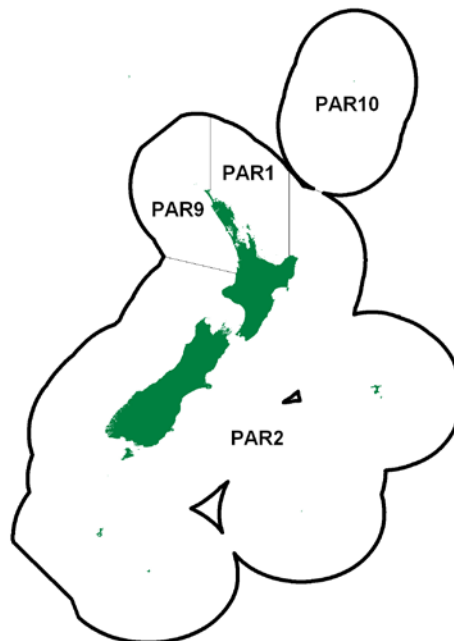


**PARORE (PAR)***(Girella tricuspidata)*

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. Reported landings and TACCs for Parore are given in Tables 2 and 3.

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.

**Table 2: Reported landings (t) of parore by FMA, fishing years 1989-90 to 2003-04. [Continued on next page].**

	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

## PARORE (PAR)

Table 2 [Continued].

	FMA 1	FMA 2	FMA 3	FMA 4	FMA 5	FMA 7	FMA 8	FMA 9
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 3: Reported domestic landings (t) of Parore Fishstock and TACC, fishing years 2004-05 to 2011-12.

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

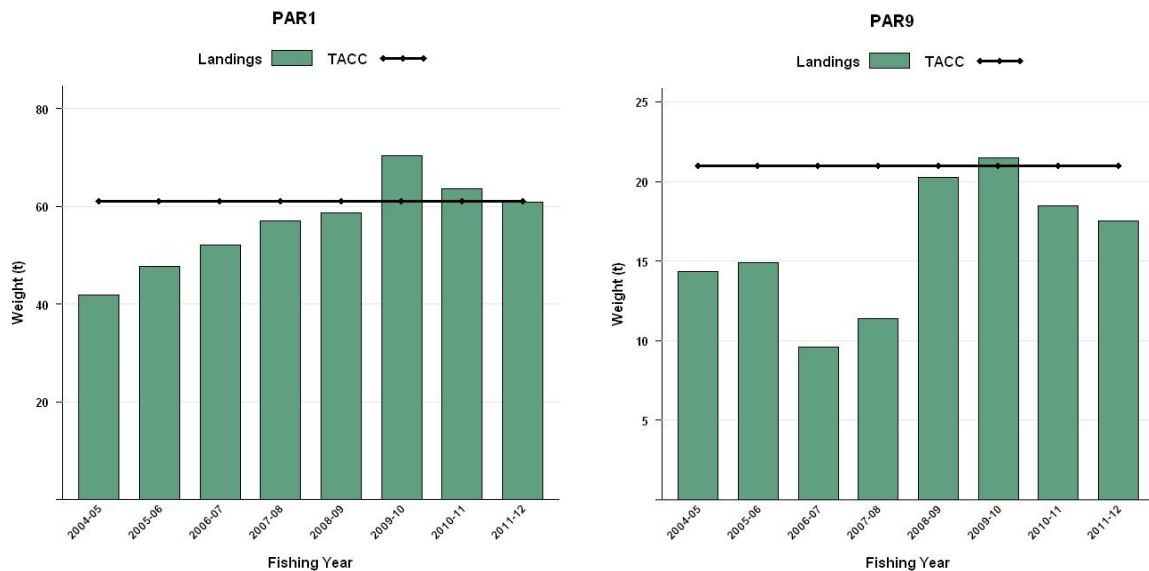


Figure 1: Historical landings and TACC for the two main PAR stocks. On the left: PAR 1 (Auckland East) and PAR 9 (Auckland West). Note that these figures do not show data prior entry into the QMS.

### 1.2 Recreational fisheries

The National Marine Recreational Fishing surveys in 1994, 1996, and 2000 do not provide estimates of recreational catches of parore. There is likely to be some recreational catch in northern areas as a bycatch when targeting other species such as snapper, trevally, and mullet. These catches are most likely taken by setnetting, as well as being targeted opportunistically by spear fishing. Parore is considered to be a low value recreational species and current catches are likely to be low.

Non-commercial catches are likely to increase in the future arising from the increasing human population in northern New Zealand, and the likely increase in the number of recreational fishers. Increased targeting may also occur as parore are considered good eating.

### 1.3 Customary non-commercial fisheries

There is no quantitative information on customary harvest levels 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.

## 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 ~ 100 mm at age one. Fish reach a length of 300 mm by age five, at which time growth slows. Growth rates between males and females, and open coast and estuarine populations, appear similar. No growth studies have been undertaken on the west coast of the North Island, but large parore (~ 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 ~ 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 significant role in structuring algal assemblages (Morrison 1990). Juvenile parore have been found in the stomachs of kahawai and John dory.

There is no fishery independent information to determine the stock status of parore. Biomass estimates cannot be determined for this species with existing data.

## 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

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.

## PARORE (PAR)

TACCs and reported landings of parore by Fishstock, for the 2011-12 fishing year, are summarised in Table 4.

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

Fishstock		FMA	2011-12 Actual TACC	2011-12 Reported landings
PAR 1	Auckland (East)	1	61	61
PAR 2	South East, Southland, Sub-Antarctic, Central, Challenger	2,3,4,5,6,7&8	2	< 0.1
PAR 9	Auckland (West)	9	21	18
Total			84	78

## 6. FOR FURTHER INFORMATION

- Anderson O.F., Bagley N.W., Hurst R.J., Francis M.P., Clark M.R., McMillan P.J. 1998. Atlas of New Zealand fish and squid distributions from research bottom trawls. NIWA Technical Report: 42. 303p.
- Morrison M.A. 1990. Ontogenetic shifts in the ecology of the parore, *Girella tricuspidata*. Unpublished MSc thesis, University of Auckland. 66p.
- Pollock B.R. 1981. Age determination and growth of luderick, *Girella tricuspidata* (Quoy and Gaimard), taken from Moreton Bay, Australia. J. Fish. Biol. 19: 475-485.