

Table S1: Number and average length of transects surveyed in 2022 by location and site.

Location	Site	Number of transect	Average length of transects (m)
Pitt Water Estuary	Pitt Water Bluff	11	9.68
	Northeast Midway Point	8	8.23
	South Midway Point	5	7.74
	Pitt Water Islands	6	5.5
	Midway Point Causeway	7	3.6
	Sorell Causeway	3	6
Pitt Water Estuary	Lewisham	3	7.58
Roches Beach	Bambra Reef	3	34
Pipe Clay Lagoon	Lumeah Point	2	18.9
	Southwest Pipe Clay Lagoon	2	8.5
Southport Lagoon	Northeast Southport Lagoon	2	17.33
	Northwest Southport Lagoon	3	11.50
Primrose Sands	Susans Bay	2	8.6
Tasman Peninsula	Tessellated Pavement	6	6
Tasman Peninsula	Fortescue Bay	6	10
Woodbridge	Peppermint Bay	5	9.46

Table S2: Results of the literature review showing all the different methods used to survey *P. vivipara* populations.

Method	Description	Location/site surveyed	Survey year	Reference	Method repeated in current study
Fixed 1m ² quadrat	1m ² quadrat that was left in place or replaced at the same coordinates for each return survey.	Peppermint Bay	2001	Rowland (2001)	No
		Sorrell Causeway	1976-1983	Prestedge (1998)	
Parallel random 1m ² quadrats	1 m ² quadrat was placed at random intervals and tidal heights.	Fortescue Bay Susans Bay	2001	Polanowski (2002)	No
Parallel 4 m ² quadrats	4 m ² quadrat containing a grid of elastic cord every 200 mm. 10 squares were randomly selected and sampled. Quadrats were placed either randomly or at fixed intervals.	Bambra Reef Tessellated Pavement Lumeah Point – Pipe Clay Lagoon Peppermint Bay Grundy Point	2000	Rowland (2001)	No
Parallel fissure or mussel bed search	Random number table and transect line were used to select five 1 m sections of fissures or mussel beds	Tessellated Pavement	2000	Rowland (2001)	No
Parallel or perpendicular timed shoreline search	Search of shoreline noting location of first and last found sea star. Search completed in within 30 min, generally across entire area of inhabitable shoreline.	Southeast Midway Point	2009, 2016, 2018	Liversage & Byrne (2018)	Yes
Parallel shoreline search	Search of shoreline. Search covered entire area of inhabitable shoreline.	Tessellated Pavement Fortescue Bay	1983, 1998 1995, 2001	Prestedge (1998) Prestedge (1998), Rowland (2001)	No
Perpendicular or parallel 0.25 m wide transect	Transect line laid out from high tide to low tide mark, or in the mid tide all sea stars within 0.25 m of one side of the transect were counted.	Pitt Water Bluff Tessellated Pavement Southport Lagoon	1974 2006	Hoggins (1976)	Yes

Perpendicular or parallel 0.5 m wide transect	Transect line laid out from high tide to low tide mark or in the mid tide, all sea stars within 0.25 m either side of the transect line were counted. At Bambra Reef the search included 2 m long blocks, with each block 1 m ² of reef.	Pitt Water Bluff Northeast Midway Point South Midway Point Midway Point Causeway Bambra Reef	2000, 2001, 2014, 2019 2001, 2014, 2019 2000, 2001, 2019 2000, 2001, 2019 2013	Aquenal (2005), Parsons (2020) Aquenal (2013)	Yes
Perpendicular 1 m wide transect	Transect line laid out from high tide to low tide mark, all sea stars within 0.5 m either side of the transect line were counted.	Islands	2020	Parsons unpublished data	Yes
Perpendicular 5 m wide transect	Transect line laid out from high tide to low tide mark, all sea stars within 2.5 m either side of the transect line were counted.	Pitt Water Bluff Northeast Midway Point Midway Point Causeway Sorell Causeway Lewisham	2019	Parsons (2020)	Yes

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