

## The Best Field Trip Ever:

An Artistic and Scientific Analysis of the Value of Field Trips to an Environmental Center

Co-Authored by Kathleen Ruen, Lars Freeman, Victoria Garufi, and Kim Ferguson  
March 21, 2017



### Abstract:

The Center for the Urban River at Beczak is a 3900-square-foot environmental education and research facility located on 2 acres of Hudson riverfront park in downtown Yonkers. It is operated by Sarah Lawrence College in cooperation with the Beczak Environmental Education Center. The objective of this study was to measure the effects of a field trip to CURB on students' environmental empathy, environmental engagement, cultural awareness, and interest in CURB. This was achieved with qualitative and quantitative measures, including a multi-case study (Bogdan & Biklen, 1998) and a quantitative survey. The qualitative multi-case study, in the field of participatory action research (Denzin & Lincoln, 2000), included note-taking and observation of students attending CURB programs.

## Introduction

This study is a collaboration between two scientists and two artists. Artist Dr. Kathleen Ruen, Acting Director of the Graduate Art of Teaching Program at Sarah Lawrence and scientists Victoria Garufi, Director of Education at the Center for the Urban River at Beczak (CURB) and Dr. Kim Ferguson, Professor of Psychology at Sarah Lawrence College worked with artist Lars Freeman, a current Graduate Student in the Art of Teaching Program and fiction writer with an MFA from Sarah Lawrence's writing program to study the effects of a one-time visit to CURB on children's environmental engagement and learning. The study was funded by a two year, \$20,000 Water Resources Research Grant from Cornell's NYS Water Resource Institute and the NYS DEC Hudson River Estuary Program.

Here are the roles that each participant played:

Dr. Kathleen Ruen – **Primary Investigator who oversaw the grant process. Mentored Lars Freeman through the process of qualitative research and analysis. Created pre- and post-surveys with input from Victoria Garufi.**

Victoria Garufi – **Trained Lars Freeman in how to assist with the programs that CURB runs throughout the spring and summer months. Oversaw and monitored the delivery of pre-surveys and the collection of the post-surveys from schools that visited the center.**

Dr. Kim Ferguson – **Took the pre- and post-surveys from the first and second year and guided Lars Freeman in quantitative data analysis. Analyzed data from the second round of surveys with assistance from Sarah Lawrence Senior Yolanda Cando.**

Lars Freeman – **Spent the spring and summer of 2015 as a participant researcher, observing twenty-four (19 public schools, 4 independent schools, 1 private school) classes of children from 2<sup>nd</sup>-6<sup>th</sup> grade visiting CURB. Collected pre- and post-surveys. Kept a running log of all of his observations, coded the transcript, and from this process pulled forward qualitative themes and the meta-theme.**

In the spirit of this artistic/scientific collaboration, this paper will reflect the voice of each participant. This will be shown by identifying each piece of writing by name, and by using color coding. The methodology and samples of the raw data will be attached at the end of the paper for those who would like to look closer and replicate this study in other places. Our objective is to produce a paper that will be accessible to multiple readers: educators, academics, politicians, environmental scientists, artists, and interested citizens.

## The Best Field Trip Ever

Lars: As I pulled into the parking space, I saw children playing in Habirshaw Park behind CURB—a white modern one-story rectangular office building with a slightly sloping red shingled roof, fresh flower bushes by the entrance. It’s a very clean-looking building located on the banks of the Hudson River, featuring a riverfront lawn, a tidal marsh, a beach used for river exploration, and serves the various programs held at CURB.

Victoria: As a year-round educational community center, CURB hosts many programs such as weekend family environmental education programs, evening lecture series, and special events that are free to the community. Their diverse offerings of school-group programs provide elementary, middle, and high school students with experiential science education and environmental awareness that prepares them not only for college and career but for a life of stewardship. They annually deliver approximately 200 education programs serving 4,000-5,000 local students, plus hundreds of teachers and parents.

Lars: Today the 3rd grade of a NYC independent school had signed up for seining, a hallmark of CURB’s Hudson River Exploration School Programs. It was a sunny day and they had arrived a little early. Soon enough the children were called in by their teachers. The children rushed to the back door, which opens up to the park and is in clear view of the Hudson and the Palisades, and then slowed down as they entered. Inside the main room—an airy open space with a high ceiling supported by thick wooden beams—they put their backpacks in the cubbies and were given a few minutes to look around before class started. The children enthusiastically scattered to the various fish tanks lining the walls of the room, displaying animals that directly came from the Hudson, such as Blue Crabs, Sea Turtles, and Eels. Some of the children went up to the life-size model of the Atlantic Sturgeon in the back, and a few others went to the front of the class where they bent over and scrutinized a 3-D model representing the passage of the Hudson River. After a little while, Victoria (the Director of Education at CURB) came into the main room, welcomed the teachers and parent chaperons, discussed some details about the day’s seining session, and made her way to the front of the room. The children settled into the rows of chairs.

“What do you know about the Hudson?” Victoria asked.

A boy in the middle row shot up his hand and said that it was named after Henry Hudson.

“That’s right,” Victoria said. “What else?”

“It’s dirty and there isn’t much in it,” said a girl in the front row.

“That’s a big misconception,” Victoria said. “As you’ll experience today, there’s actually a lot of animal life in the Hudson. Look around at the fish in the tanks.”

The children twisted their bodies and turned their heads.

“Do you think we bought them or found them right outside in the Hudson?” Victoria asked.

“In the Hudson!” the children shouted in unison.

“Yes,” Victoria said. “And it’s our responsibility to take care of the Hudson so that life can continue to grow and flourish.”

Now and then highlighting images and diagrams on a large touchscreen computer, Victoria went over facts about the Hudson River, explaining that its source started at Lake Tear of the Clouds, in the Adirondack Mountains, and was the highest body of water in New York State, flowing through the Hudson Valley and emptying out into the Atlantic Ocean. She went over the length of the Hudson and the uniqueness of it being a tidal estuary, meaning the part of the river where the salt water from the Atlantic mixes with the fresh water from Lake Tear, creating brackish water. Referring to the tides, she asked if the class had ever been to the beach, to which they replied that they had. She then asked if they'd ever built a sand castle. They nodded.

“And have seen how the sand castle breaks down, deteriorates, over time?” Victoria asked.

“Yes,” they said.

“That’s because of the tide,” Victoria said.

Victoria reviewed the safety rules for seining. She put on a pair of waders to show the class how to fasten them properly. With pictures on the touchscreen, she asked the class if they could name the animals they might potentially catch, such as Blue Crab, Northern Pipefish, Goldfish, Mummichog, American Eel, Striped Bass, and Banded Killifish. As the images flashed and enlarged on the screen, the children started banging their feet on the ground in excitement. Victoria explained that not everyone had to hold an animal but if they wanted to they would have to hold it in a certain way. She made a bowl with her hands and lifted it up.

“This is my fish bowl,” Victoria said. “If you want to hold an animal this is how to hold it.”

“Why?” asked a boy in the back row.

“Because,” Victoria said, “it’s being taken out of its natural environment, and you want to protect and care for the animal.”

Victoria said the children would be broken up into groups A and B, and while one went seining the other would go on a scavenger hunt in the tidal marsh where they were allowed to freely explore and see if they could locate the list of things on the clipboard, such as the Fiddler Crab, animal tracks, and water chestnut. A girl in a green hoodie and pink sneakers asked if everybody got to go fishing and do the scavenger hunt.

“Of course. We’re fair here,” Victoria said with a smile. “Is everyone ready?”

“Yes!” the class cheerfully screamed.

The children stood in line by the door, then made their way out and walked on the path around the park down to the beach area. They sat on logs as they took off their shoes and were aided in putting on waders.

“This feels like a space suit,” a boy exclaimed.

“Wow, this is so weird and fun,” a girl said.

The other group made their way over to the marsh, holding clipboards and standing next to their assigned partner. A few began pointing to the clipboard and out to the marsh, sometimes verbally expressing what they were seeing or hypothesizing about what they might find.

The water was calm, with slight breaks. The children stood by the fence as the first group went down to where Victoria and her co-worker Jay straightened out the seining net before the shore. Victoria showed the two children how to hold the pole, making sure they held it firmly. They watched as Jay went into the water. They smiled and then began to go into the water, at first hesitantly, but then with more confidence.

Remarking on the tightness of the water pressure around their legs, they said, “This is so weird!” and “This is so cool!”

As Jay brought the net back up onto the shore a barge with blue lining its side slowly framed itself between him and the children, behind which were the Palisades, the sun bringing out the mustard-gold of its tops. Once the net was fully on the shore, Victoria asked the children behind the fence to come down and search through the net. They began to run but then slowed to a quick walking pace. They all gathered around the 30-foot net, bodies hunched over, some kneeling, faces expressive, eyes energetically glossed over in anticipation and curiosity. As they sifted through the net, Victoria once again highlighted the importance of caring for the fish and being careful when putting them into the plastic containers.

“Oh, I found something,” a girl said. “I found something.”

“A Clam,” Victoria said, and placed the clam in the bowl the girl had made with her hands.

“A Clam, I found a Clam,” the girl said passionately and victoriously, raising her hands above her head.

Throughout the day, the groups found Clams, Atlantic Silversides, Killifish, Shrimp, Blue Crabs, and Striped-Bass. During one session, as a boy and his buddy approached the shore, looking at his classmates lining the fence, with a big smile, his chin held high, he exclaimed, “This is the Best field trip EVER!” His buddy, seeing his Romanesque stance, repeated it, and then the children behind the fence began chanting it, a few doing a little side-step dance.

### Themes and the Meta-Theme

Kathleen: Lars Freeman, a Sarah Lawrence College Graduate student in education, observed and participated in field trips to CURB. He took notes, interviewed children as appropriate on site, and kept a detailed log of his daily observations of the trips. With my guidance, Lars went through his log and coded categories in order to discover themes and a meta-theme which best reflected his analysis. Ely et al. (1997) describe themes as “a statement of meaning that (1) runs through all or most of pertinent data, or (2) one in the minority that carries heavy emotional or factual impact” (p.206).

The Meta-Theme of the study emerged first, through multiple observations of children saying the exact phrase or an expression that came very close. Understanding the strength of the meta-theme allowed Lars to engage a class of children in a conversation after their trip to CURB, which revealed the themes/categories residing within “The Best Field Trip Ever.”

Lars: In early June I visited an elementary school which had recently participated in a seining session. The 4th grade class made their way into the gym (it was too hot outside) and sat down, making three rows. I sat down as well, facing the rows of children. I said that other schools who had been to CURB had expressed that it was the best field trip ever. I asked them if they agreed. I emphasized that all answers were acceptable, that not being in agreement was no better or worse than being in agreement. In response to my question, more than 90 percent of the class nodded their heads vehemently, for a second bringing into focus the detailing lining the gym’s back walls.

“Okay,” I said. “So why? Why was this the best field trip ever?” Again, I mentioned that there was no right or wrong answer, that they could share whatever came to mind or felt true to their experience. In the front row a boy said it was the Blue Crab.

“What about it?” I asked.

“I was able to hold it out of the net,” he said. “I could look at it real close.”

“The fish in the tanks,” chimed in a girl to the left. “I liked watching them move back and forth, up and down.”

“Have you seen fish in tanks before?” I asked.

“Yes,” she said, “but they were not all around the room, and there they were, and it was like I was somewhere else but I wasn’t. It was like being in a place that I knew but I didn’t really.”

In the back row a girl said, “Yeah, I liked the turtles in the tanks, they looked cute and old.”

The class laughed.

“Digging in the mud,” a boy said in the middle row.

“What was it about that experience?” I asked.

“Just digging and looking,” he said.

“And possibly finding, discovering something?” I ventured.

“Yeah,” he said.

“Putting on the waders and wearing them in the water,” a girl said in the back. “It was like I was another person and they felt so weird in the water,” she said, “but it was super fun.”

“I really enjoyed learning about the Hudson,” a boy said directly to my right. “It’s not as dirty as people think, you know?” he said sincerely.

“I agree,” I said.

“I didn’t know so many animals lived in it,” a girl said in the back. “It makes you think about, like, what you know and what you don’t know.”

In hearing the varying responses from the children, I was finally able to discard my reason for why this was the best field trip ever. Being outdoors was an indispensable part of the experience, but it was secondary not primary. It was a backdrop. The answers the children gave were much subtler than I had anticipated.

**Kathleen:** The subtlety that Lars understood brought him back to his log, where he pulled forward parts of the field trip that represented larger, metaphoric themes. These themes are presented below with examples and if needed, a short written analysis.

### ***1. Familiar to the unfamiliar:***

**Lars:** \*Introduction to the Hudson and the particulars of chosen program by CURB staff.

\*Use of images and analogies that the children could relate to, such as “sand castle” to illustrate the Tide Cycle or “salad dressing” to illustrate oil levels.

\*The personalization of “my” when marking the passage of the Hudson River and referring to the natural environment, creating a sense of shared responsibility.

At CURB, there was a great deal of relevancy, which led to understanding and established trust and faith and a feeling of safety, allowing the children’s sense of wonder to freely guide them in their explorations. And because of the personalized experiential connections relevancy gives rise to, as Paolo Friere says, as learners they were given the potential to learn how to learn—to internalize, to appropriate the subject matter for themselves (Friere, 1987, p. 213). Placing the child before the program, instead of the program before the child, helped the children transition from the familiar to the unfamiliar.

### ***2. Grounding the intellectual into physical experience:***

**Lars:** \*Students carefully placing organisms on the slide.

\*A group of children standing in front of the class and holding pillows with nametags to exemplify the Striped-Bass food chain.

\*In the act of seining, students guiding the pole in the water, jointly sifting through the net once on shore, carefully handling and placing caught animals in containers.

Participation was a big component to CURB’s programs, which included Seining, Water Clean Up, Hudson River Start to Finish, and Food Chain. The staff would give a general introduction to the Hudson River, go over the details of that day’s program, but what activated and gave life to the program was the children’s participation. Because of this, the children felt a sort of duty and responsibility: the children had been given the knowledge, were entrusted with it, and though there was help there if they needed, they were able to freely explore, discover, learn—through trial and error—on their own, without restriction. They were given agency.

### ***3. Being a scientist:***

Lars: \*Students looking through microscopes during Food Chain.

\*Comparing and contrasting their observations to the list on their clipboards during the Scavenger Hunt.

\*Children examining the animals caught in seining net and keeping tally of the various species.

\*When asked what an experiment was, a boy said, “It’s something you try until it works.”

Depending on the program, the role the children assumed was based on the knowledge they’d been given. By taking on the role of a scientist, the students were trying out a different perspective, a different way to see things.

### ***4. Quality of the program:***

Lars: \*When explaining the tidal marsh, a staff member related it to the children’s experiences at the beach.

\*Asking the children about the definition of an estuary, a staff member replied that they liked to think of it as the ocean and the river shaking hands.

\*The staff used physical, visual cues, such as asking the children to hold out their left hand, which would be fresh water, and their right hand, which would be salt water, and making a propeller-motion with their hands, producing brackish water.

The staff at CURB had a lot to do with making the program enjoyable, both experientially and educationally. They were patient and tolerant. They brought relevancy to it, modifying abstract concepts in a way that the children could make sense of and relate to. Also, the children were encouraged to use their own words, weren’t bound to precise terminology, which allowed for creativity: when asked about the source of the Hudson (Lake Tear of The Clouds) and where the fresh water came from, a girl poetically said, “It comes from the clouds crying.” The staff’s focus was on the children first, then the program.

### ***5. Environmental empathy:***

Lars: \*During a seining session in April when the class hadn’t caught anything, a staff member took the opportunity outside to talk about personal responsibility and the environment, the misconception about the Hudson being dirty and having no animal life, and the importance of active environmental involvement—“because this river is just as much yours as anybody else’s.”

\*Toward the end of a Water Clean Up session, in which children are provided supplies to get chemicals out of contaminated water in test tubes, a staff member asked, “Can I take all the water out of the Hudson and put it back?” “No!” the children shouted. “So,” the teacher said, “it’s not as easy as cleaning the water in these tubes.”

\*The staff took their time to show the children how to care for the animals they caught, using expressions such as “show me your fish-bowl.”

The staff modeled environmental empathy, engagement and stewardship, and the children heard these ideas deeply and mirrored them back in their own words and actions. A memorable scene during a seining session was when a teacher took a piece of Styrofoam out of the net and went up to the fence-line where the children waited in groups. She explained how Styrofoam was bad for the environment, how it didn’t breakdown easily and gave out chemicals when it got wet, contaminating the water supply. She went on to say that it was their responsibility to take care of their environment, to be conscientious of what they took out and put into it. The children were very attentive as the teacher spoke. When teacher finished, a girl, very seriously and definitively said, “If I become president I will make littering illegal!”

## Survey Results

**Kathleen:** The quantitative survey consisted of a pre- and post-fieldtrip survey. This survey was based on the survey used in a study of the value of field trips to art museums (Greene, Kisida & Bowen, 2014). The survey included items gauging both knowledge about water ecology and empathy and sustained interest in visiting CURB. The pre- and post-surveys were identical, consisting of 4 questions on knowledge of the Hudson River and a drawing of what might be found in the Hudson River. The post-survey asked an additional question of what was remembered from the field trip. The students were asked to fill out the pre-survey before their visit to CURB. The post-survey was filled out at least a week after their visit to CURB.

**Kim:** In 2015, a total of twenty-four (19 public school, 4 independent school, 1 private school) classes of children from 2<sup>nd</sup> grade-6<sup>th</sup> grade participated. Across all participating schools, students received a significantly higher score on the post- ( $M = 80.50\%$ ,  $SD = 13.95$ ) than on the pre-survey ( $M = 47.46\%$ ,  $SD = 22/57$ ),  $t(23) = 8.99$ ,  $p < .0001$ . These findings held true for students attending both private and public schools,  $t(5) = 4.51$ ,  $p = .003$  and  $t(17) = 7.56$ ,  $p < .001$ , respectively.

In 2016, a total of 267 Kindergarten through 6<sup>th</sup> grade children completed the pre- and post-surveys. Again, in a t-test for correlated samples, children performed significantly better on the post-test ( $M = 84.14\%$ ,  $SD = 27.31$ ) than on the pre-test ( $M = 63.30\%$ ,  $SD = 36.46$ ),  $t(266) = 10.20$ ,  $p < .0001$  (see Figure 1). These findings held true for students attending both private (pre-test  $M = 85.88\%$ ,  $SD = 24.94$ ; post-test  $M = 94.44\%$ ,  $SD = 16.50$ ) and public (pre-test  $M = 53.77\%$ ,  $SD = 36.45$ ; post-test  $M = 79.88\%$ ,  $SD = 29.71$ ) schools,  $t(77) = 4.16$ ,  $p < .0001$  and  $t(188) = 9.69$ ,  $p < .0001$ , respectively (see Figure 2). Thus, the quantitative data indeed suggest

that, in terms of children’s learning about and engagement in the natural environment, their visit to CURB could indeed be considered “The Best Field Trip Ever”.

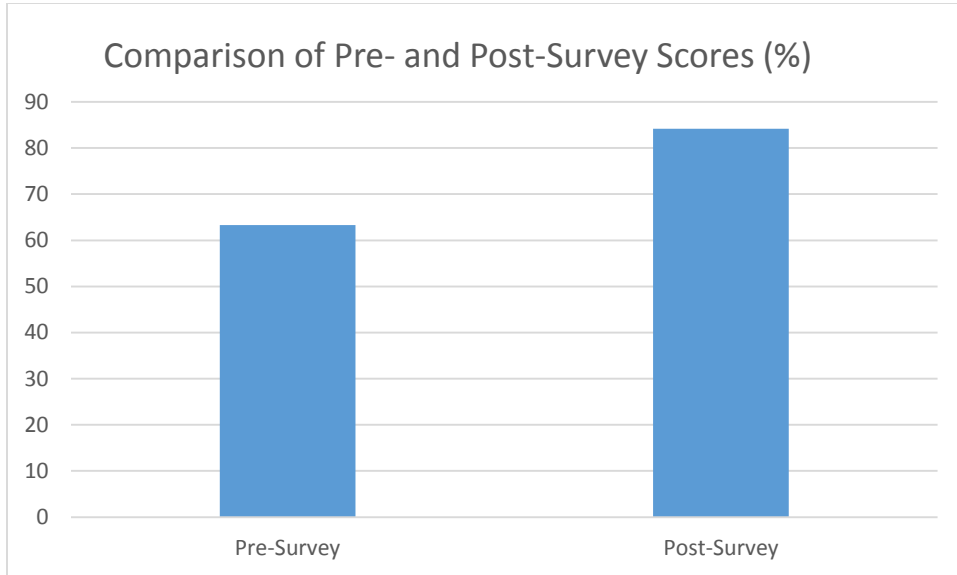


Figure 1. Comparison of pre- and post-survey scores (%).

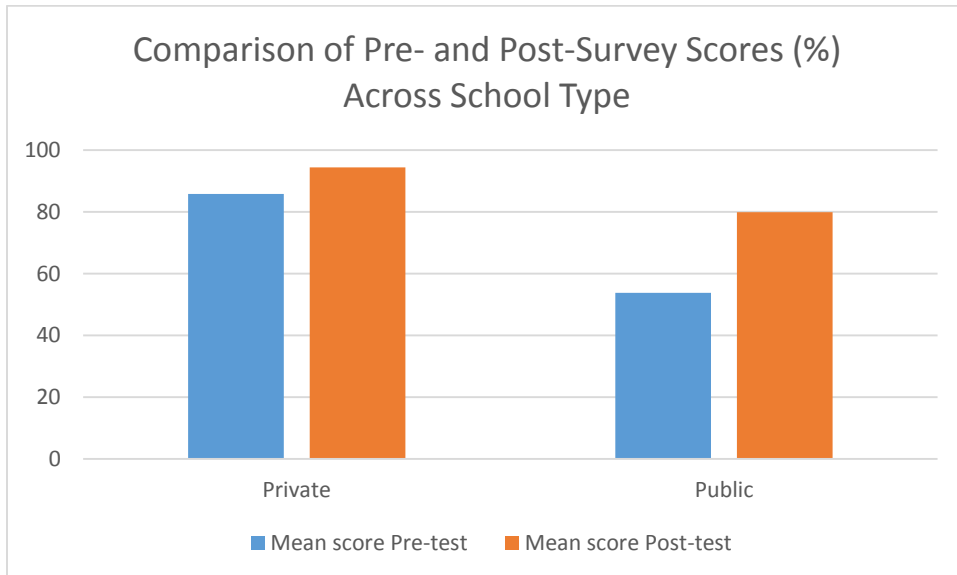


Figure 2. Comparison of pre- and post-survey scores (%) across school type.

## Summary

What is the value of a one-time field trip to a hands on environmental center? How can the impact of this experience be measured and communicated in a way that is ethical? It is the opinion of all of the authors (Kathleen, Lars, Victoria, and Kim) that these questions have been answered in this paper. Using artful and scientific lenses, the data strongly shows that a field trip to CURB can have a deep and lasting impact on children's environmental empathy, environmental engagement, cultural awareness, and interest in CURB. Environmental educators like Victoria Garufi already know that their work has profound effects. It is our hope that the results of this study will help in the advocacy of providing quality, hands-on educational field trips for all children, and help the citizenry re-think what a true educational experience looks like.

Lars: Though the quantitative part of our data was important, it was not what was essential. What was essential was the qualitative aspect of the research—of being there, of seeing the children individually and collectively interact with their respective program, the unique, irreplaceable relationships and connections the children made to their natural surroundings—the kind of learning that cannot be statistically measured, the kind of complex and subtle learning that is full and complete, formally and intimately connected to experience. In Salvatore Vascellaro's *Out of the Classroom and into the World*, there is this realization by a teacher researching and developing her thesis on the Native Americans of Long Island, from a sight she has read a great deal about but never visited: "She realized the profound difference between the knowing of something casually and experiencing it" (Vascellaro, 2011, p. 51).

## Conclusion-An Unexpected Scene

Lars: 6/11/15, 10am-1pm, Seining. Between the two groups there was a lunch break during which I went down to the beach where the children had been seining. I sat on a rock looking out over the water, thinking about what I'd seen so far and generally about my research, some of the themes that were emerging. At one point, I heard two bikes pull up behind me. I turned around. Two teenagers were at the fence-line. One of them was saying that he'd been here when he was younger. He'd attended one of the programs. I didn't want to interfere or interrupt him, but that he and his buddy didn't seem like your run-of-the-mill environmentalists, and given that it was summer and they could be involved in any number of other activities but had decided to come down here, to say the least, intrigued me. I introduced myself somewhat informally. I asked him when he had attended the program. He didn't answer it directly. We got to talking. I found out he was in 10th grade, had come on a trip with his brothers and his mom (a teacher) when he was in 6th grade. Fairly neutrally, I explained the research I was doing and being in the qualitative/quantitative state of mind, I asked him to rate his experience, using 10 as the highest. He gave it a 9. He said he hadn't expected to find so much life in Hudson. "So," I said, "when you were sitting and hearing the introduction and the possible fish you might catch you didn't really think that you would catch any of them in the Hudson?" "Yeah," he said. "I thought it was dead in there," he said, pointing to the rippling water at the shore-line. "I thought there was nothing in there and it was dirty. Boy, was I wrong. We had a great time." "What's one thing that really stuck out to you?" I asked. "Well...it wasn't really just one thing. It was an accumulation of things. I liked that we were outside. Physically there. I don't know...but you know now I'm all interested in this kind of stuff and plan to go to college for environmental science."

## Bibliography

- Blatt, E., & Patrick, P. (2014). An Exploration of Pre-Service Teachers' Experiences in Outdoor 'Places' and Intentions for Teaching in the Outdoors. *International Journal of Science Education*, 36(13), 2243-2264.
- Bogdan C. Robert, Biklen K. Sari. (1998). *Qualitative Research for Education Introduction to Theories and Methods*. Boston, MA: Allyn & Bacon.
- Carrier, S. J., Thomson, M. M., Tugurian, L. P., & Stevenson, K. T. (2014). Elementary Science Education in Classrooms and Outdoors: Stakeholder views, gender, ethnicity, and testing. *International Journal Of Science Education*, 36(13), 2195-2220.
- Denzin K. Norman, Lincoln S. Yvonna. (2000). *Handbook of Qualitative Research Second Edition*. London: Sage Publications.
- Dewey, John, and Martin S. Dworkin. (1959). *Dewey on Education: Selections*. New York: Bureau of Publications: Teachers College, Columbia University.
- Ely, M. with Anzul, M., Freidman, T., Garner, D., & McCormack Steinmetz, A. (1991). *Doing Qualitative Research: Circles Within Circles*. London: The Falmer Press.
- Ely, M. with Vinz, R., Downing, M., & Anzul, M. (1997). *On Writing Qualitative Research: Living by Words*. London: The Falmer Press.
- Eisner, E. W. (2002). *The Arts and the Creation of Mind*. New Haven and London: Yale University Center.
- Friere, Paulo, and Ira Shor. (1987). *Freire for the Classroom: A Sourcebook for Liberatory Teaching*. Portsmouth, New Hampshire: Boynton/Cook.
- Gallas, K. (1994). *The Languages of Learning: How Children Talk, Write, Dance, Draw, and Sing their Understanding of the World*. New York, New York: Teacher's College Press.
- Greene, J.P., Kisida, B., Bowen, D.H. (2014). The Educational Value of Field Trips. *Education Next*, Winter 2014, 79-86.
- Lawrence-Lightfoot, S. (1997). *The Art and Science of Portraiture*. San Franscisco, CA: Josey-Bass.
- Ross, M. (Ed.) (1985). *The Aesthetic in Education*. Oxford: Pergamom Press.
- Ruen, K. (2005). *Artists Talk About Teaching: Three Artists' Experience at the Same Elementary School*. Ann Arbor, MI. ProQuest Information and Learning Company.
- Saxton, J. and Miller, C. (Eds.) (1998). *Drama and Theater in Education: The Research of Practice: The Practice of Research*. Victoria, BC: IDEA Publications.

- Taylor, Denny. (1993). *From the Child's Point of View*. Portsmouth, NH: Heinemann.
- Taylor, P. (Ed.) (1996). *Researching Drama and Arts Education: Paradigms and Possibilities*. London: The Falmer Press.
- Tülay, Ö. (2014). Increasing Social Studies Teacher Candidates' Awareness and Sensitivity towards Environmental Problems with applied field trip Method. *International Journal Of Social Sciences & Education*, 4(4), 863-880.
- Vascellaro, S. (2011). *Out of the Classroom and Into the World: Learning from Field Trips, Educating from Experience, and Unlocking the Potential of Our Students and Teachers*. New York, New York: The New Press.
- Wolcott, H.F. (1990). *Writing up Qualitative Research*. London: Sage Publications.

## Appendix I: Review of Literature and Qualitative Methodology

**Kathleen:** The impetus of this study was based heavily on an article, “The Educational Value of Field Trips” (Greene, Kisida & Bowen, 2014), which found a way to quantify the value of field trips on children’s empathy, critical thinking, and interest in art museums. This study showed the positive results of students taking one visit to an art museum, and found that this experience was retained in the students’ memories and had significant positive effects. The value of field trips has been fully investigated in the book *Out of the Classroom and Into the World* by Salvatore Vascellaro (2011), where interviews of teachers-in-training reflect on the transformative effect of their week long social studies fieldtrips as students at Bank Street College. The book also documents three class curriculums where field trips into the community were the basis of social studies learning, and through observations of the children involved, showed how the field trips created empathy and community within the classroom and toward the larger community. A search through contemporary research journals resulted in a handful of studies that were relevant to the research and the subject matter (environmental science) proposed, but most were directed at teachers-in-training (Blatt & Patrick, 2014; Tulay, 2014), similar to the book described above. One of these articles documented the use of field trips to a water treatment plant in order to change the mindset of teachers in training in Turkey (Tulay, 2014). The study which had the closest connection was one describing the science and outdoor education of two elementary schools (Carrier, Thompson, Turgurian, & Stevenson, 2014). This study looked at the attitudes toward science using a pre and post- test methodology, which resulted in findings of gender and ethnic differences toward the subject matter, and how the pressures of standardized testing influenced the children’s attitudes. There were no studies found which aimed to measure the change in attitudes toward the environment after one or more field trip visits to an interactive environmental center using qualitative and quantitative methodologies.

Our goal for the two year, \$20,000 Water Resources Research Grant from Cornell’s NYS Water Resource Institute and the NYS DEC Hudson River Estuary Program was to demonstrate how field trips are an integral part of the educational process and, in this particular case, produce environmental engagement, environmental empathy, interest in educational organizations such as CURB, and overall cultural and community awareness. Furthermore, we wanted to shed light on the value of hands-on field trip experiences that are outside the classroom and add to existing research on the value of field trips in education. The primary research tool was a qualitative multi-case study in the field of participatory action research (Denzin & Lincoln, 2000). As a participant researcher, Lars Freeman observed and assisted in school programs at CURB throughout the spring and summer of 2015. He took notes, interviewed children as appropriate on site, and kept a detailed log of his daily observations of the trips. With the guidance of Dr. Kathleen Ruen, Lars Freeman went through his log and coded categories in order to discover themes and a meta-theme which best reflected his analysis. Ely et al. describe themes as “a statement of meaning that (1) runs through all or most of pertinent data, or (2) one in the minority that carries heavy emotional or factual impact” (Ely et al, 1997, p.206). The analysis of the data was honed and presented through the act of writing. “Writing offers a private way to capture and give form to sometimes too-elusive ideas “(Wolcott, 1990, p.22). Lars Freeman’s expertise as a fiction writer enabled him to take data and merge it into a narrative that expressed the findings in an artful and highly communicative form. It is appropriate that an artist would take on the role of a qualitative researcher to look at children’s responses to a field trip, as there

are many in the field who understand that “art and the sight of artists (is) a form of research in which to look at education” (Ruen, 2005, p 236). (Ross, 1985; Taylor ed., 1996; Lawrence-Lightfoot, 1997; Ely et al, 1991, 1997; Saxton and Miller ed., 1998, Eisner, 2002; and Gallas, 1994)

## Appendix II: Stance of the researcher

Lars: In the beginning of my research at CURB, where I was to spend the majority of late spring into the summer, I was slightly nervous about my involvement. I wasn't exactly sure how I would proceed with the qualitative data. I'd talked with my advisor, Dr. Kathleen Ruen. I asked what I should be looking for during my observations. I wanted a thematic lens through which I could filter what I was seeing, wanted something more foundational. My advisor suggested that I strictly observe, using myself as an objective tool for my observations. “For now, that is your foundation,” she said. She said that I should approach my observations with a neutral, unbiased attention to detail, and that over a period of time certain patterns would emerge which would become my themes. She said if you need some structure and feel that you are at a loss for how to organize your thoughts, keep in mind the main question: *The Value of Field Trips to CURB*.

As I continued my research, I still found myself at a loss. The question seemed too expansive. I was having a hard time letting go, allowing my imagination and instincts to guide me in unearthing patterns. I could sense myself forcing ideas. It all felt superimposed, and then it didn't.

In mid-April, during a seining session for the 6<sup>th</sup> grade of a public school in Yonkers, a girl with a playfully excited face, cautiously holding the pincers of a small Blue Crab, exclaimed, “The most fun thing ever. The best ever!” She said this as she placed the Crab in the water-filled container. This was the second time I'd heard it—the best field trip ever, or very close approximations to it. The first time was from an independent school in late May. It made me reflect and I remembered what a teacher had once told me about symbols. She said that the first time you heard or saw something it was most likely due to chance, of not much value. The second time it was worth noticing, had a little more meaning. The third time it required your attention, became necessarily relevant. I kept hoping that in the following days I would hear it once again. Unfortunately, I didn't.

Then, the following week, with more practice in replacing my ego with a trust in being an active spectator, allowing my observations to naturally direct me, I heard it for the magical third time.

It was early May. The 2<sup>nd</sup> grade of an independent school from the Bronx had signed up for seining. It was a chilly day, slightly windy and partly cloudy, the sun intermittently coming out, small brownish-gray waves and their white caps. Off to the left, a large square of sun seemed to permanently frame the Palisades.

Putting on her waders and pressing on the rubber of the boot, a girl said, “My shoe is like a desert.”

Her classmates waited their turn by the fence, watching the group of two boys coming up on the shore.

“We got some Crabs!” yelled one of the boys.

“Wow,” a girl said.

“That’s 9 Blue Crabs,” a boy said, prominently between the end of the fence and the beginning of the marsh who’d mentally been keeping tally.

Down near the shoreline by the big rocks, I overheard two boys talking about sea glass, which they held in the open palm of their hands. One was telling the other sea glass is glass that’s been in the water so long it’s no longer sharp. “It’s so cool,” the other boy said.

One of the last groups to sein caught a big Eel, which had the girth of a python and was hard to keep in the net. The class grouped around, everyone trying to keep the Eel in the net while being careful not to hurt it. Eventually, the Eel slithered away. A teacher proudly said, “Thumbs up for group effort.”

As the class walked up to the sandy path and sat down on the logs to take off their waders, I noticed a boy peacefully standing before the shore by himself. He was tugging at the straps of his waders and as if personally speaking to the Hudson, acknowledging its presence and assessing his experience, he said, “That was fun. Yeah, this was the best ever.” He then quickly turned around and ran up the sandy path.

After hearing the boy say that, I felt like I was getting closer. *This was the best field trip ever* was more specific than *the value of fields trips*. Yet the remarkable and overarching sentiment—*this is the best field trip ever*—still seemed too theoretical, too amorphous. I felt it needed more of a shape—a face and a voice. It needed to be brought down even further to a particular, practical level, so I could possibly examine more closely the mechanics, the how and why. Up to this point, my reason for why this might be considered the best field trip in the children’s eyes primarily rested on the ill-conceived idea that the children were outside. Of course, there might be some other factors involved, but the main reason the children felt the way they did was because they were not inside some stuffy classroom. It seemed obvious: if given the choice, who wouldn’t want to be outside?

As the weeks passed, at least once a week, usually two or three times, a child would verbally express their overwhelming joy about their experience. These joyful expressions about their CURB experience took place indoors as well as outdoors. Because of this, I had to admit to myself that I was being singular and narrow-minded, that there was something else going on, something that I was completely missing. My way of thinking wasn’t very equitable. To think the exuberance that came from the children’s experience at CURB solely rested on their exposure to being outdoors meant discrediting the thoughtfully planned-out programs and the knowledgeable and caring staff and educators. More importantly, it limited and discredited the children themselves as seekers of meaning, in opposition to the Deweyan idea that the child is a unity, wholly conscious, self-referential, experientially independent, and intellectually coherent (Dewey, 1959, p. 93).

## Appendix III: Quantitative Methodology, Data analysis, and conclusions

### 1. Methodology

**Kathleen:** The quantitative survey consisted of a pre- and post-fieldtrip survey. This survey was based on the survey used in a study of the value of field trips to art museums (Greene, Kisida & Bowen, 2014). The survey included items gauging both knowledge about water ecology and empathy and sustained interest in visiting CURB. The pre- and post- surveys were identical, consisting of 4 questions on knowledge of the Hudson River and a drawing of what might be found in the Hudson River. The post- survey asked an additional question of what was remembered from the field trip. The students were asked to fill out the pre- survey before their visit to CURB. The post- survey was filled out a week after their visit to CURB.

### 2. Data Analysis

#### **t-Test: Correlated Samples CURB Results-2015**

Pre and Post All Programs-Public and Private:  $t(23) = 8.99, p < .0001$

Pre and Post All Programs-Public:  $t(17) = 7.56, p < .0001$

Pre and Post All Programs-Private:  $t(5) = 4.51, p = .003$

Pre and Post Seining-Public and Private:  $t(13) = 5.78, p < .0001$

Pre and Post Seining-Public:  $t(8) = 4.83, p = .0006$

Pre and Post Seining-Private:  $t(4) = 6.33, p = .002$

Pre and Post Water Clean Up-Public and Private:  $t(2) = 3.56, p = .004$

Pre and Post Food Chain-Public:  $t(6) = 4.54, p = .002$

#### **t-Test: Correlated Samples CURB Results-2016**

Pre- and Post All Programs Public & Private:  $t(266) = 10.20, p < .0001$

### 3. Quantitative conclusions

**Kim:** Across all program types and schools, children performed significantly better on the post- than pre-test surveys, providing clear evidence that they had developed greater environmental awareness and knowledge as a result of participating in CURB's programs.

Appendix IV: Pre- and Post-surveys for 2016 with 1:1

For the second year of the grant, we added a question at the beginning of the survey (children circled their birth month and day) so we would be able to have a 1:1 match between pre-post responses. The results from these surveys will be published in a later article.

**Pre- Trip Survey**

**Please circle your answer:**

**1. When is your birthday?**

Month				Day											
1. January	2. February	3. March	4. April	1	2	3	4	5	6	7	8	9	10	11	12
5. May	6. June	7. July	8. August	13	14	15	16	17	18	19	20	21	22		
9. Sept	10. Oct	11. Nov	12. Dec	23	24	25	26	27	28	29	30	31			

**2. Have you been to the Center for the Urban River at Beczak (CURB)?**

Yes

No

**3. What word describes the kind of water found in the Hudson River Estuary?**

Fresh

Brackish

Salt

**4. Where does the Hudson River begin?**

Lake Tear of the Clouds

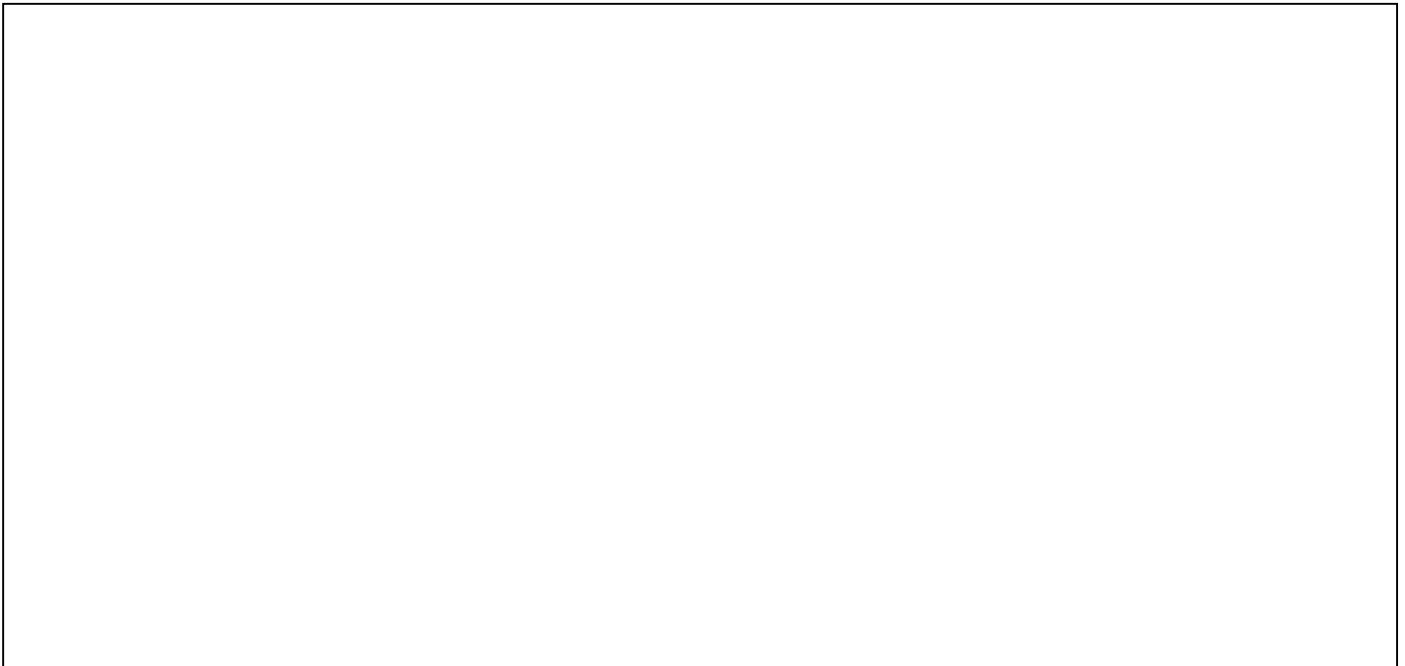
New York City Harbor

Yonkers

**5. Where does the Hudson River end?**

Lake Tear of the Clouds  
New York City Harbor  
Yonkers

**6. Draw a picture and/or write about what you might find in the Hudson River:**

A large, empty rectangular box with a thin black border, intended for a student to draw a picture or write about what they might find in the Hudson River.

## Post-Trip Survey

**Please circle your answer:**

**1. When is your birthday?**

Month				Day											
1. January	2. February	3. March	4. April	1	2	3	4	5	6	7	8	9	10	11	12
5. May	6. June	7. July	8. August	13	14	15	16	17	18	19	20	21	22		
9. Sept	10. Oct	11. Nov	12. Dec	23	24	25	26	27	28	29	30	31			

**2. What word describes the kind of water found in the Hudson River Estuary?**

Fresh  
Brackish  
Salt

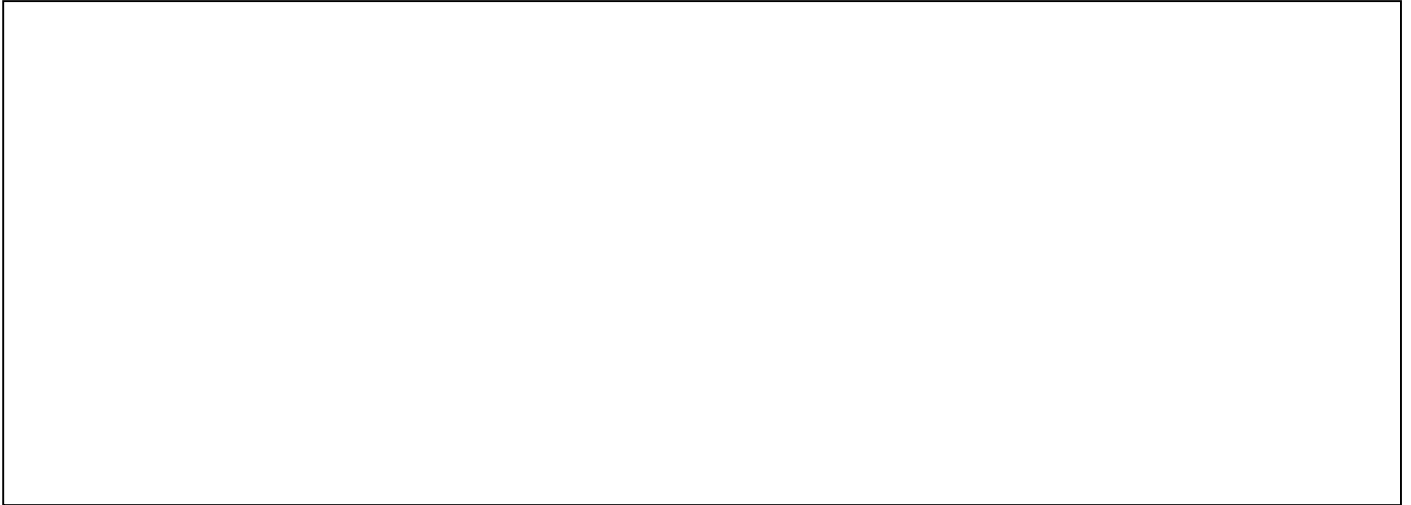
**3. Where does the Hudson River begin?**

Lake Tear of the Clouds  
New York City Harbor  
Yonkers

**4. Where does the Hudson River end?**

Lake Tear of the Clouds  
New York City Harbor  
Yonkers

**5. Write or Draw a picture about what you might find in the Hudson River:**



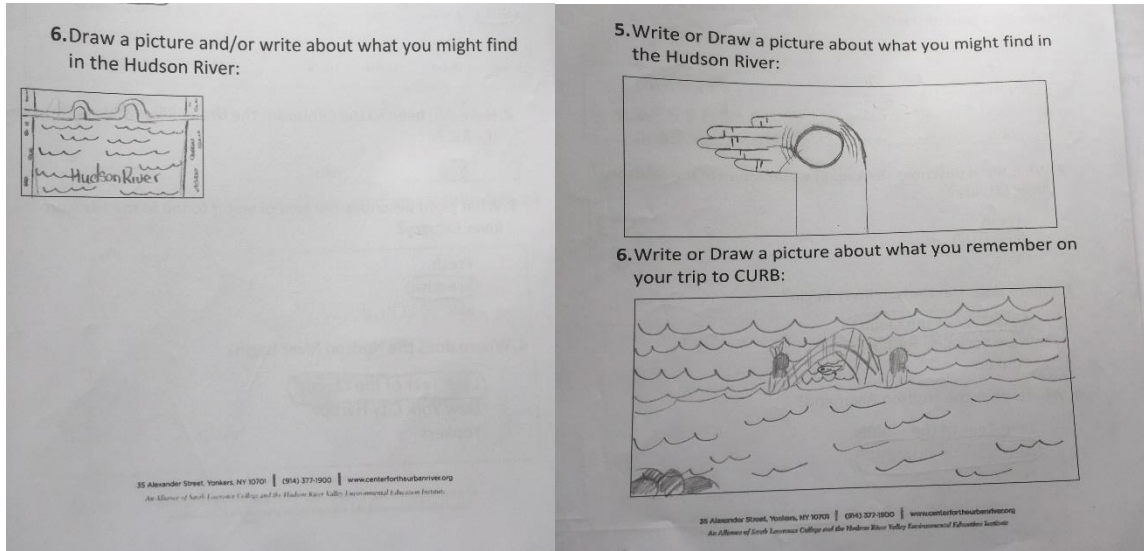
**6. Write or Draw a picture about what you remember on your trip to CURB:**



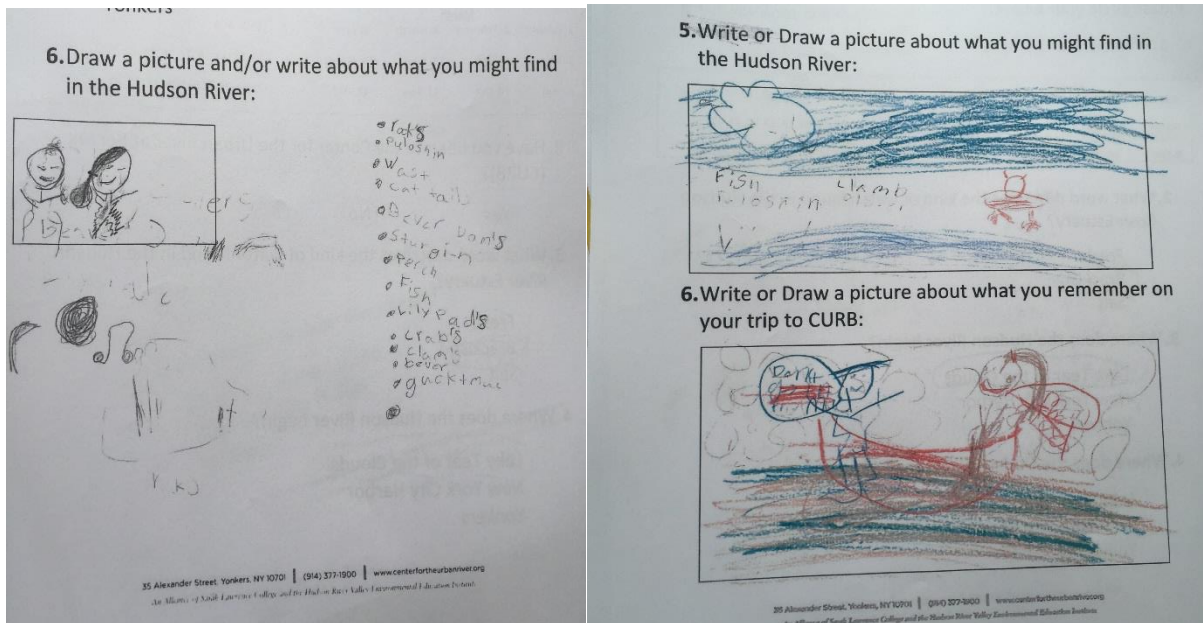
Appendix V: Pre- and Post-survey artwork by children in the study

The words and pictures that the children used to answer the open-ended questions in the pre-and post-survey have the potential for further quantitative and qualitative analysis. We have included a few 1:1 survey pictures so the reader may better understand the perspective of the children who experienced “The Best Trip Ever.”

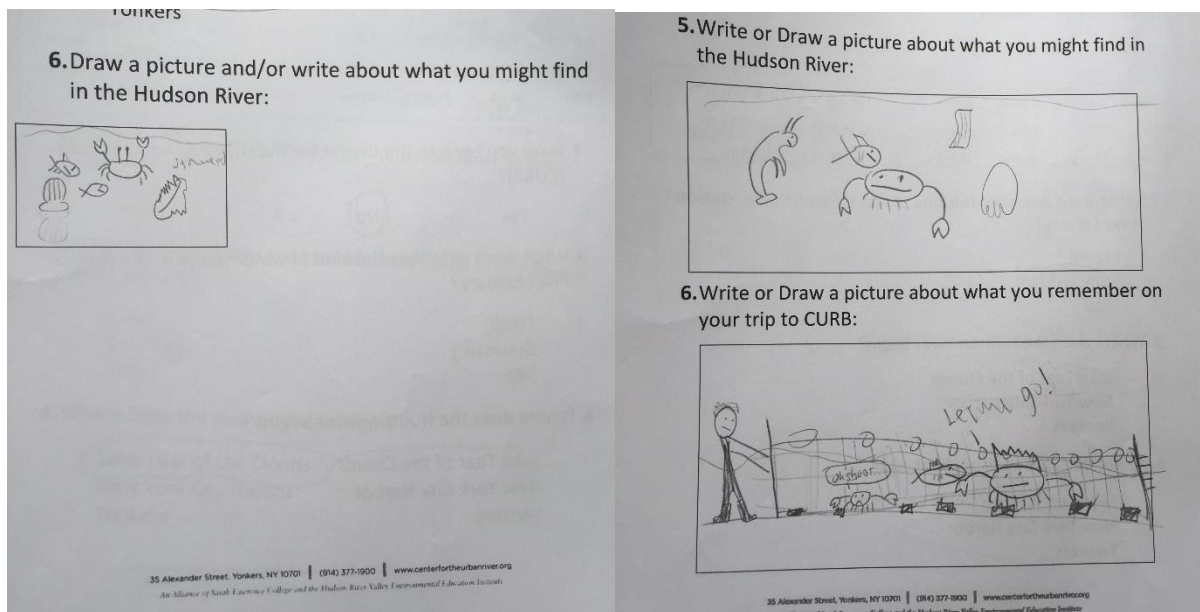
**Pre and Post images from a Yonkers public school student:**



**Pre and Post images from a Manhattan independent school student:**



**Pre and Post images from a Westchester public school student:**



**Pre and Post writing from a Yonkers 4<sup>th</sup> grade public school student (had been to CURB before)**

Pre-Survey

1. *Write or draw a picture of what you might find in the Hudson River:*

“In the Hudson River you might find lots of ducks. And you would see boats passing by. You also find little fishes and rocks. You also will find seaweed and blocks of wood where the ducks rest”

Post-Survey

1. *Write or draw a picture of what you might find in the Hudson River:*

“What you might find in the Hudson River is blue crabs, moon Jelly, American eel, mummichog. You will also find ducks, and water chestnuts.”

2. *Write or draw a picture on what you remember on your trip to CURB:*

“What I remember about my trip to the Hudson river is that I learned all about animals and the other side is the Pallisade. I also remember going in side the water and catching animals. It was the best trip ever.”