Investigation of autofluorescence in zooplankton for use in classification of larval salmon lice

We present autofluorescence of six zooplankton species, including salmon lice (Lepeophtheirus salmonis), for the purpose of classification in marine environments. Using a 410 nm excitation wavelength, we find that all measured zooplankton species exhibit broad cyan fluorescence centered around 510–520 nm. Furthermore, salmon lice show an absence of red fluorescence from undigested chlorophyll, which is measured from the gut of the herbivorous zooplankton species. We show the capability to distinguish noneating species, including salmon lice, from algae-eating species using a dual-band analysis of the fluorescence spectra. This shows the potential of autofluorescence as an important signature in real-time monitoring and classification of salmon lice.

Investigation of optical signatures for discriminating salmon lice from other species of zooplankton

We present a study of optical signatures of salmon lice and the ability to distinguish them from a reference zooplankton species. This forms the basis for developing an instrument for detecting salmon lice in situ.
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