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TITLE: The science-policy interface of risk-based freshwater and marine management systems: From concepts to practical tools

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ABSTRACT:

Maintaining the current state of ecosystem services from freshwater and marine ecosystems around the world is at risk. Cumulative effects of multiple human pressures on ecosystem components and functions are indicative of residual pressures that ?fall through? the cracks of current industry sector management practices. Without an understanding of the level of residual pressures generated by these measures, we are unlikely to reconcile the root causes of ecosystem effects to improve these management practices to reduce their residual pressures. In this paper, we present a new modelling framework that combines a qualitative and quantitative assessments of the effectiveness of the measures used in the daily operations of industry sectors to predict their residual pressure that is delivered to the ecosystem. The predicted residual pressure can subsequently be used as an input variable for ecosystem models. We combine the Bow-tie analysis of the measures with a Bayesian belief network to quantify the effectiveness of the measures and predict the residual pressures.

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