

**DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**

**COOPERATIVE INSTITUTE REVIEW FORMAT**

**INTRODUCTION**

NOAA Cooperative Institutes (CI) can most effectively achieve consistent standards of excellence for their scientific activities through periodic reviews. External technical experts, NOAA management, and non-NOAA users of NOAA scientific/technical products conduct these reviews. The CI Review Format establishes the criteria for conducting program evaluations of the NOAA CIs. It is noted that CIs are diverse in their size, structure, and mission and that the review process acknowledges this by having each CI Director involved in setting up the review of their institute.

**SCIENCE ADVISORY BOARD ROLE**

The NOAA Science Advisory Board (SAB) approves the criteria used in all CI science reviews; the SAB also approves the individual members who comprise the review panels. The SAB was created to advise the Under Secretary of Commerce for Oceans and Atmosphere on long- and short-range strategies for research, education and application of science to resource management. The SAB complies fully with the Federal Advisory Committee Act (FACA). Because Cooperative Institute reviews are conducted under the auspices of the SAB, they also fall under the purview of FACA.

**REVIEW PROCESS**

**INITIATING THE REVIEW**

While the SAB establishes the criteria used in CI reviews, the SAB can not independently initiate reviews. The Under Secretary, Assistant Administrators, and Office Directors with Assistant Administrator approval, are the only NOAA officials who can ask the SAB to conduct a science review of a CI. To initiate a review, the Under Secretary or an Assistant Administrator assigns the science review task to the SAB via a charge letter. The charge letter contains information regarding the issues and information that is sought and the expected outcome of the review. SAB acceptance of the review task will be in the form of a letter from the SAB chairperson.

Concurrent with – and even prior to – SAB acceptance of the science review task, NOAA generates a list of potential review panel members whose experience and background span the breadth of the material and issues to be covered in the review. As recommended by the SAB, NOAA should ensure that members of the review panel represent expertise in the following categories: 1) technical; 2) social science, education, and outreach; 3) stakeholders; and 4) science management. A member of the SAB will also be invited to participate. All review panel members – including a review panel chairperson designated by NOAA – are subject to the final approval of the SAB.

**CONDUCTING THE REVIEW**

The science review is accomplished during a site visit to the CI where review panel members undertake a first-hand review of CI science, science management, and education and outreach

efforts. A NOAA CI Program Manager from the relevant line office within NOAA will accompany the review panel. Generally, the first item on the review agenda will be an executive session of the review panel where the NOAA CI Program Manager will orient the team to the science review process and answer any questions the review panel may have. In addition to the science review, NOAA also carries out an administrative review of the CI that examines the administrative procedures associated with the grant management at the CI and relevant parent institution(s). Because the administrative review focuses on requirements imposed by federal regulations for managing federal financial assistance, this review is conducted by NOAA employees with grants management experience.

The SAB believes that successful research and development programs have certain characteristics, or themes. At its July 1999 meeting, the SAB passed a motion to adopt eight overarching themes that should be woven into all aspects of NOAA science and considered in SAB reviews of NOAA science. The intent is to ensure these eight themes form the basis of any SAB review of NOAA science. These should not, however, be viewed as necessary or sufficient criteria for the science review of any individual program to cover in the review process. The SAB believes that the following themes are important parameters to consider relative to the review of NOAA science projects and programs. These themes are not listed in order of priority.

- 1) Quality, Creativity, Integrity and Credibility – NOAA science must be top quality, In general, NOAA is known for and should continue to strive for science that is acknowledged as being credible, reliable, and respected. Therefore, NOAA science needs to be screened and evaluated through appropriate peer review as being of high quality. Appropriate client groups should also express satisfaction that NOAA science is relevant in terms of informing policy decision-making.
- 2) Timeliness, Scale and Scope – NOAA science should be timely in the sense that it will be conducted and completed in a timeframe that is useful to decision-makers. It must also be at a scale and a scope that is useful.
- 3) Science Connected to the Formulation, Application and Operational Implementation of Policy – NOAA science should be directly linked to the information required for policy-setting and decision-making. NOAA science should be designed and conducted with the understanding it is intended to inform and improve decision-making relative to coastal and ocean stewardship responsibilities, and policy formulation in weather, climate, and hydrology.
- 4) Capacity-Building – NOAA has multiple environmental monitoring and stewardship responsibilities which collectively provide the foundation and constitute the nation's ability to assess and address environmental issues. Among these is to assist its partners (including state and local governments, universities, private firms, non-profits, international affiliates, etc.) to build capacity to address scientific and technical questions related to atmospheric, oceanic, coastal and hydrological prediction and assessment efforts. Reviews should address how NOAA science contributes to meeting these responsibilities.
- 5) Education – Working collaboratively with partners, stakeholders, and citizens to protect and restore our environment for the benefit of current and future generations requires far-reaching public education initiatives, public support and public involvement. NOAA also

needs to inform the environmental scientists and practitioners of the future. Therefore, an educational and public outreach component of NOAA science should be encouraged.

- 6) Efficiency – NOAA must effectively coordinate and integrate its scientific and technical capabilities to maximize efficiency and minimize redundancy and counter-productive overlap. Unnecessary programs or program elements must be eliminated. There needs to be greater effort to share expertise within different sectors of NOAA, and all sources of complementary external science capability.
- 7) Social Science Integration – There are important human dimensions to the use of environmental predictions (weather and climate forecasting) and to the management of the Nation’s coastal and ocean resources. Understanding complex environmental systems requires the integration of the social and economic sciences with the biological and physical sciences. Successful integration begins in problem formulation and is present through science activities to the end of the research pipeline.
- 8) Diversity – There is a need to expand involvement of people not historically involved or represented in NOAA science programs. NOAA should take explicit and tangible steps to achieve greater diversity in its science programs, projects, and activities. NOAA systems, policies and practices should encourage diversity and support all employees as they work to reach organizational and professional goals.

Based upon these overarching elements, the SAB requires that four review sections be covered in all CI reviews: 1) strategic plan; 2) science review; 3) education/outreach; and 4) science management. Each of these elements is associated with a specific set of questions to be answered by the review panel (see below). The level in which they are discussed and the level of emphasis each receives is at the discretion of the CI director. Because CIs are diverse in their size, structure, and mission some questions may have limited applicability for particular CIs. Written responses to these questions are provided by the CI and made available to the review panel at least two weeks before to the site visit.

- 1) Strategic Plan
  - a. What is the scientific (not programmatic) vision for the institute?
  - b. How is it related to the NOAA Strategic Plan?
  - c. What are the goals and objectives?
  - d. What criteria are used to measure progress in accomplishing these goals and objectives?
  - e. What are the major scientific themes?
    - i. How were they identified?
    - ii. Which themes/sub-themes are near completion?
    - iii. What are the emerging thematic areas?
  - f. Scientific partnerships
    - i. What is your relationship to the OAR Laboratories and other NOAA entities?
    - ii. What, if any, formal procedures do you have for cooperative planning?
- 2) Science Review
  - a. What are the Institute’s most recent scientific highlights and accomplishments? (Note that this is an opportunity for early-mid career scientists to become acquainted to/by upper NOAA management).

- 3) Education/Outreach
  - a. What types of educational activities/opportunities (K-12, undergraduate and graduate students) does the institute offer on an ongoing basis?
  - b. What are the current and planned outreach efforts?
  
- 4) Science Management
  - a. How does the Institute identify new intellectual opportunities?
  - b. What are some recent examples of intellectual opportunities?
  - c. What is the strategy for new starts (projects, techniques, campaigns, etc.)?
  - d. How much of the Institute resources are reserved for new opportunities or bright ideas?
  - e. What is the demographic structure of the Institute employees?
  - f. What is provided for human resources development (recruitment, rewards, training, etc.)?
  - g. What is the state of the financial health of the Institute? (Provide a budget summary and identify imbalances or needed adjustments.)
  - h. How does the Institute intend to work towards accomplishing its financial goals?
  - i. Are there any issues in interacting with NOAA that require attention?
  - j. Are there any issues in interacting with the University that require attention?

Review panel members should thoroughly familiarize themselves with these questions and the responses provided by the CI prior to the review. Where review panel members feel that the CI responses need elaboration, panel members will need to ensure that they gather the information necessary to provide complete answers to these questions in the subsequent review panel report. Ideally, NOAA and the CI Director will have designed the review agenda to provide panel members with ample opportunity to gather such information. However, if a review panel member feels that additional opportunities are needed, he or she should alert the review panel chairperson as soon as possible so that the agenda can be modified or alternative arrangements can be made. The panel chairperson and the CI director are strongly encouraged to discuss the review prior to the review date to discuss how the review will be conducted and to ensure that the agenda is acceptable to the review panel.

#### **PREPARING THE REVIEW REPORT**

Once the review panel has completed its information-gathering work, it will convene for a final executive session to discuss and arrive at its preliminary findings and recommendations. The panel's findings and recommendations will be organized around the four mandatory elements of CI reviews delineated above. That is, the review panel will discuss its findings with regard to the CI's Strategic Plan, make specific recommendations for improving the CI's Strategic Plan, and then repeat this process for the elements of Science Review, Education/Outreach, and Science Management. While the SAB imposes no limits on the review panel with regard to the number of recommendations that it makes, prior practice suggests that a maximum of ten to twelve total recommendations – or two to three for each specific element – is adequate to provide the CI with guidance on how it might improve its performance. Providing too many recommendations may lead to a situation where the impact of the review panel's advice decreases with each additional recommendation. A concise set of well-focused recommendations, on the other hand, is more likely to achieve the positive change that NOAA hopes to achieve from the CI review process.

Based on the science review panel's evaluation of the CI, the panel will also assign one of three possible ratings:

- a. Outstanding - The CI has consistently demonstrated superior achievement of all initially agreed goals, as well as evidence of an on-going resource commitment that enhances NOAA's resources to support collaborative research. For outstanding performance, NOAA will renew a CI for up to an additional five years at a funding level commensurate with its level of performance, pending availability of funding.
- b. Satisfactory – The CI has achieved some or all of its agreed goals and has demonstrated acceptable performance. Its performance, however, is not considered outstanding and/or the CI's resource commitment provides a limited enhancement of NOAA's resources. For acceptable performance, NOAA may opt to renew a CI for a period less than 5 years that may be at a significantly reduced funding level, pending availability of funding.
- c. Unsatisfactory – The CI has demonstrated a failure to achieve some or all of its agreed goals and its performance is unacceptable and/or the CI has also provided minimal resources to enhance NOAA's resources to conduct collaborative research. For unacceptable performance, NOAA will not renew the award or, for serious problems, will terminate the current CI award.

The review panel will then present its preliminary findings and recommendations to the CI Director, and any other individuals at the Director's discretion, during an exit briefing before departing the site. This not only provides the review panel the opportunity to provide immediate feedback to the CI Director, but also allows the CI Director to respond to the panel's initial findings and recommendations. Thus, this final on-site session provides the review panel with the opportunity to further clarify its thinking, based upon the responses of the CI Director, and to begin the process of making the transition from "preliminary" to "final" findings and recommendations necessary to produce the panel's written report.

Upon departure from the CI site, the review panel will have up to six weeks to submit a draft report of its findings and recommendations to NOAA. To guide its work, the panel will be provided a review report template in MS Word format (Appendix A). Included in this template will be the four mandatory elements of CI reviews and their associated sets of questions. While the review panel must address each of these items in its report, its members may find that a modification of their order improves the logical flow or intended impact of their findings and recommendations. Where this is true, the review panel should feel free to alter the sequence in which it addresses the required items and issues the findings and recommendations associated with these items.

The process for producing the panel's draft report will vary from panel to panel. Some will attempt to complete a draft report even prior to departing the CI site while others will carry out the writing process after its members have returned to their home institutions. Some panels will have one member attempt an initial draft – with the other panel members serving as editors – while others will assign specific sections of the report to specific members and then splice the individual contributions together once they are all completed. Regardless of the course chosen, the review panel should decide how it will organize the production of its report as early as possible in the review process. If the panel decides to draft the report on-site, for example, its members will need to devote a substantial portion of their non-scheduled time to fulfilling their writing – or editing – responsibilities. If the panel chooses the post-visit, off-site option, on the other hand, its members will need to ensure that their review report tasks can be accommodated alongside their many other

responsibilities that await them back at their home institutions.

The NOAA CI Program Manager is responsible for managing the submission of the final report to the SAB. After completion of the final draft report, the chairperson submits the report to the CI Program Manager. The Program Manager forwards a copy of the report to the CI Director to review the accuracy of the document. Any recommended corrections will then be forwarded back to the Program Manager who will then forward any corrections to the review panel for review and final approval. The review panel will have up to two weeks to complete this stage of the process. The Program Manager will then forward the report to the SAB Executive Director to schedule the public presentation of the report at the next SAB meeting. The presentation of the report will be made by the review panel chair. He or she will be expected to explain the panel's findings and recommendations to the SAB either in person or via telephone. The CI Director, the NOAA Program Manager, and any other interested parties should attend this presentation as well, usually via teleconference. Because the SAB is subject to the requirements of the Federal Advisory Committee Act, all SAB meetings are open to the public. The SAB will submit the report to the Under Secretary and the Assistant Administrator of the relevant NOAA line office.

APPENDIX A: Review Report Format

EXTERNAL REVIEW  
OF THE  
[COOPERATIVE INSTITUTE NAME HERE]  
[LEAD UNIVERSITY NAME HERE; IF THE COOPERATIVE INSTITUTE IS A CONSORTIUM LIST THE  
NAME OF EACH UNIVERSITY WITH “(LEAD)” FOLLOWING AFTER THE NAME OF THE LEAD  
INSTITUTION]  
[CITY, STATE OF THE LEAD UNIVERSITY]

SUBMITTED TO THE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
SCIENCE ADVISORY BOARD  
ON  
[DAY MONTH YEAR]

## APPENDIX A: Review Report Format

### SUMMARY

An external review of the research, education, and outreach programs of the [Cooperative Institute {Acronym} name here] at the [Lead University {Acronym} name here] was conducted on [day(s) month year] in [City, State]. Guidelines for conducting the review were provided by the [Line Office] within the National Oceanic and Atmospheric Administration (NOAA). The review was conducted under the auspices of the NOAA Science Advisory Board (SAB) and, therefore, is subject to the requirements of the Federal Advisory Committee Act (FACA). A list of review panel members is provided in Appendix I. The review panel's on-site agenda is provided in Appendix II.

[Summary of Findings – this paragraph should summarize the review panel's main findings and recommendations.]

#### I. OVERVIEW OF [CI ACRONYM]

[This section should provide a brief history of the CI, its relationship with NOAA, including a description of the formal instruments that delineate this relationship, and the CI's areas of research expertise.]

#### II. STRATEGIC PLAN

[This section should begin with a short paragraph (1-3 sentences) touching on the CI's vision, goals, connection to NOAA, scientific themes and partnerships (see below for specific questions asked of the CI).]

- A. What is the scientific (not programmatic) vision for the institute?
- B. How is it related to the NOAA Strategic Plan?
- C. What are the goals and objectives?
- D. What criteria are used to measure progress in accomplishing these goals and objectives?
- E. What are the major scientific themes?
  1. How were they identified?
  2. Which themes/sub themes are near completion?
  3. What are the emerging thematic areas? Why?
- F. Scientific partnerships
  1. What is your relationship to the OAR Laboratories and other NOAA entities?
  2. What, if any, formal procedures do you have for cooperative planning?

[Findings]

[Recommendation(s)]



## APPENDIX A: Review Report Format

### III. SCIENCE REVIEW

[This section should begin with a short paragraph (1-3 sentences) touching on the CI's scientific accomplishments (see below for specific questions asked of the CI).]

- A. What are the Institute's most recent scientific highlights and accomplishments? (Note that this is an opportunity for early-mid career scientists to become acquainted to/by upper NOAA management).

[Findings]

[Recommendation(s)]

### IV. EDUCATION/OUTREACH

[This section should begin with a short (1-3 sentences) touching on the education and outreach being conducted by the CI (see below for specific questions asked of the CI).]

- A. What types of educational activities/opportunities (K-12, undergraduate and graduate students) does the institute offer on an ongoing basis?
- B. What are the current and planned outreach efforts?

[Findings]

[Recommendation(s)]

### V. SCIENCE MANAGEMENT

[This section should begin with a short (1-3 sentences) touching on how the identifies new opportunities and devotes resources to them, develops its workforce, the financial state of the CI, and any issues with NOAA or the university(ies) that requires attention (see below for specific questions asked of the CI).]

- A. How does the Institute identify new intellectual opportunities?
- B. What are some recent examples of intellectual opportunities?
- C. What is the strategy for new starts (projects, techniques, campaigns, etc.)?
- D. How much of the Institute resources are reserved for new opportunities or bright ideas?
- E. What is the demographic structure of the Institute employees?
- F. What is provided for human resources development (recruitment, rewards, training, etc.)?
- G. What is the state of the financial health of the Institute? (Provide a budget summary and identify imbalances or needed adjustments.)
- H. How does the Institute intend to work towards accomplishing its financial goals?
- I. Are there any issues in interacting with NOAA that require attention?
- J. Are there any issues in interacting with the University that require attention?

## APPENDIX A: Review Report Format

[Findings]

[Recommendation(s)]

### **VI. SUMMARY AND CONCLUSIONS**

[This section should recap the review panel's main findings and recommendations and state the rating (outstanding, satisfactory, or unsatisfactory) being given to the CI by the review panel.]

## APPENDIX A: Review Report Format

### APPENDIX I

#### LIST OF EXTERNAL REVIEWERS

[Please provide the name, title, institutional affiliation, full contact information and a brief bio-sketch for each external reviewer. Please list the review panel chair first. A fictitious example is provided below for illustrative purposes.]

Clark Coldfront, Ph.D., Chair of Review Team  
Professor  
Department of Meteorology  
Isobar State University  
1234 Convictional Uplift Drive  
Isobar, ST 98765  
Telephone: (123) 456-7890  
Fax: (123) 456-1234  
Email: [ccoldfront@isu.edu](mailto:ccoldfront@isu.edu)

Dr. Coldfront received a bachelor's degree in physics in 1973 and a Ph.D. in atmospheric sciences from the University of Washington in 1978. Dr. Coldfront presently holds a faculty position at the Department of Meteorology at Isobar State University where he teaches undergraduate and graduate courses in physical meteorology and cloud microphysics and dynamics. Dr. Coldfront carries out research on the role of clouds in atmospheric convection and climate and boundary layer meteorology. He currently serves on the National Research Council's Board on Atmospheric Sciences and Climate and is Past President of the American Meteorological Society.

[Please list remaining members of the review team in alphabetical order.]

APPENDIX A: Review Report Format

APPENDIX II

REVIEW AGENDA

[Please insert the on-site review agenda here. A fictitious example is provided below for illustrative purposes.]

**Review of the Cooperative Institute for Stormy Weather**

**Agenda**

Thursday, June 16, 2015 (Meteorology Building, Room 123)

8:00 – 9:00	Review Panel Executive Session <i>Panel</i>
9:00 – 9:15	Welcome Thomas Thundercloud, <i>President, Host U.</i>
9:15 – 9:30	Welcome and overview of research Lana Lightning, <i>Vice President and Director of Research, Host U.</i>
9:30 – 10:30	Overview of CISW and Science Management within CISW Roberta Rainwater, <i>Director of CISW</i>
10:30 – 11:00	Break
11:00 – 12:00	Highlights of CISW Science
12:00 – 13:30	Lunch (unhosted)
1:30 – 3:00	Highlights of CISW science (continued)
3:00 – 3:30	Break
3:30 – 5:00	CISW Education and Outreach David Dynamic, <i>Director of Education and Outreach</i>
5:00 – 5:30	Executive Session of Review Panel

APPENDIX A: Review Report Format  
Review of the Cooperative Institute for Stormy Weather

**Agenda** (continued)

Friday, June 17, 2015 (Meteorology Building 123)

9:00 – 10:30	Tour of CISW facilities
10:30 – 11:00	Break
11:00 – 12:00	Executive Session of Review Panel
12:00 – 1:30	Lunch (unhosted)
1:30 – 3:00	Executive Session of Review Panel (continued)
3:00 – 3:30	Break
3:30 – 5:00	Debrief