

Heavy metals in coral skeletons from Pohnpei Island, Micronesia, as a potential proxies for marine pollution

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Coral reefs are increasingly threatened by human activities such as industrialization, sewage discharge, dredging, deforestation and so on. Previous studies have discussed the pre-existing form of heavy metals in coral skeletons as a potential proxy for marine pollution, but in general, lattice-bound metals are determined after removing contaminations by pretreatment. Therefore, to determine lattice-bound metals, we conducted a preliminary experimental treatment consisting of 9 cleaning steps. The analyses of the results showed that extra-skeletal metals had a potential proxy for marine pollution. The annually-banded coral (*Porites* sp.) collected from Pohnpei Island, Micronesia has reconstructed fluctuations of copper and tin for about 40 years. Both Cu and Sn are used as antifouling paints, mainly Sn, that is used as a tributyltin (TBT) compounds. High concentrations of extra-skeletal Cu/Ca and Sn/Ca atomic ratios have been detected between 1967 and 1989, which coincides with a wide spread use of TBT-based antifouling paints in industrialized countries. However, concentrations of Cu/Ca and Sn/Ca ratios have showed significant decrease after 1989, the beginning of TBT regulation policies in many countries.