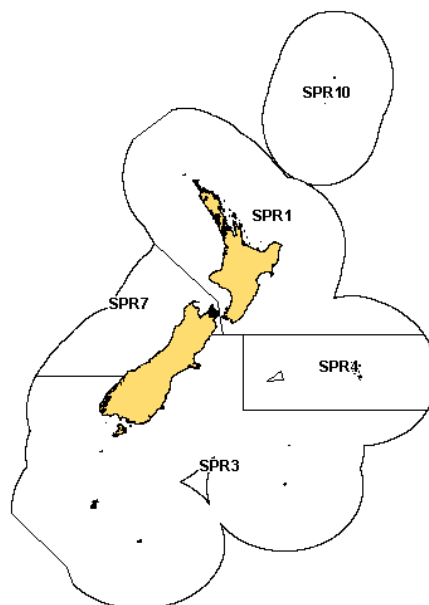


SPRAT (SPR)

(*Sprattus antipodum*, *S. muelleri*)



1. FISHERY SUMMARY

There are two species of sprats in New Zealand, *Sprattus antipodum* (slender sprat) and *S. muelleri* (stout sprat). They can be distinguished by body shape, colour, and some morphological features, but are very similar and it is impractical to separate them in large catches.

(a) Commercial fisheries

The sprat “fishery” is minor and intermittent. There is no information on catches or landings of sprats prior to 1990, although occasional catches were made during exploratory fishing projects on small pelagic species, mainly in the 1960s and 1970s. Sprats have undoubtedly been caught in most years, but were either not reported, reported as “bait” or included in the category “mixed species”. The name “sprat” is used in a general sense for several unrelated small fishes, and the juveniles of some larger species. This may have introduced errors into catch records. Reported catches and landings since 1990 have ranged from less than 1 t to 7 t (Table 1). The most consistent (but small) catches have been by bottom trawl. Reported catches by setnet and beach seine could be of true sprats, but may also be of yellow-eyed mullet (*Aldrichetta forsteri*), known colloquially as sprats. This is particularly likely in the upper North Island where the presence of sprats is considerably reduced or non-existent. Sprat was introduced into the QMS in October 2003.

Table 1: Reported landings (t) of Sprat by fishstock and fishing year. No catches reported for SPR 10, which has a TACC of 0.

FMA	SPR 1		SPR 3		SPR 4		SPR 7		Total	
	1, 2, 8 & 9		3, 5 & 6		4		7		Landings	TACC
	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC
1990–91†	3	-	<1	-	0	-	<1	-	3	-
1991–92†	1	-	0	-	0	-	0	-	1	-
1992–93†	<1	-	<1	-	0	-	0	-	<1	-
1993–94†	<1	-	<1	-	0	-	<1	-	1	-
1994–95†	<1	-	<1	-	0	-	<1	-	1	-
1995–96†	<1	-	6	-	0	-	<1	-	7	-
1996–97†	<1	-	1	-	0	-	<1	-	1	-
1997–98†	<1	-	<1	-	0	-	<1	-	<1	-
1998–99†	2	-	<1	-	0	-	<1	-	4	-
1999–00†	<1	-	<1	-	0	-	1	-	2	-
2000–01†	<1	-	<1	-	0	-	<1	-	<1	-
2001–02	<1	-	<1	-	0	-	<1	-	<1	-
2002–03	<1	70	<1	285	0	10	0	85	<1	450
2003–04	<1	70	3	285	0	10	0	85	3	450
2004–05	<1	70	0	285	0	10	0	85	<1	450
2005–06	<1	70	0	285	0	10	0	85	<1	450

† CELR + CLR data.

(b) Recreational fisheries

There is no known recreational fishery, but small numbers are caught in small-mesh setnets and beach seines.

(c) Maori customary fisheries

Quantitative information on the current level of Maori customary take is not available.

(d) Illegal catch

Estimates of illegal catch are not available, but this is probably insignificant or nil.

(e) Other sources of mortality

Some accidental captures of sprats by vessels purse seining for other small pelagic species may be discarded if no market is available.

2. BIOLOGY

Sprats occur in coastal waters from the Bay of Islands to Stewart Is, and are present at the Auckland Is. It is not known whether the two species have different distributions. Sprats appear to be most abundant off the southeastern coast of the South Island, where anchovies are absent. Their vertical distribution within the water column is not known.

Spawning occurs in areas of reduced salinity when water temperatures are coolest 9-10.5 °C; there are consequently regional differences in spawning season with spawning peaks occurring between June and November (Taylor & Marriott, 2004). The eggs are pelagic.

No reliable ageing work has been undertaken. Sprats are assumed to feed on zooplankton, and are preyed upon by larger fishes, seabirds, and marine mammals.

There have been no biological studies that are directly relevant to the recognition of separate stocks, or to yield estimates. Consequently no estimates of biological parameters are available. There is an extensive international literature base on sprats, mainly *Sprattus sprattus*, but the relevance of this to the New Zealand species is unknown.

3. STOCKS AND AREAS

There is no biological information on which to make an assessment on whether separate stocks exist. However, there are two species, and their relative distributions are unknown. As presently understood, both species are more common around southern New Zealand. If their distributions do differ, and the biomass of each species fluctuates independently, there are unknown implications for localised stock depletion.

4. STOCK ASSESSMENT

There have been no previous stock assessments of sprats. There have been two very general estimates of biomass in the Canterbury Bight region: 50 000 t (Robertson, 1978), and 60 000 t (Colman, 1979), with a possible yield of 10 000 t. No information on biomass variability is available.

(a) Estimates of fishery parameters and abundance

No fishery parameters are available.

(b) Biomass estimates

No estimates of biomass (B_0 , B_{MSY} , or $B_{current}$) are available.

(c) Estimation of Maximum Constant Yield (MCY)

Cannot be determined.

(d) Estimation of Current Annual Yield (CAY)

Current biomass cannot be estimated, so CAY cannot be determined.

Yield estimates are summarised in Table 2.

(e) Other yield estimates and stock assessment results

No information is available.

(f) Other factors

Data from some ichthyoplankton surveys show one or both sprat species to be locally abundant. However, it is unlikely that the biomass is comparable to the very large stocks in the northern hemisphere where there are large sprat fisheries.

It is not known whether the biomass of sprats is stable or variable, but the latter is considered more likely.

In some localities around the South Island, sprats are a major food source for many fishes, seabirds, and marine mammals. Excessive localised harvesting may disrupt ecosystems.

5. STATUS OF THE STOCKS

No estimates of current biomass are available. At the present level of minimal catches, stocks are at or close to their natural level. This is nominally a virgin biomass, but not necessarily a stable one. It is probably not possible to estimate a long-term sustainable yield for sprats, or to determine if recent catch levels will allow the stock(s) to move towards a size that would support an MSY.

Yield estimates, reported landings, and TACCs for the 2005/06 fishing year are summarised in Table 2.

Table 2: Summary of yield estimates (t), TACCs (t), and reported landings (t) for the most recent fishing year.

Fishstock	FMA	MCY	2005-06 Actual TACC	2005-06 Reported Landings
SPR 1 North Island	1, 2, 8, 9	–	70	<1
SPR 3 South-east + Southland/Subantarctic	3, 5, 6	–	285	0
SPR 4 Chatham	4	–	10	0
SPR 7 Challenger	7	–	85	0
SPR 10 Kermadec	10	–	0	0
Total			450	<1

6. FOR FURTHER INFORMATION

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