



Lynn Canal Pacific Herring: A member of one big meta-population

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Important food source!
In 85 grams:
170 calories
19 g protein
10 grams fat
1.7g omegas
NO CARBS

The Lynn Canal herring fisheries in southeast Alaska closed in 1981 due to a decrease in fish biomass. A petition was filed in 2006 to consider it as endangered or threatened under the endangered species act, begging the question "Is this a discrete population unit?" This study uses 12 microsatellite DNA loci to examine Lynn Canal herring and compare them to neighboring areas to address this question.



Collection	n	Date
Lynn 1	67	Apr. 2-5, 2007
Lynn 2	100	Nov. 10, 2007
Lynn 3	100	Feb. 23, 2008
Lynn 4	100	Feb. 25, 2008
Sitka	85	Mar. 29, 2007
Nichols	100	June 14, 2007
Whale	100	July 14, 2007
Simpson	100	Dec. 2, 2007

Lynn Canal herring average spawn
Then (1953-1981): 12 linear nautical miles
Now (1982-2007): 3.7 linear nautical miles



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Multiple collections of herring were obtained from Lynn Canal during spawning and non-spawning times, and from consecutive years. They were compared to two other southeast Alaska collections, and two collections from Prince William Sound Alaska. All loci and all collections were in Hardy-Weinberg equilibrium. Only one G-test out of 28 was significant, a value expected by random chance.

Above the diagonal: F_{st} (theta) values between pairs of collections (none are significant).
Below: estimated p values for G-test of allelic frequencies between pairs of collections.

	Lynn 1	Lynn 2	Lynn 3	Lynn 4	Sitka	Nichol	Whale	Simps
Lynn 1		0.0004	0.0009	0.0002	0.0018	0.0011	-0.0007	-0.0007
Lynn 2	0.099		-0.0002	0.0011	0.0013	0.0002	-0.0001	-0.0013
Lynn 3	<u>0.041</u>	0.883		0.0004	0.0016	-0.0008	-0.0001	-0.0007
Lynn 4	0.531	0.738	0.997		0.002	0.0008	-0.0002	-0.0011
Sitka	0.071	0.187	0.217	0.636		0.0004	-0.0003	0.0009
Nichols	0.327	0.779	0.453	0.943	0.361		-0.0017	0.0002
Whale	0.370	0.222	0.429	0.980	0.128	0.760		-0.001
Simpson	0.325	0.480	0.230	0.778	0.074	0.979	0.942	

We conclude that Lynn canal herring are genetically similar to their neighbors. They do not constitute a discrete breeding unit (population or stock) and are part of a Gulf of Alaska -wide meta-population, extending from Southeast Alaska to Prince William Sound.