

# **The Role of Science in Applying the Precautionary Approach to the Magnuson-Stevens Fishery Conservation and Management Act**

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Science underpins the precautionary approach which in essence is comprised of management protocols for making conservative decisions in the face of scientific uncertainty. The principal role for science is the accurate and complete display of uncertainty using pre-defined terms and protocols that couple scientific uncertainty and management actions to be undertaken by the agency. Science provides the information that triggers management actions. Management defines what those triggers are and makes the policy decisions on the levels of risk taken by the triggers. In reality, however, the development and selection of the triggers and the associated risk must be done collaboratively but with management bearing the burden of ultimate choice. To many, implementation of the precautionary approach is inherently at odds with training in the scientific method which prescribes the testing of a null (or no effect) hypothesis. In essence, one is trained to prove an effect. On the other hand, the precautionary approach presumes effects from controllable human actions and requires proof that those actions are safe. Furthermore, it requires proof of effects beyond human control. The standards of proof are set by the cost of a negative outcome. A collaborative effort between science and management is needed to assign the appropriate cost.