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20 April, 2008

Dr. Jennifer Nielsen
AFS Ricker Award Committee

Dear Jennifer,

I would like to nominate Dr. David Fournier for the William E. Ricker Resource Conservation Award. If Ricker is considered the grandfather of modern fisheries stock assessment, then Fournier should be considered the father. Ricker laid the foundation for quantitative analysis of fisheries data. Fournier extended Ricker's work, made it more statistically rigorous, and developed the tool (AD Model Builder) that has become central to the implementation of these stock assessment methods around the world.

The landmark paper "Fournier, D. and Archibald, C.P. (1982) A general theory for analyzing catch at age data. Canadian Journal of Fisheries and Aquatic Science 39, 1195-1207" is the basis for all modern stock assessment methods. Fournier and Archibald describe how multiple sources of data can be integrated into a single analysis, using a maximum-likelihood context. This integrated approach is now standard in fisheries stock assessment. The integrated approach has also become standard for research in wildlife and other fields. The Fournier and Archibald article has been cited 147 times in ISI web of science, which is impressive for an article published in a fisheries journal. Dr Fournier has furthered the methodology in a number of subsequent papers.

Of even more practical importance, to implement the integrated modeling approach, Dr Fournier developed the software package AD Model Builder (ADMB), which has become the standard for developing fisheries stock assessment models and has earned acceptance by researchers working on all aspects of resource management. Population models based on the ADMB software are used to monitor more than 150 different species around the world. The populations modeled using ADMB include such diverse species as whales, dolphins, sea lions, penguins, albatross, abalone, lobsters, tunas, billfishes, sharks, rays, anchovies, and pollock.

ADMB applications extend beyond stock assessment. ADMB-based software is used for applications critical to the development of place-based management policies. ADMB is an essential building block of the methods used to reconstruct movements of many species of animals tracked with electronic tags. Spatially-resolved population models treat movement as an integral component of population dynamics, and depend on ADMB for estimating movement parameters from data.

ADMB applications are critical to the missions of fishery management agencies in North America and elsewhere. Stock assessments of commercially-important fish stocks and ecologically-sensitive protected species around the world depend on ADMB. For example, ADMB underlies the Stock Synthesis II software that is immensely popular in North America. In the United States, every NOAA Fisheries Science Center uses ADMB in some fashion, and many commercially-important and sustainably-managed fisheries depend on ADMB-based stock assessments. These fisheries include, for example, the Gulf of Alaska pollock fishery, which is widely hailed as sustainably managed. The value of the fisheries dependent on ADMB-based assessments is enormous. The combined landed value of tropical Pacific tunas and Gulf of Alaska and Bering Sea ground fish exceeds US\$10 billion.

ADMB is also used at universities and other academic and research institutions. Due to ADMB's wide use in fisheries assessment and management, it is now taught in courses at several universities. The research organizations, government departments, and companies using ADMB, the types of applications being used, and a list of ADMB-based publications can be found on-line at <http://admb-project.org>.

I hope that you find the nomination of Dr. Fournier favorable, so that he gets the recognition that he deserves for advancing fisheries stock assessment to where it is today.

Sincerely,

Sincerely,

A handwritten signature in black ink that reads "Ray Hilborn". The signature is written in a cursive, flowing style with a long horizontal flourish at the end.

Ray Hilborn
Richard C. and Lois M. Worthington Professor of Fisheries Management