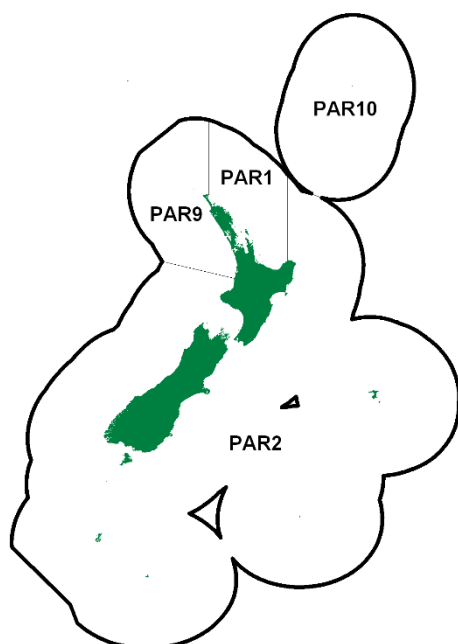


PARORE (PAR)*(Girella tricuspidata)*

Parore

**1. FISHERY SUMMARY**

Parore was introduced into the Quota Management System (QMS) on 1 October 2004 with the TACs, TACCs and allowances shown in Table 1.

Table 1: TACs (t), TACCs (t) and allowances (t) for parore.

Fishstock	Recreational Allowance	Customary non-commercial Allowance	Other sources of mortality	TACC	TAC
PAR 1	6	3	4	61	74
PAR 2	1	1	0	2	4
PAR 9	2	1	1	21	25
PAR 10	0	0	0	0	0
Total	9	5	5	84	103

1.1 Commercial fisheries

Parore is principally caught as a bycatch in the grey mullet, flatfish and trevally setnet fisheries in northern New Zealand. Most of the catch comes from eastern Northland and the Firth of Thames (FMA 1) and the Kaipara and Manukau Harbours (FMA 9) (Figure 1). Highest catch rates occur during September to October. Few parore are caught in the other FMAs.

Historical estimated and recent reported parore landings and TACCs are shown in Tables 2, 3 and 4. Between 2004–05 and 2019–20 total landings ranged between 56 t and 92 t. Landings exceeded the PAR 1 TACC by 9 t in 2009–10 and slightly in 2010–11 and 2012–13, and were at the TACC in 2019–20. In PAR 9 landings have remained below the TACC in most years, only slightly exceeding the TACC in 2009–10 and 2018–19 (Table 4).

Fishers may confuse the codes PAR (parore) and POR (porae) when reporting catches, but given that both species occur in shallow northern waters, misreporting is difficult to discern.

1.2 Recreational fisheries

Parore is taken by recreational fishers in northern areas as a bycatch when targeting other species such as snapper, trevally, and mullet using rod and line or set net. There is some opportunistic targeting by

PARORE (PAR)

spear fishers. No estimates of recreational harvest of parore were generated from the telephone-diary surveys conducted in 1994, 1996 and 2000 because so few were reported. A National Panel Survey was conducted for the first time throughout the 2011–12 fishing year. The panel survey used face-to-face interviews of a random sample of 30 390 New Zealand households to recruit a panel of fishers and non-fishers for a full year (Wynne-Jones et al 2014). The panel members were contacted regularly about their fishing activities and harvest information collected in standardised phone interviews. The national panel survey was repeated during the 2017–18 fishing year using very similar methods to produce directly comparable results (Wynne-Jones et al 2019). Recreational catch estimates from the two national panel surveys are given in Table 1. Note that national panel survey estimates do not include recreational harvest taken under s111 general approvals.

1.3 Customary non-commercial fisheries

There is no quantitative information on customary harvest of parore. Customary fishers are likely to catch small quantities of parore when targeting other species such as snapper, trevally, and mullet. Parore is considered to be a low value customary species and current catches are likely to be low.

Table 2: Reported landings (t) for the main QMAs from 1931 to 1982.

Year	PAR 1	PAR 2	PAR 9	Year	PAR 1	PAR 2	PAR 9
1931–32	0	0	0	1957	19	0	0
1932–33	0	0	0	1958	22	0	1
1933–34	0	0	0	1959	13	0	1
1934–35	0	0	0	1960	6	0	0
1935–36	0	0	0	1961	12	0	1
1936–37	0	0	0	1962	28	0	2
1937–38	0	0	0	1963	29	0	2
1938–39	1	0	0	1964	62	0	2
1939–40	0	0	0	1965	56	0	2
1940–41	0	0	0	1966	42	0	2
1941–42	0	0	0	1967	19	0	2
1942–43	15	0	0	1968	39	0	0
1943–44	13	0	0	1969	67	0	2
1944	21	0	0	1970	69	1	4
1945	41	0	0	1971	82	0	3
1946	75	0	0	1972	67	0	3
1947	31	0	0	1973	50	0	5
1948	4	0	0	1974	55	0	2
1949	7	0	0	1975	37	1	7
1950	13	0	0	1976	67	1	13
1951	7	0	0	1977	65	0	7
1952	20	0	0	1978	62	0	3
1953	11	0	0	1979	53	0	5
1954	16	0	0	1980	40	6	6
1955	12	0	1	1981	50	0	6
1956	7	0	0	1982	52	1	12

Notes:

1. The 1931–1943 years are April–March but from 1944 onwards are calendar years.
2. Data for the period 1931 to 1982 are based on reported landings by harbour and are likely to be underestimated as a result of under-reporting and discarding practices. Data includes both foreign and domestic landings

Table 3: Reported landings (t) of parore by FMA, fishing years 1989–90 to 2003–04.

	FMA 1	FMA 2	FMA 3	FMA 4	FMA 5	FMA 7	FMA 8	FMA 9
1989–90	18	<1	0	0	<1	<1	0	<1
1990–91	81	2	<1	<1	<1	<1	<1	0
1991–92	100	<1	<1	0	0	2	0	0
1992–93	109	<1	<1	0	<1	<1	0	0
1993–94	95	<1	0	<1	0	<1	<1	0
1994–95	95	<1	<1	0	0	<1	0	3
1995–96	89	<1	0	0	0	<1	<1	9
1996–97	70	<1	<1	<1	0	3	<1	6
1997–98	73	<1	<1	0	0	<1	<1	5
1998–99	73	<1	<1	<1	0	<1	<1	6
1999–00	79	<1	<1	0	<1	<1	<1	4
2000–01	91	<1	<1	0	0	<1	<1	9
2001–02	67	1	<1	0	<1	<1	0	3
2002–03	89	0	0	0	0	0	0	4
2003–04	49	<1	<1	0	0	0	<1	6

Table 4: Reported domestic landings (t) of Parore Fishstocks and TACC, fishing years 2004–05 to current.

Fishstock FMA	PAR 1		PAR 2		PAR 9		Total	
	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC
2004–05	42	61	<1	2	14	21	56	84
2005–06	48	61	<1	2	15	21	63	84
2006–07	52	61	<1	2	10	21	61	84
2007–08	57	61	<1	2	11	21	68	84
2008–09	59	61	<1	2	20	21	79	84
2009–10	70	61	<1	2	22	21	92	84
2010–11	62	61	<1	2	18	21	80	84
2011–12	61	61	<1	2	18	21	78	84
2012–13	65	61	<1	2	18	21	83	84
2013–14	53	61	<1	2	18	21	72	84
2014–15	49	61	<1	2	19	21	68	84
2015–16	49	61	<1	2	17	21	66	84
2016–17	49	61	0	2	20	21	70	84
2017–18	50	61	0	2	15	21	65	84
2018–19	60	61	<1	2	22	21	82	84
2019–20	61	61	0	2	17	21	78	84

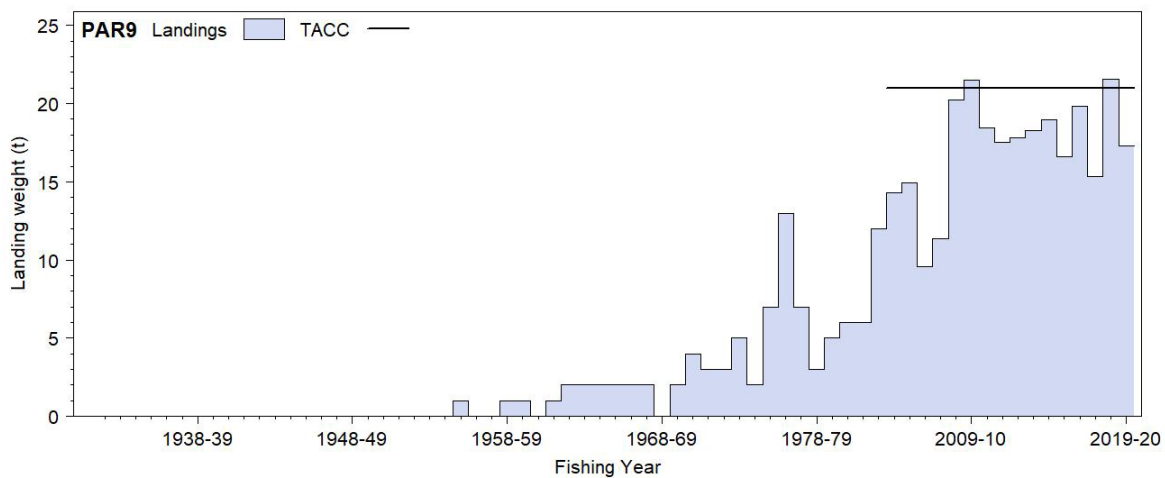
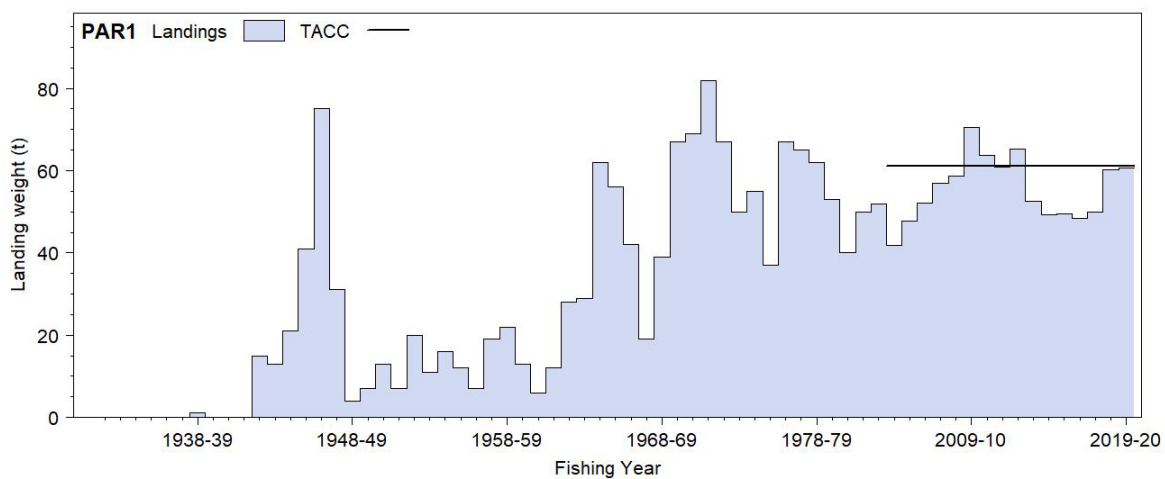


Figure 1: Reported commercial landings and TACC for the two main PAR stocks. From top PAR 1 (Auckland East) and PAR 9 (Auckland West).

Table 5: Recreational harvest estimates (in numbers of fish) for parore stocks (Wynne-Jones et al 2014, 2019).

Stock	Year	Method	Number of fish	Total weight (t)	CV
PAR 1	2011–12	Panel survey	4 328	-	0.50
	2017–18	Panel survey	7 302	-	0.34
PAR 2	2011–12	Panel survey	-	-	-
	2017–18	Panel survey	109	-	1.01
PAR 9	2011–12	Panel survey	-	-	-
	2017–18	Panel survey	834	-	0.70

PARORE (PAR)

2. BIOLOGY

Parore (*Girella tricuspidata*) occur along both east and west coasts of the North Island, from North Cape to Cook Strait (Anderson et al 1998). It has not been recorded around the Chatham Islands. They usually occur in schools, ranging from half a dozen to several hundred individuals. Although there is evidence that large individuals display territorial behaviour on some reef systems, work in Australia has shown that parore are capable of moving distances of hundreds of kilometres (Pollock 1981).

Parore grow to a maximum size of at least 600 mm, but most adult fish are around 300–400 mm in length. The maximum age for this species on the North Island east coast, as estimated by scale ring counts (validated by seasonal increments), is 10 years (Morrison 1990). As scales tend to provide underestimates of the age of older fish, maximum age could be considerably higher. Growth is relatively rapid in the first year of life, with fish reaching a size of about 100 mm at age one. Fish reach a length of 300 mm by age five, at which time growth slows. Growth rates of males and females, and of open coast and estuarine populations, appear similar. No growth studies have been undertaken on the west coast of the North Island, but large parore (about 600 mm) are sometimes taken in harbour set-nets as bycatch. Parore reach sexual maturity at a length of 280 mm and spawning takes place in late spring to early summer (Morrison 1990). Larvae are neustonic, occurring near the ocean's surface, often in association with drifting material such as seaweed clumps.

Juveniles enter estuaries in January at a length of about 11 mm. They are initially found on seagrass meadows and beds of Neptune's Necklace (*Hormosira banksii*) on shallow reefs, but after 3–4 months move down the estuary to other habitats e.g., brown kelp beds. At approximately one year old, they move out to coastal reefs in the immediate vicinity of estuary mouths and over the following 2–3 years move to reef systems further off- and along-shore (Morrison 1990).

Parore are important herbivores in coastal systems and may play a major role in structuring algal assemblages (Morrison 1990). Juvenile parore have been found in the stomachs of kahawai and John dory.

3. STOCKS AND AREAS

There is insufficient biological information available on this species to indicate the existence of separate stocks around New Zealand. However, reliance on localized nursery areas suggests that more than one biological stock may exist.

4. STOCK ASSESSMENT

There has been no scientific assessment of the maximum sustainable yield for parore stocks.

5. STATUS OF THE STOCK

There is no fishery independent information to determine the stock status of parore. Biomass estimates cannot be determined for this species with existing data. Estimates of current and reference biomass are not available. It is not known if recent catch levels or TACs are sustainable. The status of PAR 1, 2 and 9 relative to B_{MSY} is unknown.

6. FOR FURTHER INFORMATION

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- Morrison, M A (1990) Ontogenetic shifts in the ecology of the parore, *Girella tricuspidata*. Unpublished MSc thesis, University of Auckland. 66 p.
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