

## Towards developing a new squid stock assessment model: Squid Sex Aggregated Length Frequency Sampling Pilot Project

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### Summary

Modifications to the “new” squid stock assessment model, as suggested by the panel at the 2023 International Stock Assessment Workshop were discussed by the Squid Scientific Working Group. The proposed monthly sampling strategy was not well received. It was suggested that first a pilot study for collecting squid sex aggregated length frequency information be initiated and the data used to test if a monthly sampling strategy would yield data that could be applied to the model. This document presents results from data collected from the pilot study carried out during the Winter (June) squid closed season and updated to include data from the Summer (November) 2024 Squid Closed Season.

### Sex dis-aggregated length frequency sampling by four squid commercial vessels

Squid commercial vessels tendered to assist with research scouted the main squid fishing and spawning grounds, covering the area from Storms River Mouth, just west of 23.84°E, up to Port Alfred, just east of 27.1°E. for aggregates of adult squid.

The two vessels were tendered to assist with research during the winter (June) 2024 squid closed season were FV Squidon 1 and FV Antonette.

The three vessels tendered to assist with research during the summer (November) squid closed season were FV Michele, FV Megalodon and FV Louis Mari. Data for FV Megalodon is not yet available.

At each fishing site/position, all squid caught were sorted into the four industry-defined size grade categories, that is small (S), medium (M), large (L), extra-large (EL). Before these categorized squid were frozen, the crew assisted the Scientific Observers to select 200 samples (50 from each size category, where possible) and carry out sex-aggregated length frequencies. The data was recorded in sampling sheets provided by DFFE and analysed on submission. The information collected in June was availed to MARAM and part of the November 2024 data.

### Results from sampling sessions.

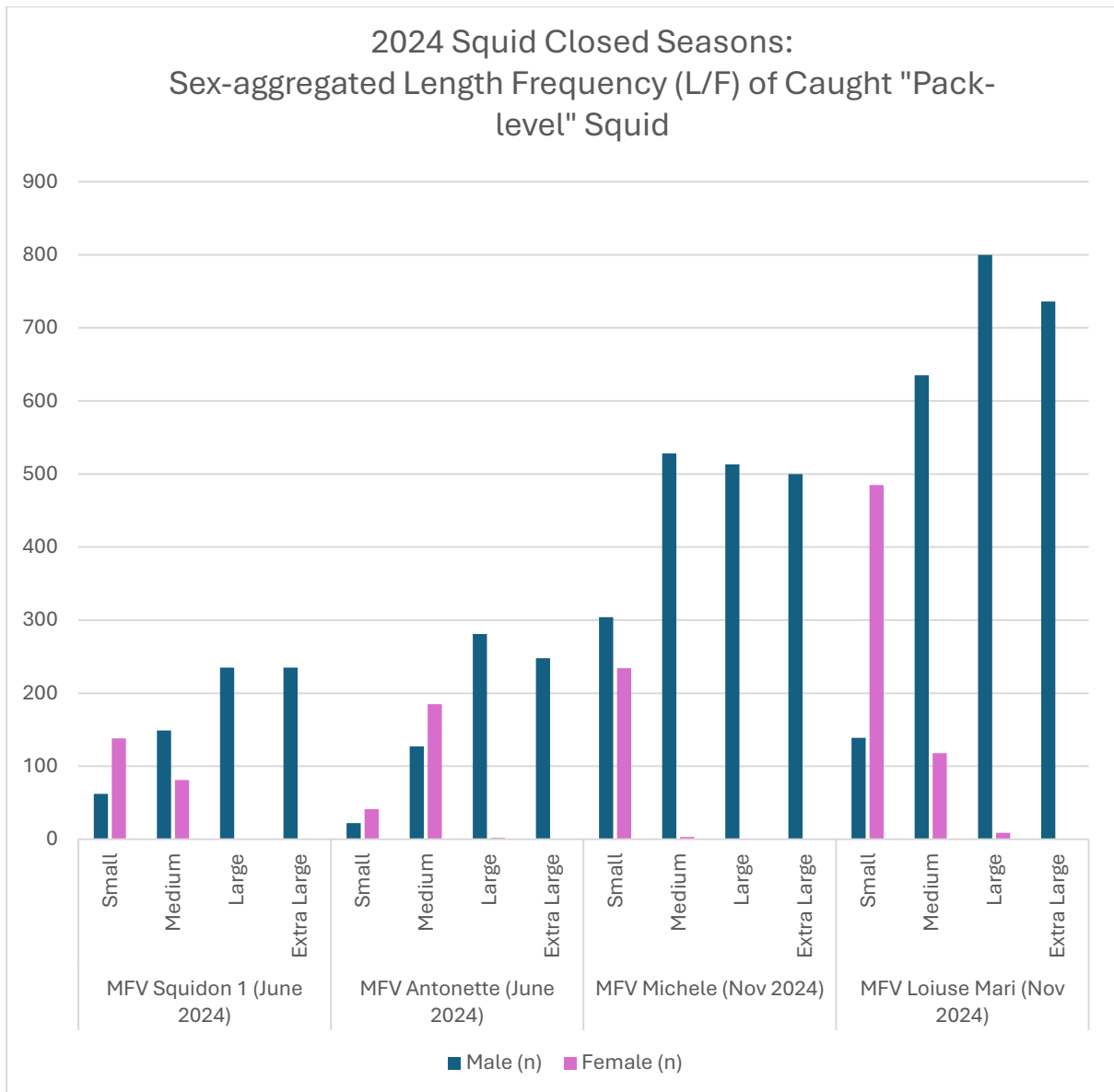
Squid caught during the surveys in June & November 2024 were measured and sampled sexed squid per pack-size category data is shown below (Table 1) and the pooled length frequency L/F in the figure below (Fig. 1).

**Table 1.** Summary Table showing sampled sexed squid per pack-size category from winter (June) and summer (November) 2024 squid closed season.

Vessel Name	Size Category	Sex		# of Fishing Sessions	Total Males Sampled	Total Females Sampled	Total Sampled
		Male (n)	Female (n)				
MFV Squidon 1 (June 2024)	Small	62	138	9	681	219	900
	Medium	149	81				
	Large	235	0				
	Extra Large	235	0				

MFV Antonette (June 2024)	Small	22	41	11	654	252	906
	Medium	127	185				
	Large	281	2				
	Extra Large	248	0				
MFV Michele (Nov 2024)	Small	304	234	17	1845	237	2082
	Medium	528	3				
	Large	513	0				
	Extra Large	500	0				
MFV Loïuse Mari (Nov 2024)	Small	139	485	17	2310	612	2922
	Medium	635	118				
	Large	800	9				
	Extra Large	736	0				

Squid caught during the surveys in June and November 20204 were measured and pooled length frequency data is shown below (Fig. 1).



**Figure. 1.** Pooled L/F data of male and female *L. reynaudii* caught during the winter (June) & summer (November) squid closed seasons 2024.

The data from June was availed to MARAM and the questions below were briefly discussed (Githaiga-Mwici, 2024)

#### Discussion questions

- Was this a suitable method for collecting sex-aggregated L/F data?
- Were the samples and data enough?
- Is this the most efficient and practical way of collecting sex-aggregated L/F data?
- Can the existing Industry catch size classes be adapted for use as L/F data going forward?

## References

Brandao B & Butterworth B. 2024. Update on Current Squid Stock Assessment Model. Unpublished DFFE Working Group Document. FISHERIES/2024/FEBRUARY/SWG-SQ/05. 14pp.

Githaiga-Mwicigi. 2024. Sex Disaggregated Length Frequency Pilot Project. Unpublished DFFE Working Group Document. FISHERIES/2024/AUGUST/SWG-SQ/19. 4pp.