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PROGRAM AND ABSTRACTS

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Distribution and Abundance of Invasive Octocoral *Carijoa riisei* in Ecuadorian Coast

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This study reports the distribution and abundance of the invasive octocoral *Carijoa riisei* (Alcyonacea: Clavulariidae) in Ecuadorian continental coast. *C. riisei* is native from the Indo-Pacific region where it is an aggressive competitor. One of the major effects is the monopolization of resources (food and the space). The identification of the specie was confirmed genetically. Distribution and abundance of *C. riisei* was measured over quadrants located randomly at a 50 m transect positioned parallel to the coast in subtidal zone. *Carijoa* was found between February 2015 to February 2016 in three coastal provinces (Esmeraldas, Manabí and Santa Elena), including two marine protected areas (Galera San Francisco Marine Reserve in the north of Ecuador and El Pelado Marine Reserve in South Central Ecuadorian coast) and one area influenced by estuarine ecosystems (Jama). The highest relative abundance of *Carijoa* colonies where found in Jama (44.57%). This octocoral was found as an epibiont on corals (e.g. *Pocillopora damicornis*) and other macroinvertebrates (i.e. *Pinctada mazatlanica, Muricea appresa*, and *Aplysina* sp.). Our investigation suggests that *Carijoa riisei* is in advanced status from colonization in the coastal area and it is an imminent danger for autochthonous autochthonous sessile macroinvertebrates biodiversity and even greater risk for the Galapagos Islands.

Using Aquatic Invasive Species as Biomonitors of Microplastic Pollution

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Despite burgeoning research efforts, scientists still strive to obtain a clear understanding of the abundance, distribution and fate of microplastics in freshwater environments. Current technology does not facilitate efficient sampling of copious amounts of water and sediment sufficient to detect the presence of plastic particles of <300μm in size; consequently, a potentially enormous fraction of microplastics are omitted from estimates of contamination in aquatic systems. In addition, mapping microplastic distribution across aquatic systems requires exhaustive sampling and long hours in the laboratory for particle separation and analysis. Microplastics have been found to be ingested by organisms across all major taxa, some of which preferentially take up particles well below 300μm. Widely distributed aquatic animals adapted to consuming small particles could serve as valuable biomonitors of microplastic pollution.

We are examining a model trio of species that are abundant and widely distributed across the Great Lakes basin: the quagga mussel *Dreissena bugensis*, gammarid amphipods, and the round goby *Neogobius melanostomus*. We used these species to test the dose-dependent relationship in the uptake of microplastics via three environmental vectors: suspension in the water column, sedimentation, and transfer through consumption of prey. Animals were exposed to five concentrations of polyethylene microbeads (0.1 to 100 ml^{-1}) for 24-hrs, prior to being dissected and having the contents of their gastrointestinal tract examined to enumerate particles ingested at each concentration and from each vector. Dose-relationships differed between species. Our experiments demonstrate that *D. bugensis* can serve as a biomonitor of microplastic pollution, and the use of food web modules can offer new insights into the extent and impact of microplastic contamination in aquatic ecosystems. Furthermore, results show that this model trio of trophically interacting species can facilitate the transfer of microplastics through food chains, indicating another potential ecological consequence of joint invasions by dreissenid mussels and the round goby.