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# USE OF MANAGEMENT STRATEGY EVALUATION TO ASSESS PERFORMANCE OF HARVEST CONTROL RULES

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**SUBTHEME: Evaluating existing ABC control rules: issues, challenges and solutions**

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## BIO

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**Dr. André E. Punt** is a Professor in the School of Aquatic and Fishery Sciences at the University Washington, Seattle, USA and the currently the Director of the School. He received his B.Sc, M.Sc and Ph.D. in Applied Mathematics at the University of Cape Town, South Africa. Before joining the University of Washington, Dr Punt was a Principal Research Scientist with the CSIRO Division of Marine and Atmospheric Research in Australia. Dr. Punt has been involved in stock assessment and fisheries management for over 25 years and has been recognized for his contributions in this area with awards from CSIRO, the University of Washington, the Australian Society for Fish Biology, and the American Fisheries Society. The research undertaken by Dr. Punt and the MPAM (Marine Population and Management) group at the University of Washington relates broadly to the development and application of fisheries stock assessment techniques, bioeconomic modelling, and the evaluation of the performance of stock assessment methods and harvest control rules using the Management Strategy Evaluation approach. Dr. Punt has conducted stock assessments for a wide range of species, ranging from anchovies and sardines, to groundfish, tunas, and cetaceans. Dr. Punt has published over 250 papers in the peer-reviewed literature, along with over 400 technical reports. He was recently a member of a National Research Council panel on evaluating the effectiveness of fish stock rebuilding in the United States. Dr Punt is currently a member of the Scientific and Statistical Committee of the Pacific Fishery Management Council, the advisory committee for Center for the Advancement of Population Assessment Methodology, the Crab Plan Team of the North Pacific Fishery Management Council, and the Scientific Committee of the International Whaling Commission.

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## ABSTRACT

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Management strategy evaluation (MSE) involves using simulation to compare the relative effectiveness for achieving management objectives of different combinations of data collection schemes, methods of analysis, and subsequent processes leading to management actions. MSE has been used to evaluate the theoretical properties of management strategies, and the behavior management systems for single species and in an ecosystem context, although most implemented

management strategies are single-species. However, the value of an MSE depends on the extent to which it addresses the objectives for management, and characterizes uncertainty, as well as how closely the analysts work with managers and key stakeholder groups. The results of MSE studies have used to lesser extent in US fisheries compared to those in Australia, South Africa, and Australia, even though many MSE studies have been undertaken for US fisheries and the results reported in the literature. Four case studies (generic ABC/ACL control rules for data poor species, OFL/ABC/HG control rules for the northern subpopulation of Pacific sardine, rebuilding strategies for west coast groundfish, and ABC control rule for fisheries in the North Pacific) are used to illustrate the types of situations to which MSE can be applied and highlights the lessons learnt regarding how to use MSE to evaluate management strategies for US fisheries, and the extent to which each case study applied the ‘best practice guidelines’ developed by Punt *et al.* [*Fish and Fisheries* in press].