

## Supplement

**Table S1.** Sample summary statistics: Sample name and corresponding geographic site, fishing stock, sampling year, geographic coordinates, number of individuals (N); observed heterozygosity,  $H_o$  (mean  $\pm$  SE), unbiased expected heterozygosity,  $uH_e$  (mean  $\pm$  SE); inbreeding coefficient,  $F_{IS}$  (mean  $\pm$  SE); number of deviations from Hardy-Weinberg equilibrium, HWE at  $\alpha=0.05$ ; number of deviations from Linkage Disequilibrium, LD at  $\alpha=0.05$  both before and (after Bonferroni correction), and proportion of females relative to males.

Sample	Site	Stock	Year	Lat	Long	N	$H_o$	$uH_e$	$F_{IS}$	Dev HWE (B)	Dev LD (B)	Ratio F/M
TB7_8	Troms /Senja / Norwegian Sea	NE Arctic	2017	69.87	18.86	63	0.263 $\pm$ 0.023	0.262 $\pm$ 0.022	-0.004 $\pm$ 0.018	5 (1)	55 (1)	1.7
TB746	Andenes	NE Arctic	2018	67.86	12.37	100	0.260 $\pm$ 0.022	0.265 $\pm$ 0.022	0.013 $\pm$ 0.016	4 (1)	88 (1)	0.6
TB664	Vesterålen Røstbanken /Vesterålen	NE Arctic	2017	68.79	14.52	28	0.221 $\pm$ 0.023	0.254 $\pm$ 0.024	0.071 $\pm$ 0.038	6 (1)	42 (1)	0.5
TB730	/Troms	NE Arctic	2018	67.36	11.44	67	0.257 $\pm$ 0.022	0.262 $\pm$ 0.022	0.016 $\pm$ 0.015	2 (0)	67 (2)	1.7
TB730_H	Hamarøy	NE Arctic	2018	68.01	15.71	32	0.265 $\pm$ 0.023	0.265 $\pm$ 0.022	-0.030 $\pm$ 0.018	1 (0)	57 (1)	2.6
TB660	Lofoten_2017	NE Arctic	2017	68.05	13.78	70	0.250 $\pm$ 0.021	0.263 $\pm$ 0.022	0.031 $\pm$ 0.015	0 (0)	57 (0)	1.6
TB825	Lofoten_2019	NE Arctic	2019	68.05	13.78	96	0.252 $\pm$ 0.021	0.260 $\pm$ 0.022	0.028 $\pm$ 0.014	5 (0)	81 (1)	0.5
TB661	Halten Storegga / Møre	NE Arctic	2017	64.63	8.85	66	0.253 $\pm$ 0.022	0.256 $\pm$ 0.022	-0.002 $\pm$ 0.018	2 (1)	62 (1)	1.5
TB663_5		NE Arctic	2017	61.37	0.31	71	0.248 $\pm$ 0.022	0.255 $\pm$ 0.022	0.023 $\pm$ 0.017	5 (0)	81 (0)	4.1
TB482	Ryfylke	North Sea	2013	59.30	6.10	48	0.255 $\pm$ 0.021	0.262 $\pm$ 0.022	0.007 $\pm$ 0.018	2 (0)	53 (2)	1.3
TB667	North Sea N	North Sea	2017	60.05	0.77	42	0.261 $\pm$ 0.022	0.273 $\pm$ 0.022	0.023 $\pm$ 0.022	6 (0)	62 (0)	1.0
TB668	Scotland	North Sea	2017	58.4	-5.3	42	0.271 $\pm$ 0.024	0.267 $\pm$ 0.022	-0.011 $\pm$ 0.023	4 (0)	60 (0)	1.2
TB423	Rockall	North Sea	2010	57.20	-13.94	52	0.269 $\pm$ 0.023	0.269 $\pm$ 0.022	-0.022 $\pm$ 0.015	3 (0)	63 (0)	12.0
TB374	Faroese	Faroese	2012	61.70	-4.98	78	0.249 $\pm$ 0.021	0.259 $\pm$ 0.022	0.015 $\pm$ 0.016	4 (0)	68 (1)	1.8
TB826_7_83	Iceland	Iceland	2018	63.45	-19.82	156	0.244 $\pm$ 0.021	0.260 $\pm$ 0.022	0.047 $\pm$ 0.013	8 (1)	58 (1)	1.1
TB662	Maine	USA	2017	42.03	-65.52	74	0.259 $\pm$ 0.023	0.266 $\pm$ 0.023	0.006 $\pm$ 0.014	3 (0)	64 (1)	NA

**Table S2.** PCR reaction mix volumes for each reagent.

<b>Reagent</b>	<b>Final concentration in 5<math>\mu</math>L reactions</b>	<b>Volume reagent in 3<math>\mu</math>L [<math>\mu</math>l]</b>
Water, HPLC grade		1.35
10 x PCR Buffer with 20mM MgCl <sub>2</sub>	2 mM MgCl <sub>2</sub>	0.625
25 mM MgCl <sub>2</sub>	2 mM	0.325
25 mM dNTP Mix	500 $\mu$ M	0.1
0.5 $\mu$ M primer mix	0.1 $\mu$ M	0.5
5 U/ $\mu$ l PCR enzyme	1 Unit	0.1
10 ng/ $\mu$ L DNA	10 ng/reaction	
Total volume [ $\mu$ L]		3.0





**Table S4.** Heatmap of major allele frequency of the candidate outlier loci flagged by LOSITAN. Locus Rand\_394\_51901 showed missing data at Vesterålen.

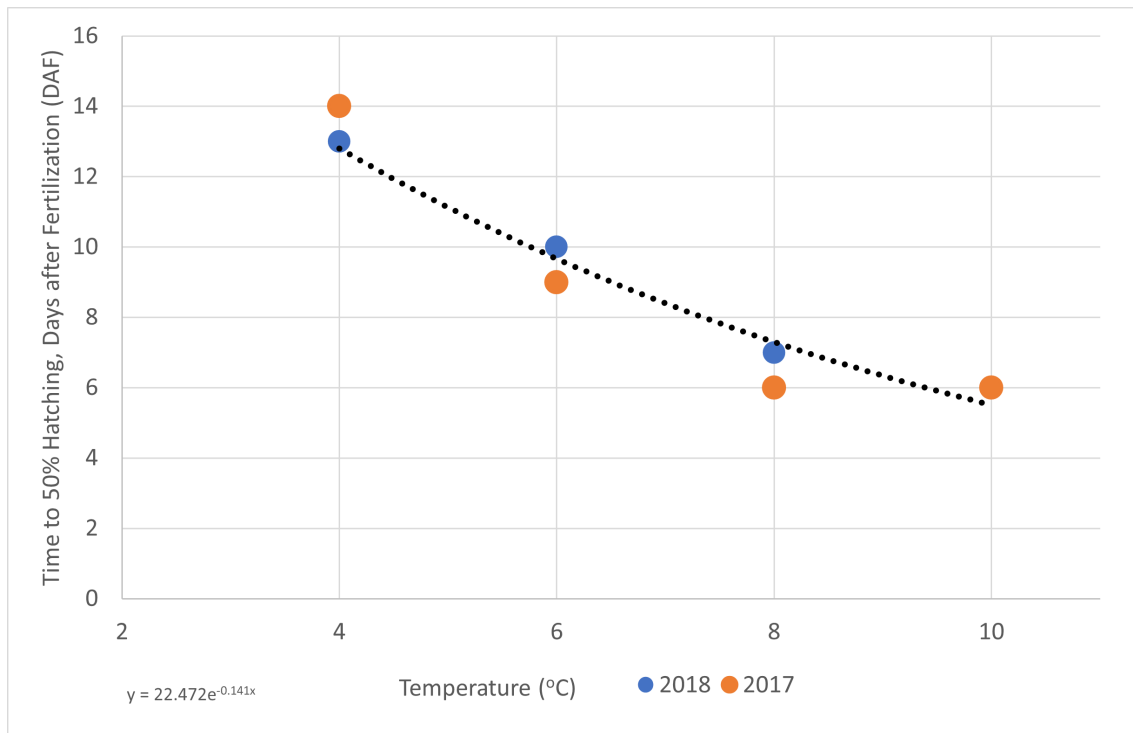
Sample	Rand_394_51901	NS_1604_7031
Troms_Senja	0.932	0.563
Andenes	0.920	0.605
Vesterålen	-	0.661
Røstbanken	0.925	0.541
Hamarøy	0.969	0.375
Lofoten_2017	0.886	0.568
Lofoten_2019	0.868	0.626
Halten	0.906	0.726
Storegga_Møre	0.933	0.739
Ryfylke	0.896	0.698
NorthSea	0.650	0.763
Scotland	0.714	0.654
Rockall	0.814	0.565
Faroese	0.916	0.696
Iceland	0.918	0.663
Maine	0.912	0.528

**Table S5.** Pairwise  $F_{ST}$  for males (below diagonal) and females (above diagonal).  $F_{ST}$  values significantly different from zero are highlighted in boldface type. Sites shaded in grey depict low sampling size for males at Hamarøy (N=9) and Rockall (N=0) and for females at Vesterålen (N=9), respectively. No males were registered in Rockall sample therefore  $F_{ST}$  is stated NA (i.e. not applicable).

		FEMALES														
		Troms_Senja	Andenes	Vesterålen	Røstbanken	Hamarøy	Lofoten_2017	Lofoten_2019	Halten	Storegga_Møre	Ryfylke	NorthSea	Scotland	Rockall	Faroes	Iceland
MALES	Troms /Senja / Norwegian Sea		0.000	0.000	0.000	0.004	0.000	0.003	0.000	0.000	0.000	0.005	0.000	<b>0.016</b>	0.000	0.004
	Andenes	0.005		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.001
	Vesterålen	0.000	0.000		0.001	0.007	0.002	0.000	0.000	0.010	0.007	0.000	0.000	0.014	0.004	0.000
	Røstbanken /Vesterålen /Troms	0.000	0.001	0.000		0.003	0.000	0.002	0.000	0.000	0.000	0.002	0.000	0.004	0.000	0.000
	Hamarøy	0.000	0.000	0.000	0.000		0.005	0.010	0.000	<b>0.011</b>	0.000	<b>0.021</b>	0.007	0.005	0.000	0.004
	Lofoten_2017	0.000	0.005	0.000	0.002	0.000		0.004	0.000	0.000	0.002	0.009	0.001	0.004	0.001	0.004
	Lofoten_2019	0.002	<b>0.004</b>	0.000	0.000	0.000	<b>0.007</b>		0.002	0.007	0.001	0.007	0.000	0.009	0.007	0.002
	Halten	0.000	0.000	0.000	0.000	0.000	0.000	0.000		<b>0.008</b>	0.001	<b>0.019</b>	0.002	<b>0.012</b>	0.002	0.003
	Storegga / Møre	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.007	0.000	0.000	<b>0.010</b>	0.000	0.001
	Ryfylke	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.011	0.000	0.007	0.000	0.000
	North Sea N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	<b>0.015</b>	0.005	0.005
	Scotland	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		<b>0.018</b>	0.000	0.000
	Rockall	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		<b>0.012</b>	<b>0.013</b>
	Faroes	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
	Iceland	0.001	0.002	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**Table S6.** Pairwise  $F_{ST}$  for individuals distributed on the age basis (below diagonal) and P-values after 10,000 permutations (above diagonal).  $F_{ST}$  values significantly different from zero are highlighted in boldface type. Age classes with low sampling sizes were grouped to increase statistical power. No information about age is available for the sample from the Gulf of Maine.

	<b>4-5 yr</b>	<b>6 yr</b>	<b>7 yr</b>	<b>8 yr</b>	<b>9 yr</b>	<b>10 yr</b>	<b>11 yr</b>	<b>12-15 yr</b>
<b>4-5 yr</b>	*	0.191	0.461	0.463	<b>0.025</b>	0.105	<b>0.013</b>	0.291
<b>6 yr</b>	0.002	*	0.496	0.880	0.744	0.850	0.212	0.430
<b>7 yr</b>	0.000	0.000	*	0.715	0.355	0.575	0.274	0.354
<b>8 yr</b>	0.000	0.000	0.000	*	0.637	0.851	0.221	0.587
<b>9 yr</b>	<b>0.005</b>	0.000	0.000	0.000	*	0.262	0.195	0.873
<b>10 yr</b>	0.003	0.000	0.000	0.000	0.001	*	0.287	0.617
<b>11 yr</b>	<b>0.008</b>	0.002	0.002	0.002	0.002	0.001	*	0.097
<b>12-15 yr</b>	0.002	0.000	0.001	0.000	0.000	0.000	0.006	*



**Figure S1.** Fit to experimental data on egg development for both years combined, showing time to 50% hatch in days after fertilization.