

Comparison of Tehuelche octopus (*Octopus tehuelchus*) abundance between an open-access fishing ground and a marine protected area: Evidence from a direct development species

Maite Narvarte, Raúl González, Miriam Fernández

Abstract

Marine protected areas (MPAs) have been established during the last few decades for conservation and management purposes. Most studies showing a positive effect of MPAs on abundance or size have focused on species exhibiting a planktonic larval stage. In this study, the impact of an MPA on the local abundance of a direct development species, the Tehuelche octopus *Octopus tehuelchus*, is evaluated. Octopus abundance (catch per unit of effort) was compared between a traditional fishing ground (El Fuerte) and an MPA in northern Patagonia (Argentina), during one spawning/recruitment period (August–October; pre-fishing) and during the following fishing season (January–April). Abundance in the MPA was twice as high as in El Fuerte during the fishing season, but not during the pre-fishing season. Females were more abundant than males at both sites. Contrary to expectations, mean octopus weight was lower in the MPA than in El Fuerte, which can be explained by higher abundance of recruits. In fact, the ratio recruit/spawner was three times higher in the MPA than in El Fuerte. Removal of brooding females during the brooding season in El Fuerte may affect the survival of the embryos, since females provide parental care. More information on the wide diversity of life history of marine species is needed since the current literature on MPAs is strongly biased towards species exhibiting planktonic stages.