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Antifouling biocides in water and sediments from California marinas

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ABSTRACT

Irgarol 1051 is a common antifouling biocide and is highly toxic to non-target plant species at low ng/L concentrations. We measured up to 254 ng/L Irgarol in water and up to 9 ng/g dry weight Irgarol in sediments from Southern California recreational marinas. Irgarol's metabolite, M1, concentrations were up to 62 ng/L in water and 5 ng/g dry weight in sediments. Another antifouling biocide, diuron, reached up to 68 ng/L in water and 4 ng/g dry weight in sediments. The maximum Irgarol concentrations in water were greater than the Irgarol concentration recommended as the plant toxicity benchmark (136 ng/L), suggesting that Irgarol concentrations may be high enough to cause changes in phytoplankton communities in the sampled marinas. Irgarol concentrations measured in sediments were greater than calculated Environmental Risk Limits (ERLs) for Irgarol in sediments (1.4 ng/g). Antifouling pesticide accumulation in sediments may present a potential undetermined risk for benthic organisms.