

# The effect of tourism on benthic introduced species in the Galapagos marine reserve

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In line with increasing globalization marine bioinvasions accumulate, posing a threat to global biodiversity. Marine reserves are no exclusion and findings about invaded marine protected areas have gathered in the last decades. Intense marine tourism in reserves might enhance the risk of local dispersal, as it disturbs native communities and increases the number of potential vectors. This study investigated the interaction between marine tourism and the abundance of sessile introduced species in the Galapagos Marine Reserve (GMR), Ecuador. Settlement plates and dive surveys were used to assess fouling assemblages in different management zones of the GMR, and data were analyzed using multivariate statistics. Anthropogenic influence at study sites was quantified by inspecting a 4 year-long data set about ship positions, provided by the Galapagos National Park. Settlement plate communities in tourism and conservation zones differed up to 62% and the factor zone was significant, explaining 14% of variance. More than 70 species were preliminary identified, at least one new record for Galapagos was found, and cryptogenic and introduced species were more abundant at marine visitor than at protected sites. Species cannot be named in this abstract due to pending confirmations by experts, but will be complemented in the next months. Ship traffic was only marginally significant due to strong confounding factors such as the abundance of benthic pickers, upwelling, mean temperature, and bathymetry. This was the first project of its kind in Galapagos, and findings comply with studies from reserves in other regions in the world. This study concludes that more awareness should be raised about invasive species eroding conservation efforts in marine reserves, and management rules are necessary preventing introduced species dispersal by tourism. Finally, the outlook is given of how ship position data sets could be used to assess the scope of regional dispersal.

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