



Fig. S1. Plots of the accuracy (A) and efficiency (B) of assignment for each of the six genetic classes at various posterior probability thresholds for the 191 combined SNP panel. Each genetic class has its own mean accuracy and mean efficiency (solid lines), with PF representing pure farmed/feral and PW representing pure wild. BCF and BCW represent backcross farmed/feral and backcross wild, respectively. The dotted lines represent the standard deviation.

Table S1. The composition of the allelic baselines for the primary and secondary panels used in NEWHYBRIDS to assign sampled juvenile Atlantic salmon to genetic classes. River caught wild and farmed individuals were fish that were assigned to pure wild or farmed genetic classes, respectively, with high confidence (posterior probability of assignment ≥ 0.995). Simulated wild and farmed baselines were simulated and centred using the R package *hybriddetective* and were based on high confidence wild and farmed individuals from rivers across southern Newfoundland.

River Code	Primary Panel		Secondary Panel (2014-2016)		Secondary Panel (2017-2018)			
	River Caught Wild	Simulated Wild	River Caught Farmed	Simulated Farmed	Simulated Wild	Simulated Farmed	Simulated Wild	Simulated Farmed
BDN	95	55	57	143	150	125	64	68
BTB	0	150	57	143	150	125	64	68
CNR	150	0	57	143	150	125	64	68
DLR	11	139	57	143	150	125	64	68
GAR	150	0	57	143	150	125	64	68
GBB	150	0	57	143	150	125	64	68
GLP	1	149	57	143	150	125	64	68
LHR	150	0	57	143	150	125	64	68
LTR	150	0	57	143	150	125	64	68
LMS	150	0	57	143	150	125	64	68
MAL	18	132	57	143	150	125	64	68
NEB	150	0	57	143	150	125	64	68
NWR	150	0	57	143	150	125	64	68
OBB	106	44	57	143	150	125	64	68
SEB	10	140	57	143	150	125	64	68
SMB	115	35	57	143	150	125	64	68
TBB	40	110	57	143	150	125	64	68
TEB	27	123	57	143	150	125	64	68
TRB	6	144	57	143	150	125	64	68

Table S2. Number of 1+ parr collected from the Garnish River from each of the lab-created genetic class crosses including the number of fish showing precocial maturation via gonadal investigation.

Hybrid Class		Mature Male	Immature Male	Female	Total
Wild		37	14	47	98
Hybrid		76	23	103	202
Farmed		33	29	39	101
Total		146	66	189	401