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RANKING RELATIVE IMPORTANCE OF MARINE MONITORING PARAMETERS WITH BAYESIAN NETWORKS

Johanna Ärje (1), Laura Uusitalo (2), Samu Mäntyniemi (3), Kristian Meissner (4), Juhani Kettunen (5)

(1) University of Jyväskylä, Department of Mathematics and Statistics, Finland, (2) Marine Research Center, (3) Univesity of Helsinki, Department of Environmental Sciences, (4) Finnish Environment Institute, Freshwater Centre, (5) Finnish Environment Insitute, Executive Management Support Unit

ABSTRACT

The marine strategy framework directive requires monitoring and assessment of food webs, biodiversity, marine mammals etc. However, decreasing funding calls for assessing the most effective ways of managing this monitoring task. A hierarchical Bayesian network (Jensen, 2001) is used to rank Finnish marine monitoring parameters according to their importance in the bio-monitoring of the Baltic Sea. The ranking is based on data of expert evaluations of the importance of different monitoring parameters at three stages and the experts' individual knowledge on each subject. The model consists of three levels (descriptors, indicators and variables) and on each level the evaluation of importance of that level's parameters is dependent on the expertise of the respondent. The model can determine the most and least important monitoring parameters. This information could be further used to streamline future marine monitoring programs. The same approach could be utilized in other monitoring programs as well.

Jensen, F.V. 2001. Bayesian networks and decision graphs. New York, Springer.