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TITLE: Environmental impacts on the Galapagos Islands: Identification of interactions, perceptions and steps ahead

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ABSTRACT:

In the Galapagos Islands human activities such as fisheries and tourism, have boosted the islands? economy at the cost of ecological losses and constant pressures to the fragile insular ecosystems. Hence the evaluation of environmental impacts is essential and requires multiple indicators, appropriate for measuring the state and the interactions of the interrelated social and environmental variables and its relation to ecosystem services. The present research proposes a participatory approach to understand the perception of environmental impacts and its relation to ecosystem services to develop responsive impact mitigation strategies in the Galapagos Islands. The Drivers?Pressures?State?Impact?Responses (DPSIR) framework provided an analytical lens, while the Delphi method was chosen to involve selected Galapagos experts in the indicator selection process. The Delphi method consists of an iterative set of questionnaire surveys, interspersed with feedback from earlier response rounds. According to our results, 37/55 statistical consent indicators (qi ? 3.5 and Q ? 0.5) and 7/28 relevant interactions of environmental impacts (mean ? 0.5 and CV ? 0.5) explain a cascade of socio-ecological interconnectivity that generates environmental impacts on the Galapagos Islands. Hence, first the socio-economic-cultural and institutional forces (drivers) that include: the increase of tourism and migration, economic growth, continental lifestyles, lack of education and weak management of institutions. These drivers place stress on the environment (pressures). The pressures include: the importation of goods, land clearing for agriculture/abandonment and urban zone extension. Subsequently, these pressures generate changes in the environmental functions (impacts). The identification of impacts and their interactions indicate a close relationship between eight impacts in Galapagos: introduction of species, biodiversity loss, land use change, loss of biological resources, habitat fragmentation, landscape alterations, water basin overexploitation and decrease of water quality. Lastly, scientifically sound solutions and alternatives to deal with the Galapagos? social, economical, political, managerial and technical problems are also provided (responses). This study is an applicable useful systemic reference for Galapagos? decision makers to deliver policies in order to move towards proper conservation management.

SOURCE: Ecological indicators

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