UNIVERSITÀ DI PAVIA
DIPARTIMENTO DI SCIENZE DELLA TERRA E DELL'AMBIENTE
DOTTORATO DI RICERCA IN SCIENZE DELLA TERRA E DELL'AMBIENTE

FORM PER PROGETTI BANDO DOTTORATO

1. Project title

Preventing marine bioinvasions under a changing climatic scenario

2. Proposer

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4. Key words
(Max. 5 – at least 2)

Biofouling, alien species, biosecurity, maritime navigation

5. Abstract
(Max.1.500 characters with spaces)

The introduction of non-indigenous species (NIS) in marine environments by biofouling on vessels has been largely acknowledged as an important vector of bioinvasions, but still poorly or not at all managed. Controlling biofouling is key to ensure the integrity of the involved systems and their efficient functioning, to reduce greenhouse gases (GHG) emissions, guarantee local biosecurity and protect biodiversity. To do so, antifouling systems on artificial substrates immersed are usually applied, however, to date, there is no solution that completely prevents the development of biofouling communities and many of the applied measures unavoidably imply release of chemical substances, such as biocides, and other pollutants, including microplastics. Prior studies have demonstrated excessive leaching of contaminants, phenomena of tolerance of certain target species, adverse effect on non-target species, premature failure in field conditions and potential differences in performance linked to geographical and climatological conditions, increasing uncertainty under climate change scenarios. This project explores the performance profiles of different antifouling measures through a multi approach perspective, with both in-field and laboratory experiments, in order to: i) assess differences in the structure of fouling communities in a variety of climatic conditions; ii) analyze the effects of different climate change scenarios on the chemical leaching; iii) assess the toxicity profiles.