

# A review of antifouling strategies: alternatives to TBT

Asha Giriyan and Prajwala Pangam

Over the past few decades, TBTs, (tributyltins) have been extensively used worldwide in antifouling paints that are highly effective but unfortunately have a deleterious effect on aquatic life. In response to increasing scientific evidence on their toxicity and persistence in the environment, restrictions have been imposed on the use of paints containing TBT. Thus, there is a pressing need for effective alternative antifoulants. Fouling is an undesirable growth of a variety of marine organisms on submerged structures. On ship hulls, it results in increased hydrodynamic drag, increased fuel consumption, and decreased ship speed. It may also lead to an increase in greenhouse gases, resulting in global warming and climate change. An ideal antifouling agent must prevent fouling by a wide range of fouling organisms over varied environmental conditions but should have no effect on non-target organisms. This paper reviews the existing antifoulants that can be used as an alternative to TBT.