

**TITLE:** Influence of warming temperatures on coregonine embryogenesis within and among species

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**AUTHOR INFORMATION:**

Taylor R. Stewart<sup>1,2\*</sup>, Mikko Mäkinen<sup>3</sup>, Chloé Goulon<sup>4,5</sup>, Jean Guillard<sup>4,5</sup>, Timo J. Marjomäki<sup>3</sup>, Emilien Lasne<sup>4,6</sup>, Juha Karjalainen<sup>3</sup>, and Jason D. Stockwell<sup>2</sup>

<sup>1</sup>Department of Biology, University of Vermont, Burlington, VT, USA

<sup>2</sup>Rubenstein Ecosystem Science Laboratory, University of Vermont, Burlington, VT, USA

<sup>3</sup>University of Jyväskylä, Jyväskylä, Finland

<sup>4</sup>University Savoie Mont Blanc, INRAE, CARRETEL, Thonon-les-Bains, France

<sup>5</sup>Pôle ECLA (ECosystèmes LAcustres) (OFB – INRAE – USMB), Thonon-Les-Bains, France

<sup>6</sup>ESE, Ecology and Ecosystem Health, Agrocampus-Ouest, INRAE, Rennes, France

\*Corresponding Author: Taylor R. Stewart, Department of Biology, Rubenstein Ecosystem Science Laboratory, University of Vermont, 3 College St, Burlington, VT 05401, USA.

Email: [taylor.stewart@uvm.edu](mailto:taylor.stewart@uvm.edu)

**ESM 1** Phenotypic variance component analysis for embryo survival (%) and incubation period (number of days post-fertilization (DPF) and accumulated degree days (°C; ADD)) from Lake Southern Konnevesi vendace (LK-Vendace (*Coregonus albula*)), Lake Superior cisco (LS-Cisco (*C. artedii*)), and Lake Ontario cisco (LO-Cisco) across each incubation temperature treatment (°C).

Trait	Study Group	T°C	Female			Male			Female:Male			Error	
			$\sigma^2$	<i>P</i>	%	$\sigma^2$	<i>P</i>	%	$\sigma^2$	<i>P</i>	%	$\sigma^2$	%
Embryo Survival	LK-Vendace	2.2	1.19	<0.001	24.53	0.12	0.481	2.53	0.24	0.211	4.92	3.29	68.03
		4.0	0.68	0.004	16.41	<0.01	0.999	<0.01	0.16	0.064	3.97	3.29	79.62
		6.9	0.89	<0.001	20.25	0.20	0.159	4.57	0.03	0.799	0.70	3.29	74.48
		8.0	0.33	0.007	8.33	0.20	0.074	4.97	0.14	0.078	3.49	3.29	83.21
	LS-Cisco	2.0	1.61	<0.001	29.82	0.0	1.0	0.0	0.50	<0.001	9.25	3.29	60.94
		4.4	2.82	0.007	36.45	0.0	1.0	0.0	1.62	<0.001	20.97	3.29	42.58
		6.9	1.51	0.094	20.32	0.0	1.0	0.0	2.64	<0.001	35.44	3.29	44.24
		8.9	0.44	0.082	9.66	<0.01	0.999	<0.01	0.78	<0.001	17.29	3.29	73.04
	LO-Cisco	2.0	0.55	0.450	11.28	0.0	1.0	0.0	1.01	0.295	20.90	3.29	67.82
		4.4	1.59	0.007	32.55	<0.01	0.999	<0.01	0.0	1.0	<0.01	3.29	67.45
		6.9	0.87	0.003	19.30	0.0	1.0	0.0	0.34	0.057	7.65	3.29	73.06
		8.9	0.71	<0.001	16.48	0.22	0.008	5.12	0.10	<0.001	2.24	3.29	76.17
	LK-Vendace	2.2	8.95	<0.001	21.27	0.87	0.160	2.08	0.0	1.0	0.0	32.25	76.65

Incubation Period (DPF)		4.0	149.67	<0.001	30.03	26.12	0.023	5.24	9.79	0.138	1.96	312.80	62.76
		6.9	49.61	<0.001	18.93	0.92	0.815	0.35	10.18	0.008	3.89	201.37	76.84
		8.0	62.35	<0.001	42.32	1.02	0.693	0.69	7.26	0.001	4.93	76.69	52.06
	LS-Cisco	2.0	233.62	<0.001	34.48	0.0	1.0	0.0	111.34	<0.001	16.43	332.54	49.08
		4.4	30.81	<0.001	27.53	5.82	0.115	5.20	7.32	<0.001	6.54	67.95	60.72
		6.9	7.04	0.001	18.37	1.83	0.089	4.76	1.51	0.024	3.95	27.95	72.92
		8.9	1.03	0.615	3.80	0.65	0.782	2.42	9.01	<0.001	33.34	16.34	60.44
	LO-Cisco	2.0	123.54	<0.001	61.37	15.66	<0.001	7.78	1.70	0.002	0.84	60.41	30.01
		4.4	67.65	<0.001	48.78	16.22	<0.001	11.70	1.60	0.002	1.16	53.20	38.37
		6.9	25.00	<0.001	48.27	3.19	<0.001	6.16	0.34	0.086	0.66	23.25	44.91
		8.9	7.77	<0.001	29.95	0.80	0.012	3.10	0.44	0.032	1.70	16.93	65.26
Incubation Period (ADD)	LK-Vendace	2.2	187.78	<0.001	24.59	29.01	0.024	3.80	0.0	1.0	0.0	546.95	71.62
		4.0	3,250.95	<0.001	30.56	549.52	0.025	5.17	210.28	0.142	1.98	6,625.67	62.29
		6.9	2,622.69	<0.001	18.98	49.01	0.813	0.35	538.27	0.007	3.89	10,610.13	76.77
		8.0	3,978.98	<0.001	41.44	36.31	0.825	0.38	489.35	0.001	5.10	5,097.39	53.09
	LS-Cisco	2.0	793.55	<0.001	33.84	0.42	0.997	0.02	399.38	<0.001	17.03	1,151.61	49.11
		4.4	572.77	<0.001	27.51	108.43	0.115	5.21	136.38	<0.001	6.55	1,264.28	60.73
		6.9	327.96	<0.001	18.34	85.05	0.090	4.76	70.59	0.024	3.95	1,304.32	72.95
		8.9	80.39	0.600	3.84	51.62	0.777	2.47	693.60	<0.001	33.15	1,267.02	60.55
	LO-Cisco	2.0	388.91	<0.001	59.03	54.46	<0.001	8.27	5.74	0.003	0.87	209.73	31.83
		4.4	1,258.57	<0.001	48.60	303.66	<0.001	11.73	30.77	0.001	1.19	993.64	38.49
		6.9	1,167.10	<0.001	48.34	148.69	<0.001	6.16	15.58	0.090	0.65	1,082.77	44.85
		8.9	599.46	<0.001	29.96	62.09	0.012	3.10	34.07	0.031	1.70	1,305.37	65.24