine ..	Twin screw	,, ..	1	..	..	..
Ngaio	712	130	1,103	Triple expansion	Screw ..	,, ..	7	3	2	3
Ngapuhi	311	160	950	,,	Twin screw	,, ..	5	3	2	3
Nikau	98	55	292	Compound ..	,, ..	,, ..	2	3	..	..
Nora Niven ..	66	40	187	Triple expansion	Screw ..	,, ..	2	2	..	..
Nor' West ..	5	20	..	Oil-engine ..	,, ..	,, ..	1	..	..	..
Ohinemuri ..	52	30	132	Compound ..	,, ..	,, ..	2	2	..	..
Opawa	54	110	..	Oil-engine ..	,, ..	,, ..	2	..	..	..
Opihi	638	116	630	Triple expansion	,, ..	,, ..	6	3	..	..
Orepuki	237	78	334	Compound ..	,, ..	,, ..	4	3	..	..
Oreti	72	30	157	,, ..	,, ..	,, ..	2	2	..	..
Orewa	29	17	80	,, ..	,, ..	,, ..	1	1	..	..
Otimai	111	160	..	Oil-engine ..	Twin screw	,, ..	4	..	..	..
Owhiti	6	30	..	,, ..	Screw ..	,, ..	1	..	..	..
Pakura	304	115	526	Triple expansion	,, ..	,, ..	4	3	..	..
Parera	251	85	416	,, ..	,, ..	,, ..	4	3	..	..
Paroto	48	120	..	Oil-engine ..	Twin screw	,, ..	2	..	..	..
Paua	472	224	..	,, ..	,, ..	,, ..	5	..	..	..
Pearl Kasper ..	16	60	..	,, ..	Screw ..	,, ..	1	..	..	..
Pegasus	10	30	..	,, ..	,, ..	,, ..	1	..	..	..
Piri	115	200	..	,, ..	,, ..	Foreign ..	4	..	..	..
Pono	30	52	..	,, ..	Twin screw	Home trade ..	2	..	..	..
Poolta	933	176	746	Triple expansion	Screw ..	Foreign ..	6	3	..	..
Progress* ..	181	28	160	Compound ..	,, ..	Home trade ..	4	2	..	..
Pukeko	322	62	511	Triple expansion	Twin screw	,, ..	4	3	..	..
Putiki	168	60	319	Compound ..	Screw ..	,, ..	4	3	..	..
Rahiri	6	16	..	Oil-engine ..	,, ..	,, ..	1	..	..	..
Rakiura	13	10	..	,, ..	,, ..	,, ..	1	..	..	..
Rangitoto ..	279	100	450	Triple expansion	,, ..	,, ..	4	3	..	..
Rarawa	460	140	1,106	,,	Twin screw	,, ..	6	3	2	3
Regulus	232	150	563	Compound ..	,,	,, ..	4	3	..	..
Ronaki	129	270	..	Oil-engine ..	,,	,, ..	4	..	..	..
Scot	16	24	..	,, ..	Screw ..	,, ..	1	..	..	..
Serfib	82	58	340	Triple expansion	,, ..	,, ..	2	3	..	..
Southern Cross ..	403	117	468	,,	Twin screw	Foreign ..	6	3	..	..
Southland ..	185	1,200	..	Oil-engine ..	,,	Home trade ..	4	..	..	..
Star III f.v.* ..	67	43	..	Triple expansion	Screw ..	,, ..	..	..	..	..
Storm	371	94	433	,,	,, ..	,, ..	4	3	..	..
Tahiti	4,155	1,452	7,600	,,	Twin screw	Foreign ..	14	18	12	3
Tamahae	7	24	..	Oil-engine ..	Screw ..	Home trade ..	1	..	..	..
Tamahine ..	803	440	3,106	Triple expansion	Twin screw	,, ..	7	9	6	3
Taratahi f.v. ..	46	43	..	,,	Screw ..	,, ..	..	..	..	..
Te Aroha ..	56	126	..	Oil-engine ..	Twin screw	,, ..	2	..	..	..
Te Awhina ..	87	99	466	Triple expansion	,,	,, ..	2	3	..	..

* Surveyed twice.

RETURN OF STEAMERS AND OIL-ENGINE VESSELS TO WHICH CERTIFICATES OF SURVEY WERE ISSUED, ETC.—*continued.*

Name of Vessel.	Tons Register.	Nominal Horse-power of Steam-engines and Brake Horse-power of Oil-engines.	Indicated Horse-power of Steam-engines.	Nature of Engines.	Nature of Propeller.	Class of Certificate.	Minimum Number of following Classes of Crew Law requires to be carried.			
							Able Seamen.	Firemen.	Trimmers.	Greasers.
Tees	247	78	370	Triple expansion	Screw	Foreign	5	3	..	..
Terawhiti	91	99	738	„	„	Home trade	2	3	..	..
The Eva	5	50	..	Oil-engine	„	„	1	..	..	..
Theresa Ward	75	95	457	Triple expansion	„	„	2	3	..	..
Thomas Currel	84	75	430	„	Twin screw	„	2	3	..	..
Tiroa	94	31	186	Compound	Screw	„	2	2	..	..
Titoki	247	86	553	Triple expansion	Twin screw	„	4	3	..	..
Toa	110	180	..	Oil-engine	„	„	4	..	..	..
Tofua	2,634	355	2,640	Triple expansion	„	Foreign	11	9	3	3
Toia	20	116	1,200	„	Screw	Home trade	1	3	..	..
Toiler	21	13	70	Compound	„	„	1	1	..	..
Totara	147	55	294	„	„	„	4	3	..	..
Tuatea	58	28	191	„	„	„	2	2	..	..
Tuhoe	98	120	..	Oil-engine	Twin screw	„	2	..	..	..
Violet	8	10	..	„	Screw	„	1	..	..	..
Wahine	1,798	720	7,938	Turbines	Triple screw	„	9	18	12	3
Waikonini	6	60	..	Oil-engine	Screw	„	1	..	..	..
Waikouaiti*	2,379	327	1,722	Triple expansion	„	Foreign	9	6	3	3
Waimea	207	100	532	„	Twin screw	Home trade	4	3	..	..
Waiotahi	168	56	300	Compound	„	„	4	3	..	..
Waipahi*	1,019	134	1,080	Triple expansion	Screw	Foreign	7	3	2	3
Waipiata	1,603	230	1,793	„	„	Home trade	8	6	3	3
Waipu	76	50	187	Compound	Twin screw	„	2	2	..	..
Wairau	56	20	130	„	Screw	„	2	2	..	..
Waitomo	2,719	372	1,567	Triple expansion	„	Foreign	10	6	3	3
Wetere	31	22	139	Compound	„	Home trade	2	2	..	..
Whakari	10	25	..	Oil-engine	„	„	1	..	..	..
Whakarire	449	120	602	Compound	Twin screw	„	5	3	..	..
Will Watch	48	45	..	Oil-engine	Screw	„	2	..	..	..
Wingatui	1,344	1,300	1,231	Triple expansion	„	Foreign	7	3	2	3
Zingara	53	220	..	Oil-engine	„	Home trade	2	..	..	..

* Surveyed twice.

RETURN OF SAILING-VESSELS SURVEYED DURING THE YEAR ENDED 31ST MARCH, 1929, WITH PARTICULARS OF TONNAGE, ETC.

(River-limit vessels not included.)

Name of Vessel.	Tons Register.	Class of Certificate.	Minimum Number of Seamen required by Law to be carried.		
			Able Seamen.	Ordinary Seamen.	Apprentices or Boys.
Alert	98	Home trade	2	1	..
Combine	24	„	1	..	..
Deveron	26	„	1	..	..
Esme	20	„	1	..	..
Ethel Wells	19	„	1	..	..
Hero	25	„	1	..	..
Kiatia	20	„	1	..	..
Kitty Fraser	25	„	1	..	..
Pahiki	20	„	1	..	..
Rangi	86	„	2	1	..
Rewa	7	„	1	..	..
Seagull	25	„	1	..	..
Talisman	70	„	2	1	..
Waiti	17	„	1	..	..

Return of Wrecks and Casualties to Shipping reported to the Marine Department from 1st April, 1928, to 31st March, 1929.

Date of Casualty.	Vessel's Name, Age, and Class.	Rig.	Register Tonnage.	Number of		Nature of		Number of Lives lost.	Place where Casualty occurred.	Wind.		Finding of Court of Inquiry.	Name of Master.
				Crew.	Passengers.	Cargo.	Casualty.			Direction.	Force.		
1927. Dec. 5 (approx.)	Dolly, o.e.v. ..	Launch	3	2	..	..	Missing	2	Supposed between Auckland and Whangarei, N.Z.	Not	known	The Court found that the vessel was last seen at Nelson Bay, Kawau, on 4th December, 1927. On 5th and following three days a severe south-west gale was raging. Neither the vessel nor any of the crew has since been heard of. The launch was a vessel of 3 tons net, lightly built, shallow draught, fitted with a motor-car engine, which, the evidence discloses, was liable to give trouble. The Court finds that the fishing-launch "Dolly," registered No. A.K. 1901, was lost at sea on or about 5th December, 1927, and that Joseph Henry Maslen and Thomas Hook, members of the crew, were drowned at the time of the loss	J. H. Maslen.
1928. April 1	Wairua, s.s., 14 years	Cutter ..	220	12	8	15 tons general..	Struck wharf		Kaipara Harbour, N.Z.	Calm	..	Owing to a very thick fog the vessel struck the wharf, damaging herself to the extent of £15	W. F. Coutts.
April 2	Hikurangi, s.s., 38 years	Schooner	163	11	..	..	Collision		Off North Head, Auckland, N..Z	N.W.	2	The Court is of opinion that, although the lights of the "Havoc" were not entirely satisfactory, and although it may be the load on the scow "Havoc" interfered with the view of the tow-light on the "Orere" and so helped to mislead the master of the "Hikurangi," the cause of the casualty was that, owing to the position of the master of the "Hikurangi" on his vessel, he did not have a good lookout, and did not see the lights of the "Havoc," as the lookout in a favourable position would have seen. Further, the Court is of opinion that the master of the "Hikurangi" made an error of judgment in endeavouring to keep a course between what he took to be a vessel at anchor, or a vessel proceeding in the same direction, and the shore, and in keeping his speed in these circumstances. The unsatisfactory arrangements with regard to the lights on the "Havoc" and "Orere" may have contributed to the circumstances which misled the master of the "Hikurangi," but the chief cause of his being misled was the unsatisfactory provision for a lookout on his own vessel, which prevented him from seeing the sidelights of the "Havoc," which he ought to have seen; and even with the information he gained by a view of the one light of the "Orere," he should, when in doubt, have taken a	G. H. George. W. Stephenson.
April 2	Havoc, barge (in tow of "Orere"), 31 years	..	69	2	..	100 tons stone ..							

												mid-channel course. There is no reason, in the opinion of the Court, for making any order with regard to the certificate of the master of the "Hikurangi," and his certificate will be returned, but he will be ordered to pay three-quarters of the costs of the inquiry, and the owners of the "Havoc" and "Orere" will be ordered to pay one-quarter.	
April 2	Tahiti, s.s., 28 years	Schooner	4,155	148	77	2,050 tons general	Lost anchor and chain	..	Avarua Harbour, Rarotonga	E.S.E.	3	30 fathoms of cable were run out on the port anchor, which hung straight up and down, held by the brakes only. At a given signal the brakes were released and the cable run out rapidly. On reapplication of the brakes they failed to check the progress of the cable, with the result that the anchor and 146 fathoms of cable were lost	W. Martin.
April 4	Breeze, s.s., 19 years	Schooner	275	17	..	350 tons general	Fire	..	Between Picton and Wanganui, N.Z.	N.E.	Moderate	Fire discovered at midnight, and on hatch being lifted the seat of the fire could not be discovered. Vessel put full speed ahead for Wanganui, where fire was extinguished with the help of the local fire brigade. Fire presumably caused through bags of lime becoming heated in after hold. Considerable damage to cargo and insulation. No structural damage to ship	J. S. McKenzie.
April 10	Herminius, s.s., 17 years	Schooner	6,734	82	..	5,512 tons general	Fire	..	Wellington, N.Z. ..	Calm	..	At 7.20 a.m. a fire was reported in port forward pocket bunker. A 3-in. hole was cut in bulkhead and water played through. Fire extinguished by noon	F. V. Roberts.
April 13	The Portland, o.e.v., 18 years	Ketch ..	39	5	..	128 bales flax ..	Cracked piston ..	..	Foxton bar, N.Z. ..	N.W.	Light ..	When crossing the bar the port engine stopped, and when restarted it was found to be knocking badly. Caused through a cracked piston in after cylinder	C. A. Williams.
April 14	Kaitoa, s.s., 17 years	Schooner	141	16	..	230 tons general	Bumped on bar ..	..	Mapua bar, N.Z. ..	Calm	..	Vessel bumped when crossing the bar and cracked a plate. Caused through a very low tide, and could not be avoided	S. P. Martin.
April 15	Mahia, s.s., 11 years	Schooner	4,979	81	..	General ..	Fire	..	Dunedin, N.Z. ..	Calm	..	Fire discovered in starboard side of main lower bunker before vessel left Dunedin. Lloyd's surveyor recommended that the bunker be closed and sealed, allowing vessel to proceed on her voyage to Lyttelton, where bunker was emptied. A few limberboards were found to be damaged	A. McIntosh.
April 17	Kapua, o.e.v., 16 years	Ketch ..	6	4	..	90 tons sand ..	Struck pile ..	..	Kopu Bridge, N.Z. ..	N.	Light ..	When approaching the Kopu Bridge, the ebb tide set the vessel into the fender pile of the approach. The jib-boom and part of the top rail forward were carried away	J. Williams.
April 18	Gale, s.s., 9 years	Schooner	287	17	..	500 tons general	Struck mole ..	..	Wanganui River, N.Z.	W.	Strong..	Strong wind caused vessel to take a run and she bumped the North Mole. The following sea swung the stern near the rocks causing three propeller-blades to be stripped	C. V. Stanich.

RETURN OF WRECKS AND CASUALTIES TO SHIPPING REPORTED TO THE MARINE DEPARTMENT, ETC.—*continued.*

Date of Casualty.	Vessel's Name, Age, and Class.	Rig.	Register Tonnage.	Number of		Nature of		Number of Lives lost.	Place where Casualty occurred.	Wind.		Finding of Court of Inquiry.	Name of Master.
				Crew.	Passengers.	Cargo.	Casualty.			Direction.	Force.		
1928.													
April 20	Aratapu, o.e.v., 50 years	F. and A.	68	9	..	Ballast ..	Foresail and staysail carried away	..	5 miles off Farewell Spit, N.Z.	W.S.W.	8	During a strong west-south-west gale the foresail and staysail carried away. No other damage to ship	F. Henderson.
April 21	Echo, o.e.v., 23 years	Schooner	99	10	..	6 tons general ..	Cracked cylinder ..	..	Wellington, N.Z. ..	Calm	..	When leaving Wellington for Blenheim it was found that the forward cylinder of the port engine was cracked	F. Radford.
April 21	Gale, s.s., 9 years	Schooner	287	17	..	..	Anchor-chain parted	..	Off Wanganui, N.Z...	W.	6	While vessel was being towed from Wanganui to Wellington by the s.s. "Terawhiti" the tow-line parted. Anchors were dropped, but the starboard anchor-chain parted near the 30-fathom shackle. Vessel subsequently picked up by the tug "Kahanui" and towed to Wellington	C. V. Stanich.
April 24	Fairburn, o.e.v., 22 years	Schooner	59	6	..	110 tons general	Engine trouble ..	..	Wellington, N.Z. ..	Calm	..	While berthing at Taranaki Street Wharf, and going astern, the thrust-shaft of the starboard engine carried away	W. H. Sawyers.
April 28	Sneaker, o.e.v., 34 years	Ketch ..	6	2	..	..	Explosion ..	..	Off Black Rock, Foveaux Strait, N.Z.	S.	Light ..	Accident caused by explosion of petrol-fumes. Ship damaged to the extent of about £100	M. P. Patuki.
April 30	Taniwha, s.s., 30 years	F. and A.	191	15	6	100 tons general	Struck swing-span of bridge	..	Kapu Bridge, Waihou River, N.Z.	E.	Light ..	Apparently a squall swung upper end of swing-span of the bridge on the river out of line causing the vessel to strike it when passing, and doing damage to the vessel's navigation-bridge and carrying away the rigging and forestays	J. Freeman.
April 30	Ngatea, s.s., 49 years	..	6	..	..	..	Foundered ..	..	Auckland, N.Z. ..	N.	Light ..	Vessel sunk at her moorings. When refloated, could not find any trace of a leak. No crew on board at the time. Accident unaccounted for	P. Baron.
April 30	Maggie, o.e.v., 26 years	Ketch ..	6	2	..	35 tons sand ..	Foundered ..	..	Auckland, N.Z. ..	E.	Gale ..	Vessel dragged her anchors owing to stress of weather, and battered herself against stone breastwork, causing her to leak and founder. Vessel subsequently refloated	W. W. Ashby.
April 30	Pahiki, sail, 23 years	Ketch ..	20	2	..	Sand	Foundered ..	..	Auckland, N.Z. ..	E.	Gale ..	Vessel started to leak through bumping alongside breastwork; crew towed her clear, but did not ascertain extent of leak. Later, at height of gale, the vessel listed. Vessel towed inshore, where she sank. Subsequently repaired and refloated	J. W. Emtage.
May 10	Sierra, o.e.v., 11 years	Launch	5	1	1	300 lb. pipes and mail	Collision ..	..	Hokianga Harbour, N.Z.	Calm	..	Casualty caused through both launches not having the regulation lights burning. Both masters subsequently prosecuted and fined £2 10s. each, with costs 12s. each	S. H. Watkins.
May 10	Niagara, o.e.v., 14 years	Launch	3	1	1	..							Geo. Wright.
May 12	Hurunui, s.s., 8 years	Schooner	5,815	72	..	4,100 tons general	Fire	..	Off N.Z. Coast ..	N.E.	Light ..	While on a voyage between Auckland and Dunedin a fire was discovered in deck-head insulation in after end of No. 3 tween-decks, due to heating of coal in bunker. Slight damage to cork insulation.	W. F. Robinson.

May 12	Calm, s.s., 19 years	Schooner	523	19	..	300 tons general	Stranded	..	..	Waimataitai Beach, N.Z.	Calm	..	While on a voyage between Lyttelton and Timaru the vessel ran into a dense fog, and after running 76 miles by log, was slowed down, and a sounding taken, showing 3 fathoms of water. Vessel was turned out to sea, but she grounded on Waimataitai Beach. Vessel refloated after forty minutes. No damage	R. V. Manson.
May 15	Rimutaka, s.s., 28 years	F. and A.	5,724	103	48	4,500 tons general	Damaged	..	..	Lat. 27° 22′ S., long. 145° 55′ W., Pacific Ocean	E.	11	Encountered very heavy weather during a cyclone, and vessel sustained considerable damage	F. A. Hemming.
May 19	Muritai, s.s., 6 years	Schooner	199	6	50	..	Struck wharf	..	..	Rona Bay, Wellington, N.Z.	S.E.	Strong ..	When berthing at Rona Bay the vessel struck the spring pile, causing the port anchor to catch underneath the stringer and breaking the hawse-pipe.	E. Cartner.
May 20	Hauturu, o.e.v., 1 year	Schooner	162	11	..	..	Rivets weeping	..	..	Supposed Hokianga bar, N.Z.	..	..	On arrival at Onehunga it was found that two rivets were weeping and the gusset-plate in far side of centreboard was bent, probably caused through the vessel straining when crossing Hokianga bar	R. Jackson-Fowler.
May 20	Tofua, s.s., 20 years	F. and A.	2,634	84	90	General ..	Leaking ..	..	..	Lat. 30° 58′ S., long. 175° 55′ E., Pacific Ocean	S.W.	4	Chief engineer reported finding a small hole 1 in. in diameter in bottom of ship underneath mouth of bilge. Probably caused through the swirl of water and grit before entering the pipe	D. McDonald.
May 22	Calm, s.s., 19 years	Schooner	523	19	..	800 tons general	Struck mole	..	..	Wanganui River, N.Z.	W.	Moderate	When about 300 ft. inside the moles entrance to Wanganui River the vessel took a sheer, and the port bow touched the North Mole breakwater, causing dent in plate and five frames in bilge of forward hold. Cause of accident was probably due to the effect of a strong wash through the half-tide wall of the North Mole on the stern of the vessel, when the bow reached comparatively smooth water	R. V. Manson.
May 22	Te Aroha, o.e.v., 19 years	Schooner	56	7	..	56 tons timber ..	Collision	..	1	1½ miles off entrance Nelson Harbour	S.W.	Light	The Court is of opinion that if the launch "Valmai" had been properly lighted in accordance with the regulations it would have been detected by the master of the "Te Aroha," and the collision avoided. The Court holds that the master and crew of the "Te Aroha" failed to take the proper steps to save the lives of those on board the "Valmai," in not attempting to lower a boat. After full consideration the Court has concluded that the evidence does not definitely prove that Galey's life would have been saved by the launching of the boat, and it cannot find, therefore, that Galey's life was lost through the wrongful act or default of Captain Stevens, so his certificate will be returned. The Court, however, is unable to completely exonerate him. The masters of each vessel are ordered to pay the costs of the inquiry in equal shares, not exceeding a maximum of £10	J. E. Stevens. A. C. Thompson.
May 22	Valmai, o.e.v., 16 years	Launch	3	3	..	..								

RETURN OF WRECKS AND CASUALTIES TO SHIPPING REPORTED TO THE MARINE DEPARTMENT, ETC.—*continued*.

Date of Casualty.	Vessel's Name, Age, and Class.	Rig.	Register Tonnage.	Number of		Nature of		Number of Lives lost.	Place where Casualty occurred.	Wind.		Finding of Court of Inquiry.	Name of Master.
				Crew.	Passengers.	Cargo.	Casualty.			Direction.	Force.		
1928. May 24	Calm, s.s., 19 years	Schooner	523	19	..	30 tons general..	Accident to propeller	..	Wanganui, N.Z. ..	S.E.	5	While swinging vessel at wharf the swinging-line surged, and the propeller slightly touched a pile, chipping a little off two of the blades	R. V. Manson.
May 25	Glenae, sail, 24 years	Ketch ..	13	2	..	50 tons timber..	Stranded; total loss	..	2½ miles east Moturoa Island, N.Z.	E.N.E.	5	After clearing Kawau for Auckland it was discovered that the vessel was making more water than the pumps could cope with, so it was decided to run for Mahurangi, when vessel went over on starboard side with sails in the water. Crew left vessel in dinghy, which had been towing astern, and made for Moturoa. When vessel was abandoned the sea began to increase, and she eventually capsized, and came ashore bottom up at Puhoi entrance	H. Mitchell.
May 25	Kiatia, sail, 21 years	Ketch ..	20	3	..	Ballast ..	Stranded.. ..	..	Tākatu Peninsula, N.Z.	E.	Strong..	When loading shingle on beach a strong easterly wind sprang up, causing anchors to drag, and vessel drifted on to beach. Slight damage to sheathing and starboard bulwark	R. Chisholm.
June 9	Progress, s.s., 46 years	Schooner	181	12	..	280 tons general	Collided with "Rawhiti"	..	Waikato River, N.Z...	N.E.	8	When the river-steamer "Rawhiti" was berthing alongside the "Progress" she ran stem on, causing slight damage to "Progress." Moderate gale blowing at the time. Casualty purely accidental	H. L. Hay.
June 10	Thomas Bryan, s.s., 11 years	F. and A.	93	10	..	Fish	Stranded; total loss	..	Coromandel Peninsula, N.Z.	E.N.E.	Gale ..	The Court found that the trawler "Thomas Bryan" left the trawling-grounds at 10 a.m., and at 9.30 p.m. she was off the Old Man Rock, and at that point the master stood on his course for a quarter of an hour. He then set the proper course to pick up the Channel Island light. After doing this he went below for a rest, having been on duty for sixteen hours. The master before going below gave instructions to the man on the lookout to call him should the weather become thick, and the lookout failed to call him before the vessel struck the rocks in the vicinity of Charles Cove. The cause of the wreck was the failure of the helmsman and the lookout to keep the ship on her proper course and call the master when the weather became thick. The master acted as a seaman should after the wreck, and the evidence proved that	James Holt.

													the crew owe their lives to the measures he took. The Court considers that in vessels of this class two certificated officers should be carried, and also that the shipping of men should be done by the master, and he would then have an opportunity of employing competent men. The master's certificate was returned, and no order was made as to costs
June 16	Canadian Challenger, s.s., 7 years	F. and A.	3,331	30	..	General ..	Fire	..	Auckland, N.Z. ..	Calm	..	Fire reported on stokehold floor, caused through faulty burner and oil poured on floor. Fire extinguished in forty minutes. Minor damage to paint, and lagging scorched	C. Wallace.
June 21	Matakana, s.s., 7 years	F. and A.	6,426	79	..	3,426 tons general	Struck wharf ..	..	Wellington, N.Z. ..	S.W.	6–7	When berthing at Glasgow Wharf under charge of Pilot McLeod an extra-heavy squall struck vessel as she was backing stern first, forcing her down on to the corner of wharf, causing damage to ship and wharf	H. P. Thurston.
June 21	Northumberland, s.s., 12 years	Schooner	7,229	84	..	12,000 tons general	Damaged in heavy weather	..	Lat. 35° 36′ S., long. 180° 00′ W.	W.S.W.	8	Vessel shipped a very heavy sea over forecastle-head, ripping tarpaulins and smashing three wooden hatches. Vessel hove-to and damage repaired.	H. L. Upton.
June 22	Wairau, s.s., 28 years	Schooner	56	10	..	20 tons general	Anchor and chain slipped	..	Off Cape Campbell, N.Z.	S.	9	While heaving up anchor under Cape Campbell the winch broke down, and having no other means of lifting the anchor, the cable was slipped and buoyed in 8 fathoms of water. Position, Cape Campbell light bearing S.E. ¾ S., Mount Taka S. by W.	E. Jackson.
June 25	Kiwi, s.s. ..	..	74	6	..	..	Struck wharf ..	..	Auckland, N.Z. ..	S.W.	Squally	When approaching wharf shallow water made vessel unmanageable; also, mistake made in putting telegraph "full ahead" instead of "full astern"	J. H. Bradney.
July 14	Herald, sail, 30 years	Schooner	73	4	..	125 tons coal ..	Stranded; total loss	..	Flat Rock, Hauraki Gulf, N.Z.	S.W.	7	The Court finds that the "Herald" left Whangarei on 13th July for Coromandel and struck Flat Rock on 14th. The vessel was well found, seaworthy, and well trimmed. The Court is of the opinion that the master in endeavouring to make a course on the land side of Flat Rock, with the wind off the land, did not give sufficient attention to making that course. It should have been known to the master when still a sufficient distance from Flat Rock to allow the vessel to be taken out into open water, that there would be a risk in endeavouring to pass on the land side of the rock, and in not taking a safer course then he was failing to exercise the care required of a master. His certificate is suspended for three months, and he is ordered to pay £20 towards cost of the inquiry	E. Sellars.

RETURN OF WRECKS AND CASUALTIES TO SHIPPING REPORTED TO THE MARINE DEPARTMENT, ETC.—*continued.*

Date of Casualty.	Vessel's Name, Age, and Class.	Rig.	Register Tonnage.	Number of		Nature of		Number of Lives lost.	Place where Casualty occurred.	Wind.		Finding of Court of Inquiry.	Name of Master.
				Crew.	Passengers.	Cargo.	Casualty.			Direction.	Force.		
1928. July 14	Isabella de Fraine, aux., 26 years	Ketch ..	76	8	..	58 tons general..	Stranded; total loss	8	Hokianga bar, N.Z. ..	S.W.	4	The Court found that the vessel was well manned and found, and apparently quite seaworthy; that her deck cargo was not such as to affect her safety; and that when she was about to cross the bar she was struck by a sea which carried her over the bar, but she then appeared to be out of control, turned broadside on to the sea and capsized, resulting in all hands (eight) being lost. The Court further found that there was sufficient water, and that the bar at the time was apparently quite safe for a vessel of her description to cross; the wind was moderate, and the sea was not such as should make the crossing unsafe. The Court also found that evidence was not available to enable the Court to find the cause of her loss	A. Berridge.
July 16	Waikonini, o.e.v., 27 years	Schooner	6	5	..	95 tons shingle..	Sunk	..	Auckland, N.Z. ..	Calm	..	Vessel sunk while berthed at wharf, probably caused through straining while lying on an uneven bottom and causing a leak	R. A. Roff.
July 18	Maunganui, s.s., 17 years	Schooner	4,542	157	105	3,200 tons general	Slack crank-shaft ..	..	Lat.. 0° 17′ N., long. 141° 6′ W., Pacific Ocean	E.S.E.	3	The shaft at forward end of low pressure crank web on port engine slackened, probably caused through engines racing in heavy weather. Temporary repairs effected	B. M. Aldwell.
July 23	Pukeko, s.s., 1 year	F. and A.	322	17	..	700 tons coal and timber	Stranded ..	..	Napier, N.Z. ..	N.E.	Strong	While vessel was being warped round end of jetty the hawser carried away, and the strong ebb tide took charge of the vessel and carried her aground alongside eastern pier. No damage to ship or cargo	W. E. Barnes.
July 23	Waitomo, s.s., 17 years	Schooner	2,719	42	..	6,500 tons coal..	Tail shaft carried away	..	Lat. 41° 57′ S., long. 161° 48′ E., Tasman Sea	S.S.E.	Moderate gale	While on a voyage from Newcastle to Bluff the tail-shaft carried away. Vessel taken in tow by s.s. "Kaitoke" and brought to Auckland for repairs	L. G. Jaunay.
July 24	Konini, o.e.v., 12 years	Cutter	4	1	..	6 tons wood ..	Foundered ..	..	6 miles off Waiheke Island, N.Z.	S.	Fresh ..	Launch struck a floating object, and in about twenty minutes she was noticed settling down by the stern. Engine and hand pumps were kept going, but eventually she filled and sank in shallow water	F. J. Young.
Aug. 4	Gale, s.s., 9 years	Schooner	286	17	..	250 tons general	Stranded ..	..	Wanganui River, N.Z.	W.	Strong	Vessel took a sheer towards North Mole when inside the entrance. There was a heavy sea and strong westerly wind. Engines were put full astern, and vessel was practically stopped, when she touched the North Mole slightly, causing slight buckling of A 1 plate and No. 3 frame and floor on port side	C. V. Stanich.

Aug. 10	Ihumata, s.s., 17 years	Schooner	653	23	..	1,400 tons coal and timber	Struck wharf	..	..	King's Wharf, Auckland, N.Z.	Calm	..	When berthing the vessel took a sheer to port; starboard anchor was dropped and engines put full astern, but she struck wharf head on, bending and cracking stem above forepeak tank-top, fracturing two plates and bending two	C. W. Ostenfeld.
Aug. 16	Paroto, aux., 13 years	Ketch ..	48	7	..	80 tons fertilizer	Grazed rock	..	..	Astrolabe Rock, N.Z.	W.N.W.	5	Vessel steering usual course to pass half a mile Motiti Island, weather at time very thick, when she grazed an outlying rock with starboard bilge, causing sheathing to be slightly crushed in two places, and bending the tip of one blade of starboard propeller	H. M. S. Ryder.
Aug. 25	Sparrowhawk, s.s., 14 years	..	91	4	8	8 tons general ..	Collision	..	..	Auckland, N.Z. ..	Calm	..	Owing to very dense fog the vessels collided when both were going dead slow. Very slight damage to each vessel	F. F. Devlin.
Aug. 25	Albatross, s.s., 24 years	..	111	4	150	..								C. Williams.
Aug. 31	Waipahi, s.s., 3 years	F. and A.	1,019	31	..	250 tons general	Stranded	..	..	Atiu, Cook Islands, Pacific Ocean	N.N.W.	3	When backing out from landing, astern movements were rung for, but were mistaken for ahead movements. Mistake rectified, but vessel had gathered headway, with the result that she touched the reef and came off again	G. B. Hoddinott.
Sept. 2	The Portland, aux., 39 years	Ketch ..	39	5	..	2,000 ft. timber	Mizzen-gaff and sail carried away		..	Off Pencarrow Head, N.Z.	N.W.	9	While beating up harbour a squall struck the vessel, flattening her out, causing the eyebolt at the hounds of the mainmast to carry away, also the mizzen-gaff and sail	C. A. Williams.
Sept. 11	Janie Seddon, s.s., 27 years	F. and A.	43	5	..	..	Grazed wharf	..	..	Wellington, N.Z. ..	N.W.	9	While backing out from wharf, engines were stopped to allow s.s. "Muritai" to pass, and the wash from that vessel assisted by northwest gale, forced the "Janie Seddon" to strike the wharf slightly before she could pick up	G. Klee.
Sept. 11	Zingara, aux., 22 years	Schooner	53	8	..	106,000 ft. timber	Leaking ..	..	..	Karamea Bay, N.Z. ..	N.W.	9	Vessel making considerable water, and it was found necessary to jettison 5,000 ft. of timber. Vessel beached at Tarakohe, when it was discovered that deck seam forward on starboard side and also deck seam amidships on port side had opened. Seams recaulked, and vessel proceeded to Wellington	A. J. D. McArthur.
Sept. 18	Huawai, o.e.v. ..	Cutter	5	2	..	5 tons general ..	Struck submerged object		..	Puhoi Heads, N.Z. ..	W.	Fresh ..	Vessel struck submerged object on entering bar, probably a log brought down by floods. One plank was split and partly bent	E. C. Foster.
Sept. 19	Antonio, s.s., 10 years	F. and A.	3,167	33	..	6,920 tons phosphate	Propeller-blade lost		..	Lat. 34° 11′ S., long. 171° 17′ W., South Pacific Ocean	W.	7	Experienced a sudden shock to steamer and excessive vibration, and on investigation it was found that blade of propeller was lost	F. Hardwick.
Sept. 23–25	Paua, m.v., 1 year	F. and A.	472	28	..	Bulk benzine ..	Shell-plating damaged		..	New Plymouth, N.Z.	W.S.W.	7–8	While lying alongside wharf the vessel sustained slight injury to shell plating on account of vessel ranging heavily, due to weather conditions	D. R. Paterson.
Oct. 4–15	Cerasus, s.s. ..	F. and A.	2,497	32	..	7,250 tons phosphate	Leaking ..	..	..	Between Nauru and Auckland	W.S.W.	8	Vessel left Nauru on 4th October, and on arrival at Auckland on 15th October it was found that cross-bunker on starboard side was leaking, caused by loose rivets through vessel straining in heavy weather	J. M. Murdoch.

RETURN OF WRECKS AND CASUALTIES TO SHIPPING REPORTED TO THE MARINE DEPARTMENT, ETC.—*continued.*

Date of Casualty.	Vessel's Name, Age, and Class.	Rig.	Register Tonnage.	Number of		Nature of		Number of Lives lost.	Place where Casualty occurred.	Wind.		Finding of Court of Inquiry.	Name of Master.
				Crew.	Passengers.	Cargo.	Casualty.			Direction.	Force.		
1928. Oct. 13	Seagull, sail, 23 years	Schooner	25	3	..	125 tons sand ..	Stranded ..	..	Whangapua, N.Z. ..	S.	Light ..	When leaving Whangapua with wind light southerly, the wind failed when vessel was in the narrows and changed to the north, causing vessel to pay off and forcing her on sandspit. On heaving off four pieces of deadwood became loose, making it necessary to detach same from vessel	A. M. Nalder.
Oct. 19	Balls Head, s.s., 17 years	Schooner	835	23	..	2,148 tons general	Struck wharf ..	..	Auckland, N.Z. ..	S.W.	3	When berthing at King's Wharf, tide caught and swung vessel's bow on to fender piles, damaging two or three of them and slightly denting a plate on starboard bow	W. D. Gardiner.
Oct. 25	Arapawa, s.s., 20 years	Schooner	128	15	..	40 tons general	Engine trouble ..	..	Manukau bar, N.Z. ..	W.	Light ..	Owing to heavy racing on the Manukau bar the engines broke down. Vessel anchored until towed to safety. Repairs effected	A. Pert.
Nov. 10	Breeze, s.s., 19 years	Schooner	286	17	..	30 tons general	Collision	..	Wellington, N.Z. ..	N.E.	7	When berthing at No. 6, Queen's Wharf, vessel collided slightly with H.M.S. "Dunedin" when ship was practically stopped. No damage to vessel, but slight damage to outboard davits of H.M.S. "Dunedin"	F. E. O'Neill.
Nov. 11	Meteor, o.e.v., 35 years	Launch	4	2	..	12 sacks fish ..	Stranded; total loss	..	Foveaux Strait, N.Z.	S.	7	Vessel anchored off shore of Ruapuke Island, when wind and sea came up strongly from the south. The engine failed to start, and an attempt was made to sail out, but the rudder fouled the buoy. The anchor-chain parted, and vessel was driven on rocks and became a total loss	H. Frickleton.
Nov. 13	Maunganui, s.s., 17 years	Schooner	4,542	148	104	2,400 tons general	Anchor fluke broken off	..	Rarotonga, Cook Islands	E.	5	When weighing anchor, owing to fairly rough sea the anchor probably caught under a coral-head, causing the fluke to break off	B. M. Aldwell.
Nov. 13	Alma, aux., 26 years	Schooner	20	5	..	..	Stranded ..	..	Waipu Beach, N.Z. ..	S.S.W.	Moderate	Able seaman in charge of deck, and he mistook the Frenchman light at Whangarei Heads for the Hen and Chickens light, and he luffed the vessel without calling the master, who was below, with the result that she stranded on Waipu Beach. The master was the only certificated officer carried on the vessel	J. M. McKinnon.
Nov. 18	Kennedy, s.s., 63 years	Schooner	131	12	..	210 tons general	Stranded ..	..	Manawatu bar, N.Z.	S.	Light ..	While crossing the bar with leading-beacons in line for a start, and a little open to the north later, the vessel took the ground and sheered towards the North Beach, going aground there. Vessel eventually got off and proceeded to Wellington, where it was found she had sustained considerable damage	W. Deiley.

Nov. 27	Wingatui, s.s., 14 years	Schooner	1,344	32	..	300 tons general	Collision ..	..	Auckland, N.Z. ..	W.	5	While the "Wingatui" was proceeding towards the Eastern Princes Wharf she dropped anchor and 15 fathoms of cable. The tide caught the stern of the ship, causing her to sheer towards the "Port Wellington." Very slight damage to each vessel	S. Hewitt.
Nov. 27	Port Wellington, s.s., 5 years	Schooner	4,784	84	6	8,000 tons general							C. N. Jones.
Nov. 27	Southern Cross, s.s., 14 years	Schooner	403	34	22	40 tons stores ..	Stranded ..	..	Varingi Lagoon, Ysabel Island, British Solomon Islands	N.W.	Light ..	After entering the lagoon the weather became overcast, obliterating the land, with the result that vessel grounded. No damage to vessel	A. H. W. Burgess.
Dec. 3	Canadian Highlander, s.s., 7 years	Schooner	3,260	34	2	1,500 tons general	Lost propeller-blade	..	Off N.Z. coast ..	N.	2	A distinct shock was felt, but no sign of floating logs or debris could be seen. Speed was reduced, and it was found that one propeller-blade was gone and one blade damaged	P. S. Robertson.
Dec. 5	Wingatui, s.s., 14 years	Schooner	1,344	30	..	General ..	Grounded ..	..	Otago Harbour, N.Z...	N.E.	6	The rocker-shaft bearing broke, putting engines out of action, while vessel was proceeding down Victoria Channel, with the result that vessel grounded on the mud at side of channel	S. Hewitt.
Dec. 9	Parera s.s., 7 years	Schooner	251	17	..	..	Stranded ..	..	Walker Rock, off Jackson Head, N.Z.	N.	Light ..	The Court found that, having regard to the thick weather prevailing at the time, and to the course set by the master, which was calculated to bring him within slightly over a mile off Walker Rock, the master committed an error of judgment in standing on his course too long, and that error was, in the opinion of the Court, the cause of the stranding. The Court ordered the master pay the costs of the inquiry, £10 10s.	P. A. Miles.
Dec. 9	Invercargill, s.s., 43 years	Schooner	123	12	..	10 tons general	Stranded ..	..	Ohau Point, Cook Strait, N.Z.	N.	Light ..	The Court found that the log had not been streamed, and that no soundings had been taken; and that, having regard to the thick weather prevailing and to the fact that the vessel was approaching a dangerous shore the line of which was gradually converging on the course of the ship, and that no land or light had been sighted, and to the fact that the currents in and near Cook Strait are known to be erratic, the Court is of opinion that the master showed some lack of care in not streaming his log and in not taking a sounding. The combined precautions, if taken, would probably have avoided the stranding. The master was ordered to pay £5 5s. towards costs of inquiry	J. J. Smith.
Dec. 12	Hertford, s.s., 12 years	Schooner	10,922	57	..	General ..	Leaky valve ..	..	Auckland, N.Z. ..	E.	3	On opening up No. 5 lower hold it was found that a quantity of water was on the floor of the starboard side of the tunnel—probably due to a valve being improperly closed, owing to some obstruction	C. R. Kettlewell.

RETURN OF WRECKS AND CASUALTIES TO SHIPPING REPORTED TO THE MARINE DEPARTMENT, ETC.—*continued*.

Date of Casualty.	Vessel's Name, Age, and Class.	Rig.	Register Tonnage.	Number of		Nature of		Number of Lives lost.	Place where Casualty occurred.	Wind.		Finding of Court of Inquiry.	Name of Master.
				Crew.	Passengers.	Cargo.	Casualty.			Direction.	Force.		
1928.													
Dec. 14	Echo, o.e.v., 23 years	Schooner	99	10	..	130 tons general	Fractured crank-shaft	..	Wellington, N.Z. ..	S.	8	When at anchor sheltering in Worser Bay the engineer discovered that the after web of the starboard engine crank-shaft was fractured	F. Radford.
Dec. 19	Hawera, s.s., 16 years	Schooner	92	10	..	90 tons butter ..	Grounded ..	..	Patea River, N.Z. ..	W.	2	Cast off from wharf and grounded between walls. Beacons in line. Engines reversed and vessel came off, but while manœuvring to get vessel back she again grounded on sandbank, where she eventually floated off. Cause of casualty, insufficient water. No damage to ship or cargo	P. MacLachlan.
Dec. 19	Lone Star, o.e.v.	Cutter ..	6	2	..	5 tons general ..	Fire; total loss ..	..	Hauraki Gulf, N.Z. ..	N.E.	Fresh ..	The engine back-fired, igniting hull and fittings. The fire-fighting appliances were eventually exhausted and vessel became a total loss. Casualty could not have been avoided	A. N. Compton.
Dec. 20	Peregrine, s.s., 16 years	Barge ..	162	4	100	..	Propeller-nut lost ..	..	Auckland, N.Z. ..	N.	Light ..	One propeller-nut was lost, with the result that the propeller worked back on the shaft	J. Smith.
Dec. 22	Kotiti, o.e.v., 20 years	Cutter ..	18	4	..	..	Tail-shaft broken ..	..	Nikau Bay, N.Z. ..	Calm	..	Orders given to put engines astern, but the propeller did not move. On investigation it was found that the tail-shaft had broken inside the stuffing-box	A. G. Baggett.
1929.													
Jan. 2	Koau, o.e.v., 11 years	Schooner	77	8	..	Ballast ..	Collision ..	..	Napier, N.Z. ..	N.W.	Light	The "Koau" was proceeding up channel to berth, and a heavy line was thrown, which, however, was not secured, with the result that the "Koau" swung up stream and struck the "Venture," which vessel was slightly damaged. No damage to the "Koau"	A. McLachlan.
Jan. 2	Venture, o.e.v., 14 years	Launch	2	..	..	..							A. Martin.
Jan. 3	Gunbar, s.s., 14 years	Schooner	196	16	..	..	Leaking	..	Between Auckland and Hick's Bay, N.Z. ..	S.W.	Moderate	Vessel commenced to leak, evidently caused through vessel pounding in heavy seas and starting rivets	L. Boulton.
Jan. 7	Huia, o.e.v., 34 years	Schooner	166	12	..	22,000 ft. timber	Engine trouble ..	..	Between Dunedin and Greymouth, N.Z.	S.W.	3	Engine-bearing found to be running hot, probably caused through water in cylinders	M. W. Monaghan.
Jan. 11	Rotorua, s.s., 18 years	Schooner	7,705	134	199	6,066 tons general	Leaky gland ..	..	Lat. 41° 16′ S., long. 179° 52′ E.	N.W.	5	At 10 a.m. the starboard stern-gland was found to be leaking badly, necessitating vessel's return to Wellington, where repairs were effected	J. L. B. Hunter.
Jan. 13	Tuhoe, o.e.v., 10 years	Schooner	96	8	..	100 tons general	Collision ..	..	Awanui River, N.Z. ..	N.W.	Moderate	While proceeding up the Awanui River the "Tuhoe" collided with and slightly damaged the "Coronation." Casualty caused through the narrowness of the channel	F. B. Wells.
Jan. 13	Coronation, o.e.v., 25 years	Schooner	59	6	..	..							
Jan. 13	Oreti, s.s., 28 years	Schooner	72	10	..	10 tons general	Grounded ..	..	Invercargill Estuary, N.Z.	S.E.	5	Vessel grounded in channel owing to sandbanks shifting. Rudder slightly bent to port	F. MacKenzie.
Jan. 15	Gabriella, s.s., 8½ years	Schooner	946	25	..	1,650 tons coal and timber	Grounded ..	..	Port Stephens, Australia	S.E.	Fresh ..	During very hazy weather a small pile marking a shoal was invisible, with the result that the vessel canted in and grounded	H. Lee.

Jan. 16	Zingara, o.e.v., 22 years	Schooner	53	8	..	100,000 ft. timber	Stranded; total loss	..	Hokitika, N.Z. ..	W.S.W.	2	The Court found that when the vessel was outside the wall she suddenly sheered to port. The master gave the order "Hard aport," but instead of the vessel responding she swerved more to port and grounded. At daylight it was discovered that the steering-chains had carried away. Apart from the steering-chains there was nothing wrong with the equipment or the crew, and the Court is of the opinion that the casualty was not caused or contributed to by the default or negligence of the master or any officer or member of the crew of the vessel	A. J. D. McArthur.
Jan. 17	Westland, s.s., 44 years	One mast	8	8	..	Ballast ..	Stranded.. ..	..	Hokitika, N.Z. ..	N.W.	Light ..	When trying to get lines to the stranded vessel "Zingara" the "Westland" grounded on sandbank, but no damage was done to her	T. W. Cox.
Jan. 21	Cygnet, s.s., 43 years	Schooner	69	9	..	80 tons general	Collision ..	..	Wellington Harbour, N.Z.	Calm	..	The "Kohi" was approaching No. 13 berth when engines not taking sufficient way off ship, she struck the "Cygnet," which was berthed at wharf, piercing the latter's funnel and damaging part of bridge deck-rail	L. Larsen.
Jan. 21	Kohi, aux., 18 years	Schooner	20	4	..	40 tons bar iron							R. Goldie.
Jan. 25	Storm, s.s., 9 years	Schooner	371	17	..	380 tons general	Shipped heavy sea	..	Off Wellington Harbour, N.Z.	S.S.E.	10	When entering Wellington Harbour in a southerly gale and high following sea the vessel shipped a heavy sea, which caused damage to partitions, doors, and fittings, and flooding quarters	L. B. Sheppard.
Jan. 28	Gunbar, s.s., 14 years	Schooner	196	16	..	Ballast ..	Struck wharf ..	..	Hicks Bay, N.Z. ..	S.W.	8	While berthing at wharf in a strong wind the vessel struck wharf lightly, with the result that the forecastle port glass and frame were smashed	L. Boulton.
Feb. 1	Holmdale, s.s., 8 years	..	295	17	..	700 tons general	Struck wharf ..	..	Timaru, N.Z. ..	N.W.	Fresh ..	When leaving wharf the vessel's rudder came into contact with same, rendering it useless. Vessel returned for repairs	W. R. Williams.
Feb. 8	Portare, aux., 20 years	Cutter ..	5	3	..	600 fish ..	Fire; total loss ..	..	Off Coromandel, N.Z.	S.W.	Moderate	The carburettor back-fired, causing the vessel to catch fire. Crew did their best to put the fire out, but were eventually overpowered, and vessel became a total loss	H. Kerby.
Feb. 11	Terawhiti, s.s., 22 years	Schooner	91	4	..	..	Collision ..	..	Evans Bay, Wellington, N.Z.	N.	Light	As the "Eileen Ward" came off the slip the "Terawhiti" went alongside to tow her to the Railway Wharf and collided with the "Eileen Ward," doing damage to that vessel to the extent of £16. No damage to the "Terawhiti"	P. E. Ryan.
Feb. 11	Eileen Ward, s.s., 20 years	..	472	..	..	..							L. W. Crow.
Feb. 13	Waipu, s.s., 12 years	Cutter	76	11	..	..	Fire	..	Auckland, N.Z.	Calm	..	The night-watchman found a smouldering fire and immediately rang for fire brigade, who attended and extinguished the fire, which was situated above the forecastle-steps. Cause unknown	W. Maynes.
Feb. 18	Coronation, o.e.v., 27 years	Ketch ..	59	6	..	General ..	Broken rudder blade	..	Awanui River, N.Z.	..	..	While working the Awanui River about 3 a.m. the rudder-blade must have broken. Casualty not discovered until daylight. Cause unknown	T. Monoghan.

RETURN OF WRECKS AND CASUALTIES TO SHIPPING REPORTED TO THE MARINE DEPARTMENT, ETC.—*continued.*

Date of Casualty.	Vessel's Name, Age, and Class.	Rig.	Register Tonnage.	Number of		Nature of		Number of Lives lost.	Place where Casualty occurred.	Wind.		Finding of Court of Inquiry.	Name of Master.
				Crew.	Passengers.	Cargo.	Casualty.			tion.	Force.		
1929. Feb. 18	Elsie Mary, o.e.v., 28 years	F. and A.	99	7	..	30 tons general	Foundered; total loss	..	½ mile N.W. of Alderman Islands, N.Z.	W.	Light ..	During heavy weather the vessel sprung a leak, which the pumps could not cope with, and vessel eventually became waterlogged. Crew abandoned vessel, which became a total loss	J. R. Owen.
Feb. 22	Aratapu, o.e.v., 50 years	Ketch ..	68	9	..	98 tons timber	Grounded ..	..	Karamea Harbour, N.Z.	Calm	..	Vessel grounded inside the bar, half-hour before high water, owing to sand shifting from outer bar right across channel. Slight damage to vessel	T. Henderson.
Mar. 9	Ruru, s.s., 27 years	..	8	4	1	7 cwt. fish ..	Stranded.. ..	..	Waikawa River, N.Z.	S.W.	2	The vessel was moored to a post when the tide fell, leaving the stem of the vessel on a mudbank and the stern in deep water	D. McColl.
Mar. 18	Muriel, s.s. ..	Ketch ..	22	6	..	5 tons fish ..	Fractured shaft ..	..	Off Godley Head, N.Z.	N.	4	The engine commenced to race while the vessel was proceeding from the trawling-grounds to Lyttelton. On investigation it was found the shaft was fractured. Vessel towed to port by the "Pioneer"	G. T. Mouncer.
Mar. 25	Te Awa, o.e.v., 21 years	..	5	2	..	1 ton general ..	Fire and explosion; total loss	..	Entrance Wade River, Hauraki Gulf, N.Z.	E.	Fresh ..	The engine failed and the gasket blew out of exhaust, causing benzine to gather in the intake. Actual explosion probably caused through a back-fire when starting engine	J. E. Low.
Mar. 28	Kaione, s.s., 14 years	Smack	347	..	..	..	Explosion ..	2	Castlecliff Wharf, Wanganui, N.Z.	..	..	When taking stock of stores prior to recommissioning vessel for dredging an explosion occurred in the tunnel-shaft, blowing up the floor of a cabin which was also the roof of the tunnel-shaft, causing the death of Joseph Cable, the chief engineer, and injuring second engineer Duncan McKinnon, who has since succumbed to his injuries, and also injuring the greaser, William McKeague. Coroner's inquiry is to be held. Minor damage to fittings (approximately £25). No structural damage to ship	..
Mar. 30	Aratapu, o.e.v., 50 years	F. and A.	68	9	..	129 tons coal ..	Stranded ..	..	Waitara bar, N.Z. ..	S.E.	Moderate	The Court was satisfied that the master wisely exercised the discretion left to him so far as taking the bar was concerned, and that the stranding of his ship in the channel was not due to any negligent act on his part. The Court recommended that the Marine Department pay the costs of the investigation	T. Henderson.
Mar. 31	Muritai, s.s., 6 years	Ketch ..	199	6	214	..	Struck s.s. "Wahine"	..	Ferry Wharf, Wellington, N.Z.	S.	8	After casting off moorings, vessel backed out into basin, but she failed to come around, and the strong wind and current set her down towards the bow of the s.s. "Wahine," alongside wharf, where vessel rested. No damage to the "Wahine," but about 2 ft. of wooden moulding was stripped off the end of the port light-screen on the "Muritai."	E. Cartner.

Summary of Casualties to Shipping reported to the Marine Department during the Year ended 31st March, 1929.

Nature of Casualty.	Casualties on or near the Coasts of the Dominion.									Casualties outside the Dominion.									Total Number of Casualties reported.		
	Steamers.			Sailing-vessels.			Total within Dominion.			Steamers.			Sailing-vessels			Total outside Dominion.					
	No. of Vessels.	Tonnage.	No. of Lives lost.	No. of Vessels.	Tonnage.	No. of Lives lost.	No. of Vessels.	Tonnage.	No. of Lives lost.	No. of Vessels.	Tonnage.	No. of Lives lost.	No. of Vessels.	Tonnage.	No. of Lives lost.	No. of Vessels.	Tonnage.	No. of Lives lost.	No. of Vessels.	Tonnage.	No. of Lives lost.
Strandings—																					
Total wrecks	6	328	10	2	86	..	8	414	10	..	..	..	..	..	..	..	..	..	8	414	10
Slight damage	13	1,160	..	3	65	..	16	1,225	..	1	946	..	..	..	..	1	946	..	17	2,171	..
No damage	5	931	..	..	..	..	5	931	..	2	1,422	..	..	..	..	2	1,422	..	7	2,353	..
Total strandings	24	2,419	10	5	151	..	29	2,570	10	3	2,368	..	..	..	..	3	2,368	..	32	4,938	10
Collisions—																					
Total loss	1	3	1	..	..	..	1	3	1	..	..	..	..	..	..	..	..	..	1	3	1
Slight damage	16	7,525	..	..	..	..	16	7,525	..	..	..	..	..	..	..	..	..	..	16	7,525	..
No damage	5	1,890	..	..	..	..	5	1,890	..	..	..	..	..	..	..	..	..	..	5	1,890	..
Total collisions	22	9,418	1	..	..	..	22	9,418	1	..	..	..	..	..	..	..	..	..	22	9,418	1
Fires—																					
Total loss	3	16	..	..	..	..	3	16	..	..	..	..	..	..	..	..	..	..	3	16	..
Slight damage	6	14,482	..	..	..	..	6	14,482	..	..	..	..	..	..	..	..	..	..	6	14,482	..
No damage	1	6,734	..	..	..	..	1	6,734	..	..	..	..	..	..	..	..	..	..	1	6,734	..
Total fires	10	21,232	..	..	..	..	10	21,232	..	..	..	..	..	..	..	..	..	..	10	21,232	..
Miscellaneous, including damage by heavy seas to hull and cargo, loss of masts, sails, &c., and breakdown of machinery	37	27,464	2	..	..	..	37	27,464	2	11	45,209	..	..	..	..	11	45,209	..	48	72,673	2
Total number of casualties reported	93	60,533	13	5	151	..	98	60,684	13	14	47,577	..	..	..	..	14	47,577	..	112	108,261	13

Return of Land Boilers and Machinery inspected during the Year ended 31st March, 1929.

Class.	Not exceeding 5 Horse-power.	Exceeding 5 but not exceeding 10 Horse-power.	Exceeding 10 Horse-power.	Total.
Boilers—				
Stationary, portable, and traction	1,143	1,446	2,630	5,219
Digesters, jacketed pans, steril-izers, vulcanizers, and other steam-receivers	..	..	..	2,457
Air-receivers	..	..	..	45
Total boilers	..	..	..	7,721
Machinery—				
Electric motors	15,521	3,280	3,979	22,780
Internal-combustion engines ..	10,769	865	1,069	12,703
Water-power engines ..	234	84	187	505
Lifts	..	..	..	2,230
Cranes	..	..	..	245
Hoists	..	..	..	1,209
Total machinery ..	..	..	..	39,672
Grand total	..	..	..	47,393

Return of New Boilers inspected for the Year ended 31st March, 1929.

District.	Made in Dominion.		Imported.		Total.	
	Number.	Horse-power.	Number.	Horse-power.	Number.	Horse-power.
Auckland	38	172	63	90	101	262
Auckland North	..	..	1	704	1	704
Auckland South	..	..	6	57	6	57
Canterbury North	62	348	21	113	83	461
Canterbury South	..	..	1	..	1	..
Hawke's Bay	13	22	20	6	33	28
Nelson	1	..	5	..	6	..
Otago	16	88	24	30	40	118
Southland	3	51	17	..	20	51
Taranaki	2	142	..	..	2	142
Taranaki North	1	..	16	..	17	..
Wellington	31	152	48	88	79	240
Wellington North	1	2	6	1	7	3
Westland	1	12	1	31	2	43
Totals	169	989	229	1,120	398	2,109

Return of the Number of Certificates issued to Land Engineers, Engine-drivers, and Electric-tram Drivers during the Year ended 31st March, 1929.

Class.	Number.	Class.	Number.
Service—		Competency—*continued.*	
First-class engine-driver	2	Electric-winding-engine driver ..	4
		Locomotive and traction-engine driver ..	32
Competency—		Locomotive-engine driver	7
Extra-first-class stationary engineer ..	1	Traction-engine driver	28
First-class engine-driver	17	Electric-tram driver	42
Second-class engine-driver	169		
Steam-winding-engine driver	1	Total	303

Return of Land Engineers', Engine-drivers', and Electric-tram Drivers' Examinations held throughout New Zealand during the Year ended 31st March, 1929, showing the Number of Successful and Unsuccessful Candidates.

Place.	Extra First Class.		First Class.		Second Class.		Steam Winding.		Electric Winding.		Locomotive and Traction.		Loco-motive.		Traction.		Electric-tram Driver.		Total.		Grand Total.
	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	P.	F.	
Auckland ..	..	..	3	..	19	9	..	..	..	..	1	..	..	1	..	..	22	1	45	11	56
Blenheim ..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	3	..	3
Christchurch ..	..	..	2	2	6	3	..	..	..	..	2	1	..	..	6	5	5	..	21	11	32
Dunedin ..	..	..	1	..	12	7	..	..	..	..	..	..	1	..	5	..	..	..	19	7	26
Gisborne ..	..	..	..	..	5	1	..	..	..	..	..	..	..	..	1	1	..	..	6	2	8
Greymouth ..	..	..	..	3	7	5	1	..	..	..	1	1	3	2	..	..	..	..	12	11	23
Hamilton ..	..	..	1	1	25	8	..	..	..	..	3	..	1	..	1	..	..	..	31	9	40
Invercargill ..	..	..	..	4	5	4	..	..	..	..	..	1	..	..	2	1	..	..	7	10	17
Napier ..	..	..	..	..	11	6	..	..	..	..	1	..	..	1	..	..	..	..	12	7	19
Nelson ..	..	..	2	..	4	3	..	..	4	..	1	..	..	..	1	1	..	..	12	4	16
New Plymouth ..	..	..	..	..	26	14	..	..	..	..	1	1	..	..	..	..	..	..	27	15	42
Palmerston N. ..	1	4	1	9	6	..	..	..	..	2	..	..	..	..	..	..	..	15	8	23	
Timaru ..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	9	1	..	..	11	1	12
Waikokopu ..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	1
Wanganui ..	..	..	..	..	6	3	..	..	..	..	1	..	1	..	..	..	2	..	10	3	13
Wellington ..	..	..	2	2	6	10	..	..	..	..	2	..	..	..	..	..	13	5	23	17	40
Whangarei ..	..	..	1	..	9	2	..	..	..	..	..	..	..	..	..	..	..	..	10	2	12
Totals ..	1	1	16	13	153	81	1	..	4	..	16	4	6	4	26	9	42	6	265	118	383

Approximate Cost of Paper.—Preparation, not given; printing (700 copies), £76.

By Authority: W. A. G. Skinner, Government Printer, Wellington.—1929.

Price 1s.]