

**Audience Needs Assessment
of Kindergarten through Twelfth Grade Teachers
in Collier County, Florida**

Prepared for

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Audience Needs Assessment:
K-12 Teachers in Collier County, Florida, 2015

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BACKGROUND

In April 2014 the Friends of Rookery Bay (FORB) was awarded a Bay-Watershed Education and Training (B-WET) Program grant from the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service in the amount of \$99,812. The Principal Investigator was the Rookery Bay National Estuarine Research Reserve's (RBNERR) Education Coordinator Sarah Falkowski. The funding was used for five Gulf of Mexico National Estuarine Research Reserve's (NERR's) to conduct Teachers on the Estuary (TOTE) K-12 teacher professional development workshops. A sixth Reserve supported the project team with technology and climate change education expertise. The RBNERR Education Department also received funding to conduct a market analysis (MA) focused on kindergarten through college field-based environmental education programs and an audience needs assessment (NA) focused on kindergarten through twelfth grade teachers in Collier County, Florida.

FORB and Ms. Falkowski hired Tabitha Stadler of GeoBlue Coastal Management Solutions, a small business located in Naples, Florida, to conduct the MA and NA. This report focuses on the NA, including the purpose, methodology, and results, with discussions related to its applicability in designing and conducting a RBNERR TOTE workshop and implementing quality or quantity improvements to the programs delivered by RBNERR's Education Department.

RESEARCH GOALS AND PURPOSE

The RBNERR receives annual funding from NOAA and is part of a national system of 28 NERRS throughout the United States of America that all have hands-on, field-based science, technology, engineering and math (STEM) focused education programs for students and teachers. NOAA requires NERR education programs to conduct MA and NA research, therefore this research project and the accompanying reports are designed to fulfill RBNERR's requirements and will be reviewed by NOAA upon completion.

According to NOAA's K-12 Estuarine Education Program (KEEP) framework an MA is "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." (NOAA KEEP, 2008) An MA also supports organizational development through the following additional outcomes:

- Learning what has already been done and what gaps remain.

- More clearly determining the characteristics, factors, conditions and extent of a market.
- Understanding the potential opportunities and threats as they relate to the strengths and weaknesses of the organization.

The MA research was conducted prior to the NA and the MA summary results and conclusions can be found in Appendix C. According to NOAA's K-12 Estuarine Education Program (KEEP) framework an NA "measure(s) 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.)" (NOAA KEEP, 2008). The research goals for RBNERR's MA and NA included:

- Increase understanding of non-formal hands-on, field-based, environmental education providers, with a specific focus on those providing estuarine, coastal or ocean education, serving kindergarten through college students and teachers in Collier County, Florida,
- Increase shared understanding of RBNERR's program value and market niche,
- Assess the needs, interests and motivations of teachers for participating in field-based environmental programs, and when possible, for specifically attending RBNERR programs, and,
- Apply information gained to support program improvements and new program development at RBNERR, and throughout Collier County, Florida.

In order to clarify the research goals, several terms were defined and discussed with the RBNERR Education Department staff who determined that non-formal, field-based, and STEM-focused were the best descriptors. These were used to guide the identification of comparable programs, although environmental education was a broader term and was used in place of STEM on the questionnaire and during interviews with potential providers.

OVERVIEW OF THE MARKET ANALYSIS

The MA was conducted prior to the NA, during late 2014 and early 2015, and included a questionnaire with 36 questions and approximately nine of them were necessary to meet NOAA MA data requirements. A list of potential providers was developed through brainstorming with the RBNERR Education Department, internet research by the

Contractor, and also by asking field-based environmental education providers, when they were later contacted, if they thought anyone was missing from the potential providers list. A total of 28 potential providers were finally identified with a focus on those who were government or non-profit organizations. While there were private businesses catering to the public for ecotour programs, these were not included in this research since they were unlikely to serve students or teachers and were deemed to be of a different market sector than RBNERR.

In order to prevent unanswered questions and to provide a greater depth of information, a Provider Profile was developed for each of the 28 potential providers based on information found on their websites. The purpose of the profiles was to initially determine if they provided field-based environmental education and then also to attempt to answer as many questions as possible in advance of telephone interviews. This would allow interviewees additional time to expand on their answers to the remaining questions.

The Contractor attempted to contact each potential provider by emailing the Education Coordinator, or equivalent staff position, and sending them the questionnaire, the Providers List, and their Provider Profile. The overall response rate was 25 of 28 potential providers were interviewed, resulting in an 89% success rate. Of the 28 identified, it was found that only 12 actually provided field-based environmental education programs either to teachers or students on a regular basis. One of those providers offered a program that was for teachers and not students. These 12 became the primary focus of the MA. To determine if the potential provider was an actual provider, the following criteria were used: 1) They had to intentionally offer field-based environmental education programs either to teachers or students on a regular basis, 2) Had to have staff to deliver these programs, and 3) Marketing and/or educational materials that demonstrated their intention to deliver them. Of the 28 attempted interviews, only one was unreachable via telephone for a 92% response rate. The data for the unresponsive actual provider was gleaned from the Provider Profile and that data was used during the analysis. Additionally, providers were asked to edit their profiles and expand upon their answers to the questions provided. The contractor typed their responses into a Word document during the interview and used a semi-structured approach that allowed Providers to expand on their answers and discuss areas of interest. When a specific answer was required that had a temporal boundary, such as the number of participants served, the Contractor asked for data for the 2013-2014 school year, which was the most recently completed full year of record. Since many programs reported recent changes or ongoing changes, this research provides a snapshot of programs in Collier County, Florida during late 2014 through early 2015.

NEEDS ASSESSMENT METHODOLOGY

Based on the results of the NA and the questions required by NOAA, a survey was developed, created in the online survey program called Survey Monkey, and subsequently approved by the Education Coordinator. The survey was disseminated to Collier County Public School (CCPS) teachers by their Science Coordinator and it included 41 questions. The CCPS Science Coordinator sent the survey to his contacts at all of the CCPS schools and they were instructed to pass the survey along to all of the teachers. According to the CCPS website, there are approximately 3,100 teachers in the CCPS system. The survey remained open between April 13 through May 15 for approximately five weeks and three email reminders were sent to CCPS teachers during that time. In addition, specific emails were sent to private schools in Collier County using three different approaches: 1) RBNERR provided emails for private school teachers they had worked with before, 2) the contractor found email addresses for some private school teachers on the internet, and 3) the contractor emailed the generic email address for private schools. In total, approximately 200 additional direct emails were sent to the private school audience.

The exact number of private school teachers in Collier County is unknown. Based on the Private School Review website (www.privateschoolreview.com) there are 4,817 students at the 27 private schools in Collier County that serve kindergarten through twelfth grade students. To estimate the response rate for the NA survey, the contractor assumed an average of 1:20 teacher/student ratio and then divided the total number of students by 20 to estimate then there would be approximately 241 private school teachers. Therefore, the total approximate number of public and private school teachers in Collier County is 3,341. The survey received 196 responses, which is a 6% response rate, although this is an estimate since the exact number of teachers is unknown. This document represents the results of the NA.

SURVEY RESULTS

GENDER

The majority of teachers, 83%, taking the survey were female while only 17% were male.

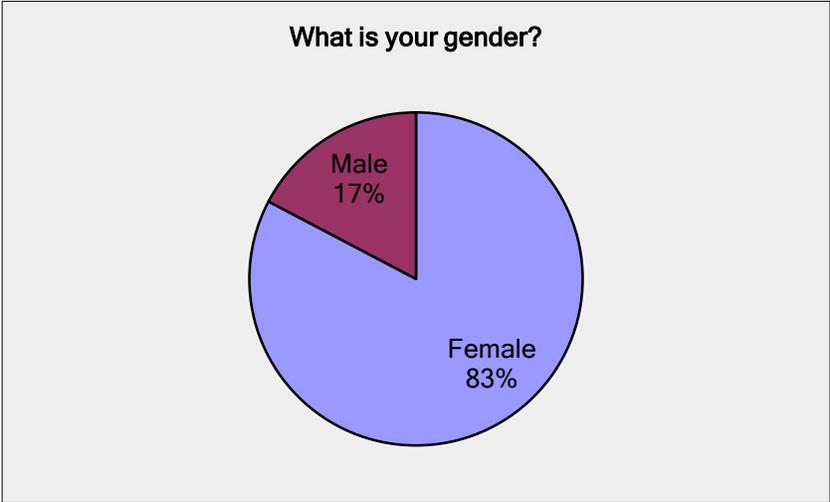


Figure 1: Gender of Teachers Participating in the Survey

HIGHEST DEGREE COMPLETED

Survey respondents were highly educated with 49% having a Master’s degree, 49% having a Bachelor’s degree and 2% reporting a Doctorate degree. This is not surprising since a Bachelor’s degree is required for a teaching certification.

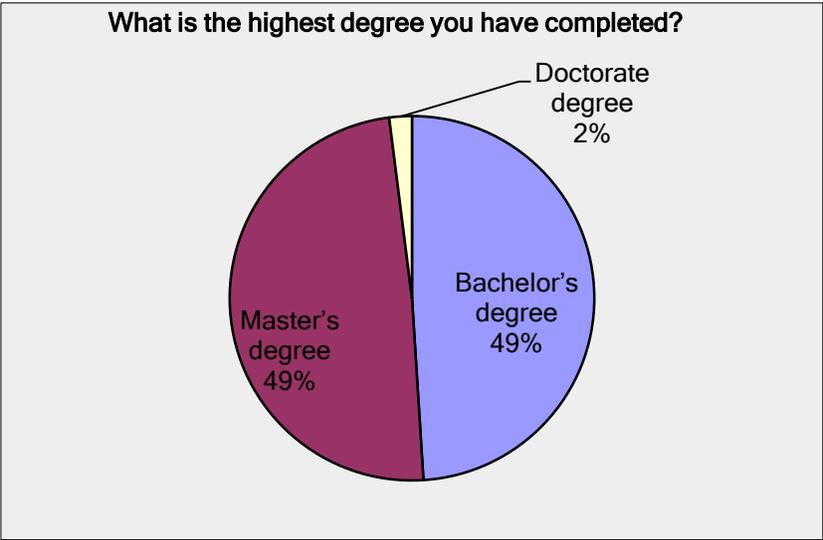


Figure 2: Highest Level of Education Completed

AGE RANGE

The range of ages represented was evenly divided with 18% between the ages of 18-29, 25% between 30-39, 26% between 40-49, 21% between 50-59 and only 10% over 60 years of age.

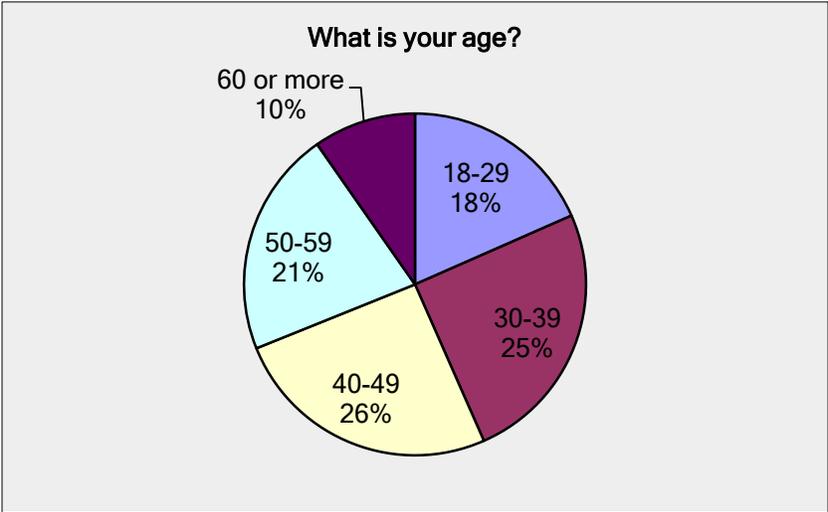


Figure 3: Age Ranges

ETHNICITY

The majority of respondents, 88.6%, specified white as their ethnicity, with 8.8% specifying Hispanic or Latino, 1.6% as Black or African American, 1% as Native American or American Indian, and 0% as Asian or Pacific Islander. This breakdown was fairly close to the United States census report statistics for Collier County for one ethnicity since 89.8% of the local population was white. However, the census reported that the local population was 7.1% Black or African American and 26.3% were Hispanic or Latino which are quite a bit different than the survey results.

Table 1: Ethnicity

Please specify your ethnicity		
Answer Options	Response Percent	Response Count
Asian or Pacific Islander	0.0%	0
Black or African American	1.6%	3
Hispanic or Latino	8.8%	17
Native American or American Indian	1.0%	2
White	88.6%	171
Other (please specify)		1
<i>answered question</i>		193
<i>skipped question</i>		3

YEARS IN EDUCATION

The number of years working in education was evenly divided with 11% working less than three years, 15% working four or five years, 19% working six to ten years, 22% working 11-15 years, 15% working 16-20 years, and 18% more than 21 years.

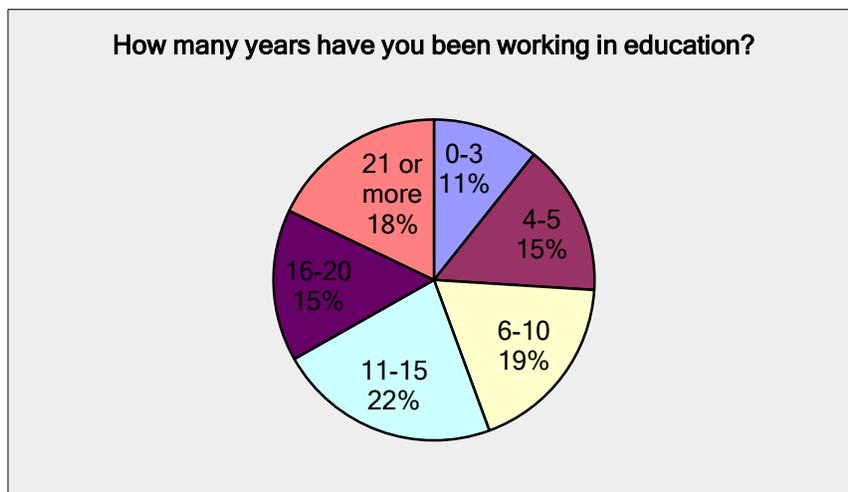


Figure 4: Number of Years Working in Education

ROLES WITHIN A SCHOOL

Although the survey was aimed at teachers, the survey was disseminated via email with a hyperlink to the survey that could have been accessed by anyone. Therefore, a survey question focused on the roles that respondents played within their school or school system. The majority of respondents, 93%, were public school teachers, and 3% were from private schools. Several other categories emerged including those who were subject-specific points-of-contact and others who were chairs, coaches or had other roles. These positions are likely to serve as peer leaders to other teachers and relationships with them may help provider's better understand client needs and market programs or services.

Table 2: Roles within a School

What are your main roles within your school or school system? (check all that apply)		
Answer Options	Response Percent	Response Count
Public School Teacher	92.9%	182
Public School Administrator	0.0%	0
Private School Teacher	3.1%	6
Private School Administrator	0.5%	1
Point-of-Contact for Science	10.2%	20
Department Chair	5.6%	11
Instructional Coach	4.6%	9
Other (please specify)	5.1%	10
<i>answered question</i>		196
<i>skipped question</i>		0

Table 3: Open-ended Responses to Roles within Your School

Team leader
District Specialist
Point of Contact – Math
POC Social Studies
Point of Contact for Social Studies, STEM Leadership Corp, DEN Star Ambassador
Elementary Special Education
Science Fair Coordinator
Science Team Leader 6 th Grade
Team Leader
Team Leader

GRADE LEVELS TAUGHT

The survey garnered responses from teachers at all teaching levels, which was a desired result. When utilizing the typical CCPS breakdown by school type, the majority of respondents, 177, represented kindergarten through fifth grade, which are elementary school teachers. There are more elementary school teachers than there are other types because there are more students of that age and because elementary school includes six grade levels. The survey garnered responses from 84 high school teachers and 34 middle school teachers. Eleven respondents categorized themselves as teaching no grades or other grades. More than one grade level was chosen by respondents.

Table 4: Collier County Public Schools Breakdown of Grades and Academic Levels

School Type	Grades
Elementary School	Kindergarten, 1 st , 2 nd , 3 rd , 4 th , 5 th
Middle School	6 th , 7 th , 8 th
High School	9 th , 10 th , 11 th , 12 th

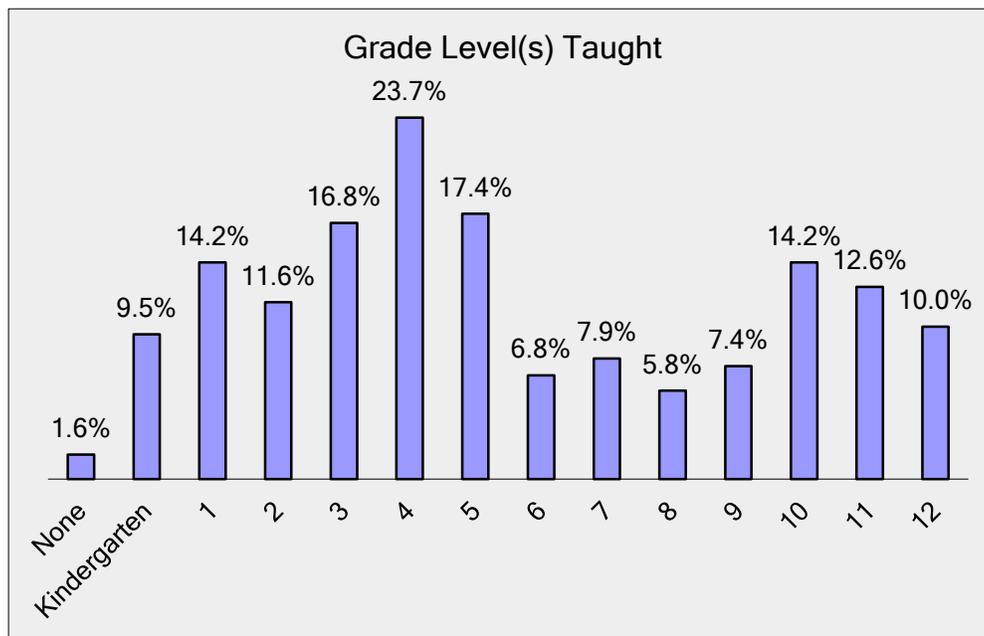


Figure 5: Grade Level(s) Taught

TOPICAL FOCUS AREA

Approximately half of respondents, 44%, have a topical focus area that they teach, while 56% said they do not have a topical focus area. Elementary school teachers typically teach all subjects, while teachers at the middle and high school levels often specialize. Sixty-nine of the 77 open-ended responses to this question identified topical focus areas that relate to science and math which is appropriate for this needs assessment since environmental education (EE) programs are the focus for this research. However, teachers that focus on non-science subjects may have some interest in EE programs and are not well represented within the survey results.

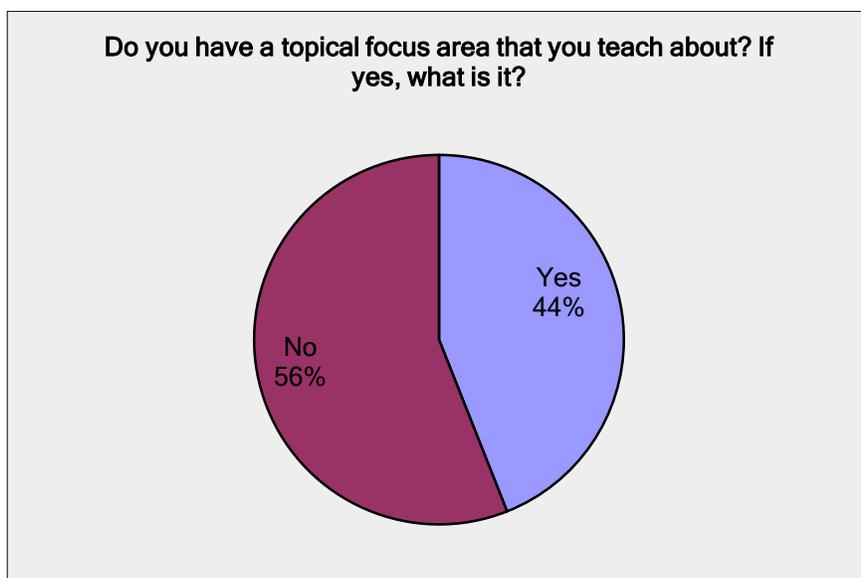


Figure 6: Topical Focus Area

Table 5: Open-Ended Responses to Topical Focus Areas Taught

All
All sciences from earth to life to chemistry
AP Environmental Science, Chemistry
Biology
Biology
Biology
biology and AICE Marine
Biology, AP
Biology, water systems.
Biology: ecology

Chemistry
Chemistry (including environment)
Earth and space science
earth science
earth science & space
Earth Science and Space
Earth Space
Earth Space Science and Environmental Biology
Earth, space, and Life
Earth/Space Science
Earth/Space Science
Earth/Space Science & Biology
Ecosystems
energy and conservation
Environment
Environmental (impacts on plants, animals energies)
Estuaries, eco systems
Everglades and Florida History
Every year I teach about recycling, gardening, and water.
Florida standards -SC.K.L.14.3 - Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.
Florida's Ecosystem
French
General Subjects
Honors Marine Science and Regular Earth/Space Science
I teach all academic areas
K-5 general science
Life science
Life Science
Life science
Life Sciences
local environment
Mainly Science
marine
MARINE / ANATOMY
Marine Science
math
Math
Math
Math and Science
Math and science
Mathematics (primarily Calculus)
middle school science
Physical
Physical Science
Physical Science
Physical Science
Physical Science
Plants and Animals
Reading Comprehension and Math/

Science
 Science / STEM
 Science and Math
 Science and Reading
 Science, Marine and Biology
 Science/Math
 Science-Reading-Writing
 STEM
 The Environment of Southwest Florida

YEARS TEACHING ESTUARY, WATERSHED, AND OCEAN TOPICS

As demonstrated in the topical focus area question, many of the respondents teach science classes on a regular basis. The results of this survey question regarding their years teaching estuary, watershed, and ocean-related topics revealed that approximately 16-17% of respondents have never taught these subjects. However, of those that have taught them, the length of time they have been teaching them varies, but is fairly evenly spread meaning some new teachers are teaching these subjects and some more experienced teachers are teaching these subjects. The results of the market analysis of field-based EE programs demonstrated that there were few existing programs focused on ocean and estuarine topics, but their seems to be a focus on teaching them in the classroom. There may be an opportunity to enhance classroom learning with field-based experiences.

Table 6: Years Teaching Estuary, Watershed and Ocean Topics

Answer Options	None	Less than 2 years	2-3 years	3-5 years	5-7 years	7-10 years	10-15 years	More than 15 years	Response Count
Estuaries	31	35	25	29	16	12	25	14	187
Watershed	30	30	21	34	15	11	21	15	177
Ocean	28	25	19	31	14	13	25	22	177
<i>answered question</i>									192
<i>skipped question</i>									4

PARTICIPATION IN OUTDOOR ENVIRONMENTAL EDUCATION FIELD TRIPS

The majority of respondents, 84%, have participated in outdoor, EE field trips, while only 16% have not participated. This demonstrates a bias in the type of respondents, but one that was expected in light of the methodology used to disseminate the survey which included emails to teachers sent by the CCPS Science Coordinator. The survey approach also included direct emails to teachers who had already attended a field based program, and specifically one hosted by RBNERR. A tally of the open-ended responses regarding the field trips teachers had participated in revealed that RBNERR was the most often cited, which confirms the survey bias. However, the majority of EE providers in Collier County were mentioned, with the exception of Pathfinder, Inc. which serves primarily private schools and works statewide. In addition, Everglades National Park was not mentioned by its full name, although the Everglades was cited as a field trip destination. Since the primary providers were mentioned, the survey respondents seem to represent a range of teachers who are repeat attenders to field trip programs in Collier County. In addition, it is likely that those already interested in field based EE programs would be more likely to participate in a survey on the subject, whereas those with little interest in this subject-matter would not take the time to participate.

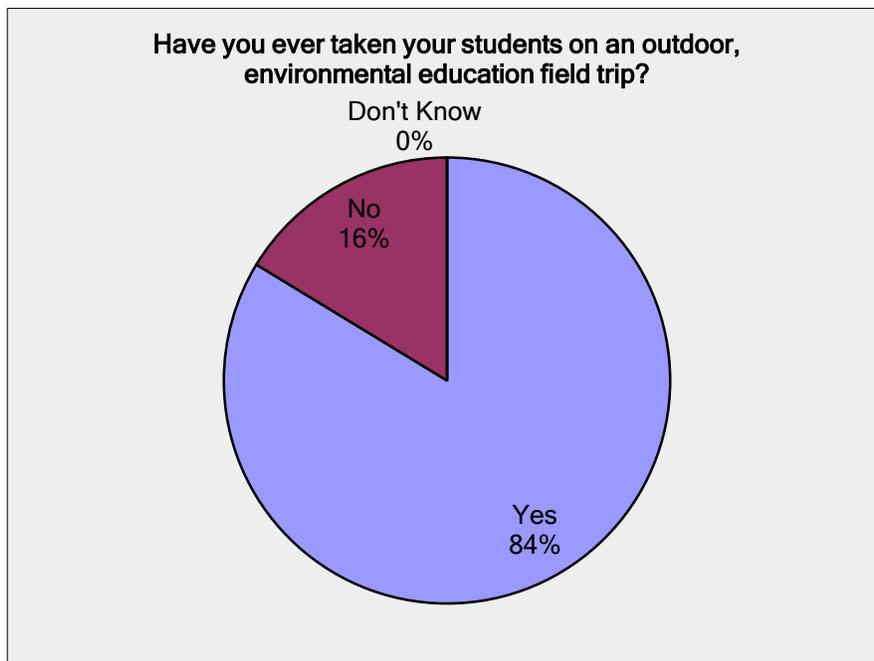


Figure 7: Participation in Outdoor EE Field Trips

Table 7: Field Trip Sites Visited by Teachers: Compiled from Open-Ended Responses

	# of trips (compiled) by teachers who say they participated
EE Providers from the MA	
Big Cypress Nat'l Preserve	17
Conservancy of SWFL	59
Corkscrew Swamp Sanctuary	28
CREW Land & Water Trust	31
FGCU Wings of Hope	7
Naples Botanical Garden	23
Rookery Bay Reserve	68
Other Nearby Field Trip Locations	
Zoo	9
Calusa Nature Center & Planetarium	6
Barefoot Beach	5
Clam Pass	4
Picayune Strand	4
Echo Farms	3
Everglades	3
Palm Cottage Naples Pier	3
Wiggins Pass	1
Wild Florida	1
Freedom Park	1
Recycling Center/Landfill	1
Robert's Ranch	1
Wooten's Everglades Tours	1
10,000 Islands	1

FREQUENCY OF ATTENDING FIELD BASED EE PROGRAMS

The majority of respondents, 81%, have participated in outdoor EE programs with 97% of those having participated more than once.

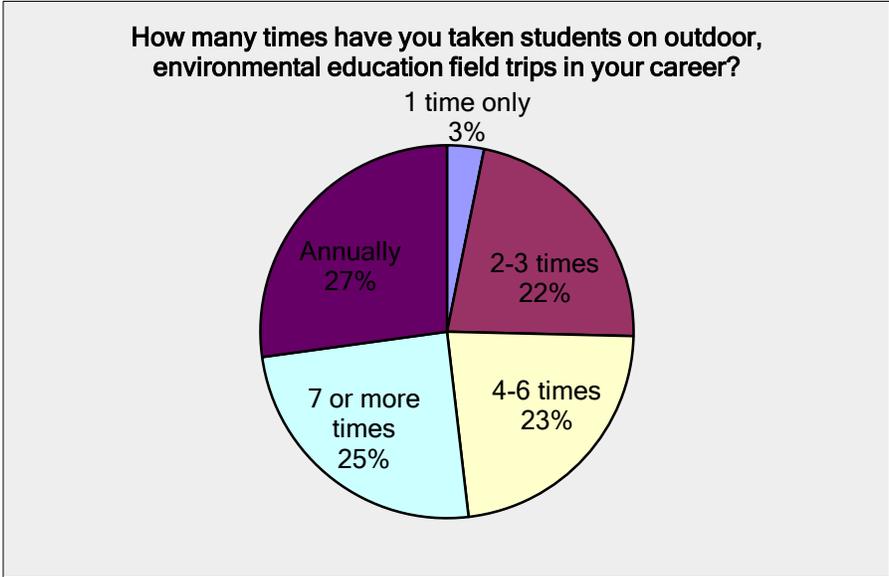


Figure 8: Frequency of Participation in Outdoor EE Programs

REASONS FOR PARTICIPATING IN OUTDOOR, ENVIRONMENTAL FIELD TRIP PROGRAMS

A list of reasons for participating in outdoor EE programs was provided in the survey, along with the opportunity to provide open-ended responses of additional reasons. Respondents could chose more than one answer to this question and most of them chose multiple answers. The most common reasons were Learning/Enhance Curriculum, Hands-On Activities, to Get Outdoors/Experience Nature, followed by it's Fun. The least likely reasons were to Access Technology/Research, or because It's Required, or Other Teachers from my School Already Attend.

Table 8: Reasons for Participating in Outdoor EE Field Trip Programs

Answer Options	Response Percent	Response Count
Learning/Enhance Curriculum	93.2%	150
Hands-On Activities	87.6%	141
Get Outdoors/Experience Nature	85.1%	137
Access to Technology/Research	18.0%	29
Fun	62.7%	101
It's Required	5.0%	8
Other Teachers from my School Already Attend	4.3%	7
Other Reasons (please specify)		7
	<i>answered question</i>	161
	<i>skipped question</i>	35

Other reasons for attending outdoor EE programs included:

- Showing the relevance of indoor studies
- It is the core of learning!!!!!!!!!!
- To make my students aware of the fragile environment we live in.
- Student Motivation
- Most of our students live in the Habitat and rarely get out of the neighborhood. Most have not been to the beach or Marco Island.
- My students do not get the chance to go places that enrich their lives.
- We practiced real-life sampling techniques that biologist in the field would use to sample population size.

REASONS PREVENTING PARTICIPATION IN OUTDOOR ENVIRONMENTAL EDUCATION PROGRAMS

As previously noted, this survey included a higher proportion of teachers who have participated in outdoor EE programs, so the results of this survey question are less representative of those who have not already attended this type of program. This is evident in the open-ended responses where seven focused on there not being any reason to prevent their attendance. Only one of the open-ended responses focused on a fear or concern and this was “health concerns.” In the MA results, EE providers cited a lack of comfort in the outdoors as a primary reason for teacher’s lack of attendance, but this was not a prominent response in the NA survey. This may be due to the higher number of respondents who are already participating in EE programs. A clear theme was that costs/too expensive was the top reason for preventing participation, followed by transportation constraints, which are also costly, lack of time/too busy, and difficulty

with chaperones. In terms of other reasons that prevented attendance, testing and obstacles associated with teachers attending the required trainings were cited. Although not specified, the training referred to is likely to be the required trainings associated with the CCPS Field Trip Specialist Program. Supporting teachers in accessing these trainings may increase teacher participation, or conversely, eliminating the requirement may have the same effect. A final point of interest is the single response that Outdoor EE field trips are “not in my subject area.” Since EE is often thought to cut across disciplines, there may be an opportunity to promote EE programs that are focused on subjects other than science, such as social studies, language arts, etc.

Table 9: Reasons Preventing Participating in Outdoor EE Field Trip Programs

Answer Options	Response Percent	Response Count
Costs/Too expensive	62.3%	119
Transportation constraints	46.1%	88
Lack of time/Too busy	34.0%	65
Difficulty with chaperones	28.8%	55
Not aligned with the curriculum	23.6%	45
Other (please specify)		26
Lack of administrative support	9.4%	18
Lack of comfort in the outdoors	3.1%	6
Lack of student interest/participation	2.6%	5
Not interested	0.5%	1
<i>answered question</i>		191
<i>skipped question</i>		5

Open ended responses to the survey question about reasons preventing teachers from participating on outdoor EE programs:

- I am not prevented
- nothing
- None, I find a way
- None
- We are not prevented
- There are no reasons that prevent me
- Nothing, I love giving the children an experience of the outdoors.
- I do it anyway
- I always find a way to either get to a center or have it recreated at my site
- Health concerns of students, I am not a nurse
- Not in my subject area

- Grant money for trips ran out last year
- Loss of class time for other teachers' classes and distance/time to get there
- Only allowed 1 field trip per school year
- Hard to do before testing b/c the number of standards covered for 1 trip are not enough to take class time to prepare and go on the trip...all trips are usually done after testing time and reinforces the standards
- Testing priority
- State testing
- I do not know the steps or processes needed to organize a field trip
- Makes planning for other teachers difficult at the MS level when half of class is gone
- Lack of well-advertised trainings at available times
- Certain team members are unwilling to complete required trainings
- Other teachers on the team will not do the training and if one class can't go the whole team cannot go. However, our principal is changing this for next year.
- Training Schedule
- Will not complete training on Saturdays, especially if not paid!
- Lack of training Lack of training dates & lack of available field trip dates.

FACTORS LIKELY TO INCREASE PARTICIPATION IN OUTDOOR ENVIRONMENTAL FIELD TRIPS

Open-ended responses were captured about the factors likely to increase participation in outdoor environmental field trip programs and those responses are listed below and grouped by category. Responses were repeated when they fit into more than one category and the responses were not altered, except for spelling corrections. The following thirteen themes, related to increasing participation, emerged including:

1. Reduced Costs and Increased Funding
2. Funding for Buses and Transportation
3. Alignment with Curriculum
4. Administrative or Team Support
5. More Time and Better Timing
6. Improvements to Organizational, Coordination and Communication Challenges
7. Increased Offerings or Opportunities
8. Improvements to Training
9. Outdoor Leaders or Guides Needed
10. Testing Constraints

11. Support for Finding Chaperones or Addressing Chaperones Challenges
12. Nothing Needed/Already Participate
13. Other

The costs of programs, including those associated with transportation and substitute teachers, was a focus of the majority of comments, followed by the importance of aligning field trips to the curriculum and a lack of administrative or team support to plan and conduct field trips. Many of these obstacles for attending field trips were identified in the MA report including that teachers are busy, they don't have a lot of support to overcome the extra effort required to plan and implement a field trip, and that testing and the need for chaperones gets in the way of participation. There was almost no mention of a lack of interest in field trips or a lack of comfort with them as asserted by EE providers during the MA research. Although, the majority of overall respondents appear to already participate in field trips, which is a bias of this research data, and may explain the lack of certain types of responses. Several respondents stated that an obstacle to participation is the need for outdoor leaders or guides during field trips because it was not their area of expertise and they wanted to spend time with their students. This ties closely to the obstacles identified for training requirements, which are likely those associated with the CCPS Field Trip Specialist program. If the trainings were eliminated and EE providers could teach the programs, that could potentially increase teacher participation. However, teachers also identified some opportunities to improve communication, coordination, and the organization of field trips which may be a much easier issue to address in the short-term.

Below is the list of open-ended responses to the question "What would make you more likely to participate in outdoor, environmental field trip programs?" The responses are grouped and the topic headers were added by the contractor.

Reduced Costs and Increased Funding

- Programs tailored around the grade level standards and low to no cost.
- Cost efficient for Title I schools
- More \$\$ for travel and entrance fees
- If it was free.
- if we didn't have to pay
- Money!
- Administration making and allowing time and the cost being covered
- When transportation and cost are not an issue, we are likely to attend.
- price reduction
- more money for transportation
- Having the money and transportation

- Time and funding
- funds
- Funds and transportation to attend
- Funding for bus
- Funding
- Funding
- Funding
- Funding.
- Funding
- funding
- Funding/busing
- Funding and time
- funding provided
- Funding has been available through Collier County so we have been able to take trips.
- Help with cost
- discount
- Money Grants to allow classes on more than one field trip a year.
- If they were paid for and could happen after state testing
- If the cost of the trip would be less expensive or covered.
- low cost of field trip
- Have the funds to pay for the buses, substitute teachers and support from the administrators, not just at school level, but at the district level. The district administration has made it very difficult for teachers to plan these field trips because of the restrictions they have and the amount of paper work.
- Field trips available for no cost and supported by school.
- I would participate in more outdoor trips if I know more about how to get funding for them.
- Trips that do not cost our school a lot of money.
- Free trips including transportation
- lower cost (SWAMP trip is free to students because of a grant) if larger groups could go at one time to make impact on other teachers less. Hands on learning with experiments
- Cost
- Cost is major problem so more funding for these field trips to cover transportation, sub, etc. More administrative support and funding would be supremely helpful. Also, if my dual-enrollment students would be allowed to drive

themselves, so that they could still go on the field trip and make it to their college classes.

- if it was funded
- Less expensive trips
- reduced or free cost of field trip and buses
- Cost and approval from the district
- If they were free or at a very low cost.
- If the trip is fully paid for.
- Increased funding. Administrative support.
- Not having to pay for travel or substitutes
- Money available
- I would love to do an outdoor field trip at every grade level. Sometimes money constraints.
- Grants for my students
- District should cover all the cost of field trips.
- Ease of accessibility, cost, fitting into school year calendar
- I am willing and wanting to take our students on any field trips that we can; however, they need to align with the curriculum and have the money to do it.

Funding for Buses and Transportation

- more money for transportation
- Having the money and transportation
- Funding for bus
- Free trips including transportation
- get transportation
- If it included hands on activities for the students and not too far away.
- Transportation cost was paid for
- If it came to us.
- Free transportation
- transportation provided, more TIME!!!
- Free costs to students, more age appropriate programs for younger elem students
- Transportation costs for buses is difficult to cover.
- access to shade, longer time at field trip (busses constrain time), bus issues (scheduling, timeliness), trainings are long, on Saturdays, require teachers to find babysitters for their own kids.
- Cost for programs and transportation as well as locating chaperones to participate. Time constraints to arrange trip and still teach curriculum.

- Better alignment with state standards/curriculum; age-appropriate activities; location is within closer proximity to decrease travel time and maximize time spent on site
- Easier access to transportation from Immokalee.
- Funding/busing
- More administrative support and funding would be supremely helpful. Also, if my dual-enrollment students would be allowed to drive themselves, so that they could still go on the field trip and make it to their college classes.
- If the school district would align more field trips with the curriculum and pay for transportation and access to those places.
- If the school district would align more field trips with the curriculum and pay for transportation and access to those places.
- Having field trips funded by the county or program
- Cost is major problem so more funding for these field trips to cover transportation, sub, etc.
- Not having to pay for travel or substitutes
- Arranging for transportation and getting team leader support

Alignment with Curriculum

- If more environmental field trips were aligned with the curriculum
- STEM activities tied to the trips
- When trips are tied to the curriculum I am currently working on
- Topics that go with my curriculum
- Curriculum connection would be great
- I would be more likely to participate in outdoor, environmental field trip programs if they came with a curriculum that matches through Collier County Public Schools.
- Align more outdoor and environmental trip to the curriculum
- If it is somehow related to the curriculum
- Training to align with the curriculum effectively.
- If it was supported by our curriculum. To have a day built in where we had it set up for us would be easier. Instead, we barely have enough time to get through content before the state test that it is nearly impossible to afford the time to be outside of the classroom.
- Better alignment with state standards/curriculum; age-appropriate activities; location is within closer proximity to decrease travel time and maximize time spent on site

- First of all, currently teaching physical science, it would be great to have field trips aligned to our benchmarks. There is currently nothing for 8th grade physical science.
- If the school district would align more field trips with the curriculum and pay for transportation and access to those places.
- permission from administration, we have to align field trips to curriculum and time frame when that curriculum is taught
- Connection to Science curriculum.
- I am willing and wanting to take our students on any field trips that we can; however, they need to align with the curriculum and have the money to do it.

Administrative or Team Support

- Help from CCPS.
- Much support from Admin and also many time frames and allowing more than one class of seventh graders to go.
- Administration support
- Have the funds to pay for the buses, substitute teachers and support from the administrators, not just at school level, but at the district level. The district administration has made it very difficult for teachers to plan these field trips because of the restrictions they have and the amount of paper work.
- Less paper work from administration
- More administrative support
- Better planning by school admin.
- Increased funding. Administrative support.
- Availability Time from admin
- Administrative Support. It is all about the FSA and they just don't get how amazing a hands on approach will be.
- Arranging for transportation and getting team leader support
- Not having to jump through hoops with administration and having chaperones
- The county can coordinate and schedule the fieldtrips including calling chaperones.
- If we had the support and were able to.
- permission from administration, we have to align field trips to curriculum and time frame when that curriculum is taught
- More time and more buy in from my teammates

More Time and Better Timing

- Funding and time
- More time and more buy in from my teammates

- Time in curriculum so missing a day in the classroom wouldn't be a big deal to play catch up.
- Access to shade, longer time at field trip (busses constrain time), bus issues (scheduling, timeliness), trainings are long, on Saturdays, require teachers to find babysitters for their own kids.
- Much support from Admin and also many time frames and allowing more than one class of seventh graders to go.
- Cost for programs and transportation as well as locating chaperones to participate. Time constraints to arrange trip and still teach curriculum.
- Lower cost (SWAMP trip is free to students because of a grant) if larger groups could go at one time to make impact on other teachers less. Hands on learning with experiments
- If it was supported by our curriculum. To have a day built in where we had it set up for us would be easier. Instead, we barely have enough time to get through content before the state test that it is nearly impossible to afford the time to be outside of the classroom.
- additional time
- Having more Time
- Availability Time from admin
- Nothing now too much to cover. Our pay depends on testing results.
- Ease of accessibility, cost, fitting into school year calendar
- time in the curriculum and others teachers not upset about students missing their class time
- More time and more buy in from my teammates
- Having the opportunities to take the time to be with our students and enjoy the learning oppose to having to teach and deal mainly with behaviors.

Improvements to Organizational, Coordination and Communication Challenges

- It is difficult to arrange field trips for over 150 students and 6 classes. Established grade level trips like the 6th grade SWAMP trip would help.
- Making the field trip process as simple as possible
- I would be more likely to participate if the agency worked closely with the school and specifically explained the field trip (rather than a brief overview). I take students to mathematics competitions. They are the only field trips that I expect to take.
- Grade level participation and organization.
- Ease in preparation
- "A list saying what I would need to do to: prepare students, gather chaperons, permission slips, lunch. Just how does it all work!?!"

- If they were all inclusive/ pre-made trips that took minimal teacher coordination with the district. For instance, 6th grade in Collier County goes to the swamp with minimal teacher coordination.
- Less red tape involved
- Less paper work.
- If it was supported by our curriculum. To have a day built in where we had it set up for us would be easier. Instead, we barely have enough time to get through content before the state test that it is nearly impossible to afford the time to be outside of the classroom.
- More support planning and ease of finding chaperones
- Easier access to training/materials
- Having a list of which ones are available for which grade levels.
- Being provided with what the programs that are around for us to use as I am new to the area/district. Some require training that CCPS offer 5th grade but the trainings are not offered.

Increased Offerings or Opportunities

- If there were more available for students at the primary level that were not already taken by other grade levels.
- Free costs to students, more age appropriate programs for younger elem students
- Knowing that there are programs geared to young children
- More being offered.
- More than 1 opportunity per year.
- If it included hands on activities for the students and not too far away.
- allowing more than 1 field trip per school year
- hands on
- Opportunities for students to engage in hands-on-learning is our priority.
- opportunities
- variety
- First of all, currently teaching physical science, it would be great to have field trips aligned to our benchmarks. There is currently nothing for 8th grade physical science.

Improvements to Training

- A more clear timeline for trainings and easier access to volunteers.
- More training dates to choose from, or could it be a virtual trip?
- If some teachers complete training but not all teachers.

- Training. Pre-field trip; field trip; post field trip. How to prepare children for what they are to learn and what is important for them to take away for life-long learning and protection for our plants and animals.
- more training
- Training to align with the curriculum effectively.
- access to shade, longer time at field trip (busses constrain time), bus issues (scheduling, timeliness), trainings are long, on Saturdays, require teachers to find babysitters for their own kids.
- Having representatives who are available to teach program. I do not want the responsibility of being trained for a portion of a day then expected to take my students on a field trip and teach them everything about the program. I do not feel that the training time is sufficient.
- Easier access to training/materials
- More training dates for teachers to attend required training.
- Being provided with what the programs that are around for us to use as I am new to the area/district. Some require training that CCPS offer 5th grade but the trainings are not offered.

Outdoor Leaders or Guides Needed

- if the outdoor tour had a guide to teach the children and I as a teacher would be support
- A leader from Rookery Bay
- Having experienced guides there for students to learn from besides myself.
- Trained people at the field trip sites. Our school will probably not go to The Conservancy again as we (the teachers) are in charge when we get there. We are uncomfortable with that as it is not our area of expertise. We totally support the preparation in the classroom but feel that when we get to a site, the experts at that site should handle the exploration.
- Having representatives who are available to teach program. I do not want the responsibility of being trained for a portion of a day then expected to take my students on a field trip and teach them everything about the program. I do not feel that the training time is sufficient.
- Easier access to trips and having a teacher on site to run trip
- Having the opportunities to take the time to be with our students and enjoy the learning oppose to having to teach and deal mainly with behaviors.

Less Testing

- If they were paid for and could happen after state testing
- Less testing

- Nothing now too much to cover. Our pay depends on testing results.
- Administrative Support. It is all about the FSA and they just don't get how amazing a hands on approach will be.

Support for Finding Chaperones or Addressing Chaperones Challenges

- Ease with chaperone requirements
- Cost for programs and transportation as well as locating chaperones to participate. Time constraints to arrange trip and still teach curriculum.
- More support planning and ease of finding chaperones
- Assistance with chaperones.

Nothing Needed/Already Participate

- Nothing needed
- I do participate
- I enjoy participating in outdoor field trips.

Other

- Field activities where students can help scientists and resource managers collect their data.
- I am teaching STEM now instead of math. It will be easier to find topics that interest me and are practical to explore off campus.
- The availability of outdoor lesson plans and labs.
- If it was something in French or with French culture
- Any opportunity presented to me to participate in more outdoor education, especially about our fragile marine environment, I would seize it.
- See above.
- Planned activities such as Rookery Bay and the district has provided to outline background knowledge before embarking on such a trip.
- n/a
- Less curriculum forced into the 6th grade year, NO mandatory Science Fair
- lower cost (SWAMP trip is free to students because of a grant) if larger groups could go at one time to make impact on other teachers less. Hands on learning with experiments"
- Cooler weather ☺
- In the heat after February
- Accommodations for trips that involve excess walking, like fir example the ability to use a golf cart at the botanical gardens.
- Sending administrators so they can see the importance and having a strong building coordinator for parent involvement.

- Teaching ecology or biology
- Solutions to the above stated problems
- Smaller class size
- I no longer wish to participate in field trip programs with large groups of students.
- Saturday morning offerings?

FACTORS LIKELY TO DECREASE PARTICIPATION IN OUTDOOR ENVIRONMENTAL FIELD TRIPS

The focus of this section is on deterrents or obstacles likely to decrease participation in outdoor EE programs and there were a series of thematic responses, similar to what was found when asking about benefits that would increase participation. Responses were repeated when they fit into more than one category and the responses were not altered, except for spelling. The following fourteen themes emerged including:

1. Increased Costs or Decreased Funding
2. Lack of School or Administrative Support, Increased Paperwork and Restrictions
3. Increased Time or Effort Involved
4. Lack of Curriculum Connection
5. Transportation Issues and Distance
6. Lack of Chaperones
7. Timing of Field Trips and Trainings
8. Training Requirements
9. Lack of Field Trip Guides
10. Approach of EE Provider
11. Poor or Difficult Weather Conditions
12. Student Behavior
13. No Obstacles
14. Other Reasons

Once again, costs were at the top of list for deterring teachers to take field trips which means that no cost or free trips will have a competitive edge. In addition, this provides greater emphasis on the importance of the funding that the CCPS provides for the Field Trip Specialist Program. EE providers in Collier County should track that funding and ensure they are vocal supporters of its continuance. Most of the remaining categories reflect the same reasons for increasing participation such as the need for a curriculum connection, challenges related to transportation, chaperones and time constraints, which were also identified in the MA research. Two specific comments focused on the extensive travel time being an obstacle to participation. A few new topics emerged

including the impact that poor student behavior can have on the ability of other students to attend, and a few comments related to the timing of field trips and trainings. Several respondents had no obstacles or other reasons for participation.

Below is the list of open-ended responses to the question “What would make you less likely to participate in outdoor, environmental field trip programs?” The responses are grouped and the descriptive labels were added by the contractor.

Increased Costs or Decreased Funding

- if the cost is too high or does not go along with the curriculum
- having to pay
- Money!
- If they were expensive.
- Time and funding
- Lack of funding
- paying for admission and busses
- Cost
- Cost
- Cost or travel distance.
- Cost, time of year, location and restrictions.
- Cost and chaperone support.
- Cost/Travel
- Cost, time
- cost
- Cost
- Cost
- Cost
- Cost
- Expenses needing to be acquired by teachers.
- Unpaid trainings to learn about how to run a program
- Lack of funding
- Higher cost
- Money constraints
- if they were expensive or not aligned to our grade level
- If there was a fee.
- no money
- Lack-of-funding; repeat of previous grade levels already participating at that field trip location

- If there was less funding at the county level
- If it's too expensive
- students can't afford
- paying per student on top of other costs.
- added cost
- Cost increase
- Budget.

Lack of School or Administrative Support, Increased Paperwork and Restrictions

- Schools did not provide support
- CCPS rules.
- Push back from administration or other teachers on grade level, also the behavior of certain peer groups.
- District yellow tape
- No support, no other adults on the trip, lack of funds
- complaints from administration
- only allowed 1 field trip per school year
- More requirements before taking students on the trip.
- red tape
- county restrictions
- More paper work, and less student interest.
- If a lot more administrative parameters and negative pressure were present.

Increased Time or Effort Involved

- The preparation tends to put a strain on the teachers and then having to teach while on the field trip.
- Time and funding
- Lack of time.
- lots of paper work
- Cost, time
- Lack of time and chaperones.
- Demands for reflective materials
- More time, instead of wasted time on Science Fair
- Trips that are difficult to arrange in terms of travel time or commitment
- All the trips I have been on are well prepared so a haphazard trip would prevent me from going.
- Too much responsibility placed on teacher, too much paperwork

Lack of Curriculum Connection

- Not relevant to curriculum
- Lack of curriculum connection
- Lack of curriculum and resources.
- If it is not related to the curriculum at all
- If it was not going to support what we are learning in the classroom. It needs to directly relate what we are learning/have learned and provide something to my students that they couldn't get from the classroom.
- curriculum
- if they were expensive or not aligned to our grade level
- Needs to be related to specific curriculum
- If it wasn't related to the curriculum, but I believe all outdoor field trips could be relatable to the biology curriculum

Transportation Issues and Distance

- Distance of visit. Lack of support for transportation needs.
- Traveling distance.
- Not having transportation
- Additional constraints of Travel, demands regarding gender specific chaperones for high school day trips.
- paying for admission and busses
- Too much travel time.
- traveling a far distance to get there.
- more constraints on td's and buses

Lack of Chaperones

- Additional constraints of Travel, demands regarding gender specific chaperones for high school day trips.
- Cost and chaperone support.
- lack of adult supervision
- Districts requiring so many chaperones
- No support, no other adults on the trip, lack of funds
- Lack of chaperones
- Lack of time and chaperones...
- Lack of chaperones and also student interest/behavior.
- No chaperones

Timing of Field Trips and Trainings

- weekend workshops
- If Saturday training is involved in order to participate.
- Cost, time of year, location and restrictions.
- Times that are not available during school hours.
- Lack-of-funding; repeat of previous grade levels already participating at that field trip location
- Teacher required trainings on Saturdays

Training Requirements

- Retaking the training!
- Unpaid trainings to learn about how to run a program
- Inopportune schedule
- Teacher required trainings on Saturdays
- required trainings

Lack of Field Trip Guides

- Not having guides. Students need to hear from others – experts in the fields. They are tired of hearing from their teacher every day.
- If I was the only one that educated the children during the field trip
- Not having a representative to guide the field trip and teach the program.

Approach of EE Provider

- having the students sitting and listening to someone telling them about science.
- If the trip was just lecturing.
- No outdoor or hands on learning.

Poor or Difficult Weather Conditions

- Heat of Florida
- Spring time – the weather
- Being outside with primary kiddos if the weather is too hot and the bugs are bad

Student Behavior

- Push back from administration or other teachers on grade level, also the behavior of certain peer groups.
- Lack of chaperones and also student interest/behavior.

No Obstacles

- Nothing

- Nothing
- Nothing
- Nothing
- Nothing
- Nothing
- NOTHING
- Nothing
- nothing
- I do
- No reasons, I would like to participate in outdoor field trips.
- nothing, our students need the outdoor environmental field trip programs to build experiences they will not have without the school trips
- I love taking students outside
- I would love to participate in outdoor environmental field trip programs

Other

- Simply not being told about the opportunities. I have no idea where to find opportunities
- Liability , No bathrooms at Swamp area.
- Too large of a class size
- No solutions to the above stated problems
- See above.
- Not a question to ask a teacher
- n/a
- NA
- N/A
- N/A
- n/a
- N/A
- n/a
- rain?

COMPARISON OF FACTORS LIKELY TO INCREASE VERSUS DECREASE PARTICIPATION IN OUTDOOR ENVIRONMENTAL FIELD TRIPS

There were similar answers to the factors that would increase versus decrease participation in outdoor environmental field trips with a few notable exceptions. There

was more emphasis placed on the timing of field trips in trainings in decreasing participation, along with poor or difficult weather, and student behavior added as additional obstacles. The only additional factor likely to increase participation was improvements to organizational, coordination, and communication challenges.

Table 10: Comparison of Factors Likely to Increase versus Decrease Participation in Outdoor Environmental Field Trips

Factors Likely to Increase Participation	Factors likely to Decrease Participation
Reduced Costs and Increased Funding	Increased Costs or Decreased Funding
Funding for Buses and Transportation	Transportation Issues and Distance
Alignment with Curriculum	Lack of Curriculum Connection
Administrative or Team Support	Lack of School or Administrative Support, Increased Paperwork and Restrictions
More Time and Better Timing	Increased Time or Effort Involved
	Timing of Field Trips and Trainings
Improvements to Organizational, Coordination and Communication Challenges	
Increased Offerings	
Improvements to Training	Training Requirements
Outdoor Leaders or Guides Needed	Lack of Field Trip Guides
Testing Constraints	
	Approach of EE Provider
Support for Finding Chaperones or Addressing Chaperones Challenges	Lack of Chaperones
Nothing Needed/Already Participate	No Obstacles
	Poor or Difficult Weather Conditions
	Student Behavior
Other Reasons	Other Reasons

DISTANCE WILLING TO TRAVEL

Respondents had a wide range of answers when asked how much time they were willing to travel for a field trip. Fully 35% of respondents were willing to travel more than 51 minutes, while 23% would travel as long as 41-50 minutes, 24% would travel as long as 31-40 minutes, and 14% would travel 21-30 minutes. Only 2% required a less than 20 minute drive time. This is a fairly even spread of responses, although in general, the shorter the distance that teachers need to travel for a field trip, the more likely they are to choose that field trip experience. One seemingly notable exception to this conclusion

is that nearly all sixth grade students participate in the Big Cypress Preserve SWAMP program which means that every school is traveling whatever distance is necessary to participate. This was discovered in the MA research and indicates that there may be situations where distance is not a determining factor.

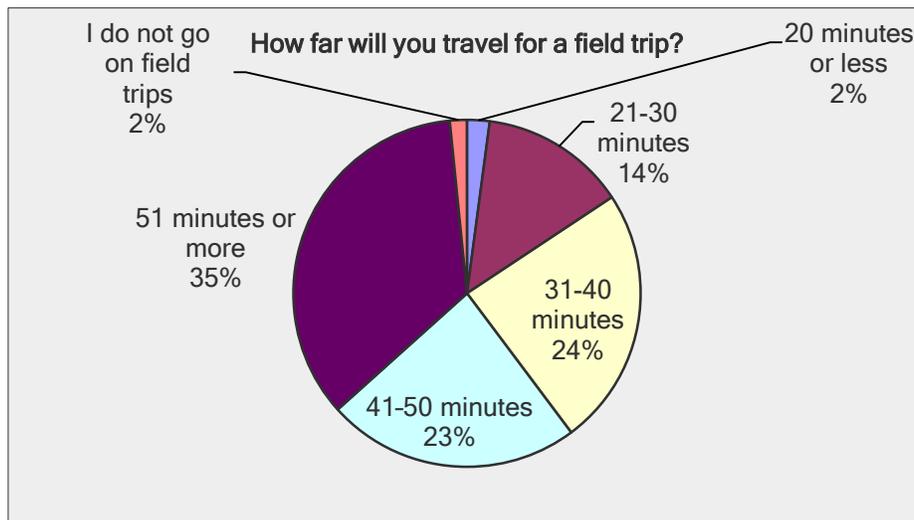


Figure 9: Distance in Time that Teachers Will Travel for a Field Trip

IMPORTANCE OF CORRELATION TO STANDARDS

The majority of respondents, 59%, stated that it was very important for field trips to be correlated to standards. In addition, 36% said it was somewhat important, with a total of 95% stating it was either somewhat or very important. Only 5% said that it was not important which means that these correlations are valuable to teachers and therefore field trip providers should attempt to provide the correlations. There may be some language discrepancy within these results because there was a fair amount of emphasis in open-ended responses about what would encourage or discourage them from attending EE programs which focused on connection to their curriculum. Whether this statement is the same or similar to responses about correlating to standards should be asked of teachers and perhaps they could provide input on EE providers attempts to make these connections or correlations. Florida State Standards, various science standards, and other topics were mentioned as the specific standards for correlations. Additional input from teachers would assist EE provider in understanding exactly what a teacher needs in terms of correlated standards or curriculum connections, and based on

this type of feedback an improved ability to meet this teacher need could be accomplished.

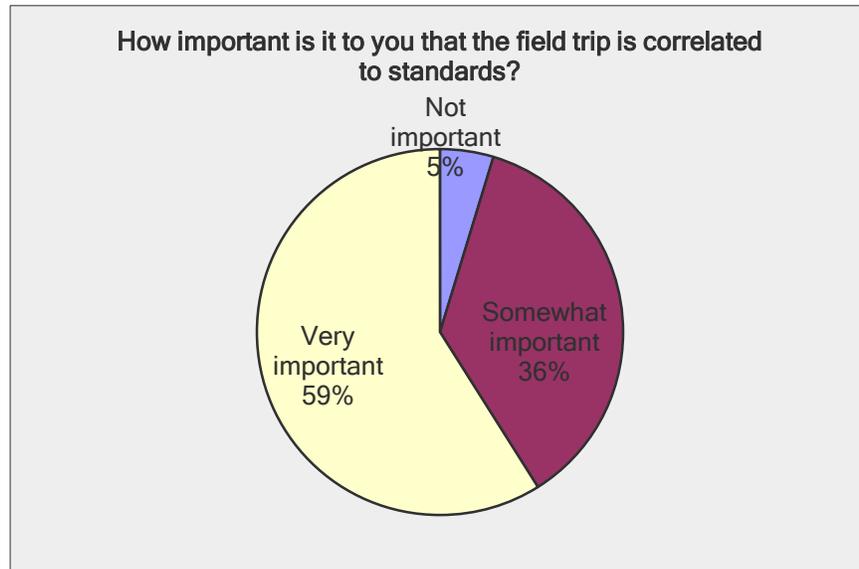


Figure 10: Importance that Field Trips are Correlated to Standards

Teachers were also asked what standards field trips should correlate to, with the following open-ended responses which have been grouped:

- Florida State Standards
- FSA Standards. That is all the District wants to see.
- NGSS
- NGSS and FLSSS
- NGSSS for Science 5th grade
- The state designated standards
- Common Core
- FL Science Standards
- Science, math and technology
- Science Standards
- Science
- Science
- Science
- Science and math

- Science, Math
- Science curriculum; moon phases, rocks and minerals, and energy.
- Science standards, correlating with ELA and Math.
- Science standards ELA standards
- Science and Language Arts standards for the grade level
- Earth Science
- Social Studies and Science
- Science & Social Studies
- Blending math and science standards.
- Biology
- Biology
- Biology Benchmarks and/or AP Biology Essential Knowledge
- Biology or AP standards- which is easy
- STEAM Standards
- Science 3rd grade
- Science 3rd
- 5th Grade Science
- 5th grade science standards; as many as possible
- Grade 8 Florida Science
- Standards related to the syllabus of my AICE Marine Science course. I would be glad to provide specifics, but am likely limited to only a few characters here.
- ecosystems
- I believe it would align with the end of the curriculum when we discussed community's interactions and Florida habitats.
- Habitats
- Nature of science or content area science standards
- populations, ecosystems, energy flow
- math-measurement, data, science- life systems, watershed
- life in aquatic systems, loss of biodiversity, human impact on environment
- water cycle
- Curriculum
- APPLICATION OF SUBJECT BEING TAUGHT IN CLASS.
- The one related to the curriculum since there is far less time to go through all the testing required
- all that apply to my curriculum
- the standards that go with our Science and Nature units
- Aligns with curriculum
- All field trips must be tied to a standard our we are not permitted to go.

- As long as we can correlate it to standards, it can be approved.
- As long as it is educational I am happy. In Immokalee for the students just to get out of town is a learning experience.
- don't have time to look it up!
- Interdependence SC2.1.L17.2
- SC.K.L.14.3 – Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do. Next year I will be teaching 2nd grade so whichever standards they cover.
- All
- all
- any of them that could be aligned.
- Any of the science standards
- Any science based standards
- ALL could apply in some way

ANNUAL NUMBER OF CLASSES STUDENTS RECEIVE ON ESTUARY, WATERSHED AND/OR OCEAN TOPICS

This data was required by NOAA for the NA and it demonstrates that teachers are not in agreement over the amount of instruction students are receiving on estuary, watershed and/or oceans topics.

Table 11: Annual Number of Classes that Students Receive on Estuary, Watershed and/or Ocean Topics

How many class or activity periods of estuary, watershed, and/or ocean instruction do your students receive in a typical school year?							
Answer Options	None	A portion of one class	One to two classes per year	3 to 5 classes per year	6-15 classes per year	More than 15 classes per year	Response Count
Estuaries	37	19	44	45	28	9	182
Watershed	36	20	36	54	25	8	179
Ocean	27	15	30	63	28	16	179
<i>answered question</i>							188
<i>skipped question</i>							8

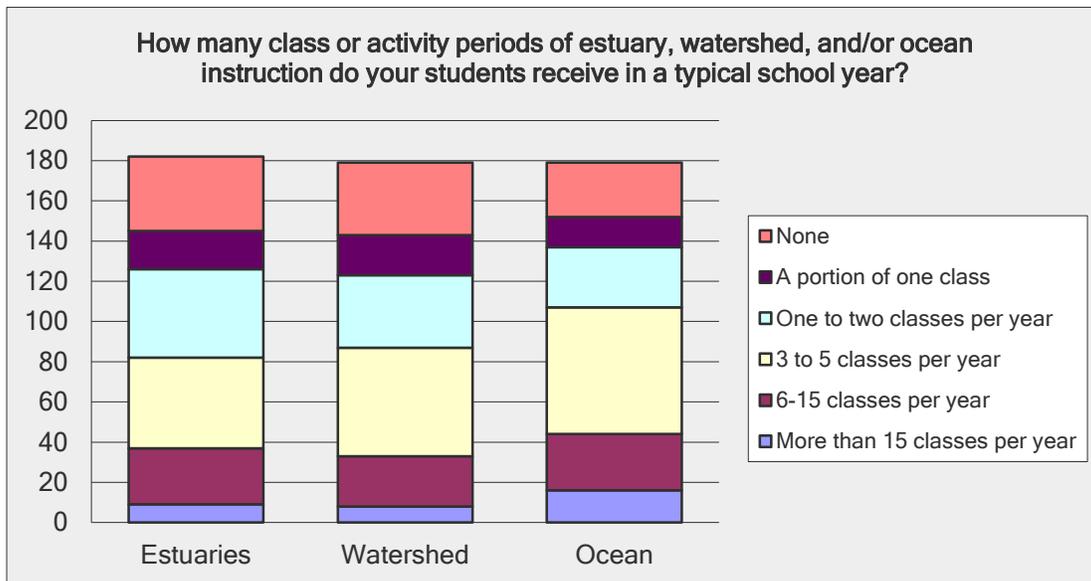


Figure 11: Annual Number of Classes that Students Receive on Estuary, Watershed and/or Ocean Topics

PARTICIPATION IN TEACHER PROFESSIONAL DEVELOPMENT

The majority of teachers, 93%, have participated in a professional development program, while only 4% have not participated, and 3% were unsure.

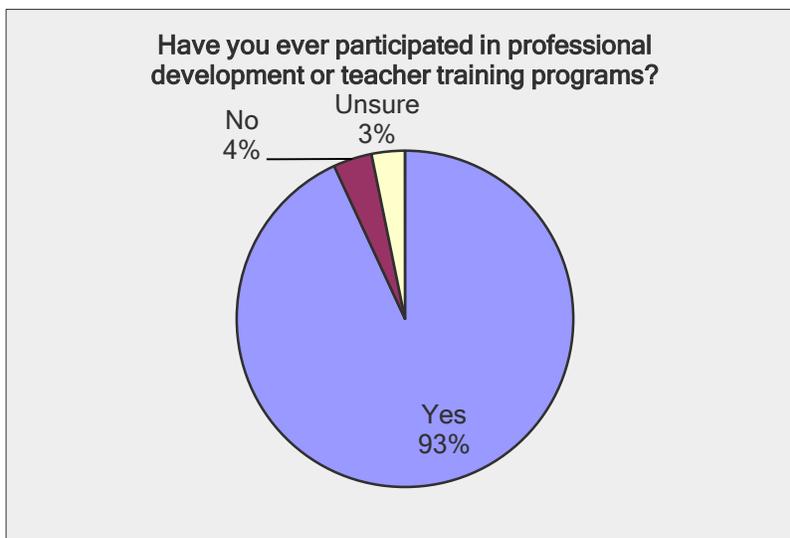


Figure 12: Participation in Teacher Professional Development

Teachers were asked to list the last three trainings that they had participated in and the majority of these trainings were part of the CCPS Field Trip Specialist Program. The remaining professional development trainings listed by teachers are below in alphabetical order. This list provides some insight into the range of trainings that teachers are participating in and could provide potential partnership or marketing opportunities.

- Actfl
- Advanced Studies training
- AICE Marine Face to Face Training
- AMI/NAMTA Adolescent workshop
- AP Biology
- APSI- Ap bio summer institute
- CCPS Secondary Science Teacher Training Semesters 1 and 2
- CEIT/ Coastal Environmental Institute for teachers
- CHAMPS
- Clinical Education Training
- Collection Permit/ Mote species collection training
- Content Area Reading
- COSEE, held at Cedar Key; working with other teachers around the state and scientists about coastal sciences
- CTEM Training through Rookery Bay
- Deconstructing Science Standards
- Differentiated instruction
- Digital literacy (using technology in the classroom)
- Discovery Education Techbook training/Discovery Ed./ Discovery Education DEN Star Ambassador/ Discovery Education Science Program/ Discovery Education in-service
- District AP Chem. Planning/AP Chem. Summer Institute
- District Required trainings every year/District training/Most of sites or district training
- District Test Writing
- Eagle Bluff Environmental Learning Center
- ELA standards
- ELL/ ELL classes/ ELL students Classroom management
- ELLM literacy
- ESE/ ESE/behavior support
- ESOL classes/ESOL staff development/ ESOL

- Everglades Foundation Curricular training/ K-12 literacy integration of the Everglades/ Everglades summer class/Everglades restoration/Everglades workshop/ Everglades Literacy/ Training on the new Everglades curriculum that will be added to our maps next year.
- Everglades Geocache nature conservancy
- FGCU environmental education summer workshop
- Florida Aquarium ocean acidification workshop
- FMSEA Education Collector's Permit
- Gardening
- Gifted/ classes for gifted endorsement
- Google workshop
- Graphing calculator
- Guided reading
- Head Start
- IEP without tears
- IMSTalks
- In school tech training on INTTT
- In school training on Rubican Atlas
- Introduction to engineering design
- iPad/IPAD/ I pad training
- iReady, online resources for the classroom, and standard based progress reporting
- Kagan/Kagan Strategies/Kagan Training
- Key Largo-John Pennekamp
- Larry Chew inquiry
- Learning Differences
- MAFS
- Marzano
- Master's Degree
- Master Naturalist
- NSTA, Regional and National
- Math workshop/math/ Math POC
- Math Investigations Training
- Mentor teacher training
- Mimio
- Monarch training at the Botanical Gardens
- National Geographic Science
- New apps for the classroom

- New Standards
- New Textbooks
- NOAA-Teacher at Sea-Bering Straits, Alaska
- NSTA Conference in Orlando
- Offshore Energy Workshop – Naples, FL, November 5, 2014
- On-line class, college level, Earth/Space Science
- Online Water Program
- Paige Keeley at Imaginarium
- Picture Perfect Training/ Picture Perfect
- Reading/ Reciprocal Reading
- Resource training
- Science Coach training
- Science/Science workshops/ Science POC meeting science
- Science DE/ DE boards/ DE board builder
- Science Fair Field experience with FGCU
- Science of Energy Training Conference
- Science POC meetings and trainings/Science Point of Contact
- Sea Camp
- Special ed
- Standards/Curricular training
- Starlab
- STEM training on Discovery Education
- STEM- training to prepare students to use knowledge of science and technology to create a project for competition/ STEM/STEM Leadership Corps/ STEM – littleBits/ Little Bits at Adm.
- STEM with the Whitaker Cntr at FGCU/STEM Conference/STEM Night at FGCU, Spring 2015/ STEM
- Steve Spangler
- Students with disabilities online course
- Swamp Solar car races
- Teaching statistics
- Technology Training/ Technology Safety
- Thinking maps
- Training for the LIFE Program
- UDL
- Using geometry software
- Using the Learning Goals and Scales
- Using Specific classroom technologies

- Venier probes
- Water trailer trip to school
- We participated in a pollution program
- Wild Florida
- Writing/Writing – district required/ writing through content areas
- Writing effective IEP-how to write an education plan for students that require accommodations.
- Yearly Science training

REASONS FOR PARTICIPATING IN TEACHER PROFESSIONAL DEVELOPMENT PROGRAMS

There were 173 responses to the survey question asking why teachers participated in professional development programs and they are grouped and categorized below with the following themes:

1. Required or Mandatory
2. Required to Participate in the Field Trip
3. Professional Development, Knowledge and Skill Building
4. Pleasure or Interest
5. Have not Participated
6. Other

Required

- Required
- required
- requirement
- Required
- Required
- required
- Required
- Mandated.
- Mandatory
- Required
- Mandatory
- Some by choice, others required by district.
- Some required some for self-improvement

- Required by school, but would like more opportunities for professional development.
- Some required, some to better me as a teacher.
- Some were required by the district or school. I attended others to increase my knowledge about science instruction.
- District required
- My new job required it.
- it is required on early release days
- Required at the time
- Required and improvement
- certification requirements or training for field trip
- mandatory
- required
- interest, necessity
- required
- Required
- required
- It was required
- mandatory
- better my teaching, further my education, benefit student success, required by district
- Mandatory training
- Required/ I enjoy learning more.
- In service day- requirement
- Required
- Required by district
- Required by District
- Mandatory to participate in order to attend field trip with class

Required for the Field Trips

- Needed for field trip
- To be able to take my students on the field trip.
- Allow students to visit Rookery Bay.
- Required for field trip
- Field trip training
- To understand the expectation on the trip and how to implement in the classrooms
- So my students were informed when we attended the field trips

- certification requirements or training for field trip
- Certification
- field trip
- Field Trip
- For field trip
- to be able to guide the class
- Field Trip Specialist Training
- required to take students on their field trip
- Rookery Bay & Corkscrew field guides for trips
- Field Trip Specialist Trip
- In order to go on the field trips, you need to have the training.
- So I can lead a trip
- required for field trip participation
- required in order to participate in field trip
- Person growth and mandated by the county
- Was required in order to do the field trip
- I had to attend the teacher development program in order to participate in the field trip experience.
- Training for my field trip to Rookery Bay with my 7th graders.
- The ability to bring students on a hands-on field trip that aligned to science curriculum.
- To attend district field trip.
- In order to take 5th grade students to Tigertail Beach, teachers had to attend training and participate in on site hands-on exploration/demonstration
- To be able to attend field trips outdoors.
- Mandatory to participate in order to attend field trip with class
- Had to in order to go on field trip
- Be able to take students on trip – required
- To enhance field trips so teacher is as prepared as the docents.
- Required for my students to attend the field trip
- So I knew what to do on the trip and so I could complete the preside activities with the students
- Taking students on fieldtrip

Professional Development, Knowledge and Skill Building

- One for a field trip preparation and the other to enhance classroom learning.
- Professional development for me is to deepen my knowledge and how to instruct effectively with a full understanding of expectations.

- To enhance my students progression.
- For professional development
- To improve my teaching. It involved mathematics and teaching techniques, not estuaries, watershed, or ocean.
- Offered for free; relevant to my teaching
- career development, new resources for teaching,
- Improve skills, network, find interesting activities
- To be better in the classroom!
- To improve my teaching in the classroom
- Bettering my teaching
- Some required some for self-improvement
- Some required, some to better me as a teacher.
- Some were required by the district or school. I attended others to increase my knowledge about science instruction.
- Improve my teaching.
- to add to my expertise
- To learn about what kind of services they offered for students.
- knowledge
- Gain knowledge to share with students.
- To learn new ways to bring instruction to my students.
- What I learn and become excited about I share with my students.
- TOO LEARN MORE!
- I wanted to grow professionally and wanted my kids to participate in a science field trip.
- better my teaching, further my education, benefit student success, required by district
- Wanted to learn about the Florida Everglades..plants and animals that would help guide my teaching in the classroom.
- To be able to lead my class
- To learn about new technologies or teaching strategies that are tried and true. I want to participate in PD that would allow me to bring ideas back to my classroom the very next day.
- Training
- Learning more about what to be taught
- Person growth and mandated by the county
- becoming better professional
- Required by school, but would like more opportunities for professional development.

- Being able to bring accurate information to students
- Career Enhancement
- Enjoy learning about ways to integrate science in the classroom.
- Enhance my curriculum with local and real examples
- To extend my knowledge and get new ideas for classroom strategies.
- To better understand my students, their needs, and effective instruction and content material.
- I would like to learn as much as I teach each and everyday.
- Becoming a more rounded teacher.
- wanted to learn more
- to access new teaching tools
- Required and improvement
- growth, materials
- To learn how to better serve my students.
- I wanted to learn new ways to engage students in the classroom.
- To become better!
- To become a better teacher.
- Take away information to bring back to the classroom.
- Knowledge of subject
- To learn more and have the most up to date information for my students.
- Knowledge building
- To increase my professional knowledge
- Further my education
- To gain knowledge and skills to support student learning.
- Training
- I was interested in the topic and how to incorporate it with my students
- Have a better understanding in teaching about Florida and the environment
- Expand resources.
- wanted to learn more about the curriculum
- I was really excited to learn about different topics/resources in my field, as well as network with other like-minded teachers in my area.
- To be able to guide my students and to see what is available in our area
- I like to always be learning more and improving myself as a person and an educator. For the education collector's permit, it enables me to significantly improve my marine science education by bringing organisms from the field into our classroom for students to study.
- High interest in the program to enhance education and engage students.

- To enhance my expertise in environmental sciences; especially since we live in a coastal town. They're fun and I enjoy working with other teachers and professionals.
- To better serve my students. I'm not a Florida native and felt my background knowledge was lacking.
- To develop and learn more so I can become a better teacher.
- Gain more knowledge to better teach curriculum.
- To bring the standards to life with the resources we have in our county
- To become a better teacher
- Develop skills
- Increase my knowledge
- For professional development
- To keep apprised of new technology and relevant information.
- Learn innovative ways to teach biology
- Learn more about changes to the curriculum
- Further exposure to opportunities for students
- More information on resources
- teacher education
- relay the info to my students

Pleasure or Interest

- I enjoy being outdoors and learning more.
- Interest
- interest
- interest, necessity
- Interested in the environment
- Interested in knowing more and finding new things for students to interact with
- Required/ I enjoy learning more.
- personal desire
- My personal interest
- High interest in the program to enhance education and engage students.
- To enhance my expertise in environmental sciences; especially since we live in a coastal town. They're fun and I enjoy working with other teachers and professionals.
- It was offered, it was free, and I was very interested in raising monarchs and bringing them into the classroom.
- Pure love of the subject and the inspiration the children get from being involved.
- I find it interesting

Have Not Participated

- I did not participate because programs were not offered.
- none
- I haven't attended.
- I have not

Other

- Wish to add to endorsements on teaching certificate
- Made available by school.
- In my field
- Science POC
- See previous question
- To know what was being taught.
- In service
- To better prepare myself for upcoming standards
- Part of the Curriculum and support from the District
- I am the Grade-level point of contact for my school
- I am the science POC for Kindergarten and first grade at my school.
- I am a science point of contact and I was asked to teach the DE board builder lesson
- My 5th graders are so over filling in an answer sheet.
- I always want to grow
- They paid me to go.
- Also, Botanical Garden
- My choice, variety of topics available

OBSTACLES TO ATTENDING TEACHER PROFESSIONAL DEVELOPMENT PROGRAMS

The primary reason given as an obstacle to attending professional teacher development programs was the timing of the event with 57% of respondents identifying this obstacle. This results was further supported by open-ended responses that focused on the difficulty of attending on Saturday's. Forty-Nine percent responded that No time/Too busy was the primary obstacle to attending professional teacher development programs. The lack of time is a common theme for teachers throughout the NA research. Registration costs was an obstacle identified by 29% of respondents, while travel/transportation costs was identified by 28%. Six of the 16 open-ended responses focused on the lack of pay or reimbursement for training time, which implies that

stipends are an important factor in whether teachers will attend training outside of what is required. Food/Lodging constraints was chosen by only 15% of respondents, while 3% chose Lack of CEU's/PLU's as obstacles meaning these are less of a concern or issue for these teachers. The MA research revealed that the CCPS has a department that can approve teacher professional development programs in advance and also provide credits. Perhaps this department can also promote trainings among teachers since one open-ended response was that the teacher was unaware of any offerings.

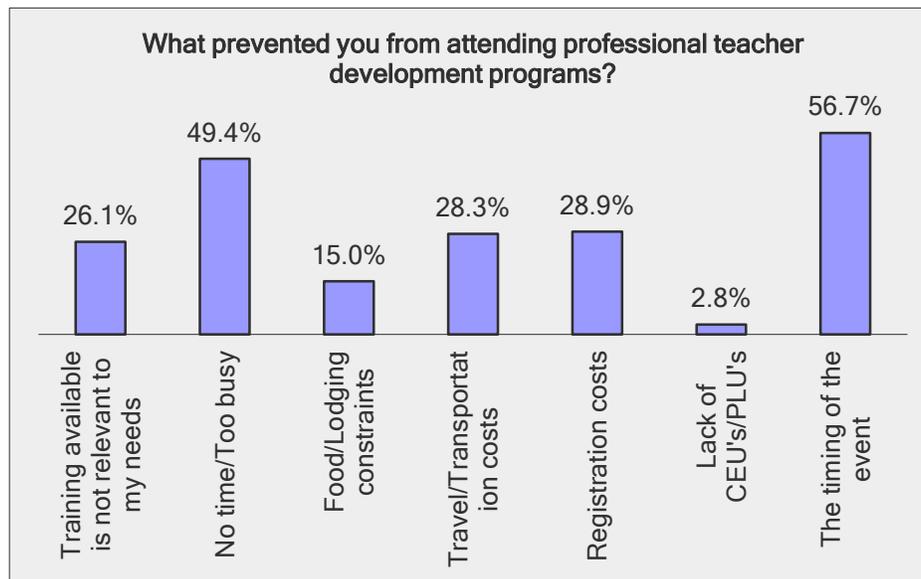


Figure 13: Obstacles to Attending Teacher Professional Development Programs

Below are the open-ended responses to the question “What prevented you from attending professional teacher development programs?”

- In any other profession, professionals are paid to be trained, as training to be better or more efficient is considered part of their job. No actuarial accountant would be asked by her company to shell out the money to attend a training (for which she would not get paid) to learn a new software platform. I love learning new techniques for the classroom. I want my time to be respected. I want to be paid. I want to be treated like a professional.
- not paid for the time I take
- not paid for time
- For most trainings teachers are reimbursed but sometimes it takes several weeks to receive this.

- Nothing, I have been able to make each of them. It is difficult that they are on Saturday's and non-pay time.
- Trainings on weekend
- Other trainings there is no reimbursement at all.
- None offered
- None
- nothing
- None I have always taken them when offered
- our curriculum dictates what we teach
- what is a "professional teacher development program"?
- Also, when it is not during the school day, I have to get childcare for my two elementary age children.
- Few opportunities disclosed.
- I LOVE to learn and go when I have the time and \$\$
- n/a
- I always go because they are important to the trip
- Lack of support from District. I would not be able to implement new material.....which is ridiculous.
- Too short of notice for the trainings
- Too tight of curriculum needs.
- Others don't feel it is as important to bring back into the classroom to leave students for the training.
- I am not aware of any training that are offered.

BEST TIME TO ATTEND TEACHER PROFESSIONAL DEVELOPMENT PROGRAMS

The top response to the survey question about the best time to attend professional teacher development programs was during an in-service day in the fall season, followed by an in-service day during the winter or spring season. The next most preferred timeframe was during the summer season, with a slightly greater preference for those to occur on weekdays. Despite several comments made on other survey questions related to a lack of interest in attending a Saturday training, there was only a 10% difference in the number of teachers who would take a Saturday training versus a week day training during the school year. This validates the input from EE providers discovered during the MA research where they said that teacher training time preferences varied greatly and it was difficult to find training times to satisfy all of them. Some providers overcame this obstacle by offering numerous trainings to accommodate the preferences of a greater

number of teachers, although this resulted in trainings with fewer attendees and took more of their staff time.

Table 12: Best Time to Attend Teacher Professional Development Programs

Answer Options	Summer	Fall	Winter	Spring	Response Count
Monday	79	20	21	15	97
Tuesday	78	18	15	12	96
Wednesday	77	19	17	15	97
Thursday	74	19	18	16	97
Friday	69	17	17	13	83
Saturday	48	38	43	42	75
In-service Day	52	123	114	114	153
					17
<i>answered question</i>					179
<i>skipped question</i>					17

- I will not attend anymore trainings on Saturday.
- Saturdays are extremely busy for all teachers and it would make more sense to have them during the week.
- Saturday if there is a stipend
- Saturday if paid
- Again, I'd like to be paid for training.
- Trainings the month of December are not preferred. There are too many holiday activities happening!
- It depends on what is going on during the school year, I am pretty flexible.
- Child care
- After school hours
- Spring is a more relaxed time of the year.
- virtual
- During the school year anyday in the evening, especially if stipends are provided.
- the days I selected is because I have more time and energy to devote to the training and implementing the next school year.
- In-service days are by far the best.
- My summers are usually taking classes and spending time with my children.
- Fridays are mainly weekly testing days that make it easier to make sub plans
- During the summer is when we are available.

PROFESSIONAL DEVELOPMENT TRAINING RELATED TO ESTUARIES, WATERSHEDS AND OCEANS

The majority of respondents had received no professional development training on estuaries, watersheds or the ocean in the last three years. While many of the respondents were science teachers, the survey was not solely aimed at those types of teachers. This however, does demonstrate a lack of offering or interest in trainings on this subject matter and supports the results of the MA which showed a lack of offering on these subjects for student field trips in Collier County.

Table 13: Percent of Respondents who Received No Training on Specific Topics

Topic	% of respondents who received no training on this topic
Estuaries	43%
Watersheds	43%
Ocean	54%

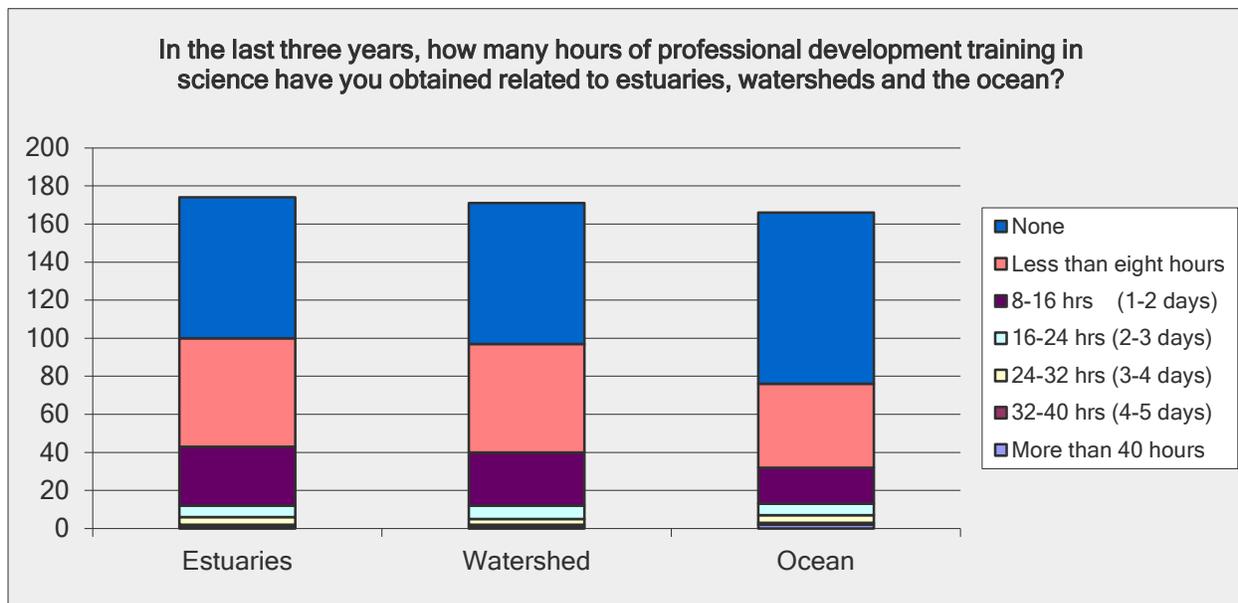


Figure 14: Number of Professional Development Trainings on Estuaries, Watersheds and Oceans

IMPORTANCE OF CONTINUEING EDUCATION UNITS IN DETERMINING PARTICIPATION IN PROFESSIONAL DEVELOPMENT

Fifty-five percent of respondents said that continuing education units (CEU's) are somewhat important, while only 21% said they were very important. This demonstrates that they are important and should be provided when possible, to incentivize teacher participation. Although, 24% or approximately one quarter of respondents said it was not important to them.

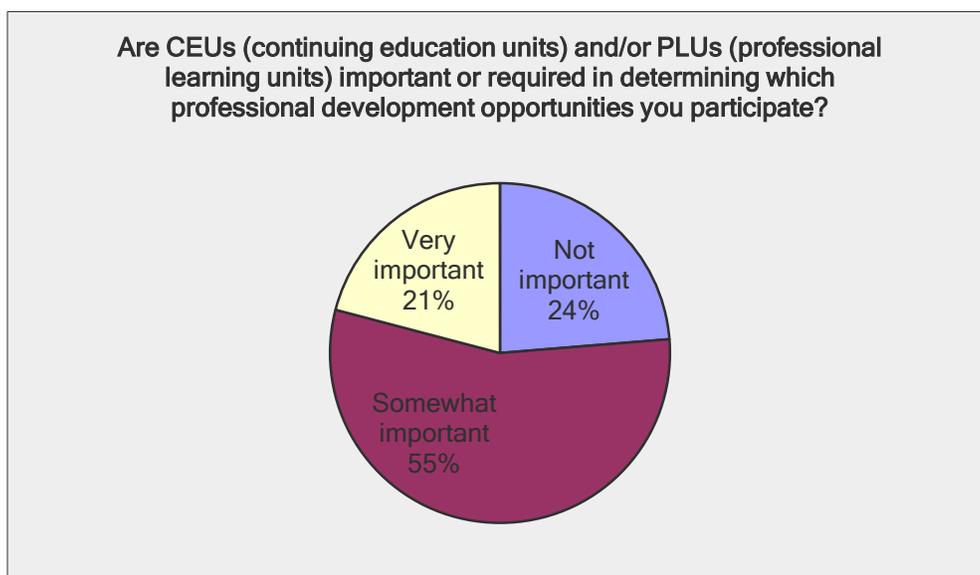


Figure 15: Importance of CEU's in Determining Participation in Professional Development

PARTICIPATION IN SPECIFIC TRAININGS RELATED TO ESTUARY/WATERSHED/OCEAN EDUCATION

Only approximately one third of respondents answered this question, of those there were 51% who had participated in the Conservancy of Southwest Florida and FGCU STEM teacher training program. This is one of the few local offerings that are outside of the CCPS Field Trip Specialist Program. Only four respondents had participated in the Master Naturalist Program, which the MA identified as a potential teacher training program that could be adopted by local EE providers. The Master Naturalist Program also provides a coastal module that includes information on estuary, watershed and ocean

topics which are not well covered by Collier County EE providers. There were only 28 respondents who provide an open-ended answer to this survey question and eight of those said they had not participated in any of these trainings. Several of the open-ended responses focused on trainings related to the CCPS Field Trip Specialist Program and there were a few different trainings mentioned as well, including the online Water Odyssey training offered by the South Florida Water Management District which was identified in the MA research.

Table 14: Participation in Specific Topics Related to Estuary, Watershed and Ocean Education

Have you participated in the following professional development trainings related to estuary/watershed/ocean education? (Check all that apply)		
Answer Options	Response Percent	Response Count
NOAA/NERRS Teachers on the Estuary Training	19.7%	14
Project WET	35.2%	25
Project Wild Aquatic	19.7%	14
Green Eggs and Sand Workshop	1.4%	1
The Jason Project Professional Development	22.5%	16
Conservancy of Southwest Florida and FGCU STEM	50.7%	36
Florida Master Naturalist Program	5.6%	4
I am not interested estuary/watershed/ocean	9.9%	7
Other (please specify and list)		24
<i>answered question</i>		71
<i>skipped question</i>		125

Open-ended responses to the survey question related to specific trainings that teachers participated in related to estuary/watershed/ocean topics:

- noaa’s Deep ocean project; Florida aquarium hydrothermal vents
- Rookery Bay
- Tigertail?
- Naples Botanical Gardens Collier Greens
- STEM Leadership Corps
- SWAMP
- I thought it was Project Wild but it took place out in the Everglades National Park.
- Everglade Literacy Program
- Everglades Literacy Workshop
- Everglades Literacy
- Space Camp

- I did an Everglades training but forgot the exact name of the training.
- When I lived in Orlando I went to a teacher training at Sea World on Oceans.
- I did both project wild and wild aquatic but it was over 15 years ago.
- Corkscrew Swamp, CREW
- The Great Water Odyssey online
- I was accepted to the FGCU STEM institute but scheduling conflicts came up so I was not able to attend.
- Rookery Bay
- Sea Camp
- John Pennecamp teacher education thru FAU
- Everglades literacy, CEIT
- I have not participated in these but would be interested
- Currently not part of my teaching curriculum. N/A
- none
- N/A
- None.
- None of these
- I have not attend any of these.
- I have not participated in any of the training.

TYPE OF PROFESSIONAL DEVELOPMENT WANTED

Approximately half of respondents answered this question, which was open-ended and the responses are listed below and generally grouped by topics assigned by the contractor. If a response fit into more than one category, then it was repeated and responses were only changed to correct spelling errors. There were similar themes to these responses when compared to the responses for the reasons why teachers participate in professional development programs. The alignment of the training to standards or curriculum was of interest and a few specifically requested alignment to a grade level, with three mentioning an interest in activities for elementary school teachers. The majority of overall survey respondents were science teachers and there were quite a few requests for STEM, science and environmental topics with several requesting those related to estuaries, watersheds and oceans. Several responses focused on wanting hands-on activities to share with students and also those that were real-world, field-based and research-oriented. A few other responses were focused on local relevance or Florida-focused, and yet others were open to any training topic.

1. Alignment with Standards or Curriculum

2. STEM, Science, Conservation, Environment Focused
3. Ocean, Watershed or Estuary Focused
4. Provide Opportunities for Students, Enhance Student Learning
5. Sampling, Real World Experience, Field Work
6. Hands-On
7. Florida Focused
8. Seeking Local Connection
9. Any Training and Not Sure
10. Other
11. None

Alignment with Standards or Curriculum

- More field trips that match the science standards.
- Anything pertaining to science or things the next generation should be aware of.
- More examples of quick, fun experiments that do not require a lot of materials and that align with first grade science standards.
- ESE state required
- How to connect STEM to our current standards.
- Any development that will align with the curriculum.
- Any type related to 6th grade curriculum and to Science, in general
- development that correlates with benchmarks
- Simple hands on activities related to watershed, oceans, ecosystems. Relating this content to benchmarks in a efficient way.
- PD that is aligned to FL standards
- Anything that fits the State Standards in 5th Grade Science.
- Professional development with focus on teaching scientific method//simple fun ideas for teaching it. Also, pre-training for at least one specific field trip that ties into curriculum taught earlier in the year. Example, end-of-year trip.
- resources in our area that align with curriculum
- Anything that enhances the curriculum I teach interests me (third grade standards)

STEM, Science, Conservation, Environment Focused

- STEM activities that tie my students to our community environmental partners
- STEM
- STEM activities that tie my students to our community environmental partners
- How to connect STEM to our current standards.
- First grade appropriate STEM lab activity ideas/ time to prepare them/ \$ to purchase materials/ etc...

- All related to science teaching and learning
- Any type related to 6th grade curriculum and to Science, in general
- Conservation
- Anything related to wildlife and conservation
- STEM/ Field Work
- Lessons appropriate for primary grades. Hands-on materials, activities, and games for exploring and learning about and appreciating our environment and how to take care of it.
- Any that have to do with getting out and learning more about the environment.
- Connecting conservation to STEM
- STEM
- STEM
- To enhance the science curriculum
- science
- Science technology.
- More to do with science activities that pertain to the environment for young children

Ocean, Watershed or Estuary Focused

- a training that goes from water shed through the glades into the estuarines then to the deep ocean. Sampling techniques etc.
- Ocean, naturalist program
- Estuaries, Watershed, Ocean
- Anything to do with estuary/watershed/ and (or) ocean education.
- I would like to attend any of the above trainings if available
- more on the watershed
- Watershed and estuaries
- All of the above on 25
- I would like to attend the teacher professional development courses listed in question 25.
- Any of the ones listed in question #25
- Development and training for any field trip into an estuary, water shed, or national park
- Any and all of the above. Just need to be told about them. ☺
- Estuary hands on
- Simple hands on activities related to watershed, oceans, ecosystems. Relating this content to benchmarks in a efficient way.
- I would be very interested in Estuary and watershed

- I would love to learn more about the Florida estuary/watershed/ocean habitats. Coming from Michigan a few years ago I have learned how different the ecosystems and habitats are different here in Florida.
- I would like to have more professional development regarding the oceans for first grade.
- ocean water quality Florida related

Provide Opportunities for Students, Enhance Student Learning

- As much that will provide the opportunities for my students.
- Anything that will enhance my students learning
- Any professional development that will assist me so I can enhance the instruction of the lessons for my students
- I am interested in any that will better the education that I can give to my students.

Sampling, Real World Experience, Field Work

- a training that goes from water shed through the glades into the estuarines then to the deep ocean. Sampling techniques etc.
- I would like to be trained in how to raise funds to support field experiences for students. Some of the donor online programs are excellent. I'd like to be more connected to science that is happening now.....
- Something for my ESE students to gain real world experience
- Real World Experiences
- STEM/ Field Work
- demonstration or lab ideas
- More opportunities to bring students of all levels out into the field, and to conduct marine science experiments at Rookery Bay. I feel it is an amazing and relevant experience for all secondary science levels, because of the interconnectedness of the marine environment.
- Professional development with focus on teaching scientific method//simple fun ideas for teaching it. Also, pre-training for at least one specific field trip that ties into curriculum taught earlier in the year. Example, end-of-year trip.

Hands-On

- hands on
- APPLICATION WITH HANDS ON.
- Hands-on Science
- Hands on activities where I actually learn what I am to teach
- Estuary hands on
- Hands on

- Simple hands on activities related to watershed, oceans, ecosystems. Relating this content to benchmarks in a efficient way.
- Lessons appropriate for primary grades. Hands-on materials, activities, and games for exploring and learning about and appreciating our environment and how to take care of it.
- More hands on.

Florida Focused

- Relevant to the Florida area.
- FL ecosystems
- Florida Environmental
- Not being originally from Florida, anything that will help me become more familiarized with the ecosystems of our state.
- I would love to learn more about the Florida estuary/watershed/ocean habitats. Coming from Michigan a few years ago I have learned how different the ecosystems and habitats are different here in Florida.
- ocean water quality Florida related

Seeking Local Connection

- STEM activities that tie my students to our community environmental partners
- I would like to work with local scientists in the field and lab to learn what they are doing and to foster connections that I may be able to use in the classroom/field trips. Our program is very mobile and has many opportunities to go out in the field. I want to make the trips a real as possible; collecting data that will actually be used rather than collected to just show how it is done.
- Local offerings that I could easily get bus service to for my students.

Any Training and Not Sure

- Open to suggestions
- any type
- I'm not sure.
- any that is available
- Anything
- Any
- unknown
- I am not sure
- not sure
- Any and all of the above. Just need to be told about them. ☺
- I look forward to any opportunity available to me.

- I am open to all topics with still being a “newer” teacher.
- whatever you can get us that we can increase our teaching knowledge with
- Anything that will help me better teach my students about the topics we cover.

Other

- professional development in French
- I would like to be trained in how to raise funds to support field experiences for students. Some of the donor online programs are excellent. I'd like to be more connected to science that is happening now.....
- More examples of quick, fun experiments that do not require a lot of materials and that align with first grade science standards.
- Not too sure. I think I'm all set for training though there always is more to learn!
- I would like in depth training, not just overviews that are rushed along. At my school, we are often rushed and not given proper training.
- I would like a Naturalist that would provide the students with the important information and activities for Rookery Bay like we had many years before.
- Something for my ESE students to gain real world experience
- Vernier Probes
- Development and training for any field trip into an estuary, watershed, or national park
- Weather
- Overall I think the current availability is great
- rookery bay training not on a Saturday
- More on the conservancy of Southwest Florida
- Florida naturalist would be wonderful if there was not a fee!
- I would be interested in trainings in The Florida Master Naturalist Program if it is not too costly and can be done without interfering with my schedule.
- labs that I can bring back to my classroom related to my curriculum
- I would like to have more info for primary grades to participate in outdoor learning trips.
- Practical application to my class.
- Always looking for activities or labs that I can use in the classroom. If there isn't something I can take home or use then the workshop isn't as beneficial as I'd hoped
- Loved the STEM Institute at the Conservancy. Wish they had a 2nd stage.

None

- Currently, I have no professional development needs.
- n

- N/A
- N/A
- None , in my history of teaching I am well versed in the areas mentioned.

EMPHASIS PLACED ON SPECIFIC SCIENCE-RELATED TOPICS

The majority of respondents were science teachers and respondents reported their intention to put emphasis on scientific inquiry skills. Respondents also reported that they would put moderate emphasis on outdoor experiential activities, Data analysis, statistics, and probability and Lab or Field Work/data collection. The science-related topic that the majority of respondents were intending to put little or no emphasis on was Stewardship projects or activities, which may mean this is a gap that teachers want, or could be that they have no interest in them.

Table 15: Emphasis Place on Specific Science-Related Topics

Think about your plans for your class for the entire year. How much emphasis did you or will you give each of the following?					
Answer Options	Little or no emphasis	Moderate emphasis	Heavy emphasis	N/A	Response Count
Outdoor experiential activities	37	102	34	3	176
Lab or Field Work/data collection	30	87	56	5	178
Stewardship projects or activities	72	73	17	14	176
Data analysis, statistics, and probability	25	94	48	10	177
Scientific inquiry skills	4	54	118	3	179
<i>answered question</i>					179
<i>skipped question</i>					17

KNOWLEDGE OF A NATIONAL ESTUARINE RESEARCH RESERVE IN COLLIER COUNTY

The majority of respondents, 76%, were aware that there was a National Estuarine Research Reserve in Collier County which may be related to the number of science teachers who participated in the survey. Only 18% were unaware of the NERR, but the question is intended to raise their awareness.

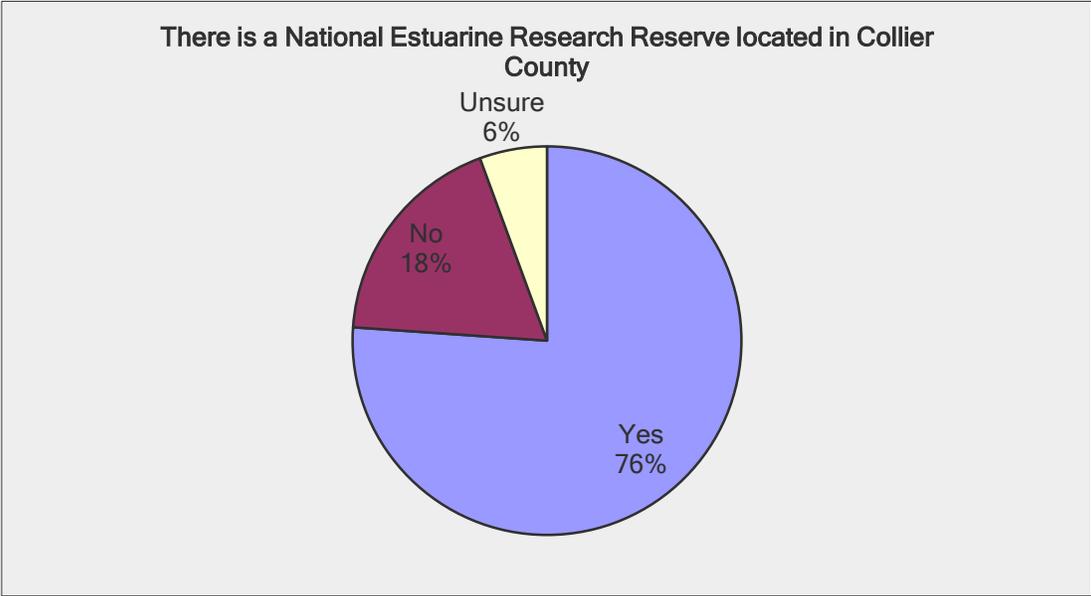


Figure 16: Knowledge of a National Estuarine Research Reserve in Collier County

USE OF EDUCATIONAL SERVICES FROM THE ROOKERY BAY RESERVE

Fifty-four percent of respondents had used services or products from the Rookery Bay Reserve which may be because the majority were science teachers and that is the focus of the Rookery Bay Reserve Education Department programs. However, there were 35% who have not used Rookery Bay Reserve products or services which may be an opportunity to cater to these teachers, although they may not be science teachers.

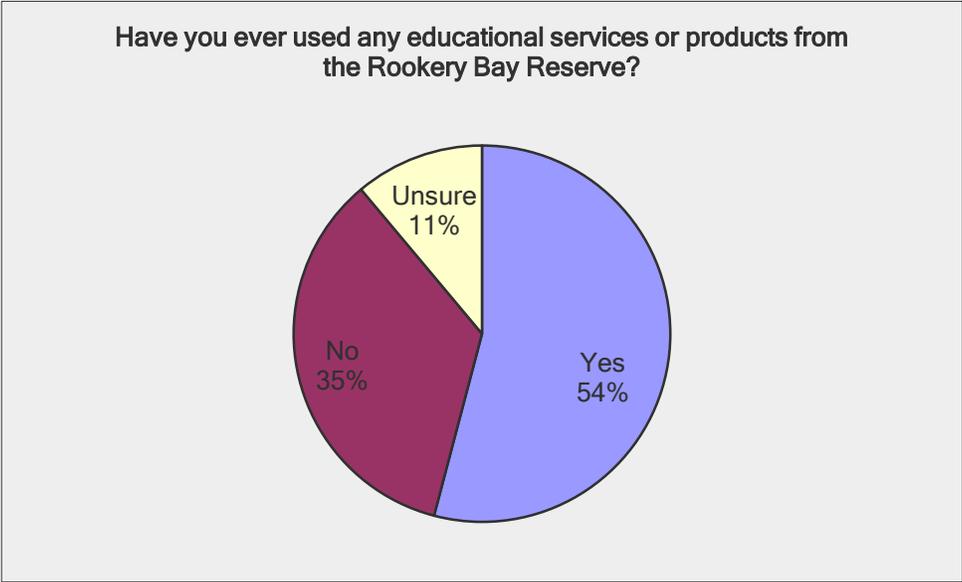


Figure 17: Use of Educational Services from the Rookery Bay Reserve

INTEREST IN RECEIVING INFORMATION ABOUT THE ROOKERY BAY RESERVE

Although approximately half of respondents had used Rookery Bay Reserve products or services, there were 75% of respondents who wanted to receive information about the Rookery Bay Reserve. These 72 respondents will be added to the email list for the Friends of Rookery Bay newsletter which provides additional marketing opportunities. A quarter of respondents did not want to receive information.

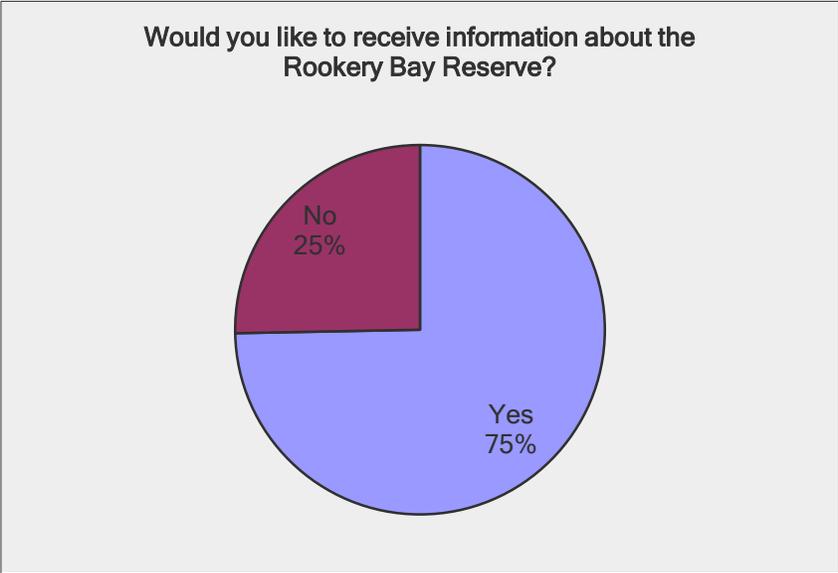


Figure 18: Interest in Receiving Information about the Rookery Bay Reserve

WEBSITES USED BY RESPONDENTS FOR ESTUARY, WATERSHED AND OCEAN INFORMATION

As noted earlier in the report, there are a certain percentage of respondents who do not want information related to estuaries, watershed or oceans which is likely because they do not teach these subjects and specialize in other topics. However, of the web resources listed, 47% used the Rookery Bay Reserve website, 43% used the NOAA website, and 25% used the FDEP website for information. The open-ended responses identified National Geographic and the Discovery Education websites as additional web resources used.

Table 16: Websites Used by Respondents for Estuary, Watershed and Ocean Information

From which web resources do you currently obtain estuary, watershed, and ocean information for use in your classroom? (Check all that apply)		
Answer Options	Response Percent	Response Count
NOAA's Education Website - http://www.education.noaa.gov	43.4%	63
National Estuarine Research Reserve System's Website - http://nerrs.noaa.gov	22.8%	33
National Estuarine Research Reserve System's, Education Website - http://www.estuaries.gov	16.6%	24
Rookery Bay Reserve - www.rookerybay.org	46.9%	68
Florida Dept. of Environmental Protection State government -	24.8%	36
NSTA Estuaries Sci Guide - http://sciguides.nsta.org	13.8%	20
EPA Education Website - http://www.epa.gov/enviroed/	8.3%	12
Wikipedia - http://wikipedia.org	13.8%	20
National Non-profit	8.3%	12
Local Non-profit	7.6%	11
I do not use web resources	16.6%	24
I do not have an interest in obtaining estuary, watershed, and ocean information	4.8%	7
Please specify web resources you do use:		18
answered question		145
skipped question		51

- NatGeo
- Nat. Geo
- Nat. Geo., Discovery Education
- Discovery Education
- We use the Discovery Education and sites provided by the district.
- Discovery Education
- Discovery Education
- Discovery Ed
- Discovery Ed
- Discovery Education
- DE
- we are just starting to get this topic so I have not had a chance to look at resources yet and this is my first year teaching life science
- Crew and USGS
- I have used other fields of Science but not estuary sites.
- Curriculum guides
- everglades foundation
- Haven't used any for this topic, but would if I needed them
- CSI-<http://www.ces.fau.edu/nasa/>
- Guy Harvey-fisheries symposium
- Florida Fish and Wildlife

- I use a lot of specific primary literature research as well.

USE OF REAL TIME DATA

Only 18% of respondents reported that they were using real time data, while 82% were not. Considering the number of respondents who were science teachers, there may be an opportunity to introduce this tool or make it more widely available. Respondents were also asked to provide an open ended response follow up question which was “if yes, what one? If no, why not?” A list of real time data sources that were being used is provided below, along with a few comments that relate to a lack of time or awareness of these data sources.

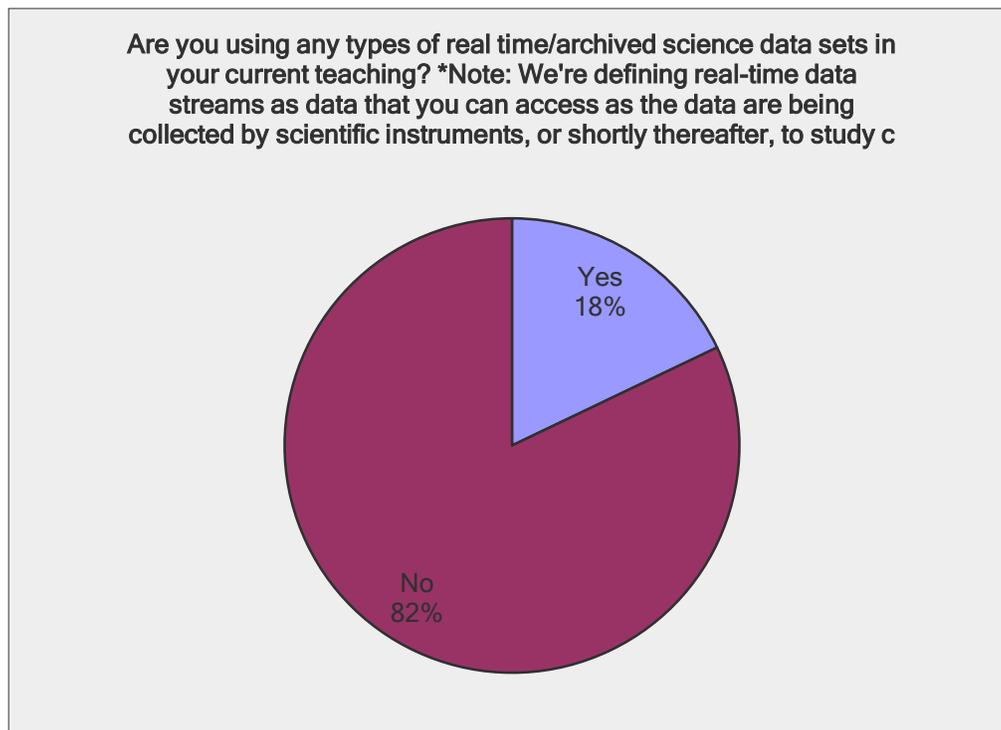


Figure 19: Use of Real Time Data

Open-ended responses to the types of data used, or reasons for not using real time data:

- ndbc
- Temperature and rainfall

- Everglades Storm-water Treatment areas
- Temperature probe
- Time dealing with curriculum constraints
- Dissolved Oxygen
- We used data from our Rookery Bay field trip
- discovery, NASA, others
- OCEARCH
- Info on weather, global warming, space, endangered species, animal tracking
- NBDC (National Buoy Data Center)
- Weather, etc. with Lab Probes
- Temp., pH
- Hurricane tracking, tidal action
- plant growth
- Rain fall
- First year Florida teacher.
- Not in Kinder curriculum
- DE
- Time constraints- lack of knowledge. Not in the curriculum . We do watch a Falcon nest and track the happenings – www.buffalo.edu/falconcam
- <http://www.ces.fau.edu/nasa/>
- NOAA
- not needed in kinder and not familiar
- no time
- n
- Not sure about this question/temperature probes??
- I'd love to use them. Need more awareness of what people are using in other classes, as well as access to computers.
- Not currently but would like to in the future.
- never really thought about bringing real time data into the classroom
- I am not familiar with this resource
- I didn't know there was such a thing!
- I do not teach science
- Didn't realize it was available
- Unaware

IDENTIFICATION OF REAL TIME DATA SETS THAT TEACHERS NEED SYNTHESIZED INTO AGE-APPROPRIATE LEARNING MATERIALS

As noted earlier in the report, there are a certain percentage of respondents who do not want information related to estuaries, watershed or oceans which is likely because they do not teach these subjects and specialize in other topics. Of the real time data sets listed there was a fairly even spread meaning that most topics were of interest. However, there were 56% of respondents interested in temperature of the air and water, and 51% interested in pH, followed by 43% interested in animal tag/tracking. There were only six open-ended response in the “other” category and those included tide information, water cycle, water table and life cycles as other data sets of interest.

Table 17: Real Time Data Sets that Teachers Need Synthesized

Answer Options	Response Percent	Response Count
Temperature: air temperature: water	55.8%	77
pH	50.7%	70
Salinity	47.1%	65
Animal tag/tracking	42.8%	59
Fish species & abundance	39.9%	55
Dissolved oxygen (DO)	37.7%	52
Water contaminants	29.7%	41
Water turbidity (clarity/cloudiness)	29.7%	41
Currents	26.8%	37
Zooplankton species	26.8%	37
Nutrients	24.6%	34
Sea level rise	24.6%	34
Water depth	24.6%	34
Atmospheric carbon dioxide	23.2%	32
Ocean color	21.0%	29
Waves	21.0%	29
Algal blooms	17.4%	24
Bathymetry/topography	10.9%	15
None of the above	8.7%	12
Other		6

SKILL BUILDING INTERESTS

The vast majority, 93%, of respondents are interested in building skills in the category of conducting hands-on activities, followed by 65% seeking skills in facilitating field work/data collection. The only other response provided in the open ended responses was “using rov’s and fpv’s.” Approximately 25% of those taking the survey, skipped the question.

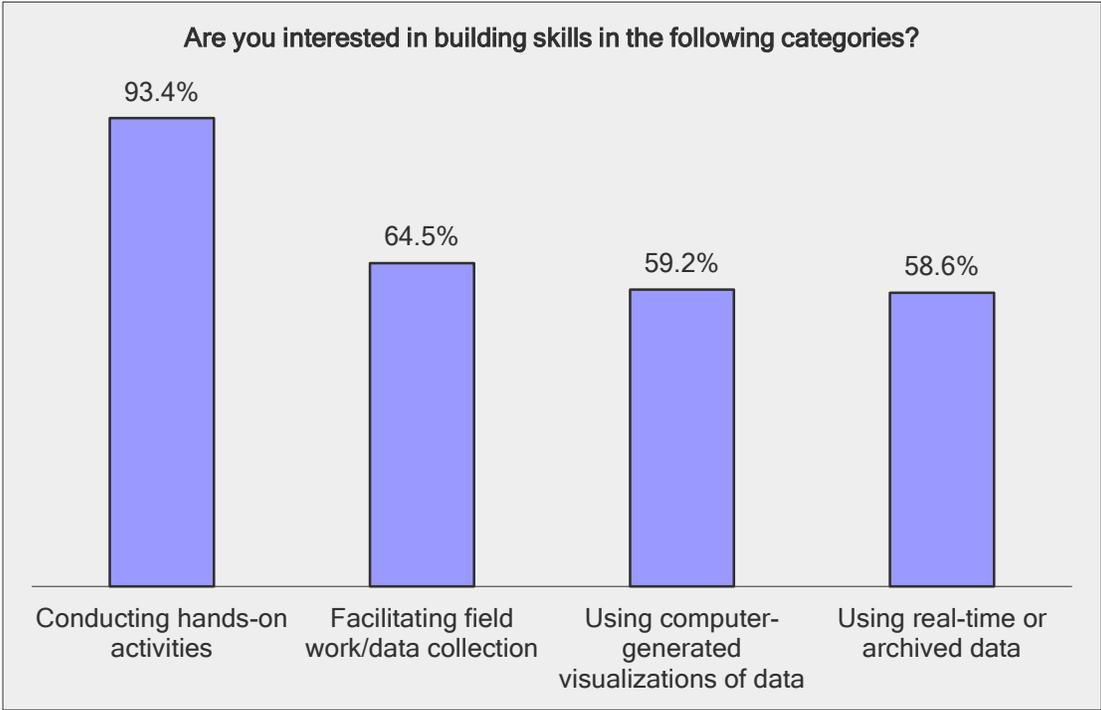


Figure 20: Skill Building Interests

TYPE OF OUTDOOR EXPERIENTIAL OPPORTUNITIES/ACTIVITIES STUDENTS PROVIDED WITH

According to teachers, students are provided with offsite outdoor field trips and outdoor activities on or adjacent to school grounds. Approximately 25% of those taking the survey skipped the question.

Table 18: Type of Outdoor Experiential Opportunities/Activities Students Provided With

What kind of outdoor experiential opportunities/activities are your students provided with?		
Answer Options	Response Percent	Response Count
Offsite outdoor field trips	75.5%	111
Outdoor activities on, or adjacent to, school grounds	73.5%	108
Outdoor activities assigned to students as homework	26.5%	39
Other (please specify)		10
<i>answered question</i>		147
<i>skipped question</i>		49

HELP NEEDED TO INCORPORATE MORE OUTDOOR EDUCATION IN CLASSROOMS

A theme throughout the survey was that hands-on activities are desired by teachers for incorporation into classroom learning, according to 66% of respondents. There were 60% who said that facilitating inquiry-based activities would help them incorporate more outdoor education into their classroom, followed by 58% who stated that backpacks with field guides, binoculars, etc. would help them. Approximately 23% skipped this question.

Table 19: Help Needed to Incorporate More Outdoor Education in the Classroom

What help do you need to incorporate more outdoor education in your classroom?		
Answer Options	Response Percent	Response Count
Unstructured outdoor experiential activities	34.4%	55
Backpacks with field guides, binoculars, magnifying glasses and activity guides, among others.	57.5%	92
Facilitating inquiry-based activities	60.0%	96
Conducting hands-on activities	65.6%	105
Guidance on monitoring activities	34.4%	55
Facilitating field work/data collection	52.5%	84
No help necessary	5.6%	9
Other (please specify)		7
<i>answered question</i>		160
<i>skipped question</i>		36

NEED FOR NEW ESTUARY/OCEAN/WATERSHED RELATED EDUCATIONAL MATERIALS IN DIFFERENT LANGUAGES

Fifty-two percent of respondents said they did not need new estuary/ocean/watershed related educational materials in different languages while 33% said they did need them. As in earlier survey questions, there were 6% who do not teach these subjects and 22% who skipped the question. Of those that answered the follow-up question about which languages, there were 32 who specified Spanish, 16 who specified Haitian Creole, and one who specified French, and one who specified Albanian.

Table 20: Need for New Estuary, Ocean and Watershed Materials in Different Languages

Do you foresee a need for new estuary/ocean/watershed related educational materials in different languages?		
Answer Options	Response Percent	Response Count
Yes	32.9%	53
No	51.6%	83
Don't teach estuary/ocean/watershed	5.6%	9
Unsure	11.8%	19
If yes, which languages?		33
	<i>answered question</i>	161
	<i>skipped question</i>	35

INTEREST IN EDUCATIONAL MATERIALS ON SPECIFIC TOPICS

Fifty-four to 70% of respondents were interested in the specific topical materials surveyed about, including ecology, use of data in the classroom, climate change and sea level rise, human impacts and stewardship actions, and scientific research. Cultural heritage was the topic that garnered least amount of interest.

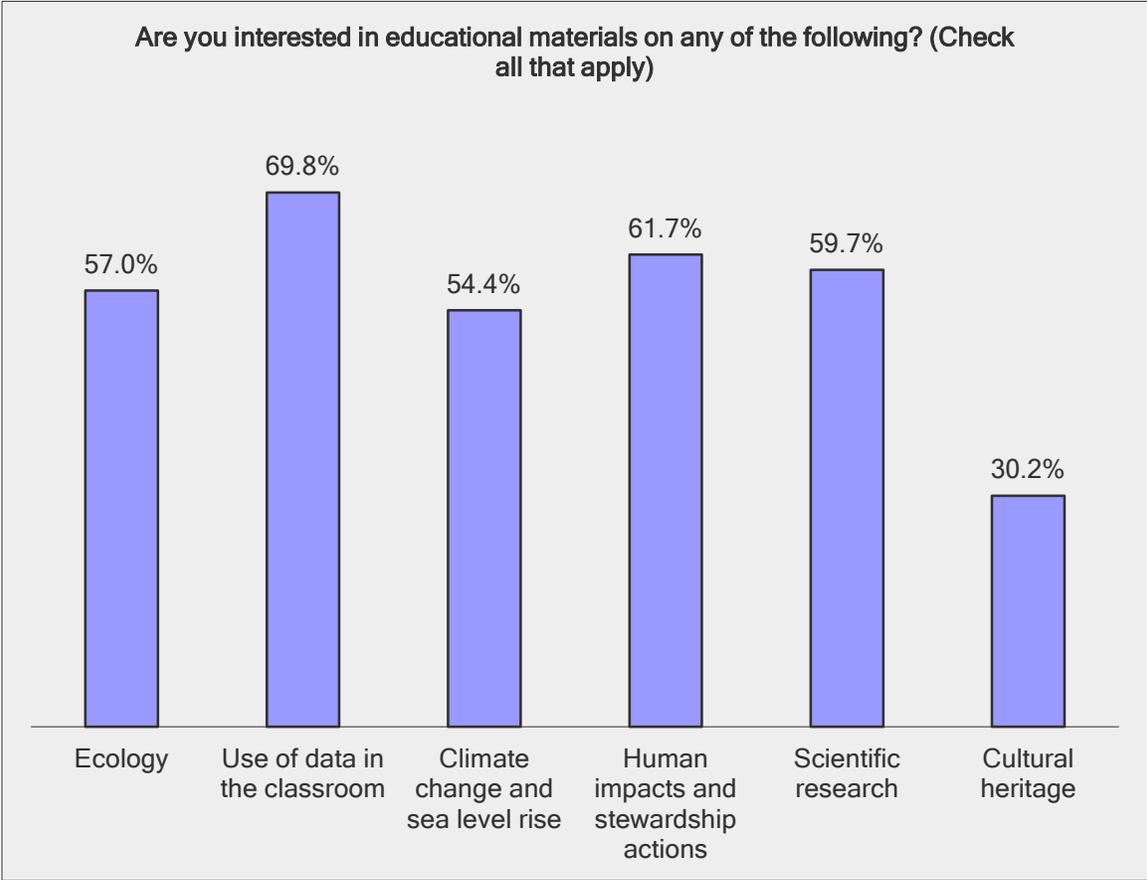


Figure 21: Interest in Educational Materials on Specific Topics

HELP NEEDED TO INCORPORATE MORE DISCUSSION ABOUT THE EFFECTS OF CLIMATE CHANGE ON COASTAL AREAS INTO CLASSROOMS

Activities for students was the top response to the survey question “What help do you need to incorporate more discussion about the effects of climate change on coastal areas in your classroom?” This was followed by age appropriate background materials and lesson plans and curriculum.

Table 21: Help Needed to Incorporate more Discussion about the Effects of Climate Change on Coastal Areas into Classrooms

Answer Options	Response Percent	Response Count
Activities for students	83.9%	130
Age appropriate background materials	69.0%	107
Lesson plans and curriculum	67.1%	104
The availability of expert guest speakers	53.5%	83
Teacher workshops	48.4%	75
Background information for teachers	48.4%	75
Access to real world climate or sea level data	47.1%	73
Funding/mini-grants	36.8%	57
Other Resources		2

ADDITIONAL COMMENTS SHARED

- I feel that conservationism is very important to teach.
- A few of my students are going to Rookery Bay for their CSN Senior May Term. I thank you for hosting them and hope that they will learn a lot from their experience.
- Rookery bay is a great asset I already use and would like to use more. through field experiences
- I would LOVE to incorporate and drive my instruction around the outdoors. I would love for my classroom to be outdoors at all times (except when it is raining). Unfortunately, we need to drive our instruction around the the Common Core reading curriculum. Not my choice, just my job. I think what you all do for the environment is AWESOME and would love to have my class visit. We are only allowed funding for 1 field trip per school year. Again, not my choice :(Keep up the great work!
- Science text is one of the hardest for elementary students. This is why trips, and activities are so important at this age. Especially here in Immokalee where most of the kids barely leave the city. We had 0 trips this year. This is my first year in second grade and I am hoping to change that for next year.
- Thank you.
- I appreciate the work that is conducted at Rookery Bay and thank you for sending a survey to teachers.
- Well done survey that is very detailed

- It would be really nice for our students in Immokalee to get the exposure of field trips like these so they can make a connection to what they are learning, especially the ELL students.
- Thank you for asking.
- Unfortunately, many of the outdoor/hands on instruction has taken a back seat to the recent trend in politics in education, especially the heavy focus of testing, which now effects the teachers monetarily & the overall evaluation process & outcome.
- If there are any free, Kindergarten appropriate field trips we would be interested in finding out more information on them.
- This is not a topic I cover in depth...we study animals and plants which is related to the study of the ocean so a good connection can be made there. That is what I would be interested in.
- I am glad that Rookery Bay is reaching out to provide access.
- I enjoyed watching my third grade students discover the outdoors when we went to the CREW I wish I could do something similar with the first graders.
- We teach a good amount of ecology- water- salinity vs fresh, succession, resources, human impact, calculating productivity in an ecosystem, population studies, monitoring the environment, calculating population densities, field studies- catch and release, sampling techniques
- none
- N/A

REQUEST TO RECEIVE FREE PASSES TO THE ROOKERY BAY RESERVE ENVIRONMENTAL LEARNING CENTER

A total of 196 teachers participated in the survey and a total of 127 requested the complimentary passes to the RBNERR Environmental Learning Center.

DISCUSSION AND RECOMMENDATIONS

The survey had approximately a 6% response rate and of the 196 respondents there were some trends. The first 11 survey questions focused on demographic information such as gender and age, but also included basic information about what they taught and if they had previously attended EE field trips. Detailed response information for each question is included in this report, but in summary, the survey respondents are most likely to be:

- White
- A woman
- A public school teacher
- Have earned a Bachelor's or Master's Degree
- Anywhere between the ages of 18-59
- Have teaching experience anywhere between 4-21 years
- ~50% chance of being an elementary teacher
- ~50% chance of being a MD or HS science teacher
- Very likely to have already participated in more than one outdoor EE field trip (repeat attenders)
- ~35% likely to have participated in a RBNERR field trip

The data analysis reveals bias within the survey results which are obviously not representative of all types of teachers. However, the data does provide insights into teacher field trip and professional development preferences, although the information is more representative of the views of those who responded, rather than views of a broader representative sample. These limitations need to be considered when using the survey data to plan EE programming or make programmatic changes.

In the earlier MA research, providers asserted that teachers were repeat attenders and that once engaged in attending field trips, they tended to continue participating. In addition, the converse situation is likely occurring which is that teachers that have not previously attended are less likely to attend in the future. The NA survey included far more teachers who had previously attended EE field trips and the majority of those had attended more than one EE field trip program in their careers. More research is needed to determine what internal or external factors contribute to this repeat attender behavior pattern, however, EE providers that are more aware of this may be able to better differentiate between the two audiences and respond. For example, new attendees and repeat attendees probably require a different level of service; repeat attendees who fail to sign up for programming may be experiencing a specific obstacle which could be identified and potentially overcome; new attendees could be interviewed to further define the factors involved in the decision to attend and these specific motivators could potentially be encouraged. While the NA failed to reveal the full suite of motivations at work for repeat attenders, this is an area of interest and needs to be considered by EE providers and researchers.

There were several clear themes related to reasons for attending and obstacles for not attending EE field trips and these also generally applied to professional development programs. Funding and costs as obstacles were consistent themes. This further emphasizes the importance of ensuring that CCPS funding for EE field trips continues.

Despite the funding that is received, survey respondents were acutely aware of the costs involved for students and teachers to attend both field trips and professional development programs. Free EE programs or those with subsidized buses, as well as teacher professional development programs that provide a stipend, are more likely to be well received. In addition, several comments also focused on the importance of serving students who do not typically have an opportunity to visit EE program field trip sites, which further validates the importance of free programming.

Connection to the curriculum was also another major theme. This was demonstrated in survey questions related to reasons for attending EE programs, but was also identified in the survey question related to the importance of field trips being correlated to standards. The majority of EE providers identified in the MA correlate their programs to standards. These correlations appear to be focused on science standards and some survey respondents were not in those teaching fields. Non-science teachers may be a potential audience since EE is intended to cut across the curriculum and be incorporated into a variety of disciplines. Some respondents requested specific correlations, such as those for elementary levels or those focused on social studies. Based on the variety of responses, the concept of correlation is not well enough defined. Future research would be necessary to identify exactly what survey respondents mean when they say they want a “curriculum connection.” It may not refer to correlating to standards and instead may refer to the timing of the field trip and whether it was directly linked to recent learning objectives covered in the classroom. EE providers should explore this concept with the teachers who attend their programs. It may be possible to better satisfy teachers in regards to curriculum connections without significant programmatic changes or resources. Perhaps, even the perception of greater connections would improve teacher satisfaction and that may be able to be accomplished through asking teachers pre and post field trip questions about how to make a stronger connection.

Another theme, correctly identified by EE providers in the MA research, was the lack of time and poor or difficult timing as a significant obstacle to participation in EE field trip programs and teacher professional development programs. This is likely to be an obstacle that providers cannot overcome; however, it reinforces the importance of supporting teachers in the field trip planning and implementation process by providing clear guidance, checklists or other tools. In addition, the research showed that increased or improved communication and coordination would provide incentives for attending, which further validates this recommendation.

Table 22: Overview of Responses to Reasons and Motivations for Participating or Not Participating to Identify Themes

Survey Question	Responses
What are the primary reasons for participating in outdoor, environmental field trip programs?	<ul style="list-style-type: none"> • Learning/Enhance Curriculum • Hands-On Activities • Get Outdoors/Experience Nature • Fun • My students do not get the chance to go places that enrich their lives • Practiced real-life sampling techniques that biologist in the field would use
What would make you more likely to participate in outdoor, environmental field trip programs?	<ul style="list-style-type: none"> • Reduced Costs and Increased Funding • Funding for Buses and Transportation • Alignment with Curriculum • Administrative or Team Support • More Time and Better Timing • Improvements to Organizational Coordination and Communication Challenges • Increased Offerings or Opportunities • Improvements to Training Outdoor Leaders or Guides Needed • Testing Constraints • Support for Finding Chaperones or Addressing Chaperones Challenges • Nothing Needed/Already Participate
What was the reason for your participation in a professional teacher development program?	<ul style="list-style-type: none"> • Required or Mandatory • Required to Participate in the Field Trip • Professional Development, Knowledge and Skill Building • Pleasure or Interest • Have not Participated
What reasons prevent you from participating in outdoor, environmental field trip programs? (choose all that apply)	<ul style="list-style-type: none"> • Costs/Too expensive • Transportation constraints • Lack of time/Too busy • Difficulty with chaperones • Not aligned with the curriculum
What would make you less likely to participate in outdoor, environmental field trip programs?	<ul style="list-style-type: none"> • Increased Costs or Decreased Funding • Lack of School or Administrative Support, Increased Paperwork and Restrictions • Increased Time or Effort Involved

	<ul style="list-style-type: none"> • Lack of Curriculum Connection • Transportation Issues and Distance • Lack of Chaperones • Timing of Field Trips and Trainings • Training Requirements • Lack of Field Trip Guides • Approach of EE Provider • Poor or Difficult Weather Conditions • Student Behavior • No Obstacles • Other Reasons
<p>What prevented you from attending professional teacher development programs?</p>	<ul style="list-style-type: none"> • The timing of the event • No time/Too busy • Registration costs • Travel/Transportation costs • Training available is not relevant to my needs

Based on the survey responses, it is clear that in order to continue to meet the needs of teachers who are satisfied with their field trip experiences and to market these programs to teachers, the following recommendations summarize the field trip attributes and approaches to be enhanced and the obstacles or improvements to decrease and overcome.

- ▶ Increase
 - Learning/Enhanced Curriculum, Curriculum Connections, Including Correlation to Standards
 - Hands-On Activities
 - Get Outdoors/Experience Nature
 - Access to Technology/Research and Real-Life Sampling Experiences
 - Fun
 - Opportunities for Students who Don't get to Go Places
 - Access to Teacher Training at Convenient Times
 - Access to Appropriate Field Dates
- ▶ Decrease
 - Costs/Too expensive
 - Transportation Constraints
 - Lack of time/Too busy
 - Difficulty with Chaperones
 - Lack of alignment with the curriculum

Teacher professional development was a particular focus of this research since the RBNERR intends to offer Teachers on the Estuary (TOTE) teacher training programs as part of the funding that paid for the MA and NA research. The timing of the program is of interest to teachers, with the majority citing in-service days or the summer as a good time. However, there was an even spread among days of the week and time of the year which is similar to the information gained during the MA where providers reflected on the difficulty of satisfying all teachers' timing preferences. Perhaps CCPS would allow an in-service day to be dedicated to EE field trip provider trainings. Otherwise, the summer may be the best alternative. Topics for teacher professional development programs were identified within the NA survey, although they are biased by the high number of science teachers that responded. Many of the teachers surveyed already taught watershed, ocean or estuary topics and there was an identified interest in gaining more resources on these topics. However, RBNERR was the only provider that focused solely on that topic, although other providers did have expertise in these area and may be able to fill this gap. A stipend would provide significant motivation for teachers, and perhaps providers would consider broadening their invitee list to teachers who do not focus on STEM topics. There also seemed to be an interest from elementary school teachers who wanted curriculum for the classroom and requests for experiences that were real-world, field-based and research-oriented. For those providers with an interest in offering teacher professional development programs on a regular basis there may be a saturation point where the most interested local teachers have already attended and therefore broadening the geographic scope of their marketing may also be helpful.

The results of the NA could be helpful for EE providers and CCPS in overcoming barriers and increasing benefits for teachers to participate in EE field trip programs and STEM-related professional development programs. The responses to the question about roles within a school identified potential audiences for marketing future programs or gathering additional information because they are likely to be leaders within their schools. Further research is necessary to refine the findings and recommendations identified in this research effort. Repeating this research on a regular basis, such as every 3-5 years, would support EE providers in better identifying trends.

Works Cited

National Oceanic and Atmospheric Administration (2008). *K-12 Estuarine Education Program (KEEP) Framework*

Nature Based Education (2015) What is Nature Based Education? Retrieved November 3, 2011: <http://naturebasededucation.org/>

Private School Review (2015) Retrieved on May 22, 2015.
http://www.privateschoolreview.com/county_private_schools/stateid/FL/county/12021

United States Census Bureau: State and County QuickFacts. Collier County, Florida.
Retrieved May 23, 2015: <http://quickfacts.census.gov/qfd/states/12/12021.html>.

APPENDIX A: MARKET ANALYSIS SUMMARY RESULTS

- While organizations vary greatly within any category of affiliation, this research indicated that only one state government affiliated institution is offering EE at this time, all nature centers/EE centers are providing EE programming, and municipal governments, local non-profits, and educational institutions were only half as likely to provide these types of programs.
- Four actual providers have reduced the EE programs they offer due to loss of grant funding or budget cuts during the economic downturn.
- Three potential providers formerly provided EE programs and have discontinued them altogether and only one of those intends to start them up again in the future.
- Two actual providers are expanding their programs. One received grant funding to add a middle school program and the other is mentoring other communities so they can start a similar program elsewhere.
- The twelve actual providers in Collier County track the number of people served in different ways so the data was not comparable. However, among the twelve actual providers surveyed the annual total served ranged from 1,000 – 7,000 for a total of 47,161 served collectively. While this includes some out-of-county students it is likely that a high number of students are receiving EE.
- Questions that focused on the total number of staff and the number dedicated to EE were unable to be analyzed because of the range of methods used to staff programs, variation in the duration and types of programs provided the types of organizations involved, and the structure of education departments/teams.
- EE programs had diverse funding sources including government-provided, grants, donations, and memberships. Some providers specifically conducted fund-raising activities to support EE programs. Some government programs relied on a “Friends Group” to help raise money.
- While a few comments indicated that distance had been an obstacle, the overall trend does not clearly demonstrate that distance is the primary limiting factor to school participation in field-based EE programs. This is a question that should be included in the follow-up NA research.
- Collier County Public Schools Science Department has organized local providers to offer a system of field trips available to all 2nd, 3rd, 4th, 5th, and 6th graders and also high school marine science students. If other factors are not prohibitive there may be a niche for programs that focus on middle or high school students.
- The majority of teacher training taking place in Collier County is associated with the CCPS Field Trip Specialist Program since most providers require the teacher to participate in training prior to attendance. A few notable exceptions are the Conservancy of SWFL’s STEM Institute in cooperation with FGCU which is a week

long summer program, the Naples Botanical Garden's School Garden Program which provides a few hours of teacher training prior to the use of a school garden. This is a question that should be included in the follow-up NA research.

- Only one actual provider in Collier County is focused on estuarine, coastal, or ocean topics and two other providers included estuarine ecosystems as part of their curriculum while there is one that teaches these subjects to adults.
- Only two actual providers offer boat trips as part of their programs.
- Approximately half of the actual providers conduct evaluations on each student group and most of them are using pre and post-test instruments. The other half were not using an evaluation instrument, and some of those are relying on anecdotal evidence and responses from teachers and students as a measure of success.
- Of the 12 actual providers, nine stated that they had written curriculum while two did not, and two did not respond. One provider had written curriculum for one of their programs, but not for all of them. This is a fair amount of documentation for EE programs.
- Most providers said they use their website, the Collier County Public Schools website, and word of mouth as their primary marketing strategies. A clear theme was that teachers tend to be "repeat attenders."
- Volunteers are commonly used in EE programs, but not universally used and some reported challenges associated with the use of volunteers.
- Many of the providers expect teachers to assist in teaching or leading the field trip program, but several expounded on the importance of teaching teachers along with the kids.
- Providers communicate with teachers through email and by providing specific information on their website, through packets, checklists, and other tools.
- Providers thought the main reasons that teachers attended their program was the value of the program in terms of fun or learning outcomes, but they also cited that teachers were repeat attenders and that teacher turnover reduced attendance.
 - Providers thought that the main reasons that teachers did not attend their programs were because they were busy and have many pressures on them, including problems with buses and substitutes, because chaperones were difficult to find, and because providers lacked resources to accommodate additional groups.
 - Challenges faced by teachers and providers included the following:
 - Teachers are busy, have a lack of spare time and therefore it's hard to get them to complete tasks for providers
 - Teachers sometimes lack EE knowledge and are not comfortable in the outdoors, which can have an impact on field trips,

- Teaching positions sometimes have a lot of turnover and the inconsistency of teachers within their job position can affect EE providers
- Teachers will return year after year on a field trip, which provides a rich, long-term experience for all involved
- The amount of effort and enthusiasm of teachers is perceived by providers as important for a successful EE field trip experience,
- Testing and technology are additional challenges.

APPENDIX B: EMAIL TO TEACHERS

Dear CCPS Teacher,

Your help is needed! Please take a moment to click on the link below and complete this important survey about teacher training and field trip programs in Collier County, Florida. The survey is sponsored by the Rookery Bay Reserve and the National Oceanic and Atmospheric Administration and is intended to improve services provided to teachers in the area.

The first 300 teachers who complete the survey will receive two free passes to the Reserve's Environmental Learning Center. Only 15 minutes are needed and the survey will close at 5pm on Friday, May 1, 2015. Take the survey today!

<https://www.surveymonkey.com/r/J5MCK5W>

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APPENDIX C: AUDIENCE NEEDS ASSESSMENT SURVEY

The purpose of this survey is to improve the services provided to Collier County school teachers by field trip providers, including the Rookery Bay Reserve. The survey will take approximately 15 minutes and is specifically aimed at formal classroom teachers. The first 300 teachers who complete the survey by the deadline at 5pm on Friday, May 1, 2015, will receive two free passes to the Reserve's Environmental Learning Center. If you have any problems with the survey, please email tabitha@geobluecoastal.com. Thank you!

Tell us about yourself by answering the following nine questions.

1. What is your gender?

Female

Male

2. What is the highest degree you have completed?

Bachelor's degree

Master's degree

Doctorate degree

Other (please specify)

3. What is your age?

18-29

30-39

40-49

50-59

60 or more

4. Please specify your ethnicity

Asian or Pacific Islander

Black or African American

Hispanic or Latino

Native American or American Indian

White

Other (please specify)

5. How many years have you been working in education?

- 0-3
- 4-5
- 6-10
- 11-15
- 16-20
- 21 or more

6. What are your main roles within your school or school system? (check all that apply)

- Public School Teacher
- Public School Administrator
- Private School Teacher
- Private School Administrator
- Point-of-Contact for Science
- Department Chair
- Instructional Coach
- Other (please specify)

The next set of questions focus on outdoor, environmental education field trips and specific topics.

10. Have you ever taken your students on an outdoor, environmental education field trip?

- Yes
- No
- Don't Know

If yes, which ones? (please list)

11. How many times have you taken students on outdoor, environmental education field trips in your career?

- 1 time only
- 2-3 times
- 4-6 times
- 7 or more times
- Annually

Other (please specify)

12. What are the primary reasons for participating in outdoor, environmental field trip programs?

- Learning/Enhance Curriculum
- Hands-On Activities
- Get Outdoors/Experience Nature
- Access to Technology/Research
- Fun
- It's Required
- Other Teachers from my School Already Attend

Other Reasons (please specify)

13. What reasons prevent you from participating in outdoor, environmental field trip programs? (choose all that apply)

- Lack of time/Too busy
- Lack of comfort in the outdoors
- Lack of administrative support
- Not interested
- Costs/Too expensive
- Transportation constraints
- Lack of student interest/participation
- Not aligned with the curriculum
- Difficulty with chaperones

Other (please specify)

14. What would make you more likely to participate in outdoor, environmental field trip programs?

15. What would make you less likely to participate in outdoor, environmental field trip programs?

16. How far will you travel for a field trip?

- 20 minutes or less
- 21-30 minutes
- 31-40 minutes
- 41-50 minutes
- 51 minutes or more
- I do not go on field trips

This set of questions focuses on professional development opportunities.

19. Have you ever participated in professional development or teacher training programs?

Yes

No

Unsure

If yes, please list the last three? (please explain)

24. Are CEUs (continuing education units) and/or PLUs (professional learning units) important or required in determining which professional development opportunities you participate?

- Not important
- Somewhat important
- Very important

25. Have you participated in the following professional development trainings related to estuary/watershed/ocean education? (Check all that apply)

- NOAA/NERRS Teachers on the Estuary Training
- Project WET
- Project Wild Aquatic
- Green Eggs and Sand Workshop
- The Jason Project Professional Development
- Conservancy of Southwest Florida and FGCU STEM Institute
- Florida Master Naturalist Program
- I am not interested estuary/watershed/ocean education

Other (please specify and list)

26. What type of teacher professional development do you need or want?

The final set of questions focus on teaching resources.

27. Think about your plans for your class for the entire year. How much emphasis did you or will you give each of the following?

	Little or no emphasis	Moderate emphasis	Heavy emphasis	N/A
Outdoor experiential activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lab or Field Work/data collection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stewardship projects or activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data analysis, statistics, and probability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scientific inquiry skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. There is a National Estuarine Research Reserve located in Collier County called the Rookery Bay Reserve which is one of 28 Reserves around the country protected for the purposes of education, research, water-quality monitoring and coastal stewardship. Were you aware that your state has National Estuarine Research Reserves?

- Yes
- No
- Unsure

29. Have you ever used any educational services or products from the Rookery Bay Reserve?

- Yes
- No
- Unsure

If yes, which ones? (please list)

30. Would you like to receive information about the Rookery Bay Reserve?

- Yes
- No

If yes, please type the preferred email address below

31. From which web resources do you currently obtain estuary, watershed, and ocean information for use in your classroom? (Check all that apply)

- NOAA's Education Website - <http://www.education.noaa.gov>
- National Estuarine Research Reserve System's Website - <http://nerrs.noaa.gov>
- National Estuarine Research Reserve System's, Education Website – <http://www.estuaries.gov>
- Rookery Bay Reserve - www.rookerybay.org
- Florida Dept. of Environmental Protection State government - <http://www.dep.state.fl.us/secretary/ed/>
- NSTA Estuaries Sci Guide - <http://sciguides.nsta.org>
- EPA Education Website - <http://www.epa.gov/enviroed/>
- Wikipedia - <http://wikipedia.org>
- National Non-profit
- Local Non-profit
- I do not use web resources
- I do not have an interest in obtaining estuary, watershed, and ocean information

Please specify web resources you do use:

32. Are you using any types of real time/archived science data sets in your current teaching? *Note: We're defining real-time data streams as data that you can access as the data are being collected by scientific instruments, or shortly thereafter, to study current conditions or events. Archived data are defined as older data that are still important and necessary for future reference, but are stored and indexed so that they can be easily located and retrieved.

Yes

No

If yes, what ones? If no, why not?

33. Which of the following real-time/archived data sets would you need synthesized into age-appropriate learning materials and visualizations for your teaching? (Check all that apply)

- Algal blooms
- Animal tag/tracking
- Atmospheric carbon dioxide
- Bathymetry/topography
- Currents
- Dissolved oxygen (DO)
- Fish species & abundance
- Nutrients
- Ocean color
- pH
- Salinity
- Sea level rise
- Temperature: air/temperature: water
- Water depth
- Water contaminants
- Water turbidity (clarity/cloudiness)
- Waves
- Zooplankton species
- None of the above

Other (please specify)

34. Are you interested in building skills in the following categories?

- Conducting hands-on activities
- Facilitating field work/data collection
- Using computer-generated visualizations of data
- Using real-time or archived data

Other (please specify)

35. What kind of outdoor experiential opportunities/activities are your students provided with?

- Offsite outdoor field trips
- Outdoor activities on, or adjacent to, school grounds
- Outdoor activities assigned to students as homework

Other (please specify)

36. What help do you need to incorporate more outdoor education in your classroom?

- Unstructured outdoor experiential activities
- Backpacks with field guides, binoculars, magnifying glasses and activity guides, among others.
- Facilitating inquiry-based activities
- Conducting hands-on activities
- Guidance on monitoring activities
- Facilitating field work/data collection
- No help necessary

Other (please specify)

37. Do you foresee a need for new estuary/ocean/watershed related educational materials in different languages?

- Yes
- No
- Don't teach estuary/ocean/watershed
- Unsure

If yes, which languages?

38. Are you interested in educational materials on any of the following? (Check all that apply)

- Ecology
- Use of data in the classroom
- Climate change and sea level rise
- Human impacts and stewardship actions
- Scientific research
- Cultural heritage

What topics would you like to see developed into educational materials?

39. What help do you need to incorporate more discussion about the effects of climate change on coastal areas in your classroom?

- Lesson plans and curriculum
- Activities for students
- Age appropriate background materials
- Access to real world climate or sea level data
- The availability of expert guest speakers
- Teacher workshops
- Background information for teachers
- Funding/mini-grants

Other resources (please specify)

40. Please share any additional comments or information about the topics covered throughout this survey or the survey itself.

41. If you would like to receive two free passes to the Rookery Bay Reserve Environmental Learning Center located at 300 Tower Road, Naples, FL 34113, please provide your full name and email address below. Write carefully. You will receive an email within a few weeks notifying you of the free passes. To redeem your passes, go to the Learning Center, tell them you took the survey and they will consult the list of eligible participants. Passes will be valid throughout 2015.

