
Department of Commerce

National Oceanic and Atmospheric Administration

Office of Education

Educational Partnership Program

Cooperative Science Center Handbook

FISCAL YEAR 2011



NOAA EPP Cooperative Science Center Handbook

TABLE OF CONTENTS

I. INTRODUCTION	5
A. Overview	5
B. Background	6
II. COOPERATIVE SCIENCE CENTERS	8
III. ESTABLISHING COOPERATIVE SCIENCE CENTERS UNDER NEW AWARDS	10
A. Eligibility	11
B. Award Period	11
C. Funding Mechanism	11
IV. MANAGEMENT OF COOPERATIVE SCIENCE CENTER AGREEMENTS	13
NOAA Responsibilities	13
A. CSC Deliverables	13
1. Strategic Plan	14
2. Implementation Plan	14
3. Science Plan	14
4. Student Development Plan	14
5. Performance Reports	14
6. Financial Reports	15
7. Acknowledgement of NOAA EPP Support	15
8. Web Site, Publications and/or Other Public Dissemination of Results	16
9. Student Tracker Database	16
10. Center Director's Meetings & Events	17
11. Hosting the Education and Science Forum	17
12. CSC Collaboration Initiative across Centers	17
B. Meetings, Events, and Collaboration Initiative	17
1. Education and Science Forum	17
2. CSC Director Meetings	17
3. CSC Director Teleconferences	17
4. CSC Collaboration Initiative across Centers	18
C. Structure	18
1. Key Center Roles	18
a. Educational Partnership Program	18
b. Line Office Technical Monitors	19
c. Center Director	19
d. Deputy Director	20
e. Distinguished Scientist	21
f. Program Coordinator	21
g. EPP Funded Students	21
h. CSC Majority Institutions	22
2. Post-doctoral Program	22

3. Sustainability Program	23
4. Social Science Component	23
5. Course and Seminar Delivery Mechanisms	23
6. Funding Requirements	23
a. Direct Student Support.....	23
b. Overhead or Indirect Cost Rate.....	24
c. Funding to Partnering Academic Institutions (Sub-agreements)	24
7. Foreign Travel.....	24
8. Light Refreshments and Meals.....	24
9. Public and Private Sector Partnerships.....	24
10. Faculty/Staff Exchanges	25
11. Education	25
a. Atmospheric Cooperative Science Center	25
b. Environmental Cooperative Science Center.....	26
c. Living Marine Resources Cooperative Science Center.....	26
d. Remote Sensing Technology Cooperative Science Center	28
12. Research.....	28
a. Student Participation in Research Activities.....	29
b. Collaborative CSC Research Activities	29
13. Outreach.....	29
V. EVALUATION	30
1. CSC Internal Evaluation of Program	30
2. CSC Third-Year Independent External Evaluation	30
A. Schedule.....	30
B. Process	30
Phase 1: Pre-site Evaluation;	31
Phase 2: On-site Evaluation; and,.....	31
Phase 3: Post-site Evaluation.	31
C. External Evaluation Panel.....	34
D. Education and Outreach Review	34
E. Scientific Research Review	35
F. Administrative Review.....	37
G. Rating Scheme	38
2. Satisfactory (CONDITIONS).....	38
3. Unsatisfactory (CONDITIONS)	38
VI. APPENDICES	44
EDUCATIONAL PARTNERSHIP PROGRAM	45
A. FOUNDATIONAL INFORMATION	45
B. STRATEGIC PLAN GUIDANCE	48
C. IMPLEMENTATION PLAN GUIDANCE	50
D. POSTDOCTORAL PROGRAM GUIDANCE	55
E. SCIENCE PLAN GUIDANCE	58
F. STUDENT DEVELOPMENT PLAN GUIDANCE	62
G. PERFORMANCE REPORT GUIDELINES	64

H. CSC WEB SITE GUIDANCE	70
I. CSC COLLABORATION INITIATIVE GUIDANCE	72
J. PROGRAMMATIC SPECIAL AWARD CONDITIONS	74
K. Glossary of Abbreviations, Acronyms, and Terms	77

I. INTRODUCTION

A. Overview

The **National Oceanic and Atmospheric Administration (NOAA)**, a bureau in the Department of Commerce, has roots in the Nation's first scientific agency, the Survey of the Coasts (1807). The current organization was formed in 1970.

NOAA's Mission:

Science, Service, and Stewardship.

To understand and predict changes in climate, weather, oceans, and coasts,

To share that knowledge and information with others, and

To conserve and manage coastal and marine ecosystems and resources.

NOAA's Vision of the Future:

Resilient Ecosystems, Communities, and Economies.

Healthy ecosystems, communities, and economies that are resilient in the face of change.

In support of the NOAA mission and vision, planning, management, and accountability are integrated through the NOAA Next Generation Strategic Plan, <http://www.ppi.noaa.gov/ngsp/>.

Effectiveness of all NOAA activities is measured in advancing NOAA's Goals,

<http://www.ppi.noaa.gov/ngsp/goals/>.

NOAA's Goals:

Climate Adaptation and Mitigation

Weather-Ready Nation

Healthy Oceans

Resilient Coastal Communities and Economies

The **NOAA Office of Education (OEd)** is a staff office within the Office of the Under Secretary of Commerce for Oceans and Atmosphere (the NOAA Administrator) and provides advice and counsel to the Under Secretary on matters pertaining to education. OEd, in conjunction with the NOAA Education Council, coordinates education activities across NOAA and oversees the implementation of the NOAA's Education Plan and Policy. These efforts help to ensure that NOAA's education programs and activities are based on NOAA science and support the agency's cross-cutting priority of promoting environmental literacy. OEd also works with external partners to promote environmental literacy efforts that directly benefit the NOAA mission. The mission of OEd is: Promote environmental literacy and a diverse future workforce skilled in NOAA-related disciplines by providing leadership, support, and resources to audiences internal and external to NOAA. For more information about NOAA's Office of Education please visit the following web site: <http://www.oesd.noaa.gov/>. The Educational Partnership Program (EPP) is administered from the NOAA OEd.

The NOAA OEd, **Educational Partnership Program (EPP) with Minority Serving Institutions (MSI)** administers financial assistance through competitive processes to Minority-Serving Institutions. EPP supports education and research activities to educate and graduate students for the next-generation workforce and to increase the number of competent, diverse individuals with the knowledge and skills to support NOAA Science, Technology, Engineering, and Mathematics (STEM) fields. The EPP graduates are also prepared for NOAA mission-related careers in environmental and natural resources with governmental, private sector, and academic organizations.

EPP's Principal Goal:

To increase the number of educated, trained and graduated students from underrepresented minority communities in science and technology fields directly related to NOAA's mission.

EPP's partnerships with MSIs provide formal education to students in postsecondary coursework **directly relevant to NOAA's mission**. EPP also seeks to increase collaborative **NOAA mission critical** research efforts between NOAA scientists and researchers at minority serving academic institutions. The Educational Partnership Program through its programs and opportunities supports the NOAA mission, vision, and goals by increasing the **NOAA mission-relevant** Science, Technology, Engineering, and Mathematics (STEM) expertise of the next generation workforce. The EPP-supported research is for the purpose of training the next-generation workforce in the **NOAA mission critical** sciences. Financial assistance is provided through four competitive program components: the **Cooperative Science Centers (CSCs)**; the **Environmental Entrepreneurship Program**; the **Graduate Sciences Program**; and, the **Undergraduate Scholarship Program**. For additional information about EPP, please visit the website: <http://www.epp.noaa.gov>.

B. Background

The Educational Partnership Program (EPP) with Minority Serving Institutions (MSI) Program support NOAA-wide program priorities. For the purpose of this program, MSI designation is as identified by the United States Department of Education, Accredited Postsecondary Minority Institution. A Cooperative Science Center's principal academic institution must be an accredited MSI with a Ph.D.-granting degree program in a STEM field that supports NOAA's mission.

The EPP/MSI Program was initiated in FY 2000 with a \$15M budget appropriation. EPP is designed to: (i) collaborate with MSIs to build NOAA mission capacity and strengthen academic coursework and research training in NOAA-mission fields; and (ii) provide career options to students who do not traditionally choose careers in atmospheric, earth and environmental sciences. EPP is a partnership between NOAA and MSIs that have a track record of educating and graduating students from underrepresented minority communities and with the capability to increase the number of students trained and graduated in NOAA mission-critical sciences. The research linkages created through this program ensure that students and faculty have opportunities to participate in research related to priority areas critical to the NOAA mission and become familiar

with career options within NOAA. A history of the Educational Partnership Program is provided in Appendix A.

OEd EPP's five operational goals are to:

- Increase programs and opportunities for students to pursue and complete degree program to enhance education and research in NOAA sciences at MSIs;
- Develop collaborative programs with MSIs that provide education and research opportunities to serve the interests of NOAA and the nation at large;
- Develop collaborative programs between NOAA and MSIs;
- Build institutional NOAA mission capacity at MSIs; and,
- Increase linkages between MSIs, other academic institutions, the public and the private sectors, Non-Governmental Organizations (NGOs) and NOAA.

II. COOPERATIVE SCIENCE CENTERS

EPP with MSIs solicits applications from accredited postsecondary MSIs to establish NOAA EPP Cooperative Science Centers (CSC). The CSCs are designed to create collaborative partnerships among MSIs and NOAA's Line Offices. Each CSC must conduct education and research that directly supports NOAA's mission.

NOAA provides funding to eligible MSIs, on a competitive basis, to educate, train and graduate students in NOAA sciences, particularly atmospheric, oceanic and environmental sciences; living marine resources science and ecosystem management; remote sensing science and technology; and, scientific environmental technology. The CSC goals are to:

- Educate, train and graduate students, particularly from underrepresented communities, in NOAA sciences;
- Increase graduation rates of students from underrepresented minority communities in NOAA sciences;
- Impact NOAA and national Science, Technology, Engineering and Mathematics (STEM) workforce statistics by increasing the number of graduates from underrepresented communities in NOAA sciences;
- Contribute to NOAA's mission by strengthening and building capacity in NOAA scientific and management areas at MSIs as well as building research experience in NOAA scientific areas; and,
- Leverage NOAA funds to build sustainable education, training and research capacity at the MSI.

NOAA EPP Cooperative Science Centers (CSCs) Program has the following standardized Performance Measures:

- Number of students from underrepresented communities who are trained and graduate in NOAA-mission sciences annually;
- Number of students who are trained and graduate in NOAA-mission sciences annually;
- Number of students completing experiential opportunities at NOAA facilities;
- Number of EPP funded students who are hired by NOAA, NOAA contractors and other environmental, natural resource, and science agencies at the Federal, State, local and tribal levels, in academia and the private sector;
- Number of collaborative research projects undertaken between NOAA and MSI partners in support of NOAA operations;
- Number of students and faculty who participate in and complete postdoctoral level research programs in support of the NOAA mission;
- Number of peer reviewed papers published in NOAA-mission sciences by scientists (faculty, postdoctoral fellows, and students) sponsored by NOAA EPP; and,
- Funds leveraged with NOAA EPP funds (including student support) ; and,
- Number of outreach participants engaged in NOAA mission relevant learning opportunities.

Each award recipient must establish performance measures and meet annual goals, approved by the Educational Partnership Program Office to increase the number of undergraduate and graduate students who develop NOAA mission-relevant STEM disciplines-specific knowledge and skills that are the primary focus of the Center Type award (i.e. Atmospheric Science, Environmental Sciences, Living Marine Resources, and Remote Sensing Technology), enroll and complete degrees, and are prepared to enter NOAA mission-relevant STEM careers or advanced education. Every CSC-funded activity must align with the primary education objective and have relevance to the specific NOAA mission critical areas of the CSC award.

III. ESTABLISHING COOPERATIVE SCIENCE CENTERS UNDER NEW AWARDS

A national competition is held every five years via GRANTS.GOV to support new awards to establish CSCs under NOAA EPP in Atmospheric, Environmental Sciences, Living Marine Resources Science, Remote Sensing Technology, and Scientific Environmental Technology at MSIs. National competitions were held in 2001, 2005 and 2010. NOAA EPP administers the Cooperative Science Center competitions through GRANTS.GOV (<http://www.grants.gov/>) and Grants Online (GOL, <https://grantsonline.rdc.noaa.gov>). The EPP/MSI Catalog of Federal Domestic Assistance (CFDA, <http://www.cfda.gov>) number is 11.481.

The following NOAA mission-relevant activities and outputs must be among the CSC outputs and outcomes delivered by award recipients during the performing period of the awards:

1. Formation of partnerships with other MSIs, and academic institutions, including universities with strong departments that contribute to the proposed activities of the CSC;
2. A summary of clearly stated goals to be achieved during the five-year period, which support NOAA's Next Generation Strategic Plan, NOAA Education Strategic Plan, NOAA Five-year Research Plan, and the NOAA Twenty-year Research Vision;
3. A demonstrated commitment (in terms of resources and facilities) to enhance existing NOAA and university resources to foster:
 - a strong education program with established graduate degree programs in NOAA-sciences that encourages student participation in NOAA research studies,
 - a well-developed education and outreach, research, and administration plan including fiscal and human resource management as well as strategic planning and accountability; and,
 - a long-term collaborative research environment/culture, nationally recognized expertise within the appropriate disciplines needed to conduct the collaborative and interdisciplinary research, unique capabilities in a mission-critical area of research for NOAA,
4. In the case of institutions and/or principal investigators currently or recently funded by NOAA, a demonstrated record of outstanding performance collaborating with NOAA scientists on NOAA scientific research projects; and
5. Partnerships with active linkages between other CSCs, the public and the private sectors, Non-Governmental Organizations (NGOs) and NOAA.

CSC awards are made from proposals that are submitted as applications using the standard NOAA grant application (http://www.grants.gov/applicants/apply_for_grants.jsp) and sufficient information to address all the evaluation criteria identified in the Full Funding Opportunity (FFO), a budget, and a detailed budget justification. The project description includes a thorough explanation of all proposed **education and outreach** and **science research** themes and tasks. The application also identifies the capability and capacity of the CSC to conduct education and research in the scientific areas described in the FFO, as well as a summary of clearly stated goals to

be achieved during the five-year period, which reflect NOAA's Next Generation Strategic Plan, NOAA Education Strategic Plan, NOAA Five-year Research Plan, and the NOAA Twenty-year Research Vision. Additional elements of the proposal may be requested in accordance with NOAA [Grant Management Division](#) (GMD) policies.

The budget represents a reasonable estimate of funding to support the activities described in the proposal, including an estimate of the number of required personnel. The budget also includes a breakdown of approximate costs and narrative description for the direct student support subcategories: scholarships, stipends, travel, and training.

To assist the reviewers with evaluating the overall qualification of the proposal, the project description includes an education and outreach, research, and administration plan that show fiscal and human resource management as well as strategic planning and accountability. All CSCs include multiple partners and the business plan describes the governance structure among the partners, how the education and research will be coordinated, and the primary contact for the CSC education and research activities.

A. Eligibility

The following are the eligibility requirements for prospective CSCs (the eligibility requirements are subject to change with each new solicitation):

- The lead academic institution must be an accredited MSI with a Ph.D. degree-granting program in a STEM field that directly supports NOAA's mission.
- The lead and partner institutions must demonstrate a proven track record of educating, training and graduating students, particularly from underrepresented minority groups, in NOAA sciences;
- The lead and partner institutions must demonstrate that resources are available to conduct NOAA mission research;
- The lead and partner institutions must demonstrate the capability to manage the education (and outreach), scientific research, and administrative aspects of a program; and,
- The lead and partner institutions must demonstrate the capability to recruit, retain and graduate students in NOAA mission science fields of study.

B. Award Period

Applications may be submitted requesting funding for a period up to five years. The award period is subject to change with each new Federal Funding Opportunity.

C. Funding Mechanism

EPP CSCs are established via cooperative agreements. The cooperative agreements are five-year awards made to the lead MSI. A NOAA cooperative agreement means that NOAA will collaborate with the award recipient in the design and implementation of the program. A cooperative agreement is appropriate when substantial NOAA involvement is anticipated.

There will be substantial NOAA involvement, collaboration and/or participation, in Center performance. Substantial involvement exists when responsibility for the management, control, direction, or performance of the project is shared by the assisting agency and the recipient or the assisting agency has the right to intervene (including interruption or modification) in the conduct or performance of project activities. The current CSC cooperative agreements contain the following substantial involvement special award condition, but are subject to change with each new FFO:

The National Oceanic and Atmospheric Administration (NOAA), Office of Education, Educational Partnership Program will be significantly involved in the planning of education and outreach, and research activities at the Cooperative Science Center (CSC). For example NOAA will participate in the following activities:

- Identify NOAA staff scientist to serve as the Technical Monitor to ensure science conducted at the CSC is compatible with the respective NOAA Line Office (LO);
- NOAA will participate on the science committees that evaluate projects submitted for approval through the CSC administrative structure;
- NOAA will participate on the education and outreach committees that evaluate projects submitted for approval through the CSC administrative structure;
- Where appropriate, NOAA scientists will serve as advisors on graduate science thesis committees;
- NOAA EPP and LO Technical Monitors will provide guidance on the development of CSC Implementation, Science, and Student Development Plans;
- NOAA EPP will host CSC faculty at NOAA facilities; and,
- NOAA EPP will coordinate with the CSC on the biennial Education and Science Forum planning.

IV. MANAGEMENT OF COOPERATIVE SCIENCE CENTER AGREEMENTS

Monitoring of the five CSC cooperative agreements is conducted via GOL, deliverables (e.g., implementation plans, performance reports and student tracker database forms), formal Cooperative Science Center evaluations, meetings and teleconferences.

NOAA Responsibilities

1. NOAA EPP monitors all programmatic aspects of the CSC award in consultation with the [NOAA Grants Management Division](#) (GMD) and NOAA Line Office Technical Monitors.
2. The GMD Grant Specialist and Grants Officer review and approve request for actions and issue amendments to an award. GMD reviews and approves all – Federal Cash Transactions Reports.
3. NOAA EPP review and approves CSC financial reports. The financial expenditure must be submitted through Grants Online using the Standard Form 425 Financial Status Report as directed under 2 CFR 215.52- Financial Reporting. The completed SF 425 will be reviewed by NOAA EPP and by the NOAA Grants Office.
4. Early Award Termination. If NOAA identifies poor CSC performance in administration and/or education and outreach and/or scientific research and/or non-compliance with Award Terms and Conditions, NOAA will work with CSC to address identified problems. If problems cannot be addressed then NOAA will take appropriate action to terminate the current CSC award early in accordance with the award Terms and Conditions. Early termination will be considered if there is any one of the following conditions: poor fiscal management, poor CSC management, failure to comply with special award conditions; inability to complete proposed education and outreach and or scientific research CSC award functions, poor quality of outputs for education and outreach and/or scientific research areas, or loss of expertise critical to completing funded objectives in the performing period.

A. CSC Deliverables

Deliverables currently required of each CSC are:

1. Strategic Plan;
2. Implementation Plan;
3. Science Plan;
4. Student Development Plan;
5. Performance Reports (includes Outputs and Outcomes);
6. Financial Reports;
7. Acknowledgement of NOAA EPP Support;
8. Web Site, Publications and/or Other Public Dissemination of Results;
9. Performance Database - Student Tracker Data;
10. Attendance at CSC Director's Meetings and Other Required EPP Events;
11. Hosting the Education and Science Forum on a rotational basis; and
12. CSC Collaboration Initiative across Centers.

1. Strategic Plan

A strategic plan that address the CSC education and outreach, research, and administration is due 90 days following the start of the award period. The grantee is required to submit the documentation via email to NOAA EPP (oed.epp10@noaa.gov). NOAA reviews and approves the CSC Strategic Plan. Revisions to a strategic plan may be required. Amendment of the Strategic Plan is allowable. Guidance for the Strategic Plan is provided in Appendix B.

2. Implementation Plan

An Implementation Plan is due 90 days following the start of the award period. The grantee is required to submit the documentation via email to NOAA EPP (oed.epp10@noaa.gov). NOAA reviews and approves the Implementation Plan. **The Implementation Plan must describe the Postdoctoral Program.** The Implementation Plan must describe the planned CSC approach for planning, managing, and assessing cross-CSC collaboration activities. Revisions to an implementation plan may be required. Amendment of the Implementation Plan is allowable. Implementation Plan guidance is provided in Appendix C. The Postdoctoral Program guidance is in Appendix D.

3. Science Plan

A Science Plan is due 150 days following the start date of the award as identified in the official Notice of Award on the U.S. DOC Form CD-450. NOAA EPP and Line Office Technical Monitors review and approve or disapprove the Science Plan. The Science Plan should provide an approach to accomplish the scientific research proposed by the center. The approach the CSC will use to ensure the research activities address NOAA priorities must be described. The Science Plan must address the mechanism for enhanced educational outcomes from funded CSC research. The Science Plan must provide clarity about the roles and responsibilities of funded researchers in: student training, collaborative NOAA mission research within and across CSCs with NOAA. Science Plan guidance is in Appendix E.

4. Student Development Plan

All grantees are required to develop a Student Development Plan that will be submitted to NOAA EPP no later than February 28, 2012. Student Development Plan Guidance is provided in Appendix F.

5. Performance Reports

All grantees are required to submit semiannual performance reports via Grants Online (GOL). The grantee submits the document via GOL to NOAA EPP and NOAA reviews and approves or disapproves the performance report. NOAA mission-relevant performance outputs and outcomes must be reported. Prior to final acceptance, NOAA may require a revision of a performance report. Performance Report Guidelines are provided in Appendix G.

6. Financial Reports

All grantees are required to submit semi-annual financial reports (SF425) in GOL. All grantees are also expected to have financial reports up-to-date and available for monitoring by NOAA Grants and/or Program Office personnel when requested, during a site visit. The financial expenditure must be submitted the Standard Form 425 Financial Status Report as directed under 2 CFR 215.52- Financial Reporting. The Financial Reporting by CSC is to be completed through the NOAA Grants Online web portal.

7. Acknowledgement of NOAA EPP Support

The award recipient is responsible for assuring that an acknowledgment of NOAA EPP support is made:

- during news media interviews, including popular media such as social digital media, radio, television and news magazines, that discuss in a substantial way work funded by this award;
- by beneficiaries (Students, Faculty, Sub-awardees, Postdoctoral Fellows, Staff) for work/training funded by the NOAA EPP award; and
- for all products (posters, thesis and dissertation, web pages, etc.) from student training, including experiential opportunities, supported through CSC funds should acknowledge the source of such support.

All publications in scientific journals must contain acknowledgement of NOAA EPP support with the appropriate award number and the following statement:

"This publication was made possible by the National Oceanic and Atmospheric Administration, Office of Education Educational Partnership Program award (insert number). Its contents are solely the responsibility of the award recipient and do not necessarily represent the official views of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration."

In addition, all publications and other materials, except scientific articles or papers published in scientific journals, must contain the following statement:

"Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration."

Along with the NOAA logo, the following acknowledgment of EPP support must appear in the publication of any material, whether copyrighted or not, and any products produced in electronic formats (e.g., World Wide Web pages, computer programs, recruitment flyers, etc.) which is substantially based upon or developed under this award:

"This material is based upon [work] supported by the National Oceanic and Atmospheric Administration, Educational Partnership Program, U.S. Department of Commerce, under Agreement No. [the awardee recipient should enter the appropriate number here]." The Center

Director ensures that all members of the CSC team comply with the acknowledgement requirements.

8. Web Site, Publications and/or Other Public Dissemination of Results

The Center Director is responsible for internal and external communications about the funded Center. Each Center must have a functional web site that continuously shares up-to-date Center education and outreach, research and administrative information. Guidance for the Center web site is in Appendix H.

- (1) NOAA EPP requires the independent publication of the results of its support for the Cooperative Science Center in appropriate scientific journals. Any journal article so published, however, must contain acknowledgement of the appropriate Agreement Number and the required acknowledgement statement.
- (2) Additionally, an acknowledgment of NOAA EPP support should be included on presentations, posters, websites, and stated during all media interviews.
- (3) The recipient is strongly encouraged to continue to notify the NOAA EPP Liaison of any papers that are published based on the activities under the agreement. EPP intends to post references to all publications resulting from the agreement, on the EPP website.
- (4) The recipient agrees to submit one copy of each peer reviewed journal article(s) resulting from this CSC award, in addition to the final report to NOAA EPP.

9. Student Tracker Database

All recipients are required by the Special Award Conditions to submit, tri-annually, the student tracker database information via the EPP Student Tracker web-based portal (<https://oedwebapps.iso.noaa.gov/stracker/>). Table 1 identifies the data period and deadline for the completed student tracker database entry; the complete data entry is due: 31 January, 30 June, and 30 September of each year.

Table 1 – Student Tracker Database Entry Delivery Schedule

<u>Date Period</u>	<u>Date Due</u>
September 1 – December 31	January 31
January 1 – May 31	June 30
June 1 – August 31	September 30

NOAA EPP will validate the data and advise the CSC of discrepancies by checking the student tracker database for duplicate entries, funding inaccuracies, missing and incomplete entries. A data cleansing process compares the data and information to previous student tracker data and information. NOAA EPP will also calculate whether thirty percent (30%) of program funds are directed towards student support as required by the CSC Special Program Award Condition.

The Survey of Earned Doctorates (SED) conducted by NORC, a national Organization for research at the University of Chicago for the National Science Foundation, is the mechanism for Ph.D. graduate data to enter the national database. NOAA EPP uses the national database for comparisons with NOAA EPP CSC graduate data. NOAA EPP strongly recommends the CSCs encourage their Ph.D. graduates to complete the SED.

10. Center Director's Meetings & Events

Please see B. Meetings, Events, and CSC Collaboration Initiative

11. Hosting the Education and Science Forum

Please see B. Meetings, Events, and CSC Collaboration Initiative

12. CSC Collaboration Initiative across Centers

Please see B. Meetings, Events, and CSC Collaboration Initiative

B. Meetings, Events, and Collaboration Initiative

1. Education and Science Forum

On a rotational basis each CSC hosts the biennial NOAA Education and Science Forum and leads the planning of the event in coordination with OEd EPP. The Forum provides a venue where CSC educational and scientific research results are shared. The purpose of the Forum is to allow NOAA scientific research and education accomplishments to be presented via technical and poster sessions by MSI faculty and students and NOAA scientists. Funding for the Forum will be provided by OEd EPP to the host CSC. The hosting CSC submits an Education and Science Forum proposal (including a detailed budget and budget justification) via Grants Online.

2. CSC Director Meetings

Semiannually, the CSC Directors meet at the EPP Office in Silver Spring, Maryland for a meeting with EPP staff, NOAA Line Office Technical Monitors, Director of the Office of Education and invited senior NOAA leaders. The meetings are designed to address CSC administration and are also an opportunity for NOAA briefings on NOAA education, research, budget, grants and other relevant topics (e.g., collaborations among CSCs, postdoctoral initiatives, student experiential opportunities at NOAA facilities, with NOAA's Cooperative Institutes, and other opportunities).

3. CSC Director Teleconferences

Quarterly the EPP Director conducts teleconferences with the CSC Directors. The teleconference schedule and agenda is developed in coordination with the CSC Directors. The teleconferences are an opportunity to plan and discuss CSC administration and program implementation.

4. CSC Collaboration Initiative across Centers

In Fiscal Year 2011, as a Programmatic Special Award Condition, \$125,000.00 funding was provided specifically for CSCs to leverage NOAA mission capacities to support NOAA's mission. NOAA expects CSCs to develop new collaboration initiatives. Funding may be used to expand: partnerships in support of critical NOAA priorities, scholarship, experiential opportunities at NOAA facilities (labs, centers and other offices), student and faculty professional development, CSC-NOAA-industry partnerships, pipeline into NOAA mission-relevant STEM career paths and creating new opportunities to engage Community Colleges. The CSC prepares a project plan, following the guidance for use of the CSC Collaborative Initiative funds. NOAA reviews and approves the CSC Collaboration Initiative Project. The guidance for the CSC Collaboration Initiative is in Appendix I.

C. Structure

1. Key Center Roles

a. Educational Partnership Program

EPP is responsible for evaluating, assessing and generating reports on CSC performance by:

- Leading national competitions to establish NOAA Cooperative Science Centers;
- Monitoring the education and outreach activities for targeted deliverables;
- Reviewing and coordinating the review of all deliverables (e.g., Science and Implementation Plans, Student Development Plan, Performance reports and student tracker database forms);
- Reviewing and approving Grants Online award action requests;
- Monitoring expenditure of center award funds;
- Monitoring student eligibility for CSC support;
- Monitoring CSC alignment with funded objectives, targets, evaluation and assessment activities;
- Monitoring alignment of CSC performance outputs and outcomes in support of NOAA mission and award objectives;
- Update and maintain integrity of program performance data in the student tracker;
- Co-planning the biennial NOAA EPP Education and Science Forum;
- Developing an EPP Program Report;
- Coordinating the CSC evaluations, and,
- Sharing NOAA Work Force Management Office requirements for jobs related to CSC fields of study.

EPP with the Grants Specialist and the Grants Officer will monitor financial controls for CSC.

- Monitor the recipient's financial management system to determine that it meets the standards for fund control and accountability prescribed in Section .21 of OMB Circular A-110. (2 CFR §215.21);
- Monitor ASAP transactions to ensure that funds withdrawn are limited to the minimum amounts needed and be timed to meet the anticipated cash requirements for allowable charges to active awards;
- Monitor Cash on Hand.

b. Line Office Technical Monitors

The NOAA Line Office Technical Monitors are responsible for facilitating the establishment and development of the CSC by:

- Identifying NOAA-mission scientific research priorities and relevance;
- Participating in CSC advisory committees/meetings;
- Monitoring the scientific research components and activities and deliverables;
- Reviewing and providing constructive feedback on progress toward meeting priorities identified in the Strategic, Implementation and Science Plan;
- Facilitating the transfer of science and technology from research to test bed application;
- Sharing opportunities and issues associated with CSCs to EPP;
- Collaborating with CSC to identify mission relevant research opportunities to enhance joint NOAA-CSC activities for CSC Postdoctoral Fellows at NOAA Labs, Centers and other facilities;
- Facilitating research collaboration between NOAA (primary Line Office and others), other agencies, institutions and CSCs;
- Informing NOAA Line Office leadership of, and seeking their participation in, CSC activities and events;
- Reinforcing NOAA Line Office science priorities;
- Identifying NOAA mission critical research opportunities for the CSC including topics of research needs for student training, and serving on graduate dissertation/thesis committees;
- Recruiting *NOAA scientists to serve as advisors on graduate student committees or as mentors*;
- Facilitating student and faculty opportunities within NOAA (in Line Office and across NOAA); and,
- Identifying scientists and opportunities for faculty/staff exchanges in training and research.

c. Center Director

The Center Director must be based at the lead MSI Ph.D. granting institution. The Center Director must allocate a minimum of twenty-five percent (25%) of their time to lead the Cooperative Science Center. The Center Director has overall accountability for the CSC. The CSC Director is also responsible for leading the activities associated with establishing and developing a CSC by conducting the following:

- Managing, planning, coordinating, organizing, implementing, reporting and monitoring the CSC finances, administration, communication including Center web site, education, recruitment/retention/completion/pipelining to further training or workforce, and scientific research, outreach;
- Developing required CSC Plans: Strategic, Implementation, Science, and Student Development;
- Establishing and monitoring CSC student eligibility to receive CSC funds;

- Providing all grant deliverables (e.g., quality assurance/quality control data access, performance and financial reports, implementation plan and student tracker database forms);
- Providing leadership for CSC personnel while monitoring, and fostering collaborations within the Center organizations and across EPP-CSCs;
- Establishing and monitoring postdoctoral fellowship program objectives, expectations, outputs, and alignment to NOAA priorities, Center and EPP expected outcomes;
- Contributing to the EPP Program Report;
- Co-planning a biennial NOAA EPP Education and Science Forum; and,
- Developing approaches and incorporating activities (e.g., leveraging) that will make the CSC sustainable, beyond NOAA funding;
- Developing comprehensive reporting for all CSC sponsored activities across all of the partner institutions;
- Developing and maintaining up-to-date CSC information on web site;
- Data management;
- Cultivating a robust partnership of Center partner institutions to deliver increased CSC outcomes beyond that possible by the singular contributions of individual institutions and organizations;
- Fostering an environment for collaboration across NOAA EPP Cooperative Science Centers;
- Ensuring successful project planning, management and execution of EPP-CSC-Collaboration-Initiative across a minimum of three other CSCs;
- Ensuring that, for all CSC activities (education, outreach, research, and administration) supported in whole or in part by NOAA EPP funds, there is acknowledgement of the funding source;
- Expanding partnerships and linkages in support of the CSC Strategic Plan, award objectives, and EPP expected outcomes; and
- Contributing to the success of the Biennial Science and Education Forum.

d. Deputy Director

A Deputy Director must be identified at each center. The Deputy Director shall have the credentials and experience to act on the behalf of the Center Director, as needed and allocate a minimum of 20% of their time to CSC activities. A Deputy Director position must be created and maintained at each of the Science Center to allow the Center Director more time to develop program policies, strengthen partnerships, and strategies. The functions and responsibilities of the Center Deputy Director(s) must be developed by the Center Director and communicated to NOAA EPP in the Implementation Plan. The level of delegated authority (on a ten-point scale with zero = none) for Center administrative responsibilities must be clearly described in the Implementation Plan.

e. Distinguished Scientist

A CSC Distinguished Scientist tenured position must be filled at the lead MSI institution, within twelve months for the start of the CSC award. The Distinguished Scientist must allocate one hundred percent (100%) of their time to manage the Center research. The CSC Distinguished Scientist has accountability for:

- Developing and managing significant research projects for the CSC and the partnering academic institutions;
- Leading the development and assessment of the CSC Science Plan;
- Facilitating and coordinating scientific research between NOAA and CSC scientists including other EPP Cooperative Science Center scientists;
- Leading, organizing and conducting scientific meetings;
- Coordinating scientific research among the CSC partners and ensuring that research conducted is in support of NOAA's mission;
- Maintaining outstanding research accomplishments;
- Writing research proposals;
- Leveraging resources – submit proposals to other funding organizations;
- Developing reports on research accomplishments for all CSC supported activities;
- Mentoring students; and
- Creating research linkages between MSIs, other CSCs, academic institutions, the public and the private sectors, Non-Governmental Organizations (NGOs) and NOAA.

f. Program Coordinator

A Program Coordinator position must be created to manage the center administration including activities such as the budget tracking, student tracking, etc. The Program Coordinator must allocate one hundred percent (100%) of their time to the Center administrative activities. The Program Coordinator, working with the Center Director, Deputy Director, and Distinguished Scientist, is also responsible for the timely preparation and submission of the semiannual performance reports and the September 30th, January 31st, and June 30th Cooperative Science Center student tracker deliverables. The quality assurance/control for the content of all submissions will remain the responsibility of the Center Director.

g. EPP Funded Students

All NOAA EPP CSC-funded students must be United States citizens and full-time students. EPP funds for direct student support shall be provided for students maintaining a minimum 3.0 grade point average (GPA) per school term, whether quarter or semester system, for the following time periods:

- No more than four (4) years for students pursuing baccalaureate degrees;
- No more than three (3) years for students pursuing Master's degrees; and,
- No more than five (5) years for students pursuing doctoral degrees.

EPP funds may not be used to support students who do not meet the minimum 3.0 GPA for every school semester or quarter term or to repeat courses previously paid for with EPP funds. Each student supported in whole or in part by EPP funds will be expected to:

- Know about NOAA, its mission and impacts on economies, communities, and environment;
- Understand the goal of the EPP Cooperative Science Center Program;
- Know roles the CSCs play in contributing to meeting the goals of EPP;
- Understand individual contribution to the CSC's strategic plan and alignment with NOAA mission-relevant research;
- Be aware of their contribution to increasing the pool of skilled science and technology talent for NOAA and NOAA related careers; and
- Participate in CSC education, research, outreach and other activities.

It is expected that the award recipient will support those students who are no longer eligible to receive CSC funds, through their graduation with funds from other sources. In extenuating circumstances, the CSC may provide NOAA EPP with a written request for consideration.

h. CSC Majority Institutions

Collaboration with majority institutions is also allowed, however, funding to majority institutions is limited to no more than 20% of the total award. The majority institution's (non-Minority Serving Institution) role is to educate and train underrepresented minority students and faculty in NOAA sciences and to enhance and support the CSC capability (curriculum, lab facilities and equipment) in NOAA sciences. The majority institutional partners must adhere to the direct student support requirements. **Annually, 30% of the direct cost must support students.**

2. *Post-doctoral Program*

A NOAA EPP-funded post-doctoral fellow must be a United States citizen. The description of the Postdoctoral Program must be submitted to NOAA-EPP in the Implementation Plan. A expects the postdoctoral program will expand the CSC's science program in cutting edge research activities that support NOAA priority areas of the Center-type award. Each post-doctoral fellow supported by CSC funds must participate in at least one NOAA-site-based research opportunity that is directly related to the primary NOAA mission-relevant focus of the CSC, for a minimum of 4 weeks per year. Furthermore, post-doctoral fellows are required to engage with the supported students and to serve as mentors at the respective CSC institution. A CSC post-doctoral fellow's two-year tenure is not renewable on a Cooperative Science Center award.

A framework must be in place at the Cooperative Science Center to ensure:

- robust mentorship for postdoctoral fellows;
- effective process for pipelining postdoctoral fellows into the workforce or other opportunities;
- an individualized plan that includes mentoring and future career preparation for each postdoctoral fellow is provided to NOAA EPP, within 90 days of appointment as a CSC postdoctoral fellow;
- rigorous review for technical merit of the postdoctoral fellow's individual plan; and

- postdoctoral fellow's activities align with the CSCs Implementation Plan and NOAA priorities.

(Appendix E provides Postdoctoral Fellows Program Guidance.)

3. Sustainability Program

Sustainability strategies must be developed and incorporated into the CSC's Strategic Plan. The strategies should describe the institutions commitment to facilitating and furthering the CSC's education, outreach, and research plans and goals. The strategies should address student support and program sustainability if federal funding is not available.

4. Social Science Component

Social science must be an integral component of the CSC. Suggested social science fields include those currently emerging within NOAA such as economics, sociology, public policy, communications, and geographical information systems. Additionally, Environmental Psychology and community response to alerts about impending environmental impacts or to disasters are of relevance to the NOAA mission.

5. Course and Seminar Delivery Mechanisms

NOAA expects the CSC to create opportunities for students to develop increased knowledge and skills about NOAA's mission (including how it is discharged), the primary NOAA mission-relevant STEM fields of the Center, and the primary mission and goals of all CSCs. The CSC is to develop mechanisms and approaches that increase CSC course and seminar offerings among the CSC institutions. Leveraging best practices for Distance Education and unique NOAA relevant capacities in education, research and outreach activities will be expected.

6. Funding Requirements

Utilization of NOAA EPP funds must meet the Department of Commerce Financial Assistance Standard Terms and Conditions. NOAA funds may only be used for domestic travel or NOAA research cruise embarkation and disembarkation. Annual funding will be based on performance in each of the three functional areas: administrative, education and outreach, and research in support of the NOAA mission.

a. Direct Student Support

Thirty (30) percent of CSC funding is mandated for direct student support. The 30% direct student support is mandated for the CSC lead institution and all partner institutions. Annually, 30% of the direct cost must support students. The scholarships / stipends are to support: tuition; stipends for housing; books and laboratory fees; conference or workshop or forum registration; transportation and lodging to NOAA programs and facilities, scientific conferences, meetings and workshops; and, professional development including mentoring training, or course costs. Items such as t-shirts, backpacks, water bottles, laboratory supplies and equipment are not considered direct student support.

b. Overhead or Indirect Cost Rate

The total dollar amount of the indirect cost proposed must be the lesser of 25% of the total proposed direct cost or the amount that would be authorized as a result of applying the indirect cost rate negotiated and approved by a cognizant Federal agency prior to the proposed effective date of the award. The cognizant Federal agency is NOAA. The grant applicant should provide documentation that supports the Federal approved cost rate obtained from the cognizant Federal agency. If the applicant does not have a current negotiated rate and plans to seek reimbursement for indirect costs, documentation is necessary to establish a rate and must be submitted to NOAA Grants Management Division within 90 days of receiving the award.

c. Funding to Partnering Academic Institutions (Sub-agreements)

Funding to sub-agreement recipients, i.e., partnering academic institutions, must be issued **within 60 days of the grant award start date**. Where multi-institutional applications between majority and minority serving institutions are submitted, no more than 20% of the total funds shall be awarded to majority institutions. NOAA's grant rules apply to the primary grantee, the lead academic institution. The primary grantee is responsible for the management of its sub-agreements. Any change of the Principal Investigator(s) requires approval from the Grants Officer.

7. Foreign Travel

No foreign travel will be funded by this agreement.

8. Light Refreshments and Meals

Unless the event(s) are specified in the approved Implementation Plan, the recipient agrees to obtain prior approval from NOAA for the use of grant funds for light refreshments and meals served at meetings, conferences, training workshops, and outreach activities (events). The recipient must send requests for approval to the NOAA EPP and include:

- An estimated budget and description for the light refreshments, meals, and/or beverages to be served at the event(s);
- A description of the purpose, agenda, location, length and timing for the event; and
- An estimated number of participants in the event and a description of their roles.

Recipients may address questions about whether costs for light refreshments, and meals for events are allowable to the recipient's EPP Liaison. However, the Agency Award Official of the NOAA Grants Management Division will make final determinations on allowability.

Note: U.S. General Services Administration regulations define light refreshments for morning, afternoon or evening breaks to include, but not be limited to, coffee, tea, milk, juice, soft drinks, donuts, bagels, fruit, pretzels, cookies, chips, or muffins. (41 CFR 301-74.11)

9. Public and Private Sector Partnerships

Private and /or public sector and community college partnerships are encouraged. Partnerships with community colleges may be considered as a mechanism to build the undergraduate pipeline

of four-year academic institutions. A Cooperative Science Center may partner with one or more institutions or organizations that have demonstrated education and research performance in NOAA-related sciences. The private and public sector partners may not secure NOAA EPP CSC funds.

10. Faculty/Staff Exchanges

Faculty or staff exchanges are an integral part of this program and opportunities for faculty or staff exchanges are available for collaborative research or other agreed upon activities. Through the CSCs, NOAA EPP encourages academic faculty or NOAA scientists to spend up to one year at a NOAA facility or at a CSC academic institution, respectively.

11. Education

The NOAA Educational Partnership Program (EPP) Cooperative Science Center (CSC) award is designed to educate, train and graduate students in NOAA mission Science, Technology, Engineering, and Mathematics (STEM) fields. The primary output of the program for the Department of Commerce Balanced Scorecard is increased number of students from underrepresented communities who are trained and graduate in NOAA mission sciences, particularly at MSIs. The education that is attained at the Center institutions must result in students being competitive for STEM careers at NOAA, other natural resources management agencies, academia, and the private sector. The CSC must provide educational opportunities with mentorship to enable graduates to know and attain the technical and functional requirements to enter into training at a higher level or the workforce. The CSC must include the framework with objectives, approaches and target for increased educational outcomes, with timelines, in the Implementation Plan.

Each CSC has an education focus as follows:

a. Atmospheric Cooperative Science Center

The Atmospheric Cooperative Science Center's focus is to educate, train and graduate students in atmospheric sciences. The Center's collaborative research with NOAA's priority areas is in numerical weather prediction, data assimilation, climate modeling, climate analysis and prediction, water resources, and/or studies that lead to improvements in warning and forecast operations. Atmospheric Cooperative Science Center key area of focus could include collaborative research that: (1) advances the understanding of the weather-climate linkage, cloud and precipitation processes, airborne particulate matter, health sensitivities to weather and climate, and planetary boundary layer processes (especially in complex terrain); (2) improves quantification of forecast uncertainty, long-range forecasting and regional downscaling, storm prediction accuracy (including initiation of convection), precipitation type and start/stop times; (3) advances the development of high resolution coupled models within an Earth system framework, and the assimilation and integration of observations (especially for hard-to-observe areas); and (4) integrates social science studies with weather and climate studies to enhance decision support capabilities.

Atmospheric Cooperative Science Center graduates should have competencies in the National Weather Service's course requirements for meteorologists that include: 1. Twenty-four (24) semester hours in meteorology including six semester hours in weather analysis and prediction of weather systems (synoptic/mesoscale):

1. Six (6) semester hours of atmospheric dynamics and thermodynamics; three semester hours of physical meteorology; and two semester hours of remote sensing technology of the atmosphere and/or instrumentation;
2. Six (6) semester hours of physics with at least one course that includes laboratory sessions;
3. Three (3) semester hours of ordinary differential equations; and,
4. Nine (9) semester hours of course work appropriate for a physical science major in any combination of three or more of the following: physical hydrology, statistics, chemistry, physical oceanography, physical climatology, radiative transfer, aeronomy, advanced thermodynamics, advanced electricity and magnetism, light and optics, computer science. There is a prerequisite or co-requisite of calculus for course work in atmospheric dynamics and thermodynamics, physics, and differential equations. Calculus courses must be appropriate for a physical science major.

b. Environmental Cooperative Science Center

The Environmental Cooperative Science Center's focus is to educate, train and graduate students in the environmental sciences. Environmental Cooperative Science Center's key focus areas should include:

1. Understand, assess, forecast and manage coastal impacts of climate change (e.g., sea level rise, ocean warming, ocean acidification), harmful algal blooms and coastal contaminants;
2. Develop science-based support and guidance for coastal and marine spatial planning, including special area management provisions and injured habitat restoration;
3. Foster and develop coastal decision-making tools to help resolve coastal issues in specific locations, and;
4. Understand, assess and forecast changing elevations related to sea level rise, subsidence, earthquakes or human activities.

Environmental Cooperative Science Center graduates should have at least twenty-four (24) semester hours in a core science including physics, chemistry, biology, oceanography or environmental science. Supporting coursework in mathematics, engineering, geodynamics/geodesy, sociology, environmental ethics, economics, public policy, natural resource management, geographic information systems, global positioning system, or statistics would be an asset. Knowledge of pertinent research and analytical methodology, as well as the ability to apply the core sciences to policy and management issues, is required.

c. Living Marine Resources Cooperative Science Center

The Living Marine Resources Cooperative Science Center's focus is to educate, train and graduate students in marine sciences with an emphasis on biological assessments, stock assessment, marine

chemical assessments, habitat quality, coastal ecology - including ecosystem management and monitoring, aquaculture, social science, economics, and climate impacts on marine ecosystems).

Living Marine Resources Cooperative Science Center graduates should have core competencies in the course requirements with a major studies in biology, zoology, or biological oceanography that include at least thirty (30) semester hours in biological, marine, and aquatic science and fifteen (15) semester hours in a combination of physical, mathematical, and social sciences. The course work must include:

1. At least fifteen (15) semester hours in zoology beyond introductory biology or zoology in such course as invertebrate zoology, comparative anatomy, histology, physiology, embryology, advanced vertebrate zoology, genetics, entomology, and parasitology.
2. At least six (6) semester hours of training applicable to fishery biology in such subjects as fishery biology, ichthyology, limnology, oceanography, algology, planktonology, marine or fresh water ecology, invertebrate ecology, principles of fishery population dynamics, or related course work in the field of fishery biology.
3. At least six (6) semester hours of training in chemistry, physics, mathematics, or statistics.
4. At least six (6) semester hours of training applicable to fishery or resource economics or social science.

The following nine courses are indicated by NOAA's National Marine Fisheries Service (NMFS) U.S. Dept. of Commerce and Dept. of Education. (2008). The shortage in the number of individuals with post-baccalaureate degrees in subjects related to fishery science, NOAA Tech. Memo. NMFS-F/SPO-91, 84 p. - http://www.st.nmfs.noaa.gov/report_congress/ShortageOfDegrees.pdf) as the essential courses in preparing students to conduct high-level quantitative population dynamics/stock assessments for the federal government and elsewhere.

1. Population Dynamics;
2. Fish Ecology;
3. Multivariate Statistics;
4. Sampling Theory;
5. Fisheries or Natural Resources Modeling;
6. Bayesian Statistics;
7. Stock Assessment;
8. Risk and Decision Analysis; and,
9. Fisheries or Natural Resources Computer Programming.

Living Marine Resources Cooperative Science Center graduates must be able to carry out a variety of tasks including: predicting population trends of living marine resources (LMR); developing harvest strategies that are consistent with National Standard 1 of the reauthorized Magnuson Stevens Fishery Conservation and Management Act, estimating the social and economic impacts of various management decisions on communities by decisions related to LMR. In addition, graduates must be able to design and carry out projects for LMR.

d. Remote Sensing Technology Cooperative Science Center

The Remote Sensing Technology Cooperative Science Center's focus is to educate, train and graduate students in remote sensing with emphasis in environmental satellite related research activities directed toward helping to sustain healthy coasts, to build sustainable fisheries, to recover protected species, to improve understanding of human-climate interactions, to develop satellite based methods for mapping and estimating carbon sources and sinks, to help improve weather forecasts and warnings, to provide improved environmental forecasts or analyses, and to prepare for future NOAA operational environmental satellite missions. The applications should address satellite meteorology research and applications; satellite sensors and techniques; environmental models and data assimilation. Applications should demonstrate the mechanism by which the Remote Sensing Technology Cooperative Science Center will utilize training in the fields of study above to facilitate the research and education priorities of NOAA. The Remote Sensing Technology Cooperative Science Center is expected to:

1. Provide an organizational setting to promote and establish programs and research relating to remote sensing technology by drawing upon multiple disciplines and involving collaboration with multiple performing and research-sponsoring partners;
2. Serve as a model for outreach, input, and collaboration that help ensure that research can be applied to solving priority NOAA remote sensing technology, current satellite system optimization, and future satellite system development and planning;
3. Expand research in remote sensing technology, satellite data management, and user access technologies; and,
4. Support multi-disciplinary research projects aimed at NOAA's remote sensing technologies mission responsibilities, to include: (a) Passive radiometric remote sensing technology; (b) Passive multi-spectral remote sensing technology; (c) High spectral resolution (hyperspectral) remote sensing technology; (d) Active and passive microwave remote sensing technology; (e) Space weather sensor technology, calibration and data analysis techniques; (f) Satellite sensor development and demonstration in the categories above; (g) Technologies relating to satellite data acquisition, data distribution, mission operations, and mission planning; and, (h) Technologies relating to improved user data access and data management.

12. Research

All NOAA EPP-funded research must meet the following criteria:

- Must be NOAA mission relevant and linked to the NOAA's Line Office(s);
 - Address the Strategic Plans;
 - Address the Research Plans;
 - Engage students in research to develop NOAA mission knowledge and skills;
 - Engage collaboration with primary and other Line Offices; and,
 - Develop mechanisms to approve and prioritize CSC research in support of NOAA priorities.
- Must be applied NOAA mission-relevant research;

- NOAA expects the CSC to engage NOAA science and administrative personnel in identifying and aligning with NOAA mission priorities;
- Research outputs must be disseminated beyond the NOAA CSC EPP community; and,
- Presentations and publications must acknowledge NOAA EPP support.

a. Student Participation in Research Activities

NOAA EPP expects all CSC-funded students to participate in NOAA science or policy research activities. EPP strongly recommends collaboration among faculty, graduate and undergraduate students and NOAA scientists on research projects. At least one CSC funded student must be assigned to every EPP sponsored research project. The students' participation is intended to strengthen student training, ensure students acquire specialized skills, further the student's scientific education, and enhance future STEM talent in support of the NOAA mission.

b. Collaborative CSC Research Activities

NOAA EPP expects all CSCs to forge effective collaborations across Center partner institutions, CSCs, NOAA, NOAA supported, Local/State/Tribal governments and the non-governmental and private sector communities. These collaborations are expected to support the MSIs to build capacity in the NOAA-mission area of the award. Collaborations that engage Community Colleges, K-12 audiences, and underserved communities are encouraged.

13. Outreach

NOAA expects CSC outreach activities can lead development and/or implementation of a curriculum-based series of connected learning activities (including educational materials) that engage the public in practical problem solving related to NOAA's goals: ***Climate Adaptation and Mitigation; Weather-Ready Nation; Healthy Oceans; Resilient Coastal Communities and Economies***. NOAA expects outreach activities will engage new participants in application of cutting-edge NOAA mission-relevant STEM research, knowledge, and technologies. A CSC-supported outreach activity that uses EPP funds must have a direct link to EPP performance measures for post-secondary NOAA mission-relevant STEM degrees: to increase the number of students from underrepresented communities who enroll in STEM majors, complete STEM degree programs, and are prepared to enter careers or advanced education in NOAA mission-relevant fields; and to increase the number of students who are trained and graduate in NOAA mission-relevant fields that are the focus of the CSC award. Examples of outreach participants supported by NOAA EPP funds may include: the future scientists and leaders, and also to their families; teachers directly served through the CSC activity; Community College programs with increased NOAA mission related STEM in curricula.

V. EVALUATION

1. CSC Internal Evaluation of Program

Each CSC assesses the Center's success in meeting its goals and objectives as required in the solicitation. NOAA expects each CSC's internal evaluation will include an external evaluator to refine the CSC Evaluation Plan. The CSC may work with the NOAA EPP CSC Program Manager when refining the CSC Evaluation Plan for the Center award. This evaluator must be external to the CSC to provide an objective evaluation. The CSC must include formative and summative evaluations. The purpose of the formative evaluation is to assess initial and ongoing Center activities and to allow for mid-course corrections. The purpose of the summative evaluation is to assess the quality and impact of the Center in reaching its stated goals and objectives. The Implementation Plan must clearly describe the qualifications of the evaluator.

Both the formative and summative evaluations should include qualitative and quantitative components. The qualitative and quantitative components should capture the perspectives and benefits for the students, faculty, postdoctoral fellows, administrators, and the outreach participants. NOAA also recommends involvement in the CSC evaluation of STEM faculty advisors, and K-12 and Community College administrators, if participating in the CSC outreach activities. NOAA expects the CSC Internal Evaluation plan will include a timeline and have performance indicators and other specific measures that will be used by the CSC Lead and Partners to assess the CSC's success in meeting the goals and objectives in the Implementation, Science, and Student Development Plans.

2. CSC Third-Year Independent External Evaluation

In the third year of the five-year grant award, the CSCs are evaluated by an independent external panel. The evaluation consists of a formal review of the CSCs education and outreach, scientific research and administrative components. A six-person external evaluation panel, for each Center award type, is established by NOAA EPP to conduct the CSC evaluation. The on-site evaluation is conducted at the lead CSC institution. A NOAA EPP CSC Evaluation Liaison is identified. The EPP CSC Evaluation Liaison is responsible for facilitating the evaluation. All CSC documents for the CSC Evaluation are sent to NOAA EPP (oed.epp10@noaa.gov).

A. Schedule

The schedules for evaluation of each of the EPP CSCs are established in coordination with the CSCs, at the end of the second year of performance, in a five-year cooperative agreement award.

B. Process

The review consists of three phases:

Phase 1: Pre-site Evaluation;
Phase 2: On-site Evaluation; and,
Phase 3: Post-site Evaluation.

Phase 1: Pre-site Evaluation

Eight months prior to the Third-Year CSC Evaluation, NOAA EPP sends invitational letters to prospective evaluation panel members.

Six months prior to the CSC evaluation, the six-person evaluation panel membership for each CSC is identified. The following evaluation content-package is provided to each panelist:

1. A brief summary of the CSC evaluation process;
2. EPP performance metrics;
3. Contact information for the evaluation team;
4. Evaluation team composition;
5. The expected time commitment of the evaluation team;
6. Evaluation team responsibilities;
7. A summary of the three-tier (outstanding, satisfactory and unsatisfactory) rating system; and,
8. A template for the evaluation final report.

One (1) week after distributing the evaluation package, NOAA EPP will have the first orientation teleconference with the evaluation panel to discuss the evaluation process, and roles and responsibilities of panel members. During the teleconference, NOAA EPP responds to any questions the evaluation panel may have.

Four (4) months prior to the CSC on-site evaluation, the CSC will draft the on-site evaluation agenda.

Three (3) months prior to the EPP CSC Evaluation, NOAA EPP provides the standard evaluation questions to the CSC Evaluation Team and the CSC.

Two (2) months prior to the CSC Evaluation, the CSC finalizes the on-site evaluation agenda. The agenda should include time for the following:

- Evaluation Panel (Education and Outreach, Scientific Research, and Administrative) to have a closed session prior to the start of the on-site evaluation;
- Formal presentations by the CSC Center Director, Education and Outreach Lead, and Distinguished Scientist;
- Education and Outreach presentations;
- Scientific Research presentations;
- Administration presentations;

- A Student Session – time for the evaluation panel to meet with the CSC-supported students without the faculty and CSC management;
- A Faculty Session – time for the evaluation panel to meet with the CSC faculty without the CSC management and the CSC-supported students;
- Time for the evaluation panel to discuss particular aspects of the CSC-provided data and information with the CSC Center Director, the Education and Outreach Lead, and the Distinguished Scientist;
- Time for the evaluation panel to have a closed session after the formal review activities; and,
- A debriefing and preliminary feedback session with the evaluation team and selected CSC representatives.

Two (2) months prior to the on-site evaluation, the CSC finalizes the briefing booklet. The CSC provides digital (via CD or web site) and ten (10) hard copies of the briefing booklet to NOAA EPP. EPP will ensure distribution to the evaluation panel. The briefing booklet shall include the following:

- Final On-site Evaluation Agenda;
- One-page Synopsis of the CSC;
- No more than ten-page Summary Narrative to contain the following
 - i. Accomplishments
 1. List of Education and Outreach Accomplishments;
 2. List of Research Themes and Accomplishments;
 3. List of Administration Accomplishments;
 - ii. Challenges
 - iii. Responses to recommendations from the previous evaluation
 - iv. Plans for Administrative/Management Support as the CSC grows
- Strategic Plan;
- Most Recent Version of Approved Implementation Plan;
- Most Recent Version of Approved Science Plan;
- Most Recent Version of Approved Student Development Plan
- CSC Data for Performance Measures and Metrics;
- CSC Budget Breakdown of All Expenditures as Planned in the Cooperative Science Center Award Package;
- Latest Financial Report;
- Latest Performance Report;
- Summary Student Data for Graduated and Pipeline Students (at baccalaureate, Master's and doctoral levels);
- CSC Data for Graduates Post-CSC: Careers/Further Education
- CSC Organizational Chart;
- List of CSC Collaborations with other CSCs, NOAA, Public and Private Sectors, Non-Governmental Organizations, Other Agencies in Federal/State/Local/Tribal Government, and Academia;

- List of Outreach Products and Impacts on Pre-K through Community College;
- CSC Postgraduate Program Products and Impacts;
- List of Scientific Research and Education Publications, Patents, Innovations;
- List of CSC Committees and Membership;
- Web page URL/Other References for Relevant CSC Information; and,
- Other Information the CSC Deems Useful (e.g., reports from Internal CSC Evaluations).

Seven (7) weeks before on-site evaluation, the CSC Evaluation Panel has a teleconference to discuss the on-site roles and responsibilities of the evaluation panel members. The CSC Evaluation Panel reviews the evaluation material and develops any additional evaluation questions.

Six (6) weeks prior to the CSC on-site evaluation, the CSC provides responses to the standard evaluation questions to NOAA EPP. The CSC responses to the standard evaluation questions are provided to the evaluation panel.

One (1) week prior to the CSC on-site evaluation the CSC Evaluation Panel may provide specific follow-up evaluation questions to NOAA EPP. The CSC responds to the CSC Evaluation Panel's specific questions during the CSC on-site evaluation. Each CSC provides the on-site evaluation presentation slides to NOAA EPP one week prior to the on-site evaluation.

Phase 2: On-site Evaluation

Up to three (3) days will be allocated for the on-site evaluation that is conducted by the independent external Evaluation Panel. While at the CSC, the Evaluation Panel conducts a review of the CSCs Education and Outreach, Scientific Research, and Administrative components. The CSC performance is measured against its CSC award package, Plans: Strategic, Implementation, Science and Student Development, goals/targets. A note-taker will be provided by NOAA EPP during the on-site evaluation.

Phase 3: Post-site Evaluation

Three (3) months after the evaluation, the preliminary CSC Evaluation Report produced by the independent external Evaluation Panel is due to the NOAA EPP CSC. After a NOAA internal review the comments are provided by NOAA EPP CSC to the CSC Center Director. A minimum of three weeks are provided for an accuracy check by the CSC. The results of the "Fact Check" (check for accuracy) are reviewed internally by NOAA EPP before providing to the CSC Evaluation Chair. Then the CSC Evaluation Panel prepares the final version of the CSC Evaluation Report.

Seven (7) months after the evaluation, NOAA EPP receives the CSC Evaluation Report from the evaluation panel. After a NOAA internal review, comments are provided to

the CSC Evaluation Chair to finalize the evaluation report. The CSC Evaluation Final Report is provided to the CSC Center Director by the EPP Director.

C. External Evaluation Panel

The six-person evaluation panel is comprised of a chair and five panel members. The evaluation panel will have the following membership:

- Education and Outreach (Chair and one other person) - expertise in developing and leading higher education programs;
- Scientific Research - expertise relevant to each Center's scientific area (external to NOAA);
- Grants - representative from NOAA's Grants Management Division;
- Administrative - expertise in the management of multi-component education and scientific research programs; and,
- NOAA scientists - expertise relevant to each Center's scientific research area.

At the on-site evaluation, the NOAA Line Office Technical Monitor(s) and EPP representatives will be present as observers.

D. Education and Outreach Review

The education and outreach review examines the effectiveness of the program to educate, train and graduate students in disciplines that support the NOAA mission related to the Center award type. The review has the EPP Performance measures, the CSC Implementation Plan performance measures, and the CSC Student Development Plan at the Center lead and partner institutions, as the base. Education and Outreach programs will be assessed for outputs and outcomes at the K-12, Community College, baccalaureate, Master's, doctoral, and post-doctoral levels. The general elements of the review will include assessments of: **(1) adequacy of degree programs / curriculum / courses; (2) student outcomes; (3) faculty outcomes; (4) partner involvement; (5) outreach programs, materials and activities; and, (6) leveraging of education and outreach programs. The CSC is required to provide NOAA EPP with responses to a list of standard evaluation questions at least three weeks prior to the review. The questions will address the following areas:**

- **Adequacy of Degree Programs/ Curriculum / Courses;**
- **Student Outcomes;**
 - Increased Number of Students from Underrepresented Communities who are Trained and Graduate, at MSI, with NOAA STEM degrees
 - NOAA mission-relevant STEM knowledge and skills
 - Academic and Professional Mentoring
 - Performing NOAA mission CSC Research
 - Internship at NOAA Facilities
 - Pipeline into Post-Secondary NOAA mission STEM Degree Programs including Social Science
 - Peer-reviewed Education and Scientific Publications

- Graduation Rates
- Retention Rates
- STEM Careers and Advanced Education
 - CSC Graduates as Hires (NOAA, NOAA Contractor, Federal, State, Local, Tribal, Non-Governmental Organizations, and/or Academia)
 - CSC Graduates Pursuing in Master's and/or Doctoral Degree Programs and Postdoctoral Positions;
- **Faculty Outcomes**
 - Recruitment Strategy Grades 11-16 in NOAA mission science linked to CSC award
 - New Courses with NOAA STEM Content
 - Hires in Areas Linked to NOAA Mission STEM Areas Linked to CSC Award
 - Peer-reviewed Education/Outreach Publications;
- **Partner Involvement (Academic & Non-Governmental Organizations)**
 - NOAA-mission STEM Knowledge and Skill Development by CSC Students and Faculty at Partner Institutions
 - Contribution to CSC Award NOAA-STEM Deliverables
 - Broadening Participation in NOAA STEM Fields;
- **Outreach Programs & Material & Activities**
 - CSC Students engagement in NOAA STEM Outreach
 - K-12 Teacher Knowledge and Pedagogies in NOAA Mission-Relevant STEM Linked to the CSC
 - NOAA Mission-Relevant STEM Content
 - Link NOAA Mission CSC STEM Profiles of Careers and Pathways to Career and Post-secondary Education
 - Social Media Engagement in Support of NOAA's mission;
- **Leveraging of Education and Outreach Programs**
 - Recruitment Strategy for Existing Post-Secondary Students in NOAA Mission Relevant STEM CSC
 - Pre-College NOAA mission-Relevant activities for PreK-24 teacher/faculty/instructor engagement activities
 - CSC Science/Technology Bridging Community College to CSC degree program.

E. Scientific Research Review

The science research review will evaluate the quality of the research, using the EPP performance measures, the CSC performance measures and the quality and effectiveness of the CSC research management at the Center and partner institutions. The general elements of the review will include assessment of: 1) relevance to NOAA science; (2) relevance to the respective NOAA Line Office science; (3) collaborative research strategy, plans and/or procedures; (4) scientific research accomplishments, (5) infrastructure (capacity-building); (6) faculty, student, and Center staff outcomes; and, (7) research

resources leveraging. The review will also evaluate the linkages between the CSC strategic or science and implementation plans and the NOAA Strategic and Line Office Strategic plans. The CSC is required to provide the NOAA EPP with responses to a list of standard evaluation questions at least three weeks prior to the review. The questions will address the following areas:

- NOAA-Mission Science (relevance);
- NOAA Line Office Strategic Plan (relevance);
- Collaborative Research Strategy, Plans, and/or Procedures
 - Within the Center
 - With NOAA Scientists
 - Across the Centers
 - With Research Partners external to NOAA
 - Among the scientific community
 - Industry Partnerships;
- Scientific Research Accomplishments
 - Research to Operations Accomplishments & Deliverables (e.g., models, datasets, etc.) - Specific Scientific/Technology Research Products used/adopted by NOAA
 - Science/Technology Peer-reviewed Publications
 - Feature Cover Articles
 - Patents and Innovations
 - Externally-funded Research Projects
 - Merit of Scientific Research – Citation Index
 - Peer-Reviewed Publications;
- Infrastructure
 - Communication Mechanisms
 - Equipment
 - Facilities
 - Data Warehousing and Accessibility;
- Roles/Outcomes
 - Senior Scientist/Distinguished Professor
 - Faculty
 - Undergraduate Student Research Opportunities
 - Graduate Student Research at NOAA Facilities
 - Postdoctoral Fellows in Cutting Edge NOAA Science
 - Committees/Boards;
- Research Resources Leveraging.

F. Administrative Review

The administrative review examines the procedures associated with Center management at the CSC and the partner institutions including: (1) institutional support; (2) strategic planning; (3) communication mechanisms; (3) staffing; (4) compliance with grant management policies and procedures; and, (5) performance measurement. Since the evaluation includes requirements imposed by Federal regulations for managing Federal financial assistance awards, the evaluation team will include NOAA employee(s) with grants management experience. The CSC is required to provide the NOAA EPP with responses to a list of standard evaluation questions at least three weeks prior to the review. The questions will address the following areas:

- Institutional Support;
- Strategic Planning;
- Administrative Planning and Management;
- Budget / Grant Management and Execution
 - Budget management with Accurate Records and Controls
 - Timely CSC-wide Financial Disbursement, Obligation, and Funds Drawdown
 - Managing Risks and Key Success Criteria
 - Monitoring CSC Products and Impacts
 - Meeting All Award Terms and Conditions;
- Communication Mechanisms
 - CSC External - CSC Committees / Boards including with other CSCs and NOAA
 - CSC Internal - within Lead and Partner Institutions
 - CSC Web Site and Acknowledgement of Funding Source;
- Sub – Grantee or Sub-Contract (Sub-Agreement) Execution
 - Timely Project Costing
 - Project Completion and Handover of Deliverables
 - Routine Monitoring Visits;
- Capacity
 - Staffing
 - Office Space & Facilities
 - Process for Monitoring and Checking Data in Submitted Reports
 - Internal Controls and Verification Protocol to Satisfy EPP CSC Program Goal and Objectives
 - Sustainability;
- Performance Measurement
 - Strategic, Implementation, Science, Student Development Plans
 - Quality Assured/Controlled Research Data Access by NOAA and Public
 - Inter-CSC Collaboration
 - Quality of Performance and Financial Reports
 - Center Internal Evaluations Process(es) and Outcomes
 - Performance and Financial Reports.

G. Rating Scheme

1. Outstanding (IF 85 / 15 RULE IS MET, NO CONDITIONS; IF 85/15 IS NOT MET CONDITIONS)

The CSC has consistently demonstrated superior achievement of all initially agreed goals as stated in the grant award, strategic, science, and implementation plans, as well, as evidence of an on-going resource commitment that enhances NOAA’s resources to support collaborative research. If the evaluation scoring is such that the score for Education and Outreach, Scientific Research and Administrative is above 85% then there are no conditions. However, if the evaluation scoring is such that the score for each of three areas is below 85%, then conditions are in effect. The rating scheme, rules and conditions are provided in Table 2.

2. Satisfactory (CONDITIONS)

The CSC has achieved some or all of its agreed goals as stated in the grant award, strategic, science, and implementation plans and has demonstrated acceptable performance. Its performance, however, is not considered outstanding and/or the CSC’s resource commitment provides a limited enhancement of NOAA’s resources. For acceptable performance, the CSC will be required to address deficiencies within a given timeframe with restricted release of funds. The rating scheme, rules and conditions are provided in Table 2.

3. Unsatisfactory (CONDITIONS)

The CSC has demonstrated a failure to achieve some or all of its agreed goals as stated in the grant award strategic, science and implementation plans, CSC performance is unacceptable. For unacceptable performance, NOAA will allow one-year of funding before the award is terminated. The one-year of funding shall have 30% allocated to direct student support. The rating scheme, rules and conditions are provided in Table 2.

Table 2 – Rating Scheme with rules and conditions

SCORE (POINTS)	RULE	RATING	CONDITIONS
100-90	85 / 15 MET	OUTSTANDING	NO CONDITIONS (OPTIONAL: SUGGESTIONS)
89-85	85 / 15 MET	OUTSTANDING	NO CONDITIONS BUT RECOMMENDATIONS FOR IMPROVEMENT
89-85	85 / 15 NOT MET	OUTSTANDING WITH CONDITIONS	DISTRIBUTE 90% & HOLD 10% RECOMMENDATIONS FOR IMPROVEMENT PIP - PLAN (30 DAYS) - NOAA RESPONSE (30 DAYS) - REVISED PLAN (30 DAYS)

			- IMPLEMENTATION (30 DAYS) MONITOR SEMIANNUALLY
84-75	75 / 25 MET	SATISFACTORY WITH CONDITIONS	DISTRIBUTE 80% & HOLD 20% RECOMMENDATIONS FOR IMPROVEMENT PIP - PLAN (30 DAYS) - NOAA RESPONSE (30 DAYS) - REVISED PLAN (30 DAYS) - IMPLEMENTATION (30 DAYS) MONITOR QUARTERLY
84-75	75 / 25 NOT MET	SATISFACTORY WITH CONDITIONS	DISTRIBUTE 80% & HOLD 20% RECOMMENDATIONS FOR IMPROVEMENT PIP - PLAN (30 DAYS) - NOAA RESPONSE (30 DAYS) - REVISED PLAN (30 DAYS) - IMPLEMENTATION (30 DAYS) MONITOR BIMONTHLY
NO PIP = LOSS OF FUNDS; NO IMPROVEMENT = LOSS OF FUNDS			
74-below		UNSATISFACTORY WITH CONDITIONS	DISTRIBUTE 50% (1 YEAR OF FUNDING WHEREBY 30% MUST GO TO DIRECT STUDENT SUPPORT) & AWARD TERMINATED (REMAINING FUNDING MAY BE PROVIDED TO ANOTHER CSC)

*PIP = Performance Improvement Plan

The two rules are the 85/15 and 75/25. The scores are determined using the CSC Evaluation Scoring Sheet provided in Table 3.

The 85/15 rule points are calculated as follows, multiply the maximum score for each of the three elements by .85. (For example: Education and Outreach Maximum Score is 40 points X .85 = 35 points). The 85/15 rule is met when each element equals or exceeds the resulting element score multiplied by .85.

- 85/15
 - Education and Outreach - 34 points and above;
 - Scientific Research – 29.75 points and above; and,
 - Administrative – 21.25 points and above.

The 75/25 rule points are calculated as follows, multiply the maximum score for each of the three elements by .75. (For example: Education Maximum Score is 40 points X .75 = 30 points). The 75/25 rule is met when each element equals or exceeds the resulting element score multiplied by .75.

- 75/25
 - Education and Outreach – 30 points and above;
 - Scientific Research – 26.25 and above; and,
 - Administrative – 18.75 points and above.

Performance Improvement Plan

The Performance Improvement Plan (PIP) shall provide milestones and schedule to address the CSC evaluation draft report recommendations to NOAA's Office of Education (OEd), Educational Partnership Program (EPP). The implementation of the PIP shall start upon acceptance of the PIP or within one-hundred twenty days (120) days from receipt of the PIP, whichever occurs first. NOAA will internally review the PIP and provide acceptance and/or review comments. NOAA EPP will monitor the performance of the CSC. A percentage as identified in Table 2 of the annual funding will be held. The remaining percentage of the funding will be released when the Cooperative Science Center demonstrates that the PIP is fully implemented and all the evaluation report recommendations are met.

Table 3 – CSC Evaluation Scoring Sheet

CSC EVALUATION SCORE SHEET			
CRITERIA I	EDUCATION AND OUTREACH	40 POINTS	SCORE
	Adequacy of Degree Programs / Curriculum / Courses	8	
	<p>Student Outcomes</p> <ul style="list-style-type: none"> • Increased Number of Students from Underrepresented Communities who are Trained and Graduate, at MSI, with NOAA STEM degrees • NOAA mission-relevant STEM knowledge and skills • Academic and Professional Mentoring • Performing NOAA mission CSC Research • Internship at NOAA Facilities • Pipeline into Post-Secondary NOAA mission STEM Degree Programs including Social Science • Peer-reviewed Education and Scientific Publications • Graduation Rates • Retention Rates • STEM Careers and Advanced Education • Hires (NOAA, NOAA Contractor, Federal, State, Local, Tribal, Non-Governmental Organizations, and/or Academia) 	10	
	<p>Faculty Outcomes</p> <ul style="list-style-type: none"> • Recruitment Strategy Grades 11-16 in NOAA mission science linked to CSC award • New Courses with NOAA STEM Content • Hires in Areas Linked to NOAA Mission STEM Areas Linked to CSC Award • Peer-reviewed Education/Outreach Publications 	5	
	<p>Partner Involvement</p> <ul style="list-style-type: none"> • NOAA-mission STEM Knowledge and Skill Development by CSC Students and Faculty at Partner Institutions • Contribution to CSC Award NOAA-STEM Deliverables • Broadening Participation in NOAA STEM Fields 	6	
	<p>Outreach Programs / Materials / Activities</p> <ul style="list-style-type: none"> • CSC Students engagement in NOAA STEM Outreach • K-12 Teacher Knowledge and Pedagogies in NOAA Mission-Relevant STEM Linked to the CSC • NOAA Mission-Relevant STEM Content • Link NOAA Mission CSC STEM Profiles of Careers and Pathways to Career and Post-secondary Education • Social Media Engagement in Support of NOAA's mission 	6	
	<p>Leveraging of Education Programs</p> <ul style="list-style-type: none"> • Recruitment Strategy for Existing Post-Secondary Students in NOAA Mission Relevant STEM CSC • Pre-College NOAA mission-Relevant activities for PreK-24 teacher/faculty/instructor engagement activities • CSC Science/Technology Bridging Community College to CSC degree program 	5	

CRITERIA II	SCIENTIFIC RESEARCH	35 POINTS	SCORE
	Relevance to NOAA-Mission Science Relevance to NOAA Line Office Strategic Plan;	7	
	Collaborative Research Strategy, Plans, and/or Procedures <ul style="list-style-type: none"> • Within the Center • With NOAA Scientists • Across the Centers • With Research Partners external to NOAA • Among the scientific community • Industry Partnerships 	6	
	Scientific Research Accomplishments <ul style="list-style-type: none"> • Research to Operations Accomplishments & Deliverables (e.g., models, datasets, etc.) - Specific Scientific/Technology Research Products used/adopted by NOAA • Science/Technology Peer-reviewed Publications • Feature Cover Articles • Patents and Innovations • Externally-funded Research Projects • Merit of Scientific Research – Citation Index 	7	
	Roles/Desired Outcomes <ul style="list-style-type: none"> • Senior Scientist/Distinguished Professor • Faculty • Undergraduate Student Research Opportunities • Graduate Student Research at NOAA Facilities • Postdoctoral Fellows in Cutting Edge NOAA Science • Committees / Boards 	6	
	Infrastructure <ul style="list-style-type: none"> • Communication Mechanisms • Equipment • Facilities • Data Warehousing and Accessibility 	4	
	Research Resources Leveraging	5	

CRITERIA III	ADMINISTRATIVE	25 POINTS	SCORE
	Institutional Support Strategic Planning Administrative Planning and Management	4	
	Budget/Grant Management Execution <ul style="list-style-type: none"> • Budget management with Accurate Records and Controls • Timely CSC-wide Financial Disbursement, Obligation, and Funds Drawdown • Managing Risks and Key Success Criteria • Monitoring CSC Products and Impacts • Meeting All Award Terms and Conditions 	5	
	Communication Mechanisms <ul style="list-style-type: none"> • CSC External - CSC Committees / Boards including with other CSCs and NOAA • CSC Internal - within Lead and Partner Institutions • CSC Web Site and Acknowledgement of Funding Source 	3	
	Sub-Grantee Management and Execution <ul style="list-style-type: none"> • Timely Project Costing • Project Completion and Handover of Deliverables • Routine Monitoring Visits 	3	
	Capacity <ul style="list-style-type: none"> • Staffing • Office Space & Facilities • Process for Monitoring and Checking Data in Submitted Reports • Internal Controls and Verification Protocol to Satisfy EPP CSC Program Goal and Objectives • Sustainability 	5	
	Performance Measurement <ul style="list-style-type: none"> • Strategic, Implementation, Science, Student Development Plans • Quality Assured/Controlled Research Data Access by NOAA and Public • Inter-CSC Collaboration • Quality of Performance and Financial Reports • Center Internal Evaluations Process(es) and Outcomes 	5	
	TOTAL SCORE	100	

VI. APPENDICES

EDUCATIONAL PARTNERSHIP PROGRAM

A. FOUNDATIONAL INFORMATION

An Educational Partnership Program with Minority Serving Institutions: A Framework for Producing Minority Scientists in NOAA-mission Disciplines

Introduction

During the past ten years, issues associated with the number of underrepresented minorities in science, technology, engineering and mathematics (STEM) have been at the center of numerous discussions, studies and programs. These efforts have been conducted in good faith and in some cases have led to positive outcomes (American Council on Education, 2006). However, the baseline in the late 1990s offered considerable opportunity for improvement. For example, although some growth in the number of racial/ethnic minorities with science and engineering doctorates occurred between 1987 and 1996, with the exception of Asians, this growth was marginal at best. African Americans held 2.5% of science and engineering doctorates awarded during the period 1987-1991. This value increased to only 2.8% between 1992 and 1996. (National Science Foundation, 1999)

A similar trend is found among doctoral scientists and engineers employed in colleges and universities between 1985 and 1995 (NSF/SRS, 1995). These statistics, coupled with a strong desire to make significant improvement in these data, a commitment to diversify the workforce and the need to prepare a Succession Plan to address the aging workforce led to the U.S. Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA) and a consortium of 10 historically black colleges and universities (HBCUs) to establish the foundation and framework for NOAA's Educational Partnership Program with Minority Serving Institutions (EPP/MSI) described below.

Background

Several longstanding activities by NOAA staff strongly committed to diversifying NOAA's workforce contributed to programs of this nature. Most notable among these collaborative efforts were the "Expanding Opportunities Conferences" (EOC) initiated in 1995 and held in 1999, 2001 and 2003. These conferences sponsored by NOAA, and organized jointly with minority serving institutions and others concerned with diversity in NOAA related sciences defined issues and proposed strategies for their resolution. In fact, the need for a new approach to address the under representation of minorities in NOAA related sciences is reflected in the following statement from the 1999 conference proceedings: "As minority under representation in these fields is a complex and

pervasive issue, a simplistic approach to increasing the numbers of minorities in the occupational and educational sectors will not work.” (EOC, 1999). Later in 1999, NOAA’s Science Advisory Board (SAB) established September 25, 1997, voted unanimously to recommend that diversity should be included among eight themes that “should be woven into all NOAA science program efforts.” (NOAA, 1999).

Robinson, L., Rousseau, J., Mapp, D., Morris, V., and Laster. M., 2007, An Educational Partnership Program with Minority Serving Institutions: A Framework for Producing Minority Scientists in NOAA-Related Disciplines, *Journal of Geoscience Education*, v. 55, n. 6, p.486-491.
<http://www.nagt.org/nagt/jge/abstracts/dec07.html#v55p486>

Farrington, John W. and Michael A. Feder, Editors, 2010. NOAA's Education Program: Review and Critique - Committee for the Review of the NOAA Education Program; National Research Council. ISBN: 978-0-309-15123-8, 198 pages, <http://www.nas.edu/morenews/20100303b.html>

NOAA expects the CSC will examine the legal authorities and other directives for the Educational Partnership Program. Understanding the context of the new Cooperative Science Center award will allow the award recipient to avoid non-compliance. The Award Terms and Conditions, progress in performance, cost-effectiveness, and timeliness in Reporting will determine future funding. The following are lists of the various statutes, executive orders and other directives referred to or implemented by NOAA/OEd/EPP:

Statutory Authorities: 15 U.S.C. 1540, 49 U.S.C. 44720, 33 U.S.C. 883d, 33 U.S.C. 1442, 16 U.S.C. 1854(e), 16 U.S.C. 661, 16 U.S.C. 753(a), 16 U.S.C. 1451 et seq., 16 U.S.C. 1431, 33 U.S.C. 883a

Executive Orders: 13230, 13256, 13270, 13336, and 13339.

America COMPETES Act (2007)

America COMPETES Reauthorization Act (2010)

Program was implemented to address NOAA-wide issues of national significance and focuses on the Minority-serving community to increase the number of students from underrepresented communities who are educated, trained and graduate in STEM areas that directly support NOAA’s mission.

This competitive education program, designed with four components [Undergraduate Scholarship Program (USP); the Graduate Sciences Program (GSP); the Environmental Entrepreneurship Program (EEP); and the Cooperative Science Centers (CSCs)], provides financial assistance to support academic training, collaborative research, and experiential learning; support entrepreneurship opportunities in the application of NOAA science and technology; and, for the Centers, create collaborative partnerships among Minority Serving Institutions (MSIs) and NOAA’s Line Offices to reach untapped

talent for the NOAA and related natural resources workforce, reflecting the diversity of the Nation.

RELATED RESOURCES

Department of Commerce, Economics & Statistics Administration (ESA) STEM Jobs Report (Jul. 2011), <http://www.esa.doc.gov/Reports/stem-good-jobs-now-and-future>

Educational Partnership Program Report (Nov. 2008),
http://www.epp.noaa.gov/docs/epp_report_nov_2008_hi_rez.pdf

NOAA OFFICE OF EDUCATION, EDUCATIONAL PARTNERSHIP
PROGRAM COOPERATIVE SCIENCE CENTER

B. STRATEGIC PLAN GUIDANCE

PURPOSE

This guidance is provided for development of the NOAA Office of Education (OEd), Educational Partnership Program (EPP) Cooperative Science Center (CSC) Strategic Plan due by Close of Business (COB) 90 days following the start of the award period. For the fiscal year (FY) 2011 new CSC awards, the Strategic Plan is due on December 1, 2011.

GENERAL

The NOAA EPP CSC Strategic Plan shall be no more than ten (5) pages excluding the Appendices. The Appendices may not exceed five (2) pages. The NOAA CSC Implementation Plan shall be in Microsoft Word or PDF format. The Strategic Plan shall adhere to the following outline:

- I. Cover Page
 - A. Grant award number;
 - B. Grant award recipient - CSC lead academic institution, name of CSC and CSC mailing address; and,
 - C. Cooperative Science Center partner institutions.
- II. Table of Contents
- III. Executive Summary (3-page limit)
- IV. Strategic Plan Narrative
- V. Appendices (5-page limit)
 - A. Strategic Plan for CSC Lead Institution – award recipient organization
 - B. Glossary of Abbreviations, Acronyms and Terms

SPECIFIC GUIDANCE

The CSC Strategic Plan must have clearly-stated goals to be achieved during the five-year period, which support NOAA's Next Generation Strategic Plan, NOAA Education Strategic Plan, NOAA Five-year Research Plan, and the NOAA Twenty-year Research Vision. The CSC baseline must be identified for Education and Outreach, Scientific Research and administrative function at the CSC before the beginning of the FY 2011 award. The baseline as defined by the CSC will be used annually, to assess the impact of the FY 2011 award.

Specific elements to be included for the CSC, for the five-year performance period, are:

1. mission, vision, and values statements
2. objectives

3. link to award budget

NOAA will review the CSC Strategic Plan with the CSC Implementation Plan to assess how the strategic goals, strategies, objectives, responsibilities, timelines, monitoring and evaluation will align to ensure the CSC is successful.

As general guidance, the CSC Strategic plan reflect that consideration was given to:

- CSC as a mechanism to advance NOAA STEM education and research
- Advance the three component functions of a CSC
- Enhanced support in NOAA priority areas
- Develop new partnerships with NOAA, other CSCs
- Collaborators from other organizations and future sources of funding for sustainability
- Student, faculty, outreach participants followed longitudinally to determine indicators of award's impacts and sustainability
- Increase engagement with Community Colleges
- Overall impact at Minority Serving Institutions in NOAA STEM fields

NOAA OFFICE OF EDUCATION, EDUCATIONAL PARTNERSHIP PROGRAM
COOPERATIVE SCIENCE CENTER

C. IMPLEMENTATION PLAN GUIDANCE

PURPOSE

This guidance is provided for development of the NOAA Office of Education (OEd), Educational Partnership Program (EPP) Cooperative Science Center (CSC) Implementation Plan due by Close of Business (COB) 90 days following the start of the award period.

GENERAL

The NOAA EPP CSC Implementation Plan shall **be no more than thirty** (30) pages, not including the Appendices. (The Appendices may not exceed 10 pages). The NOAA CSC Implementation Plan shall be in Microsoft Word or PDF format. The Implementation Plan shall adhere to the following outline:

- I. Cover Page
 - a. Grant award number;
 - b. Grant award recipient - CSC lead academic institution, name of CSC and CSC mailing address; and,
 - c. Cooperative Science Center partner institutions.

- II. Table of Contents

- III. Introduction
 - a. Purpose of the Implementation Plan;
 - b. Implementation Plan synopsis;
 - c. Deliverables; and,
 - d. Risk analysis.

- IV. Center Administrative Function
 - a. Organizational chart;
 - b. Center personnel roles and responsibilities;
 - c. Center decision making process for each specific area:
(Please identify where NOAA and specifically EPP contribute to committee activities)
 - i. Education, outreach and recruitment
 - ii. Science and/or Research
 - iii. Administrative (including Reporting)
 - iv. Postdoctoral fellows program

- d. Center Financial Management
 - e. Key success criteria
- V. Center Education and Outreach Function
- a. Overview;
 - b. Goals;
 - c. Strategies and approach;
 - d. Performance metrics with milestones and timeline; and ,
 - e. Key success criteria.
- VI. Center Scientific Research Function
- a. Overview;
 - b. Goals;
 - c. Strategies and approach;
 - d. Performance metrics with milestones and timeline; and,
 - e. Key success criteria.
- VII. Appendices
- a. Appendix I: Points of contact including: 1. Center Director; 2. Deputy Center Director; 3. Distinguished Scientist; 4. Program Coordinator; 5. Education Lead; 6. Financial Management Lead
 - b. Appendix II: 5-Year Deliverables (Education and Outreach, Research – Science, and Center Management); Deliverables listed for Year 1, 2, 3, 4, and 5, including 6-month milestones;
 - c. Appendix III: Master schedule (including Milestones) for Education and Outreach, Research – Science, Center Management, and Postdoctoral Program;
 - d. Appendix IV: Glossary of terms; and,
 - e. Appendix V: Acronyms and abbreviations.

SPECIFIC GUIDANCE

Introduction

NOAA expects the Implementation Plan to describe the framework CSC will follow, during the performing period of the award, to discharge the Education and Outreach, Scientific Research, and Administrative functions. The Implementation Plan is to be used to guide both the CSC and NOAA during the five-year award period for the approved award package. The required semiannual performance reports will be reviewed against the Implementation Plan and the award package. Additionally, the Implementation Plan will be a guide in determining accomplishments and metrics met, annually and during the CSC Third Year Program Evaluations. The Implementation Plan must identify the CSC baseline for the three (s) functions: (i) Administrative, (ii) Education and Outreach, and (iii) Scientific Research.

CSC Administrative Function

The size of the Cooperative Science Center educational investment allocated in this award warrants significant monitoring and controls to ensure programmatic and financial management, and accountability. Each CSC must have in place administrative controls for programmatic and financial management processes for the Center award.

The NOAA EPP CSC administrative section shall include the requisite details so that NOAA EPP may determine if the appropriate infrastructure is in place to effectively manage the multi-year (five-year) grant award. The CSC administrative functions presented to NOAA will include information about Center operational protocols and roles and responsibilities for:

1. Day-to-day management of the CSC;
2. Driving the project team to develop a clear project plan and project deliverables that align to the Center Strategic Plan and the Center Type;
3. Ensuring assigned responsibility for producing **Education and Outreach**, and **Research** deliverables is clear;
4. Agreeing to project completion, handover criteria with CSC personnel at lead institution and all subawards;
5. Validating CSC output measures, those are the ongoing monitoring and reporting of the direct products and services delivered by a CSC-funded project (lead and partner institutions) and roll up into the CSC deliverables for the award;
6. Ensuring all project documentation is updated and maintained to include project initiation documents – Strategic Plan, Implementation Plan, Science Plan, Student Development Plans – project data plans, risk and issue logs, change control documents’ evaluation and any other information for the projects supported by the CSC;
7. Identifying dependencies with other activities/projects and processes and ensuring connections are monitored to enhance efficiencies;
8. Liaising with NOAA EPP and Technical Monitor(s); Advisory Committee(s); and with all stakeholders;
9. Managing effective external and internal communication to include ensuring a communication plan permits two-way communication between for all CSC personnel (administration, faculty, staff and students) at lead institution and for subawards;
10. Managing project status reports and budgets for lead and subawards;
11. Monitoring project costing and funds drawdown in a timely manner;
12. Conducting routine management visits of all EPP-funded CSC activities at lead institutions and subawards to monitor data generated for Student Tracker, Performance Progress Reports, and Federal Financial Reports to assess data collection and look for inconsistencies;

13. Ensuring all data from projects funded by the CSC across every Center institution/unit/entity are complete and handed over to relevant personnel for quality assurance/quality control assessment prior to making accessible;
14. Tracking Quality Assured (QA)/Quality Controlled (QC) data generated from the Center's research activities are made available to NOAA and the public;
15. Ensuring the information for monthly updates to CSC website is reviewed and handed over the relevant staff for posting;
16. Ensuring all reporting timelines in Grants Online are met;
17. Ensuring all students supported with EPP funds from the award are U.S. Citizens; enrolled in full-time courses towards a NOAA mission related STEM degree that is aligned with the Center Type; and in good academic standing as determined by maintaining a minimum of 3.0 Grade Point Average (3.0/4.0) for the current and prior academic term clearly outlined in this CSC Handbook.; and
18. Ensuring that the outputs and outcomes of the public investment across all partners of the CSC are widely available through an up-to-date Center web site.

CSC Education and Outreach Function

The NOAA EPP CSC education and outreach section must clearly describe, with annual targets and milestones, how the Center will significantly increase education and workforce outcomes in support of the NOAA mission, given the magnitude of the education investment. Information must describe how undergraduate and graduate students supported in the Cooperative Science Center will obtain knowledge and skills to support NOAA's mission. Specific information must address how all Center academic partners will contribute **to enhancement of the nation's supply of scientific talent from underrepresented populations**, through development of highly skilled graduates in science, technology, engineering and math (STEM).

The NOAA EPP CSC education and outreach section shall include the requisite details so that NOAA EPP may determine if the proposed education and outreach plan addresses recruitment, retention, training and graduation as well as NOAA's Mission, EPP's Mission and EPP's Performance Metrics. Information must demonstrate alignment with the goal of NOAA's Educational Partnership Program (EPP) with Minority Serving Institutions (MSI) – to increase the number of students, particularly from underrepresented communities, who are trained and graduate in science, technology, engineering, and mathematics (STEM) disciplines that directly support NOAA's mission.

The NOAA EPP CSC education and outreach for K-12 through and postsecondary student CSC support is required to show the continuous access and academic/financial/pre-professional support framework towards an educational pipeline for NOAA EPP/CSC. This section should describe clear entry points into higher education and exit points into the workforce and/or further training as these impact

EPP goals, objectives and priorities. Teachers to be served and engaged should be included in the description.

The NOAA EPP CSC outreach should show direct alignment with the specific CSC education objectives; CSC needs to describe how the outreach activity will enhance the educational outcomes of the Center; CSC needs to develop evidence of progress for each CSC outreach activity that is supported with NOAA CSC funds.

NOAA expects the CSC to identify: key success criteria for Education and Outreach, role of NOAA science in CSC Education and Outreach, engagement with Community College faculty and students. Outreach impacts like K-12 teacher participation in STEM professional development, changes in student STEM interest and competence, CSC faculty/student engagement in STEM outreach, and overall impact on the CSC lead and partner institutions.

Overall Performance Metrics (See Specific Metrics in Guidance Provided in Handbook.)

- ❑ Number of EPP-funded students who are trained and graduate in NOAA-mission sciences annually;
- ❑ Number of EPP-funded students from underrepresented communities who are trained and graduate in NOAA-mission sciences annually;
- ❑ Number of EPP-funded students who are hired by NOAA;
- ❑ Number of EPP-funded graduates who pursue NOAA mission careers and become part of the scientific and technological workforce as NOAA contractors, or at resource management agencies, or academia or as entrepreneurs;
- ❑ Number of EPP-funded students and faculty who participate and complete postdoctoral level programs; and
- ❑ Funds leveraged with NOAA EPP funds (including student support).

CSC Research – Science Function

The NOAA EPP CSC research section shall include the requisite information so that NOAA EPP may determine if the proposed research addresses NOAA’s Mission Goals, Research Plan and the Line Office Strategic Plan. The research section should convey how the proposed research will contribute to student education. In addition, the proposed research should address how the EPP performance metrics will be addressed. The plan should describe the CSC framework to ensure success of research projects; identify strategy to develop clear targets for defined objectives; key success criteria and evaluated risks for the CSC scientific research function.

CSC Postdoctoral Program

The CSC postdoctoral program is a key component of the CSC award. The NOAA EPP CSC Implementation Plan shall include the requisite information so that NOAA EPP may determine if the proposed Postdoctoral Program addresses the guidance provided in Appendix D.

NOAA OFFICE OF EDUCATION, EDUCATIONAL PARTNERSHIP PROGRAM COOPERATIVE SCIENCE CENTER

D. POSTDOCTORAL PROGRAM GUIDANCE

The CSC is required to provide funding for two post-doctoral fellowship positions. During the two-year fellowship, the research activities of the CSC post-doctoral fellow should be collaborative among the post-doctoral fellows, CSC scientists and NOAA scientists and should address NOAA mission-relevant science areas that are the primary focus of the CSC award. The Cooperative Science Center post-doctoral fellows program must establish an intellectual framework, assumptions, expectations, time-bound output targets, evaluation, and data to demonstrate how the CSC Post-doctoral Program is changing the performance metrics for the CSC (lead institution and academic partner).

In the Implementation Plan, comprehensive information about the design and implementation of the Postdoctoral Fellowship Program is required. The information must describe the framework for the postdoctoral fellow to partake in an intensive hands-on employment experience over a 24-month period (with no option for an extension). Fellows work side-by-side with CSC mentors and NOAA scientists, who will provide day-to-day direction and oversight. The information in the Implementation Plan must address the CSC Fellowship Program's expected postdoctoral fellow's productivity, pipelining into academia, public or private sector, and/or entrepreneurial opportunities. The Postdoctoral Program design should provide fellow with experience in NOAA mission critical research that will broaden perspectives about the critical role of the position in the environmental and natural resources science enterprise and future career paths.

The postdoctoral program design must strengthen NOAA mission capacity at the CSC. The required elements of the Postdoctoral Fellowship Program are:

- Complete mentorship training for mentors and fellows at the outset
- Establish expected objectives and outcomes to support the NOAA mission and goals
- Work conducted in support of NOAA mission in area aligned with the Center award
- Work with CSC and various NOAA laboratories, research centers and offices located across the country
- Work with NOAA Technical Monitor to develop a unique and exciting career opportunity for scientific or administrative services experience in support of NOAA's mission

- Attend all CSC Science Meetings/Workshops and at the end of the first year to discuss their research and to explore connections across various NOAA mission science disciplines and the CSCs
- Establish mentoring for professional and career development of fellow
- Design Postdoctoral Fellow Development Plan (PFDP) to:
 - Provide fellow with experience in research that supports a NOAA priority;
 - Facilitate intra- and inter-CSC interactions;
 - Strengthen collaborations between CSC and NOAA scientists;
 - Develop discrete objectives with expected outcomes to support the CSC Strategic Plan, and NOAA’s mission and goals;
 - Develop process and expectations for mentorship with goals for mentor and mentee;
 - Create a 24-month timeline with milestones for deliverables aligned to defined goals for fellow in program;
 - Describe expected research/science products clearly;
 - Set publication requirements; and
 - Identify key success criteria.

CSC Postdoctoral Fellowship Eligibility Requirements:

1. U.S. Citizenship;
2. Recent doctoral graduate – within two (2) years of graduation;
3. Doctoral degree field must support NOAA’s mission; and
4. Period of eligibility for fellow in CSC Postdoctoral Fellowship Program is 24 months within a 26-month period.

Each CSC post-doctoral fellow must identify a mentor **before** beginning work within the NOAA Center. Each post-doctoral fellow supported by CSC funds must participate in at least one NOAA-site-based research opportunity that is directly related to the primary NOAA mission-relevant focus of the CSC, for a minimum of 4 weeks per year. Furthermore, post-doctoral fellows are required to engage with the supported students and to serve as mentors at the respective CSC institution. A CSC post-doctoral fellow’s two-year tenure is not renewable on a Cooperative Science Center award.

A framework must be in place at the Cooperative Science Center to ensure:

- robust mentorship for postdoctoral fellows;
- effective process for pipelining postdoctoral fellows into the workforce or other opportunities;
- rigorous review for technical merit of the postdoctoral fellow’s individual plan;

- an individualized plan that includes mentoring and future career preparation for each postdoctoral fellow is provided to NOAA EPP, within 90 days of appointment as a CSC postdoctoral fellow; and
- postdoctoral fellow's activities align with the CSCs Implementation Plan and NOAA priorities.

The individualized development plan for a CSC post-doctoral fellow must be developed and signed by Mentor and Fellow within 30 days of appointment as a CSC post-doctoral fellow. The signed plan for each fellow must be sent to NOAA EPP (oad.epp10@noaa.gov). The postdoctoral fellow's project must be posted on the CSC web site and information kept up-to-date.

The data elements for the CSC Postdoctoral Fellowship Program are:

1. Identify if CSC postdoctoral position is the first (or 2nd, 3rd, . . .) postdoctoral position after earning doctoral degree;
2. Productivity (publications, 1st author peer reviewed article [not abstract or conference proceedings] in scholarly journal, new course/technology/etc. developed, NOAA mission-relevant developmental opportunities or networks introduced at CSC);
3. Position after CSC Postdoctoral Fellowship (NOAA, NOAA-related, Other); and
4. Number of months from CSC Postdoctoral Fellowship to promotion.

NOAA OFFICE OF EDUCATION, EDUCATIONAL PARTNERSHIP PROGRAM COOPERATIVE SCIENCE CENTER

E. SCIENCE PLAN GUIDANCE

PURPOSE

This guidance is provided for development of the NOAA Office of Education (OEd), Educational Partnership Program (EPP) Cooperative Science Center (CSC) Science Plan due by Close of Business (COB) 90 days following the start of the award period.

GENERAL

The NOAA EPP CSC Science Plan shall **be no more than twenty** (20 pages, not including the Appendices). The appendices may not exceed ten (10) pages. The NOAA CSC Science Plan shall be in Microsoft Word or PDF format. The Science Plan shall adhere to the following outline:

- I. Cover Page
 - a. Grant award number;
 - b. Grant award recipient - CSC lead academic institution, name of CSC and CSC mailing address; and,
 - c. Cooperative Science Center partner institutions.
- II. Table of Contents
- III. Introduction
 - a. Purpose of the Science Plan;
 - b. Science Plan synopsis; and,
 - c. Deliverables.
- IV. Center Scientific Management
 - a. Organizational Chart;
 - b. Center personnel roles and responsibilities [including Senior Scientist(s)]; and,
 - c. Center decision making process for each specific area.
- V. Research – Science (including mapping to NOAA and the NOAA Line Office’s strategic plans)
 - a. Overview;
 - b. Research Themes;
 - c. Goals;
 - d. Strategies and approach (including research cruises and other research activities); and,
 - e. Performance metrics.
- VI. Education and Outreach (including student research training, experiences, and assignments)
 - a. Overview;
 - b. Goals;
 - c. Strategies and approach; and,
 - d. Performance metrics.

- VII. Appendices
- a. Appendix I: Points of contact including: 1. Center Director; 2. Deputy Center Director; 3. Distinguished Scientist; 4. Program Manager; 5. Education Lead; and, 6. Research – Science Leads.
 - b. Appendix II: 5-Year Deliverables (Education and Outreach, Research – Science, and Center Management);
Please list deliverables for Year 1, 2, 3, 4, and 5.
 - c. Appendix III: Master schedule (including Milestones) for Education and Outreach, Research – Science, and Center Management;
 - d. Appendix IV: Glossary of terms;
 - e. Appendix V: Acronyms and abbreviations; and,
 - f. Appendix VI: References.

SPECIFIC GUIDANCE

Introduction

The Science Plan is to be used to guide both the CSC and NOAA during the five years of the grant award. The required semiannual performance reports will be reviewed against the Implementation and Science Plans and the award package. Additionally, the implementation and science plans will be a guide in determining accomplishments and metrics met, annually and during the CSC Third-Year Program Evaluations.

Management

The NOAA EPP CSC management section shall include the requisite details so that NOAA EPP may determine if the appropriate infrastructure is in place to effectively manage the multi-year (five-year) grant award. Alignment to support NOAA’s mission, and relevance to science and research priorities of NOAA as outlined by the primary Line Office Technical Monitor(s) and NOAA scientists will be key success criteria. Annually, progress in performance in the scientific research functions of the CSC will be used to make decisions about future funding of the CSC award.

Research - Science

The NOAA EPP CSC research - science section shall include sufficient details so that NOAA EPP may determine if the proposed research addresses NOAA’s Mission Goals, Research Plan and the Line Office Strategic Plan. The research – science section should provide details of each area/theme. The research section should convey how the proposed research will contribute to student education – preparing graduates with high levels of competencies in NOAA mission-relevant STEM disciplines. The meaningful engagement by undergraduate and graduate students in every CSC research project must be clearly outlined in the Science Plan. In addition, the proposed research in the Science Plan should address the performance metrics.

Education and Outreach

The NOAA EPP CSC education and outreach section shall include enough details so that NOAA EPP may determine if the proposed education and outreach in the Science plan addresses the science in support of the NOAA mission. The STEM fields for recruitment, retention, training and graduation must **lead to conferred degrees in fields that will support NOAA mission science areas in the area of the award**. NOAA expects CSC outreach will engage young people as citizen scientists; increase their awareness of the role of NOAA in society; and prepare young people for higher education and the 21st century career paths in environmental and natural resources.

NOAA expects CSC's research to support development of new economic opportunities based on NOAA research observations, monitoring, modeling, and predictions that sustain ecosystem services. CSC research is expected to expand understanding, observations and modeling of the earth's atmosphere and biosphere, including developing new approaches to engage underrepresented students and outreach participants in support of the NOAA mission, at MSIs.

The plan is also required to be aligned with EPP's Mission and EPP's Performance Metrics and Specific Scientific Research Performance Metrics.

Overarching EPP Performance Metrics

- ❑ Number of students who are trained and graduate in NOAA-mission sciences annually;
- ❑ Number of students from underrepresented communities who are trained and graduate in NOAA-mission sciences annually;
- ❑ Number of OEd EPP funded students who have participated in experiential opportunities in NOAA mission-relevant science;
- ❑ Number of students conducting meaningful research at NOAA facilities;
- ❑ Number of OEd EPP funded students who are hired by NOAA, NOAA contractors and other natural resource and science agencies at the Federal, State, local and tribal levels;
- ❑ Number of students and faculty who participate and complete postdoctoral level programs;
- ❑ Funds leveraged with NOAA EPP funds (including student support).

Specific Scientific Research Performance Metrics

- ❑ Number of cutting edge NOAA mission critical science/technology projects worked on with NOAA scientists;
- ❑ Number of collaborative research projects by postdoctoral fellows at NOAA facilities;
- ❑ Number of collaborative research projects undertaken between NOAA and MSI partners in support of NOAA operations;

- ❑ Number of peer reviewed papers published in NOAA sciences by faculty and students sponsored by NOAA EPP; and,
- ❑ Total NOAA-mission related resources leveraged with OEd EPP funds (including student support).

Appendices

The Point of Contact information should include telephone numbers as well as email and mailing addresses. The five-year milestones and master schedule shall be a Gantt chart provided in MS Word, Excel, or Microsoft Project. In addition, please provide a Glossary of Terms as well Acronyms and Abbreviations.

SUBMISSION

Please email the NOAA EPP CSC Science Plan to the EPP Director, oad.epp10@noaa.gov, by COB 150 days from the start of the grant award.

NOAA OFFICE OF EDUCATION, EDUCATIONAL PARTNERSHIP PROGRAM COOPERATIVE SCIENCE CENTER

F. STUDENT DEVELOPMENT PLAN GUIDANCE

CSC Student Development Plan is due to NOAA EPP, oed.epp10@noaa.gov, by **FEBRUARY 28, 2012**.

1. The Cooperative Science Center award recipient shall develop a CSC Student Development Plan that includes:
 - a. training approach,
 - b. targets, and
 - c. competencies that students must achieve.
2. Competencies in the Student Development Plan must lead to identified educational outcomes for students supported at each degree level. A description must be included that outlines the approaches with mechanisms and milestones to assess student success in development of identified levels of knowledge and skill.
3. The competencies identified in the Student Development Plan shall indicate a clear alignment with:
 - a. the specific Center type of the award,
 - b. NOAA's mission and goals in the NOAA Strategic Plan, and
 - c. the Educational Partnership Program's educational and workforce goals.
4. Each CSC-supported student shall have an **Individual Student Development Plan** that shall include: research internships at NOAA Facilities; presenting at national professional forum; and, training to develop knowledge and skills that allow the CSC students to develop NOAA mission-relevant STEM portfolios.

NOAA expects information in the Student Development Plan to reflect how students will:

- Participate in Center-wide course for all students
- Complete training to develop skills to teach, to mentor, to give and to receive feedback
- Develop opportunities for teaching, co-learning, peer-to-peer mentoring
- Gain skills in Fellowship and Grant Proposal Writing
- Develop interviewing and networking skills
- Develop skills in Collaborative Leadership
- Develop opportunities to have leadership experiences
- Develop skills to translate discipline-based concepts, methods and practices in ways that experts from other fields will find understandable
- Map career paths to skills and abilities and match the competencies required for each career
- Identify career opportunities
- Provide CV and resume building opportunities for student portfolio

- Conduct CSC experiential research
- Develop skills related to conflict management
- Develop opportunities to learn budget management
- Be guided to develop **professional profile** on an established professional social networking site to document NOAA mission-relevant STEM career progress
- Implement the Student Development Plan
- Identify experiments or projects that support the NOAA mission
- Have research experience at NOAA facility
- Be provided CSC mentorship
- Develop process to move students successfully through coursework
- Develop writing skills and presentation skills
- Participate in NOAA's mission and CSC's research-related seminars
- Make presentations (lab meetings, journal clubs, seminars, scientific meetings or professional conferences)

The expectations for specific objectives of a typical **Individual Student Development Plan (ISDP)** are to:

- Identify specific skills and strengths that student will need to develop (based on discussions of student with mentor). Mentors should provide honest feedback - both positive and negative - to help student set realistic goals.
- Identify a research project and necessary level of commitment to match student's abilities and career goals.
- Define the approaches to attain the research goals student has chosen to obtain the specific skills and strengths (e.g., courses, technical skills, teaching, supervision) student will need to acquire and/or build upon.
- Define milestones and anticipated time frames for goal acquisition.

Describe how the CSC will implement SDP across all partner institutions

Describe how CSC will assess effectiveness of SDP and communicate the knowledge base acquired across institutions and wider community

Describe mechanism(s) for CSC to modify and enhance SDP

Describe leveraging of institutional educational and assessment resources

Annual Comparison of CSC-supported students with other students in similar standing in degree program cohort:

- Annual Cumulative GPA
- Success rate for grants and fellowship applications
- NOAA mission relevant STEM knowledge and skills
- Experiential research at NOAA labs, centers, offices and national facilities
- Length of time to degree completion
- Entry in NOAA mission-relevant STEM career or further education in STEM field

NOAA OFFICE OF EDUCATION, EDUCATIONAL PARTNERSHIP PROGRAM COOPERATIVE SCIENCE CENTER

G. PERFORMANCE REPORT GUIDELINES

The following document provides guidelines for preparing performance reports submitted to the NOAA Office of Education (OEd), Educational Partnership Program with Minority Serving Institutions (EPP/MSI). These guidelines apply to all Cooperative Science Centers (lead institutions) and partner institutions and/or sub-contractors, as appropriate. Please distribute this reporting guidance to each of principal investigator at lead and partner institutions and/or sub-contractors. **Progress towards achieving goals and objectives of the award will be monitored to determine performance in CSC Administrative, Education and Outreach, and Scientific Research functions, as a basis for future funding of the CSC.**

If there are questions on this reporting format, please do not hesitate to contact the EPP Cooperative Science Center Program Manager, Audrey Trotman at 301 713 9437 extension 155 or Audrey.Trotman@noaa.gov. Secondary contacts for performance report questions are EPP Liaisons Meka Laster at 301 713 9437 extension 147 or Meka.Laster@noaa.gov or Chantell Haskins at 301.713.9437 ext 125 or Chantell.Haskins@noaa.gov.

Background:

The files of all Federal agencies, including those of NOAA, are subject to the annual Federal Chief Financial Officer's Act (CFOA) of 1990. These audits include a determination as to whether Federal grant/cooperative agreement award files contain current financial and performance reports from financial award recipients.

Award recipients who fail to submit timely performance and/or financial reports as required by the Department of Commerce Financial Assistance Standard Terms and Conditions of the award are subject to the following: i) NOAA's Corporate Finance and Administration Services Office, Acquisitions and Grants Office (AGO) cannot issue a new grant award; ii) NOAA AGO cannot approve grant amendments; and, iii) NOAA's AGO must deny access to funds under all current and pending financial assistance awards to that recipient.

General Reporting Requirements:

The reporting requirements for performance reports are identified in the NOAA Administrative Standard Terms and Conditions and provided by NOAA's Grants Management Division upon issuance of a new award.

The OEd EPP/MSI program requires semiannual performance reports during the financial assistance award period. Semiannual performance reports are required no later than 30 days after the end of each grant period from the start date of the award to ensure compliance with NOAA Standard Terms and Conditions, and the CFOA. The two grant periods are provided in the Grant Award documentation located on Grants Online.

The Cooperative Science Center student tracker database shall be provided to NOAA EPP no later than January 31st, June 30th and September 30th. Student data and information from September 1st through December 31st shall be provided on January 31st. Student data and information from January 1st through May 30th shall be provided on June 30th. Student data and information from June 1st through August 31st shall be provided on September 30th. This data should include student data for summer programs.

All performance reports (progress and financial) shall be submitted electronically via Grants Online. All student tracker updates may be entered via the web-based [system](#).

It is the responsibility of the Cooperative Science Center Director to obtain, coordinate, and synthesize information, data and activities contained in performance reports from partnering institutions and/or sub-contractors within the Cooperative Science Center. Partnering institution and/or sub-contractor reports should not be sent as individual reports under separate cover. Instead, partnering institutions and/or sub-contractors' report should be summarized in the Cooperative Science Center's semiannual reports.

The performance report should include: 1) cover page; 2) table of contents; 3) executive summary; 4) main body of the report; and, 5) appendices.

Cover Page

Please include the following information on the cover page of the report:

“Performance Report for Cooperative Agreement No: [Award number]
for the Period from _____ to _____”

Name of Lead Institution

Names of Partnering Institutions

Names of all Principal Investigators

Title of Cooperative Science Center

Table of Contents

All performance reports should have a table of contents.

Executive Summary

All performance reports should have an executive summary that must not exceed 4 pages. The executive summary should provide a summary of results, publications/presentations, relevant websites, and link outcomes to NOAA mission priorities. The Executive Summary for the Cooperative Science Center should describe progress made for performance metrics, during the reporting period, in addressing:

1. NOAA's mission and the strategic plan.
2. EPP performance measures:
 - Number of students who are trained and graduate in NOAA-mission sciences annually;
 - Number of students from underrepresented communities who are trained and graduate in NOAA-mission sciences annually;
 - Number of students who participated in experiential research at NOAA facilities annually;
 - Number of EPP funded students who are hired by NOAA, NOAA contractors and other natural resource and science agencies at the Federal, State, local and tribal levels;
 - Number of NOAA science and administrative personnel engaged in CSC Education and Outreach, Scientific Research, and Administrative functions;
 - Number of collaborative research projects undertaken between NOAA and MSI partners in support of NOAA operations;
 - Number of students and faculty who participate and complete postdoctoral level programs;
 - Number of peer reviewed papers published in NOAA-mission sciences by scientists (faculty and students) sponsored by NOAA EPP; and
 - Funds leveraged with NOAA EPP funds (including student support).
3. NOAA Line Office (i.e., National Weather Service, National Ocean Service, etc.) strategic plan supported;
4. Research results (outputs/outcomes), including student educational outputs/outcomes in CSC-funded research activities.
5. Focus on student training, education and other benefits from faculty / staff exchanges.
6. Outreach.
7. Supplemental keyword not found in the Main Body of the report should be included.

The CSC activities and accomplishments are compared to the Strategic, Implementation, Science and Student Development plans. Educational outputs and outcomes will be compared to the targets and the Student Development Plan.

Main Body of Report

Performance reports are reviewed and assessed against the approved award and any amendments to the award. The Main Body of the Report must not exceed 20 pages.

1. The performance reports shall be no more than thirty (30) pages not including the Cover Page and Executive Summary.
2. The performance report should not be written in the first person.
3. The performance report should explain how the Cooperative Science Center supports NOAA's mission by specifically identifying areas where the Cooperative Science Center supports the NOAA and NOAA Line Office strategic plans.
4. The performance report should provide the OEd EPP performance numbers (trained, graduated, collaborative research projects, leveraged funds, etc.) and describe how the Cooperative Science Center supports the OEd EPP performance measures with specific data to validate the measures. Describe the impact of the performance measures, if any, on national statistics.

In addition, the main body of the performance reports should include the following sections. This information should be used as a guide. Reports must include, but should not be limited to, the following:

- Section I Status of all Award Tasks (goals and objectives)
- Section II Education & Outreach Activities
- Section III Success Stories (scientific and student accomplishments)
- Section IV Revisions to tasks as described in the original grant award, amendments and the impact to the award

Section I: Status of Award Tasks

This section should summarize the status of Cooperative Science Center (lead and partner institutions) in meeting goals and objectives outlined in the original proposals. The report must be detailed enough to provide EPP/MSI with a clear understanding of what was accomplished during the performance period. The section should be organized in the same format as the original proposal and include the following information:

1. Status of goals/objectives accomplished as defined in the Cooperative Science Center's proposal.
2. Status of benchmarks due during the performance period. The Center should specify any anticipated delays, difficulties/problems that may impede timely completion of projects or activities.
3. Status of special award conditions (if applicable) due during the performance period.
4. Identification of the NOAA-mission research and report on the impact of the research on NOAA's mission. In addition, provide the planned and actual duration and status of the research activity that is in support of NOAA's mission. If applicable, describe the delay and the reason for the delay.

5. Identification of all collaborative research activities undertaken during the award period; this must include names of both NOAA and academic (faculty and student) individuals. In addition, provide the planned and actual duration and status of the collaborative research activity that is in support of NOAA's mission.
6. Report on the administrative and research meetings conducted in support of activities under this award. Summary minutes may be included in the appendices.
7. Status of recruitment (including students, staff and post doctorates).
8. Status of Faculty/NOAA staff exchanges.
9. Status of Budget to date (expended and remaining funds).

Section II: Education & Outreach Efforts

1. How many students and faculty were recruited to participate in academic programs, training, workshops, conferences or seminars?
2. What are the new education programs (degree certificate programs, etc.)?
3. Enter data in the EPP provided Student Tracker Database Form for each student receiving direct and indirect support through this award. Please do not provide student data in any other format other than what is provided in the Student Tracker Database [web-based system](#).
4. What outreach activities (i.e., workshops, conferences, seminars) have the Cooperative Science Center coordinated as part of the project? Report on any local, regional or national media that were involved on this activity. Specify all participants including students, faculty, partner organizations or institutions. Also, please provide copies of the news articles, press clippings and releases, pictures, etc. in the appendices. This information is particularly useful for the NOAA EPP/MSI web site, report, newsletter, brochure and other outreach materials.

Section III: Success Stories

The Cooperative Science Center should report on notable success stories during the performance period. Specify how the activity/project advanced the goals of the OEd EPP program. Examples may include:

1. What specific contributions has the project made to the Cooperative Science Center, NOAA and partners?
2. How many students participated in Cooperative Science Center projects or activities?
3. What specific benefits were accrued to students, faculty members and the institution(s) by participating in the program?
4. To what extent has the project or activities enhanced and improved education, outreach, training and NOAA related research at the institution(s)?
5. Did students participate in experiential research at, site visits to, or seminars at/with NOAA laboratories and/or facilities?
6. In what specific NOAA science, service or stewardship activities (e.g., NOAA research cruises; weather forecast modeling, etc.) were students involved?

7. What significant impact(s) does the Cooperative Science Center research, education and outreach, and administrative functions have university-wide, for the local community, and at the local, state, regional or national level?

Appendices

The Appendix Section of the Semi-annual Report must not exceed 10 pages. An appendix labeled as, “Acronym and CSC Links” must be included. Per the cooperative agreement Special Award Conditions, all recipients must provide directly via the NOAA EPP Student Tracker web-based application the student data that includes K-12, undergraduate, and, graduate student data and other information. The appendices may contain summary tables of student data and information. In addition, please include the performance measure tables, graphs, and charts. Reports from research cruises, surveys, and other Cooperative Science Center activities should be available on the Center’s website and links provided in the Acronym and CSC Links appendix section. Please link to listing of Cooperative Science Center principal investigator and student notable accomplishments, accolades, recognitions, and awards. A link to listing of upcoming events and write-ups from past Cooperative Science Center events (e.g., workshops, seminars, or with pictures may be included. Please also link to any outreach products such as Cooperative Science Center brochures, pamphlets, newsletter(s), and social networks.

NOAA OFFICE OF EDUCATION, EDUCATIONAL PARTNERSHIP PROGRAM COOPERATIVE SCIENCE CENTER

H. CSC WEB SITE GUIDANCE

PURPOSE

This guidance is provided for maintenance of a functional Cooperative Science Center web site. The style and layout of the web site is to be determined by the award recipient. Acknowledgment of NOAA as the funding source for the CSC must be clear and readily visible. The Center website must have CSC information for all funded CSC activities (includes CSC activities at partner institution).

GENERAL

Each NOAA EPP Cooperative Science Center must develop and maintain an up-to-date website that provides the following information:

- CSC Description – include information about the CSC award
- CSC NOAA STEM Expertise & Resources (lead and partners)
- CSC Administration
- CSC Education and Outreach
- CSC Scientific Research
- CSC Student Portfolios
- CSC Postdoctoral Program
- Evaluation
- CSC Accomplishments
- CSC Success Stories or Highlights
- CSC Plans: Strategic, Implementation, Science, Student Development
- CSC Accountability for Public Funds – Reporting Results for Funds Invested
 - CSC Performance Metrics
 - At-A-Glance: CSC Baseline Comparisons for Performance Metrics
 - Who is benefitting (Esp. How is NOAA benefitting)
 - Patents & Innovations
 - Publications
 - Presentations
 - Press Releases
 - Newsletter
- CSC Communications
 - Students, Faculty, Institutions, NOAA, Public
 - Social Media
- Meet the CSC People (ALL CSC: Lead and Partner Institutions)
 - Administration

- Faculty, Scientists and Postdoctoral Fellows
- CSC-Supported Students (Lead and Partner Institutions)
 - Bio
 - Research: Interests and NOAA-site Research Project/Activity
 - Presentations and Publications
 - Recognitions: Honors & Awards
 - Expected Graduation Date from CSC
 - Future Plans: Career and/or Further Education

NOAA OFFICE OF EDUCATION, EDUCATIONAL PARTNERSHIP PROGRAM COOPERATIVE SCIENCE CENTER

I. CSC COLLABORATION INITIATIVE GUIDANCE

In FY 2011, funding (\$125,000.00) is provided for a Cooperative Science Center's Collaboration Initiative. NOAA expects the CSC Collaboration Initiative would expand the outcomes of each partnering CSC and increase potential for advancing the quality of the CSC's education and outreach, and/or research, and/or administrative function(s) by addressing a specific problem or opportunity. The intent is that Centers will leverage their NOAA mission-relevant STEM capabilities, and working with NOAA scientists and administrative offices, develop expanded linkages. These linkages are for the purpose of strengthening each Center's NOAA mission capacity to support NOAA mission science areas in: atmospheric, oceanic and environmental sciences; living marine resources; remote sensing science and technology. The expectation is that each Center will team with a minimum of three EPP Cooperative Science Centers, and with NOAA, to provide exceptional opportunities for student training and research in support of the NOAA mission. NOAA expects the CS Collaboration Initiative will address unique NOAA mission science and technology questions beyond the scope of a single CSC award type.

The Centers will develop the focus of the Collaboration Initiative. Each Center's proposed CSC Collaboration Initiative is expected to expand baseline Center activities. For example, NOAA expects the CSC Collaboration Initiative to:

- A. increase CSC collaboration with NOAA scientists across NOAA line organizations to support critical mission priorities;
- B. increase experiential research opportunities for CSC students and faculty at NOAA labs, centers and facilities across the nation;
- C. leverage training for undergraduate and graduate students, faculty and NOAA scientists to increase NOAA mission-related STEM competence levels at CSCs by 20 percent of the baseline (baseline data represent conditions before FY 2011 award);
- D. provide education and research opportunities for students to increase their competitiveness for entering careers at NOAA and NOAA mission-related organizations or continued advanced degrees;
- E. increase student pipeline into NOAA mission-STEM degree programs and career paths;
- F. increase CSC sustainability so that without CSC funding by NOAA EPP the CSC STEM capacity will not go back to baseline; and
- G. dedicate specific resources from the CSC collaboration funding to encourage innovation in support of the NOAA mission.

The CSC develops the CSC Collaboration Initiative project and submits to NOAA EPP (oed.epp10@noaa.gov) for review and approval. The CSC Collaboration Initiative project is to be **submitted no later than May 1, 2012**.

- The CSC Collaboration Initiative project and will identify the:
- (i) three-CSC-members and NOAA scientific or administrative partners;
 - (ii) goal(s) and objectives;
 - (iii) narrative description of the activities proposed and the sequence in which the activities are to be performed that includes:
 - a. methods to be used in carrying out the proposed CSC Collaboration Initiative and feasibility of the methods;
 - b. expected outcomes and outcome measures;
 - c. means by which results will be analyzed, assessed, or interpreted;
 - d. planned use of results or products;
 - e. risks to project success that may be encountered;
 - f. limitations to proposed plan/procedures; and
 - g. timeline for attainment of objectives and for generation of deliverables that includes milestones with specific, measurable outcomes;
 - (iv) budget with planned use of CSC Collaboration funds to carry out the proposed CSC Collaboration Initiative; and
 - (v) plan for evaluating progress toward achieving the CSC Collaboration objectives. The plan must include milestones, which signify the completion of a major deliverable, event, or accomplishment and serve to verify that the project is on schedule and on track for successful conclusion. The plan should also include descriptions of indicators the CSC will measure to evaluate whether the CSC Collaboration activities are successful in contributing to achievement of the stated goals and outcomes for the CSC Collaboration Initiative.

NOAA OFFICE OF EDUCATION, EDUCATIONAL PARTNERSHIP PROGRAM COOPERATIVE SCIENCE CENTER

J. PROGRAMMATIC SPECIAL AWARD CONDITIONS FOR FY 2011 COOPERATIVE SCIENCE CENTER AWARDS

1. The NOAA Educational Partnership Program (EPP) Cooperative Science Center (CSC) award is designed to educate, train and graduate students in NOAA mission Science, Technology, Engineering, and Mathematics (STEM) fields. The primary output of the EPP for the Department of Commerce Balanced Scorecard measure to assess performance is increased number of students from underrepresented communities who are trained and graduate in NOAA mission sciences, particularly at MSIs. Each award recipient shall establish performance measures and meet annual goals, aligned with the Educational Partnership Program Office to increase the number of undergraduate and graduate students who gain NOAA mission-relevant STEM disciplines- specific knowledge and skills that are the primary focus of the Center Type award (i.e. Atmospheric Science, Environmental Sciences, Living Marine Resources, and Remote Sensing Technology), enroll and complete degrees, and are prepared to enter NOAA mission-relevant STEM careers or advanced education.
2. Future funding of a Cooperative Science Center award recipient shall be determined by progress in meeting the primary educational objectives: (i) increased number of Center-supported students from underrepresented communities who are trained and graduate in NOAA mission sciences, particularly at MSIs; (ii) increased number of students who enroll in NOAA mission-relevant STEM majors, complete degrees; and, (iii) increased number of students from underrepresented communities who participate in meaningful NOAA mission-relevant STEM research at CSC and NOAA facilities as the students earn NOAA mission-relevant STEM degrees.
3. Every EPP research-funded activity supported at the CSC under this award shall engage undergraduate and graduate students from underrepresented communities in meaningful NOAA mission-relevant STEM research in the primary focus areas of the Center Type as the students earn NOAA mission-relevant STEM degrees.
4. NOAA Educational Partnership Program (EPP) Cooperative Science Center **Strategic, Implementation, and Science** Plans shall be provided to NOAA EPP no later than December 1, 2011.
5. The Cooperative Science Center award recipient shall develop a **CSC Student Development Plan** that includes the training approach, targets and competencies that will lead to identified educational outcomes for CSC students supported at each degree level, by February 28, 2012. The competencies identified in the Student Development Plan shall indicate a clear alignment with the specific Center type, NOAA Strategic Plan and the Educational Partnership Program's educational and workforce goals. Each CSC-

- supported student shall have an Individual Student Development Plan that shall include research internships at NOAA Facilities, presenting at national meetings, and training to develop knowledge and skills to allow the CSC students to develop NOAA mission-relevant STEM portfolios.
6. The Cooperative Science Center Student Tracker database statistics shall be provided to NOAA EPP, in support of the performance metrics, as outlined in the CSC Handbook (Version Fiscal Year 2011).
 7. Only undergraduate students who are United States citizens, in full-time academic status, and in good standing with a minimum 3.0 Grade Point Average (4.0 maximum scale) for the current and prior academic term (semester or quarter) may receive EPP funds for direct student support. Undergraduate students who meet the criteria may be supported with EPP funds at the same degree level for a maximum of four years. Additional information is outlined in the CSC Handbook (Version Fiscal Year 2011).
 8. EPP funds for direct student support shall be provided no more than three (3) years for students pursuing Master's degrees, providing the student maintains a minimum 3.0 Grade Point Average for the current and prior academic term and is in a full-time academic status.
 9. EPP funds for direct student support shall be provided no more than five (5) years for students pursuing doctoral degrees, providing the student maintains a minimum of 3.0 Grade Point Average for the current and prior academic term and is in a full-time academic status.
 10. No EPP funds may be used to support students who fail to meet the minimum 3.0 Grade Point Average for the current and prior academic term (semester or quarter) or to repeat courses previously paid for with EPP funds.
 11. Each CSC shall establish a post-doctoral program to support two-year fellowships and provide funding for two post-doctoral positions. During the two-year fellowship, the postdoctoral research shall be collaborative among the postdoctoral fellows, CSC scientists and NOAA scientists and shall address NOAA-mission science in mission critical areas of primary focus in the Center Type award. Only United States citizens shall be supported with NOAA EPP CSC funds as a CSC post-doctoral fellow. Each postdoctoral fellow supported by CSC funds shall participate in at least one NOAA-site-based research opportunity that is directly related to the CSC, for a minimum of 4 weeks per year.
 12. No EPP funds for CSC Collaboration Initiative across a minimum of three CSCs shall be released to a CSC until EPP approval. A CSC shall submit documentation of the proposed CSC Collaboration Initiative and focus for review and approval.

Substantial Involvement Special Award Conditions

National Oceanic and Atmospheric Administration (NOAA) Office of Education, Educational Partnership Program will be significantly involved in the planning of research and student training activities at the Cooperative Science Center (CSC). The NOAA Line Offices will be substantially involved in the planning, execution as needed, site visits to verify output measures, processes, data management, and assessment of research activities. The specifics about **substantial involvement by NOAA** are identified in the CSC Handbook (Version Fiscal Year 2011).

Performance Project Reporting Special Award Conditions

The content requirements for semi-annual performance progress reports are specified in the Educational Partnership Program Cooperative Science Center Handbook (Version Fiscal Year 2011). The grantee shall include subaward activities in semi-annual Performance Progress Reports (PPR) that are submitted to NOAA through Grants Online (<https://grantsonline.rdc.noaa.gov/flows/home/Login/LoginController.jpf>).

NOAA OFFICE OF EDUCATION, EDUCATIONAL PARTNERSHIP PROGRAM COOPERATIVE SCIENCE CENTER

K. Glossary of Abbreviations, Acronyms, and Terms

Accountability means the duty under the terms of the CSC award of an individual or the CSC to account for its activities, accept responsibility for them and to disclose the results in a transparent manner. It also includes responsibility for award funds.

Activity means actions taken to carry out the CSC goals and objectives within the program(s) of the CSC.

America COMPETES means Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science.

ASAP means Automated Standard Application for Payments that is used by the award recipient to draw funds awarded under the FY 2011 new NOAA EPP CSC cooperative agreement.

Audience means a group of persons or sector of the society for whom messages and/or services are designed or delivered. The CSC audiences include underrepresented, underserved, urban, rural, Pre-K through postgraduate students and researchers, Classroom Teachers, Faculty & Instructors, Youth, Families, Community Members, local/state/federal agencies or departments, Policy/Decision-makers, Private and Public sectors.

Awardee (same as recipient or grantee) means the organization or other entity that receives the award and assumes legal and financial responsibility and accountability both for the awarded funds and for the performance of the award-supported activity. The CSC award is made to the lead institution.

Baseline means the known state for education and outreach, scientific research and administrative components of the CSC before the FY 2011 CSC award.

Baseline data means the basic information gathered before the award begins. The baseline data will be used to provide comparisons for assessing impact of the FY 2011 CSC award.

Broadening Participation in NOAA STEM Fields means increasing postsecondary participation by students from underrepresented communities to gain NOAA STEM knowledge and skills for career paths and further education opportunities in disciplines that support the NOAA mission.

Budget Obligation rate means the ratio of funds allocated to funds drawdown. For example, if in Year 1 a CSC receives \$150K and draws down \$76,830 through ASAP then the obligation rate in Year 1 is $(\$76,830/\$150,000) \times 100 = 51.22\%$.

Cash on Hand means the balance remaining of the funds an organization has received from NOAA.

Collaborative Research Project with NOAA means a CSC research activity that has continuing contributions with meaningful engagement by NOAA personnel to develop objectives, expectations for deliverables to complete NOAA mission-priority research. The activity has a beginning and an end, is carried out to achieve a particular purpose to a set quality within given time constraints, and has an identified budget.

CSC means Cooperative Science Center.

CSC award type means a reference to the specific NOAA science/technology focus area of a CSC: Atmospheric, Environmental Science, Living Marine Resources, Remote Sensing Technology.

CSC-supported Student means any CSC-support-eligible postsecondary student enrolled in a postsecondary degree program in a NOAA STEM discipline at an accredited U.S. institution pursuing a postsecondary degree in a field that support NOAA's mission.

Data means as OMB Circular A-100 states: “. . . the recorded factual material commonly accepted in the scientific community as necessary to validate research findings, but not any of the following: preliminary analyses, drafts of scientific papers, plans for future research, peer reviews, or communications with colleagues.”

Data management means written CSC managing guidelines for data quality assurance and quality control along with policies and procedures for access and sharing with NOAA and general dissemination, within a reasonable time, of primary data created or gathered in the course of work under this award. It also describes the format that will be used to make data available to others, including any meta data, as well as the archival location of data.

Deliverable means the products and outputs from the CSC funding. The fundamental objective of a funded project is **to deliver something new**.

Direct Student Support means CSC funds directly paid for support of CSC-support-eligible student in the budget subcategories: tuition; undergraduate student scholarship; graduate student fellowship; travel (to participate in experiential research at NOAA facilities or other CSCs or NOAA programs, present at scientific conferences/meetings, training, professional development); stipend (for laboratory/computer/equipment fees, books, transportation and lodging support when conducting CSC/NOAA research activities – excludes cost of research

materials & supplies, or other expenses for research); and registration (for conferences or workshops or Forum). Annually, thirty percent (30%) of CSC funding is mandated for direct student support.

Disbursements/Outlays/Expenditures means charges made to the project during a given period for:

- a. Goods and other tangible property received;
- b. Services performed by employees, subawardees, contractors and other payees.

Environmental literacy means a fundamental understanding of the systems of the natural world, the relationships and interactions between the living and non-living environment, and the ability to understand and utilize scientific evidence to make informed decisions regarding environmental problems.

Evaluation means the process of systematic determination of significance or value or worth when compared using established criteria against a set of standards or a baseline.

Formal education means a hierarchically structured, chronologically graded “education system” running from kindergarten through university level.

General public means any participants who are not affiliated with another group.

GOL means Grants Online, the web portal for administration of NOAA’s grants and cooperative agreements, <http://www.corporateservices.noaa.gov/grantsonline/index.html>.

Informal education means any organized educational activity outside the established formal system that offers participants learning opportunities through summer programs, science fairs, STEM camps, workshops or contests, and other means.

K-14 means the Kindergarten through Community College education audience.

Key success criteria means those objectives that, if all else fails, the CSC must meet and/or those objectives that, for each of the three CSC functions, a CSC must meet for the CSC to be deemed successful in Education and Outreach, Research, Administrative, even if other objectives are met and achieved.

Long-term indicator means social, economic, civic, and/or environmental conditions.

Mid-term indicator means behavior, practice, decision-making, policies, social action.

Minority means Alaskan Native, American Indian, Asian-American, African-American, Hispanic American, Native Hawaiian, or Pacific Islander.

Milestone means the end of a phase that marks the completion of work that constrains future work (i.e. no further progress can be made unless the milestone event is successfully completed or conditions met).

Minority-serving institution means an accredited academic institution whose enrollment of a single minority or a combination of minorities exceeds fifty percent of the total enrollment, including graduate and undergraduate and full- and part-time students.

NOAA means National Oceanic and Atmospheric Administration.

NOAA-STEM disciplines means fields of study that are in physical and natural sciences, technology, engineering and mathematics that support the NOAA mission.

Objective means the desired or needed result to be achieved by a specific time. An objective is broad and can be broken into a number of specific sub-objectives.

OMB means Office of Management and Budget.

OMB Circular A-110 means the official document that guides federal government agencies that award grants and cooperative agreements. This circular can be accessed from the White House Website, OMB Home. <http://www.whitehouse.gov/omb/circulars/a110/a110>.

Outcome means changes that show movement towards achieving ultimate goals that are the intended long-term end state of a program.

Outcome measure means an assessment of the results of a program activity compared to its intended purpose.

Output means quantitative or qualitative immediate results of an action, activity, project or program. An output can be products or services or events, etc.

Outreach means opportunities designed to build awareness, develop relationships, and inspire action. Outreach involves the communication of the CSC's mission and goals as they support NOAA's mission to a wide variety of audiences that includes K-14 students, educators, and the public.

Performance Measure/Indicator means a benchmark or specific performance target used to determine the degree to which an outcome is successful.

Program means a thematic grouping of projects and activities within the CSC supported by award funding for the purpose of meeting funded objectives of the award.

Project means an activity that has a beginning and an end, is carried out to achieve a particular purpose to a set quality within given time constraints, and has an identified budget.

Project risk means anything that will have a negative impact on one or all of the primary project constraints: time, resources and performance criteria.

Research collaboration with NOAA means CSC works with NOAA's primary Line Offices, Other NOAA Line/Staff Offices.

Research collaboration with NOAA Mission-related Environmental and Natural Resources Entities means CSC works with federal agencies, academic institutions, private sector, local/state/tribal government, communities or non-governmental organizations.

Research collaboration with NOAA-Supported Entities means CSC works with National Estuarine Research Reserve System (NERRS), Cooperative Institute (CI), NOAA Contractor.

Risk analysis means identify, quantify and make contingency plans to deal with project risk.

Short-term indicator means awareness, knowledge, skills, attitudes, opinions, aspirations, motivations.

STEM means the acronym for sciences, technology, engineering, and mathematics – disciplines that are critical to maintaining America's innovation and competitiveness.

Stewardship means an ethic of caring for, protecting, and responsibly managing resources.

Student experiential research opportunity at NOAA facility means any student conducting NOAA mission-critical STEM activities at any NOAA Center, Lab or other NOAA facility for a minimum period of thirty (30) consecutive days, with a NOAA mentor.

Student trained means any student (supported by CSC or other funding) in a postsecondary degree program that successfully completes (with a grade of B or higher) a minimum of one CSC course to develop knowledge and skills relevant to the NOAA mission-relevant disciplines for the Center award.

Student participation in CSC research means student completes experiential NOAA mission-related research for a minimum of 4 weeks.

Training means a process of transferring knowledge and skills using standardized instructional methods and techniques to specified participants for the purpose of developing and enhancing competencies in support of NOAA's mission.

Underrepresented means demographic groups that have disproportionately less representation in specific workforce careers than in the populace.

Underserved means individuals or groups that have traditionally not had access to programs and activities or experiences, usually for reasons of race/ethnicity, income, language, location, social status, or religion.