

## Article

# Shell Deformities in the Green-Lipped Mussel *Perna viridis*: Occurrence and Potential Environmental Stresses on the West Coast of Peninsular Malaysia

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**Table S1.** Compilation of allometric data in the green-lipped mussels obtained from the coastal waters of Peninsular Malaysia.

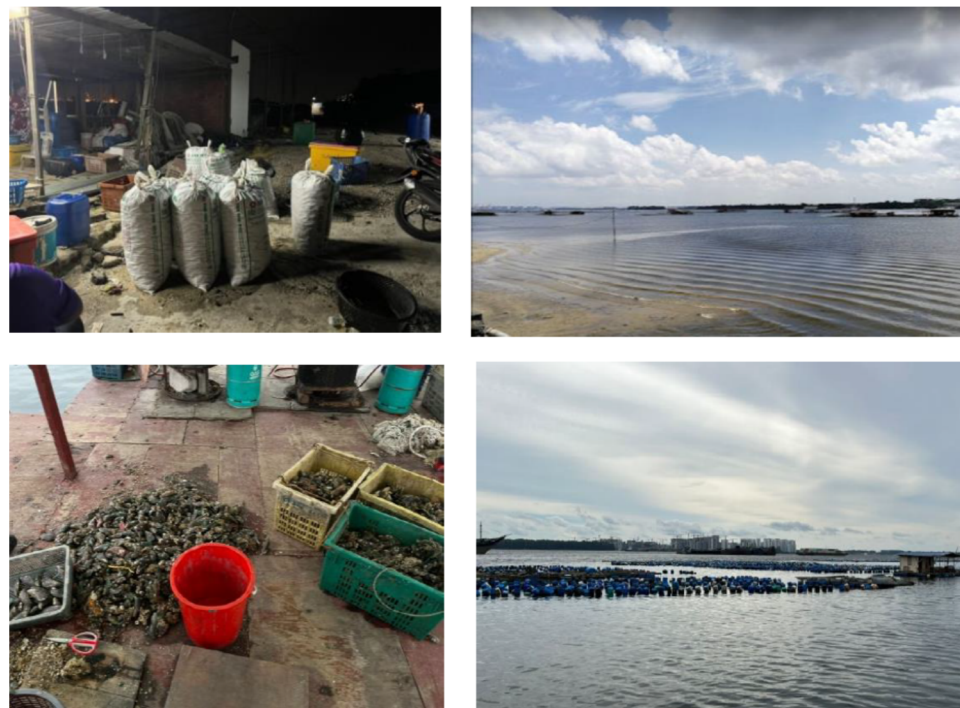
Location	Parit Jawa				Tangkak				Sebatu				Kuala Masai				Teluk Jawa				Kg. Pasir Puteh			
Type of deformities	N	D	C	U	N	D	C	U	N	D	C	U	N	D	C	U	N	D	C	U	N	D	C	U
Mean length (mm)	76.04	75.46	68.61	0.00	73.85	74.67	72.11	0.00	70.03	70.06	70.99	70.10	63.29	66.01	68.71	62.10	90.87	94.36	98.92	94.45	58.49	50.66	56.07	0.00
Median length (mm)	74.54	74.67	67.50	0.00	73.77	76.49	71.57	0.00	71.68	70.80	71.09	70.63	65.36	66.51	67.90	66.38	88.94	94.52	97.93	95.17	5.65	49.60	58.60	0.00
Standard error length (mm)	0.91	1.75	2.15	0.00	0.91	1.63	1.77	0.00	1.61	0.72	1.10	0.99	1.37	2.00	3.00	5.71	2.48	1.88	2.62	2.56	1.74	1.81	8.47	0.00
Min length (mm)	53.59	43.09	60.48	0.00	49.43	37.63	58.93	0.00	48.00	52.37	53.56	52.40	36.32	39.62	54.96	50.75	83.80	69.98	93.15	69.98	6.10	39.60	40.30	0.00
Max length (mm)	109.46	101.68	80.49	0.00	90.47	89.65	85.06	0.00	88.06	91.97	85.77	91.43	90.16	89.63	92.99	69.07	100.01	116.63	105.76	120.52	96.30	70.50	69.30	0.00
Mean width (mm)	25.47	24.86	25.04	0.00	26.07	27.19	25.59	0.00	31.77	32.62	32.85	32.43	21.83	23.70	24.04	21.39	41.54	41.74	44.74	41.16	24.10	21.84	18.83	0.00
Median width (mm)	25.54	24.91	25.15	0.00	26.61	27.01	25.45	0.00	32.13	32.31	32.55	32.07	22.23	24.52	24.08	22.40	40.59	42.39	45.37	40.58	24.10	22.00	20.00	0.00
Standard error width (mm)	0.34	0.62	1.20	0.00	0.55	0.40	0.73	0.00	0.76	0.29	0.44	0.38	0.50	0.52	0.72	2.08	1.15	0.63	1.37	0.97	0.24	0.95	0.65	0.00
Min width (mm)	18.13	13.87	17.46	0.00	2.52	20.70	21.85	0.00	16.00	25.00	25.94	25.55	10.07	14.83	17.91	17.39	39.12	33.53	40.88	30.02	13.50	14.00	15.20	0.00
Max width (mm)	34.13	35.96	31.76	0.00	34.49	35.17	33.70	0.00	43.40	40.92	40.30	40.92	30.68	29.13	29.26	24.38	47.02	48.50	49.09	53.05	31.20	28.60	21.30	0.00
Mean height (mm)	32.76	33.07	31.84	0.00	31.46	135.93	32.04	0.00	22.50	22.71	22.53	22.41	29.10	30.65	31.03	26.27	29.82	30.52	31.90	30.39	24.76	26.05	20.73	0.00
Median height (mm)	32.24	33.50	31.38	0.00	32.76	32.85	31.97	0.00	22.17	22.19	22.56	22.07	29.08	30.24	30.44	26.87	30.33	30.97	32.22	30.56	24.50	26.30	22.50	0.00
Standard error height (mm)	0.30	0.56	0.98	0.00	0.35	0.50	0.71	0.00	0.72	0.28	0.32	0.31	0.52	0.65	1.23	1.49	0.78	0.64	0.69	0.71	0.26	1.22	0.80	0.00
Min height (mm)	26.32	21.43	26.88	0.00	21.91	26.56	23.77	0.00	16.63	15.74	18.18	15.99	17.91	22.04	25.93	23.44	26.83	22.07	30.06	23.93	15.10	15.60	15.60	0.00
Max height (mm)	41.55	41.52	36.46	0.00	35.22	40.64	36.76	0.00	42.03	40.60	25.78	29.13	39.64	38.64	40.70	28.51	31.82	35.91	33.64	40.75	33.50	35.60	24.10	0.00
Mean weight (mm)	10.16	10.22	9.35	0.00	9.64	9.66	9.24	0.00	8.28	8.98	9.37	8.95	7.09	7.84	8.38	6.44	19.19	22.04	25.12	22.33	5.38	2.97	3.80	0.00
Median weight (g)	9.54	10.43	9.04	0.00	8.95	9.37	8.77	0.00	8.63	9.10	9.25	9.16	7.16	7.54	7.04	6.77	17.61	22.08	22.60	22.44	4.90	2.90	3.90	0.00
Standard error weight (g)	0.26	0.43	0.88	0.00	0.95	0.43	0.75	0.00	0.44	0.23	0.36	0.32	0.38	0.52	1.00	1.67	1.82	1.10	1.85	1.40	0.24	0.24	0.45	0.00
Min weight (g)	4.80	3.42	5.30	0.00	3.84	5.18	6.21	0.00	3.64	3.44	5.16	3.44	1.37	2.03	4.50	3.39	14.10	10.09	21.83	10.09	0.20	1.70	2.70	0.00
Max weight (g)	19.50	19.27	15.21	0.00	60.90	18.47	18.73	0.00	13.40	17.35	15.17	17.35	17.43	15.28	18.53	9.15	26.73	35.09	30.00	37.85	15.90	6.00	4.80	0.00
Total number, N	130.00	58.00	13.00	0.00	57.00	48.00	17.00	0.00	40.00	126.00	44.00	68.00	93.00	38.00	15.00	3.00	6.00	38.00	5.00	27.00	117.00	19.00	3.00	0.00
Deformities (%)	28.60 6.47				39.34 13.93				45.12 13.41 17.07				25.50 10.07				56.25 4.17 27.08				13.67 2.16			
Total Shell Deformity (%)	<b>35.32</b>				<b>53.28</b>				<b>75.61</b>				<b>37.58</b>				<b>87.50</b>				<b>15.83</b>			

Note: N: Normal; D: Discontinuous; C: Continuous; U: Unidentified.

**Table S2.** Multiple linear regression analysis between shell lengths (SL) (as dependent variable), and the shell widths, shell heights and total shell weights, in the normal shells and deformed shells of all types (discontinuous, continuous and unidentified deformities) (as independent variables), of *Perna viridis* collected from Sebatu (N= 40).

Dependent variable	Independent variables	R	R <sup>2</sup>
SL <sub>normal</sub>	$36.7 + 0.11 (SW) - 0.01 (SH) + 0.88 (TSW)$	0.95	0.90
SL <sub>discontinuous</sub>	$13.9 + 0.55 (SW) + 0.02 (SH) + 0.33 (TSW)$	0.88	0.78
SL <sub>continuous</sub>	$11.9 + 0.59 (SW) + 0.02 (SH) + 0.34 (TSW)$	0.92	0.84
SL <sub>unidentified</sub>	$16.7 + 0.44 (SW) + 0.02 (SH) + 0.44 (TSW)$	0.86	0.74

Note: Independent variables are shell width (SW), shell height (SH) and total shell weight (TSW).



**Figure S1.** Sampling sites in the Straits of Johore.