

Table S1. Gene specific primers used for real-time polymerase chain reaction (qPCR).

	Primer Sequence (5' to 3')	Amplicon Size (bp)	Efficiency (%)	Accession Number	Reference
<i>crfa1</i>	F: TCGCCGAACACATCTCCTG R: TCGGTGAGCTGAAGTTGTAA	74	101	XM_014139988	Culbert et al., 2022
<i>crfa2</i>	F: GGTCAACAGGGCTTTACTTCA R: AACCGATTGCTGTTACCGAC	69	103	XM_014190344	Culbert et al., 2022
<i>crfb1</i>	F: CTTGATCCATCACTCGTGGA R: GTCAGGGGTTCAACGAGATC	98	108	XM_014181363	Culbert et al., 2022
<i>crfb2</i>	F: GAGGAAGGCAGCTCTCAACT R: TCATGTCGGGATCAACAGGAA	84	96	XM_014159556	Culbert et al., 2022
<i>crfbp1</i>	F: GTTTCTGAAGGGAGACACCAGA R: TCGCCTGTAAATGAATGTCTCG	118	107	XM_014128333	Culbert et al., 2025
<i>crfbp2</i>	F: GTGAGGGTGTTAGCAGGGTG R: CCACAGTCCCAAACGACAC	116	103	NM_001173799	Culbert et al., 2025
<i>crfr1a</i>	F: AGCTACAGAGGCTGACAATGG R: CTGTGCTGCCTTTGGCAAAG	69	99	XM_014204418	Culbert et al., 2022
<i>crfr1b</i>	F: CAGAGGGTCAGGATGACAATG R: GTGGCAAAAAGTCAGCTCTTG	59	108	XM_014192620	Culbert et al., 2022
<i>crfr2a</i>	F: ACCTGGATCGCCAAGTTCA R: AGTGCTCTGTCTCTGTCTTCA	141	107	XM_014140566	Culbert et al., 2025
<i>crfr2b</i>	F: GACCAAATCCAAAGGTCACCT R: GCTCTCTGTCCTTATGCAGC	123	99	XM_014191256	Culbert et al., 2025
<i>eflα</i>	F: TCCTGCGGAGTCTCAAAACC R: CGTTGGGTTCTTTTCCTGCG	96	103	XM_014141923	Culbert et al., 2022
<i>rpl13a</i>	F: GGACAAGCTGCACTGGAGAG R: GTGGGCTTCAGACGGACAAT	113	93	XM_014128281	Culbert et al., 2025
<i>ucn2a</i>	F: CATGCGTCTGTGTCTGAGC R: AGCCAACAGGTCACCTTCTG	115	93	ENSSSAT00000205481	Culbert et al., 2025
<i>ucn2b</i>	F: GCAACCAGTGCCAGATAACG R: GGGTGTGATGGAATTCTGG	137	109	XM_014133639	Culbert et al., 2025

<i>ucn3</i>	F: CGCAGATTGGACGAAGGAAG R: ATGGATAATCAGGGTAGCGGC	71	100	XM_045712114 XM_014185247	Culbert et al., 2025
<i>uts1a</i>	F: CAGTGTCTGTAGACCACGG R: TATCACCAGCCTTCAGCAAC	89	104	XM_014205273	Culbert et al., 2022
<i>uts1b</i>	F: GCAGTCTACTACAATCGCCAT R: AAACGGTGCCTTGATCGC	103	101	XM_014144548	Culbert et al., 2022

crf, corticotropin-releasing factor; *crfbp*, corticotropin-releasing factor binding protein; *crfr*, corticotropin-releasing factor receptor; *ef1a*, elongation factor 1 α ; *rpl13a*, ribosomal protein L13a; *ucn*, urocortin; *uts*, urotensin.

Table S2. Plasma cortisol (ng mL⁻¹) and osmolality (mOsm kg⁻¹) values for Atlantic salmon (*Salmo salar*) from experiments 1, 2, and 4. Values are presented as means ± SEM. Significant differences are indicated in **bold**. Small letters indicate differences across time within a group, asterisks indicate a difference between groups within a timepoint, and capital letters indicate an overall difference between groups or across times based on post hoc analysis. Note that these data have previously been reported in Culbert et al. (2022 & 2025).

Variable	Exp	Sampling Time						P-value
Plasma Cortisol	2		Feb ^Y	April ^Z	May ^Y	July ^Y		
		Parr ^A	0.2 ± 0.1	1.8 ± 0.4	0.5 ± 0.1	0.2 ± 0.1	Time	<0.001
		Smolts ^B	0.8 ± 0.2	7.2 ± 2.9	2.4 ± 0.6	2.2 ± 0.7	Group	<0.001
							Interaction	0.34
			FW	24h	96h	240h		
		Parr	0.5 ± 0.1 ^{a*}	170.5 ± 25.1 ^{b*}	18.0 ± 7.8 ^c	12.7 ± 4.2 ^{c*}	Time	<0.001
		Smolts	2.4 ± 0.6 ^y	35.2 ± 8.6 ^z	6.2 ± 1.4 ^y	90.7 ± 25.4 ^z	Group	0.15
							Interaction	<0.001
	3		SW	24h	96h	FW		
			2.0 ± 0.8 ^a	2.4 ± 0.8 ^a	0.6 ± 0.5 ^b	2.9 ± 1.1 ^a	Time	<0.001
Plasma Osmolality	2		Feb	April	May	July		
		Parr ^A	309 ± 5	304 ± 6	302 ± 4	310 ± 4	Time	0.20
		Smolts ^B	315 ± 4	304 ± 5	320 ± 3	312 ± 3	Group	0.04
							Interaction	0.14
			FW	24h	96h	240h		
		Parr	302 ± 4 ^{a*}	456 ± 11 ^{c*}	342 ± 9 ^b	326 ± 6 ^{b*}	Time	<0.001
		Smolts	320 ± 3 ^{yz}	327 ± 3 ^z	317 ± 4 ^{yz}	313 ± 2 ^y	Group	0.06
							Interaction	<0.001
	3		SW	24h	96h	FW		
			307 ± 1 ^b	301 ± 1 ^a	303 ± 1 ^a	303 ± 1 ^a	Group	0.001

References

Culbert, B. M., Regish, A. M., Hall, D. J., McCormick, S. D. and Bernier, N. J. (2022).

Neuroendocrine regulation of plasma cortisol levels during smoltification and seawater acclimation of Atlantic salmon. *Front. Endocrinol.* **13**, 859817.

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