ADVICE TO: **PIRSA FISHERIES AND AQUACULTURE (PROF. GAVIN BEGG – EXECUTIVE DIRECTOR)**

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SUBJECT: **COFFIN BAY VONGOLE FISHERY – 2025 HARVESTABLE BIOMASS ESTIMATE**

DATE: **10 APRIL 2026**

KEY ISSUES:

- This Advice Note reports on the 2025 estimates of harvestable biomass of Vongole for Coffin Bay. Length-frequency, legal density and stock status are also provided.
- The estimate of legal-sized harvestable biomass at the 80% confidence interval for Coffin Bay in 2025 was 3,464 t.
- Across the survey area, mean total density of *Katelysia rhytiphora* (yellows) was higher than for *K. scalarina* (greys), reflecting higher legal-sized and sublegal-sized densities of yellows.
- Increased mean densities of sublegal-sized yellows and greys show recent recruitment.
- Under the National Fishery Status Reporting Framework (NFSRF; Roelofs *et al*. 2024), the Coffin Bay Fishing Zone Vongole stock is classified as 'sustainable' in 2025. This is the same classification as in the stock assessment report in 2022 (Ferguson *et al.* 2022) and the Advice Note in 2024 (Ferguson and Stobart, 2024).

BACKGROUND:

The Vongole fishery in Coffin Bay (*Katelysia* spp., also known as mud cockles) primarily targets two species – *Katelysia scalarina,* known as "greys", and *K. rhytiphora,* known as "yellows". A third species, *K. peronii,* known as "whites", is rarely present. Harvestable biomass of Vongole determined from fishery independent surveys informs setting of annual total allowable commercial catches (TACCs) under the harvest strategy in the Management Plan (PIRSA 2013). 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. Consequently, strata and transect locations were extensively reviewed in 2023 (Ferguson and Stobart 2024). The review has provided fixed strata and transects that will support direct

comparison of estimates of biomass, legal and sublegal density, and size structures among years from 2021, overcoming historical difficulties of comparing amongst years.

This Advice Note reports on the 2025 estimates of harvestable biomass and stock status for Vongole in the Coffin Bay Fishing Zone. Biomass estimates are presented at the 80% CI unless otherwise indicated.

RESULTS/DISCUSSION:

Harvestable biomass estimates

During the 2023 analysis, it was identified that the changes to strata in Coffin Bay that occurred in 2021 were incorrectly accounted for in the R code used to produce the biomass estimate (Ferguson and Stobart 2024). Following this, the R code was reviewed, resulting in the identification and correction of this and a second, different, but related, coding error. The re-estimated harvestable biomass estimates for Coffin Bay in 2021 and 2023 are:

- The median estimate of harvestable biomass for Coffin Bay in 2021 was 1,318 t (previously reported as 1,228), at the 50% CI and, at the 80% CI was 1,174 t (previously reported as 1,095; Table 1).
- The median estimate of harvestable biomass for Coffin Bay in 2023 was 2,252 t (previously reported as 1,265 t), at the 50% CI, and, at the 80% CI was 1,842 t (previously reported as 991; Table 2).

The median estimate of harvestable biomass for Coffin Bay in 2025 was 3,941 t and, at the 80% CI, was 3,464 t (Table 3). Yellows contributed 96% to the total harvestable biomass. There was an 88% increase in overall biomass between 2023 and 2025. At most sites, there was an increase in the legal-sized number and weight between these two years, but this substantial increase in biomass can primarily be attributed to a large increase in the Oyster Farms (Strata 12) (Appendix A, Figure 1).

Table 1. Re-estimated total harvestable biomass (t) for Coffin Bay Fishing Zone in 2021 at 10–90% quantiles for greys; yellows and whites (n=284 transects). Bold text on bottom row indicates total harvestable biomass at the 80% CI.

Species	Probability (%) of legal biomass estimate (t)								
	90%	**80%**	**70%**	**60%**	**50%**	**40%**	**30%**	**20%**	**10%**
Greys (*K. scalarina*)	169	182	192	201	209	219	228	240	257
Yellows (*K. rhytiphora*)	937	992	1,035	1,073	1,109	1,143	1,181	1,227	1,292
Whites (*K. peronii*)	0	0	0	0	0	0	0	1	1
Total	1,106	**1,174**	1,227	1,274	1,318	1,362	1,410	1,468	1,551

Table 2. Re-estimated total harvestable biomass (t) for Coffin Bay Fishing Zone in 2023 at 10–90% quantiles for greys; yellows and whites (n=284 transects). Bold text on bottom row indicates total harvestable biomass at the 80% CI.

Species	Probability (%) of legal biomass estimate (t)								
	90%	**80%**	**70%**	**60%**	**50%**	**40%**	**30%**	**20%**	**10%**
Greys (*K. scalarina*)	178	192	203	212	221	230	241	253	270
Yellows (*K. rhytiphora*)	1,487	1,650	1,785	1,905	2,030	2,159	2,304	2,481	2,736
Whites (*K. peronii*)	0	0	0	0	0	0	0	1	1
Total	1,664	**1,842**	1,988	2,118	2,252	2,390	2,545	2,734	3,007

Table 3. Estimated total harvestable biomass (t) for Coffin Bay Fishing Zone in 2025 at 10–90% quantiles for greys; yellows and whites (n=284 transects). Bold text on bottom row indicates total harvestable biomass at the 80% CI.

Species	Probability (%) of legal biomass estimate (t)								
	90%	**80%**	**70%**	**60%**	**50%**	**40%**	**30%**	**20%**	**10%**
Greys (*K. scalarina*)	122	132	140	146	153	159	166	174	186
Yellows (*K. rhytiphora*)	3,101	3,331	3,504	3,650	3,788	3,933	4,091	4,278	4,558
Whites (*K. peronii*)	0	0	0	1	1	1	1	2	2
Total	3,224	**3,464**	3,644	3,797	3,941	4,094	4,258	4,453	4,746

Densities and length frequency

In all years, mean total density of yellows was more than double that of greys (Figure 1). For yellows, mean total density decreased from 2021 to 2023, then increased by 72% to 2025, reflecting increases in legal and sub-legal density. For greys, mean total density was stable from 2021 to 2023 then increased by 52% to 2025, reflecting increased density of sub-legals. Legal-sized density of greys remained consistent across years.

The size structure of yellows was bimodal in all years (Figure 2). In 2021, the dominant modal size was 27 mm (sub-legal) with a secondary mode of ~44 mm (legal-sized individuals). The primary mode from 2021 was evident into 2023 (34 mm) and 2025 (39 mm). A new mode of sub-legal sized (29 mm) individuals was present in 2025.

The size structure of greys was unimodal in all years, with modal sizes ranging from ~24–27 mm. Sub-legal sized greys were strongly represented in all size structures and the size distribution of legal-sized individuals remained similar in all years.

For yellows, increasing density of legal-sized and sub-legal sized individuals, and the persistence and increasing size of a mode in size structures through 2021 to 2025 are consistent with the observed increase in estimated biomass. The decline in sub-legal sized density in 2023, followed by increasing legal-sized density in 2025 is consistent with a cohort of recruits growing into the harvestable biomass. Sub-legal density remained high in 2025 because a new cohort of sub-legal-sized Vongole has entered the fishery in 2025. Although the legal-sized density of greys has remained relatively stable, increased sub-legal-sized density and the consistent presence of sub-legals in size structures suggest continued recruitment.

For both species, the consistent representation of sub-legal-sized individuals in size distributions and associated increasing densities of sub-legals demonstrates recent recruitment. Recruitment is known to be episodic for Vongole species (Dent *et al.* 2016, Heldt and Mayfield 2020), with its strength likely reflecting a combination of environmental conditions and the spawning biomass. A stock-recruit relationship has not been established for Vongole and environmental conditions required for recruitment success are unknown.

Growth rates of Vongole differ among species and locations and are poorly understood. Consequently, the time required for sublegal-size 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 enter the fishery over the next few 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.

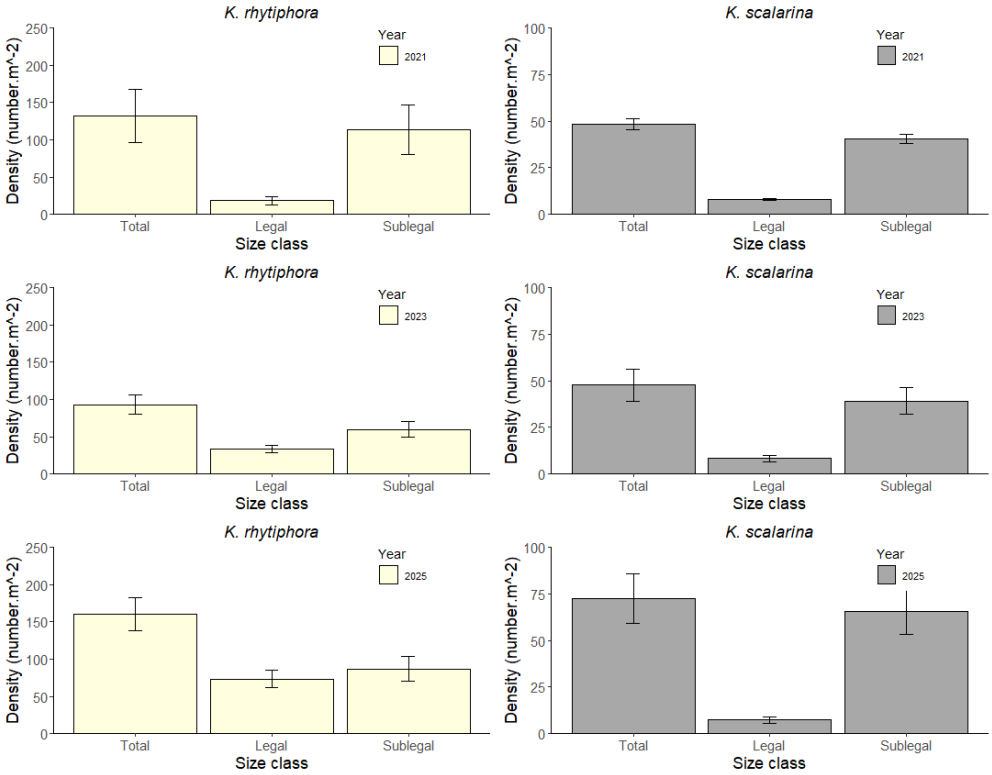


Figure 1. Mean, total, legal and sublegal densities (Vongole.m^{-2}) for *K. rhytiphora* (yellows) and *K. scalarina* (greys) in Coffin Bay during 2021 through 2025.

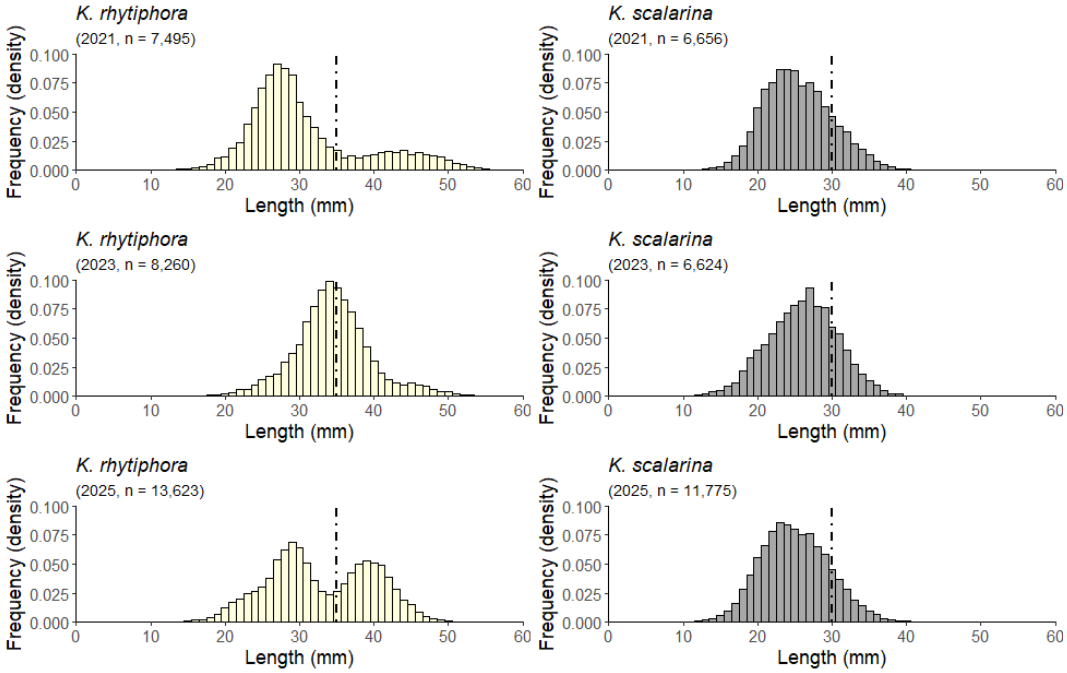


Figure 2. Size frequency distributions (mm) for *K. rhytiphora* (yellows) and *K. scalarina* (greys) in Coffin Bay during 2021 through 2025. On each panel, the vertical dashed line indicates current minimum legal size (MLS, *K. rhytiphora* = 35 mm SL and *K. scalarina* = 30 mm SL).

Stock status

The estimate of harvestable biomass for Coffin Bay in 2025 at the 80% CI was 3,464 t, 88% above the last estimate from 2023, and there is evidence of recent recruitment. Consequently, based on a weight of evidence approach, under the National Fishery Status Reporting Framework (NFSRF; Roelofs *et al.* 2024) the Coffin Bay Fishing Zone Vongole stock in 2025/26 remains classified as **'sustainable'**.

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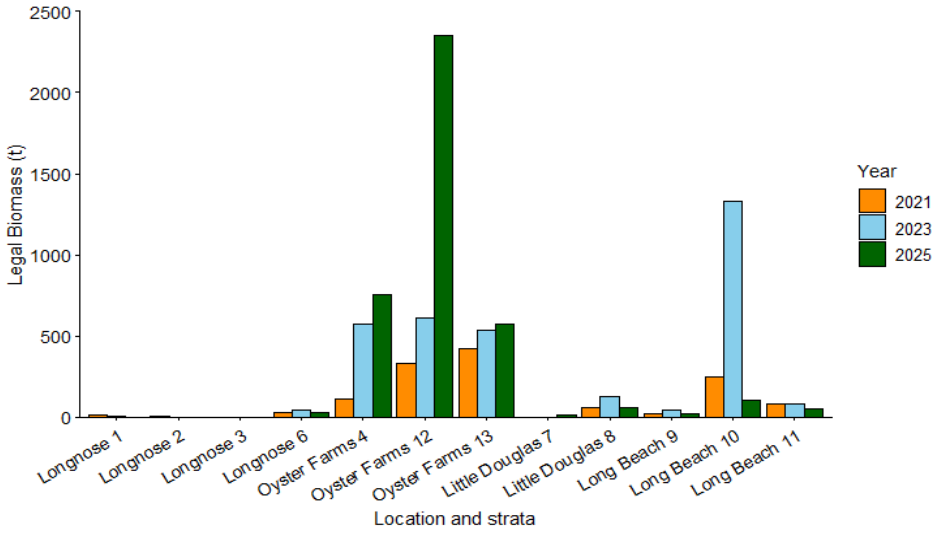
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Appendix A.



Appendix A. Figure 1. Legal biomass (all species) by strata for Coffin Bay in 2021, 2023 and 2025.