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**NEW ZEALAND
MINISTRY OF AGRICULTURE AND FISHERIES**

**FISHERIES TECHNICAL REPORT
No. 95**

**CATCH AND LANDINGS
OF PELAGIC FISH**

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**WELLINGTON, NEW ZEALAND
1972**

FISHERIES TECHNICAL REPORT

CATCH AND LANDINGS OF
PELAGIC FISH

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FOREWORD

The Fifteenth Session of the Indo-Pacific Fisheries Council will be held at Wellington from 18-27 October 1972. This session includes a symposium on "Coastal and High Seas Pelagic Resources" scheduled for the period 18-20 October.

The opportunity has been taken to collate statistical information supplied by fishermen (by way of monthly landing statistics, declared to the Marine Department) as a background or information paper on the status of pelagic fisheries in New Zealand.

Further information on the pelagic fish stocks and pelagic fisheries is contained in the Marine Department publication entitled "New Zealand Fisheries" being prepared for distribution to representatives attending the Fifteenth Session of the Indo-Pacific Fisheries Council.

SUMMARY

This paper details statistical information relating to the landings of wetfish and exports for the period 1966-1971, based on information contained in the Annual Report of the Marine Department on data available to that department.

Also, it classifies the pelagic species, irrespective of method of capture and provides statistical information on pelagic fish landed by the method of capture, the main landing ports and exports for the same period.

Catches of pelagic fish taken during game fishing for the period 1966/71 are also recorded.

INTRODUCTION

The New Zealand wetfish industry is based on trawling.

For the 1971 calendar year the total landings of wetfish were 865,728 cwt valued at \$7,152,755 with trawling contributing 68% of the catch by weight. Purse seine fishing has been consistently undertaken since 1966, but landings by this method in 1971 represented only 1.3% of the wetfish catch by weight.

WETFISH LANDINGS BY METHOD

The following table shows the quantity of wetfish landed by each principal method for 1971 with the comparable data for 1966.

TABLE 1Wetfish Landings by Method

Method	Quantity				Value			
	Cwt		Percentage of total		Dollars (\$)		Percentage of total	
	1971	1966	1971	1966	1971	1966	1971	1966
Trawl	586,924	533,151	67.79	80.01	4,460,562	3,150,320	62.36	71.79
Danish Seine	116,081	26,340	13.41	3.95	832,654	145,588	11.64	3.31
Purse Seine	11,131	3,115	1.29	0.46	28,178	6,764	0.39	0.15
Set and Drag nets	75,174	42,374	8.68	6.36	807,230	423,662	11.29	9.65
Long & hand lines	72,253	61,294	8.35	9.20	991,567	661,582	13.86	15.08
Other methods	4,165	104	0.48	0.02	32,564	1,006	0.46	0.02
TOTALS	865,728	666,378	7,152,755	4,388,922

Although the total landings increased by some 30% since 1966, trawlers consistently land over 65% of the catch and purse seiners less than 2%.

Worldwide catches of pelagic fish usually represent about 60% of the total wetfish landings by weight of fish, and confirmed sightings of surface schools of pelagic fish and echo sounding recordings of mid-water fish show there is no reason to doubt that landings can be increased significantly, more in keeping with world trends.

PURSE SEINE LANDINGS

In 1971 purse seine fishing for pelagic species contributed 1.29% of the total wetfish landings, valued at \$28,178.

Since 1966 the Marine Department's technology vessel "W.J. Scott" has been periodically engaged in experimental purse seining mainly for surface schooling pelagic fish, either from the Bay of Plenty to Hawke Bay, or in Tasman Bay-Cook Strait waters.

The Gisborne-based firm of Watties Limited have commissioned stern trawlers, or specially designed combination vessels, capable of being used for purse seining for pelagic species. Vessels have been engaged in this fishery seasonally since 1967, fishing the waters between Hawke Bay and the Bay of Plenty.

The following table details the number of vessels holding purse seine fishing permits since 1966, purse seiner landings, and the percentage of the wetfish catch.

TABLE 2

Purse Seine Landings - 1966/71

Year	Number of Vessels	Quantity (cwt)			Value \$		
		Total wetfish landings	Purse seine landings	%	Total wetfish landings	Purse seine landings	%
1966	1	666,274	3,115	0.46	4,388,116	6,764	0.15
1967	2	713,527	10,738	1.50	4,626,343	20,309	0.44
1968	2	671,870	5,589	0.83	4,488,614	10,131	0.22
1969	2	645,012	3,315	0.51	5,017,600	6,720	0.13
1970	2	799,890	4,033	0.50	6,424,812	14,794	0.23
1971	2	865,728	11,131	1.29	7,152,755	28,178	0.39

PELAGIC FISHSPECIES OF FISH

It has been necessary to define pelagic fish, irrespective of the method of capture of these fish, as follows:

- (1) Clupeiform fish, or "sardine" type fish to include -
Pilchards (Sardinops neopilchardus), anchovies (Engraulis australis), sprats (Sprattus antipodum), and sardines (which is used as a collective term in the Marine Department's annual reports).
- (2) Other school fish to include -
Kahawai (Arripis trutta), trevally (Caranx lutescens), barracouta (Thyristes atun), and the mackerels - horse mackerel (Trachurus declivis) and English mackerel (Scomber australasicus).
- (3) The tunas to include -
Albacore (Thunnus alalunga), skipjack (Katsuwonus pelamis), southern bluefin (Thunnus maccoyii), northern bluefin (Thunnus tongoll), yellowfin (T. albacares).

(Note - The term "kingfish" within the Marine Department's annual reports includes the northern kingfish (Seriola grandis) and the silver or southern kingfish (Rexea solandri) and some hake (Merluccius australis). As the southern kingfish and hake are demersal fish and are always trawl caught, "kingfish" catches have not been taken into account in this Technical Report.)

FISHING AREAS

Clupeiform fish are available around the whole coastline throughout the year.

The other school fish are also present around the whole coastline but are more common around the North Island and in particular on the eastern coastline. The main schooling period is from October to April.

The tunas frequent coastal waters seasonally, usually from December to May.

FISHING METHODS

Clupeiform fish are usually taken using a lampara type net, and some have been taken by mid-water trawling.

Other school fish are normally taken by purse seining during the schooling season and by trawling and other line and net methods throughout the year.

The tunas are taken by trolling, pole and line fishing, or by gill netting.

LANDINGS BY METHOD OF FISHING

Clupeiform fish

The quantities and landed values by the method of capture of clupeiform fish are set out for the period 1966 to 1971 in the following table.

TABLE 3Clupeiform Fish Landings 1966/71

Method Year	Purse seine		Trawl		Nets		Total	
	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$
1966	-	-	-	-	63	428	63	428
1967	-	-	-	-	174	1,197	174	1,197
1968	-	-	38	214	160	1,205	198	1,419
1969	143	800	86	479	60	406	289	1,685
1970	1,585	8,429	-	-	40	249	1,625	8,678
1971	-	-	-	-	27	175	27	175

The purse seine landings for 1969 and 1970 represent the catches of these fish by the "W.J. Scott" whilst based at Nelson.

Other School Fish

The quantities and landed value by the method of capture of other types of school fish for the period 1966 to 1971 are set out in the following tables -

TABLE 4Kahawai Landings 1966/71

Method Year	Purse seine		Trawl		Danish seine		Lines		Nets		Totals	
	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$
1966	1194	2228	1522	2356	6	8	242	820	2038	6044	5004	11456
1967	6417	12227	1392	2311	4	5	107	328	1059	2600	8979	17471
1968	3369	6019	1174	2354	6	8	142	363	1264	3012	5955	11756
1969	592	1106	405	811	9	14	220	782	3413	10350	4639	13063
1970	1136	4070	1193	2185	36	69	1447	6002	1987	4761	5799	17087
1971	3390	11452	2122	5099	2457	8051	1655	7070	1554	3986	11263	36258

TABLE 5Trevally Landings 1966/71

Method	Purse seine		Trawl		Danish seine		Lines		Nets		Totals	
	Year	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt
1966	1485	3464	54406	135576	332	778	151	628	4653	16572	61027	157018
1967	787	1465	56724	142695	564	1359	55	189	3022	12354	61152	158062
1968	-	-	63244	163668	636	1558	70	216	4466	18223	68416	183665
1969	-	-	58390	172728	296	828	305	962	5592	26580	64583	201098
1970	25	88	72819	254730	948	2846	487	1778	9180	41413	83459	300855
1971	2592	7557	104681	407490	1296	5061	376	1723	8158	45863	117103	467694

TABLE 6Barracouta Landings 1966/71

Method	Purse seine		Trawl		Danish seine		Lines		Nets		Totals	
	Year	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt
1966	-	-	3507	7150	-	-	6	22	1	2	3514	7174
1967	12	22	4545	9308	-	-	6	1	-	-	4563	9331
1968	3	6	11128	23176	-	-	62	130	6	9	11199	23321
1969	-	-	12622	28952	-	-	43	101	-	-	12665	29053
1970	15	67	14722	31043	44	87	80	194	1	3	14862	31394
1971	-	-	20321	42788	98	173	1226	2780	3	2	21648	45743

TABLE 7Mackerel Landings 1966/71

Method	Purse seine		Trawl		Danish seine		Lines		Nets		Totals	
	Year	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt
1966	415	974	507	944	-	-	-	-	1054	2464	1976	4382
1967	3518	13158	2628	10420	-	-	-	-	2961	11750	9107	17664
1968	2176	3908	4206	9627	-	-	26	62	4864	10859	11272	24456
1969	2759	4813	1188	2453	-	-	13	135	2151	6886	5931	14287
1970	1270	2137	2591	5159	-	-	3	7	1054	2828	4918	10131
1971	5104	8697	3234	7197	1831	3924	87	188	2172	4901	12428	24907

The Tunas

The quantities and landed value by the method of capture of the tunas for the period 1966-1971 are set out in the following table -

TABLE 8
Tuna Landings 1966/71

Year	Purse seine		Trawl*		Danish seine		Lines**		Nets		Totals	
	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$
1966	15	72	-	-	-	-	767	5064	49	276	831	5412
1967	2	13	17	148	-	-	109	766	77	432	205	1359
1968	37	188	1	5	-	-	336	4844	-	-	374	5037
1969	-	-	-	-	-	-	304	1884	-	-	304	1884
1970	-	-	34	339	109	773	903	6825	653	4432	1699	12369
1971	39	440	638	6795	26	332	3897	49211	161	1734	4761	58512

* Trawlers also troll lines for tuna, and as no separate method permit is required, the tuna thus caught are classified as part of the "trawl" catch.

** Lines include all line methods, e.g., trolling, pole and line, etc.

Under current fisheries legislation, no separate method permit is required by a currently registered fishing vessel to engage in tuna fishing. Therefore, troll caught and netted tuna can be added to the landings under the principal method permits, e.g. trawl.

MAJOR LANDING PORTS FOR PELAGIC FISH

The ports at which quantities in excess of 500 cwt per annum are landed are set out for the period 1966 to 1971 in the following tables -

TABLE 9
Major Landing Ports (Over 500 cwt p.a.)-Pelagic Fish 1966

Ports and Species	Mangonui	Auckland	Thames	Tauranga	Gisborne	Wellington	Paremata	Wanganui	Manukau	Nelson	Picton
Barracouta	--	--	--	--	--	632	--	--	--	--	--
Kahawai	813	--	--	720	--	2595	--	--	--	--	--
Mackerel	--	--	--	--	--	--	--	--	--	1006	--
Trevally	736	18231	1787	9251	3490	-	702	2516	12061	4635	--

TABLE 10

Major Landing Ports (Over 500 cwt p.a.)-Pelagic Fish 1967

Ports and Species	Auckland	Thames	Tauranga	Gisborne	Napier	Wellington	Paremata	Wanganui	New Plymouth	Manukau	Nelson	Picton	Blenheim
Barracouta	--	--	--	--	--	--	--	--	--	--	4003	--	--
Kahawai	--	547	620	7461	--	--	--	--	--	--	--	--	--
Mackerel	--	--	--	4151	--	--	--	--	--	--	1945	2282	655
Trevally	14200	808	5140	5489	4218	597	1138	2037	1348	11777	11981	--	--

TABLE 11

Major Landing Ports (Over 500 cwt p.a.)-Pelagic Fish 1968

Ports and Species	Auckland	Thames	Tauranga	Gisborne	Napier	Wellington	Paremata	Wanganui	New Plymouth	Manukau	Motueka	Nelson	Picton	Blenheim
Barracouta	--	--	--	1096	--	--	--	--	--	--	1730	7671	--	--
Kahawai	--	569	551	3738	--	--	--	--	--	--	--	569	--	--
Mackerel	--	--	--	2611	--	--	--	--	--	--	--	3279	2869	2024
Trevally	17420	1578	7457	5732	5020	-	793	2243	1513	13063	1201	10442	--	--

TABLE 12

Major Landing Ports (Over 500 cwt p.a.)-Pelagic Fish 1969

Ports and Species	Mangonui	Auckland	Thames	Tauranga	Gisborne	Napier	Wellington	Wanganui	New Plymouth	Manukau	Motueka	Nelson	Picton	Blenheim
Barracouta	--	--	--	--	4115	--	683	--	--	--	1358	5467	--	--
Kahawai	--	--	809	1136	619	--	--	--	529	--	--	--	--	--
Mackerel	--	--	--	--	2324	--	--	--	--	--	--	690	864	1282
Trevally	515	15264	1413	9719	3963	6431	--	1286	1164	17266	964	4223	--	--

TABLE 13

Major Landing Ports (Over 500 cwt p.a.)-Pelagic Fish 1970

Ports and Species	Mangonui	Auckland	Thames	Tauranga	Whakatane	Gisborne	Napier	Wellington	Wanganui	New Plymouth	Raglan	Manukau	Motueka	Nelson	Picton
Barracouta	--	880	--	--	--	4310	--	702	--	--	--	--	1483	5805	--
Kahawai	--	--	1204	583	--	1196	--	--	--	1174	--	--	--	--	--
Mackerel	--	--	--	--	--	1270	--	--	--	--	--	--	--	1664	735
Trevally	605	15466	3315	17833	640	5386	5543	--	3990	2733	659	19476	778	4811	--

TABLE 14

Major Landing Ports (Over 500 cwt p.a.) Pelagic Fish 1971

Ports and Species	Mangonui	Auckland	Thames	Mercury Bay	Tauranga	Gisborne	Napier	Wellington	Paremata	Wanganui	New Plymouth	Raglan	Manukau	Motueka	Nelson	Picton	Blenheim
Barracouta	--	2049	--	--	--	5515	--	1005	--	--	--	--	992	1318	8846	--	--
Kahawai	--	--	--	--	647	6288	--	--	--	--	1515	--	628	--	--	--	--
Mackerel	--	--	--	--	--	6190	--	--	--	--	--	--	--	--	2373	626	2292
Trevally	526	18961	1755	1181	34825	10336	7673	686	528	4205	4774	807	22576	788	6089	--	--

DEVELOPMENT OF PELAGIC FISHING

The National Development Conference 1969 set export targets for wetfish covering both demersal and pelagic species.

The target for pelagic fish exports was \$1.2 million by 1973 and \$8 million by 1978. This is a significant proportion of the 1978 total fisheries export target of \$26.7 million.

The Government invited Mr R.L. Payne of the Canadian Fishing Company, Vancouver, to investigate and report on New Zealand's prospects of establishing a successful pelagic fishing industry and the best means of setting up such an industry, (Payne, 1969). Mr Payne's principal conclusion was that evidence supports that a number of pelagic species are available in surface schools over extensive areas for protracted periods. He recommended that a company be set up to prosecute pelagic fishing, using chartered purse seiners and trained crews from overseas with the development costs being underwritten by Government.

With the establishment of the Fisheries Development Council as a sector council of the National Development Conference, with terms of reference to review expansion and progress towards achievement of export targets, the Fisheries Development Council has recommended to Government implementation of the Payne recommendations for experimental fishing, using chartered vessels based on Tauranga to fish the pelagic stocks of the Bay of Plenty.

EXPORTS OF WETFISH

The table below sets out the quantities and value of wetfish exported for the period 1966 to 1971 and the quantity and value of the main species of pelagic fish being exported.

TABLE 15

Wetfish Exports 1966/71

Year	Wetfish Total		Barracouta		Trevally		Tuna		Pelagic Fish Total	
	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$	Cwt	\$
1966	56884	1167874	163	1660	4741	48206	-	-	5904	49866
1967	64804	1261917	171	1797	4979	48903	-	-	5150	50700
1968	77225	1689400	138	2254	5215	65601	-	-	5353	67855
1969	74034	1899647	622	7262	5644	81055	-	-	6366	88317
1970	144171	4242756	568	8857	7667	130142	144	1280	8379	160279
1971	163606	4898996	1344	21433	13131	253995	873	14456	15348	289864

BIG GAME FISHING

Pelagic fish are taken for sporting purposes by big game fishing clubs using specially equipped charter launches. With the increase in popularity of this sport and the greater variety of fish being regarded as big game fish, more detailed records have been published in 1971.

Species involved include black marlin (Istiompax indicus), striped marlin (Tetrapturus audax), blue marlin (Makaira nigricans), mako shark (Isurus oxyrinchus), hammerhead shark (Sphryna lewini), thresher shark (Alopias vulpinus), kingfish (Seriola grandis) and all species of tuna, except skipjack.

The table sets out the catches of big game fish since 1966 with more detailed information being given for the 1971 season.

BIG-GAME FISHING 1966/71

Species	1966 1967 1968 1969 1970					1971										
	Whangaroa	Bay of Islands	Whangarei	Kawau Island	Mercury Bay	Tauranga	Whakatane	Waihou Bay	Gisborne	Hawke's Bay	TOTALS					
Black marlin	11	14	13	13	7	1	-	-	-	-	-	-	-	-	2	
Striped marlin	144	161	163	199	74	12	37	1	-	5	37	3	-	-	95	
Blue marlin	5	8	9	9	6	-	1	-	-	-	1	-	-	-	2	
Mako shark	265	422	345	396	396	14	25	10	9	224	87	32	5	12	463	
Tuna species -																
(a) Yellowfin	-	-	-	-	-	2	23	4	26	37	18	230	2	9	1	352
(b) Northern blue	-	-	-	-	-	-	-	-	-	1	12	12	-	11	36	
(c) Southern blue	-	-	-	-	-	-	-	-	-	-	-	-	17	-	17	
(d) Albacore	-	-	-	-	-	-	-	-	-	-	-	2	25	4	31	
Yellowtail (kingfish)	-	-	-	-	-	41	331	-	73	25	75	39	35	1	2	622
Hammerhead	-	-	-	-	-	3	28	-	3	5	15	8	-	1	63	
Thresher	-	-	-	-	-	2	3	-	2	1	12	1	-	-	21	
Other	480	962	1083	789	798	-	-	4	-	2	5	-	-	-	11	
Totals	908	1567	1690	1355	1545	75	448	19	113	300	263	327	84	38	48	1715

ACKNOWLEDGMENTS

I wish to thank Mr P.R. Michael, Mrs J.A. Terrence, and other staff of the Statistics Section of the Fisheries Division for assistance in compiling the tabular material.

Also, to express my thanks to Mr A.G. York for critically reading the manuscript.

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