



# MARINE MAMMAL COMMISSION

19 August 2011

NOAA Scientific Integrity Team

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Dear Scientific Integrity Team:

In June 2011, NOAA became the second agency to publicly issue a draft of its Scientific Integrity Policy (76 Fed. Reg. 36094). The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the National Oceanic and Atmospheric Administration's (NOAA) working draft revision to its Scientific Integrity Policy and Handbook, NOAA Administrative Order 202-735D. The Commission commends NOAA for its draft policy, which is well considered, thorough, and adheres closely to the letter and intent of the memoranda from the President and Dr. Holdren. Nonetheless, the Commission believes that the policy should go further, and offers the recommendations herein to strengthen the policy.

## RECOMMENDATIONS

The Marine Mammal Commission recommends that NOAA adopt and implement its Scientific Integrity Policy and Handbook, after making changes to—

- define, interpret, and discuss the terms “transparency” and “traceability” in its policy;
- fully describe the policies, procedures, guidelines, and mandates related to the development and dissemination of scientific and technical products, especially for those cases where the policies, procedures, guidelines and mandates restrict or prohibit the development and dissemination of scientific and technical products;
- identify the ‘timely dissemination’ of science as one of the principles of scientific integrity, and include explicit guidelines for the timely dissemination of scientific findings, and the data and analyses upon which the findings are based;
- revise section 4.03 of the policy to characterize its scientists’ viewpoints on matters consistent with their expertise as “expert opinion” rather than “personal opinion”;
- expand its handbook to include descriptions of the structural changes that will be made, procedures that will be put in place, resources that will be allocated, and performance-assessment processes that will be used to ensure that its scientific integrity policies become integral to its culture and operations;
- specify in the policy, and in the interest of transparency, those special circumstances wherein NOAA anticipates the data and models underlying regulatory proposals or policy decisions might not be made available;
- revise the policy to require the use or development of streamlined, rapid, or otherwise customized, peer-review processes for situations in which the standard peer-review procedures would not be effective or timely and, furthermore, specify within the policy the criteria to be used to delineate those situations in which modified peer review is to be used; these changes also should be reflected in the code of ethics;
- revise the policy to stipulate explicitly and in detail what whistleblower protections are or will be put in place, and revise the Handbook to describe the procedures to be followed to

- ensure that whistleblowers are protected, and treated justly and fairly; these changes also should be reflected in the code of ethics;
- revise its policy to require communication of information on scientific uncertainty, projections and/or expected best-/worse-case scenarios, and standard operating procedures, and that the policy describe clearly the circumstances when this practice would not be necessary and/or appropriate;
  - revise its policy to require communication of scientific integrity policies to employees, contractors, and grantees who assist with developing and applying the results of scientific activities, and that the policy specify those special situations in which it would not be appropriate to communicate that information; and
  - expand its policy to identify and address those external factors that might damage its scientific integrity, and to lay out the policies and procedures that will be necessary to mitigate those influences.

## **RATIONALE**

### **Background**

Science provides a foundation for resource and environmental conservation and management decisions made by the federal government. Society's confidence in those decisions depends on the integrity of the science and scientific processes conducted by federal scientists and agencies. In March 2009 President Obama issued a Presidential Memorandum, stating that "the public must be able to trust the science and scientific process informing public policy decisions." The memorandum identified key elements of scientific integrity; e.g., political officials should not "suppress or alter" scientific findings, the public should have access to scientific information, and scientific activities should be transparent. The memorandum also directed executive branch agencies to establish rules and procedures to "ensure the integrity of the scientific process," subject their science to peer review, make scientific information used in policy decisions available to the public, establish procedures to deal with scientific misconduct, and protect whistleblowers.

In December 2010, John Holdren, Assistant to the President for Science and Technology and Director of the Office of Science and Technology Policy, issued a memorandum to the heads of executive departments and agencies providing further guidance on this topic. The Holdren memorandum stated that agencies should: "ensure a culture of scientific integrity," "strengthen the actual and perceived credibility of Government research," "facilitate the free flow of scientific information," and "establish principles for conveying scientific and technological information to the public."

### **Purpose (Section 1)**

The Marine Mammal Commission supports NOAA's intent to, above all, "promote a continuing culture of scientific excellence and integrity" (section 1, Purpose), as called for in the Holdren memorandum.

## **NOAA Principles of Scientific Integrity (Section 4)**

NOAA's policy establishes eight scientific integrity principles, which are consistent with those set forth in the President's and Dr. Holdren's memoranda. The Commission's comments focus on a subset of those principles.

Principle 1. The draft policy identifies core values as transparency, traceability, and integrity (section 4.01). The policy defines "integrity," but does not define "transparency" or "traceability." Given the importance of those terms, the Marine Mammal Commission recommends that NOAA define, interpret, and discuss the terms "transparency" and "traceability" in its policy.

Principle 2. The policy encourages NOAA scientists "... to publish data and findings in ways that contribute to the most effective dissemination of NOAA science" (section 4.02). Although the Commission commends NOAA for encouraging the free and open dissemination of its science, it believes that adding two important elements would strengthen the policy.

First, the policy states that the "development and dissemination of scientific and technical products must be consistent" with a number of NOAA policies, procedures, guidelines, and mandates. However, those policies, procedures, guidelines, and mandates are not clearly identified or referenced. Given concern over the suppression of scientific information by the federal government, and NOAA's identification of transparency as a core principle of scientific integrity, NOAA should make its policy as transparent as possible. Therefore, the Marine Mammal Commission recommends that NOAA, in its policy, fully describe the policies, procedures, guidelines, and mandates related to the development and dissemination of scientific and technical products, especially for those cases where the policies, procedures, guidelines, and mandates restrict or prohibit the development and dissemination of scientific and technical products.

Second, although NOAA identifies the "timely" dissemination of "scientific or technological findings or conclusions considered or relied on in policy decisions" to the public as an element of its Code of Ethics (section 7.01e), it does not describe what constitutes 'timely' or include in section 5 the timely dissemination of scientific information as a principle of scientific integrity. Given the increasing pace at which human activities are affecting the marine environment, the utility of NOAA's science depends heavily on its timely dissemination. This is not a trivial matter, as some marine datasets lie dormant for years without analysis and publication. With such concerns in mind, the Marine Mammal Commission recommends that NOAA, in its policy, identify the 'timely dissemination' of science as one of the principles of scientific integrity, and include explicit guidelines for the timely dissemination of scientific findings, and the data and analyses upon which the findings are based.

Principle 3. The Commission also supports NOAA's "culture of openness" and the ability of its scientists to "freely speak to the media and the public about scientific matters based on their official work" (section 4.03). The policy notes that those matters may include "scientific and technical ideas, approaches, findings, and conclusions." In the subsequent section (4.04) the policy also states that "NOAA scientists are free to present viewpoints within their area of professional expertise that extend beyond science to incorporate personal opinion but must make clear that they

are presenting their individual opinions when doing so – not the views of the Department of Commerce or NOAA.”

The Marine Mammal Commission does not agree with the characterization of any “viewpoint” that extends beyond the conclusions of the scientific work as “personal opinion.” A wide range of possible viewpoints may extend beyond one’s scientific work, but only one end of that spectrum would be appropriately characterized as personal opinion. Some extensions would clearly fall into the realm of personal opinion. For instance, a viewpoint on the value of conserving or exploiting a resource, even though the viewpoint might be informed by a deep understanding of the factors affecting the resource, should be treated as personal opinion. However, the other end of the scale may include expert viewpoints that involve the interpretation of a larger body of science. For example, the response of a scientist who is working on echolocation in dolphins and is asked to interpret that work in light of data showing an increase in anthropogenic noise in the ocean should be considered “expert opinion.” Similarly, if a NOAA scientist was asked about the implications of her or his scientific work with respect to a particular management option under consideration, then it is entirely reasonable that she or he would be able, and possibly expected, to give her or his expert interpretation. Here, too, the response should be treated as expert opinion. To restrict the scientific communications of NOAA scientists strictly to their own work, and to label any other statements as personal opinion and divorced from the agency, would be to significantly restrict the effectiveness of the agency’s scientists, and, therefore, its science. Science produced by an agency with regulatory responsibilities is most useful to decision makers when it is interpreted in light of other science or policy/management options or viewpoints. The Marine Mammal Commission recommends that NOAA revise section 4.03 of the policy to characterize its scientists’ viewpoints on matters consistent with their expertise as “expert opinion” rather than “personal opinion.”

### **NOAA Policy on Integrity of Scientific Activities (Section 5)**

Section 5.01 of the policy states that “NOAA scientists, science managers, and supervisors shall uphold the fundamental Principles of Scientific Integrity, the Code of Scientific Conduct, and the Code of Ethics for Science Supervision and Management.” Section 5.02 of the policy includes 11 steps considered necessary to preserve the integrity of NOAA’s science. Examples include the need to “facilitate the free flow of scientific information,” “document the scientific information considered in decision making,” “ensure that the selection of and retention of employees in [science] positions ... are based on ... integrity, knowledge, credentials, and [relevant] experience,” and “communicate policies for ensuring scientific integrity and responsibilities to employees, contractors, and grantees.”

The Marine Mammal Commission supports those steps, but also suggests that NOAA should provide specific measures to ensure that they are followed. For example, such measures might include training, formal acknowledgement of the policy, inclusion of performance standards, or use of incentives or disincentives. In addition, NOAA should describe how it will document the scientific information considered in decision making.

NOAA’s working draft “Procedural Handbook for NOAA Administrative Order (NAO) 202-735D” lays out in detail the procedures for responding to allegations of scientific misconduct. Similar specificity is needed to ensure that the policies elucidated in section 5.02 (the steps needed to

preserve scientific integrity) become part of NOAA's procedural fabric and culture. The Marine Mammal Commission recommends that NOAA expand its handbook to include descriptions of the structural changes that will be made, procedures that will be put in place, resources that will be allocated, and performance-assessment processes that will be used to ensure that its scientific integrity policies become integral to its culture and operations.

With respect to the free flow of scientific information, section 5.02a of the policy states that "where appropriate, this information will include data and models underlying regulatory proposals and other policy decisions." The Commission concurs that, as a matter of routine, such data and models should be made available. Although the Commission also recognizes the possibility of exceptions, it believes that those exceptions should be described in advance, to the extent possible. Therefore, the Marine Mammal Commission recommends that, in the interest of transparency, NOAA specify in the policy those special circumstances wherein NOAA anticipates the data and models underlying regulatory proposals or policy decisions might not be made available.

Section 5.02e of the policy states that NOAA will "ensure that data and research used to support policy decisions undergo independent peer review by qualified experts, *where feasible, appropriate, and consistent with law*" (emphasis added). The Commission wonders under what circumstances NOAA believes that peer review is not feasible or appropriate, especially when policy decisions are being made. There may be situations in which standard peer review is not feasible, such as during emergencies. Nonetheless, since peer review is such an integral part of ensuring scientific integrity, it should be undertaken if at all possible. To that end, the Marine Mammal Commission recommends that NOAA revise the policy to require the use or development of streamlined, rapid, or otherwise customized, peer-review processes in those situations in which the standard peer-review procedures would not be effective or timely and, furthermore, specify within the policy the criteria to be used to delineate those situations in which modified peer review is to be used. These changes also should be reflected in the code of ethics.

Section 5.02f of the policy states that NOAA will "provide information to employees on whistleblower protections." NOAA's reputation rests on the quality and integrity of the science that underpins all of its policy decisions and management actions. Section 5.04 of the policy states: "It is NOAA policy to protect those who uncover and report allegations of scientific and research misconduct, as well as those accused of scientific and research misconduct in the absence of a finding of misconduct, from prohibited personnel practices (as defined in 5 U.S.C. 2302(b))." These statements will not provide employees with sufficient understanding of the processes designed to protect whistleblowers, nor will they give employees the confidence that, if they do come forward, they will be protected from retaliation and retribution. The statements also do not necessarily convey to employees that they will be treated justly if they do suffer retaliation or retribution. Section 7.01g, which echoes the Holdren memo, does state that "science managers and supervisors will ensure [that] additional procedures are adopted, including any appropriate whistleblower protections, as are necessary to ensure the integrity of scientific and technological information." But this statement falls well short of providing sufficient details on how whistleblowers will be protected. For the sake of clarity and completeness the Commission believes that the policy must be explicit about whistleblower protections. The Marine Mammal Commission recommends that NOAA revise the policy to stipulate explicitly and in detail what whistleblower protections are or will be put in place, and revise the Handbook to describe the procedures to be followed to ensure that

whistleblowers are protected, and treated justly and fairly. These changes also should be reflected in the code of ethics.

Section 5.02g of the policy states that NOAA will “communicate scientific and technological findings by including, *when necessary and appropriate*, a clear explication of underlying assumptions; accurate contextualization of uncertainties; and a description of the probabilities associated with both optimistic and pessimistic projections, including best-case and worst-case scenarios.” Again, the Commission is puzzled by the lack of information regarding when such communication would not be necessary and/or appropriate. The Commission believes that the default position should be that the inclusion of information on uncertainty, projections and/or best-/worst-case scenarios should always be part of the communication of scientific or technological findings, except in extraordinary circumstances. Those circumstances can be described through the identification of particular situations, the use of representative examples, or the specification of principles that can be used to define the exceptional circumstances. Therefore, the Marine Mammal Commission recommends that NOAA revise its policy to require communication of information on scientific uncertainty, projections and/or expected best-/worse-case scenarios, and standard operating procedure, and that it describe clearly the circumstances when this practice would not be necessary and/or appropriate.

Section 5.02g of the policy states that NOAA will “communicate policies for ensuring scientific integrity and responsibilities to employees, contractors, and grantees that assist with developing or applying the results of scientific activities, *as appropriate*.” Here too, the Marine Mammal Commission recommends that NOAA revise its policy to require communication of scientific integrity policies to employees, contractors, and grantees who assist with developing and applying the results of scientific activities, and that it specify those special situations in which it would not be appropriate to communicate that information.

Please contact me if you have questions regarding the Commission’s recommendations and comments.

Sincerely,



FOR

Timothy J Ragen, Ph.D.  
Executive Director