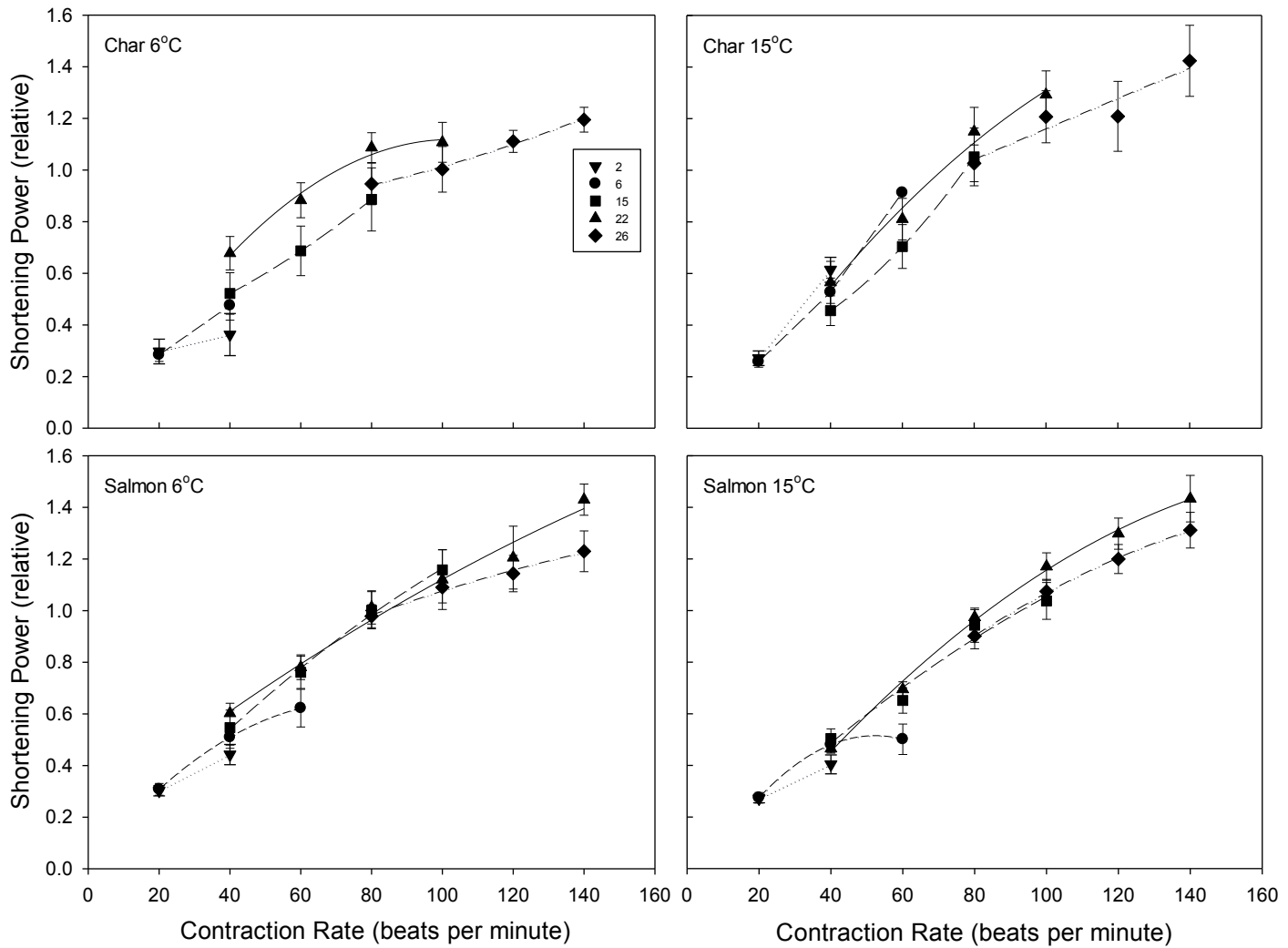
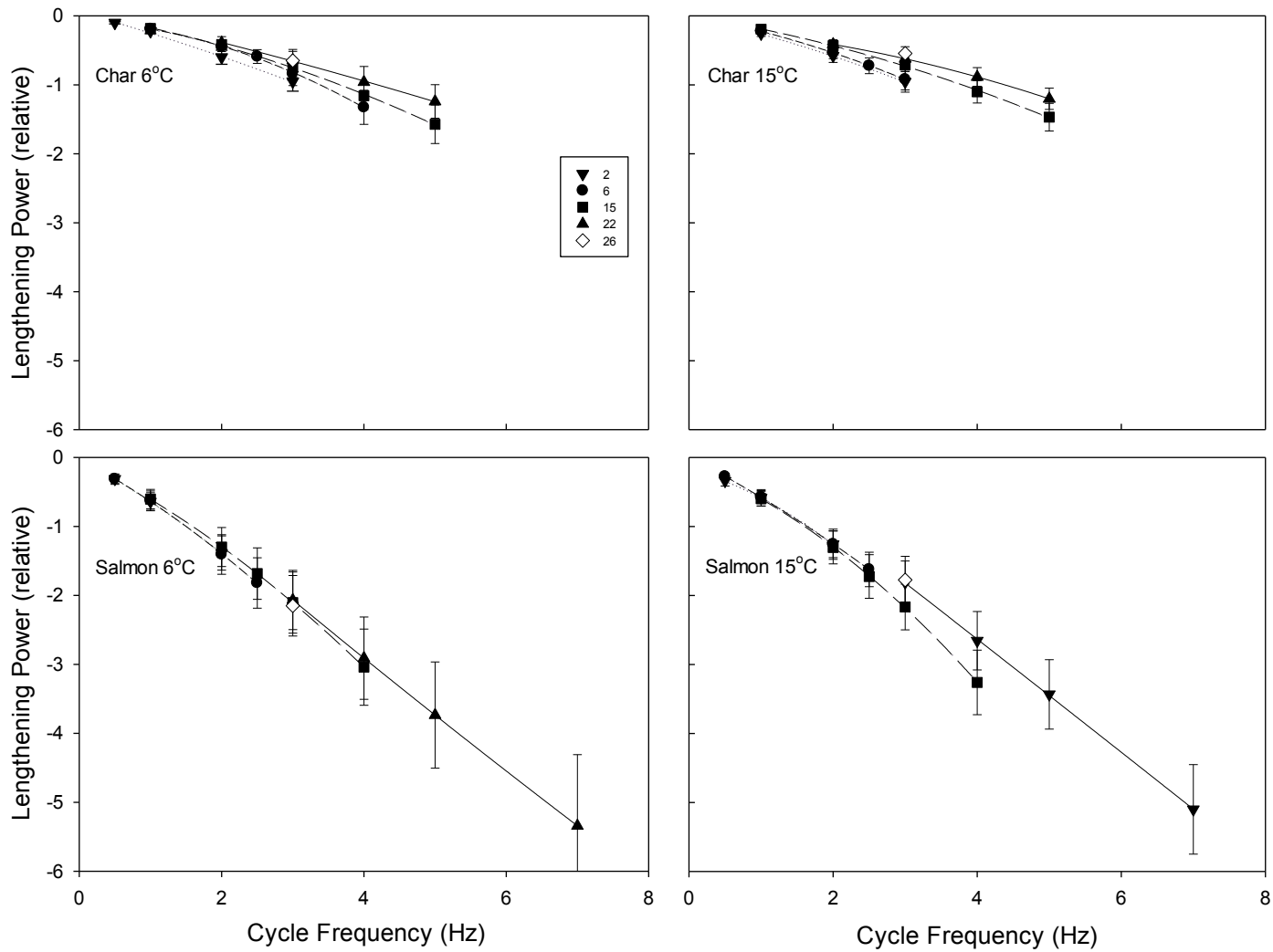


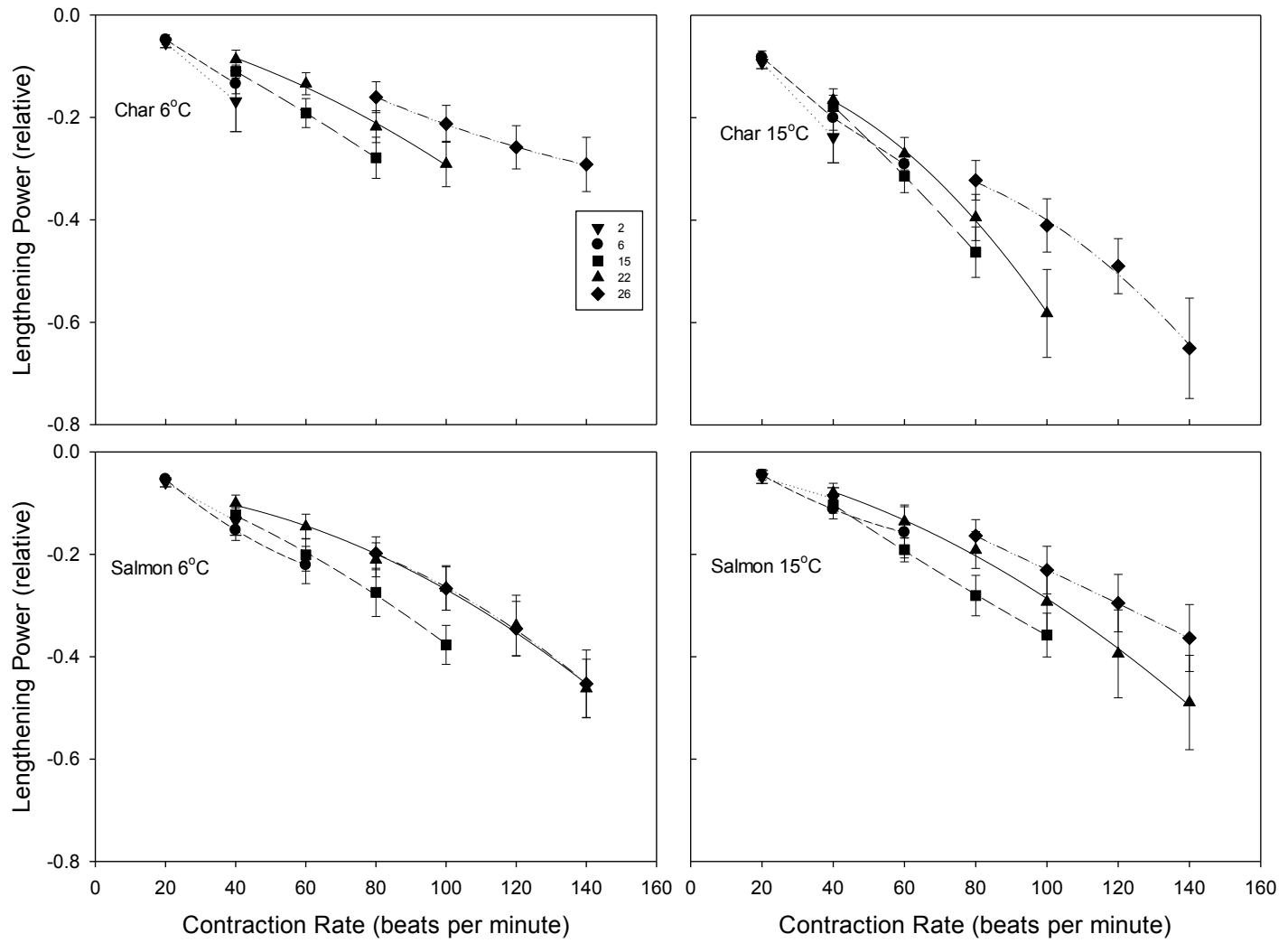
**Fig. S1. Shortening power produced by the red skeletal muscle from 6°C and 15°C acclimated Arctic char and Atlantic salmon at a range of test temperatures and contraction frequencies. Statistical tests were not performed because shortening power did not attain a maxima. See Fig. 1 for additional details.**



**Fig. S2.** Lengthening power (i.e., that required to stretch the muscle) of red skeletal muscle from 6°C and 15°C acclimated Arctic char and Atlantic salmon at a range of test temperatures and contraction frequencies. Statistical tests were not performed because lengthening power did not attain a maxima. See Fig. 1 for additional details.



**Fig. S3. Shortening power produced by ventricular muscle strips (trabeculae) from 6oC and 15oC acclimated Arctic char and Atlantic salmon at a range of test temperatures and contraction frequencies.** Statistical tests were not performed since shortening power did not attain a maxima. See Fig. 3 for additional details.



**Fig. S4.** Lengthening power (i.e., that required to stretch the muscle) of ventricular muscle strips (trabeculae) from 6°C and 15°C acclimated Arctic char and Atlantic salmon at a range of test temperatures and contraction frequencies. Statistical tests were not performed since lengthening power did not attain maxima. See Fig. 3 for additional details.

**Table S1. Parameters used to measure red skeletal muscle power.** Values are means, showing the stimulus duration (in ms): stimulation phase (% of cycle). Standard deviations are omitted to reduce clutter, but were all within 5% or less of the mean.

Test Temp (°C)	Species / Acclimation Temp (°C)	Contraction Rate (Hz)							
		0.5	1	2	2.5	3	4	5	7
2	Char/6	983 : 10	475 : 3.8	206 : -6.9		108 : -10			
	Salmon/6	881 : 10	431 : 2.5	170 : -3.1					
	Char/15		533 : 0	206 : -6.7		118 : -8.9			
	Salmon/15	1000 : 10	513 : - 2.5	218 : -9.4					
6	Char/6		475 : 10	186 : 1.3	136 : -1.3	115 : -7.5	76 : -10		
	Salmon/6	944 : 15	406 : 10	184 : -1.3	143 : -5				
	Char/15		462 : 7.2	198 : -0.6	145 : -2.8	116 : -5.6			
	Salmon/15	884 : 17	519 : 4.4	227 : -3.3	165 : -6.7				
15	Char/6		500 : 14	254 : 5.0		151 : -0.6	110 : -6.3	86 : -8.1	
	Salmon/6		488 : 12	248 : 3.1	174 : 1.9	143 : -1.9	109 : -6.3		
	Char/15		500 : 15	243 : 4.4		144 : -0.6	102 : -4.4	74 : -7.8	
	Salm/15		521 : 10	249 : 1.5	199 : -3	163 : -6.5	121 : -12		
22	Char/6			251 : 11		183 : 2.5	128 : -0.8	103 : -3.8	
	Salmon/6					168 : 1.3	129 : -4.4	99 : -4.3	67 : -10
	Char/15			262 : 9.4		168 : 3.9	119 : 0	92 : -5	
	Salm/15					162 : 0.6	125 : -2.8	96 : -6.1	69 : -12
26	Char/6					204 : 0			
	Salmon/6					179 : 3.1			
	Char/15					180 : 4.4			
	Salmon/15					187 : 1.1			

**Table S2. Parameters used to measure ventricular muscle (trabecular) power.** Values are means, showing the proportion of the strain cycle that comprised shortening (%): stimulation phase (% of cycle period, where 0% is equivalent to 0 degrees in a sine wave). Standard deviations are omitted to reduce clutter, but were all within 3.5% or less of the means.

Test Temp (°C)	Species / Acclimation Temp (°C)	Contraction Rate (beats min <sup>-1</sup> )						
		20	40	60	80	100	120	140
2	Char/6	44 : 6.9	60 : -8.3					
	Salmon/6	40 : 13	70 : -4					
	Char/15	40 : 4.4	70 : -6.7					
	Salmon/15	43 : 11	70 : -5.8					
6	Char/6	30 : 18	59 : -3.1					
	Salmon/6	30 : 22	69 : -2.5	72 : -4				
	Char/15	30 : 16	53 : -3.9	60 : 0				
	Salmon/15	30 : 19	52 : -0.5	80 : -10				
15	Char/6	20 : 33	33 : 13	58 : -0.63	69 : -6.4	70 : -7.5		
	Salmon/6	20 : 35	29 : 18	42 : 6.5	60 : -0.5	65 : -4.5	70 : -8.8	
	Char/15		40 : 12	60 : -1.1	66 : -5			
	Salmon/15		30 : 15	61 : -0.91	69 : -5	70 : -8.6		
22	Char/6		23 : 29	34 : 18	30 : 13	41 : 4.3	65 : -2.5	60 : -10
	Salmon/6		20 : 31	30 : 22	30 : 16	40 : 9.5	54 : 2	66 : -2.8
	Char/15		23 : 27	34 : 16	40 : 9.4	59 : -1.9	60 : -1	70 : -7.5
	Salmon/15		19 : 30	30 : 20	32 : 16	40 : 6.9	56 : 0	61 : -5.6
26	Char/6				29 : 21	30 : 16	40 : 11	40 : 6
	Salmon/6				30 : 25	30 : 20	40 : 12	40 : 6.1
	Char/15				30 : 19	39 : 13	40 : 10	40 : 2
	Salmon/15				30 : 23	30 : 19	40 : 13	50 : 6

**Table S3. Parameters used to measure ventricular muscle (trabecular) efficiency at different temperatures and rates of contraction.** Phase is the time of onset of stimulation relative to the imposed strain cycle, expressed as a % of the cycle period, where 0% is equivalent to 0 degrees in a sine wave, and Short is the proportion of the strain cycle that comprised shortening, the remainder being lengthening. Temperatures indicate test temperature, and  $f_H$  is the contraction frequency. All fish were acclimated to 15°C. Values are means (SEM).

	15°C		20°C				25°C			
	$f_H$ 70 min <sup>-1</sup>		$f_H$ 70 min <sup>-1</sup>		$f_H$ 100 min <sup>-1</sup>		$f_H$ 70 min <sup>-1</sup>		$f_H$ 120 min <sup>-1</sup>	
	Phase (%)	Short (%)	Phase (%)	Short (%)	Phase (%)	Short (%)	Phase (%)	Short (%)	Phase (%)	Short (%)
<b>Char</b> <b>N=8</b>	-6.43 (0.854)	60.0 (0)	13.6 (0.854)	40.0 (0)	-5.00 (1.01)	60.0 (0)	20.0 (0)	30.0 (0)	12.9 (1.38)	40.0 (0)
<b>Salmon</b> <b>N=9</b>	-5.00 (0.786)	62.2 (1.39)	14.4 (0.944)	32.2 (1.39)	1.67 (1.36)	53.3 (2.72)	23.9 (0.693)	28.9 (1.05)	5.56 (0.944)	40.0 (0)