

附录 I 1980s 来渤海湾各调查时期鱼卵优势(IRI>1 000)和重要(IRI>200)种类及其亲体适温和栖息类型  
 Appendix I The dominant (IRI>1 000) and important (IRI>200) taxas of fish eggs with temperature adaptation (TA) and habitat types (HT) to the spawning stock in the Bohai Bay since the 1980s

月份 Month	年份 Year	鱼卵优势重要种类 Dominant and important species	N	F	IRI	适温类型 TA	栖息类型 HT
5 月 May	1982—1983	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.61	0.77	4 684.7	WT	CPN
		斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.31	0.54	1 646.2	WT	CPN
6 月 June	1982—1983	鲷 <i>Platycephalus indicus</i> (Linnaeus, 1758)	0.03	0.77	235.1	WW	CRA
		鲉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.93	1.00	9 311.5	WT	CPN
		鲉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.57	0.27	1 508.9	WT	CPN
		斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.31	0.27	830.5	WT	CPN
		小带鱼 <i>Eupleurogrammus muticus</i> (Gray, 1831)	0.70	0.10	701.6	WW	CBD
		斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.40	0.64	2 560.3	WT	CPN
		鲷 <i>Platycephalus indicus</i> (Linnaeus, 1758)	0.46	0.36	1 654.3	WW	CRA
		鲉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	1.00	0.54	5 380.0	WT	CPN
		鲉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.71	0.58	4 101.5	WT	CPN
		斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.32	0.50	1 613.1	WT	CPN
2013—2014	2017—2018	鲷 <i>Platycephalus indicus</i> (Linnaeus, 1758)	0.14	0.65	930.1	WW	CRA
		蓝点马鲛 <i>Scomberomorus niphonius</i> (Cuvier, 1832)	0.39	0.78	3 061.0	WT	CPN
		鲷 <i>Platycephalus indicus</i> (Linnaeus, 1758)	0.36	0.61	2 173.3	WW	CRA
		斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.10	0.30	305.7	WT	CPN
		鲉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.99	0.73	7 186.3	WT	CPN
		鲉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.83	0.13	1 107.8	WT	CPN
		油鲷 <i>Sphyaena pinguis</i> (Günther, 1874)	0.42	0.32	1 365.7	WT	CPN
		小带鱼 <i>Eupleurogrammus muticus</i> (Gray, 1831)	0.18	0.61	1 099.4	WW	CBD
		斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.11	0.57	612.8	WT	CPN
		短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.11	0.50	553.9	WT	CD
2012—2013	2013—2014	鲉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.93	1.00	9 311.5	WT	CPN
		鲉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.57	0.27	1 508.9	WT	CPN
		斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.31	0.27	830.5	WT	CPN
		鲉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.92	0.45	4 197.4	WT	CPN
		短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.06	0.36	231.5	WT	CD
		短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.56	0.38	2 161.5	WT	CD
		鲉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.26	0.46	1 182.5	WT	CPN

续表

月份 Mont	年份 Year	鱼卵优势重要种类 Dominant and important species	<i>N</i>	<i>F</i>	IRI	适温类型 TA	栖息类型 HT
6月 June	2014—2015	赤鼻棱鯉 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.56	0.31	1 713.1	WW	CPN
		短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.18	0.23	411.6	WT	CD
	2015—2016	鯉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.74	0.48	3 516.4	WT	CPN
		赤鼻棱鯉 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.22	0.09	188.2	WW	CPN
	2016—2017	叫姑鱼 <i>Johnius grypotus</i> (Richardson, 1846)	0.55	0.48	2 630.9	WW	CBD
		短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.28	0.52	1 472.3	WT	CD
	2017—2018	赤鼻棱鯉 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.10	0.41	420.5	WW	CPN
		鯉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.46	0.33	1 518.4	WT	CPN
	2018—2019	赤鼻棱鯉 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.32	0.30	972.4	WW	CPN
		短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.04	0.57	216.8	WT	CD
	2020—2021	黄鲫 <i>Setipinna tenuifilis</i> (Valenciennes, 1848)	0.15	0.13	204.4	WW	CPN
		鯉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.82	0.63	5 134.4	WT	CPN
8月 August	1982—1983	赤鼻棱鯉 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.11	0.44	496.7	WW	CPN
		赤鼻棱鯉 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.38	0.56	2 103.2	WW	CPN
	1992—1993	短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.15	0.56	821.2	WT	CD
		小带鱼 <i>Eupleurogrammus muticus</i> (Gray, 1831)	0.10	0.40	393.3	WW	CBD
	1998—1999	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.21	0.16	342.1	WT	CPN
		短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.83	0.73	6 044.3	WT	CD
	2012—2013	短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.25	0.56	1 384.2	WT	CD
		鯉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.70	0.19	1 303.7	WT	CPN
	2013—2014	小带鱼 <i>Eupleurogrammus muticus</i> (Gray, 1831)	0.70	0.71	5 021.8	WW	CBD
		少鳞鳉 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.19	0.21	402.4	WW	CD
	2014—2015	短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.73	0.92	6 750.9	WT	CD
		少鳞鳉 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.22	0.62	1 364.6	WW	CD
	2014—2015	短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.43	0.67	2 862.0	WT	CD
		鯉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.57	0.50	2 828.3	WT	CPN
	2014—2015	短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.30	0.33	1 000.0	WT	CD
		小带鱼 <i>Eupleurogrammus muticus</i> (Gray, 1831)	0.30	0.17	500.0	WW	CBD
		鯉 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.30	0.08	250.0	WT	CPN

续表

月份 Mont	年份 Year	鱼卵优势重要种类 Dominant and important species	N	F	IRI	适温类型 TA	栖息类型 HT
8月 August	2015—2016	短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.77	0.59	4 545.8	WT	CD
		少鳞鳢 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.14	0.41	554.5	WW	CD
	2016—2017	短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.48	0.81	3 895.8	WT	CD
		少鳞鳢 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.38	0.38	1 456.9	WW	CD
	2017—2018	短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.75	0.57	4 292.2	WT	CD
		少鳞鳢 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.18	0.50	924.7	WW	CD
	2018—2019	短吻红舌鲷 <i>Cynoglossus joyneri</i> (Günther, 1878)	0.65	0.75	4 866.9	WT	CD
		少鳞鳢 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.30	0.31	949.3	WW	CD
	2020—2021	短吻红舌鲷 <i>Cynoglossus joyneri</i> Günther, 1878	0.90	0.99	8 915.4	WT	CD
		少鳞鳢 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.06	0.85	546.0	WW	CD
10月 October	1982—1983	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.03	0.85	264.8	WT	CPN
		花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	1.00	0.85	8 512.3	WT	CRA
	1992—1993	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.99	0.69	216.0	WT	CRA
		半滑舌鲷 <i>Cynoglossus semitaenivis</i> (Günther, 1873)	0.69	0.20	1 384.6	WT	CD
	1998—1999	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.31	0.27	820.5	WT	CRA
		花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.67	0.36	2 424.2	WT	CRA
	2009—2010	鳀 <i>Engraulis japonicus</i> Temminck & Schlegel, 1846	0.33	0.09	303.0	WT	CPN
		花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	1.00	0.23	2 307.7	WT	CRA
	2013—2014	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.93	0.67	6 203.7	WT	CRA
		花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	1.00	0.26	2 608.7	WT	CRA
	2014—2015	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	1.00	0.36	3 571.4	WT	CRA
		花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	1.00	0.19	1 875.0	WT	CRA
	2016—2017	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.86	0.08	685.7	WT	CRA
		花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.86	0.08	685.7	WT	CRA

注: CT: 冷温种; WW: 暖水种; WT: 暖温种。CD: 大陆架浅水底层鱼类; CBD: 大陆架浅水中上层鱼类; CRA: 大陆架岩礁性鱼类; OEP: 大陆架大洋洄游性中上层鱼类; OMP: 大洋深水底层鱼类。

Note: CT: Cold temperate species; WW: Warm water species; WT: Warm temperate species. CD: Continental shelf demersal fish; CBD: Continental shelf benthopelagic fish; CPN: Continental shelf pelagic-neritic fish; CRA: Continental shelf reef-associated fish; OEP: Oceanic pelagic fish; OMP: Oceanic bathydemersal fish.

附录 II 1980s 来渤海湾各调查时期仔稚鱼优势(IRI>1 000)和重要(IRI>100)种类及其亲体适温、栖息和产卵类型  
Appendix II The dominant (IRI>1 000) and important (IRI>100) taxas of fish larvae with temperature adaptation (TA), habitat types (HT) and spawning types (ST) to the spawning stock in the Bohai Bay since the 1980s

月份 Month	年份 Year	仔稚鱼优势重要种 Dominant and important species	N	F	IRI	适温类型 TA	栖息类型 HT	产卵类型 ST
5月 May	1982—1983	鲾 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.87	0.12	1 009.4	WT	CPN	P
		青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.06	0.38	248.2	WT	CPN	P
		鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.03	0.35	109.0	WT	CBD	P
	1992—1993	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.19	0.66	1 232.1	WT	CRA	P
		大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901)	0.19	0.17	321.4	WT	CD	AF
		鲾 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.13	0.11	142.9	WT	CPN	P
	1998—1999	矛尾复鰾虎鱼 <i>Acanthogobius hasta</i> (Temminck & Schlegel, 1845)	0.90	0.53	4 792.4	WT	CD	A
		鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.04	0.60	218.7	WT	CBD	P
	2004—2005	鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.33	0.10	333.3	WT	CBD	P
		少鳞鱧 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.33	0.10	333.3	WW	CD	P
		矛尾复鰾虎鱼 <i>Acanthogobius hasta</i> (Temminck & Schlegel, 1845)	0.33	0.10	333.3	WT	CD	AF
	2013—2014	鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.77	0.14	1 098.1	WT	CBD	P
		矛尾复鰾虎鱼 <i>Acanthogobius hasta</i> (Temminck & Schlegel, 1845)	0.08	0.29	224.0	WT	CD	AF
		白氏银汉鱼 <i>Hypoatherina valenciennei</i> (Bleeker, 1854)	0.10	0.21	204.9	WW	CPN	AF
	2014—2015	鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.99	0.62	6 094.1	WT	CBD	P
	2015—2016	鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.92	0.73	6 728.8	WT	CBD	P
		斑鱧 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.07	0.27	187.6	WT	CPN	P
	2016—2017	鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.99	0.77	7 629.8	WT	CBD	P
	2017—2018	鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.85	0.74	6 303.4	WT	CBD	P
		矛尾复鰾虎鱼 <i>Chaeturichthys stigmatias</i> (Richardson, 1844)	0.06	0.39	215.7	WT	CD	AF
	2018—2019	鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.68	0.45	3 101.6	WT	CBD	P
		许氏平鲉 <i>Sebastes schlegelii</i> (Hilgendorf, 1880)	0.29	0.55	1 604.3	WT	CD	O
	2020—2021	斑鱧 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.81	0.14	1 133.0	WT	CPN	P
		鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.15	0.15	219.6	WT	CBD	P
6月 June	1982—1983	斑鱧 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.72	0.71	5 112.3	WT	CPN	P
		赤鼻棱鲉 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.20	0.21	426.0	WW	CPN	P
	1992—1993	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.19	0.66	1 232.1	WT	CRA	P
		大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901)	0.19	0.17	321.4	WT	CD	AF
		鲾 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.13	0.11	142.9	WT	CPN	P
	1998—1999	矛尾复鰾虎鱼 <i>Acanthogobius hasta</i> (Temminck & Schlegel, 1845)	0.90	0.53	4 792.4	WT	CD	AF
		鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.04	0.60	218.7	WT	CBD	P
	2012—2013	矛尾复鰾虎鱼 <i>Acanthogobius hasta</i> (Temminck & Schlegel, 1845)	0.37	0.73	2 697.9	WT	CD	AF

续表

月份 Month	年份 Year	仔稚鱼优势重要种 Dominant and important species	N	F	IRI	适温类型 TA	栖息类型 HT	产卵类型 ST
6月	2012—2013	六丝钝尾鲈鱼 <i>Amblychaeturichthys hexanema</i> (Bleeker, 1853)	0.42	0.64	2 668.6	WT	CD	AF
June		鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.10	0.45	439.9	WT	CBD	P
		许氏平鲈 <i>Sebastes schlegelii</i> (Hilgendorf, 1880)	0.10	0.18	176.0	WT	CD	O
	2013—2014	矛尾鲈鱼 <i>Chaeturichthys stigmatias</i> (Richardson, 1844)	0.35	0.54	1 894.6	WT	CD	AF
		鳀 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.37	0.08	284.9	WT	CPN	P
		青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.07	0.23	170.9	WT	CPN	P
		矛尾复鲈鱼 <i>Acanthogobius hasta</i> (Temminck & Schlegel, 1845)	0.11	0.15	170.9	WT	CD	AF
		沙氏下鱈 <i>Hyporhamphus sajori</i> (Temminck & Schlegel, 1846)	0.06	0.23	128.2	WT	CPN	AF
	2014—2015	矛尾鲈鱼 <i>Chaeturichthys stigmatias</i> (Richardson, 1844)	0.50	0.23	1 153.8	WT	CD	AF
	2015—2016	斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.35	0.39	1 358.8	WT	CPN	P
		矛尾鲈鱼 <i>Chaeturichthys stigmatias</i> (Richardson, 1844)	0.40	0.30	1 221.5	WT	CD	AF
		鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.06	0.70	415.0	WT	CBD	P
	2016—2017	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.74	0.07	547.4	WT	CPN	P
		矛尾鲈鱼 <i>Chaeturichthys stigmatias</i> (Richardson, 1844)	0.10	0.15	148.0	WT	CD	AF
	2017—2018	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.65	0.47	3 016.9	WT	CPN	P
		斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.27	0.37	1 002.2	WT	CPN	P
		鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.07	0.70	501.5	WT	CBD	P
	2018—2019	矛尾鲈鱼 <i>Chaeturichthys stigmatias</i> (Richardson, 1844)	0.36	0.31	1 116.1	WT	CD	AF
		鲛 <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	0.20	0.31	613.8	WT	CBD	P
		许氏平鲈 <i>Sebastes schlegelii</i> (Hilgendorf, 1880)	0.13	0.25	312.5	WT	CD	O
	2020—2021	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.91	0.64	5 811.5	WT	CPN	P
		鳀 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.06	0.32	199.3	WT	CPN	P
	1982—1983	尖嘴扁颌针鱼 <i>Strongylura anastomella</i> (Valenciennes, 1846)	0.16	0.58	942.8	WT	OEP	AF
8月		少鳞鳕 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.19	0.35	646.5	WW	CD	P
August		赤鼻梭鲈 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.24	0.23	556.7	WW	CPN	P
		斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.26	0.19	501.3	WT	CPN	P
		青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.13	0.31	407.1	WT	CPN	P
	1992—1993	少鳞鳕 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.22	0.38	816.8	WW	CD	P
		鳀 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.25	0.31	775.3	WT	CPN	P
		赤鼻梭鲈 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.16	0.19	291.2	WW	CPN	P
		油鲚 <i>Sphyraena pinguis</i> (Günther, 1874)	0.12	0.13	153.9	WT	CPN	P
		斑鲹 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.05	0.25	137.3	WT	CPN	P
	1998—1999	赤鼻梭鲈 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.19	0.43	830.3	WW	CPN	P
		鲈鱼 <i>gen.sp</i>	0.14	0.43	614.6	WW	CD	AF

续表

月份 Month	年份 Year	仔稚鱼优势重要种 Dominant and important species	N	F	IRI	适温类型 TA	栖息类型 HT	产卵类型 ST
8月	1998—1999	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.61	0.07	434.1	WT	CPN	P
August	2012—2013	大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901)	0.54	0.23	1 242.6	WT	CD	AF
	2013—2014	沙氏下鱈 <i>Hyporhamphus sajori</i> (Temminck & Schlegel, 1846)	0.31	0.15	473.4	WT	CPN	AF
		沙氏下鱈 <i>Hyporhamphus sajori</i> (Temminck & Schlegel, 1846)	0.27	0.58	1 576.6	WT	CPN	AF
		白氏银汉鱼 <i>Hypoatherina valencienni</i> (Bleeker, 1854)	0.43	0.33	1 441.4	WW	CPN	AF
		青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.16	0.17	270.3	WT	CPN	P
		莫氏海马 <i>Hippocampus mohikiei</i> Bleeker, 1853	0.08	0.25	202.7	WT	CD	O
	2014—2015	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.33	0.08	277.8	WT	CPN	P
		鲹 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.33	0.08	277.8	WT	CPN	P
		中华栉孔鲈 <i>Ctenoprypauchen chinensis</i> (Steindachner, 1867)	0.33	0.08	277.8	WT	CD	AF
	2015—2016	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.85	0.22	1 884.2	WT	CPN	P
		沙氏下鱈 <i>Hyporhamphus sajori</i> (Temminck & Schlegel, 1846)	0.09	0.37	348.0	WT	CPN	AF
	2016—2017	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.41	0.27	1 096.9	WT	CPN	P
		沙氏下鱈 <i>Hyporhamphus sajori</i> (Temminck & Schlegel, 1846)	0.19	0.46	854.7	WT	CPN	AF
		赤鼻棱鲉 <i>Thryssa kammalensis</i> (Bleeker, 1849)	0.25	0.31	769.2	WW	CPN	P
		白氏银汉鱼 <i>Hypoatherina valencienni</i> (Bleeker, 1854)	0.12	0.19	231.5	WW	CPN	AF
	2017—2018	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.77	0.21	1 647.9	WT	CPN	P
		斑鱈 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.15	0.07	106.5	WT	CPN	P
	2018—2019	鲹 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.24	0.31	744.0	WT	CPN	P
		沙氏下鱈 <i>Hyporhamphus sajori</i> (Temminck & Schlegel, 1846)	0.12	0.38	433.7	WT	CPN	AF
		斑鱈 <i>Konosirus punctatus</i> (Temminck & Schlegel, 1846)	0.46	0.06	284.9	WT	CPN	P
		少鳞鳉 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.12	0.19	229.6	WW	CD	P
	2020—2021	青鳞小沙丁鱼 <i>Sardinella zunasi</i> (Bleeker, 1854)	0.90	0.91	8 153.5	WT	CPN	P
		白氏银汉鱼 <i>Hypoatherina valencienni</i> (Bleeker, 1854)	0.06	0.90	503.6	WW	CPN	AF
		沙氏下鱈 <i>Hyporhamphus sajori</i> (Temminck & Schlegel, 1846)	0.03	0.90	283.8	WT	CPN	AF
10月	1982—1983	少鳞鳉 <i>Sillago japonica</i> (Temminck & Schlegel, 1843)	0.72	0.26	1 872.4	WW	CD	P
October	1992—1993	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.19	0.11	216.0	WT	CRA	P
		花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.66	0.19	1 232.1	WT	CRA	P
		大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901)	0.17	0.19	321.4	WT	CD	AF
	1998—1999	鲹 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	0.11	0.13	142.9	WT	CPN	P
	2009—2010	鲹 <i>Engraulis japonicus</i> (Temminck & Schlegel, 1846)	1.00	0.07	666.7	WT	CPN	P
	2013—2014	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.02	0.09	17.8*	WT	CRA	P
		#	#	#	#	#	#	#
	2014—2015	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.92	0.50	4 615.4	WT	CRA	P

续表

月份 Month	年份 Year	仔稚鱼优势重要种 Dominant and important species	N	F	IRI	适温类型 TA	栖息类型 HT	产卵类型 ST
10月 October	2014—2015	中颌棱鯉 <i>Thryssa mystax</i> (Bloch & Schneider, 1801)	0.08	0.08	64.1	WW	CPN	P
	2016—2017	鯉 <i>Engraulis japonicus</i> Temminck & Schlegel, 1846 大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901) 花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.45 0.20 0.15	0.30 0.17 0.13	1 369.6 347.8 195.7	WT WT WT	CPN CD CRA	P AF P
	2017—2018	鯉 <i>Engraulis japonicus</i> Temminck & Schlegel, 1846	0.63	0.07	446.4	WT	CPN	P
	2018—2019	赤鼻棱鯉 <i>Thryssa kammalensis</i> (Bleeker, 1849) 大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901) 白氏银汉鱼 <i>Hypoatherina valenciennei</i> (Bleeker, 1854) 花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.4 0.2 0.2 0.2	0.063 0.063 0.063 0.063	250.0 125.0 125.0 125.0	WW WT WW WT	CPN CD CPN CRA	P AF AF P
	2020—2021	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844) 大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901) 大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901) 大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901) 砗磲 <i>Parablennius yatabei</i> (Jordan & Snyder, 1900)	0.61 0.18 0.14 0.14	0.24 0.12 0.12 0.12	1 472.7 218.2 163.6 163.6	WT WT WT WT	CRA CRA CD CD	P P AF D
12月 December	1982—1983	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.92	0.69	6 364.1	WT	CRA	P
	1992—1993	大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901)	0.08	0.46	372.7	WT	CD	AF
	1998—1999	大龙六线鱼 <i>Hexagrammos otakii</i> (Jordan & Starks, 1895) 玉筋鱼 <i>Ammodytes personatus</i> (Girard, 1856) 花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	1 0.8 0.2	0.4 0.75 0.25	4 000.0 6 000.0 500.0	CT CT WT	CD CD CRA	D D P
	2013—2014	方氏云鲷 <i>Pholis fangi</i> (Wang & Wang, 1935) 大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901) 沙氏下鱚 <i>Hyporhamphus sajori</i> (Temminck & Schlegel, 1846)	0.59 0.28 0.09	0.38 0.23 0.15	2 283.7 649.0 144.2	CT WT WT	CD CD CPN	D AF AF
	2014—2015	方氏云鲷 <i>Pholis fangi</i> (Wang & Wang, 1935)	0.97	1.00	9 668.4	CT	CD	D
	2015—2016	方氏云鲷 <i>Pholis fangi</i> (Wang & Wang, 1935)	1	0.4	4 000.0	CT	CD	D
	2016—2017	方氏云鲷 <i>Pholis fangi</i> (Wang & Wang, 1935)	0.03	0.50	143.7	CT	CD	D
	2017—2018	方氏云鲷 <i>Pholis fangi</i> (Wang & Wang, 1935) 沙氏下鱚 <i>Hyporhamphus sajori</i> (Temminck & Schlegel, 1846)	0.60 0.40	0.08 0.08	461.5 307.7	CT WT	CD CPN	D AF
	2018—2019	花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844) 大银鱼 <i>Protosalanx hyalocranius</i> (Abbott, 1901)	0.90 0.10	0.36 0.14	3 229.0 137.0	WT WT	CRA CD	P AF
	2020—2021	方氏云鲷 <i>Pholis fangi</i> (Wang & Wang, 1935) 花鲈 <i>Lateolabrax maculatus</i> (McClelland, 1844)	0.74 0.20	0.06 0.07	446.4 133.3	CT WT	CD CRA	D P

注: ‘\*’ 无 IRI 值超过 100 种类, 取最大值; ‘#’ 各调查站位均未采集到仔稚鱼。P: 产浮性卵鱼类; AF: 产附着性卵鱼类; D: 产黏着性卵鱼类; O: 卵胎生鱼类; AP: 产凝集浮性卵鱼类。  
 Note: ‘\*’ means no IRI values were over 100, the species with maximum IRI value would be selected; ‘#’ means no larvae has been collected during the survey carried out in October 2013, survey time as listed in Tab.1. P: Pelagic egg; AF: Egg with adhesive filaments; D: Demersal egg; O: Ovoviviparity; AP: Agglutinative pelagic egg.