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ECETOC Task Force explores strategies for assessing effects of chemical mixtures on aquatic communities

BRUSSELS, 12 May 2020: A study by ECETOC has explored the challenge of assessing the effects of mixtures of chemicals on aquatic communities comprising many species.

Chemical safety assessment generally studies the effects of a single substance on a single species. In the real environment, however, the situation is much more complex and assessing the potential effects of mixtures of chemicals on communities of different aquatic species can result in an almost infinite number of chemical and ecological interactions and combinations.

Not all combinations of the factors involved will be found in nature. For example, certain species compositions will only be found under specific environmental conditions. It is therefore not necessarily informative or efficient to consider all these theoretical combinations in mixture toxicity testing. A sensible first step is therefore to focus on the scenarios that are most frequently encountered.

The Task Force's report presents an overview of the different modelling approaches, evaluating their advantages and disadvantages, from effects at the individual species level through to populations, communities and ecosystems. It then proposes a strategy for studying mixture effects that is based on (1) chemical classification; (2) ecological scenarios; and (3) model-aided synthesis and design of informative experimenting. For underpinning the workability of the strategy, a research agenda is outlined which can then feed into an intelligent experimental design of mixture studies that focuses on testing key assumptions and predictions of the models.

The full report, *Exploring community-based environmental hazard assessment of mixtures using mode-of-action based approaches*, can be found here.

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NOTE TO EDITORS

For more information about the Technical Report, contact Olivier de Matos at olivier.dematos@ecetoc.org.

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