

## GENETIC QUALITY AND THE CONSERVATION OF FISHES.

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Each year millions of fish are caught and used for conservation breeding programs that attempt to augment natural populations that are threatened with extinction. These programs typically mate individuals haphazardly and as such they overlook the importance of genetic quality (comprising both good and compatible genes) arising from sexual selection to offspring fitness and ultimately to ensuring population health. Here, I will review the literature and draw on my lab's data from studies of Chinook salmon (*Oncorhynchus tshawytscha*) and Atlantic salmon (*Salmo salar*) to discuss (1) what is genetic quality in the context of natural and sexual selection, (2) what are the recognition mechanisms for genetic quality, (3) how to assay genetic quality using quantitative genetic tools, (4) what are the current strategies used in conservation breeding programs and (5) how to potentially improve conservation breeding programs through the incorporation of knowledge gleaned from sexual selection occurring in wild populations. Overall, I will argue that instead of the current paradigm of maintaining as much genetic diversity as possible, we need a more comprehensive approach combining both genetic diversity and genetic quality to effectively enhance targeted species and populations (via captive breeding, supportive breeding and translocations programs) in order to mitigate enduring wild-population declines.