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}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-declining-population-sizes-loss-genetic-diversity-commercial-fishes-petit-marty-et-al-2022.jpg{/rokbox}

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[**Declining Population Sizes and Loss of Genetic Diversity in Commercial Fishes: A Simple Method for a First Diagnostic.**](#)

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Abstract: Exploited fish species may have or are experiencing declines in population sizes coupled with changes in their environmental conditions owing to global change. Declining populations might lead to a decrease in genetic diversity, which in turn may produce losses of adaptive potential to face current and future environmental changes. Thus, this study aims to answer a simple, even naive question, given the complexity of the subject: Could we use a simple method to obtain information on the loss of genetic diversity in exploited fish species? We investigated the use of the levels of genetic diversity in the widely used genetic marker Cytochrome C Oxidase subunit I (COI) mitochondrial gene. Estimates of genetic diversity in COI were obtained for populations of seven fish species with different commercial importance from the East China Sea. These estimates were contrasted against large datasets of genetic diversity in COI for fish species (East-Asian N=118, and worldwide N=1425), and six control species with known biology and history. We found that estimates of genetic diversity in COI match the expectations from theoretical predictions and known declines by fishing pressures. Thus, the answer to our question is affirmative and we conclude that estimates of genetic diversity in COI provide an effective first diagnostic of the conservation status of exploited fish species.

Keywords: adaptive potential, COI barcode, conservation, fisheries, global change, over-fishing, resilience