

Venus Clam (2016)

Venerupis largillierti



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Tasmania	Georges Bay Venus Clam Fishery	GBVCF	Environmentally limited	Biomass surveys, <u>CPUE</u> , catch

GBVCF Georges Bay Venus Clam Fishery (TAS)

STOCK STRUCTURE

Venerupis largillierti (commonly known as ‘Venus Clams’) is endemic to New Zealand, but its range extended to Tasmania in 1963, where it remains genetically indistinguishable from New Zealand populations on the basis of allozyme analysis[1]. It is found sub-tidally in both muddy and sandy substrates in shallow estuarine waters[2]on parts of Tasmania’s east and south-east coasts[3]. There is limited information on stock structure; however, given the relatively short larval life span, it is expected that the ‘Venus Clams’ in individual bays would constitute separate stocks. The only commercial fishery for this species in Tasmania is at Georges Bay, St Helens, where it forms beds on intertidal sandbars and in deeper channels.

Here, assessment of stock status is presented at the management unit level—Georges Bay ‘Venus Clams’ Fishery (Tasmania).

STOCK STATUS

Georges Bay Venus Clam Fishery

The harvest strategy for ‘Venus Clams’ in Tasmania in the Shellfish Fishery Policy Document[4] uses estimated total biomass and size structure as performance indicators, but does not identify levels or limit reference points below which the stock would be classified as recruitment overfished. A commercial fishery has operated for the ‘Venus Clams’ in Georges Bay since around 1985 and until 2007 the fishery was managed principally through the allocation of half yearly or yearly permits. From 2007 a formal total allowable commercial catch (TACC) structure was introduced splitting Georges Bay into two zones with two associated commercial licences in the northern zone and one in the southern

zone[4].

In the southern zone of the fishery, there has been a fishery closure in place since 2013. The sudden decline in biomass was attributed to prolonged rainfall in the bay's catchment during 2011[5], which led to low salinity levels and extensive mortality of the 'Venus Clams' population[5]. A survey conducted in 2013 indicated there was no fishable stock, although a juvenile cohort (mode 15–19 mm) was present, which was expected to grow to legal size within 2 years[5]. However, there has been no indication of any stock recovery to date.

In the northern zone of the fishery, biennial surveys have provided estimates of biomass since 2007, with TACCs determined from the biomass estimate up to a maximum harvest fraction of 10 per cent[6–10]. Annual catch approached the TACC of around 24–28 tonnes (t) per year from 2008–12. In 2013, the TACC was raised to 53.7 t, with 42.2 t landed at a catch per unit effort (CPUE) of 76.4 kg per hour. In 2014, the 53.7 t TACC was retained, with 39.9 t landed at a CPUE of 64 kg per hour. The 2014 biomass survey estimated that the biomass was 466.8 t, which was around 87 per cent of the 2012 survey estimate (537.4 t)[8]. Both the 2012 and 2014 biomass survey estimates represent the highest recorded in the fishery, with a mean estimate since 2003 of 412.9 t (\pm 110.5 standard deviation)[8]. Despite the high biomass estimate, the TACC was reduced in 2015 to 46.3 t but only 24.3 t was landed and CPUE fell to the lowest rate since records began (27 kg per hour)[10]. With total catches for 2013, 2014 and 2015 at less than eight per cent of the estimated biomass, fishing mortality is unlikely to be responsible for the biomass decline[10]. Absolute fishing mortality is also likely to be less than indicated by this percentage as 'Venus Clams' also occur outside areas that are fished and used for biomass estimates. Consequently, the reduction in biomass is most likely attributable to environmental causes affecting recruitment. Length frequency distribution data indicated a settlement pulse in 2012[6], but this has failed to translate to significant recruitment to the fishery.

In response to the declines in biomass for the latest fishing season between September 2015 and August 2016, the two Georges Bay northern zone licensees took a voluntary reduction in TACC to 3 t (less than one per cent of 2014 estimated biomass)[10]. The above evidence indicates that the current level of fishing pressure is expected to allow the stock to recover.

On the basis of the evidence provided above, the Georges Bay 'Venus Clams' Fishery (Tasmania) management unit is classified as an **environmentally limited stock**.

BIOLOGY

'Venus Clams' biology[8,9]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Venus Clam	700 mm <u>TL</u>	< 27 mm

DISTRIBUTION



Distribution of reported commercial catch of 'Venus Clams'

TABLES

Commercial Catch Methods	Tasmania
Diving	✓
Fishing methods	Tasmania
Commercial	
Diving	✓
Indigenous	
Hand collection	✓
Recreational	
Hand collection	✓
Management Methods	Tasmania
Commercial	
Gear restrictions	✓
Limited entry	✓
Size limit	✓
Spatial closures	✓
Total allowable catch	✓

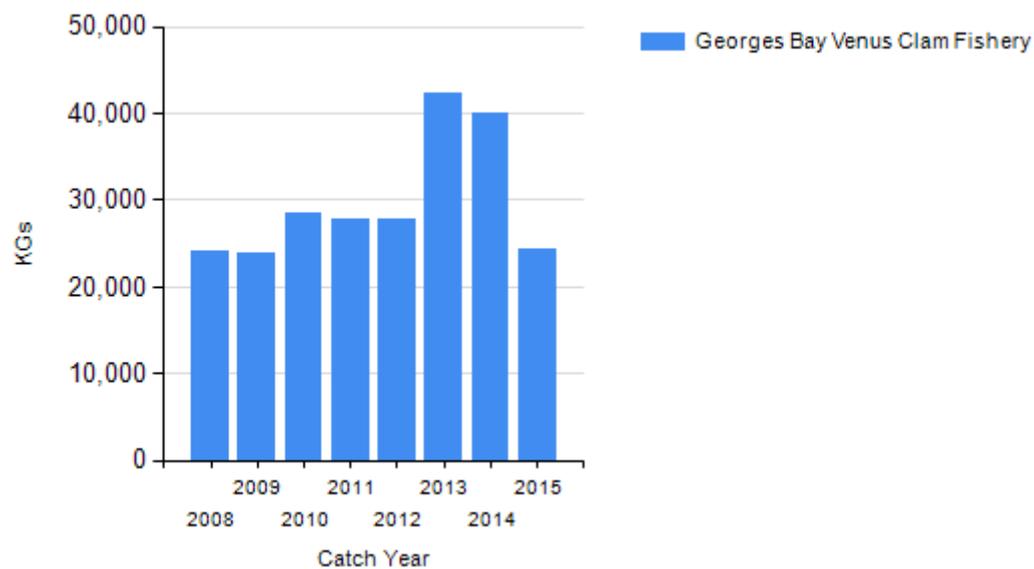
Recreational	
Bag limits	✓
Gear restrictions	✓
Size limit	✓
Active Vessels	
	Tasmania
	2 license in GBVCF,

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Catch	
	Tasmania
Commercial	24.2995t in GBVCF,
Recreational	100 per day

GBVCF Georges Bay Venus Clam Fishery (TAS),

CATCH CHART



Commercial catch of Venus Clams - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- The overall environmental impacts associated with the ‘Venus Clams’ fishery are considered to be low.
- The commercial catch represents a relatively small proportion of the biomass and, as such, there are unlikely to be significant impacts on the food chain from this fishery.

Although the impact of hand collection on the benthic community is poorly understood, it is unlikely to be significant. This is because only a small proportion of the total available 'Venus Clams' habitat is fished each year and communities in sand habitats, where the majority of fishing is concentrated, tend to be resilient to change. Bycatch is negligible, but may on occasion include other *Venerupis spp.*

ENVIRONMENTAL EFFECTS on Venus Clam

- Recruitment of 'Venus Clam' is thought to be episodic due to variable survival of larvae in the planktonic stages, appropriate locations to settle, survival from settlement to recruitment and the interaction between biological and physical factors. All of which can be influenced by environmental effects and may be expected to change under most climate change scenarios.

References	
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10	Jones, H and Gardner, C, 2016, 2016 Small Bivalve Survey Assessment and Stock Status Update, Institute for Marine and Antarctic Studies Report, University of Tasmania, Hobart.