

Title	The signature of fine scale local adaptation in Atlantic salmon revealed from common garden experiments in nature
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### Appendix III: Results of the representation GLMMs

Results of the generalised linear mixed-models comparing progeny representation among groups and with respect to other explanatory variables. Group was a factor with four levels: Local<sub>female</sub> x Local<sub>male</sub>, Local<sub>female</sub> x Foreign<sub>male</sub>, Foreign<sub>female</sub> x Local<sub>male</sub> and Foreign<sub>female</sub> x Foreign<sub>male</sub>. Date planted was a factor with three levels: early, mid and late. Dam and sire life-history were each two level factors (1SW versus 2SW). Results are presented as an ANOVA table based on Type II tests, with non-significant terms removed sequentially until all remaining terms were significant at the 5% level. Random effects of dam and sire were included in all models (*Dam* = variance attributable to differences among dams; *Sire* = variance attributable to sires nested within dams; *Res* = residual variance).  $k$  = dispersion parameter from the negative binomial (where the variance =  $\mu + \mu^2/k$ ). All estimates are on log scale. Models were fitted using the glmmPQL function in the MASS library in R (Venables and Ripley 2002).

Life stage	Fixed effect	NumDF	DenDF	F	P	k	Dam	Sire	Res					
Pre-flood dispersal	Intercept	1	23	371.00	<0.001	1.28	0.57	0.71	<0.01					
	Group	3	23	3.61	0.029									
	Date planted	2	23	831.73	<0.001									
	<i>Non-significant terms</i>													
	Dam $L_F$	1	21	1.57	0.224									
	Dam life-history	1	22	1.81	0.192									
	Sire life-history	1	21	2.48	0.131									
Flood migration	Eyed-egg diameter	1	22	0.31	0.581	13.29	0.02	0.03	0.76					
	Intercept	1	26	3131	<0.001									
	Date planted	2	23	12.74	<0.001									
	<i>Non-significant terms</i>													
	Group	3	23	1.81	0.173									
	Dam $L_F$	1	21	1.66	0.212									
	Dam life-history	1	22	1.02	0.324									
Electro-fished parr	Sire life-history	1	21	0.38	0.543	20.8	<0.01	<0.01	1.04					
	Eyed-egg diameter	1	22	1.02	0.323									
	Intercept	1	26	2408	<0.001									
	Date planted	2	23	3.86	0.036									
	<i>Non-significant terms</i>													
	Group	3	23	1.05	0.390									
	Dam $L_F$	1	22	1.25	0.276									
Presmolts + smolts	Dam life-history	1	21	0.29	0.600	5.30	0.59	1.36	<0.01					
	Sire life-history	1	21	0.29	0.600									
	Eyed-egg diameter	1	22	0.47	0.502									
	Intercept	1	26	723	<0.001									
	Date planted	2	23	487.30	<0.001									
	<i>Non-significant terms</i>													
	Group	3	22	1.56	0.228									
Adult returns	Dam $L_F$	1	22	0.51	0.481	5.35	0.08	0.31	0.21					
	Dam life-history	1	21	2.60	0.122									
	Sire life-history	1	21	1.59	0.221									
	Eyed-egg diameter	1	25	1.81	0.191									
	Intercept	1	19	253.5	<0.001									
	Group	3	9	15.90	<0.001									
<i>Non-significant terms</i>														
Adult returns	Dam $L_F$	1	18	0.51	0.483									
	Dam life-history	1	17	<0.001	0.985									
	Sire life-history	1	7	0.89	0.376									

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Eyed-egg diameter	1	7	0.37	0.560
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**References:**

Venables, W. N. & Ripley, B. D. (2002) Modern Applied Statistics with S. Fourth Edition. Springer, New York.