

# Committee on the Status of Wildlife Species in Canada November 26, 2015

## Clarification note for: COSEWIC assessments and update status reports conducted on Atlantic salmon (*Salmo salar*) in 2010<sup>1</sup>.

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This note is to clarify the treatment of farm-raised (either land-based or sea cage-raised) Atlantic salmon in COSEWIC assessments for all designatable units assessed by COSEWIC in 2010. Farm-raised Atlantic salmon refer to those fish that are raised in aquacultural facilities for commercial purposes or that escape from such facilities and return to rivers to spawn. This clarification is in response to a query from Fisheries and Oceans Canada, received in September of 2015, on how COSEWIC would treat farmed salmon in future re-assessments of Atlantic salmon.

COSEWIC has developed a series of guidelines<sup>2</sup> to evaluate whether or not populations of animals or plants, which have been directly or indirectly manipulated by humans, should be included in COSEWIC assessments. For instance, the prohibitions specified by SARA apply to individuals in the population identified and assessed by COSEWIC. Clear definition of whether wild and manipulated components are part of the assessed population (the “wildlife species” in SARA terminology) is essential to determining which individuals or components would be subject to SARA prohibitions. This determination must be made based on whether manipulated populations are genetically or geographically distinct from populations in the wild.

At least two of these guidelines justify the exclusion of aquaculture-produced Atlantic salmon from COSEWIC assessments.

**Guideline #2:** COSEWIC will generally not consider as part of the wildlife species being assessed any manipulated populations established for purposes other than species conservation (for example, those established for commercial purposes) provided the population is geographically or genetically distinct from the wildlife species under assessment, and there is no intention that the population contribute to the wild population. Under such a scenario, COSEWIC will clearly indicate why the population is excluded.

**Aquaculture Atlantic Salmon are raised for commercial purposes, not for conservation of the wildlife species, and are genetically distinct from wild salmon and are thus excluded from assessments under this guideline.**

**Guideline #6:** If introgression is known or suspected, COSEWIC will consider whether it is likely to negatively affect the conservation of the wildlife species. A net negative impact is one predicted to result in a reduction in the average fitness of individuals of the wildlife species being assessed (reflected, for example, by a reduced probability of survival, reduced population growth rate, and/or reduced ability to adapt to environmental change). Under these circumstances, F1 hybrids, if identifiable, and their progeny would not be included as part of the wildlife species being assessed. Where introgression in a population is considered extensive, it may be prudent to exclude the entire population from the wildlife species being assessed. Instead, these populations may be identified as a threat to the wildlife species.

**There is a considerable body of evidence indicating that Atlantic Salmon that escape from fish farms survive, return to streams to spawn, and hybridize with wild Atlantic Salmon, and that such interactions with farmed salmon results in the reduced performance and fitness of the recipient wild population<sup>3-5</sup>. Consequently, escaped farm-raised Atlantic Salmon, provided that they can be identified, are excluded from assessment.**

## References

<sup>1</sup>COSEWIC. 2010. COSEWIC assessment and status report on the Atlantic Salmon *Salmo salar* (Nunavik population, Labrador population, Northeast Newfoundland population, South Newfoundland population, Southwest Newfoundland population, Northwest Newfoundland population, Quebec Eastern North Shore population, Quebec Western North Shore population, Anticosti Island population, Inner St. Lawrence population, Lake Ontario population, Gaspé-Southern Gulf of St. Lawrence population, Eastern Cape Breton population, Nova Scotia Southern Upland population, Inner Bay of Fundy population, Outer Bay of Fundy population) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xlvii + 136 pp. ([www.sararegistry.gc.ca/status/status\\_e.cfm](http://www.sararegistry.gc.ca/status/status_e.cfm)).

<sup>2</sup>COSEWIC. 2010. COSEWIC Guidelines on Manipulated Populations. The Committee on the Status of Endangered Wildlife in Canada. Website: [http://www.cosewic.gc.ca/eng/sct2/sct2\\_8\\_e.cfm](http://www.cosewic.gc.ca/eng/sct2/sct2_8_e.cfm). Accessed September 2015.

<sup>3</sup>Carr, J. W., Anderson, J. M., Whoriskey, F. G., and Dilworth, T. 1997. The occurrence and spawning of cultured Atlantic salmon (*Salmo salar*) in a Canadian river. *ICES Journal of Marine Science: Journal du Conseil* 54: 1064-1073.

<sup>4</sup>Naylor, R., Hindar, K., Fleming, I. A., Goldberg, R., Williams, S., Volpe, J., & Mangel, M. 2005. Fugitive salmon: assessing the risks of escaped fish from net-pen aquaculture. *Bioscience* 55: 427-437.

<sup>5</sup>Bourret, V., O'Reilly, P. T., Carr, J. W., Berg, P. R., and Bernatchez, L. 2011. Temporal change in genetic integrity suggests loss of local adaptation in a wild Atlantic salmon (*Salmo salar*) population following introgression by farmed escapees. *Heredity* 106: 500-510.