

Applying an ecosystem service approach to unravel links between ecosystems and society in the coast of central Chile

Cita: De Juan, S., Gelcich, S., Ospina, A., Pérez, A., Fernández, M. (2015). Applying an ecosystem service approach to unravel links between ecosystems and society in the coast of central Chile. *Science of the Total Environment*, 533, pp. 122-133. <https://doi.org/10.1016/j.scitotenv.2015.06.094>

Abstract

Ecosystem-based management implies understanding feedbacks between ecosystems and society. Such understanding can be approached with the Drivers–Pressures–State change–Impacts–Response framework (DPSIR), incorporating stakeholders' preferences for ecosystem services to assess impacts on society. This framework was adapted to six locations in the central coast of Chile, where artisanal fisheries coexist with an increasing influx of tourists, and a set of fisheries management areas alternate with open access areas and a no-take Marine Protected Area (MPA). The ecosystem services in the study area were quantified using biomass and species richness in intertidal and subtidal areas as biological indicators. The demand for ecosystem services was elicited by interviews to the principal groups of users. Our results evidenced decreasing landings and a negative perception of fishermen on temporal trends of catches. The occurrence of recreational fishing was negligible, although the consumption of seafood by tourists was relatively high. Nevertheless, the consumption of organisms associated to the study system was low, which could be linked, amongst other factors, to decreasing catches. The comparison of biological indicators between management regimens provided variable results, but a positive effect of management areas and the MPA on some of the metrics was observed. The prioritising of ecosystem attributes by tourists was highly homogenous across the six locations, with “scenic beauty” consistently selected as the preferred attribute, followed by “diversity”. The DPSIR framework illustrated the complex interactions existing in these locations, with weak linkages between society's priorities, existing management objectives and the state of biological communities. Overall, this work improved our knowledge on relations between components of coastal areas in central Chile, of paramount importance to advance towards an ecosystem-based management in the area.