{rokbox title=|European hake (Merluccius merluccius) at the Galician (northwestern Spain) waters. European hake is a long-term exploited demersal species at both the North East Atlantic and Mediterranean waters :: Photo credit: Jorge Hernández Ucera.| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-plasticidad-merluza-pesca-manolo-hidalgo-et-al-2014-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-plasticidad-merluza-pesca-manolo-hidalgo-et-al-2014.jpg{/rokbox}

Manuel Hidalgo , Esben M. Olsen, Jan Ohlberger, Fran Saborido-Rey, Hilario Murua, Carmen Piñeiro, and Nils C. Stenseth, 2014. **Contrasting evolutionary demography induced by fishing: the role of adaptive phenotypic plasticity** . Ecological Applications 24:1101–1114. http://dx.doi.org/10.1890/12-1777.1

Abstract: Mounting evidence now shows that fishing activity modifies both heritable life-history traits and ecological processes in harvested populations. However, ecological and evolutionary changes are intimately linked and can occur on the same time scale, and few studies have investigated their combined effect on fish population dynamics. Here, we contrast two population subunits of a harvested fish species in the Northeast Atlantic, the European hake (*Merluccius merluccius*), in the light of the emerging field of evolutionary demography, which considers the interacting processes between ecology and evolution. The two subunits experienced similar age/size truncation due to size-selective fishing, but displayed differences in key ecological processes (recruitment success) and phenotypic characteristics (maturation schedule). We investigate how temporal variation in maturation and recruitment success interactively shape the population dynamics of the two subunits.

We document that the two subunits of European hake displayed different responses to fishing in maturation schedules, possibly because of the different level of adaptive phenotypic plasticity. Our results also suggest that high phenotypic plasticity can dampen the effects of fisheries-induced demographic truncation on population dynamics, whereas a population subunit characterized by low phenotypic plasticity may suffer from additive effects of ecological and life-history responses. Similar fishing pressure may thus trigger contrasting interactions between life history variation and ecological processes within the same population. The presented findings improve our understanding of how fishing impacts eco-evolutionary dynamics, which is a keystone for a more comprehensive management of harvested species.

Keywords: contemporary evolution, demographic erosion, European hake, evolutionary demography, fisheries conservation, fishing-induced effects, Merluccius merluccius, phenotypic plasticity