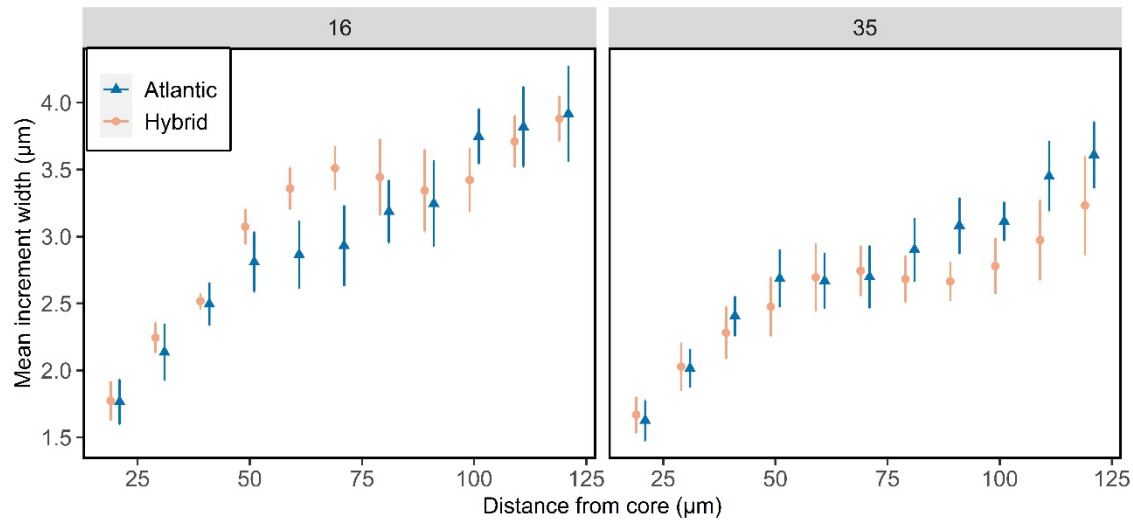


Supplementary Material

Supplementary Figure 1. Otolith growth of F1 adult herring reared at salinity of 16 or 35 psu. Mean increment width $\pm$ 95% confidence intervals are given for each 10 μm interval. Data points are offset for visual clarity.



Supplementary Table 1. Estimated regression parameters, standard errors, degrees of freedom, *t*-values and *p*-values for otolith growth of F1 larvae and adults combined; hybrids only. The final selected mixed effects model was: $\text{Width} \sim \log(\text{Distance}) * \text{Salinity} + \text{Generation}$. The estimated value for σ_{otolith} is 0.34.

Variable	Estimate	Std. error	DF	<i>t</i> -value	<i>p</i> -value
Intercept	1.82	0.06	3482	31.79	<.0001
Distance	0.02	<.001	3482	34.62	<.0001
Salinity ₃₅	-0.02	0.08	123	-0.25	0.802
Generation _{Adult}	-0.004	0.07	123	-0.06	0.954
Distance:Salinity ₃₅	-0.005	0.001	3482	-7.24	<.0001

Supplementary Table 2. Estimated regression parameters, standard errors, degrees of freedom, *t*-values and *p*-values for otolith growth of F1 larvae and adults combined; purebreds only. The final selected mixed effects model was: Width ~ log(Distance) + Salinity*Generation. The estimated value for σ_{otolith} is 0.28.

Variable	Estimate	Std. error	DF	<i>t</i> -value	<i>p</i> -value
Intercept	1.34	0.09	1860	14.79	<.0001
Distance	0.01	<.001	1860	30.84	<.0001
Salinity ₃₅	0.19	0.11	63	1.72	0.091
Generation _{Adult}	0.47	0.11	63	4.22	0.001
Salinity ₃₅ :Generation _{Adult}	-0.40	0.15	63	-2.67	0.010

Supplementary Table 3. Estimated regression parameters, standard errors, degree of freedoms, *t*-values and *p*-values for the somatic growth (length) of F1 larvae. The final selected linear model was: Standard Length ~ Age*Salinity. The residual standard error is 2.10 on 390 degrees of freedom.

Variable	Estimate	Std. error	<i>t</i> -value	<i>p</i> -value
Intercept	7.23	0.33	21.73	<.0001
Day	0.38	0.01	50.60	<.0001
Salinity ₃₅	1.02	0.47	2.15	0.03
Day:Salinity ₃₅	-0.05	0.01	-4.87	<.0001

Supplementary Table 4. Estimated regression parameters, standard errors, degree of freedoms, *t*-values and *p*-values for the somatic growth (weight) of F1 larvae. The final selected linear model was: $\log(\text{Dry Weight}) \sim \log(\text{Standard Length}) * \text{Genetics} + \text{Salinity}$. The residual standard error is 0.04 on 81 degrees of freedom.

Variable	Estimate	Std. error	<i>t</i> -value	<i>p</i> -value
Intercept	-2.56	0.25	-10.16	<.0001
Length	4.47	0.18	25.37	<.0001
Genetics _{Hybrid}	-1.53	0.30	-5.19	<.0001
Salinity ₃₅	0.05	0.01	5.32	<.0001
Length:Genetics _{Hybrid}	1.06	0.20	5.17	<.0001

Supplementary Table 5. Estimated regression parameters, standard errors, degree of freedoms, *t*-values and *p*-values for the otolith radius of F1 larvae. The final selected linear model was: $\log(\text{Otolith Radius}) \sim \log(\text{Dry Weight}) + \text{Salinity} + \text{Genetics}$. The residual standard error is 0.03 on 82 degrees of freedom.

Variable	Estimate	Std. error	<i>t</i> -value	<i>p</i> -value
Intercept	0.32	0.04	6.66	<.0001
DW	0.42	0.01	34.39	<.0001
Salinity ₃₅	0.04	0.01	6.64	<.0001
Genetics _{Hybrid}	0.01	0.01	1.52	0.134

Supplementary Table 6. Estimated regression parameters, standard errors, degrees of freedom, *t*-values and *p*-values for otolith growth of F1 larvae. The final selected mixed effects model was: Width ~ log(Distance)*Salinity + Salinity*Genetics. The estimated value for σ_{otolith} is 0.34.

Variable	Estimate	Std. error	DF	<i>t</i> -value	<i>p</i> -value
Intercept	1.31	0.11	2093	12.23	<.0001
Distance	0.02	0.001	3095	30.54	<.0001
Salinity ₃₅	0.38	0.14	112	2.71	0.008
Population _{Hybird}	0.52	0.12	112	4.51	<.0001
Distance:Salinity ₃₅	-0.003	0.001	3095	-4.30	<.0001
Salinity ₃₅ :Population _{Hybird}	-0.42	0.15	112	-2.78	0.006

Supplementary Table 7. Estimated regression parameters, standard errors, degrees of freedom, *t*-values and *p*-values for otolith growth of F1 adults. The final selected mixed effects model was: $\text{Width} \sim \log(\text{Distance}) * \text{Salinity} + \text{Salinity} * \text{Genetics}$. The estimated value for σ_{otolith} is 0.28.

Variable	Estimate	Std. error	DF	<i>t</i> -value	<i>p</i> -value
Intercept	1.82	0.08	2246	23.13	<.0001
Distance	0.02	0.001	2246	27.15	<.0001
Salinity ₃₅	-0.14	0.11	74	-1.30	0.199
Population _{Purebred}	-0.19	0.10	73	-1.95	<.055
Distance:Salinity ₃₅	-0.01	0.001	2246	-6.60	<.0001
Salinity ₃₅ :Population _{Purebred}	0.32	0.13	73	2.44	0.017

Supplementary Table 8. Estimated regression parameters, standard errors, degrees of freedom, *t*-values and *p*-values for the otolith growth of the parental populations. The final selected mixed effects model was: $\text{Width} \sim \log(\text{Distance}) * \text{Population}$. The estimated value for σ_{otolith} is 0.57.

Variable	Estimate	Std. error	DF	<i>t</i> -value	<i>p</i> -value
Intercept	1.23	0.17	897	498.45	<.0001
Distance	0.03	0.001	897	3.33	<.0001
Population _{Baltic}	0.82	0.24	32	3.33	0.002
Distance:Population _{Baltic}	-0.01	0.002	897	9.51	0.001