

Supplementary Table S1. Pairwise Games Howell post-hoc test on stickleback growth in mass between Current and RCP8.5 condition through the 7 months of acclimation. Statistics: statistic test (t-value) used to compute the p-value; p.adj: adjusted p-value using Tukey's method, df: degrees of freedom calculated using Welch's correction. Asterisks indicate statistical difference between scenarios.

<i>Date</i>	<i>t-value</i>	<i>df</i>	<i>p.adj</i>
<i>Current November / RCP8.5 November</i>	0	1	1.00
<i>Current January / RCP8.5 January</i>	0.556	19.1	1.00
<i>Current March / RCP8.5 March</i>	1.32	20.8	0.97
<i>Current May / RCP8.5 May</i>	1.84	14.6	0.77
<i>Current July / RCP8.5 July</i>	0.248	138.1	1.00
<i>Current November / Current January</i>	4.60	13.2	0.01*
<i>Current November / RCP8.5 January</i>	5.68	16.3	<0.01*
<i>RCP8.5 November / Current January</i>	4.60	13.2	0.01*
<i>RCP8.5 November / RCP8.5 January</i>	5.68	16.3	<0.01*
<i>Current January / Current March</i>	2.89	21.8	0.21
<i>Current January / RCP8.5 March</i>	4.08	20.2	0.02*
<i>RCP8.5 January / Current March</i>	4.41	19.8	0.01*
<i>RCP8.5 January / RCP8.5 March</i>	6.27	21.9	<0.01*
<i>Current March / Current May</i>	2.21	15.9	0.57
<i>Current March / RCP8.5 May</i>	3.11	21.4	0.14
<i>RCP8.5 March / Current May</i>	0.836	18.4	0.99
<i>RCP8.5 March / RCP8.5 May</i>	2.21	19.1	0.56
<i>Current May / Current July</i>	8.21	69.7	<0.01*
<i>Current May / RCP8.5 July</i>	9.31	75.2	<0.01*
<i>RCP8.5 May / Current July</i>	3.89	25.0	0.02*
<i>RCP8.5 May / RCP8.5 July</i>	4.35	21.9	0.01*
<i>Current November / Current July</i>	21.6	83.3	<0.01*
<i>Current November / RCP8.5 July</i>	24.4	121	<0.01*
<i>RCP8.5 November / Current July</i>	21.6	83.3	<0.01*
<i>RCP8.5 November / RCP8.5 July</i>	24.4	121	<0.01*

Supplementary Table S2. Pairwise Wilcoxon post-hoc test on stickleback fresh lipids content between sexes and experimental scenarios at the final sampling of July, after 7 months of acclimation to RCP8.5 scenario. Stastistic: test statistic used to compute the p-value; p.adj: adjusted p-value using Tukey's method, df: degrees of freedom calculated using Welch's correction. Asterisks indicate statistical difference between scenarios.

<i>Comparison</i>	<i>t-value</i>	<i>p.adj</i>
<i>Current females / RCP8.5 females</i>	57	0.03*
<i>Current males / RCP8.5 males</i>	32	1
<i>Current females / Current males</i>	27	1
<i>RCP8.5 females / RCP8.5 males</i>	8	0.04*
<i>Current males / RCP8.5 females</i>	60	0.01*
<i>Current females / RCP8.5 males</i>	1	1

Supplementary Table S3. Stickleback feed conversion ratio (FCR), thermal growth coefficients (TGC), and mortality rate throughout the 7 months of experiment. Mortality was measured from the beginning of the RCP8.5 scenario stabilisation (12/12/2020).

	<i>Scenario</i>	<i>FCR</i> ($mg_{food} \cdot mg_{body}^{-1}$)	<i>TGC</i> ($mg \cdot degree \ days^{-1}$)	<i>Mortality rate (%)</i>
<i>November - January</i>	<i>Current</i>	12,25	0,41	7.69
	<i>RCP8.5</i>	14,48	0,30	11.49
<i>November - March</i>	<i>Current</i>	16,25	0,39	18.20
	<i>RCP8.5</i>	16,10	0,37	22.03
<i>November - May</i>	<i>Current</i>	23,42	0,31	20.64
	<i>RCP8.5</i>	23,49	0,31	23.91
<i>November - July</i>	<i>Current</i>	19,88	0,31	24.01
	<i>RCP8.5</i>	23,97	0,27	31.83

Supplementary Table S4. Table providing the statistical tests and scores of data analysis used throughout the paper. Asterisks indicate statistical difference between scenarios.

<i>Analysed data</i>	<i>Statistical test</i>	<i>Statistical test value</i>	<i>Degree of freedom</i>	<i>p-value</i>
Mortality	Pearson chi-squared	6.36	1	0.01*
Mass along the 7 months	Welch	138.96	11	<0.01*
Final standard length	Kruskal-Wallis	1.90	1	0.17
Final body mass	ANOVA	0.06	1	0.80
Standard length		male: 0.12 female: 3.36	male: 1 female: 1	male: 0.74 female: 0.09
Body mass		male: 0.15 female: 0.94	male: 1 female: 1	male: 0.70 female: 0.35
Males K_{corr} index		0	1	0.99
Females K_{corr} index	Kruskal-Wallis	1.33	1	0.25
Male GSI		0.07	1	0.80
Female GSI	ANOVA	0.87	1	0.37
Males HSI		1.05	1	0.32
Females HSI	Kruskal-Wallis	0.08	1	0.77
KSI	ANOVA	male: 4.40 female: < 0.01	male: 1 female: 1	male: 0.06 female: 0.94
Muscle Lipids content	Kruskal-Wallis	11.35	3	0.01*
gnrh2 expression	Welch	1.69	3	0.24
gnrh3 expression		2.85	3	0.11
kiss2 expression		0.86	3	0.49
gnih expression		1.03	3	0.42
cyp19a1b expression	ANOVA	Scenario: 2.79 Sex: 10.62	Scenario:1 Sex: 1	Scenario: 0.11 Sex: <0.01*
Testis maturation	Generalised linear mixed models	0.55	1	0.46
Ovary maturation		8.91	1	0.01*
11-ketotestosterone	Kruskal-Wallis	1.14	1	0.28
17- β -estradiol		2.22	1	0.14
Number of eggs per female	ANOVA	1.25	1	0.28
Fertilization rate	Welch	7.89	1	0.02*
Eggs diameter	ANOVA	Scenario:27.15 Dpf:16.67 Scenario/Dpf:0.16	Scenario: 1 Dpf: 1 Scenario/Dpf:1	Scenario:<0.01* Dpf:<0.01* Scenario/Dpf:0.68
Eggs perivitelline index		Scenario:7.72 Dpf:13.10 Scenario/Dpf:0.30	Scenario:1 Dpf:1 Scenario/Dpf:1	Scenario:<0.01* Dpf: :<0.01* Scenario/Dpf:0.58
Sperm cells concentration		0.01	1	0.92
Sperm cells mortality		0.83	1	0.38