

Supplementary material

Resolving the early life history of King George whiting (*Sillaginodes punctatus*: Perciformes) using otolith microstructure and trace element chemistry

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Table S1. Biological information for King George whiting recruits collected fortnightly throughout the settlement season at Barker Inlet in 2016 and 2017

Standard length (SL; mm), age (days), average growth rate (mm day⁻¹). All values are presented in the form mean (range)

Date	<i>n</i>	SL	Age	Hatch date	Growth rate
2016					
7-Jul	18	19.7 (17.7–21.6)	108 (93–132)	21-Mar (26-Feb to 5-Apr)	0.165 (0.135–0.184)
21-Jul	15	19.8 (18.5–21.0)	113 (101–135)	30-Mar (8-Mar to 11-Apr)	0.157 (0.137–0.176)
6-Aug	17	20.3 (18.7–22.0)	124 (107–134)	4-Apr (25-Mar to 21-Apr)	0.147 (0.132–0.173)
21-Aug	18	19.8 (18.8–21.1)	126 (113–147)	17-Apr (27-Mar to 30-Apr)	0.141 (0.122–0.160)
5-Sep	19	19.3 (18.4–20.0)	132 (108–162)	26-Apr (27-Mar to 20-May)	0.132 (0.105–0.159)
22-Sep	20	19.1 (17.5–19.9)	128 (115–151)	17-May (24-Apr to 30-May)	0.133 (0.114–0.147)
7-Oct	20	18.2 (17.2–19.0)	129 (105–165)	31-May (25-Apr to 24-Jun)	0.126 (0.101–0.144)
31-Oct	20	18.5 (16.9–19.3)	151 (117–177)	2-Jun (7-May to 6-Jul)	0.110 (0.096–0.131)
17-Nov	16	21.0 (18.0–22.1)	164 (139–184)	6-Jun (17-May to 1-Jul)	0.116 (0.100–0.137)
2017					
11-Jul	3	20.3 (19.7–20.8)	102 (95–112)	31-Mar (21-Mar to 7-Apr)	0.178 (0.167–0.185)
26-Jul	20	19.0 (17.7–19.5)	103 (92–110)	14-Apr (7-Apr to 25-Apr)	0.165 (0.154–0.184)
12-Aug	20	19.6 (17.9–20.7)	115 (102–134)	20-Apr (31-Mar to 2-May)	0.153 (0.134–0.175)
26-Aug	20	20.0 (18.0–21.0)	124 (103–147)	24-Apr (1-Apr to 15-May)	0.145 (0.129–0.164)
8-Sep	20	19.2 (18.5–19.6)	115 (101–130)	17-May (1-May to 30-May)	0.150 (0.133–0.167)
26-Sep	20	18.6 (17.5–19.3)	125 (110–136)	24-May (13-May to 8-Jun)	0.133 (0.118–0.151)
11-Oct	20	17.0 (16.4–17.7)	114 (103–135)	20-Jun (29-May to 30-Jun)	0.132 (0.112–0.141)
26-Oct	21	18.5 (16.1–20.0)	136 (105–179)	12-Jun (30-Apr to 13-Jul)	0.122 (0.099–0.142)
8-Nov	19	22.8 (19.3–25.3)	158 (141–179)	3-Jun (13-May to 20-Jun)	0.131 (0.106–0.150)

Table S2. Individual element : Ca ratios ($\mu\text{mol mol}^{-1}$) for the otolith core of King George whiting recruits collected fortnightly throughout the settlement season at Barker Inlet in 2016 and 2017

Values are presented in the form mean (range)

Date	<i>n</i>	Li	Mg	Mn	Sr	Ba
2016						
7-Jul	18	6.857 (4.614–8.767)	309.7 (111.3–501.4)	0.941 (0.494–3.422)	2644 (2170–3037)	0.658 (0.504–1.062)
21-Jul	15	7.130 (5.969–8.187)	306.8 (148.7–484.4)	1.268 (0.425–3.309)	2627 (2143–3238)	0.850 (0.574–1.339)
6-Aug	17	6.554 (5.329–7.874)	363.2 (60.5–594.9)	1.033 (0.423–3.065)	2701 (2271–3415)	0.860 (0.457–1.723)
21-Aug	18	7.289 (6.103–9.407)	290.9 (108.4–543.9)	0.678 (0.365–1.579)	2819 (2435–3324)	0.899 (0.543–1.625)
5-Sep	19	7.119 (6.132–8.335)	294.3 (88.8–569.4)	0.700 (0.267–1.711)	2975 (2574–3420)	0.986 (0.507–2.347)
22-Sep	20	7.099 (6.103–8.276)	209.6 (62.0–480.2)	0.721 (0.171–2.012)	3169 (2586–3666)	1.020 (0.581–1.813)
7-Oct	20	7.007 (5.448–8.663)	226.9 (65.4–487.8)	0.704 (0.130–1.448)	3188 (2663–3701)	1.031 (0.616–2.181)
31-Oct	20	6.574 (5.373–7.666)	247.3 (90.9–581.3)	0.682 (0.190–2.651)	3072 (2632–3690)	0.944 (0.440–1.700)
17-Nov	16	6.585 (5.358–7.800)	293.5 (123.2–505.7)	0.789 (0.196–2.990)	2988 (2525–3442)	1.051 (0.556–1.745)
2017						
11-Jul	4	7.209 (6.266–8.722)	202.3 (150.4–264.3)	0.586 (0.511–0.683)	2736 (2394–3188)	0.900 (0.701–1.188)
26-Jul	20	7.414 (5.180–9.333)	229.4 (41.9–476.8)	1.031 (0.290–2.407)	3025 (2607–3522)	1.269 (0.740–2.204)
12-Aug	20	6.829 (5.180–8.514)	184.7 (44.0–547.3)	0.830 (0.322–2.130)	2926 (2442–3720)	1.105 (0.562–2.400)
26-Aug	20	7.578 (6.028–9.184)	263.8 (80.7–569.4)	0.833 (0.269–2.670)	2942 (2547–3351)	1.183 (0.594–2.076)
8-Sep	20	7.165 (5.984–8.529)	222.2 (69.7–530.3)	0.983 (0.162–2.538)	3261 (2568–3714)	1.285 (0.721–2.151)
26-Sep	20	7.230 (5.567–8.454)	215.2 (45.6–419.0)	1.108 (0.280–2.914)	3191 (2549–3734)	1.115 (0.566–1.993)
11-Oct	20	6.874 (5.190–8.142)	203.6 (15.6–498.0)	0.919 (0.096–2.820)	3272 (2742–3740)	1.336 (0.591–2.858)
26-Oct	21	6.745 (5.358–8.261)	257.4 (95.6–854.1)	0.875 (0.355–2.200)	3101 (2776–3573)	1.124 (0.530–2.151)
8-Nov	19	6.767 (5.388–7.844)	270.1 (44.9–419.4)	0.806 (0.239–2.670)	3205 (2641–3743)	1.236 (0.563–2.565)

Table S3. Individual element : Ca ratios ($\mu\text{mol mol}^{-1}$) for the otolith mid region of King George whiting recruits collected fortnightly throughout the settlement season at Barker Inlet in 2016 and 2017

Values are presented in the form mean (range)

Date	<i>n</i>	Li	Mg	Mn	Sr	Ba
2016						
7-Jul	18	6.622 (5.210–7.666)	223.9 (48.8–489.9)	1.706 (1.045–2.226)	2158 (1969–2347)	0.768 (0.613–1.107)
21-Jul	15	6.765 (5.805–7.933)	191.4 (73.5–320.4)	1.763 (1.198–2.613)	2187 (1833–2589)	0.815 (0.649–1.226)
6-Aug	17	6.236 (5.358–7.829)	220.7 (47.5–427.0)	1.585 (1.145–2.369)	2265 (2082–2589)	0.807 (0.712–1.013)
21-Aug	18	6.565 (5.641–7.978)	246.2 (49.6–383.7)	1.189 (0.658–1.907)	2430 (2264–2577)	0.701 (0.560–0.911)
5-Sep	19	6.570 (5.492–7.844)	215.6 (56.1–492.5)	0.987 (0.436–2.192)	2513 (2374–2687)	0.666 (0.509–0.940)
22-Sep	20	6.452 (5.716–7.189)	91.4 (30.7–226.5)	0.815 (0.511–1.036)	2616 (2384–3006)	0.695 (0.499–0.910)
7-Oct	20	6.237 (4.867–7.279)	128.8 (18.3–338.2)	0.880 (0.306–1.510)	2517 (2192–2950)	0.693 (0.529–0.948)
31-Oct	20	5.605 (4.986–6.296)	132.3 (23.4–329.7)	0.986 (0.500–1.658)	2552 (2228–2993)	0.687 (0.510–0.851)
17-Nov	16	5.539 (4.287–6.847)	170.5 (39.5–329.7)	1.213 (0.421–2.010)	2470 (2281–2793)	0.744 (0.602–0.958)
2017						
11-Jul	4	6.202 (4.882–7.353)	86.8 (75.6–101.6)	1.086 (0.705–1.356)	2210 (2117–2291)	0.674 (0.643–0.700)
26-Jul	20	6.960 (4.971–9.496)	103.3 (16.5–233.7)	1.036 (0.637–1.940)	2439 (2314–2618)	0.750 (0.628–0.938)
12-Aug	20	6.303 (5.061–8.187)	82.9 (19.3–201.8)	0.946 (0.250–1.634)	2392 (2126–2753)	0.703 (0.577–0.918)
26-Aug	20	6.691 (5.656–8.320)	139.1 (20.0–400.3)	1.041 (0.703–1.803)	2446 (2152–2624)	0.723 (0.552–0.878)
8-Sep	20	6.480 (5.582–7.800)	76.0 (17.1–178.9)	0.871 (0.589–1.290)	2521 (2255–2839)	0.733 (0.569–1.248)
26-Sep	20	6.293 (5.016–7.561)	117.7 (16.3–330.6)	0.711 (0.417–1.049)	2623 (2326–2944)	0.655 (0.533–0.889)
11-Oct	20	5.994 (4.733–7.338)	67.3 (11.1–236.7)	0.678 (0.399–0.957)	2738 (2439–3518)	0.665 (0.535–0.865)
26-Oct	21	5.757 (5.061–7.338)	109.6 (18.4–363.3)	0.695 (0.295–1.175)	2677 (2261–3062)	0.659 (0.527–0.826)
8-Nov	19	5.521 (4.629–6.385)	186.6 (67.3–331.0)	0.966 (0.553–1.863)	2694 (2160–3104)	0.695 (0.557–0.833)

Table S4. Leave-one-out classification success for the temporal comparison of trace element chemistry for the otolith core of King George whiting recruits collected from Barker Inlet in 2016 and 2017

Data represent the percentage (%) of individuals from the date of capture (row) classified to each sample occasion (columns). Bold values are correctly classified

2016									
Date	7-Jul	21-Jul	6-Aug	21-Aug	5-Sep	22-Sep	7-Oct	31-Oct	17-Nov
7-Jul	6	35	24	24	0	0	0	0	12
21-Jul	36	43	7	14	0	0	0	0	0
6-Aug	12	18	41	6	6	0	0	12	6
21-Aug	26	0	11	37	11	11	5	0	0
5-Sep	4	0	17	17	21	17	0	17	8
22-Sep	0	0	0	17	9	22	39	0	13
7-Oct	0	0	0	13	4	26	17	22	17
31-Oct	0	0	4	4	13	13	17	30	17
17-Nov	5	5	10	10	10	0	15	30	15
Overall	25								
2017									
Date	11-Jul	28-Jul	12-Aug	26-Aug	8-Sep	26-Sep	11-Oct	26-Oct	8-Nov
11-Jul									
28-Jul		9	13	35	17	0	9	17	0
12-Aug		9	41	14	14	0	9	14	0
26-Aug		30	15	40	10	0	0	5	0
8-Sep		8	4	8	33	0	29	17	0
26-Sep		15	5	10	35	0	20	15	0
11-Oct		8	4	4	33	0	29	21	0
26-Oct		26	9	4	9	0	22	30	0
8-Nov		7	21	0	36	0	21	14	0
Overall	24								

Table S5. Leave-one-out classification success for the temporal comparison of trace element chemistry for the otolith mid region of King George whiting recruits collected from Barker Inlet in 2016 and 2017

Data represent the percentage (%) of individuals from the date of capture (row) classified to each sample occasion (columns). Bold values are correctly classified

2016									
Date	7-Jul	21-Jul	6-Aug	21-Aug	5-Sep	22-Sep	7-Oct	31-Oct	17-Nov
7-Jul	17	50	22	6	0	0	0	0	6
21-Jul	43	29	21	7	0	0	0	0	0
6-Aug	12	12	53	18	0	0	0	0	6
21-Aug	0	6	17	39	28	6	0	0	6
5-Sep	0	4	4	25	21	8	29	0	8
22-Sep	0	0	0	0	13	63	21	0	4
7-Oct	0	4	9	9	35	26	4	13	0
31-Oct	0	0	0	9	0	9	13	39	30
17-Nov	0	0	15	15	5	0	0	30	35
Overall	33								
2017									
Date	11-Jul	28-Jul	12-Aug	26-Aug	8-Sep	26-Sep	11-Oct	26-Oct	8-Nov
11-Jul									
28-Jul		42	21	13	17	0	0	4	4
12-Aug		17	54	8	17	0	0	4	0
26-Aug		33	29	19	10	5	0	0	5
8-Sep		17	29	8	17	13	17	0	0
26-Sep		4	17	4	4	26	22	13	9
11-Oct		4	0	0	13	8	63	4	8
26-Oct		0	13	0	13	4	26	26	17
8-Nov		0	14	0	0	7	0	50	29
Overall	35								