

On the road to extinction? Patterns and extent of stocking-induced genetic introgression in Southern Alpine freshwater fish taxa

Andreas Meraner, Andrea Venturi & Andrea Gandolfi
IASMA, Fondazione Edmund Mach, San Michele all'Adige, Italy

The Southern Alpine region represents a hotspot of freshwater fish biodiversity, seriously compromised by anthropogenic pressures. Beside water pollution and multiple forms of habitat alteration, stocking-induced genetic introgression acts as an important - but still undervalued - threat factor. Here we summarise the outcomes of genetic surveys focusing on Marble Trout, Brown Trout, European Grayling, Lake Garda's Carpione as well as Italian Barbels. We outline multiple scenarios of secondary contact, ranging from no-admixture to limited introgression and, finally, to complete loss of the native taxon. The observed sharp differences in terms of introgression reflect differing aspects of life-history of the investigated species, including home-range, demography and reproductive behaviour. In addition, the magnitude of introgression is conditioned by dissimilar fisheries management histories, with stocking duration and magnitude being likely triggers for introgression. Finally, we point to species-specific management strategies, urgently needed to impede further loss of Southern Alpine freshwater fish biodiversity.