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Potential ecosystem level effects of a shrimp trawling fishery in La Paz Bay, Mexico

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The shrimp trawling fishery is the most important one in Mexico in value terms and given its putative environmental, societal and economical implications, it is also the most difficult to manage. Although this fishery was restricted from national bays and estuaries since the 1970's, local fisheries cooperatives recently claimed access to shrimp stocks within La Paz Bay by using an artisanal fleet and a low impact trawling net. This study is aiming at simulating some ecosystem level effects of such a potential fishing effort release. We explored the response of three ecosystem indicators under two different exploitation scenarios: 30% and 80% of shrimp biomass removal. The indicators were: relative ecosystem biomass distribution as function of trophic level, trophic replacement and interaction strength, all computed from the outputs of a mass balance dynamic model (Ecopath with Ecosim) of this ecosystem. Our results suggest that moderate fishing scenario (30%) would not cause major changes in either indicator whilst the scenario of strong fishing pressure (80%) seems to increase not only the fish resources variability at the population level but also the variability of the overall biomass, hence potentially reducing ecosystem stability.

Palabras clave: Gulf of California, Shrimp Trawling, Ecosystem Impact