

## 2008 KEEP Framework

FINAL 3/25/08

### Contents of the 2008 KEEP Framework

This 2008 K-12 Estuarine Education Program (KEEP) Framework is submitted to the Strategic Committee as an addendum to proposals for components of KEEP (Market Analysis/Needs Assessment and EstuaryLive). This Framework is intended to assist the Strategic Committee in placing the KEEP component proposals in context.

The 2008 KEEP Framework contains:

1. The KEEP Description Document, which provides an overview of KEEP including background information, program description, program requirements, and program oversight. This document was approved by EC vote in April 2007.
2. The KEEP Frequently Asked Questions (FAQs), which further clarifies details of KEEP. The FAQs were developed by gathering and answering questions received on KEEP from past proposal submissions. This document was approved by ECs vote in October 2007 and January 2008.
3. An appendix of useful information including a list of accomplishments achieved to date as part of KEEP and an average cost of implementing KEEP as determined in 2006.

### KEEP at a Glance

Reserve educators are committed to expanding the extent and impact of the Reserve System's programs and resources to K-12 teachers and students. While sites have been offering a variety of educational programs and products, the approach followed in KEEP will help integrate these efforts and raise the bar. By integrating field-based estuarine science, SWMP data, and a technology oriented approach, the Reserves will become more strategic and better positioned to respond to new developments in education reform.

Through such expanded and integrated offerings, Reserve educators hope to increase knowledge about estuaries among K-12 teachers and students. Such increased knowledge will promote the growth of public awareness about the importance of ocean and coastal resources and their connection to humans' well-being, and will provide a basis for citizens to make informed decisions about managing and protecting such resources.

Through the implementation of KEEP, the NERRS has begun to develop a system-wide K-12 education program that will improve the quality and consistency of programs offered at all Reserves sites. Development and implementation of KEEP includes:

- continued implementation of EstuaryLive
- development of new system-wide educational resources (i.e. the Estuaries 101 Curriculum and a SWMP/education interface on estuaries.gov)
- implementation of a series of activities by individual Reserves (i.e. professional teacher workshops called Teachers on the Estuary)

## K-12 Estuary Education Program (KEEP) Description Document

The K-12 Estuary Education Program (KEEP) is a collection of resources for learning about estuaries for teachers and students in grades kindergarten through high school (K-12). Currently under development with national coordination, direction and standards, these resources will be available to all K-12 teachers and students in the country. Some aspects of KEEP will be delivered globally via the Internet, while others will be implemented at Reserves in the National Estuarine Research Reserve System (NERRS).

### 1. Background and Justification

Since the Coastal Zone Management Act (CZMA) was passed in 1972, the National Estuarine Research Reserve System (NERRS) has linked estuarine research, education and stewardship. By 2002, a vast majority of Reserves were offering education programs for some segment of school aged audiences and professional teacher development (PTD) for grades kindergarten through high school (K-12). In FY03, the NERRS identified a priority action item and allocated funds from §315 of the CZMA for an inventory and assessment of K-12 and PTD programs offered at NERRS sites.

The inventory found, that of the 25 Reserves that existed at that time, 23 offered programs for K-12 students and 21 offered PTD programs. The inventory also made recommendations including:

- Seek outside funding
  - Establish national coordination
  - Correlate to state educational standards
  - Establish national performance measures, goals and objectives
  - Implement a national evaluation framework
  - Provide for market analysis and needs assessment as needed
  - Market nationally
- and most importantly:**
- Develop and offer a system-wide K-12 and PTD program **focused on field-based estuarine research**

System educators began planning and in FY06 the Reserve System, as a whole, made a major decision to support the implementation of KEEP.

This support was reflected in an allocation of §315 funds to begin development of on-line curriculum materials called *Estuaries 101*, described below. Included within KEEP was the existing EstuaryLive program offering live video broadcasts on the Internet (described below). These interactive virtual field trips provide K-12 audiences on-line access to exciting estuary education. EstuaryLive also includes supporting curriculum materials for teachers.

KEEP addresses Goal 3 of the NERRS strategic plan, *“Enhance people’s ability and willingness to make informed decisions and take responsible actions that affect coastal communities and ecosystems.”* KEEP provides K-12 teachers and students with resources to increase awareness of the importance of oceans and coastal regions. Participating teachers and students will understand estuarine environments, coastal watersheds, coastal management issues, and their own role as stewards of the environment. KEEP will increase the number of teachers and environmental educators in the U.S. who use NERRS science and education products and programs.

While the Reserves have developed and disseminated a variety of educational products for teachers and students, current reforms in science curricula and requirements under the No Child Left Behind (NCLB) Act

point to the need to become more strategic, better define target audiences, and respond to new developments in the educational system.

KEEP also addresses the “Fundamental Concepts” of the National Science Education Standards for Ocean Literacy as described by the Ocean Literacy Network: [www.coexploration.org/oceanliteracy](http://www.coexploration.org/oceanliteracy).

## **2. Program Description**

Goals:

1. Teachers and students will have the knowledge, appreciation and skills to act as stewards of estuarine resources.
2. An increasing number of teachers and environmental educators in the U.S. will use NERRS science education products and programs.

Objectives:

Teachers and students will . . .

- Understand estuarine environments, coastal watersheds, coastal management issues, and their own role as stewards of the environment.
- Use NERRS science to consciously act in promoting the health of estuaries.
- Understand and use data streams for furthering the protection of estuaries.
- Value the NERRS and support our mission.
- Infuse NERRS science into formal education venues.

Operating Principles:

This set of operating principles will guide the implementation of KEEP as recommended in the recent Inventory and Assessment. This will be ensured by the KEEP Oversight Committee<sup>1</sup>:

- *Most importantly, KEEP will include field-based estuarine science*
- KEEP programs that are implemented nationally will be correlated to national standards<sup>2</sup>.
- KEEP programs implemented at Reserves, will be aligned with State<sup>3</sup> and local agendas.
- Inquiry based learning<sup>4</sup> will be emphasized.
- Well-defined evaluation strategies will be coordinated nationally to measure the overall effectiveness of the program.
- Clear learning objectives will guide the implementation of all KEEP programs.
- KEEP programs will use a variety of delivery modes to reach different learning styles and will be creative and innovative in the use of technology such as computers, CDROM, satellite and wireless communications.

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<sup>1</sup> For a full description of the KEEP Oversight Committee, please review page 6 of this document.

<sup>2</sup> The *National Science Education Standards* present a vision of a scientifically literate populace. They outline what students need to know, understand, and be able to do to be scientifically literate at different grade levels. For more information, please visit <http://books.nap.edu/readingroom/books/nses/>.

<sup>3</sup> In response to concerns over the educational achievement of students in the United States, individual states are establishing sets of learning standards defined by grade level or clusters of grades. States often adapt their standards to those set by teachers and professional organizations.

<sup>4</sup> Inquiry is a multifaceted activity that involves making observations; posing questions; examining books and other sources of information to see what is already known; planning investigations; reviewing what is already known in light of experimental evidence; using tools to gather, analyze, and interpret data; proposing answers, explanations, and predictions; and communicating the results. Inquiry requires identification of assumptions, use of critical and logical thinking, and consideration of alternative explanations. National Research Council. (1996). *The National Science Education Standards*. Washington DC: National Academy Press. p. 23.

## The Three Components of KEEP:

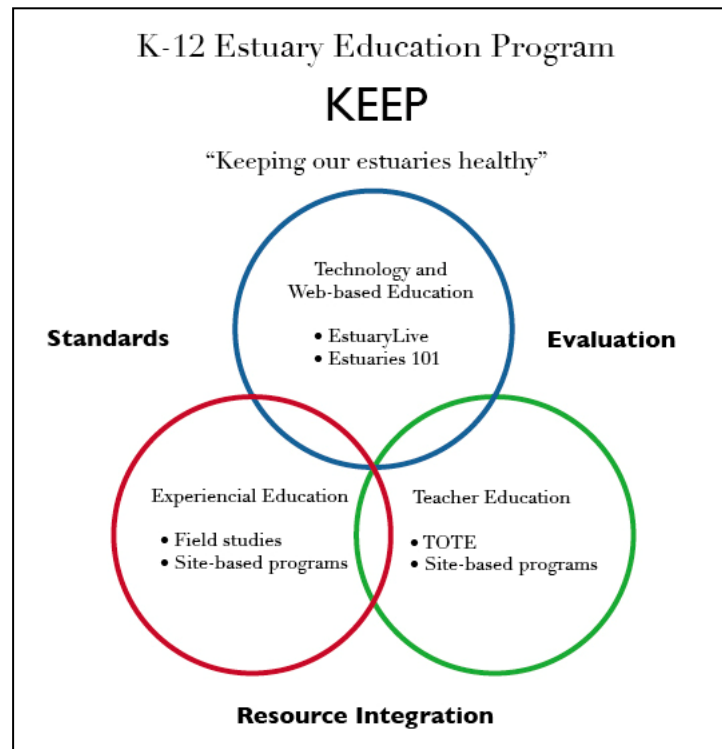


Figure 1. The Three Components of KEEP

Programs funded by KEEP must include some aspect of each of three delivery methods as illustrated above and described below.

### ***1. Technology and web-based learning***

Through this component, the KEEP program provides on-line, system-wide educational products. Examples include an educational website with on-line teacher resources, EstuaryLive and Estuaries 101. A unified website will promote and provide access to all elements of KEEP.

- EstuaryLive offers live video broadcasts on the Internet. These interactive virtual field trips provide K-12 audiences with access to exciting estuary education anywhere on the globe with access to the Internet. EstuaryLive also includes supporting curriculum materials for teachers.
- *Estuaries 101* is a web-based curriculum for students and teachers promoting key principles and fundamental concepts of estuarine ecology and fostering understanding of how estuaries connect and relate to human and ecological systems. This curriculum will make educational use of and interpret information from Reserve research and monitoring programs including SWMP.

## ***2. Experiential learning: Site-based estuarine education programs***

This component includes field experiences at the Reserve sites. A national level KEEP Oversight Committee<sup>5</sup> will ensure the application of scientific research with age-appropriate, standards-based, hands-on activities. Some will be linked directly to actual research, monitoring and stewardship activities at Reserves.

## ***3. Professional Teacher Development***

All KEEP programs must include some form of teacher training. One program called *Teachers on the Estuary* (TOTE) provides hands-on, field-based training for teachers at NERRS sites across the nation. This professional teacher development (PTD) program provides national exposure to teacher audiences. This unique national PTD program allows teachers to compare estuaries across America and utilize expertise from multiple Reserves. This is a specific recommendation made in the Inventory and Assessment of K-12 and Professional Teacher Development Programs.

## **3. Program Requirements**

Participation in KEEP is voluntary with each Reserve deciding how to participate. Reserve programs associated with KEEP must include some element of the three components described above. This does not mean that a Reserve choosing to do a TOTE Workshop must also do EstuaryLive. It just means that every TOTE Workshop must have some web-based element. Implementation will grow depending on each Reserve's level of readiness.

This section outlines a sequence of prerequisites a Reserve must complete to receive funds for KEEP program development and implementation. Items on this list must be completed in this sequential order. More detail for each is provided below.

- Full-time key personnel (Manager, Research Coordinator and Education Coordinator).
- Education Advisory Committee
- Consistency with Reserve goals and objectives
- Market analysis and needs assessment
- Implementation strategy
- Plans (proposals) for programs such as EstuaryLive, TOTE, etc.
- Program implementation
- Program review

Each step requires review by the KEEP Oversight Committee (described below) except for Program Plans. Other appropriate groups will review Program Plans. For instance, the EstuaryLive Review Committee established by the EstuaryLive Work Group will review proposals for EstuaryLive funding.

Of course, any Reserve can implement teacher workshops, distance learning, K-12 programs, etc. with funds from other sources. In this case, the Reserve would not have to complete these requirements. However, if a Reserve completes these steps for all programs, quality education will be ensured.

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<sup>5</sup> For a full description of the KEEP Oversight Committee, please review page 7 of this document.

**Full-time Key Personnel** are required to assure that Reserves are fully participating in basic National Estuarine Research Reserve functions prior to embarking on this new initiative. Key personnel are defined as a full time Manager, Research Coordinator and Education Coordinator.

**Education Advisory Committees** are required for programs funded under KEEP. They provide input at the site level from educators that are not Reserve staff members but with expertise in educational issues in the service area. The purpose of this requirement is to ensure accountability and to ensure that KEEP programs meet high standards of excellence. This is accomplished by requiring input from appropriate educational institutions in the area. It is the responsibility of the site to determine the makeup of this group. Some Reserves already have such groups while others may need to create them. Some Reserves have educational representation in other advisory groups at the Reserve. These may also suffice. We rely on the integrity of Reserves to identify appropriate members and supply appropriate coordination. Input from appropriate local educators is required for the development of KEEP elements such as market analysis, needs assessment, and grant applications. Input is also required for program development, implementation and evaluation. The KEEP Oversight Committee can provide guidance to Reserves about advisory committees when needed.

#### **Consistency with Reserve and NERRS goals and objectives**

Program Plans will be reviewed and approved by Reserve key personnel. Implementation strategies must show how KEEP education programs support the Reserve Management Plan and how they are aligned with the NOAA/ERD Strategic Plan.

**Market Analysis** is defined here as a systematic tool for assessing other local and regional organizations that offer the same or similar services and identifying potential audiences for these services. A market analysis helps to match services with audiences while decreasing the potential for duplication and redundancy with other programs.

**Needs Assessments** measure the specific needs of target audiences. They assess target audience knowledge, skills, and attitudes relevant to proposed services. This is similar to and may overlap some audience-based information gleaned from a thorough market analysis. Needs assessments can also provide insights to how audiences want your programs to be packaged (i.e. format, costs, distance traveled, duration, etc.)

**Implementation Strategies** will include a timeline for becoming operational with KEEP and a matrix that illustrates program development issues such as needed actions and responsible agencies, organizations, or persons. These will also include a strategy for integrating research.

**Program Plans** will be included with applications for program funding. They include:

- Goals & objectives
- Current and anticipated partnerships and roles of partnering institutions
- Description of the audience(s) to be targeted
- Delivery systems
- Description of monitoring and evaluation tools
- Staffing scenario and infrastructure support
- Available and needed resources
- Evaluation strategy
- Methods for integrating research

#### **4. KEEP Oversight**

The KEEP Oversight Committee ensures national coordination and the maintenance of high standards. This group will not be responsible for fund raising

##### Membership

- This group will have 8 to 12 members.
- Each will have a two-year term, arranged so that only about half of the members are new in any given year.
- Current members can be nominated for consecutive terms.
- Members will be solicited and selected by Education Coordinators using their standard decision-making process.
- This committee will consist of three to five educators from Reserve sites, one manager, one researcher, one CTP educator, one Stewardship Coordinator, one ERD representative and two from outside the NERRS (i.e.; NEP, NMEA, NSTA, COSEE, NSF, Sea Grant, or other offices in NOAA).

##### Roles

This group will:

- Guide the development of KEEP
- Provide technical assistance to KEEP practitioners (Reserve educators) and provide guidance on the content of required products (such as needs assessments and program plans).
- Serve as gatekeepers providing feedback and approval of proposed activities funded under KEEP. This committee will not create standards of excellence. The EC community will create standards of excellence that this committee will use for assessment, comment and approval.
- Ensure quality control and the meeting of standards of excellence, integration of research, and educational value to the intended audience
- Frame communications to outside audiences such as Congress, other NOAA offices, and our intended audiences
- Ensure that required paperwork is brief, concise, and minimized as much as possible

##### Meetings

Face-to-face gatherings will be minimized to save time and money. Instead, electronic communications such as conference calls, video conferencing, and email will be used.

This group will not be required to review documents whenever they are submitted. Rather, there will be distinct dates when products are due and when a response is due. This will ensure the work of the group can be done in concise and concentrated blocks of time. The KEEP Oversight Committee will determine the due dates and response times to ensure the best use of time.

## Frequently Asked Questions (FAQ) about KEEP

### Purpose

This document will clarify details of what the K-12 Estuarine Education Program (KEEP) is for educators and other interested staff members in the NERR System. There are many scenarios that could inspire the question “What is KEEP?” It is impossible to foresee every scenario. These FAQs and the KEEP Description Document are guidelines that the KEEP Oversight Committee and Reserve staff members will use to answer this question.

### FAQs

*Q1: KEEP includes materials, services and activities that are both system-wide and site-based. Why is there a need for both?*

A: According to the inventory of K-12 programs at NERRS sites<sup>1</sup>, “There are unequal levels of commitment and resources at the Reserves...” “If K-12 and PTD programs are important to NERRS at a system-wide or national level, they should not continue to be unevenly supported and act as semi-autonomous units accountable only to their state partners and Reserve managers. There should be more support and coordination on a system-wide level.” Some Reserves are leaders in estuary education in their area. The NERRS has the unique structure, as a system of sites, to be a leader on the national level. A national structure can attract new funding sources at the national level. The strength of the NERRS is that we cover the entire coast with local, grassroots programs. We have national coverage with local focus. KEEP brings the continuity and authority of a national program with local implementation.

*Q2: How is a site-based KEEP different from a site-based non-KEEP education program?*

A: Key elements required in KEEP include: focus on the K-12 student and teacher audiences, local accountability (input from needs assessment, market analysis and advisory committee), national accountability (Oversight Committee), standardized objectives and principles, and national level evaluation. Other education and outreach programs may lack one or more key elements and may be funded from other sources and have different requirements.

*Q3: How will site-based education be different if KEEP is fully funded and implemented?*

A: Some existing programs may change very little from the viewpoint of the students and teachers that participate. Others may change significantly as they pass through the rigors of KEEP. Few Reserves have recently completed needs assessments. Some may benefit from input from their Education Advisory Committee in light of recent educational reform. Others may improve programs by adding teacher training or utilizing new delivery technologies such as the Internet. KEEP raises the bar for existing programs, adds new programs and facilitates a search for national level funding.

*Q4: What is meant by each of the three components?*

A: *Technology and web-based education* refers to resources, information and materials that are delivered to the learner in a digital format on a computer, via the Internet or with another electronic delivery device. Having resources and supporting educational aides available in digital format makes them easy to find, receive and use. Not everyone learns in the same way. By addressing different learning styles, learning is increased. Use of the Internet and computers makes delivery more cost effective, reaching larger numbers of learners. Editing materials becomes cheaper, easier and quicker. And it's cheaper to distribute and more convenient for the user. Examples include EstuaryLive, Estuary 101, PDF versions of educational aides, a virtual library, or DVDs.



*Teacher education* includes programs, materials, and supplementary aides that increase the understanding of teachers about estuaries, Reserve programs, and other information that will help them better teach their students about estuaries. Examples include curriculum, workshops, or information about how to access and use SWMP data or research reports.

*Experiential education* is the process of actively engaging learners in an authentic experience that will have benefits and consequences. In the case of KEEP, “learners” refers to K-12 students and teachers. Learners make discoveries and experiment with knowledge themselves instead of hearing or reading about the experiences of others. Learners also reflect on their experiences, thus developing new skills, new attitudes, and new theories or ways of thinking<sup>2</sup>. Examples include inquiry experimentation, field experience and manipulation of hands-on materials and artifacts.

*Q5: Must a KEEP activity be supported by elements of each of three components: 1. Technology and web-based, 2. Teacher education, and 3. Experiential learning?*

A: Yes

*Q6: What is a site-based K-12 Estuarine Education Program? And, what are some examples of site-based KEEP that include all three components mentioned in question 4?*

A: A site-based K-12 Estuarine Education Program (KEEP) is the suite of KEEP activities (as approved by the KEEP Oversight Committee) at an individual Reserve. Imagine a teacher workshop, school field trip and web resources integrated to deliver quality estuarine education at a single Reserve. Of course, each of these pieces could stand alone, but the suite of these activities at a Reserve is a package called site-based KEEP. As noted above each of the KEEP activities in a site-based KEEP must include the 3 components: technology and web-based education, teacher education, experiential education.

The following are examples of site-based KEEP that include all three components:

Example 1. A teacher receives some training from a Reserve, or a Reserve endorsed program or resource then, brings a class to the Reserve for a field trip followed by, students doing follow-up activities in the classroom. Any one of the three parts includes accessing information on a computer or using electronic instruments in the field.

Example 2. A teacher gets information off the Internet about a fish monitoring project at a Reserve including information about the work of local researchers. The Reserve educator helps the teacher set up an aquarium in the classroom to raise one of the species described in the materials.

Example 3. A teacher attends a presentation at the Reserve by an accomplished nature poet that includes a visit to the beach with a video camera and a scientist. The teacher shares this information in the classroom with students who then write poetry that is posted on the Reserve web site.

*Q7: What are some examples of national programs that include all three components?*

A: EstuaryLive transmits a live program from an estuary field site to a classroom. The teacher learned how to access and use the program with the students from materials available on the EstuaryLive web site. We recognize that EstuaryLive broadcasts in the past have not always been experiential. This aspect will need to be improved in the future. Two examples from the past that have made EstuaryLive more experiential in the past are:

Example 1. Grand Bay Reserve placed mentors in the classroom the last two years during EstuaryLive broadcasts to make the activity more interactive. The mentor brought examples of coastal/estuarine plants and animals, technological equipment, etc. In this way the broadcast was supplemented at the local level allowing students to explore the objects that have been brought into the classroom and made more experiential.

Example 2. Padilla Bay Reserve, a broadcast host, used interactive techniques to engage on-line participants in experiential thinking by asking for input that required them to reflect on their own experiences and on the experiences on screen. They were asked to use these reflections to provide answers to quizzes and speculate about possible cause and effect relationships.

Estuaries 101 web site provides estuary science lessons for students and background information for the teacher. These resources are supported by video clips of actual estuary field sites.

*Q8: Does my existing site-based education program qualify for KEEP?*

A: Most likely an existing program would qualify after jumping through a few hoops and a little tweaking. All Reserves receiving KEEP funds will have to complete a needs assessment and market analysis (NA/MA). Also, existing programs would have to be responsive to input from the NA/MA as determined by the Reserve Education Advisory Committee. The final authority for KEEP funding is the National Oversight Committee. See the KEEP Description Document, Section 2, Program Description and Section 3, Program Requirements for more specifics about guidelines that may shape existing programs.

*Q9. What is meant by each of the Principles of KEEP described in Section 2, Program Description, of the KEEP Description Document?*

A.

- *KEEP will include field-based estuarine science.* KEEP will provide information to teachers and students from many perspectives including fine arts, cultural studies and science. NERRS programs have always had a heavy reliance on scientific principals that can be observed in the field. KEEP will continue this emphasis.
- *KEEP, when implemented nationally, will be correlated to national standards.* KEEP, when developed for national audiences and national distribution will be guided by authorities such as the National Science Education Standards established by the National Academy of Science, and recommendations of the Ocean Commission Report, Centers for Ocean Science Education Excellence (COSEE) and National Marine Education Association (NMEA). KEEP will also address the “Fundamental Concepts” of the National Science Education Standards for Ocean Literacy as described by the Ocean Literacy Network.
- *KEEP, when implemented at Reserves, will be aligned with state and local agendas.* KEEP, when developed by Reserves for local or regional audiences will be guided by authorities such as state Science Education Standards, members of Reserve Education Advisory Committees, and other applicable local jurisdictions.
- *Inquiry based learning will be emphasized.* This form of learning involves the learner in seeking the truth rather than being told the truth. The learner is involved in discovery that leads to understanding. This form of learning relies on the development of skills and attitudes that facilitate the processing of observations to reach resolutions to questions and issues generated by the learner. Inquiry learning is strongly supported by current science education reform and is required for success with

student assessment of science education in many states. Not every activity in KEEP will depend on inquiry but program developers should be familiar with this learning technique and try to utilize it whenever appropriate. More information about inquiry learning can easily be found in educational literature and from institutions that provide science education workshops for teachers.

- *Well-defined evaluation strategies will be coordinated nationally to measure the overall effectiveness of the program.* Evaluations will be developed at the national level by the Oversight Committee and then tailored to local programs by the Education Advisory Committee. The purpose of the program evaluations is to determine the effectiveness of KEEP at both the national and local level.
- *Clear learning objectives will guide the implementation of KEEP.* Learning objectives are the specific measurable behaviors, skills and knowledge that students will be able to demonstrate after receiving instruction. These should be carefully composed before a lesson is planned. For instance, two sample learning objectives are: “After taking this class, students will be able to 1. Identify three different fish that live in a nearby estuary and, 2. Tell how three fish utilize estuary habitats and resources. Good learning objectives will teach things identified in established state or national Educational Standards. They will also be measurable. The lesson designed to teach the first objective above, will be very different from the one designed to teach the second. Objectives also guide the development of assessment. Because the desired behaviors (1 and 2 above) are measurable, you can now design a test to see if the lesson teaches what it was designed to teach. In short, a good lesson will teach things that the learner needs to know. Begin with good learning objectives and the rest will follow with ease.
- *KEEP will use a variety of delivery modes to reach different learning styles and will be creative and innovative in the use of technology such as computers, CDROM, satellite and wireless communications.* Different students learn in different ways. Providing a variety of learning activities and styles helps ensure that all students are engaged. With that in mind, it is important for us to use new and old technology, as appropriate, in all KEEP activities.

*Q10: What is meant by and how will KEEP ensure “Consistency with Reserve goals and objectives”*

A: Reserve goals and objectives are specified in each Reserve’s Management Plan. Guidance for KEEP funding would require consistency with these goals and objectives and this would be ensured by the Reserve manager and educator and also by ERD as they review proposals for funding.

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<sup>1</sup>Pandion Systems, Inc. 2003. *Inventory and Assessment of K-12 and Professional Teacher Development Programs in the National Estuarine Research Reserve System*. <http://www.nerrs.noaa.gov/Education.k-12.html>.

<sup>2</sup>Kraft, D. and M. Sakofs (eds.) 1988. *The Theory of Experiential Education*. Boulder, CO: Association for Experiential Education.

## Appendix to the 2008 KEEP Framework

### KEEP Accomplishments

The following list of accomplishments illustrates the level of commitment and investment toward the K-12 Estuarine Education Program.

Accomplishment	Cost	Funding Source
SWMP/IOOS Teacher Needs Assessment (complete)	\$80,000	NOAA's Office of Education funds
National Teacher Needs Assessment and State Teaching Standards Assessment (complete)	\$100,000	Mini-Grant from NOAA's Office of Education
9-12 <sup>th</sup> grade Estuaries 101 Curriculum (underway)	\$131,000	315 funds, NOAA Chesapeake Bay Office, NOAA's Office of Education and NOAA/NOS IOOS funds
Improved estuaries.gov (underway)	ERD staff time	NOS and OCRM Administrative funds
SWMP/Education interface on estuaries.gov (underway)	\$64,000	NOAA/NOS IOOS funds and FY07 end-of-year OCRM program administrative funds
EstuaryLive Video Package (underway)	\$60,000	315 funds

### Illustrative Average Cost per Reserve for Implementing KEEP

The following budget illustrates the average cost per Reserve to implement KEEP for the years 2007, 2008, 2009. This budget was produced with the input of approximately 20 Education Coordinators who submitted their information to ERD (in April 2006) after it had been approved by their Reserve Managers.

This budget is provided as an example only and is not a depiction of actual dollars spent in 2007. This budget was not updated in 2008 and is only provided as an illustrative example of approximate yearly cost per Reserve to implement KEEP.

Steps to Implement KEEP	Approximate Annual Cost per Reserve		
	2007 Total	2008 Total	2009 Total
<b>Staff support and implementation</b>			
Education Assistant	\$28,737	\$33,864	\$35,983
<i>Sub-total staff support</i>	<b>\$28,737</b>	<b>\$33,864</b>	<b>\$35,983</b>
<b>Start-up</b>			
Market Analysis, Needs Assessment, Implementation Strategy, Evaluation Strategy*	\$30,585	\$2,300	\$4,850
<i>Sub-total start-up</i>	<b>\$30,585</b>	<b>\$2,300</b>	<b>\$4,850</b>
<b>Technology based activities</b>			
EstuaryLive / Direct to the internet program	\$4,750	\$12,850	\$11,650
<i>Sub-total E-Live</i>	<b>\$4,750</b>	<b>\$12,850</b>	<b>\$11,650</b>
<b>Experiential learning activities</b>			
Hands-on, field-based activities	\$4,800	\$8,685	\$8,805
<i>Sub-total exp. activities</i>	<b>\$4,800</b>	<b>\$8,685</b>	<b>\$8,805</b>
<b>Teachers on the Estuary (TOTE)</b>			
<i>Sub-total TOTE</i>	\$9,290	\$17,867	\$17,678
<b>Marketing</b>			
Product development	\$1,600	\$2,050	\$1,650
<i>Sub-total marketing</i>	<b>\$1,600</b>	<b>\$2,050</b>	<b>\$1,650</b>
<b>Website support</b>			
Web-design specialist	\$3,370	\$4,038	\$3,793
<i>Sub-total web support</i>	<b>\$3,370</b>	<b>\$4,038</b>	<b>\$3,793</b>
<b>TOTALS</b>	<b>\$83,132</b>	<b>\$81,653</b>	<b>\$84,409</b>

\* The amount noted in this table for Market Analysis, Needs Assessment, Implementation Strategy, and Evaluation Strategy per Reserve differs from the amount requested in the 2008 Market Analysis/Needs Assessment proposal to the Strategic Committee. This difference is due to several Reserves agreeing to complete their Market Analysis/Needs Assessment in house without paying a contractor.