

Abstract Submitted
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Instantaneous flow characteristics associated with long-term marine macrofouling growth and suppression LENA DUBITSKY, MARK MENESSES, Boston University, JESSE BELDEN, Naval Undersea Warfare Center - Division Newport, JAMES BIRD, Boston University — It is well-established that the growth of biofouling organisms such as algae, barnacles, and mussels is a consequence of both biological and hydrodynamic constraints. Several studies have examined how instantaneous flow fields at the scale of a marine larva affect the initial settling and attachment of biofouling organisms over a period of minutes. However, it is unclear whether a connection exists between the instantaneous flow field and long-term macrofouling survival and growth, or indeed if it is applicable at an ecosystem-wide level. Seven-week field studies were analyzed in conjunction with instantaneous PIV flow fields in order to build a bridge between hydrodynamics and long-term biological growth. The results indicate that flows resulting in long-term, multi-species biofouling prevention share certain characteristics, providing a potential framework for understanding flow fields that successfully inhibit biofouling growth.

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