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ADVICE TO:	**PIRSA FISHERIES AND AQUACULTURE (PROF. GAVIN BEGG – EXECUTIVE DIRECTOR)**
FROM:	**SARDI AQUATIC AND LIVESTOCK SCIENCES (DR GREG FERGUSON AND EMMA-LOUISE DALY)**
SUBJECT:	**WEST COAST VONGOLE FISHERY – 2024 HARVESTABLE BIOMASS ESTIMATE**
DATE:	**5 MAY 2025**

KEY ISSUES:

- This Advice Note reports on the 2024 estimates of harvestable biomass for Smoky, Streaky and Venus Bays. Vongole length-frequency, legal density and stock status are also provided.
- The estimate of legal-sized harvestable biomass at the 80% confidence interval for the West Coast Fishing Zone (WCFZ) was 555 t.
- Most of the harvestable biomass was in Venus Bay (332 t), followed by Smoky (121 t) and Streaky (102 t) Bays.
- Mean densities and length frequencies of sublegal-sized greys, yellows and whites suggest recent recruitment in all bays, excepting yellows in Streaky Bay that was limited.
- Under the new Harvest Strategy (HS; PIRSA, 2024), developed under the National Fishery Status Reporting Framework (NFSRF; Roelofs *et al.* 2024), a legal-sized harvestable biomass of 555 t determines the Vongole stock in the WCFZ in 2024 as '**sustainable**'. The classification for 2024 is the same as that determined in 2021 (Ferguson *et al*. 2022).

BACKGROUND:

The West Coast Vongole Fishery comprises Smoky Bay, Streaky Bay and Venus Bay and targets three species – *Katelysia scalarina,* known as "greys", *K. rhytiphora,* known as "yellows" and smaller abundances of *K. peronii,* known as "whites". Harvestable biomass of Vongole is determined from fishery-independent surveys that inform setting of annual total allowable commercial catches (TACCs) under the harvest strategy in the Management Plan (PIRSA 2013; 2024). The maximum exploitation rate (Harvest Fraction, HF) in the Management Plan is defined as 7.5% of the legal-sized biomass estimate at the 80% quantile confidence interval (CI).

A review of the Vongole research program by Foster (2022; Recommendation 1), highlighted the importance of consistently sampling the same strata and transect locations across years.

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Consequently, strata and transect locations for the WCFZ were extensively reviewed in 2023/24 and it was agreed that the existing locations from 2021 would continue to be used for harvestable biomass estimates (and legal and sublegal density, and size structures) from 2024 onwards, thus overcoming the historical difficulties of inter-annual comparisons.

This Advice Note reports on the 2024 estimates of harvestable biomass and stock status for Vongole in each of three bays comprising the WCFZ. Biomass estimates are presented at the 80% CI unless otherwise indicated.

RESULTS/DISCUSSION:

Harvestable biomass estimates

The median estimate (50% CI) of harvestable biomass for the WCFZ in 2024 was 828 t and, at the 80% CI, was 555 t (Table 1).

Most of the harvestable biomass was in Venus Bay (332 t), followed by Smoky (121 t) and Streaky (102 t) Bays. Greys (*K. scalarina*) contributed 62% to the total harvestable biomass.

Table 1. Estimated total harvestable biomass (t) for Smoky (n=53 transects), Streaky (n=42) and Venus Bays (n=109) which comprise the WCFZ (n=204) in 2024. Estimates are provided at 10–90% quantiles for greys, yellows and whites. Bold text on bottom row indicates total harvestable biomass at the 80% CI.

Smoky Bay

Species	Probability (%) of legal biomass estimate (t)								
	90%	**80%**	**70%**	**60%**	**50%**	**40%**	**30%**	**20%**	**10%**
Greys (*K. scalarina*)	69.6	80.5	88.6	95.5	102.3	109.0	116.4	124.9	136.8
Yellows (*K. rhytiphora*)	25.3	36.5	66.1	79.7	87.5	95.4	108.2	138.5	154.9
Whites (*K. peronii*)	2.2	3.4	6.9	33.9	34.6	35.3	36.1	65.8	67.2
Total	97.1	**120.5**	161.6	209.1	224.3	239.7	260.8	329.3	358.9

Streaky Bay

Species	Probability (%) of legal biomass estimate (t)								
	90%	**80%**	**70%**	**60%**	**50%**	**40%**	**30%**	**20%**	**10%**
Greys (*K. scalarina*)	50.1	57.1	62.4	67.1	71.6	76.0	80.9	86.7	95.4
Yellows (*K. rhytiphora*)	28.2	41.6	62.1	92.1	107.2	120.0	143.5	176.6	206.3
Whites (*K. peronii*)	2.7	3.5	4.2	4.9	5.6	6.1	6.9	7.7	8.9
Total	80.9	**102.1**	128.8	164.1	184.3	202.1	231.3	271.0	310.6

Venus Bay

Species	Probability (%) of legal biomass estimate (t)								
	90%	**80%**	**70%**	**60%**	**50%**	**40%**	**30%**	**20%**	**10%**
Greys (*K. scalarina*)	188.4	207.3	221.9	234.4	247.0	259.5	273.4	289.8	313.6
Yellows (*K. rhytiphora*)	43.7	49.5	53.8	57.5	61.3	65.2	69.6	74.8	82.1
Whites (*K. peronii*)	64.2	75.4	89.4	101.6	110.6	119.5	131.4	148.1	165.0
Total	296.3	**332.2**	365.0	393.6	418.9	444.3	474.5	512.6	560.8

Densities and length frequency

Mean total density of greys was higher than yellows in Smoky, Streaky and Venus Bays (Figure 1). Mean total density of whites was lower relative to the other species in Smoky and Streaky Bays but was higher than that for yellows in Venus Bay.

In all three West Coast bays, the largest mode of greys in size structures occurred at 20–29 mm (Figure 2). Legal (harvestable) sized greys predominantly ranged from 30–40 mm. For yellows in each bay, the largest mode ranged from 23–35 mm. Legal-sized yellows ranged from 30–46 mm. For whites, the largest modal sizes ranged from 20–31 mm, with at least one mode of sub-legal sized individuals present in each bay.

Recruitment is known to be episodic for Vongole species (Dent *et al*. 2016, Heldt and Mayfield 2020), with recruitment strength likely reflecting a combination of environmental conditions and the spawning biomass. A stock-recruitment relationship has not been established for Vongole and environmental conditions required for successful recruitment are unknown.

Densities of sublegal-sized greys and yellows were mostly higher than those for legal-sized fractions in each bay. An exception to this was in Streaky Bay where the density of sublegal-sized yellows was lower. The observed high densities of sublegal-sized greys in each bay is evident in the high contribution of sublegal-sized individuals to size frequency distributions of this species. Overall, recent recruitment of greys appears to have occurred in all bays and recruitment of yellows has occurred in Smoky Bay and, to a lesser extent, Venus Bay. There was little evidence of recent recruitment of yellows in Streaky Bay. Densities of sublegal-sized whites and their contribution to size distributions suggest that recent recruitment of this species may have occurred in Venus Bay.

Growth rates of Vongole differ among species and locations and are poorly understood. Consequently, the time required for sublegal-sized Vongole to recruit into the fishery is not well known. However, based on estimates of growth rate for yellows in Streaky Bay (Dent *et al.* 2016), and Ansons Bay and Little Musselroe Bay in Tasmania (Riley *et al.* 2005), the recent recruits may continue to enter the fishery for several years. Data on the growth rates of greys are more limited, but the recruits would also be expected to be available to the fishery within the next few years.

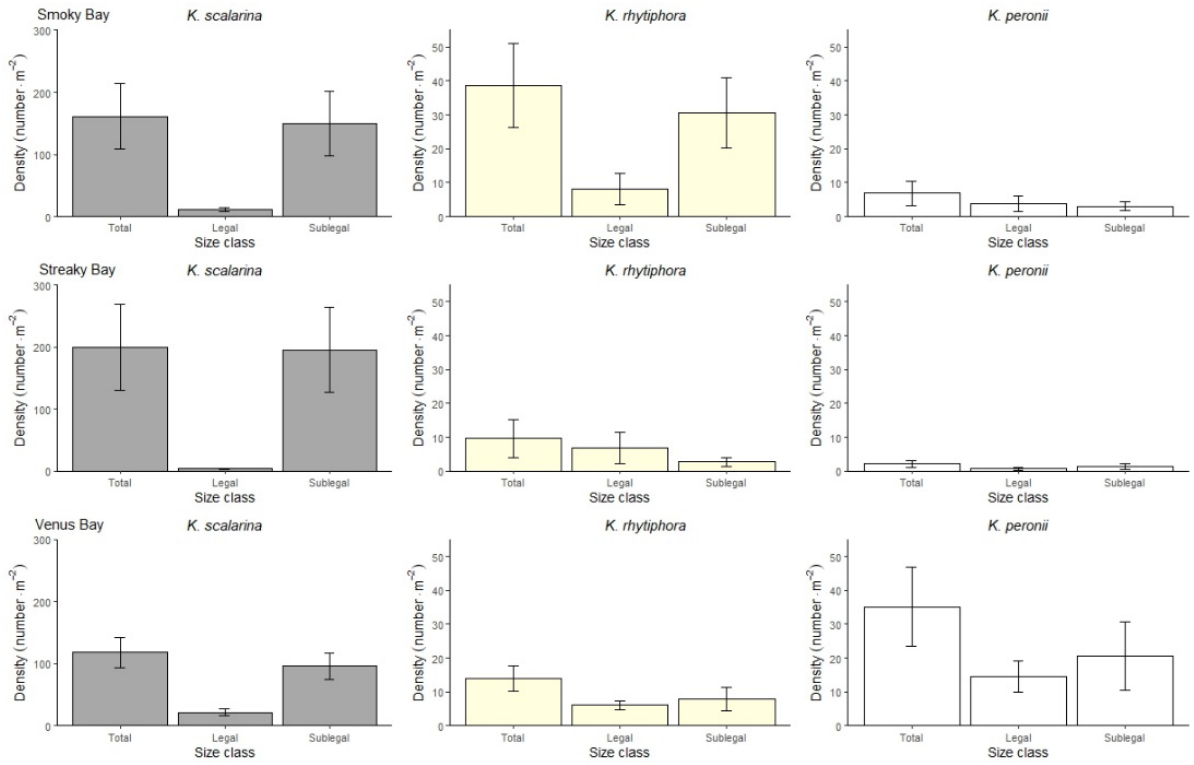


Figure 1. Mean, total, legal and sublegal densities (Vongole.m^{-2}) for *K. scalarina* (greys), *K. rhytiphora* (yellows) and *K. peronii* (whites) in the bays comprising the West Coast Fishing Zone in 2024. *Note that scales on y-axes vary*.

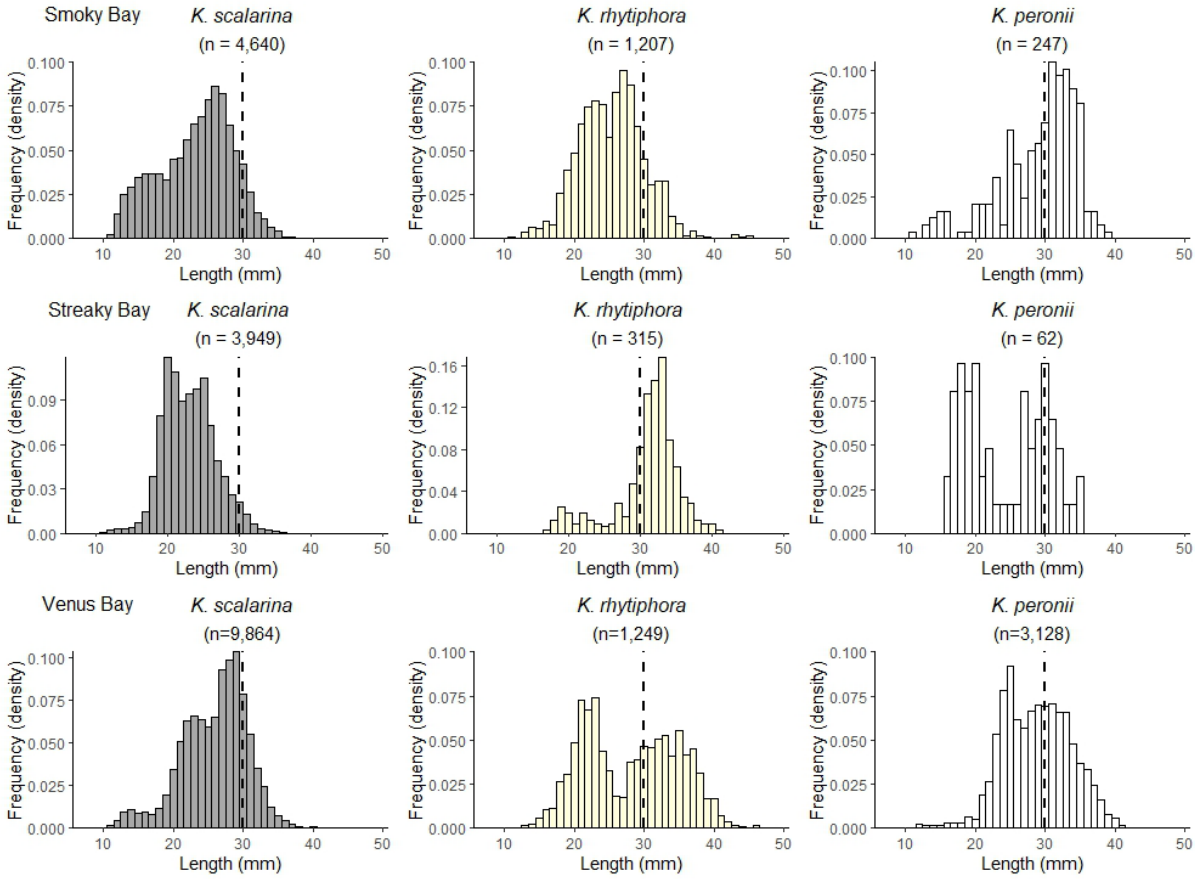


Figure 2. Size frequency distributions (mm) for *K. scalarina* (greys),*K. rhytiphora* (yellows) and *K. peronii* (whites) in the bays comprising the West Coast Fishing Zone in 2024. *Note that data for K. peronii from Streaky Bay were limited, and that scales on y-axes vary.*

Stock status

Under the new HS (PIRSA, 2024), developed under the National Fishery Status Reporting Framework (NFSRF; Roelofs *et al.* 2024), a legal-sized harvestable biomass of 555 t determines the Vongole stock in the WCFZ in 2024 as '**sustainable**'. There is also evidence of recent recruitment in all three bays comprising the WCFZ, excepting yellows in Streaky Bay that showed limited evidence of recruitment. The classification for 2024, 'sustainable', is the same as that determined in 2021 (Ferguson et al. 2022).

A/Prof. Gretchen Grammer
A/Research Director, SARDI Aquatic and Livestock Sciences

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