

Scientific Peer-Review in the Endangered Species Act

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Good morning. I am Deborah Brosnan, President and founder of the Sustainable Ecosystems Institute (SEI). The institute is a public-benefit non-profit organization, that provides impartial scientific support for conservation. We are rigorously non-partisan, and seek science-based, cooperative solutions that benefit both the environment and the human communities that depend on it. Currently over 300 scientists work with the institute to provide support to government, the private sector and citizen groups. Our work ranges from fundamental research to mediation, and the integration of science with policy.

Since our inception in 1992, the institute has worked to strengthen scientific principles and methods integral to the application of the Endangered Species Act. The ESA remains a key piece of the nation's environmental laws. In common with many other scientists, we support legislation that protects the biodiversity that, ultimately, supports us.

In recent years, there has been extensive comment and critique of management under ESA. These critiques come from every side of the debate, but contain some themes that are common to all points of view. All parties, for instance, agree that the role of science

needs to be enhanced. There are many calls for a wider and more effective use of independent and impartial scientific analysis. Of course, the Fish and Wildlife and National Marine Fishery Services (USFWS and NMFS) have committed to the use of scientific excellence, and indeed employ many fine scientists. However they would probably be the first to acknowledge the need for more resources, and better integration of their efforts with the nation's other scientific resources. This is a point of view shared across the political spectrum.

Central to the idea of improving ESA science is the concept of peer review. Peer review is the scientific equivalent of quality control – it is our profession's method of ensuring that analyses are carried out appropriately, that the best data are used, and that the conclusions drawn are appropriate. Peer review is a normal scientific process, for which there are long-established protocols, and which is widely applied to decisions about scientific publication and funding. However more practical applications, for instance to management of resources, are less frequent. The Magnusson Act is an example of an explicit application of peer review to an important conservation issue.

It is already the policy of NMFS and USFWS that important decisions, such as listing actions, are subject to external peer review. However the widespread calls for increased use of peer review, as outlined in my accompanying table, testify to the general feeling that a more systematic and open process is desirable. At least 63 organizations, groups or individuals have separately called for inclusion of peer review into ESA revisions. The information in the table is revealing: resource user groups call for review of listing

actions, while environmental organizations call for review of Habitat Conservation Plans and Recovery Plans. Essentially, each group wants to have impartial review of actions affecting their particular concerns. They are united in their common belief that an independent review would lead to better decisions and more effective management.

Perhaps these different groups all believe that their views on resource management would prevail following peer review. If so, they are mistaken. Science is value neutral. It can sometimes appear to favor one political point of view, sometimes another, though in fact it favors none. Scientific peer review can however be of great use in ensuring that good science is appropriately incorporated into management actions, in making decisions transparent, in ensuring that a fair and reasonable process is followed, and in making better decisions for natural resources. If the different groups want to see that conservation decisions are based on the best science, then peer review can indeed help. There is nothing to fear about the idea of peer review; however I will also argue that it is important to have a well thought out, and systematic process.

In the past few months, SEI has begun a pilot process to assist the Fish and Wildlife Service with peer review. This is a pro-bono effort by our scientists, and supports the Service's existing policies and processes. Regional offices have been encouraged by the Service's Director to use SEI's assistance in finding and enlisting outside reviews. We have organized the National Network for Conservation Science, consisting of 300 volunteers, who provide help to the Service. Network participants are faculty at major

universities and other experts, including 6 members of the National Academy of Sciences.

It is early days in this experiment, but we can provide some information on success rates. In the accompanying graphic I show that the Service has diligently sought out peer reviewers on their recent regulatory actions – often without recourse to SEI help. Sometimes they have been successful in obtaining reviews, as in the case of listing of the Alabama Sturgeon and other issues. Sometimes, however, the Service has sought reviews, but has not been successful in getting cooperation from the independent scientists. For instance, on Critical Habitat of the Arkansas Shiner, the Desert Bighorn and the California Gnatcatcher, all affecting large areas of habitat, no review was received from any of the 17 scientists approached by the Service. SEI usually has higher success rates in our program for the Service and other reviews. Typically we obtain 96% response rates.

I believe the elevated response rates are explained by several factors. Firstly, we have provided an infrastructure that allows the effective engagement of interested scientists, and ensures that such scientists are willing and able to respond, within the limited timeframes of agency actions. Secondly, as practicing scientists, we ‘speak the same language’ as the reviewers, and can explain our needs effectively. There is a substantial difference between the cultures of academia and regulatory agencies, so that the needs of one are not apparent to the other. Thirdly, we provide rewards to reviewers, either financial or professional, that encourages their response. Fourthly we act as a buffer to

protect the integrity of the scientist and science. We look forward to further development of this review program with the Service, and believe that innovative, cooperative programs could meet many of the goals of all interested parties.

Peer review is not however a panacea. As I have previously outlined in an article for the National Academy (attached) simple extension of the academic model of peer review to applied management decisions can lead to significant problems. Peer review itself needs to be reexamined and carefully designed in order for it to be effective. Some examples: peer review in public decision making cannot be anonymous as in academia; the standard of proof criterion is different in the different contexts; decisions have to be made even when science is incomplete, or we will face 'paralysis by analysis'. Because the science is used in a non-academic and management arena, it is important to maintain the integrity of the science and scientists. Scientists should not be asked to become managers or to defend a manager's preferred option.

The lessons we have learned so far have been useful. Working within existing policies of the regulatory agencies, peer review can indeed contribute to effective management. Academic models of review, and existing infrastructures are however insufficient to the task. With the USFWS and our other partners we have begun a process to build the necessary structures - improvements are definitely possible, and resources will be needed. We estimate that a national program to provide peer review would cost between 3 to 5 million dollars annually (of course as a non-profit we cost a lot less than a federal agency would.) Peer review is a serious and professional undertaking. An ad hoc or poorly

thought-out approach will lead to frustration. However, if properly implemented, peer review can contribute much to the ESA and other natural resources decisions.