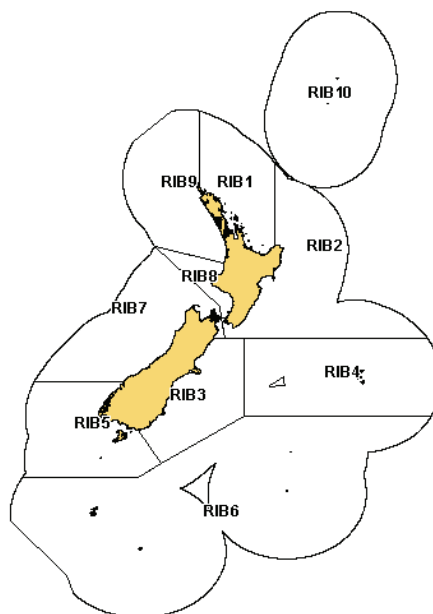


RIBALDO (RIB)

(Mora moro)

1. FISHERY SUMMARY

1.1 Commercial fisheries

In New Zealand ribaldo is caught on bottom longlines and as a bycatch of trawling. Up to 7000 t were reported in 1977 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*) 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, while Figure 1 shows the historical landings and TACC values for the main RIB stocks.

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 (2006–07) 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	2 417	4 920	4 283
Korea	–	–	2 861

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

RIBALDO (RIB)

Table 2: Reported landings (t) of ribaldo by QMA for fishing years 1983–84 to 2007–08 and TACCs (t). QMA 10 has no catches and a TACC of 0. Total includes catches from outside the NZ EEZ.

	QMA		QMA 2		QMA 3		QMA 4		QMA 5	
	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC
1982-83	0		8		15		33		111	
1983-84	0		3		24		21		68	
1984-85	0		4		17		61		21	
1985-86	1		1		26		13		35	
1986-87	4		1		44		20		41	
1987-88	19		4		65		31		56	
1988-89	1		2		33		41		6	
1989-90	8		9		23		28		6	
1990-91	15		15		177		119		34	
1991-92	95		40		160		169		73	
1992-93	131		54		217		228		67	
1993-94	87		70		217		186		23	
1994-95	116		136		437		303		68	
1995-96	121		168		286		253		26	
1996-97	114		188		365		843		64	
1997-98	78		122		141		375		80	
1998-99	24	121	55	176	161	394	290	357	71	52
1999-00	22	121	89	176	264	394	347	357	80	52
2000-01	5	121	107	176	269	394	306	357	78	52
2001-02	7	121	53	176	198	394	370	357	62	52
2002-03	12	121	98	176	211	394	183	357	50	52
2003-04	12	121	120	176	175	394	299	357	50	52
2004-05	28	121	127	176	156	394	379	357	44	52
2005-06	49	121	137	176	126	394	202	357	47	52
2006-07	39	121	125	176	149	394	312	357	49	52
2007-08	53	121	135	176	134	394	173	357	43	52

	QMA 6		QMA 7		QMA 8		QMA 9		Total	
	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC
1982-83	0		58		0		0		225	
1983-84	1		25		0		0		142	
1984-85	13		18		0		0		134	
1985-86	2		37		0		0		115	
1986-87	10		6		0		0		126	
1987-88	12		68		0		0		255	
1988-89	6		69		1		10		169	
1989-90	13		21		0		0		108	
1990-91	106		55		0		0		521	
1991-92	98		40		0		0		675	
1992-93	96		106		0		0		899	
1993-94	92		42		1		0		718	
1994-95	122		39		2		6		1 231	
1995-96	109		62		0		0		1 025	
1996-97	158		77		1		0		1 824	
1997-98	262		110		1		1		1 214	
1998-99	223	124	243	55	1	1	0	2	1 081	1 282
1999-00	237	124	300	55	< 1	1	< 1	2	1 359	1 282
2000-01	191	124	275	55	< 1	1	< 1	2	1 242	1 282
2001-02	322	124	254	55	0	1	< 1	2	1 311	1 282
2002-03	172	124	338	55	< 1	1	1	2	1 209	1 282
2003-04	205	124	364	55	< 1	1	2	2	1 302	1 282
2004-05	105	124	307	55	< 1	1	2	2	1 240	1 282
2005-06	62	124	336	55	0	1	4	2	1 018	1 282
2006-07	61	231	404	330	0	1	9	2	1 162	1 664
2007-08	80	231	356	330	< 1	1	14	2	992	1 664

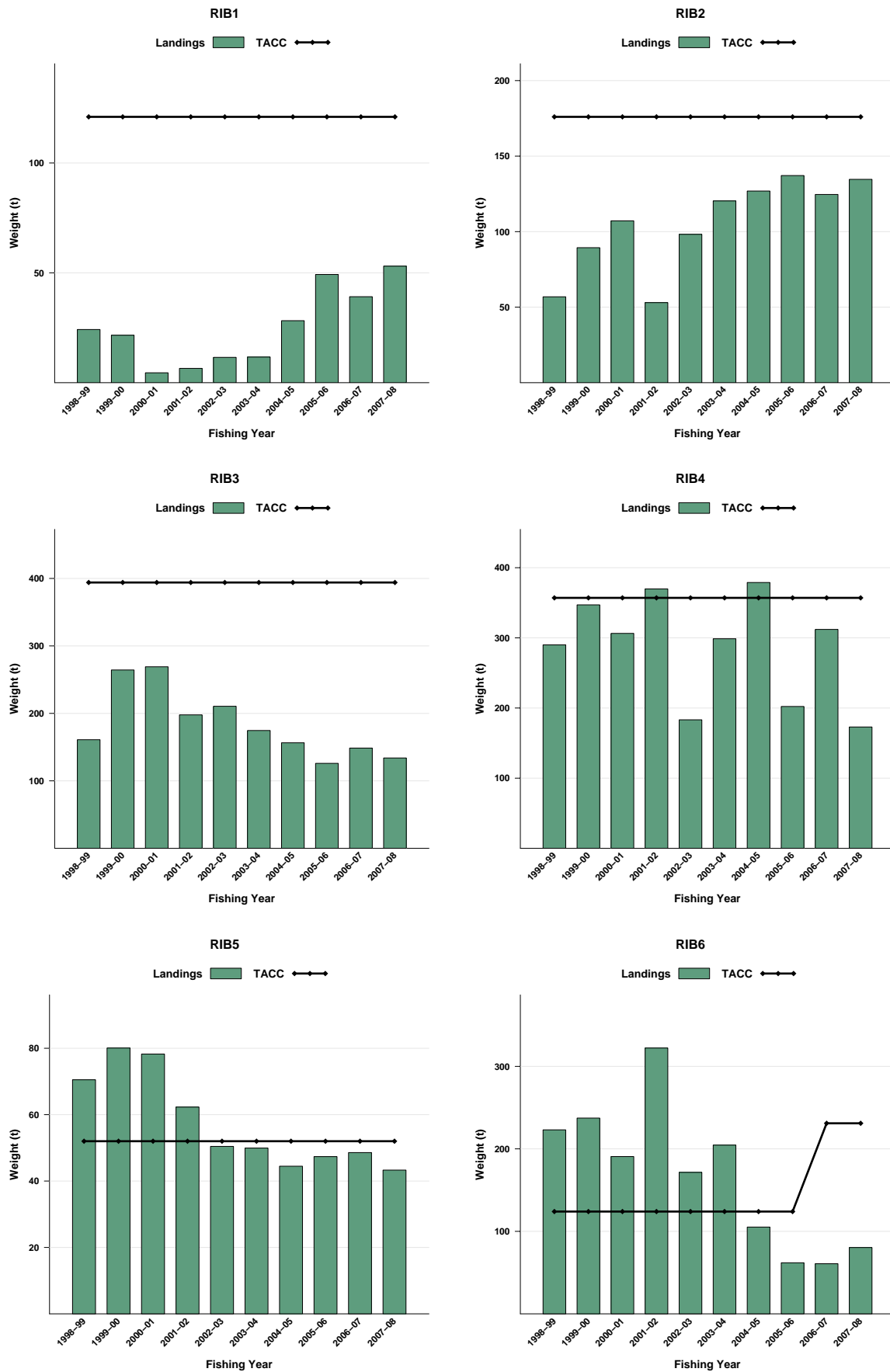


Figure 1: Historical landings and TACC for the seven main RIB stocks. From top left: RIB1 (Auckland East), RIB2 (Central East), RIB3 (South East Coast), RIB4 (South East Chatham Rise), RIB5 (Southland), RIB6 (Sub-Antarctic). [Continued on next page]...

RIBALDO (RIB)

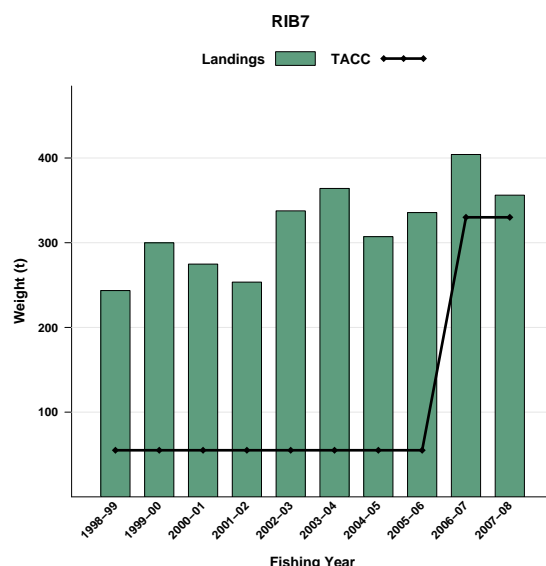


Figure 1 [Continued]: Historical landings and TACC for the seven main SUR stocks. RIB7 (Challenger). Note that these figures do not show data prior to entry into the QMS.

1.2 Recreational fisheries

There are no known recreational fisheries for ribaldo.

1.3 Customary non-commercial fisheries

There is no known customary non-commercial fishing for ribaldo.

1.4 Illegal catch

Estimates of illegal catch are not available.

1.5 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.

Fishstock	Estimate			
	1. Length weight parameters ($W = a.L^b$, where W is weight (g) and L is fork length (cm).)			
	Females		Males	
	a	b	a	b
RIB	0.0357	3.29	0.0531	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

No stock assessments are available for any ribaldo stocks.

4.1 Estimates of fishery parameters and abundance

No estimates of fishery parameters have been made. 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.

Dunn (2006) described the fishery up to 2002–03 but found that interpreting CPUE data was difficult because the catch is taken mainly as by-catch of other fisheries and the CPUE may reflect changes in those fisheries rather than ribaldo abundance. Discarding of ribaldo has been common, and the species has not been consistently reported on the forms, although there has been an increase in reported catch since the entry of ribaldo into the QMS.

4.2 Biomass estimates

Estimates of biomass are not available.

4.3 Estimation of Maximum Constant Yield (MCY)

MCY cannot be estimated.

4.4 Estimation of Current Annual Yield (CAY)

CAY cannot be estimated.

4.5 Other yield estimates and stock assessment results

No information is available.

5. STATUS OF THE STOCKS

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 2007–08 fishing year are summarised in Table 4.

RIBALDO (RIB)

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

Fishstock	QMA	2007-08	2007-08	
		Actual TACC	Estimated landings	
RIB 1	Auckland (East)	1	121	53
RIB 2	Central (East)	2	176	135
RIB 3	South-east (Coast)	3	394	134
RIB 4	South-east (Chatham)	4	357	173
RIB 5	Southland	5	52	43
RIB 6	Sub-Antarctic	6	231	80
RIB 7	Challenger	7	330	356
RIB 8	Central (West)	8	1	< 1
RIB 9	Auckland (West)	9	2	14
RIB 10	Kermadec	10	0	0
RIB ET				4
Total			1 664	992

6. FOR FURTHER INFORMATION

- Cohen DM., Inada T., Iwamoto T., Scialabba N. 1990. FAO species catalogue. Vol. 10. Gadiform fishes of the world (Order Gadiformes). An annotated and illustrated catalogue of cods, hakes, grenadiers and other gadiform fishes known to date. Food and Agriculture Organisation Fisheries Synopsis. No. 125, Vol. 10. Rome, FAO. 442p.
- Dunn MR. 2006. Descriptive and catch per unit effort analyses for New Zealand ribaldo fisheries for the fishing years 1988-78 to 2002-03> New Zealand Fisheries Assessment Document 2006/22. 55p.
- Elder RD., Taylor JL. (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. 123p.
- McMillan,PJ., Hart AC. 1998. Summary of biology and commercial landings, and a stock assessment of ribaldo *Mora moro* (Risso, 1810), in New Zealand waters. New Zealand Fisheries Assessment Research Document 1998/9. 16p.