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Workshop 1: Use of zooplankton indicators to characterize state of pelagic ecosystems

THE PLANKTON INDEX: A LIFEFORMS AND STATESPACE APPROACH TO TRACKING CHANGE IN PELAGIC ECOSYSTEMS

Paul Tett, Scottish Association for Marine Science (SAMS) Clive Fox, SAMS Richard Gowen, SAMS Cordula Scherer, SAMS Abigail McQuatters-Gollop, SAHFOS/University of Plymouth Kathryn Cook, Marine Scotland - Science

ABSTRACT

The Plankton Index (PI) has been developed for tracking change in the 'pelagic habitat' for purposes of the Marine Strategy Framework Directive (MSFD) Qualitative Descriptors relating to biodiversity and food-webs. Monthly observations of the abundance of phytoplankton and zooplankton taxa are aggregated into lifeform abundances and plotted in a state-space defined by axes of these abundances. A geometric method is used to calculate change from a 'reference state'; significant changes in state can be compared with changes in pressures and used to initiate 'programmes of measures' under the MSFD. The PI tool has been extensively tested with phytoplankton data. This presentation will introduce the theory and methods for application to zooplankton data, illustrated with data from the Continuous Plankton Recorder survey and townet sampling at fixed stations, and will discuss principles by which 'reference states' may be equated with the Good Environmental Status that is the target condition for the MSFD in 2020.

KEYWORDS: MSFD, pelagic habitat, plankton functional groups, GES, ecosystem change

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