A SUMMARY OF THE ACTIVITIES OF THE EIC DEMONSTRATION SCHOOL NETWORK IN MASSACHUSETTS ~ JUNE 2002-JUNE 2003

Grace Leiberman at the EIC Institute in July 2002

EIC SUMMER INSTITUTE 2002 IN NEW BEDFORD, MA JULY 8-12, 15-18, 2002

Jerry Leiberman at the first MA EIC Institute

Thirty-eight participants including teams from five schools and five Regional Environmental Education Alliances (REEAs) participated in a nine-day EIC Institute hosted by the Schooner Ernestina Commission and funded by the Massachusetts Department of Education (DOE) and the Southeastern Environmental Education Alliance (SEEAL) under the auspices of the Community Foundation of Southeastern Massachusetts.

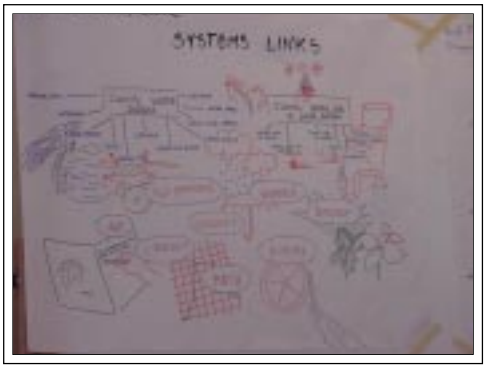
The institute provided the regular EIC training by the State Education and Environment Roundtable (SEER) and incorporated an additional five days that utilized the schooner, a human-powered 18th century crane (a project of the Colleges of the Fenway), the coastal environment and historic resources of the greater New Bedford area as a means to integrate mathematics, science and history/social science concepts, provide content and model EIC concepts.

Drawings of the type of Crane used during the Institute

Schooner Ernestina is an Integrated Learning Laboratory

THE EIC MODEL

The EIC Model is a complex system of interconnected and interrelated pedagogies. It is an educational framework that uses the local and community surroundings as the context within which students construct their own learning, guided by their teachers and other members of a collaborative instructional team. The EIC Model not only encompasses interdisciplinary instructional approaches but also underscores opportunities for students to develop basic life skills, problem-solving skills and the "systems thinking" approach. During the course of their EIC studies, students work both independently and in cooperative groups strengthening their abilities to effectively communicate with peers and adults, work in teams toward a common goal and improve interpersonal interactions. The elemental interwoven components of The EIC Model includes:



What are the Community Connections?

Curriculum Mapping Generates the Connections to Learning Standards

- Local Natural and Community Surroundings as the Context for Learning;
- Community-based Investigations;
- Integrated-interdisciplinary Instruction;
- Collaborative Instruction;
- Learner-centered, Constructivist Approaches; and,
- Cooperative and Independent Learning.

Systems-thinking is key to well developed EIC programs

EIC educators use the school's local community as the context for interconnecting all of the educational best practices of The EIC Model into a comprehensive school improvement strategy. This contextual framework is developed as students learn about the interrelationships of their community's natural and social systems. Through these studies Community-based Investigations are defined, providing students with experiences examining real-world issues as they apply skills and knowledge from multiple disciplines. Using these innovative instructional approaches, teachers are addressing district- and state-level standards while they insure that their students have authentic learning opportunities. Through these studies students are interacting with a variety of instructional partners—local experts that may include university personnel, business owners, or resource agency representatives. Opportunities to collaborate with various members of the local area provide students with exposure to the diverse cultural, economic and political perspectives that make up their community. Students not only gain a better understanding of how these social systems work, but they are also allowed to explore issues of personal interest. The EIC Model encourages students to create their own understanding of the world around them.

One unique outcome (in comparison to the other EIC states) of the 2002 Summer Institute was the decision by the group to hold periodic planning sessions at each of the schools in order for all of the teams to gather, share and observe the program at the host school.

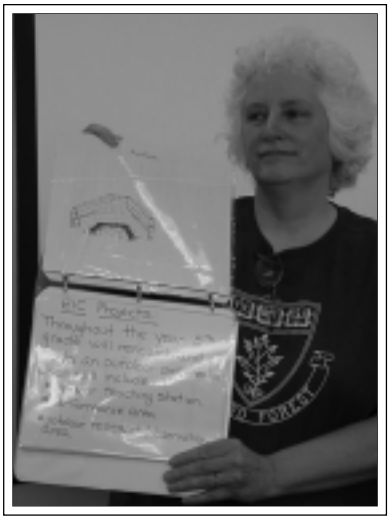
PLANNING SESSIONS

Heath Elementary School & Hitchcock Center for the Environment (HCE) Heath, MA	October 4, 2002
Butterfield Elementary School & Millers River Environmental Center (MREC) Orange, MA	November 1, 2002
JR Briggs Elementary School & Nashua River Watershed Alliance (NRWA) Ashburnham, MA	April 1, 2003
GW Brown Elementary School Newburyport, MA	June 6, 2003

NEW EIC SCHOOLS SELECTED IN APRIL 2003

A statewide process (modeled after New Jersey's EIC Network) coordinated by Melissa Griffiths, Director of EE for the MA Executive Office of Environmental Affairs (EOEA), solicited applications from across the state through a joint letter from the Secretary of the Executive Office of Environmental Affairs and the Director of the Department of Education for the second year. The following schools were added as of April 28, 2003:

Old Rochester Regional Junior High School in Rochester, MA (SEEAL)
JR Briggs Elementary School add nine teachers in Ashburnham, MA (NRWA)
Montague Center Elementary School in Montague, MA (HCE)
Dexter Park Elementary School in Orange, MA (MREC)
Fisher Hill Elementary School in Orange, MA (MREC)
New Bedford Global Learning Charter School (SEEAL)



Sue Cloutier is the organizer for the Institute in July 2003

EIC SUMMER INSTITUTE 2003 IN ATHOL, MA JULY 28-31, 2003

Several planning sessions have been held to develop set the agenda and logistics for this institute. EIC Schools from last year as well as the new applicants and coaches will be encouraged to attend. Coaches will be involved in the presentation. The Institute is being organized by Sue Cloutier at the Millers River Environmental Center and will involve an intensive program during the day and optional field trips in the evenings including natural and cultural history, history of forestry and land use

in MA, issues related to water and the Quabbin Reservoir and an astronomy night sky observation. 28 pdps and graduate credit will be available..

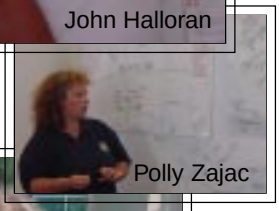
FUNDING

The Massachusetts Environmental Trust (MET) has consistently provided funding to support many of the EIC schools through the coaches' organizations and Regional Environmental Education Alliances (REEAs) and will be a significant source for the coming year.

In Southeastern Massachusetts the Southeastern Environmental Education Alliance (SEEAL) under the auspices of the Community Foundation of Southeastern Massachusetts has received an appropriation in the U.S. DOE budget for $200,000 through Senator Kennedy's office in partnership with the City of New Bedford that has paid for a coach for the region, supported SEER for the EIC Institute in 2002 and provides for the series of innovation configuration interviews with all of the schools along with many other activities.

SEEAL is currently working with the City of New Bedford to request significant funding in an appropriation in the US DOE budget to continue and expand the current effort in southeastern MA with some support available for the statewide effort.

John Halloran



Polly Zajac

Ted Watt

COACHES

Ted Watt of the Hitchcock Environmental Center, Amherst, MA
Susan Cloutier of the Millers River Environmental Center in Athol, MA
Mary Marrow of the Nashua River Watershed Alliance in Ashburnham
John Halloran of the Newburyport Public Schools
Polly Zajac of the Schooner Ernestina Commission & SEEAL in New Bedford

CURRICULUM DEVELOPMENT

The New Bedford Global Learning Charter School and the Education Development Corporation (EDC) are developing a multi-dimensional integrated framework that will guide instruction in 6th-8th grade. It is incorporating EIC concepts, could serve as a model for other schools in Massachusetts and will encourage EIC to take better hold in the school as a new set of teachers come together in Summer 2003.

CRUCIAL ISSUES

- Funding to sustain the EIC Demonstration School Network and support coaches must be identified through a multi-year strategy.
- Advocacy and involvement by State Environmental and Education Agencies should be encouraged and strengthened.

Stephen Bechtel works on the Heath Curriculum Map

EIC SCHOOL SUMMARIES

HEATH ELEMENTARY SCHOOL - HEATH, MA

Heath Elementary School is a 7-year old school with one class of each grade from Pre-k to 6. Attending the 2002 EIC institute were **Principal Susan Todd**, Grade 6 teacher, **Stephen Bechtel**, art teacher **Jane Wegscheider**, and parent volunteer **Alice Lemelin**. The entire teaching staff received a briefing from the teachers who attended the institute and all EIC documents, posters, and plans were posted in the main hall of the school. **Ted Watt serves as coach from the Hitchcock Center for the Environment.**

Ted Watt is the coach for Heath School

Grade 6 teacher, **Stephen Bechtel** ran a year long integrated water quality unit. Students did frequent water quality testing on the river that runs behind the school and created charts and graphs that displayed the results of their work. Art teacher **Jane Wegscheider** worked closely with the class and created detailed art journals that documented the students' work in the natural environment through photography, drawings and sketches, and writing. The students also created relief clay tiles that will be used to decorate cement benches that will be placed along the banks of the river.

Kindergarten teacher **Deb Porter** created an EIC air unit. She used the children's observations and questions to design the unit. She brought in community members to help teach the unit and expand the ideas of the unit. One of the community members was a C-5 pilot who talked about air and how planes fly and showed the class examples of the Bernoulli principle. The children also mapped out a full-size C-5 plane on the schools field.

Students design and plant a garden at Heath

Suzanne Taylor of the second grade started a school-wide recycling program where students monitored the schools trash and began a composting program that they calculated saved at least 2 bags of trash from the dumpster per day. The town's transfer station director was also brought into the school to help with the composting and recycling. They also did a yearlong plant unit and brought in community members to teach about maple sugaring.

Jory McCloud from Grade 5 raised and released salmon and did an EIC integrated unit on sounds. Many community members from musicians to audiologists were brought in to discuss and teach about sound in our world.

Art teacher **Jane Wegscheider** designed a project that focused on the members of the community.. Under her directions, students interviewed community members and recorded their images through sketching, photography, and sculpture. A community gallery night will be held on June 19th for all of the community to view the students' work.

School-wide, the school community has started a garden to benefit the community at large. Flowers are being grown to give to shut-ins, vegetable are being grown that will be donated to a local church where they will be distributed to the needy.

Challenges facing Heath School are great. The entire staff, with exception to the principal, was pink-slipped. Due to seniority in the Mohawk Trail School district and budget cuts, which have closed some classrooms, there is a possibility that Heath could have an entirely new staff. This would be a heavy setback in the EIC process. New teachers would need to receive training and begin the process all over again. Susan Todd is hopeful that the threat of layoffs or reassignments does not take place. Secure funding for the school to keep EIC in place is needed.

BRIGGS SCHOOL - ASHBURNHAM, MA

The Briggs School is a K-5 elementary school in Ashburnham, MA. Staff who attended the 2002 EIC training institute included: Mary Gagnon, Grade 3 teacher, Kate Bennett, Grade 5 teacher, and **Candace Wright, assistant Principal**. **Mary Marro of the Nashua River Watershed Association** was also part of the training and is the EIC coach for the Briggs School.

Mary Gagnon presenting during the 2002 Institute

Mary Gagnon and **Kate Bennett** began the year looking at the historical uses of the land on the school site and in the town. They brought in community members who taught lessons in tracking, animals in the area at the time of settlement, and the biology of the area. Each was done at a grade appropriate level.

Mary Marro, did lessons with each class about the biology of the trees in the area and focused on species that would have been used by settlers of the area.

In the spring, the EIC focus was shifted to more contemporary uses of the land. The 5th grade students met with members of the planning board of the town and discussed how certain lands uses are approved and how the laws of the town were created around land use. Both groups also toured the land behind the school to look at inhabitants of vernal pools and what other flora and fauna were in the woods behind the schoolyard.

Several years back, an amphitheater was built in the wooded area behind the school. Over the uses decay made it unusable. **Mary Gagnon** was awarded grant money to turn the space into an outdoor classroom. She organized several Scout troops to remove the old stage and stadium seating and had Eagle Scouts assemble the benches and tables that will form the outdoor classroom. She was recognized for her work by EOEA.

Mary Gagnon and Kate Bennett worked closely with the staff in recruiting additional team members for the 2003-2004 school year. **Briggs will have 10 more teachers** on their team for the upcoming school year.

Demil presents the Web stemming from the team's Focus of Investigation

BUTTERFIELD SCHOOL - ORANGE, MA

Butterfield School is a Grade 4-6 elementary school in Orange, MA. The staff that attended the Summer 2002 EIC training institute were **Robert Haigh, principal**, Angela Worden, Grade 6 special ed teacher, Demil Kovacevic, Grade 5 teacher, and Courtney Neal, Grade 6 teacher. Their EIC coach, **Susan Cloutier from the Millers River Environmental Center** was also in attendance.

Students designed a butterfly garden and then voted on the design they would use.

The main focus of the first year of implementation was the local community. **Angela Worden** and **Courtney Neal** focused on the school grounds while **Demil Kovacevic** looked out to the greater community. Angela and her co-teacher work in an inclusive special ed. room. EIC principles are used across the curriculum. Angela's EIC projected focused on creating a spring garden on the school grounds. The class wrote letters to the Millers River Environmental Center to apply for grant funding. They also went to local businesses for donations for their project. The bulbs were planted in the fall after funds and donations were received. Careful planning, graphing, measuring, and mapping were done during the planting. All bulbs; their types, location, depth planted, etc. were all carefully recorded. In the spring, as the snow that covered the garden all winter melted away, the

Students wrote proposals to fund the construction


Robert Haigh is out working on the garden with the class.

students were back in the garden measuring growth, creating growth charts, photographing the plants' progress, and sharing their results with the school.

Courtney's class wanted to build a butterfly garden for their EIC project. The class researched proper flowers which would attract butterflies to the garden. They also wrote to Millers River for grant funding and to the local community for donations of goods. Several design plans were created to determine what the garden would look like. The garden models were place near the school's office and in March, the whole school voted on which design would be the final version. The winning design was planted in April and the flowers and other items in the garden are just now coming into bloom.


The initial planting are complete. A Great Effort by the Class!

Demils' class began the year with water quality testing of the Fall Hill Brook, a tributary of the Millers River. Many parents and community members took part in this testing. Once the water quality was established, salmon eggs from a hatchery in Belchertown were ordered and the eggs were grown in a climate-controlled tank. In June, 350 salmon were released in the Fall Hill Brook. The final EIC project of this class was to build an outdoor amphitheater on the school grounds. The class wrote to local companies for donations of services and goods. An excavator volunteered to dig out the base of the amphitheater and several masons built the brick base of the stage. Five 8-foot learning center tables were sold at a reduced cost. These tables will be located around the stage. Students worked along side of parents and other community members to get this project done.

Challenges facing Butterfield include budget issues. The school committee level funded the school district's budget but the town reduced its funding by $350,000. Due to retirements a staff switching, the positions of all the EIC teachers at Butterfield are secure but funding for projects like those done this year will be difficult to obtain.

BROWN SCHOOL - NEWBURYPORT, MA

Brown School is a Grade K-4 elementary school in Newburyport, MA. The staff that attended the Summer 2002 EIC training institute were **Principal Michael Jacobson**, **Sherry Herzig**, Kindergarten teacher and **John Halloran**, Science Resource teacher who also serves as EIC coach. **Sue Harrington, Stacey O'Shea, Ellen Erekson, and Jean Jacobson** also have incorporated many of the EIC components in their curriculum planning with coaching by Michael, Sherry and John.


John Halloran presents the community map for Newburyport

The Brown School is attempting to implement the EIC model school wide with a "Discover Joppa" project. This project is directly targeted to a significant environmental challenge facing our community. Using water as a pervasive theme, we will explore the issue of wastewater in our natural system.


Sherry Herzig incorporated the EIC practices into her classroom.

Plum Island, in the heart of our district, is being considered for a sewer project. Presently, homes on Plum Island use septic systems that filter wastewater through sand causing very little impact on the estuary. Under the new plan, wastewater will be piped to the city's aging secondary treatment plant located on the waterfront, which already releases a toxic plume into prime recreational, boating and fishing waters. There has been a long-standing effort on the part of municipal groups to reopen the clam-flats in the Merrimack River. Once a multi

Students stand in fromt of their map of Newburyport

million dollar industry, the flats have been closed for years due to high coliform counts. This very interesting intersection of social and natural communities will play out 3 blocks from the school and will be at the center of our field studies.

To implement EIC school wide and fulfill a mission of achieving cross curricular integration through interaction with the community and the environment, a *Discover Joppa exploration trail* is proposed. This trail, with thematic side trails appropriate to different levels, will have an introductory video, student published trail guides, storm drain stenciling, and markers highlighting significant natural and historic locations. For all students, this will be a water trail, for the local waters have established, defined and shaped this community and provide the essential questions for study.

Here is a close-up of the student map in Sherry Herzig's class. Those are the student's houses.

For students in grades K/1, the trail will be a nature and neighborhood trail starting in the school's habitat project and arboretum and extending out ward to sites of great natural diversity. Kindergarteners will grapple with questions such as where does water come from and where does it go? By exploring their homes and schools they will learn how water flows through a community.

Grade 1 students will participate in a back yard birding survey with Mass. Audubon, and visit the estuary, a birding site of national renown, to learn some shore birds and think of the impact of more sewage on all the visitors who come to see our birds.

For students in grade 2, the trail would be a community walk where students would explore the historical uses of water in the community i.e., safe harbor, fishing and boat building. Guiding questions will lead them to consider the contrast between the historical uses of water resources (extraction) and our current uses (preservation). Both themes have played prominent roles in Newburyport's environmental history.

The science lab is managed by John Halloran. It is a great place for students to explore.

For students in grades 3/4 the trail would be a water walk, exploring the estuary's native animals and plants and sites of maritime significance. Trips will be made to the sewage treatment plant and the clam filtration plant where human interaction with our natural resources would come alive for the students. Third grade students would ask questions like how does water move in the estuary/ why is water quality in the estuary important? and how is water used in our daily lives? These questions will be addressed on walking tours and complemented by water related investigations in the school science center. Third grade students will be responsible for mapping the Discover Joppa trail as an assessment of newly learned mapping skills. The centerpiece of this part of the project will be the construction of a classroom estuary in the science center. Here 4th grade students will monitor the impact of our social systems on our natural systems. After considering how humans have impacted the estuary, students will determine the condition of the estuary model by learning how to help maintain aquatic systems, monitoring temperature and ph, indexing invertebrate survival, and measuring the effects of pollution. Transferring these skills learned indoors to the outside, a comparison can be drawn to their own neighborhood estuary. This knowledge will help them understand the issues involved in the island sewer extension project and help them to foster a sense of stewardship for their local waterway.

Challenges facing GW Brown School include budget issues. The school budget has taken a significant cut which may lead to the shift for John Halloran back into the classroom in another school thus breaking up a team and closure of the science center in the school.

STATE EDUCATION AND ENVIRONMENT ROUNDTABLE SEMINARS

Gregg Swanzey has served as the Massachusetts delegate to SEER since Massachusetts came on as one of sixteen EIC States in Fall 2001. To download the reports of any of the SEER Seminars please go to http://www.seer.org/pages/seminars.html.

The 12th Seminar was in Austin, TX in October 2001 focused on:

- Phase III of SEER's operations;
- National Partnerships including the Education and Environment Partnership and the Coalition for Community Schools;
- State Plans;
- Recent Accomplishments in SEER States;
- State-based EIC Demonstration Networks;
- Connecting with School Principals;
- Research into the Efficacy of environment-based education;
- Role of the Geographic Information System (GIS) in Environment-based Education; and,
- Planning for the 13th SEER Seminar..

The 13th in Kenilworth, NJ in May 2002 focused on:

- Partnerships with national community-based organizations;
- State-based EIC Demonstration Networks;
- Role of math in environment-based programs;
- Visits to two of New Jersey's EIC Demonstration schools;
- Role of coaches in developing and supporting State-based EIC Demonstration Networks; and,
- Function of community-based partners in supporting EIC network schools;

The 14th Seminar in Atlanta, GA May 3-7, 2003. focused on:

- The Changing Educational Landscape (NCLB Act);
- Implementing Pennsylvania's Environment and Ecology Standards [Dr. Patricia Vathis, of the Pennsylvania Department of Education, led a session on the work that has been done in her state to implement their legislated environment and ecology standards. [Please see http://www.pde.state.pa.us/k12/lib/k12/envec.pdf]
- Visits to two of Georgia's EIC Demonstration schools; and,
- National and State EE Certification Efforts.

Summary prepared Gregg Swanzey, Executive Director of the Schooner Ernestina Commission, with images and descriptions from all the EIC Teams and coaches and by Polly Zajac, EIC Evaluator.. Thanks also to Jerry and Grace Leiberman and Linda Hoody at SEER.. Please see http://www.seer.org Date: 6/18/03

SEER

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