

Table S1. Biomass, density and reproductive ratio data used in the analysis. Data listed here are limited to author’s unpublished data that are not publicly-accessible in other format upon the publication. For each data, name of the collector, the site and locality of collection, date and day of year (DOY) collected are noted. Ratio type specifies the type of reproductive ratio used. NU represents the data Not Used in the study.

Collector	Site	Locality	Date	DOY	Biomass	Density	Rep ratio (%)	Ratio type
Ito	Boundary Bay, BC	Crescent Beach	Apr 2017	117	16.99	NU	0.0	density-based
Ito	Boundary Bay, BC	Crescent Beach	May 2017	135	18.19	NU	0.0	density-based
Ito	Boundary Bay, BC	Crescent Beach	Jun 2017	160	42.68	NU	7.2	density-based
Ito	Boundary Bay, BC	Crescent Beach	Jul 2017	206	23.62	NU	18.6	density-based
Ito	Boundary Bay, BC	Crescent Beach	Aug 2017	230	22.07	NU	13.0	density-based
Ito	Boundary Bay, BC	Crescent Beach	Sep 2017	259	21.51	NU	15.1	density-based
Ito	Boundary Bay, BC	Crescent Beach	Oct 2017	294	11.25	NU	5.6	density-based
Ito	Boundary Bay, BC	Crescent Beach	Nov 2017	324	5.67	NU	2.0	density-based
Ito	Boundary Bay, BC	Crescent Beach	Dec 2017	349	0.86	NU	0.0	density-based
Ito	Boundary Bay, BC	Crescent Beach	Jan 2018	16	1.44	NU	0.0	density-based
Ito	Boundary Bay, BC	Crescent Beach	Feb 2018	45	4.79	NU	0.0	density-based
Ito	Boundary Bay, BC	Crescent Beach	Mar 2018	61	3.28	NU	0.0	density-based
Ito	Roberts Bank, BC	Tsawwassen	Apr 2017	104	20.05	NU	1.0	density-based
Ito	Roberts Bank, BC	Tsawwassen	May 2017	132	43.63	NU	2.0	density-based
Ito	Roberts Bank, BC	Tsawwassen	Jun 2017	163	83.69	NU	12.4	density-based
Ito	Roberts Bank, BC	Tsawwassen	Jul 2017	207	97.66	NU	30.6	density-based
Ito	Roberts Bank, BC	Tsawwassen	Aug 2017	229	79.75	NU	29.6	density-based
Ito	Roberts Bank, BC	Tsawwassen	Sep 2017	258	64.89	NU	11.2	density-based
Ito	Roberts Bank, BC	Tsawwassen	Oct 2017	281	57.76	NU	11.1	density-based

Collector	Site	Locality	Date	DOY	Biomass	Density	Rep ratio (%)	Ratio type
Ito	Roberts Bank, BC	Tsawwassen	Nov 2017	321	14.38	NU	6.9	density-based
Ito	Roberts Bank, BC	Tsawwassen	Dec 2017	348	5.62	NU	9.2	density-based
Ito	Roberts Bank, BC	Tsawwassen	Jan 2018	15	10.37	NU	0.0	density-based
Ito	Roberts Bank, BC	Tsawwassen	Feb 2018	44	12.34	NU	0.0	density-based
Ito	Roberts Bank, BC	Tsawwassen	Mar 2018	60	13.04	NU	0.0	density-based
Ito	Notoro-ko, Japan	NO2	May 2018	121	5.6	NU	0.0	density-based
Ito	Notoro-ko, Japan	NO2	Jun 2018	167	22	NU	21.5	density-based
Ito	Notoro-ko, Japan	NO2	Jul 2018	194	32.5	NU	21.3	density-based
Ito	Notoro-ko, Japan	NO2	Aug 2018	220	34	NU	17.8	density-based
Ito	Notoro-ko, Japan	NO2	Sep 2018	257	43.9	NU	0.8	density-based
Ito	Notoro-ko, Japan	NO2	Oct 2018	277	40.8	NU	0.0	density-based
Ito	Notoro-ko, Japan	NO2	Nov 2018	305	31.3	NU	0.0	density-based
Ito	Notoro-ko, Japan	NO3	May 2018	122	0.2	NU	0.0	density-based
Ito	Notoro-ko, Japan	NO3	Jun 2018	166	5.7	NU	5.9	density-based
Ito	Notoro-ko, Japan	NO3	Jul 2018	193	11.2	NU	3.5	density-based
Ito	Notoro-ko, Japan	NO3	Aug 2018	220	13.1	NU	2.7	density-based
Ito	Notoro-ko, Japan	NO3	Sep 2018	248	12	NU	0.3	density-based
Ito	Notoro-ko, Japan	NO3	Oct 2018	278	5	NU	0.0	density-based
Ito	Notoro-ko, Japan	NO3	Nov 2018	306	0.5	NU	0.0	density-based
Ito	Akkeshi-ko, Japan	CK	May 2018	136	NU	2091	NU	NU
Ito	Akkeshi-ko, Japan	CK	Jun 2018	169	NU	5177	NU	NU
Ito	Akkeshi-ko, Japan	CK	Jul 2018	197	NU	7312	NU	NU

Collector	Site	Locality	Date	DOY	Biomass	Density	Rep ratio (%)	Ratio type
Ito	Akkeshi-ko, Japan	CK	Oct 2018	282	NU	3689	NU	NU
Ito	Akkeshi-ko, Japan	CK	Nov 2018	308	NU	2741	NU	NU
Lin & Hsiao	Hsiangshan, Taiwan	H1	Mar 2003	75	28.46	NU	1.5	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Apr 2003	106	30.7	NU	8.5	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	May 2003	136	50.93	NU	9.7	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Jun 2003	167	45.8	NU	3.4	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Jul 2003	197	35.17	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Aug 2003	228	18.02	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Sep 2003	258	23.89	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Oct 2003	288	33.87	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Nov 2003	319	33.31	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Dec 2003	349	61.28	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Jan 2004	15	65.85	NU	5.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Feb 2004	45	48.51	NU	1.5	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H1	Mar 2004	76	81.52	NU	8.5	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Mar 2003	75	12.61	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Apr 2003	106	13.26	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	May 2003	136	27.06	NU	4.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Jun 2003	167	25.66	NU	3.1	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Jul 2003	197	19.98	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Aug 2003	228	4.97	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Sep 2003	258	4.22	NU	0.0	density-based

Collector	Site	Locality	Date	DOY	Biomass	Density	Rep ratio (%)	Ratio type
Lin & Hsiao	Hsiangshan, Taiwan	H2	Oct 2003	288	5.34	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Nov 2003	319	2.54	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Dec 2003	349	3.01	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Jan 2004	15	4.03	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Feb 2004	45	5.06	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H2	Mar 2004	76	7.86	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Mar 2003	75	9.16	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Apr 2003	106	18.48	NU	2.8	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	May 2003	136	17.93	NU	14.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Jun 2003	167	28.37	NU	4.8	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Jul 2003	197	10.37	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Aug 2003	228	3.75	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Sep 2003	258	8.88	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Oct 2003	288	10	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Nov 2003	319	7.58	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Dec 2003	349	3.66	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Jan 2004	15	7.95	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Feb 2004	45	5.52	NU	0.0	density-based
Lin & Hsiao	Hsiangshan, Taiwan	H3	Mar 2004	76	8.97	NU	2.6	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Mar 2003	75	9.42	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Apr 2003	106	17.57	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	May 2003	136	22.85	NU	25.2	density-based

Collector	Site	Locality	Date	DOY	Biomass	Density	Rep ratio (%)	Ratio type
Lin & Hsiao	Kaomei, Taiwan	K1	Jun 2003	167	18.99	NU	17.3	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Jul 2003	197	23.88	NU	13.3	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Aug 2003	228	26.18	NU	14.4	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Sep 2003	258	19.06	NU	4.2	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Oct 2003	289	26.73	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Nov 2003	319	20.19	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Dec 2003	350	5.59	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Jan 2004	15	6.63	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Feb 2004	46	2.69	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K1	Mar 2004	76	3.93	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Mar 2003	75	9.13	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Apr 2003	106	14.6	NU	1.7	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	May 2003	136	35.04	NU	31.3	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Jun 2003	167	44.06	NU	27.8	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Jul 2003	197	22.35	NU	2.1	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Aug 2003	228	32.71	NU	7.9	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Sep 2003	258	19.64	NU	4.9	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Oct 2003	289	33.07	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Nov 2003	319	15.87	NU	3.4	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Dec 2003	350	7.12	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Jan 2004	15	9.52	NU	6.3	density-based
Lin & Hsiao	Kaomei, Taiwan	K2	Feb 2004	46	7.2	NU	5.9	density-based

Collector	Site	Locality	Date	DOY	Biomass	Density	Rep ratio (%)	Ratio type
Lin & Hsiao	Kaomei, Taiwan	K2	Mar 2004	76	6.81	NU	9.4	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Mar 2003	75	19.6	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Apr 2003	106	5.66	NU	1.3	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	May 2003	136	14.59	NU	10.8	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Jun 2003	167	20.24	NU	13.1	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Jul 2003	197	12.65	NU	7.4	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Aug 2003	228	14.94	NU	6.8	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Sep 2003	258	15.12	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Oct 2003	289	27.79	NU	0.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Nov 2003	319	32.97	NU	1.1	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Dec 2003	350	28.25	NU	8.1	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Jan 2004	15	17.01	NU	10.6	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Feb 2004	46	15.27	NU	18.0	density-based
Lin & Hsiao	Kaomei, Taiwan	K3	Mar 2004	76	22.46	NU	29.4	density-based

Table S2a. Details for linear and quadratic regression models for biomass and reproductive traits. Best models selected based on AICc are bolded, for each trait and variable combination for (a) Asian, (b) North American, and (c) all populations. Environmental variables with the highest explanatory strength (R^2) for each trait is noted with an asterisk.

Phenological trait	Asian populations									
	Linear					Quadratic				
	<i>F</i>	df	<i>p</i>	R^2	AICc	<i>F</i>	df	<i>p</i>	R^2	AICc
Biomass peak										
Latitude	3.20	1, 35	0.08	0.06	405.1	1.66	2, 34	0.21	0.04	407.4
Annual mean	3.77	1, 35	0.06	0.07	404.6	1.84	2, 34	0.18	0.04	407.1
Summer mean	3.55	1, 35	0.07	0.07	404.8	1.96	2, 34	0.16	0.05	406.8
Winter mean	3.52	1, 35	0.07	0.07	404.8	1.84	2, 34	0.17	0.04	407.1
Growth duration										
Latitude	0.03	1, 35	0.86	0.00	414.0	0.52	2, 34	0.60	0.00	415.4
Annual mean	0.01	1, 35	0.91	0.00	414.0	0.46	2, 34	0.64	0.00	415.5
Summer mean	0.01	1, 35	0.93	0.00	414.0	0.60	2, 34	0.56	0.00	415.2
Winter mean	0.00	1, 35	0.98	0.00	414.0	0.44	2, 34	0.65	0.00	415.6
Maximum biomass										
Latitude	5.08	1, 27	<0.05	0.13	338.6	12.37	2, 26	<0.001	0.45	326.9
Annual mean	4.17	1, 27	0.05	0.10	339.4	13.73	2, 26	<0.001	0.48	325.4
Summer mean	0.89	1, 27	0.35	0.00	342.7	14.09	2, 26	<0.001	0.48	325.0*
Winter mean	6.58	1, 27	<0.05	0.17	337.3	11.92	2, 26	<0.001	0.44	327.4
Reproductive peak										
Latitude	10.90	1, 27	<0.01	0.26	312.9	6.09	2, 26	<0.001	0.27	314.3
Annual mean	12.17	1, 27	<0.01	0.29	312.0	7.72	2, 26	<0.005	0.32	312.0
Summer mean	6.16	1, 27	<0.05	0.16	316.8	7.57	2, 26	<0.005	0.32	312.2
Winter mean	15.93	1, 27	<0.001	0.35	309.3*	8.13	2, 26	<0.005	0.34	311.4
Reproductive duration										
Latitude	0.00	1, 27	0.97	0.00	328.0	1.69	2, 26	0.20	0.05	327.2
Annual mean	0.00	1, 27	0.94	0.00	328.0	0.87	2, 26	0.43	0.00	328.9
Summer mean	0.02	1, 27	0.89	0.00	328.0	0.95	2, 26	0.40	0.00	328.7
Winter mean	0.01	1, 27	0.92	0.00	328.0	0.78	2, 26	0.47	0.00	329.0
Reproductive ratio										
Latitude	0.04	1, 21	0.84	0.00	191.9	0.04	2, 20	0.96	0.00	194.8
Annual mean	0.05	1, 21	0.82	0.00	191.9	0.03	2, 20	0.97	0.00	194.8
Summer mean	0.02	1, 21	0.89	0.00	191.9	0.01	2, 20	0.99	0.00	194.8
Winter mean	0.09	1, 21	0.76	0.00	191.8	0.06	2, 20	0.95	0.00	194.7

Table S2b. Details for linear and quadratic regression models for biomass and reproductive traits. Best models selected based on AICc are bolded, for each trait and variable combination for (a) Asian, (b) North American, and (c) all populations. Environmental variables with the highest explanatory strength (R^2) for each trait is noted with an asterisk.

Phenological trait	North American populations										
	Environmental variable	Linear					Quadratic				
		<i>F</i>	df	<i>p</i>	R^2	AICc	<i>F</i>	df	<i>p</i>	R^2	AICc
Biomass peak											
Latitude	1.85	1, 23	0.19	0.03	242.6	0.95	2, 22	0.40	0.00	245.4	
Annual mean	3.96	1, 23	0.06	0.11	240.6	2.47	2, 22	0.11	0.11	242.4	
Summer mean	1.21	1, 23	0.28	0.01	243.3	0.97	2, 22	0.39	0.00	245.3	
Winter mean	3.17	1, 23	0.09	0.08	241.3	2.23	2, 22	0.13	0.09	242.8	
Growth duration											
Latitude	14.99	1, 23	<0.001	0.37	275.6*	9.52	2, 22	<0.005	0.42	275.4	
Annual mean	4.87	1, 23	<0.05	0.14	283.3	3.41	2, 22	0.05	0.17	284.2	
Summer mean	5.71	1, 23	<0.05	0.16	282.6	3.45	2, 22	<0.05	0.17	284.2	
Winter mean	6.36	1, 23	<0.05	0.18	282.0	3.73	2, 22	<0.05	0.19	283.7	
Maximum biomass											
Latitude	0.26	1, 20	0.61	0.00	214.4	3.32	2, 19	0.06	0.18	211.1	
Annual mean	0.05	1, 20	0.83	0.00	214.7	0.70	2, 19	0.51	0.00	216.2	
Summer mean	0.55	1, 20	0.47	0.00	214.1	0.28	2, 19	0.76	0.00	217.1	
Winter mean	0.35	1, 20	0.56	0.00	214.3	0.42	2, 19	0.66	0.00	216.8	
Reproductive peak											
Latitude	0.67	1, 21	0.42	0.00	229.1	7.49	2, 20	<0.005	0.37	219.9*	
Annual mean	0.82	1, 21	0.37	0.00	228.9	0.59	2, 20	0.57	0.00	231.4	
Summer mean	0.09	1, 21	0.76	0.00	229.7	0.22	2, 20	0.80	0.00	232.2	
Winter mean	0.02	1, 21	0.88	0.00	229.8	0.67	2, 20	0.52	0.00	231.3	
Reproductive duration											
Latitude	0.35	1, 20	0.56	0.00	236.4	0.17	2, 19	0.84	0.00	239.4	
Annual mean	0.76	1, 20	0.39	0.00	236.0	1.58	2, 19	0.23	0.05	236.4	
Summer mean	0.08	1, 20	0.78	0.00	236.7	0.30	2, 19	0.74	0.00	239.1	
Winter mean	0.34	1, 20	0.57	0.00	236.4	0.40	2, 19	0.67	0.00	238.9	
Reproductive ratio											
Latitude	4.57	1, 21	<0.05	0.14	184.6*	2.62	2, 20	0.10	0.13	186.7	
Annual mean	0.47	1, 21	0.50	0.00	188.6	1.85	2, 20	0.18	0.07	188.1	
Summer mean	3.51	1, 21	0.07	0.10	185.5	2.45	2, 20	0.11	0.12	187.0	
Winter mean	1.99	1, 21	0.17	0.04	187.0	1.54	2, 20	0.24	0.05	188.7	

Table S2c. Details for linear and quadratic regression models for biomass and reproductive traits. Best models selected based on AICc are bolded, for each trait and variable combination for (a) Asian, (b) North American, and (c) all populations. Environmental variables with the highest explanatory strength (R^2) for each trait is noted with an asterisk.

Phenological trait	All populations									
	Linear					Quadratic				
	<i>F</i>	df	<i>p</i>	R^2	AICc	<i>F</i>	df	<i>p</i>	R^2	AICc
Biomass peak										
Latitude	3.99	1, 60	0.05	0.05	654.1	2.15	2, 59	0.13	0.04	656.0
Annual mean	5.98	1, 60	<0.05	0.07	652.2	2.95	2, 59	0.06	0.06	654.4
Summer mean	3.11	1, 60	0.08	0.03	654.9	3.10	2, 59	0.05	0.06	654.1
Winter mean	6.17	1, 60	<0.05	0.08	652.0	3.09	2, 59	0.05	0.06	654.2
Growth duration										
Latitude	0.01	1, 60	0.93	0.00	695.4	1.12	2, 59	0.33	0.00	695.4
Annual mean	0.10	1, 60	0.75	0.00	695.3	0.65	2, 59	0.53	0.00	696.3
Summer mean	0.65	1, 60	0.42	0.00	694.7	0.33	2, 59	0.72	0.00	697.0
Winter mean	0.08	1, 60	0.78	0.00	695.3	0.81	2, 59	0.45	0.00	696.0
Maximum biomass										
Latitude	2.28	1, 49	0.14	0.03	584.1	18.85	2, 48	<0.001	0.42	559.2
Annual mean	0.05	1, 49	0.82	0.00	586.4	12.27	2, 48	<0.001	0.31	567.8
Summer mean	6.26	1, 49	<0.05	0.10	580.3	20.80	2, 48	<0.001	0.44	557.0*
Winter mean	6.04	1, 49	<0.05	0.09	580.5	3.93	2, 48	<0.05	0.10	581.1
Reproductive peak										
Latitude	45.89	1, 50	<0.001	0.47	541.3	23.87	2, 49	<0.001	0.47	542.1
Annual mean	43.07	1, 50	<0.001	0.45	542.8	23.39	2, 49	<0.001	0.47	542.7
Summer mean	37.80	1, 50	<0.001	0.42	545.9	24.30	2, 49	<0.001	0.48	541.7*
Winter mean	21.30	1, 50	<0.001	0.28	556.7	32.65	1, 50	<0.001	0.38	549.0
Reproductive duration										
Latitude	1.72	1, 49	0.20	0.01	560.5	1.94	2, 48	0.15	0.04	560.6
Annual mean	1.09	1, 49	0.30	0.00	561.1	1.76	2, 48	0.18	0.03	561.0
Summer mean	2.34	1, 49	0.13	0.03	559.9	2.34	2, 48	0.11	0.05	559.8
Winter mean	0.13	1, 49	0.72	0.00	562.1	0.14	2, 48	0.88	0.00	564.3
Reproductive ratio										
Latitude	2.88	1, 44	0.10	0.04	373.6	2.41	2, 43	0.10	0.06	374.1
Annual mean	0.86	1, 44	0.36	0.00	375.7	0.43	2, 43	0.66	0.00	378.1
Summer mean	1.59	1, 44	0.21	0.01	374.9	0.85	2, 43	0.43	0.00	377.2
Winter mean	0.03	1, 44	0.87	0.00	376.5	0.53	2, 43	0.59	0.00	377.9

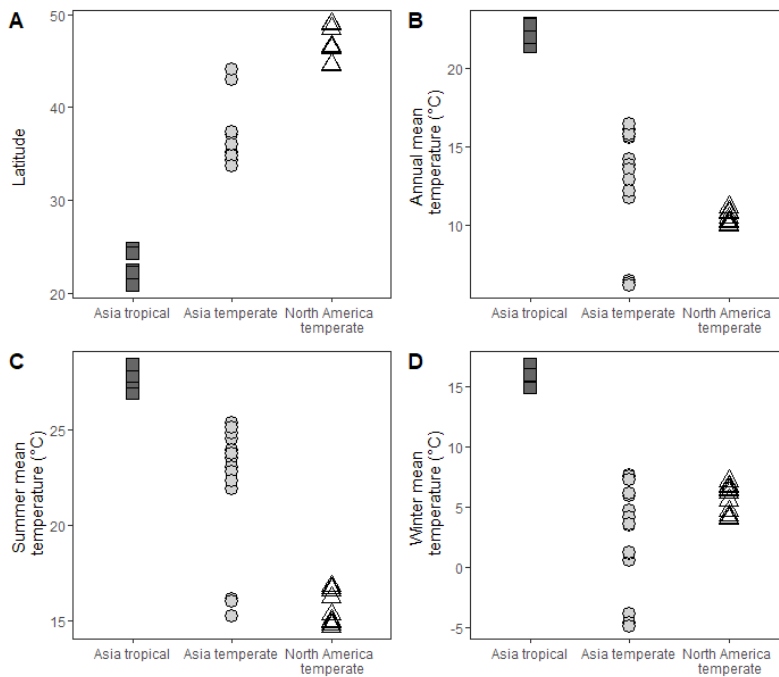


Figure S1. Among geographic group comparisons of latitude and annual, summer and winter mean temperatures.

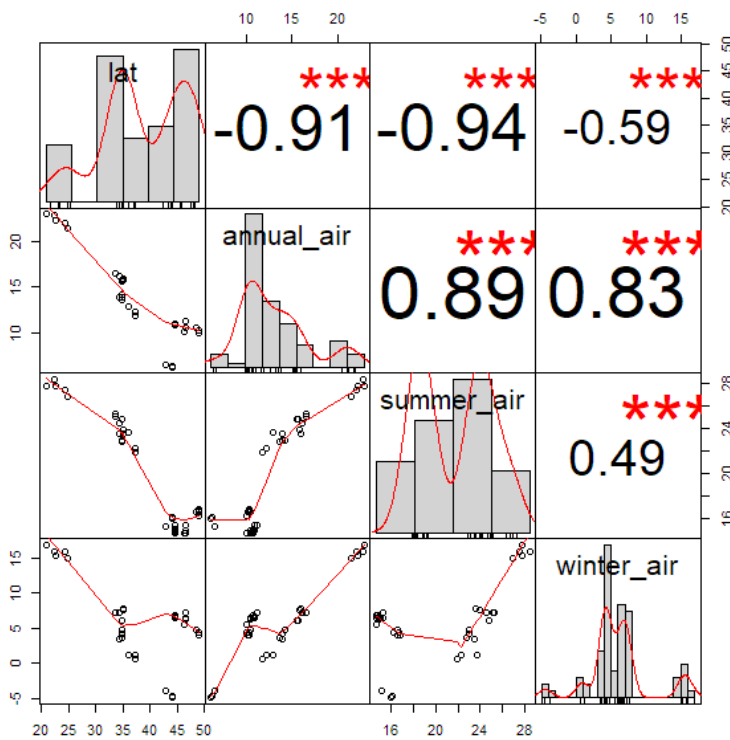


Figure S2. Correlation chart among environmental variables (latitude and temperature)

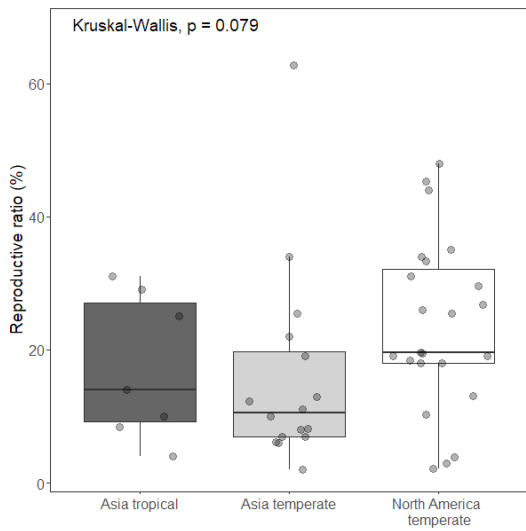


Figure S3. Among geographic group comparisons for reproductive ratios without removing an outlier.

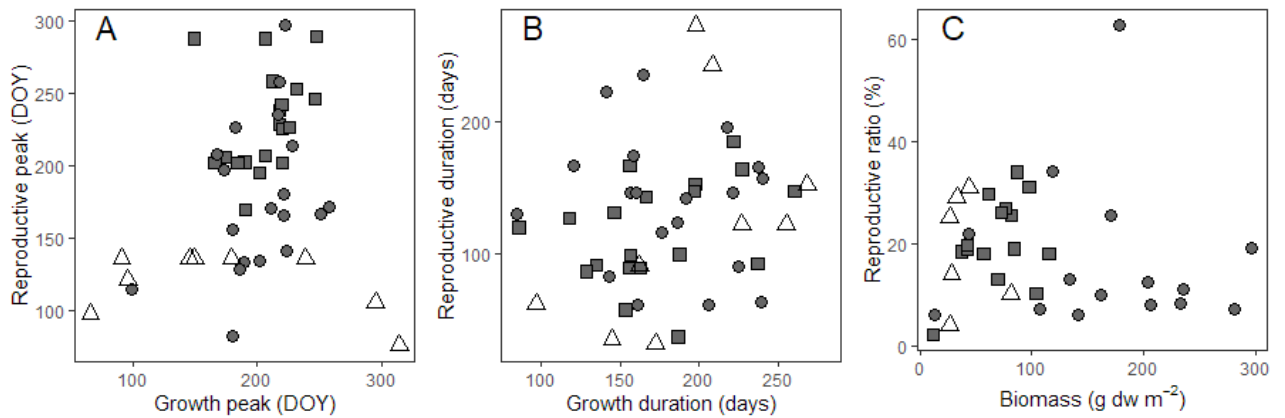


Figure S4. Comparisons between biomass and reproductive traits. (A) peak timings, (B) durations and (C) maximum outputs for growth and reproductive seasons are compared. Shapes represent different regional groups; Asia-tropical (square), Asia-temperate (circle) and North America-temperate (triangle). Shapes are filled for the Asian populations.