Federal polar bear research critically flawed, says new study

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Research done by the U.S. Department of the Interior to determine if global warming threatens the polar bear population is so flawed that it cannot be used to justify listing the polar bear as an endangered species, according to a study being published later this year in Interfaces, a journal of the Institute for Operations Research and the Management Sciences (INFORMS®).

On April 30, U.S. District Judge Claudia Wilken ordered the Interior Department to decide by May 15 whether polar bears should be listed under the provisions of the Endangered Species Act.

Professor J. Scott Armstrong of the Wharton School says, “To list a species that is currently in good health as an endangered species requires valid forecasts that its population would decline to levels that threaten its viability. In fact, the polar bear populations have been increasing rapidly in recent decades due to hunting restrictions. Assuming these restrictions remain, the most appropriate forecast is to assume that the upward trend would continue for a few years, then level off.

“These studies are meant to inform the US Fish and Wildlife Service about listing the polar bear as endangered. After careful examination, my co-authors and I were unable to find any references to works providing evidence that the forecasting methods used in the reports had been previously validated. In essence, they give no scientific basis for deciding one way or the other about the polar bear.”

Prof. Armstrong and colleagues originally undertook their audit at the request of the State of Alaska. The subsequent study, "Polar Bear Population Forecasts: A Public Policy Forecasting Audit," is by Prof. Armstrong, Kesten G. Green of Monash University in Australia, and Willie Soon of the Harvard-Smithsonian Center for Astrophysics. It is scheduled to appear in the September/October issue of the INFORMS journal Interfaces.

Professor Armstrong is author of Long-Range Forecasting, the most frequently cited book on forecasting methods, and Principles of Forecasting. He is a co-founder of the Journal of Forecasting, the International Journal of Forecasting, the International Symposium on Forecasting, and forecastingprinciples.com.

The authors examined nine U.S. Geological Survey Administrative Reports posted on the Internet at usgs.gov/newsroom/special/polar_bears/ . The studies include "Forecasting the Wide-Range Status of Polar Bears at Selected Times in the 21st Century" by Steven C. Amstrup et. al. and "Polar Bears in the Southern Beaufort Sea II: Demography and Population Growth in Relation to Sea Ice Conditions" by Christine M. Hunter et al.

Prof. Armstrong and his colleagues concluded that the most relevant study, Amstrup et al. properly applied only 15% of relevant forecasting principles and that the second study, Hunter et al. only 10%, while 46% were clearly contravened and 23% were apparently contravened.

Further, they write, the Geologic Survey reports do not adequately substantiate the authors' assumptions about changes to sea ice and polar bears' ability to adapt that are key to the recommendations.

Therefore, the authors write, a key feature of the U.S. Geological Survey reports is not scientifically supported.

The consequence, they maintain, is significant: The Interior Department cannot use the series of reports as a sound scientific basis for a decision about listing the polar bear as an endangered species.

Prof. Armstrong testified before the U.S. Senate Committee on Environment & Public Works on January 30, 2008 in a hearing, "Examining Threats and Protections for the Polar Bear." A portion of the testimony can be viewed on a website partly supported by Prof. Armstrong and questioning climate change theclimatebet.com/ .

Source: Institute for Operations Research and the Management Sciences

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