

Causal Complexity in the Organic Soup

Perspectives from marine system ecology

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How can individual-based interactions on micro-scale impact large-scale global processes? The ocean contains more than is visible to the human eye. In fact, it may be described as an “organic soup” where the main ingredients are inorganic nutrients, viruses, bacteria, algae and zooplankton. Through complex interactions – many of them only rudimentary understood – these tiny organisms (i.e. the plankton) are not only forming the basis of the marine food chain; they are also important drivers in the ocean carbon-cycle, which again is tightly connected to the global climate. In this lecture I will give a brief introduction to the ingredients and main actors in the organic soup, and present some examples of complex causal interactions from a system ecological perspective.