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Why a risk framework for marine debris?

Applying a systems perspective to understanding the marine debris issue requires a means of conceptualizing the sources, distribution and dynamics of debris in the environment; identifying or quantifying impacts on wildlife, humans and other assets; and identifying and evaluating potential management responses. There is also a significant degree of uncertainty in our knowledge. Resolving this uncertainty can be challenging, given that we are confined to working with largely observational data because experiments at scale are difficult or impossible. To advance this area of research, we suggest applying a conceptual framework that allows us to break the components into smaller parts that can integrate uncertainty and connect variables of interest to outcomes of interest. We identify four specific questions inherent to a risk framework: the first three focus on risk analysis, and the fourth on risk management or mitigation. In this talk, we present examples that are both data rich and data poor and we discuss the value of integrating a systems perspective, connecting sources and drivers to dynamics and distribution to impacts and management responses. We also discuss the precautionary principle and its application to risk management in the plastics pollution issue.