VONGOLES (2016)

Katelysia spp.

Jay Dent: South Australian Research and Development Institute, **Anthony Hart**: Department of Fisheries, Western Australia, **Hugh Jones**: Institute for Marine and Antarctic Studies, University of Tasmania, **Stephen Mayfield**: South Australian Research and Development Institute, **Anthony Hart**: Department of Fisheries, Western Australia

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia	Western Australian Vongole Fishery	WAVF	Negligible	
Tasmania	Ansons Bay Vongole Fishery	ABVF	Environmentally limited	Biomass estimate, recruitment
South Australia	Coffin Bay Cockle Fishing Zone	CBCFZ	Sustainable	Harvest fraction, recruitment
South Australia	Port River Cockle Fishing Zone	PRCFZ	Overfished	Harvest fraction, recruitment
South Australia	West Coast Cockle Fishing Zone	WCCFZ	Sustainable	Harvest fraction, recruitment

CBCFZ Coffin Bay Cockle Fishing Zone (SA), PRCFZ Port River Cockle Fishing Zone (SA), WCCFZ West Coast Cockle Fishing Zone (SA), ABVF Ansons Bay Vongole fishery (TAS), WAVF Western Australian Vongole Fishery (WA)

STOCK STRUCTURE

Vongole (*Katelysia* spp.) is a species complex that inhabits coastal waters from Augusta in Western Australia to Port Jackson in New South Wales. They are found on sand banks in shallow bays and estuaries from the intertidal zone to a depth of 5 m[1]. Stock structure is unknown. However, given the short larval life span[2], it is expected that Vongole in individual bays would constitute separate stocks.

Here, due to the potential for there to be a large number of stocks, assessment of stock status

is presented at the management unit level—Western Australian Vongole Fishery, Ansons Bay Vongole Fishery (Tasmania), West Coast Cockle Fishing Zone (South Australia), Coffin Bay Cockle Fishing Zone (South Australia) and Port River Cockle Fishing Zone (South Australia).

STOCK STATUS

Ansons Bay Vongole Fishery

The harvest strategy for Vongole in Tasmania in the Shellfish fishery policy document[3] uses biomass and size-composition as performance indicators but does not define a limit reference point below which the stock would be classified as recruitment overfished. Biomass surveys of the Ansons Bay Vongole fishery are conducted every 2–3 years with total allowable commercial catches (TACCs) determined up to 10 per cent of the biomass estimate (at the 95 per cent confidence interval).

The 2015 estimate of biomass in the Ansons Bay Vongole fishery was 27.15 t (22.85–31.45 t). Exploitation rates were below the maximum of 10 per cent and minimum legal limits (32 mm shell length [SL]) are set at a size that enable the majority of Vongole to reproduce prior to being available for harvest. This level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

Despite these measures, in 2015 there was no evidence of recent recruitment (no pre-recruits or juveniles identified) and the biomass estimate was the lowest on record. This low biomass estimate is likely attributable to a combination of mortality of Vongole as a result of extreme rainfall and flood events in the north-east of Tasmania in 2014, followed by recruitment failure in 2015[4]. The above evidence indicates that spawning stock biomass is likely to have been reduced to the point where average recruitment levels are significantly reduced, primarily as a result of substantial environmental impacts (as in, the stock is not recruitment overfished).

The Ansons Bay Vongole Fishery (Tasmania) was closed to commercial fishing from 1 September 2015 on the basis of being an environmentally limited stock.

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

Coffin Bay Cockle Fishing Zone

The 2015 estimate of harvestable biomass in the Coffin Bay Cockle Fishing Zone was 867.7 t (80 per cent probability level). As the TACC was 50 t, this represented a harvest fraction of 5.7 per cent. The exploitation rate is below the maximum of 7.5 per cent prescribed in the harvest strategy[5], there is evidence of recent recruitment, and minimum legal lengths are set at a size that enable the majority of Vongole to reproduce prior to being available for harvest (30 mm SL for *K. scalarina*, 35 mm SL for *K. rhytiphora* and *K. peronii* in place under ministerial exemption), based on estimates of size at first maturity[7,9]. The above evidence indicates that the biomass of this stock is unlikely to be recruitment overfished, and that the level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

On the basis of the evidence provided above, the Coffin Bay Cockle Fishing Zone (South Australia) management unit is classified as a **sustainable stock**.

Port River Cockle Fishing Zone

The Port River Cockle Fishing Zone (PRCFZ) was historically important with significant catches reported prior to 2009. The first biomass survey conducted in 2009 estimated that there was low biomass in the PRCFZ[9]. The causes of this

biomass decline are unclear.

Due to ongoing sustainability concerns, the PRCFZ has been closed to the taking of Vongole by all fishing sectors since the start of the 2011–12 fishing year. This level of fishing pressure is expected to allow the stock to recover from its depleted state; however, a biomass survey conducted in early-2016 showed that the stock has not yet recovered.

On the basis of the evidence provided above, the Port River Cockle Fishing Zone (South Australia) management unit is classified as an **overfished stock**.

West Coast Cockle Fishing Zone

The harvest strategy for Vongole in South Australia in the Management plan for the South Australian Commercial Marine Scalefish Fishery[5] uses the harvest fraction (or exploitation rate) as the key performance indicator. Biological evidence of recruitment is also taken into account. The harvest strategy does not identify limit reference points below which the stock would be classified as recruitment overfished, but management (limits on harvest rate) is focussed on ensuring that this does not occur. Biennial surveys provide estimates of biomass for each species in each of the zones, with TACCs determined from the biomass estimate (at the 80 per cent probability level) with a maximum harvest fraction of 7.5 per cent[5]. The most recent biomass report[6] and estimates of size at first maturity from previous reports[7,8,9] are used to inform the TACC setting process. In each of the three zones, a single TACC is determined for all three *Katelysia* species (*Katelysia peronii, K. rhytiphora* and *K. scalarina*) combined. There are no assessments of stock status outside quota zones, where many licences are able to harvest Vongole.

The West Coast Cockle Fishing Zone (WCCFZ) encompasses Smoky Bay, Streaky Bay and Venus Bay, managed within a single TACC. The 2015 estimate of harvestable biomass in the WCCFZ was 478.1 t (at the 80 per cent probability level). As the TACC was 16 t, this represented a low harvest fraction of 3.2 per cent. Overall, the exploitation rate in the WCCFZ is below the maximum of 7.5 per cent prescribed in the harvest strategy[4], there is evidence of recent recruitment, and minimum legal lengths are in place that enable Vongole to reproduce at least once prior to being available for harvest (30 mm SL for all species in WCCFZ), based on estimates of size at first maturity[7,9]. The above evidence indicates that the biomass of this stock is unlikely to be recruitment overfished, and that the level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

On the basis of the evidence provided above, the West Coast Cockle Fishing Zone (South Australia) management unit is classified as a **sustainable stock**.

Western Australian Vongole Fishery

Stock status for the Western Australia management unit is reported as negligible due to low catches by this jurisdiction. Western Australian harvest was zero from 2000–14, apart from 2004 and 2013 where harvest was 0.1 tonnes (t).

BIOLOGY

Vongole biology[7,9,10]

Species	Longevity / Maximum Size	Maturity (50 per cent)
VONGOLES	29 years; 55 mm SL	4 years; 23–31 mm SL

DISTRIBUTION

Distribution of reported commercial catch of Vongole

TABLES

Commercial Catch Methods	South Australia	Tasmania	Western Australia
Diving		✓	
Rake	✓		
Unspecified			✓

Fishing methods			
	South Australia	Tasmania	Western Australia
Commercial			
Diving		✓	
Rake	✓		
Unspecified			✓
Indigenous			
Bait Pump	✓		
Hand collection	✓	✓	
Rake	✓		
Recreational			
Bait Pump	✓		
Hand collection	✓	✓	
Rake	✓		

Management Methods		

	South Australia	Tasmania
Commercial		
Gear restrictions	✓	✓
Limited entry	✓	✓
Size limit	✓	✓
Spatial closures	✓	✓
Temporal closures	✓	✓
Total allowable catch	✓	✓
Indigenous		
Bag limits	✓	✓
Size limit	✓	
Spatial closures	✓	
Temporal closures	✓	
Recreational		
Bag limits	✓	✓
Size limit	✓	
Spatial closures	✓	
Temporal closures	✓	

Active Vessels		
	South Australia	Tasmania
	8 licence in CBCFZ, 0 licence in PRCFZ, 3 licence in WCCFZ,	1 license in ABVF,

CBCFZ Coffin Bay Cockle Fishing Zone(SA)

PRCFZ Port River Cockle Fishing Zone(SA)

WCCFZ West Coast Cockle Fishing Zone(SA)

ABVF Ansons Bay Vongole fishery(TAS)

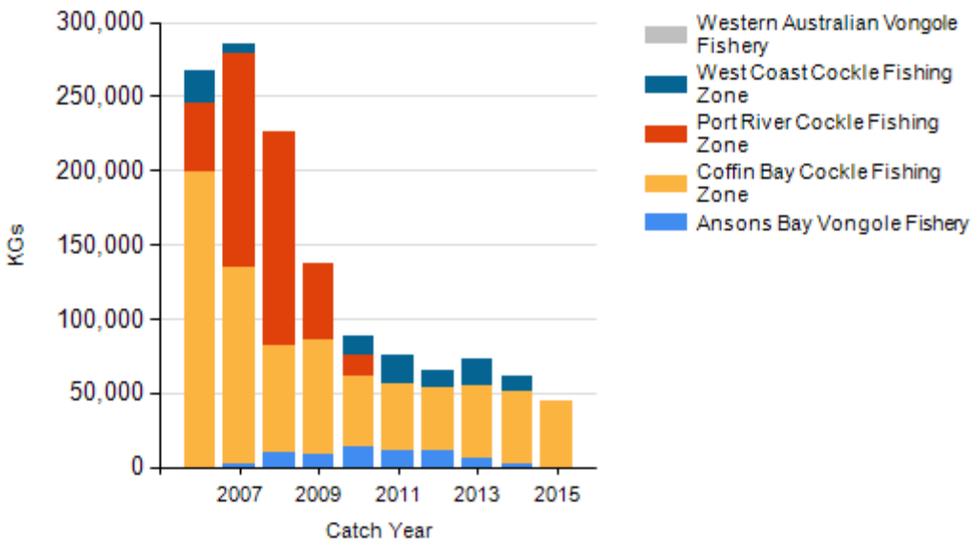
Catch			
	South Australia	Tasmania	Western Australia
Commercial	43.956t in CBCFZ,		
Indigenous	Unknown	Unknown	

Recreational	12 805 ± 12 574 individuals or 0.14 t per year (2013-14)	Unknown	

CBCFZ Coffin Bay Cockle Fishing Zone (SA), PRCFZ Port River Cockle Fishing Zone (SA), WCCFZ West Coast Cockle Fishing Zone (SA), ABVF Ansons Bay Vongole fishery (TAS), WAVF Western Australian Vongole Fishery (WA),

a Active Vessels Vongole can be collected from beaches and bay on foot therefore, 'vessels' are not always used. Hence, numbers of licences and fishers are presented here instead of vessel numbers. Licences refer to the number of licence holders with an endorsement to take Vongole for sale.

CATCH CHART



Commercial catch of Vongoles - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- The overall environmental impacts associated with the Vongole Fishery are considered to be low. The commercial Vongole 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 cockle rakes on the benthic community is poorly understood, it is unlikely to be significant[12]. This is because only a small proportion of the available Vongole habitat is fished each year and communities in sand habitats, where the majority of fishing is concentrated, tend to be resilient to change. Bycatch can include juvenile prawns, juvenile crabs, juvenile fish and other molluscs. In the majority of cases, these animals are able to be released unharmed.

ENVIRONMENTAL EFFECTS on VONGOLES

- Recruitment of Vongole is episodic[6]. The cause of this may be a result of an interaction between biological and environmental factors[1] resulting in variable survival of the larvae in the planktonic stages, settlement, survival from settlement to recruitment. Above-average warm water and land heatwaves were inferred to have resulted in mortality of Vongole at Streaky Bay in 2014[8] and unseasonal severe flooding events in 2014 were implicated as the cause of mortality in the Ansons Bay

Vongole Fishery (Tasmania)[4]. These events are expected to increase in severity and frequency under most climate change scenarios[13].

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