



Media Release

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NEW STUDY LEADS TO FASTER ANALYSIS

A new mathematical study by Marine and Freshwater Resources Institute's scientists may lead to improvements in the fish ageing process.

The study investigated the application of artificial neural networks (ANNs) to estimate age of fish. The ANNs provide solutions to problems, which normally require human observation and thought. ANNs are used in many applications for economic and financial forecasting, speech and pattern recognition, oil and gas exploration and bankruptcy prediction.

To establish the ANN, data including fish length, fish weight, earbone weight and image information, sex of fish, area of capture and date of capture from nine species of popular fish were used as inputs to the models. Outputs entered into the models were 37,000 individual age estimates.

MAFRI researcher, Simon Robertson, said: "Different combinations of data and different neural network models were tested with several combinations producing successful age estimates, but not for all the species of fish tested."

ANNs demonstrated accuracy in age estimation but were not as precise as those obtained by an experienced earbone reader. The scientists concluded that the application of ANN to automating the ageing process was extremely promising but would require further refinement of the models before it is widely adopted for routine fish ageing.

The project was funded by Fisheries Victoria and the Fisheries Research and Development Corporation

MAFRI's Central Fish Ageing Facility uses a technique to examine fish ear bones which are prepared by experienced technicians so that they can identify and count the number of rings under a microscope to establish a fish's age. The interpretation relies on an experienced reader analysing the results.

The CAF was established more than 10 years ago and is widely used for fish research by international and domestic businesses.