

# MEDIA RELEASE

## NEWS FROM THE UNIVERSITY OF TASMANIA

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ATTENTION: Chiefs of Staff, News Directors

### Scientists question fisheries health test

A measure widely advocated as a means of assessing the health of marine ecosystems is an ineffective guide to trends in biodiversity, and more direct monitoring is needed, a new study has found.

The study, led by University of Washington fisheries scientist Trevor A. Branch, is reported today in a letter to *Nature* titled „The trophic fingerprint of marine fisheries“.

It looked at whether changes in fishery catches reflect changes in the structure of marine food webs, and therefore are a suitable guide to assess the impacts of fishing on marine ecosystem health.

Beth Fulton from the CSIRO Wealth from Oceans Flagship and Sean Tracey from the Tasmanian Aquaculture and Fisheries Institute (part of the Institute for Marine and Antarctic Studies at the University of Tasmania) were part of the international team involved in the study.

“Biodiversity indicators are used to track the impacts of fishing as a guide to management effectiveness,” Dr Fulton says.

“The most widely adopted indicator of biodiversity in the ocean at a global scale is the „average trophic level“ (position in the food chain) determined from fishery catches.

“This is intended to detect shifts from high-trophic-level predators such as Atlantic cod and tunas to low-trophic-level fish, invertebrates and plankton-feeders such as oysters.”

The study was the first large-scale test of whether average trophic level determined by fishery catch is a good indicator of ecosystem average trophic level, marine biodiversity and ecosystem status.

“We looked at average trophic level determined from a range of sources including global fishery catches, long-term surveys, stock assessments and complex computer modelling for marine ecosystems around the world,” Dr Tracey says.

“In contrast to previous findings, which reported declines in catch average trophic level thought to be due to the loss of large fish and the increasing catch of small fish, we found that catches are increasing at most levels of marine food webs and that the average trophic level has actually increased in the past 25 years.

“We also found that average trophic level determined from fishery catches does not reliably measure the magnitude of fishing impacts or the rate at which marine ecosystems are being altered by fishing.”

Dr Tracey says global fisheries are at a crucial turning point, with high fishing pressure being offset in some regions by rebuilding efforts. Relying on the average trophic level of catch could mislead policy development.

“To target limited resources in the best way, we should focus on assessing species vulnerable to fishing that are not currently assessed effectively, and on developing and expanding trend-detection methods that can be applied more widely, particularly to countries with few resources for science and assessment,” Dr Fulton says.

“Through such efforts we can better detect and convey the true impact of fisheries on marine biodiversity.”

Link to *Nature* and University of Washington media release:

<http://www.nature.com/nature/journal/v468/n7322/full/nature09528.html>  
<http://uwnews.org/article.asp?articleID=61283>

Science magazine's news story

<http://www.sciencemag.org/content/330/6007/1029.full>

Nature magazine's news story

<http://www.nature.com/news/2010/101117/full/news.2010.619.html>

