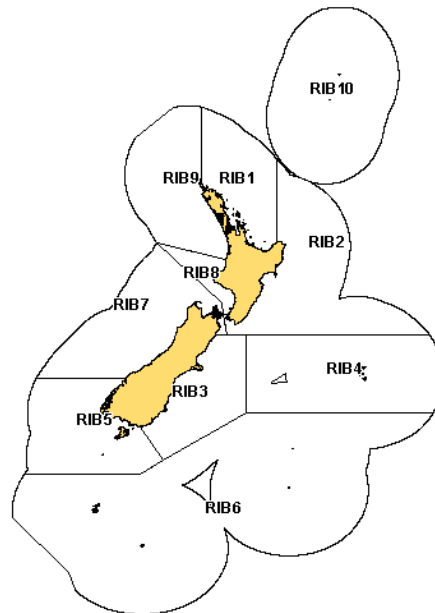


RIBALDO (RIB)*(Mora moro)***1. FISHERY SUMMARY****(a) Commercial fisheries**

In New Zealand ribaldo is caught on bottom longlines and as a bycatch to trawling. Up to 4920 t per year were reported by Japanese and Korean longline vessels target fishing for ling on the Chatham Rise and east coast of the South Island in the 1970s. In recent years (since the early 1990s) most of the New Zealand catch has probably been by longline but most reported catch from about 1978 to 1990 has probably been as a bycatch during target trawling for hoki (*Macruronus novaezelandiae*), orange roughy (*Hoplostethus atlanticus*) and ling (*Genypterus blacodes*) (respectively) at 500–1000 m. Reported catch has been mainly from the Chatham Rise and east coast South Island (QMAs 3 & 4) and since 1991–92 from east coast North Island (QMAs 1 & 2). Reported catch prior to 1990 was probably less than actual catch because some of the ribaldo caught by trawling was discarded. Catches by Japanese and Korean longliners in the mid 1970s are shown in Table 1. Landings from 1982–83 onwards are shown in Table 2.

Ribaldo was introduced into the QMS from 1 October 1998. The TACCs remained unchanged until the 2000–01 fishing year when quotas were raised for QMAs 1, 2 and 3. Catch limits for the most recent fishing year (2005–06) are shown in Table 2. TACCs were increased from 1 October 2006 in RIB 6 to 231 t and in RIB 7 to 330 t. In these stocks landings were above the TACC for a number of years and the TACCs have been increased to the average of the previous 7 years plus an additional 10%.

Table 1: Japanese and Korean longline catch (t) of ribaldo (“deep-sea cod”) from New Zealand waters, probably mostly Chatham Rise and east coast South island, by calendar year from 1975–77.

Year	1975	1976	1977
Japan	2417	4920	4283
Korea	–	–	286 ¹

1. Reported as “cods” but considered to be mainly ribaldo. The Korean fleet began fishing in April 1977.

Table 2: Reported landings (t) of ribaldo by QMA for fishing years 1983–84 to 2005–06 and TACCs (t) for the most recent fishing year 2005–06. The data in this table has been updated from that published in previous Plenary Reports by using the data through 1996–97 in table 32 on p. 262 of the “Review of Sustainability Measures and Other Management Controls for the 1998–99 Fishing Year – Final Advice Paper” dated 6 August 1998.

	<u>QMA 1</u>	<u>QMA 2</u>	<u>QMA 3</u>	<u>QMA 4</u>	<u>QMA 5</u>	<u>QMA 6</u>	<u>QMA 7</u>	<u>QMA 8</u>	<u>QMA 9</u>	<u>QMA 10</u>	<u>Other</u>	<u>Total</u>
1982–83	0	8	15	33	111	0	58	0	0	0		225
1983–84	0	3	24	21	68	1	25	0	0	0		142
1984–85	0	4	17	61	21	13	18	0	0	0		134
1985–86	1	1	26	13	35	2	37	0	0	0		115
1986–87	4	1	44	20	41	10	6	0	0	0		126
1987–88	19	4	65	31	56	12	68	0	0	0		255
1988–89	1	2	33	41	6	6	69	1	10	0		169
1989–90	8	9	23	28	6	13	21	0	0	0		108
1990–91	15	15	177	119	34	106	55	0	0	0		521
1991–92	95	40	160	169	73	98	40	0	0	0		675
1992–93	131	54	217	228	67	96	106	0	0	0		899
1993–94	87	70	217	186	23	92	42	1	0	0		718
1994–95	116	136	437	303	68	122	39	2	6	2		1231
1995–96	121	168	286	253	26	109	62	0	0	0		1025
1996–97	114	188	365	843	64	158	77	1	0	0	14	1824
1997–98	78	122	141	375	80	262	110	1	1	0	44	1214
1998–99	24	55	161	290	71	223	243	1	0	0	13	1081
1999–00	22	89	264	347	80	237	300	<1	<1	0	20	1359
2000–01	5	107	269	306	78	191	275	<1	<1	0	10	1242
2001–02	7	53	198	370	62	322	254	0	<1	0	45	1311
2002–03	12	98	211	183	50	172	338	<1	1	0	144	1209
2003–04	12	120	175	299	50	205	364	<1	2	0	75	1302
2004–05	28	127	156	379	44	105	307	<1	2	0	92	1240
2005–06	49	137	126	202	47	62	335	0	4	0	55	1017
TACC	121	176	394	357	52	124	55	1	2	0		1282

(b) Recreational fisheries

There are no known recreational fisheries for ribaldo.

(c) Maori customary fisheries

There is no known Maori customary fishing for ribaldo.

(d) Illegal catch

Estimates of illegal catch are not available.

(e) Other sources of mortality

There is no quantitative information on the level of other sources of mortality.

2. BIOLOGY

Ribaldo is known from the North Atlantic Ocean from Iceland to West Africa, the western Mediterranean Sea, the Indian Ocean south of Madagascar and the Pacific Ocean from Australia, New Zealand and Chile. In New Zealand it is widespread and has been caught by research trawl at depths of about 200–1300 m. It appears to be most common at 500–1000 m. The relatively high catch by bottom longline suggests that it favours rough bottom habitats.

Ribaldo reaches fork lengths (FL) of about 75 cm and 65 cm for females and males respectively. Most research trawls have caught fish ranging from 30 to 70 cm FL. There are few data on reproduction but trawl-caught samples suggest winter/spring spawning. Fish do not appear to form large spawning aggregations. Early life history is largely unknown but a few individuals less than 10 cm FL were captured in plankton nets in the upper 200 m of the water column over bottom depths of about 1000 m at the south west end of Chatham Rise.

No information on age, growth and natural mortality is available. Length weight parameters for ribaldo are shown in Table 3.

Table 3: Length-weight parameter values for ribaldo. $W = a.L^b$, where W is weight (g) and L is fork length (cm).

Symbol	Female	Male
a	0.0357	0.0531
b	3.29	3.30

3. STOCKS AND AREAS

It is not known whether different regional stocks of ribaldo occur in New Zealand waters but it is possible that there are separate stocks based on natural boundaries such as the New Zealand landmass, i.e., west and east coast stocks. The Working Group agreed on five fishstocks based on the four main fishing areas plus the Kermadec area, i.e., the east coast of the North Island (QMAs 1 and 2), Chatham Rise and east coast South Island (QMAs 3 and 4), Southland and Sub-Antarctic (QMAs 5 and 6), the west coast of New Zealand (QMAs 7, 8 and 9) and QMA 10.

4. STOCK ASSESSMENT

The first stock assessment for ribaldo was conducted in 1998. There are no new data since 1998 that would change that assessment.

(a) Estimates of fishery parameters and abundance

No estimates of fishery parameters have been made. No CPUE analyses were carried out because ribaldo is caught as a bycatch to other fisheries and because actual catch is probably less than reported catch. No analyses of research trawl survey abundance estimates were made because no trawl survey series has been designed to sample the depth range of ribaldo. Therefore, no estimates of abundance are available.

(b) Biomass estimates

Estimates of biomass are not available.

(c) Estimation of Maximum Constant Yield (MCY)

MCY cannot be estimated.

(d) Estimation of Current Annual Yield (CAY)

CAY cannot be estimated.

(e) Other yield estimates and stock assessment results

No information is available.

5. STATUS OF THE STOCKS

Actual catch of ribaldo has probably been greater than reported catch in the past but recent catch may be more accurate with increased reporting because of the species being included in the Quota Management System. It is not known if recent catches are sustainable in the long term or whether catches at the level of the current TACCs will allow the stocks to move towards a size that will support the maximum sustainable yield.

TACCs and reported landings for the 2005/06 fishing year are summarised in Table 4.

Table 4: Summary of TACCs (t) and reported landings (t) of ribaldo for the most recent fishing year.

Fishstock	QMA	2005–06	2005–06
		Actual TACC	Estimated landings
RIB 1	Auckland (East)	1	49
RIB 2	Central (East)	2	137
RIB 3	South-east (Coast)	3	126
RIB 4	South-east (Chatham)	4	202
RIB 5	Southland	5	47
RIB 6	Sub-Antarctic	6	62
RIB 7	Challenger	7	335
RIB 8	Central (West)	8	0
RIB 9	Auckland (West)	9	4
RIB 10	Kermadec	10	0
Total		1282	962

6. FOR FURTHER INFORMATION

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Elder, R. D.; Taylor, J. L. (Comps.) (1979). Prospects and problems for New Zealand's demersal fisheries. Proceedings of the Demersal Fisheries Conference October 1978. *Fisheries Research Division Occasional Publication No. 19*. 123 p.

McMillan, P.J.; Hart, A.C. (1998). Summary of biology and commercial landings, and a stock assessment of ribaldo *Mora moro* (Risso, 1810), in New Zealand waters. *N.Z. Fisheries Assessment Research Document 98/9*. 16 p.