

Evaluating estuarine nursery use and life history patterns of *Pomatomus saltatrix* in eastern Australia

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Marine Ecology Progress Series 598: 187–199 (2018)

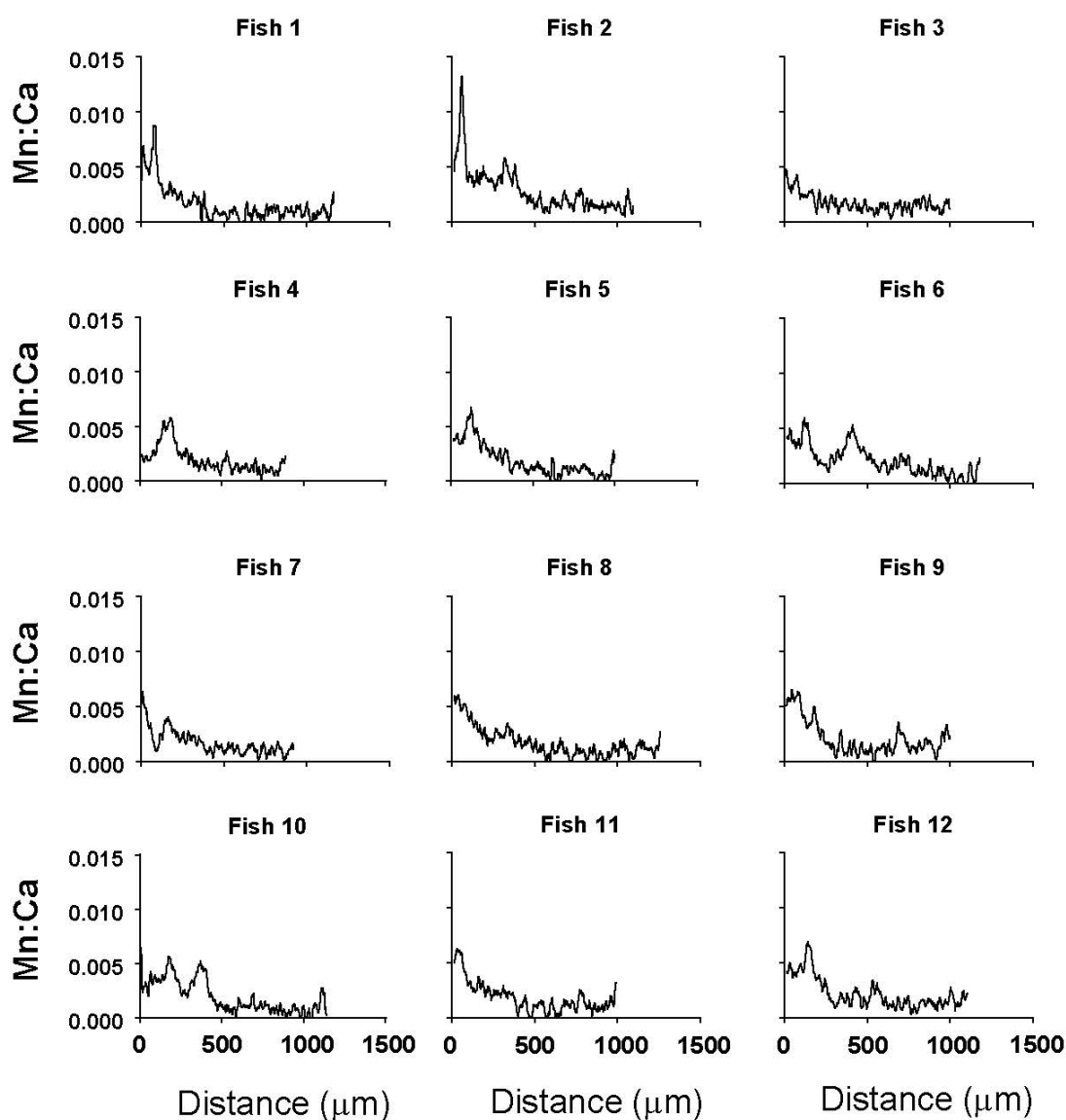


Fig S1. Elemental profiles from the core to the edge of the otolith showing Mn:Ca ratios for all 12 *Pomatomus saltatrix* which were analysed. Profiles were created using a 7 point moving average. Elements are expressed as a ratio to calcium and units are in mmol mol^{-1} .

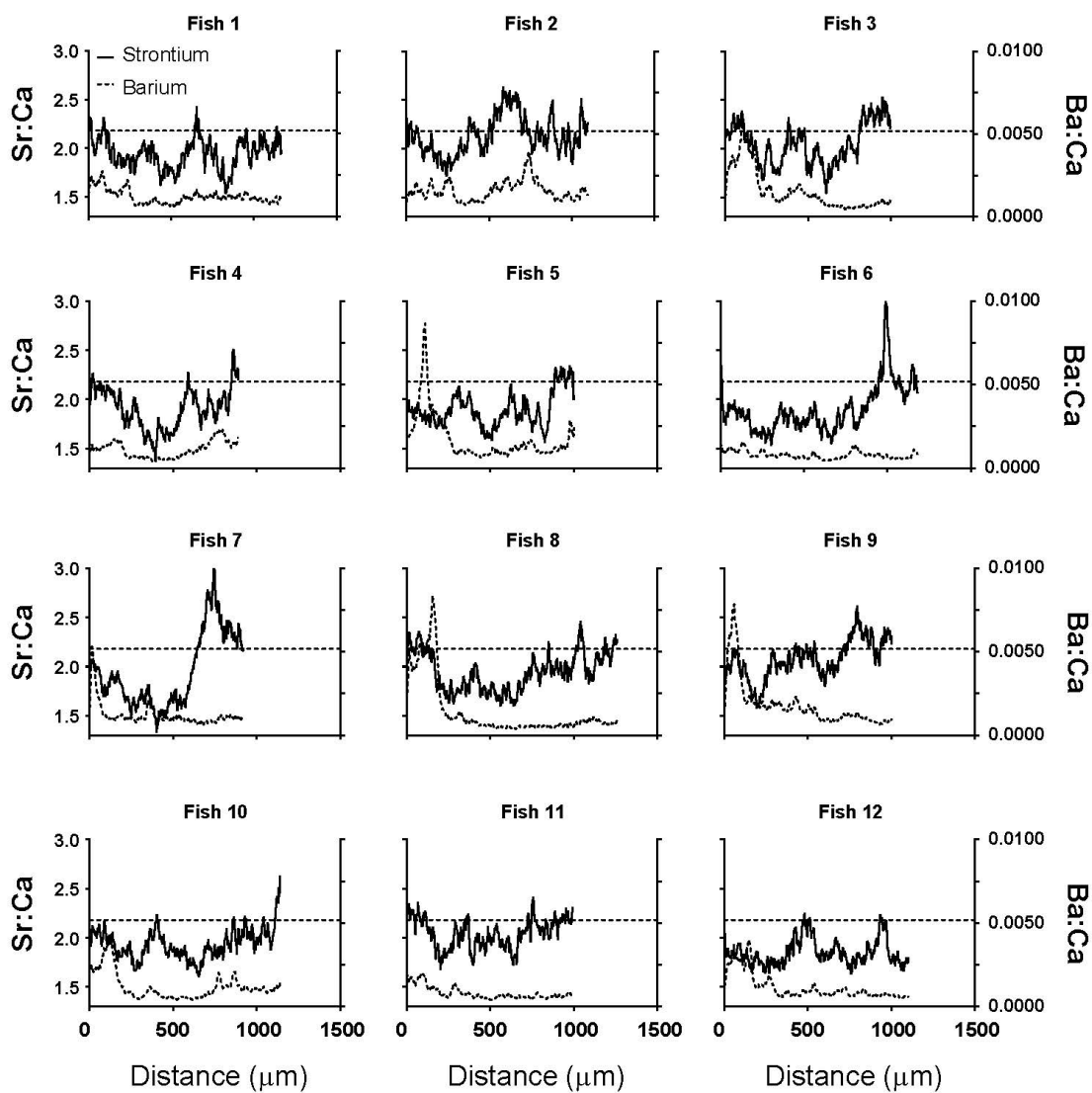


Fig S2. Elemental profiles from the core to the edge of the otolith, for strontium and barium, for all 12 *Pomatomus saltatrix* which were analysed. Profiles were created using a 7 point moving average. The dashed horizontal line represents the calculated reference criteria for Sr:Ca in coastal environments based upon the end points of the profiles from adults caught in coastal environments ($2.18 \text{ mmol mol}^{-1}$). Elements are expressed as a ratio to calcium and units are in mmol mol^{-1} . These otolith elemental ratios represent contributions from a variety of sources including the water, diet and other physiological influences.

Table S1. Summary of age 0 and age 1 *Pomatomus saltatrix* used in the LA-ICP-MS spot analysis.

Estuary/Region	Sample Size	Fork Length Range (cm)	Mean Fork Length (cm)
Age 0 <i>P. saltatrix</i>			
Botany Bay	30	11 – 18.2	13.9
Clarence River	28	5.1 – 19.3	9.7
Clyde River	21	8.8 – 18	14.0
Hawkesbury River	58	9.4 – 23.2	14.7
Hunter River	25	9 – 16.4	12.3
Jervis Bay	19	4.2 – 9.5	6.6
Moruya River	19	10.9 – 15.7	13.6
Port Hacking	25	9.3 – 18.3	12.9
Port Stephens	21	13.1 – 21.8	18.2
Shoalhaven River	21	11.1 – 19.1	15.7
Sydney Harbour	45	5.7 – 24.6	12.9
Wagonga Inlet	48	9.7 – 21.2	12.3
Age 0 total	360	4.2 – 24.6	13.7
Age 1 <i>P. saltatrix</i>			
North (< 29.5° S)	45	26.8 – 38.1	31.4
Central (29.5 – 33° S)	52	26.9 – 36.5	31.7
South (> 33°S)	24	26.3 – 38.9	30.9
Age 1 total	121	26.3 – 38.9	31.5

Table S2. Multivariate pairwise PERMANOVA results showing the estuaries which were significantly different to one another. Estuary pairs which were not significantly different ($P > 0.05$) to one another are not shown.

Estuary Pair	<i>t</i>	P(Perm)	Unique Permutations
Botany Bay, Wagonga Inlet	1.499	< 0.001	24
Port Hacking, Clarence River	2.790	< 0.001	24
Port Stephens, Wagonga Inlet	1.335	< 0.001	24
Hawkesbury River, Clarence River	1.878	0.010	720
Hawkesbury River, Jervis Bay	1.845	< 0.001	120
Clyde River, Hunter River	1.832	< 0.001	6
Clarence River, Jervis Bay	2.026	< 0.001	9915
Jervis Bay, Hunter River	1.652	0.024	9950
Moruya River, Hunter River	1.572	< 0.001	6

Table S3. Univariate PERMANOVA results. All terms had greater than 9000 unique permutations. Significant effects are shown in bold.

	<i>df</i>	Element											
		Li			Mg			Mn			Cu		
		MS	Pseudo-F	P(perm)	MS	Pseudo-F	P(perm)	MS	Pseudo-F	P(perm)	MS	Pseudo-F	P(perm)
Fork Length	1	6.7424	5.8353	0.0376	45.2210	37.1830	0.0002	33.0920	14.4320	0.0021	0.5274	0.9653	0.3544
Estuary	11	2.6854	1.9471	0.1200	4.3704	2.8369	0.0444	3.5359	1.2232	0.3411	1.6412	2.8260	0.0913
Year	1	1.6040	1.2044	0.3274	6.5413	12.517	0.0095	0.1806	0.3714	0.5979	0.0199	0.5743	0.4753
Site(Estuary)	14	1.1652	1.2650	0.2394	1.2366	1.7160	0.0775	2.3559	3.0738	0.0014	0.5274	0.5256	0.8395
Estuary*Year	3	0.4208	0.4550	0.6991	1.9336	8.3093	0.1179	0.6682	1.1395	0.4878	1.2812	2.3702	0.3089
Year*Site(Estuary)	2	1.1738	1.2744	0.2233	0.1996	0.2770	0.6945	0.6059	0.7906	0.4135	0.5140	0.5122	0.4934
Residuals	327	0.9211			0.7206			0.7664			1.0035		
Total	359												
	<i>df</i>	Zn			Sr			Ba			Pb		
		MS	Pseudo-F	P(perm)	MS	Pseudo-F	P(perm)	MS	Pseudo-F	P(perm)	MS	Pseudo-F	P(perm)
		Fork Length	1	0.6516	0.6812	0.4238	6.7378	2.0909	0.1649	8.0106	2.3849	0.1518	2.7102
Estuary	11	0.7394	0.8319	0.6039	5.7540	1.3703	0.2936	7.7541	1.7508	0.1700	0.8826	2.4498	0.1032
Year	1	6.8658	2.8932	0.1645	0.0352	0.2981	0.6259	3.3141	3.8768	0.1188	0.0207	3.8914	0.0864
Site(Estuary)	14	0.9557	0.9802	0.4239	3.3269	4.7940	0.0001	3.4707	5.3218	0.0001	0.3758	0.3602	0.8374
Estuary*Year	3	2.3824	1.0358	0.5330	5.0415	26.7740	0.0409	0.1617	11.8820	0.0935	0.0489	23.1910	0.1077
Year*Site(Estuary)	2	1.9922	2.0432	0.1052	0.1515	0.2183	0.7940	0.0230	0.0352	0.9539	0.0118	0.0113	0.9009
Residuals	327	0.9750			0.6940			0.6522			1.0432		
Total	359												