



National Estuarine Research Reserve System
Performance Measurement Guidance

January 2007

How to use this guidance:

This guidance document is designed for use by staff and managers of National Estuarine Research Reserves. The introduction answers the most common questions that people ask about NERRS performance measures, providing ample background to understand why we are collecting the data and how it will be used. Next, the document reviews the 2006-2010 NERRS Strategic Plan and how the performance measures support each goal.

Most of the guidance is dedicated to describing the performance measures in detail, so you understand exactly what we are asking for, why we are collecting it, who is responsible, and when data will be collected. Detailed profiles for performance measures are in the third section of the document. Performance measures that reserves are responsible for collecting are organized at the beginning of this section. Please note that this guidance does not address details about the Coastal Training Program performance measures, as there is a separate manual that provides this information. The CTP Performance Monitoring Manual is available on the intranet.

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I. Introduction to the NERRS Performance Measurement System

What is a performance measure?

A measure that tracks how well a program is achieving its objectives. The reserve system has been using the terms indicator and measure interchangeably, and they have the same meaning in this document. Performance measures can gauge progress on any aspect of programming: efficiency of fiscal management (cost to operate a building), quality of programs (teacher demand for products or quality of SWMP data), magnitude or quantity (number of Elive viewers or number of research projects implemented in the NERRS), and impact of NERRS activities (improved understanding, application of knowledge, changes in the resource or in a policy).

Why are we collecting data for performance measures?

The National Estuarine Research Reserve System is collecting performance measures to communicate what we do to key audiences, to inform planning and budgeting, and to assess how effective we are in working toward our mission. The data can be used to identify and establish important trends that could influence NERRS policy and strategic planning. Performance measures attract partners interested in working with a successful program, increase accountability to our constituents and stakeholders and help us build our case for additional funding. The Estuarine Reserve Division must report performance data to several groups within NOAA each year, and having reliable data from sites is an important part of this effort.

It is important to note that collecting performance measures is not the same as “evaluating”. Performance measures can show us trends about our programs, but to answer why these trends are happening a more in-depth analysis is needed. Performance measures may be able to help us identify when a more substantive evaluation approach is needed, but should never be the only information that is used when assessing the success of a program. The Office of Ocean and Coastal Resource Management (OCRM) is working to collect relevant “contextual” indicators. These indicators track environmental and socioeconomic factors that influence program actions. Indicators of pressures on the coastal zone, such as population growth, and indicators of coastal condition, such as water quality, provide a picture of the social, economic, and ecological environments in which CZMA programs are working. Understanding this context is vital to assessing program direction, progress, and impacts. To read more about this effort, please visit: <http://coastalmanagement.noaa.gov/success/>

How have measures been selected so far?

ERD staff identified potential performance measures associated with each objective under our current strategic plan. The results of this brainstorm were organized and presented to the Performance Measurement Workgroup at the 2004 Annual Meeting. The workgroup was asked to walk through the strategic plan and the draft performance measures and offer suggestions, comments, and additional measures. The workgroup also identified places where the current strategic plan needs improvement. Each workgroup member was asked to rank the measures to determine which measures would be both

feasible to collect, and meaningful to our program. Then workgroup members were asked to select 10-15 measures that they felt would be possible to implement and track in 2006-2007, and could be used to provide baseline information about the NERRS.

The NERRS Strategic Plan was updated in 2005 and the measures recommended by the performance measure workgroup were evaluated against the new plan at the 2005 Annual Meeting. Draft measures were taken to sector meetings in 2006 and discussed in detail. Only measures that sectors were comfortable with were submitted for manager approval. Estuarine Reserve Division staff worked with sectors to help define the measures and appropriate collection methods to prepare this guidance document.

How will they be selected over the next few years?

Workgroups, sectors, managers and the strategic committee will select performance measures for NERRS efforts as proposals are submitted. For example, the educators working on the KEEP will identify objectives and performance measures for the effort as planning progresses this year. It will be important to align the objectives of system-wide efforts with the objectives in the new strategic plan. Any new system-wide efforts should be accompanied by an explanation of how the project supports the Strategic Plan and workgroups and sectors should be prepared to work on developing performance measures.

How will performance measures be used?

Now (winter/spring 2007)

- The short list of measures that we start collecting this year will be used a) to establish a baseline; b) to clearly communicate NERRS work to NOS, NOAA, Congress; c) to get the NERRS used to collecting and reporting performance measures; d) to work out a data collection, management and analysis process at OCRM.
- Some measures may be used to inform the NERRS budget formulation (CTP, land acquisition plans, etc.)
- Some measures may be used in 312 evaluations (following SWMP recommendations, management plan updates, etc.)
- To test measures, refine them, improve data collection, and assess the usefulness of the measures that are selected.

Later

- Performance measures will continue to be used for the purposes listed above.
- Baseline information will be examined by the NERRS strategic committee and ERD to determine if performance targets are appropriate for some of the performance measures or programs.
- The measures will be evaluated by reserves and ERD to determine if the measures or the collection strategies should be altered or improved.
- Workgroups will identify new performance measures as system-wide activities or commitments are developed. These measures will be associated with the specific objectives of that effort.

- Eventually, we hope that NERRS performance measures can demonstrate NERRS contributions to coastal management.
- As specific program and project measures are collected and analyzed, this information should illuminate which programs are working and help the NERRS prioritize efforts and resources.
- Performance measures will be used to justify program funding to NOAA, state partners, and other appropriate partners.

How will performance measures be collected and reported to ERD?

Some performance measures are collected and reported by reserve staff, some are collected by ERD, and some are collected and reported by CDMO. Measures that are collected by reserve staff are collected and managed by staff as designated by the manager. There are 14 CTP measures and 4 other measures that will be submitted as attachments to six-month progress reports. Two measures that reserves are responsible for are not reported in progress reports and instead are reported through the research database. Therefore, measures are reported to ERD in two ways: as attachments to six-month progress reports and as entries into the research database.

When do sites need to start reporting measures to ERD?

Start collecting this information right away. ERD understands that the first reporting period for 2006 awards (summer/fall – winter/spring) may not have complete data to submit along with progress reports. Therefore, you can submit partial data for the first reporting period, or you can wait and submit data for the second reporting period only. You must submit data for the second reporting period for awards beginning July-November 2006, and you must enter information into the research database before September of 2007.

II. NERRS Strategic Plan and associated performance measures

Goal 1: Strengthen the protection and management of representative estuarine ecosystems to advance estuarine conservation, research and education.

Objectives:

1. Biogeographically and typologically representative estuarine ecosystems are protected through the designation of new reserves
2. Biological, chemical, physical, and community conditions of reserves are characterized and monitored to describe reference conditions and to quantify change
3. Reserve ecosystems are conserved through land acquisition, natural resource management and restoration

NOTE: Each measure has a label based on who collects the measure; for example, (ERD 1) means this is the first measure that ERD collects. This will help you match the measure as they appear in this chart with the way they are listed in the following section. CTP measures are not detailed in this manual; please see the CTP Performance Monitoring Manual for information on those measures.

Performance Measures	Collection Responsibility
Percent of biogeographic regions represented within the NERRS	Estuarine Reserves Division (ERD 1)
Percent of NERR sites that submit 85% or greater of the available SWMP data sets that meet established standards for QA/QC <ul style="list-style-type: none"> - water quality data - weather data - nutrient data 	Central Data Management Office (CDMO 1)
Number and percent of reserves with complete site profiles	Estuarine Reserve Division (ERD 2)
Number and percent of reserves with an up-to-date management plan	Estuarine Reserve Division (ERD 3)
Total number of acres acquired or designated for protection	Estuarine Reserve Division (ERD 4)
Number of acres acquired consistent with land acquisition and management plans	Estuarine Reserve Division (ERD 5)

Goal 2: Increase the use of reserve science and sites to address priority coastal management issues.

Objectives:

1. Scientists conduct estuarine research at reserves that is relevant to coastal management needs
2. Scientists have access to NERRS datasets, science products and results
3. The scientific community uses data, tools and techniques generated at the NERRS

Performance Measures	Collection Responsibility
Total number of research projects being carried out within the reserve system	Reserves (R 1)
Total number of science products based on research and monitoring in reserves	Reserves (R 2)
Number of Graduate Research Fellow applicants per opening	Estuarine Reserve Division (ERD 6)
Number of Graduate Research Fellow applicants starting in the program	Estuarine Reserve Division (ERD 7)
Number of Graduate Research Fellow applicants completing a graduate thesis program that focuses of the NERR priority areas for research	Estuarine Reserve Division (ERD 8)
Number of web hits to the System-wide Monitoring Program data on the CDMO website	Central Data Management Office (CDMO 1)
Number of downloads of System-wide Monitoring Program data from the CDMO website	Central Data Management Office (CDMO 2)
Number of websites hosting NERRS SWMP data	Central Data Management Office (CDMO 3) with assistance from ERD

Goal 3: Enhance people’s ability and willingness to make informed decisions and take responsible actions that affect coastal communities and ecosystems.

Objectives:

1. People are aware of the ecological, economic, historical, and cultural importance of estuarine resources
2. People understand how human choices and natural disturbances impact social, economic, and estuarine ecological systems
3. People apply science based information when making decisions that could impact coastal and estuarine resources

Performance Measures	Collection Responsibility
<i>General Education Performance Measures:</i>	
Number of students reached through NERRS education programs	Reserves (R 3)
Number of K-12 NERRS programs offered	Reserves (R 4)
Web hits on nerrs.noaa.gov and estuaries.gov education sites	Estuarine Reserve Division (ERD 9)
<i>Estuary Live Performance Measures:</i>	
Number of viewers for Estuary Live	Estuarine Reserve Division (ERD 10)
Percentage of teachers reporting the intent to incorporate lessons and activities on estuarine ecology taken from the www.estuaries.gov Web site.	Estuarine Reserve Division (ERD 11)
Percentage of teachers who are repeat teachers to EstuaryLive.	Estuarine Reserve Division (ERD 12)
Number of student and teacher participants in Estuary Live.	Estuarine Reserve Division (ERD 13)
Percentage of students who are able to locate an estuary on a map.	Estuarine Reserve Division (ERD 14)
Percentage of students who are able to describe two important functions of estuaries.	Estuarine Reserve Division (ERD 15)
<i>Coastal Training Program (CTP) Performance Measures:</i>	
Number of Coastal Training Program contact hours delivered	Reserves (R5)
Total number of participants involved in distinct Coastal Training Program activities	Reserves (R6)
Total number of Coastal Training Program activities	Reserves (R7)
Total number and type of organizations, entities represented by participants	Reserves (R8)
Percentage of CTP participants reporting an increase in science understanding of NERRS priority issues as a result of CTP	Reserves (R9)
Number and percent of CTP participants reporting increased access to resources relevant to their work as a result of CTP	Reserves (R10)

Number and percent of CTP participants reporting increased skills relevant to NERRS priority issues	Reserves (R11)
Percent of CTP participants reporting the intention to apply science-based knowledge and skills in their work on NERRS priority issues as a result of CTP	Reserves (R12)
Percent of respondents reporting that they intend to make new contacts about NERRS priority issues as a result of CTP	Reserves (R13)
Percent of CTP respondents reporting that they are more aware of opportunities for collaboration regarding NERRS priority issues as a result of CTP	Reserves (R14)
Percent of CTP respondents reporting the intention to apply new perspectives learned through networking and collaborations as a result of CTP	Reserves (R15)
Percent of CTP respondents that were more than satisfied with the content of the training activity	Reserves (R16)
Percent of CTP respondents that were more than satisfied with the format of the training	Reserves (R17)
Percent of CTP participants that were more than satisfied with the networking opportunities provided by the training activity	Reserves (R18)
<i>Research Outreach</i>	
Number of advisory or outreach activities that serve to transfer technical information about Reserve science to estuarine stakeholders	Reserves (R 19)
<i>Volunteers</i>	
Total number of volunteer hours	Reserves (R 20)
- education related volunteer hours	
- research, stewardship and monitoring related volunteer hours	
- administrative and other volunteer hours	
- other volunteer hours	

III. Performance Measure Profiles: Measures Reserves are Responsible for Collecting

Reserves are responsible for collecting and reporting data on the following new Performance Measures this year:

- R1. Total number of research projects being carried out within the reserve system (collected via the research database)
- R2. Total Number of Science Products based on research and monitoring in reserves (collected via the research database)
- R3. Total number of students reached through NERRS Education programs (reported in progress reports)
- R4. Total number of K-12 education programs offered by the reserves (reported in progress reports)
- R19. Number of advisory or outreach activities that serve to transfer technical information about reserve science to estuary stakeholders (reported in progress reports)
- R20. Total number of volunteer hours for your Reserve, aggregated by Education, Research/Monitoring/Stewardship/Administrative/Other tasks (reported in progress reports)

Reserves are also responsible for collecting and reporting data on the Coastal Training Program performance measures (R5-R18). The Coastal Training Program Performance Monitoring Guidance is attached as Appendix A.

1. TOTAL NUMBER OF RESEARCH PROJECTS BEING CARRIED OUT WITHIN THE RESERVE SYSTEM (R1)

Context: According to the Code of Federal Regulations, reserves were created to address coastal management issues identified as significant through coordinated estuarine research within the System; **promote Federal, state, public and private use of one or more Reserves within the System when such entities conduct estuarine research;** and conduct and coordinate estuarine research within the System, gathering and making available information necessary for improved understanding and management of estuarine areas. Collecting information about the number of projects that are being carried out within the reserve system allows us to track if we are successfully promoting the use of reserves for estuarine research from both external researchers as well as NERR researchers. This contributes directly to the NERRS Strategic Goal to “Increase the use of reserve science and sites to address priority coastal management issues”.

Characterization and key definitions:

Research projects: Research projects are distinct activities that focus on science related problems or assessments and have a principal investigator and a title. A research project should include the following components: hypotheses, predications, applicable methodologies, data analysis/interpretation, and the appropriate delivery of results. Ideally, these projects will improve the understanding of coastal and estuarine ecosystems and functions as well as the management of resources. The installation of a piece of monitoring equipment at a single pollution point source is not, in itself, a research project without the aforementioned components. At this time, basic SWMP Phase 1 (abiotic monitoring) is not included under this collection effort as it is understood that all reserves participate in this project. Social science and educational research are acceptable under this category if they have the minimum components and research rigor as described above. Please note that GRF projects should not need to be captured here, other students should be captured here.

Research carried out within the reserve system: Research projects can be counted toward this measure if: they are conducted within reserve boundaries by an outside researcher or by reserve staff, if research relies on reserve facilities, and/or if research is conducted within the reserve watershed(s) that include reserve staff as collaborators or principal investigators.

Reporting details:

Frequency: At a minimum, reserve staff are asked to enter projects by September of each year. Ideally, reserves will update information in the database on an ongoing basis.

Data Collection Responsibility: This information will be entered into the Research Database by site staff. Only projects entered into the database will count toward this performance measure. It is critical that reserves update the database every six months to ensure that ERD has reliable information.

Reporting Responsibility: Research projects will be regularly updated within the NERRS Research Database by reserve staff. It is important that reserve staff fill out all required fields for each project. Program Specialists and ERD Research coordinators will be able to summarize this information from the Database.

Data Analysis: Estuarine Reserve Division research support staff and relevant Research Coordinator workgroups will analyze the data each year (between December and January) and communicate relevant information to the system. Reserves are asked to report data in September so we have an accurate count for each federal fiscal year.

Data collection method:

Directions for data entry/submissions into the NERRS Research Database have been supplied to each reserve. If you have any questions, please contact Patricia Delgado at the Estuarine Reserve Division (patricia.delgado@noaa.gov).

2. TOTAL NUMBER OF SCIENCE PRODUCTS BASED ON RESEARCH AND MONITORING IN RESERVES. (R2)

Context: According to the Code of Federal Regulations, reserves were created to address coastal management issues identified as significant through coordinated estuarine research within the System; promote Federal, state, public and private use of one or more Reserves within the System when such entities conduct estuarine research; and conduct and coordinate estuarine research within the System, **gathering and making available information necessary for improved understanding and management of estuarine areas.** Collecting information about the number of research products based on reserve science will contribute to this goal and also to the NERRS strategic goal to “increase the use of reserve science and sites to address priority coastal management issues”.

Characterization and key definitions:

Science Products: Research or monitoring products based on reserve research and monitoring.

Research products: A research product can be stored and transferred in digital or non-digital form, and is available for multiple users including scientists, managers, educators, and the general public. Research products include: publications, technical reports, manuals, and proceedings. Research products are products that are associated with hypothesis driven analysis of data in a

research project (as defined above). Please note that GRF papers, proceedings and manuals should not need to be captured here, other students should be captured here. Research products in the database must be associated with an entered research project.

Monitoring products: A monitoring product can be stored and transferred in digital or non-digital form, and is available for multiple users including scientists, managers, educators, and the general public. Monitoring products include publications, technical reports, manuals, assessment reports, inventory products, etc. Monitoring suggests continuous or frequent, standardized measurements or observations over time for the purpose of detecting change. This measure will also include survey products (measurements made at a point in time to assess current conditions). Reserves should enter products that will be useful to scientists and managers and are in a format that is ready to share. Monitoring products in the database must be associated with an entered monitoring project.

Research and monitoring products resulting from research and monitoring at reserves: A research or monitoring product resulting from research at reserves can be reported if the research and/or monitoring was conducted within NERRS boundaries.

Reporting details:

Frequency: At a minimum, reserve staff are asked to enter projects by September of each year. Ideally, reserves will update information in the database on an ongoing basis.

Data Collection Responsibility: Reserve staff will collect and enter this information and submit it to the research database. The research database will have space for research and monitoring projects to be entered separately and associated products should be attached to those project pages.

Reporting Responsibility: This information will be entered into the Research Database by site staff. Only projects entered into the database will count toward this performance measure. Please fill out all required fields in the database for each product. It is critical that reserves update the database every six months to ensure that ERD has reliable information.

Data Analysis: Estuarine Reserve Division Program Specialists, Research Coordinator, and relevant NERR workgroups will analyze the data each year (between Dec and January) and communicate relevant information to the system. Reserves are asked to report data in September so we have an accurate count for each federal fiscal year.

Data collection method:

Directions for data entry/submissions into the NERRS Research Database have been given to each reserve. If you have any questions, please contact Patricia Delgado at the Estuarine Reserve Division (patricia.delgado@noaa.gov).

3. TOTAL NUMBER OF STUDENTS REACHED THROUGH NERRS EDUCATION PROGRAMS (R3)

Context:

According to the Code of Federal Regulations (Section 921), one of the goals of the National Estuarine Research Reserve System is to: **enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation.** This measure will quantify the number of K-12 students NERRS education programs work with every year. Through collecting this at the site level, ERD will be able to communicate about the

capacity of the system to raise awareness about coastal and estuarine topics. Numbers will be totaled across the system and will not be used to compare one reserve against the other.

Characterization and key definitions:

Education program: An educational program brings together educators and students to enhance the students' knowledge or skills. In an education program, predetermined content is presented sequentially and instruction is delivered at a planned pace in an interactive learning environment.

- An educational program can be a class, course, workshop, seminar, field trip, presentation, synchronous or a-synchronous on-line learning event, etc. where learning is the primary objective for the participants. The program can be classroom-based, field-based, or electronic/web-based.
- An electronic/web-based product becomes an educational program when it uses collaborative technology to promote interaction with a user and/or form a virtual community.
- A brochure, interpretive signs, or exhibit are not a program but could be part of a program.

NERRS education programs are convened, coordinated, funded, presented or co-presented by reserve staff. Programs that are conducted in partnership with other groups will qualify, provided that there is substantial involvement on the part of reserve staff, and the program is offered in support of the NERRS mission and goals.

- Reserve staff are “substantially involved” when they have convened, coordinated, funded, presented or co-presented a program.
- NERRS education programs refer to a range of learning services and activities targeted and tailored to educate around human and natural systems as they relate to the estuaries. Programs focus on the *interactive* transfer of knowledge and skills to increase different audience's understanding of coastal and estuarine concepts, and their ability to access and use information.
- Programs that will *not* qualify, under this category, are those programs offered at a reserve but not involving reserve staff.

Reporting details:

Frequency: every six months in accordance with operations award reporting

Data Collection Responsibility: Education Staff (or other site designated staff) will collect the information and organize it for their manager or administrative staff.

Data Reporting to ERD: Manager or Administrative staff will report in the excel sheet provided on page 19. The excel sheet should be submitted to ERD program specialist via grantsonline along with six-month operations award progress reports.

Data Analysis: The Education support at ERD and Educators on key workgroups will help analyze the data each year (between December and January) and communicate relevant information to the sites.

Data collection method:

Reserves should count each student at programs that fit the definition above. Students can be counted twice if they are present at two distinct education programs. The Estuarine Reserve Division recommends keeping an excel sheet where each programs participation can be recorded

along with the date and the topic. The site staff is responsible for tracking this information and delivering this data to the person who compiles the six-month operations progress reports.

4. TOTAL NUMBER OF K-12 PROGRAMS OFFERED BY THE NERRS (R 4)

Context:

According to the Code of Federal Regulations (Section 921), one of the goals of the National Estuarine Research Reserve System is to: **enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation.** This measure will quantify the total number of K-12 education programs offered by NERRS staff. If the same program is offered three times, Reserves would count each time it is offered for a total of three programs. Through collecting this at the site level, ERD will be able to communicate about the amount of K-12 programs delivered by the whole reserve system and the capacity of the system to raise awareness about coastal and estuarine topics. Numbers will not be used to compare one reserve against the other. Reserves can use these numbers mainly to compare year-to-year within a Reserve, as a way to establish and monitor a “personal best” performance. However, ERD and Reserve staff should keep in mind that “more does not always mean better”.

Characterization /Definition of key terms:

NERRS K-12 program is a program that is specifically developed for K-12 age students (public/private school, home school) and is organized, coordinated, presented or co-presented by reserve staff. A program can be offered on and off the Reserve site. Programs in which NERRS staff work in partnership with other organizations will also qualify as NERRS K-12 programs, but may be treated as a separate category.

- It does *not* include programs developed for general audiences where K-12 students are not the primary target group or programs for youth who are not attending as a part of a school related program. However, it may include non-formal programs – such as scouts, church groups, clubs, etc. – that may be targeted with an education programs.
- An example of a K-12 program can be an interpretive walk designed for third grade classes is K-12 program, but an interpretive walk led for general visitors on weekends is not a K-12 program. If your Reserve has a learning center, the learning center and its exhibits are not a K-12 program but a program may utilize the learning center as one of its components.
- Programs DEVELOPED and RUN in cooperation with outside partners count. Programs that will *not* count, under this category, are those developed by and offered by non-Reserve educators using the Reserve for the delivery of the program. Educational programs (such as a web-based lesson plan) developed by Reserve staff and presented to students via an appropriately qualified non-Reserve educator, will count.

Reporting Details:

Frequency: every six months in accordance with operations award reporting.

Data Collection Responsibility: Education Staff (or other site designated staff) will collect the information and organize it for their manager or administrative staff.

Data Reporting to ERD: Manager or Administrative staff will report in the excel sheet provided on page 19. The excel sheet should be submitted to ERD program specialist via grantsonline along with six-month operations award progress reports.

Data Analysis: The Education support at ERD and Educators on key workgroups will help analyze the data each year (between December and January) and communicate relevant information to the sites.

Data collection method:

Reserves should count each program offered that fits the definition above. Based on Reserve Educator's knowledge of its user groups, the number of times a Reserve electronic/web-based program is used should be estimated. The Estuarine Reserve Division recommends keeping an excel sheet where each program can be recorded along with the date and the topic. The education staff is responsible for tracking this information and delivering this data to the person who compiles the six-month operations progress reports.

5. NUMBER ADVISORY OR OUTREACH ACTIONS THAT SERVE TO TRANSFER TECHNICAL INFORMATION ABOUT RESERVE SCIENCE TO ESTUARY STAKEHOLDERS. (R19)

Context: According to the Code of Federal Regulations, reserves were created to address coastal management issues identified as significant through coordinated estuarine research within the System; promote Federal, state, public and private use of one or more Reserves within the System when such entities conduct estuarine research; and conduct and coordinate estuarine research within the System, **gathering and making available information necessary for improved understanding and management of estuarine areas.** Collecting information about the number of research outreach activities will contribute to this goal and also to the NERRS strategic goal of enhancing people's ability and willingness to make informed decisions and take responsible actions that affect coastal communities. CTP presentations or products that use science generated within the NERR can be included in this measure.

Characterization and key definitions:

Significant advisory or outreach actions: Significant advisory or outreach actions include Reserve staff participation in university committee work (i.e., graduate committees, science steering committees, etc.), panel review participation, technical meetings, presentations/posters for conferences, seminar presentations, writing for popular literature, etc. Significant involvement is required and is defined as being actively involved in sharing professional expertise. Attending a seminar presentation is not an appropriate outreach action to count for this measurement. Organizing a seminar (but not presenting any reserve related science) also does not count toward this measure. The activity must communicate science-based information generated at the reserve, or must be an advisory service offered by reserve staff as a scientific expert.

Estuary stakeholders: Estuary stakeholders are defined broadly to include scientists, managers, educators, and interested members of the public. These target groups of people will contribute from many angles (i.e. via research, policy, education, etc.) toward improved understanding of estuarine and coastal ecosystems and management. The delivery of information from the Reserves to these groups supports the NERR goals.

Reporting details:

Frequency: every six-months in accordance with operations award reporting.

Data Collection Responsibility: Reserve staff will collect and enter this information into a format that managers, program specialists or administrative staff can access. The minimum required information for submission includes: type of activity, an indication of which reserve staff were involved (by title not by name), and indication of if the activity is also being counted as a CTP

activity. It is fine if one activity is counted for both measures, it will help the system see how often our own science and scientific expertise is used in CTP.

Reporting Responsibility: Manager or Administrative staff will report in the excel sheet provided on page 19. The excel sheet should be submitted to ERD program specialist via grantsonline along with six-month operations award progress reports.

Data Analysis: Estuarine Reserve Division Program Specialists and relevant NERR workgroups will analyze the data each year (between Dec and Jan) and communicate relevant information to the system.

Data collection method:

Reserves should collect this information in a systematic way to ensure that data is ready for submission in six-month progress reports. This may include keeping a central excel sheet or tracking system that is available for all staff. It will be important to communicate the types of activities that count toward this measure and be sure that all appropriate staff are allowed to contribute.

6. TOTAL NUMBER OF VOLUNTEER HOURS FOR YOUR RESERVE, AGGREGATED BY EDUCATION, RESEARCH AND ADMINISTRATIVE TASKS (R20)

Context:

This measure will quantify the total number of volunteer hours for a Reserve. Through collecting this at the site level, ERD will be able to communicate about the amount of volunteerism across the reserve system and the capacity of the system to educate, manage resources, monitor estuarine parameters and conduct research through use of volunteers. Numbers will not be used to compare one reserve against the other. Reserves can use these numbers mainly to compare year-to-year within a Reserve, as a way to establish and monitor a “personal best” performance.

Characterization /Definition of key terms:

Volunteer: person who performs work without pay with the primary purpose of benefiting a Reserve and with volunteer acceptance by the Reserve.

Volunteer Hours: the total amount of contributed service time donated by volunteers under guidelines as approved by the Reserve. The activities undertaken during the donated time must directly benefit the Reserve. Hours that volunteers spend training to successfully implement programs or assist the reserve do count toward this measure. Volunteers may include member of scout groups (children or adults) participating in a clean-up. Volunteers do *not* include parents who chaperone for a class field trip to a Reserve as the primary purpose of this duty is not to contribute to the Reserve, but is to assist the visiting school/class.

Reporting Details:

Frequency: every six-months in accordance with operations award reporting.

Data Collection Responsibility: Reserve staff designated by the manager will collect the information and organize it for their manager or administrative staff.

Data Reporting to ERD: Manager or Administrative staff will report in the excel sheet provided on page 19. The excel sheet should be submitted to ERD program specialist via grantsonline along with six-month operations award progress reports.

Data Analysis: ERD staff and key workgroups will help analyze the data each year (between December and January) and communicate relevant information to the sites.

Data collection method:

Reserves should require volunteers to keep and submit hours. These hours should be organized by volunteer event or type of activity. The Estuarine Reserve Division recommends keeping an excel sheet or database where total number of hours per project and number of volunteers per project can be recorded along with the date and the project description. If the volunteer hours do not fit into one of the categories provided (education, research/monitoring/stewardship, or administrative) then please enter the hours as “other”. If the volunteer activity has elements of more than one category, please split the hours between categories. For example, if you are using volunteers to teach students how to identify birds and then taking them out to identify birds on the reserve, this activity would be split however you feel is logical between research and education hours. Please make sure that you do not count the same hour for two categories. The reserve staff is responsible for tracking this information and delivering this data to the person who compiles the six-month operations progress reports.

IV. Reporting Instructions

1. Performance measures will be submitted to ERD using the excel sheet on page 16. This will be posted to the intranet. You are expected to download and fill out the excel sheet and submit it along with the first two progress reports for any operations award, starting with the FY06 awards. Do not fill out a sheet for the last six months of your 18-month award. Those activities should be rolled into the first reporting period for FY07. All yellow boxes should be filled with a number for that six month period.
2. First, fill out the reserve name, reporting period and grant number at the top of the sheet.
3. *Total number of research projects being carried out within the NERRS (R1)*. This measure will be reported through the research database. It is the reserve's responsibility to enter data into the database at least every six months. The Estuarine Reserve Division will analyze the data every December, so it is imperative that reserves update the database by October or November of 2007.
4. *Total number of science products based on science and monitoring or resulting from research at reserves (R2)*. This measure will be reported through the research database. It is the reserve's responsibility to enter data into the database at least every six months. The Estuarine Reserve Division will analyze the data every December, so it is imperative that reserves update the database by October or November of 2007.
5. *Total number of students reached through NERRS education programs (R3)* Fill out total number of students reached in NERRS education program, using definitions provided in the profile. It is up to the reserve to create and maintain a way of tracking this information. If you would like help, please contact ERD.
6. *Total number of K-12 Education programs offered by the NERRS (R4)* Fill out the total number of K-12 programs offered in the six-month period, using the definitions provided in the profile. It is up to the reserve to create and maintain a way of tracking this information. If you would like help, please contact ERD.
7. *Total number of advisory or outreach actions that serve to transfer technical information about reserve science to estuary stakeholders (R19)* Submit the total number in the yellow box. We would also like you to list the activities, the staff involved (please use titles or abbreviations of titles) and we would also like you to indicate if the outreach was part of a CTP event. This measure is about using reserve science, so please only count CTP involvement or presentations that transfers technical information about reserve science or use your staff as scientific experts on the topic. Place a Y in the box if the seminar or presentation was also part of a CTP event, and place an N in the box if it was not. Please note that this measure also captures involvement in ongoing activities such as advisory boards. These activities can be listed for each reporting period that staff is involved.
8. *Total number of volunteer hours aggregated by education, research/monitoring/stewardship, and administrative tasks (R6)*. Please submit numbers for each category and total them in the last line of this section. Enter the

hours by task, and if you are uncertain enter the hours under “other”. If a volunteer activity was equally related to two categories, split the time between the categories. (For example, if an activity was both research and education related and there were 10 hours of volunteer work, enter 5 hours as education related and 5 hours as research related).

9. *Notes Section:* Please fill out the notes section below each performance measure with any information about the numbers that you report that you would like ERD to note. Examples include: a note about unfilled staff positions in that reporting period, a note that the numbers reported here are also reported to some other organization, etc.

NERRS Performance Measures 2007			
Reserve Name:		Grant Number:	
Performance Measure		Reporting period X- Y	
Total number of students reached education programs			
NOTES			
Total number of K-12 education programs offered			
NOTES			
Number of volunteers			
education			
research			
administration			
other			
total			
NOTES			
Number of seminars, presentations, and significant outreach actions			
<i>please list activity, staff person, and indicate if it was a CTP related activity</i>		type of activity	staff involved
			CTP ?(Y/N)
NOTES:			

V. Performance Measure Profiles: Measures that ERD is responsible for collecting.

1. PERCENT OF BIOGEOGRAPHIC REGIONS REPRESENTED WITHIN THE NERRS (ERD 1)

Context: The CZMA established the National Estuarine Research Reserve System (NERRS) and provided for designation of additional reserves that are representative estuarine ecosystems that are suitable for long-term research and contribute to the biogeographical and typological balance of the System. Reserves represent different biogeographic regions of the United States so that research findings at a reserve can be applied to similar coastal areas in their region. There are 11 major biogeographic regions around the coast, with 29 subregions. The reserve system currently represents 18 of those subregions. The reserve system is designed to include sites representing all 29 biogeographic subregions, with additional sites representing different types of estuaries. Site profiles are required for every reserve.

Characterization and key definitions:

Biogeographic regions: A biogeographic region is a geographic area with similar dominant plants, animals and prevailing climate.

Reporting Details:

Frequency: This measure will be tallied once a year by ERD staff. This will happen at the end of each federal fiscal year (October-September)

Data Collection Responsibility: ERD staff will keep track of this measure as new reserves are designated.

Reporting Responsibility: ERD

Data Analysis: This measure will be analyzed each fall for use in NERRS, NOS, and NOAA reporting.

Data Collection Method: Any new reserves in a given fiscal year will be reviewed to determine if it is a new biogeographic region and/or a new type of estuary. If a newly designated reserve does represent a new biogeographic region, it will be counted toward this measure. The information on this measure will be located on the shared ERD drive.

2. NUMBER AND PERCENT OF RESERVES WITH COMPLETE SITE PROFILES (ERD 2)

Context: The development of a site profile is to be implemented by each Reserve as Phase II of the Three Phase Monitoring Program as required by the NERRS Regulations (§921.60). The Code of Federal Regulations states that Monitoring funds are used to support three major phases of a monitoring program: **studies necessary to collect data for a comprehensive site description/characterization; development of a site profile;** and formulation and implementation of a monitoring program. Site profiles directly contribute to the first goal of the NERRS Strategic Plan: Strengthen the protection and management of representative estuarine ecosystems to advance estuarine conservation, research and education. Site profiles are an essential activity to support the strategic objective: Biological, chemical, physical, and

community conditions of reserves are characterized and monitored to describe reference conditions and to quantify change. Site profiles are required for every reserve.

Characterization and key definitions:

Site profiles The site profile is a synthesis of information gathered during Phase I, the Environmental Characterization Phase, which is conducted as a combination of literature and field (optional) research to characterize the Reserve in terms of existing resources, management issues and constraints, and research needs. The site profile will help the Reserve to identify important information gaps and determine which monitoring aspects need to be initiated during Phase III, the Resource Monitoring Program. The profile must follow guidance that is provided on the NERRS intranet and must be reviewed by ERD.

A profile is considered complete when it is approved by NOAA and the state partner agency and the final product is available in hardcopy, posted on the internet, or distributed electronically.

Reporting details:

Frequency: Once a year, at the end of the federal fiscal year

Data Collection and Reporting Responsibility: ERD Research Coordinator and Program Specialists

Data Analysis: Estuarine Reserve Division Research Coordinator

Data collection method:

The number of completed site profiles will be collected once a year in October.

The percentage will be calculated and reported at the same time based on the number of complete site profiles and the number of designated reserves.

3. NUMBER AND PERCENT OF RESERVES WITH A NOAA-APPROVED, UP-TO-DATE MANAGEMENT PLAN (ERD 3)

Context: The Code of Federal Regulations requires reserves to develop a management plan before designation (921.13), update the management plan every five years (921.33), and use federal funds to implement their management plan (921.32). Management plans are the official record of reserve boundaries and boundary changes, policies on protecting reserve resources, MOUs with partner agencies, and serve as a guide for program direction.

Characterizations and key definitions:

Approved management plan An approved management plan is a final plan that has been approved by all NOAA reviewers, has completed the necessary NEPA process, and has been announced in a Federal Register Notice.

Reporting Details:

Frequency: This measure will be tallied once a year by ERD staff. This will happen at the end of each federal fiscal year (October-September)

Data Collection Responsibility: ERD staff will keep track of this measure as reserves update management plans.

Reporting Responsibility: ERD

Data Analysis: This measure will be analyzed each fall for use in NERRS, NOS, and NOAA reporting.

Data Collection Method: Any newly approved management plan in a given federal fiscal year will be counted toward this measure. The information on this measure will be located on the shared ERD drive. ERD will track the number of management plans completed each year as well as the percentage of designated reserves that have an approved and up-to-date management plan.

4. TOTAL NUMBER OF ACRES ACQUIRED OR DESIGNATED FOR PROTECTION (ERD 4)

Context: The Coastal Zone Management Act established reserves to provide long-term protection for estuarine resources to ensure a stable environment for research. Adding acres acquired or designated for protection enhances the ability of the reserve to study estuarine habitats; improves access for education programs, researchers, and the public; and uses a buffer to protect resources from the impacts of surrounding development. Protecting estuarine habitat preserves valuable ecosystem functions such as flood control, wildlife breeding grounds, and nutrient and sediment filtering. Acquiring land for NERRS directly supports goal one of the NERRS strategic plan: *Strengthen the protection and management of representative estuarine ecosystems to advance estuarine conservation, research and education.*

Characterization and key definitions

Acres acquired or designated for protection: Any acre purchased with money that came through the NERRS program can be counted toward this measure. This includes earmarks and any CELCP funding that is done through the NERRS program and purchases land that is adjacent to or related to the NERR.

Reporting Details:

Frequency: This measure will be tallied once a year by ERD staff. This will happen at the end of each federal fiscal year (October-September)

Data Collection Responsibility: ERD staff will keep track of this measure as reserves receive acquisition funding and purchase new land.

Reporting Responsibility: ERD

Data Analysis: This measure will be analyzed each fall for use in NERRS, NOS, and NOAA reporting.

Data Collection Method: ERD will track the funding, the parcels, the closing dates, and the acreage for each land purchase that is made with the NERRS program. This specific measure includes earmarks and land that is opportunistically acquired that is not within a site's land acquisition plan or management plan.

5. NUMBER OF ACRES ACQUIRED CONSISTENT WITH LAND ACQUISITION AND MANAGEMENT PLANS (ERD 5)

Context: The Coastal Zone Management Act established reserves to provide long-term protection for estuarine resources to ensure a stable environment for research. Adding acres acquired or designated for protection enhances the ability of the reserve to study estuarine habitats; improves access for education programs, researchers, and the public; and uses a buffer to

protect resources from the impacts of surrounding development. Reserves are required to submit a land acquisition plan as part of management plan updates. This measure tracks how well our actual land purchases match our acquisition plans.

Characterization and key definitions

Acres acquired consistent with land acquisition and management plans: Acres acquired by the NERR that reflect written or mapped priorities within an approved land acquisition or management plan will count toward this measure.

Reporting Details:

Frequency: This measure will be tallied once a year by ERD staff. This will happen at the end of each federal fiscal year (October-September)

Data Collection Responsibility: ERD staff will keep track of this measure as reserves receive acquisition funding and purchase new land.

Reporting Responsibility: ERD

Data Analysis: This measure will be analyzed each fall

Data Collection Method: ERD will track the funding, the parcels, the closing dates, and the acreage for each land purchase that is made with the NERRS program. This specific measure includes earmarks and land that is opportunistically acquired that is not within a site's land acquisition plan or management plan.

6. AVERAGE NUMBER OF GRADUATE RESEARCH FELLOW APPLICANTS PER OPENING (ERD 6)

Context: According to the Code of Federal Regulations, reserves were created to **address coastal management issues identified as significant through coordinated estuarine research within the System; promote Federal, state, public and private use of one or more Reserves within the System when such entities conduct estuarine research;** and conduct and coordinate estuarine research within the System, gathering and making available information necessary for improved understanding and management of estuarine areas. Graduate Research Fellowships are currently the only nationally coordinated research activity of the NERRS. Through tracking the number of applicants per opening, the Estuarine Reserve Division can assess how successful NOAA and NERRS sites are in advertising and marketing this program. There is an assumption that with more applicants per opening, the fellowship will become more competitive and the quality of the projects will increase.

Characterization and key definitions:

Each reserve is allotted funding for two Graduate Research Fellows per year. As one student finishes their work, their spot becomes an "opening". This measure will be determined by the number of complete applications received by the Graduate Research Fellowship Program Coordinator at ERD divided by the number of available fellowships in that year.

Reporting details:

Frequency: Once a year. Data will be available in March each year, but will be analyzed each October to coincide with the federal fiscal year.

Data Collection and Reporting Responsibility: The Graduate Research Fellowship Program Coordinator will collect the data and input it into the ERD performance measurement data management system.

Data Analysis: The Graduate Research Fellowship Program Coordinator will analyze the information and make relevant information available to sites and to NOAA.

Data collection method:

The information will be available in March/April of the year that the Grants Management Division approves the awards. Information about the number of applications and the number of spots will be analyzed by fiscal year and pulled from the Graduate Research Fellows database each October.

7. NUMBER OF GRADUATE RESEARCH FELLOWS STARTING IN THE PROGRAM (ERD7)

According to the Code of Federal Regulations, reserves were created to **address coastal management issues identified as significant through coordinated estuarine research within the System; promote Federal, state, public and private use of one or more Reserves within the System when such entities conduct estuarine research;** and conduct and coordinate estuarine research within the System, gathering and making available information necessary for improved understanding and management of estuarine areas. Graduate Research Fellowships are currently the only nationally coordinated research activity of the NERRS. Through collecting both the number of students that begin this program (ERD 7) and the number of GRFs who complete a degree program we can determine the percentage of GRFs that are successful. This may help ERD identify new ways to support students and ways to encourage them to complete their research and their programs.

Reporting details:

Frequency: Once a year. Data will be available in March each year, but will be analyzed each October to coincide with the federal fiscal year.

Data Collection and Reporting Responsibility: The Graduate Research Fellowship Program Coordinator will collect the data and input it into the ERD performance measurement data management system.

Data Analysis: The Graduate Research Fellowship Program Coordinator will analyze the information and make relevant information available to sites and to NOAA.

Data collection method:

The information will be available in March/April of the year that the Grants Management Division approves the awards. Information about the number of students starting the program will be analyzed by fiscal year and pulled from the Graduate Research Fellows database each October.

8. NUMBER OF GRADUATE RESEARCH FELLOWS WHO COMPLETE GRADUATE DEGREE PROGRAMS THAT FOCUS ON THE NERR RESEARCH PRIORITY AREAS. (ERD 8)

Context: The Graduate Research Fellowship Program is both a research and an education program. Along with advancing the use of reserves to conduct research relevant to coastal management, the program is also designed to train new estuarine scientists. This measure tracks the number of students who succeed in their program and graduate with expertise in their field.

(note: they are not always coastal scientists, i.e. social scientists, historians, geneticists, community ecologists, etc.. who are using the coastal systems as study areas.)

Characterization and key definitions:

Graduate Research Fellow: A graduate student who is or was funded from one to three years by the NERRS Graduate Research Fellowship program.

Completion of a graduate degree program: Completion of a graduate degree program means that the student has received a masters or doctoral degree from their academic institution.

NERR Graduate Research Fellowship research focus areas: Research conducted by NERR Graduate Research Fellows target five research focus areas: eutrophication, effects of non-point source pollution and/or nutrient dynamics; habitat conservation and/or restoration; biodiversity and/or the effects of invasive species; mechanisms for sustaining resources within estuarine ecosystems; or economic, sociological, and/or anthropological research applicable to estuarine ecosystem management. These research focus areas support the defined research priority areas outlined within the NERRS Research and Monitoring Plan (2006-2011) which supports the NERRS Strategic Plan (2005-2010).

Reporting details:

Frequency: Once a year.

Data Collection and Reporting Responsibility: Graduate Research Fellowship Program Coordinator will collect the data and input it into the ERD performance measurement data management system.

Data Analysis: Graduate Research Fellowship Program Coordinator will analyze the information and make relevant information available to sites and to NOAA.

Data collection method:

The Graduate Research Fellowship Program Coordinator will monitor completion of graduate degree programs by the NERRS fellows through continued communication with the fellow and/or their major advisor/university every September (for completion of degree programs during the previous *academic year*, i.e. September through the following September, which would include Fall, Winter, Spring and Summer graduation options).

This information will be archived as information is collected within the GRF database.

9. NUMBER OF WEBHITS ON NERRS.NOAA.GOV AND ESTUARIES.GOV WEBSITES (ERD 9)

Context:

According to the Code of Federal Regulations (Section 921), one of the goals of the National Estuarine Research Reserve System is to: **enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation.**

One way that the National Estuarine Research Reserve System supports K-12 education is through sharing resources for teachers and students through websites. Nerrs.noaa.gov and estuaries.gov provide teachers and students with visual tools, curriculum, and information about conferences and events like EstuaryLive.

Characterization/Definition of key terms:

Webhits - A single request is often called a "hit" on the web site. Saying there were "56 hits" on an item means that there were 56 separate requests for/from/associated with that item. The item may be a specific file, a particular referrer, or some other use of a resource by a single request. Summary uses the term "hits" to denote the number of times some event occurred successfully. Failed events are counted as errors.¹

Nerrs.noaa.gov is the public website for the National Estuarine Research Reserve System. The website provides information about the reserve system sites; background about the program; information about education, research, monitoring, training and stewardship programs; and provides some tools for teachers in the education section.

Estuaries.gov is the public *education* website for the National Estuarine Research Reserve System. This website provides information about NERRS educational opportunities, hosts Estuaries 101 curriculum, lists professional teacher development programs offered at Reserve sites, and provides links to an online interface to real-time and archived estuarine monitoring data (from NERRS's System-wide Monitoring Program (SWMP)). In addition, the site promotes National Estuaries Day and EstuaryLive with the purpose of educating students, teachers and the public on the importance of estuaries and the need to protect them.

Reporting Details:

Frequency: Once a year, in October

Data Collection Responsibility: Estuarine Reserve Division

Data Analysis: The Estuarine Reserves Division webmaster, the ERD national Education Coordinator and interested workgroups will analyze webhit data each year.

Data collection method: NOAA's Web statistics serves as the primary source of information to calculate web-hits on the *nerrs.noaa.gov* and *estuaries.gov* sites.

10. NUMBER OF VIEWERS FOR ESTUARYLIVE (ERD 10)

Context:

According to the Code of Federal Regulations (Section 921), one of the goals of the National Estuarine Research Reserve System is to: **enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation.** This measure will quantify the total number of individuals participating in EstuaryLive via the Internet. This measure does not discriminate between students, teachers, and other types of participants. Using this information, ERD will be able to track trends in participation in EstuaryLive and communicate about the capacity of the system to raise awareness about coastal and estuarine topics.

Characterization /Definition of key terms:

EstuaryLive is a live, interactive field trip broadcast over the Internet targeting a K-12 classroom audience. EstuaryLive programs can focus on any number of estuarine topics and can be offered at any time during the year by an individual reserve or a group of reserves.

Reporting Details:

Frequency: After each EstuaryLive program (fall/winter).

¹ <http://webstats.nos.noaa.gov/sum2006/docs/glossary.html?tag=hit#hit>

Data Collection Responsibility: The National Estuaries Day Coordinator gathers this information from the on-line EstuaryLive registration and questions submissions databases.

Data Reporting to ERD: The National Estuaries Day Coordinator reports this information to ERD within two weeks after the program broadcasts.

Data Analysis: The National Estuaries Day Coordinator calculates participation based on the on-line registration database and the list of schools that submitted questions during the program.

Data collection method:

The on-line registration database serves as the primary source of information to calculate participation for EstuaryLive. The EstuaryLive registration database collects participant information prior to and throughout the program. Once the database is “closed,” duplicate registrations are deleted from the database. All registrants are asked to provide information regarding the number of students anticipated to participate in the program- this is a multiple choice questions and teachers are asked to provide a range. The midpoint of the range (for example if the range is 25-50, the midpoint would be 37) is used as the class size for a given registration. The total number of participants is calculated and divided by the number of registrants to come up with an average class size for all registrations. The average class size is then applied to schools that submitted questions during the program, but did not register for the program. The sum of the class size for each registrant and the average class size multiplied by the numbers of schools that did participate in the program, but did not register, equals total the program participation.

11. PERCENTAGE OF TEACHERS REPORTING THE INTENT TO INCORPORATE LESSONS AND ACTIVITIES ON ESTUARINE ECOLOGY TAKEN FROM THE WWW.ESTUARIES.GOV WEB SITE (ERD 11)

Context:

According to the Code of Federal Regulations (Section 921), one of the goals of the National Estuarine Research Reserve System is to: **enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation.** This measure will quantify the percentage of teachers participating in EstuaryLive who intend to integrate EstuaryLive materials (educational materials, field trip archives, etc.) into their curriculum. Using this information, ERD will be able to report on the trends in EstuaryLive teacher participants to integrate estuarine information gathered during the process of preparing for and participating in EstuaryLive into their classroom. ERD can use this measure as an indirect indicator of the ability of the Reserve System to reach its target teacher audience.

Characterization /Definition of key terms:

EstuaryLive is a live, interactive field trip broadcast over the Internet targeting a K-12 classroom audience. EstuaryLive programs can focus on any number of estuarine topics and can be offered at any time during the year by an individual reserve or a group of reserves.

EstuaryLive materials are any materials provided on www.estuaries.gov and include, but are not limited to: curriculum materials, archived EstuaryLive field trips, and general estuarine information provided on the Web site.

Reporting Details:

Frequency: After each EstuaryLive program (fall/winter).

Data Collection Responsibility: The National Estuaries Day Coordinator implements a teacher assessment of each EstuaryLive program. This assessment includes questions regarding the teacher's likelihood of utilize the educational materials provided on EstuaryLive in their classroom.

Data Reporting to ERD: The National Estuaries Day Coordinator reports this information to ERD within three months after the program broadcasts.

Data Analysis: The National Estuaries Day Coordinator determines the percentage of teachers who plan on integrating EstuaryLive educational materials into their classroom based on the responses to the teacher assessment.

Data collection method:

Within two weeks after EstuaryLive broadcasts, EstuaryLive registrants are asked to participate in an assessment of the program via a on-line tool called Survey Monkey. The series of questions are asked to gauge participant's response to the program, their likelihood to integrate different parts of their EstuaryLive experience into their curriculum, and to garner feedback for future EstuaryLive programs. This tool tabulates the responses to questions.

12. PERCENTAGE OF TEACHERS WHO ARE REPEAT TEACHERS TO ESTUARYLIVE (ERD 12)

Context:

According to the Code of Federal Regulations (Section 921), one of the goals of the National Estuarine Research Reserve System is to: **enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation.** This measure will quantify the percentage of teachers who are annually participating in EstuaryLive. Using this information, ERD will be able to track more specific trends in participation in EstuaryLive, monitoring teacher's integration of an annual EstuaryLive program into their curriculum, and communicate about the capacity of the system to raise awareness about coastal and estuarine topics.

Characterization /Definition of key terms:

EstuaryLive is a live, interactive field trip broadcast over the Internet targeting a K-12 classroom audience. EstuaryLive programs can focus on any number of estuarine topics and can be offered at any time during the year by an individual reserve or a group of reserves.

Repeat teachers are registrants who have participated in EstuaryLive at least once prior to the current program they are registering for.

Reporting Details:

Frequency: After each EstuaryLive program (fall/winter).

Data Collection Responsibility: The National Estuaries Day Coordinator gathers this information from the on-line EstuaryLive registration database.

Data Reporting to ERD: The National Estuaries Day Coordinator reports this information to ERD within two weeks after the program broadcasts.

Data Analysis: The National Estuaries Day Coordinator tabulates the number of teachers who report having participated in EstuaryLive in the past based on their registration information.

Data collection method:

The on-line registration database serves as the primary source of information to calculate the number of teachers who report having participated in EstuaryLive in the past. The EstuaryLive registration database collects participant information prior to and throughout the program. Once the database is “closed,” duplicate registrations are deleted from the database. The number, and or percentage of repeat teachers can be tabulated.

13. NUMBER OF STUDENT AND TEACHER PARTICIPANTS IN ESTUARY LIVE (ERD 13)**Context:**

This measure will quantify the total number of students and teachers, or K-12 classrooms participating in EstuaryLive via the Internet. This measure does discriminate between students and teachers, and other types of participants. Using this information, ERD will be able to track trends in participation in EstuaryLive and communicate about the capacity of the system to raise awareness about coastal and estuarine topics.

Characterization /Definition of key terms:

EstuaryLive is a live, interactive field trip broadcast over the Internet targeting a K-12 classroom audience. EstuaryLive programs can focus on any number of estuarine topics and can be offered at any time during the year by an individual reserve or a group of reserves.

K-12 Classroom is any registrant who indicates that their students (school registrants who not including students in their EstuaryLive experience are not counted here) fall between grades kindergarten and twelve.

Reporting Details:

Frequency: After each EstuaryLive program (fall/winter).

Data Collection Responsibility: The National Estuaries Day Coordinator gathers this information from the on-line EstuaryLive registration and question submissions database.

Data Reporting to ERD: The National Estuaries Day Coordinator reports this information to ERD within two weeks after the program broadcasts.

Data Analysis: The National Estuaries Day Coordinator calculates K-12 student and teacher participation based on the on-line registration database and the list of schools that submitted questions during the program.

Data collection method:

The on-line registration database serves as the primary source of information to calculate participation for EstuaryLive. The EstuaryLive registration database collects participant information prior to and throughout the program. Once the database is “closed,” duplicate registrations are deleted from the database. All registrants are asked to provide information regarding the grades that they teacher and the number of students anticipated to participate in the program. All participants that fall outside the K-12 range or have no participating students are eliminated from this calculation. Participants are asked to estimate the number of students participating in the program; this is a multiple-choice question and teachers are asked to provide a range. The midpoint of the range (for example if the range is 25-50, the midpoint would be 37) is used as the class size for a given registration. The total number of participants is calculated and divided by the number of registrants to come up with an average class size for all registrations.

The average class size is then applied to schools that submitted questions during the program, but did not register for the program. The sum of the class size for each registrant and the average class size multiplied by the numbers of schools that did participate in the program, but did not register, equals total the program participation.

14. PERCENTAGE OF STUDENTS WHO ARE ABLE TO LOCATE AN ESTUARY ON A MAP (ERD 14)

Context:

According to the Code of Federal Regulations (Section 921), one of the goals of the National Estuarine Research Reserve System is to: **enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation.** This measure help to quantify the percentage of students participating in EstuaryLive who are retaining some information discussed before and during the EstuaryLive program. Using this information, ERD will be able to track trends in participation in EstuaryLive and communicate about the capacity of the system to raise awareness about coastal and estuarine topics.

Characterization /Definition of key terms:

EstuaryLive is a live, interactive field trip broadcast over the Internet targeting a K-12 classroom audience. EstuaryLive programs can focus on any number of estuarine topics and can be offered at any time during the year by an individual reserve or a group of reserves.

Reporting Details:

Frequency: After each EstuaryLive program (fall/winter).

Data Collection Responsibility: The National Estuaries Day Coordinator implements a pre and post assessment of each EstuaryLive program. This assessment includes questions regarding the students' estuarine knowledge before and after participating in EstuaryLive.

Data Reporting to ERD: The National Estuaries Day Coordinator reports this information to ERD within three months after the program broadcasts.

Data Analysis: The National Estuaries Day Coordinator analyzes the pre and post student assessments to come up with a percentage of students who can identify an estuary on a map before and after participating in the program.

Data collection method:

Prior to participating in the program and within one week after EstuaryLive broadcasts, a sub-set of EstuaryLive K-12 classrooms are asked to implement a student assessment. A series of questions are asked to gauge the student's estuarine knowledge before and after participating in the program.

15. PERCENTAGE OF STUDENTS WHO ARE ABLE TO DESCRIBE TWO IMPORTANT FUNCTIONS OF ESTUARIES (ERD 15)

Context:

According to the Code of Federal Regulations (Section 921), one of the goals of the National Estuarine Research Reserve System is to: **enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation.** This measure help to quantify the percentage of students participating in EstuaryLive who are retaining some information discussed before and during the EstuaryLive program. Using this

information, ERD will be able to track trends in participation in EstuaryLive and communicate about the capacity of the system to raise awareness about coastal and estuarine topics.

Characterization /Definition of key terms:

EstuaryLive is a live, interactive field trip broadcast over the Internet targeting a K-12 classroom audience. EstuaryLive programs can focus on any number of estuarine topics and can be offered at any time during the year by an individual reserve or a group of reserves.

Reporting Details:

Frequency: After each EstuaryLive program (fall/winter).

Data Collection Responsibility: The National Estuaries Day Coordinator implements a pre and post assessment of each EstuaryLive program. This assessment includes questions regarding the students' estuarine knowledge before and after participating in EstuaryLive.

Data Reporting to ERD: The National Estuaries Day Coordinator reports this information to ERD within three months after the program broadcasts.

Data Analysis: The National Estuaries Day Coordinator analyzes the pre and post student assessments to come up with a percentage of students who can identify an estuary on a map before and after participating in the program.

Data collection method:

Prior to participating in the program and within one week after EstuaryLive broadcasts, a sub-set of EstuaryLive K-12 classrooms are asked to implement a student assessment. A series of questions are asked to gauge the student's estuarine knowledge before and after participating in the program.

VI. Performance Measure Profiles: Measures that CDMO is responsible for collecting.

1. PERCENT OF NERR SITES THAT SUBMIT 85% OR GREATER OF THE AVAILABLE WATER, WEATHER, AND NUTRIENT SYSTEM-WIDE MONITORING PROGRAM (SWMP) DATA SETS THAT MEET ESTABLISHED STANDARDS FOR QUALITY ASSURANCE/QUALITY CONTROL. (CDMO 1)

Context: The Code of Federal Regulations states that Monitoring funds are used to support three major phases of a monitoring program: studies necessary to collect data for a comprehensive site description/characterization; development of a site profile; **and formulation and implementation of a monitoring program.** The System-wide Monitoring Program has been a national effort for ten years. This measure is an indicator of the quality of the data being collected and managed by the NERRS. The collection and availability of high quality, long term data sets make the NERRS attractive sites to conduct estuarine research and may contribute to the understanding of local and national trends in estuarine conditions.

Characterization and key definitions:

System-wide Monitoring Program: Twenty-seven National Estuarine Research Reserves implement the same water quality and weather monitoring program. At least four SWMP water quality stations at each of the 27 reserves collect pH, conductivity, salinity, temperature, dissolved oxygen, water level and turbidity measurements at 30 minute intervals. Monthly, diel nutrient sampling occurs at the four water quality loggers and include measurements of nitrate, nitrite, ammonia, ortho-phosphate, and chlorophyll-a. Weather stations at each reserve monitor temperature, wind speed and direction, humidity, barometric pressure, rainfall and photosynthetically active radiation every 15 minutes. The System-wide Monitoring Program collects more than 47.9 million data points each year and makes this information available to scientist, coastal managers, educators and the public through a web site and through reserve programs that use the data.

Monitoring data sets: Each site has at least four water quality datasets, one meteorological dataset and one nutrient dataset each year

Quality Assurance and Quality Control: A quality control review checks for missing water quality and weather data points, missing metadata, suspect data, deployment dates and times, and data outliers that could be due to equipment or calibration problems. To ensure that the Reserves meet the goals of the SWMP program and uphold the quality of the data collected and maximize the amount of data, Reserves submit datasets annually to the Centralized Data Management Office (CDMO) where a QA/QC process is completed. Of the total dataset submitted, reserves cannot have more than 15% of submitted data missing without appropriate justifications as outlined by the SWMP Data Management committee (i.e. requests for excusing missing data include: ice and catastrophic natural events). The 15% “window” allows for equipment and user malfunction and similar non-catastrophic events. Thus, the Reserves are committed to submitting complete datasets (at least 85%) for each monitoring effort.

Reporting details:

Frequency: Reserves must submit the previous year’s datasets according to the following schedule: Water Quality (mid March), Meteorological Data (mid April) and Nutrient Data (mid May). CDMO works through the submissions and generally has an annual summary prepared for

that indicates which reserves successfully submitted at least 85% for each of the datasets. I suspect that this summary report could be submitted from CDMO to ERD no later than the following February/March (1 year or less after data submission). For example: 2004 Water, Weather and Nutrient submissions were sent to CDMO in March, April, and May of 2005 respectively. The most recent CDMO progress report (due end of Feb 06+ 30 days) for the 2005 grant award outlines the status of the QA/QC for each 2004 dataset with each reserve and the above requested information could also be gathered at the same time.

Data Collection: Reserve Monitoring Technicians and Research Coordinators are responsible for collecting and submitting SWMP data to the Central Data Management Office (CDMO).

Reporting Responsibility: The Estuarine Reserve Division Research Coordinator will obtain this data from CDMO each year to enter into the NERRS performance measurement data management system.

Data Analysis: The Central Data Management Office analyzes the quality of SWMP data. ERD and the SWMP oversight committee track trends in the success of NERRS to submit quality data.

Data collection method:

As an additional reporting component associated with the CDMO Annual Operations Award from NOAA, CDMO will continue to submit the current information as required but also include a breakdown of Reserves that had less than required 85% dataset (this number will not include Reserves that had excused data). This information will be broken down separately by water, weather, and nutrient submissions. This reporting will coincide with CDMO's semi-annual progress reports that are due at the end of February each year (there is a built-in 30 day window to submit these reports inherent in the system) thus the data will be incorporated into ERD performance measures no later than the end of March every year. Next year, they will try to get this information to ERD in September so it can be analyzed along with other information reported by fiscal year.

2. NUMBER OF WEBHITS TO THE SWMP DATA ON THE CDMO WEBSITE (CDMO 2)

Context: According to the Code of Federal Regulations, reserves were created to address coastal management issues identified as significant through coordinated estuarine research within the System; promote Federal, state, public and private use of one or more Reserves within the System when such entities conduct estuarine research; and conduct and coordinate estuarine research within the System, **gathering and making available information necessary for improved understanding and management of estuarine areas.** The System-wide Monitoring Program helps determine long-term change and short-term variability of estuarine conditions. This data is useful if it is analyzed often and used in various research projects, to develop management tools, and as an educational tool to teach about estuaries. This indicator will help us determine if people are accessing NERRS data for use. This directly contributes to the NERRS Strategic Goal to increase the use of reserve science and sites to address priority coastal management issues.

Characterization and key definitions:

webhits: A new on-line information server (<http://cdmo.baruch.sc.edu>) was launched in July 2005 at the Baruch Marine Field Station where the NERRS Centralized Data Management Office (CDMO) is located. The CDMO is now able to track the number of hits on the CDMO data site. "Hits" are considered to be each time a user accesses any page associated with the CDMO website, pages within this site describe data available for access, contact information at Reserves and CDMO, and data download pages.

Reporting details:

Frequency: Once a year, reported within CDMO's Semi-annual Progress Report associated with the February deadline, no later than the end of March each year. This data will include a full year's worth of data hits (rather than just covering the six month reporting period of the associated award). For the FY06 award, CDMO will report the data in March. Next year, they will try to get this information to ERD in September so it can be analyzed along with other information reported by fiscal year.

Data Collection and Reporting Responsibility: CDMO already collects this information and will continue to report this information to ERD.

Data Analysis: CDMO and ERD will work together to decide if there is any additional interesting information that can be gleaned from this performance measure (i.e. unique visitors, possibly identify if they are government, academic, or state users, etc.). This could inform marketing and layout of the website as appropriate.

Data collection method: CDMO collects this information already and reports this information (numbers by month and total for period of coverage) within their semi-annual progress reports appropriately in chart and table format. Numbers for the full preceding year will be reported no later than March for the FY06 award. Next year, they will try to get this information to ERD in September so it can be analyzed along with other information reported by fiscal year.

3. NUMBER OF DOWNLOADS OF THE SWMP DATA FROM THE CDMO WEBSITE (CDMO 3)

Context: According to the Code of Federal Regulations, reserves were created to address coastal management issues identified as significant through coordinated estuarine research within the System; promote Federal, state, public and private use of one or more Reserves within the System when such entities conduct estuarine research; and conduct and coordinate estuarine research within the System, **gathering and making available information necessary for improved understanding and management of estuarine areas.** The System-wide Monitoring Program helps determine long term change and short term variability of estuarine conditions. This data is useful if it is analyzed often and used in various research projects, to develop management tools, and as an educational tool to teach about estuaries. This indicator will tell us how many people are actually downloading SWMP data for research or educational use. This directly contributes to the NERRS Strategic Goal to increase the use of reserve science and sites to address priority coastal management issues.

Characterization and key definitions:

Downloads: A new on-line information server (<http://cdmo.baruch.sc.edu>) was launched in July 2005 at the Baruch Marine Field Station where the NERRS Centralized Data Management Office (CDMO) is located. The CDMO is now able to track the number of SWMP data downloads from the CDMO data site.

Reporting details:

Frequency: Once a year, reported within CDMO's Semi-annual Progress Report associated with the February deadline, no later than the end of March each year. This data will include a full year's worth of data downloads (rather than just covering the 6 month reporting period of the associated award). For the FY06 award, CDMO will report the data in March. Next year, they

will try to get this information to ERD in September so it can be analyzed along with other information reported by fiscal year.

Data Collection and Reporting Responsibility: CDMO.

Data Analysis: CDMO will report this information to ERD and ERD will share the information with the rest of the system.

Data collection method: CDMO will report on this information (numbers by month and total for period of coverage) within their semi-annual progress reports appropriately in chart and table format. Numbers for the full preceding year will be reported no later than March for the FY06 award.

4. NUMBER OF WEBSITES HOSTING NERRS SWMP DATA (CDMO 4)

Context: According to the Code of Federal Regulations, reserves were created to address coastal management issues identified as significant through coordinated estuarine research within the System; promote Federal, state, public and private use of one or more Reserves within the System when such entities conduct estuarine research; and conduct and coordinate estuarine research within the System, **gathering and making available information necessary for improved understanding and management of estuarine areas.** The System-wide Monitoring Program helps determine long-term change and short-term variability of estuarine conditions. This data is useful if it is analyzed often and used in various research projects, to develop management tools, and as an educational tool to teach about estuaries. As the NERRS System-wide Monitoring program gains recognition and use, other organizations have started posting NERRS data for their users on their sites. This indicator will give an indication of the reach of SWMP data use by partners in the fields of estuarine science, monitoring and observing.

Reporting details:

Frequency: Once a year, reported within CDMO's Semi-annual Progress Report associated with the September 2007 deadline. This is a new metric for the CDMO, so they may begin collecting this year and will report a number for this fiscal year in September of 2007.

Data Collection and Reporting Responsibility: CDMO. Reserves and ERD may be asked for help in identifying sites that they are familiar with that post SWMP data. ERD and Education Coordinators will help track where SWMP data is posted on education related websites.

Data Analysis: CDMO will report this information to ERD and ERD will share the information with the rest of the system. ERD may add additional sites if ERD staff are aware of sites that the CDMO did not report.

Data collection method: CDMO will report on this information within their semi-annual progress reports. Reserves and ERD may be asked for help in identifying sites that they are familiar with that post SWMP data.