

**WELLS NATIONAL ESTUARINE RESEARCH RESERVE  
K-12 EDUCATION NEEDS ASSESSMENT REPORT**



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## INTRODUCTION

In May 2011, Wells National Estuarine Research Reserve ([wellsreserve.org](http://wellsreserve.org)) and Waterview Consulting ([waterviewconsulting.com](http://waterviewconsulting.com)) conducted a K-12 Education Needs Assessment. This report presents the findings from the Needs Assessment survey and a set of recommendations based on the findings.

The Needs Assessment is part of a coordinated national initiative by the National Estuarine Research Reserve System (NERRS) of the National Oceanic and Atmospheric Administration (NOAA) to ensure the effectiveness of NERRS education activities. The Wells Reserve Education Advisory Committee contributed valuable recommendations and guidance throughout the Needs Assessment process.

### Purpose

For many years, the Wells Reserve has provided K-12 school teachers with educational kit rentals, exhibits, guided and self-guided field trips on a range of topics, teacher workshops, and other resources for educators, but it had not conducted a formal education needs assessment. In this study, the Wells Reserve sought to collect data to incorporate into planning for future education programs. Findings from the Needs Assessment will enable the Wells Reserve Education Program to target its efforts to address the priorities of schools and teachers in southern Maine in the coming years.

### Context

Recent reductions in school budgets have become a major issue affecting K-12 education activities of the Wells Reserve. Teachers and school administrators have said many schools that previously took field trips to the Reserve or other places no longer have enough funding to provide field trips. The school budget cuts also affect teacher workshops because there is less money available for substitute teachers. For example, the Wells Reserve had overflowing Project Learning Tree trainings in 2009, but Project Wild trainings scheduled for 2010 were cancelled due to low enrollment. Despite the current status of school budgets, there is potential for additional school funding to become available under Leave No Child Inside (LNCI) legislation. As Maine develops its Environmental Literacy Plan in anticipation of future LNCI funds, the Wells Reserve is well poised to offer K-12 educational programs that address LNCI objectives. Given the challenging budget environment for schools, it is especially important to carefully target the Reserve's educational offerings to maximize their effectiveness.

### Method

The target population for the Needs Assessment was K-12 teachers at schools in York and Cumberland Counties in southern Maine. This region was chosen because it encompasses an area within which it is reasonable for school groups to travel to the Wells Reserve for a field trip. The Reserve currently attracts schools from as far north as Portland and as far south as Portsmouth, New Hampshire.

Invitations to participate in the K-12 Education Needs Assessment were emailed directly to 2,206 teachers at all public schools and several private schools in York and Cumberland Counties. The email distribution list included all teachers at elementary schools and science teachers at middle and high schools. To build the email distribution list, we obtained a list of licensed teachers from the Maine Department of Education, which included email addresses for many of the teachers, and then filled in additional email addresses by visiting schools' websites. We emailed the principals of all the schools two weeks in advance to notify them of the survey, to invite them to contact us with any questions or concerns, and to ask them to encourage their teachers to participate in the survey.

Survey invitations were emailed to the teacher distribution list on May 3, 2011. As an incentive to encourage participation, the invitation stated that participants would be entered to win one of four \$50 gift certificates to Kittery Trading Post (local outfitters) or one of two free three-week educational kit rentals (\$50 to \$75 value) from the Wells Reserve. We used the web-based survey tool SurveyMonkey to collect survey responses. The questions were designed to provide data on the respondents' educational settings, teaching approaches, professional development, and interactions with the Wells Reserve. The survey remained available online for four weeks until June 1. Reminder emails were sent three times during the survey period to enhance the response rate. Of the 2,206 invitees, 243 participated in the survey for a response rate of 11 percent.

# RESULTS

This section presents results of the WNERR K-12 Education Needs Assessment Survey. We analyzed the data in two ways. First, we analyzed the complete set of data, including all of the responses. This analysis provided an assessment of the overall needs of K-12 educators. These full-survey results are described in the first paragraph under each survey question below. Second, we analyzed the data based on grade level: K-2, 3-5, 6-8, and 9-12. This analysis revealed differences in the needs of teachers depending on the grade levels at which they taught. When grade-level results differed from full-survey results, they are described following the full-survey results. Because binning the responses by grade level affected precision by reducing the effective sample size, we report only large differences observed between grade-level and full-survey results, and we describe the qualitative (i.e., higher, lower) difference, rather than the quantitative difference.

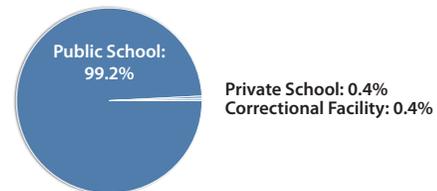
Throughout the Results section, percentages may not sum to 100 because of rounding.

## 1. In what education setting(s) do you teach?

**Check all that apply.**

Of the 243 individuals who participated in the survey, 241 (99.2%) taught in public schools, and 1 (0.4%) taught in a private school. One respondent (0.4%) selected Other and noted that he/she taught in a correctional facility.

FIG. 1: Educational Settings of Survey Respondents



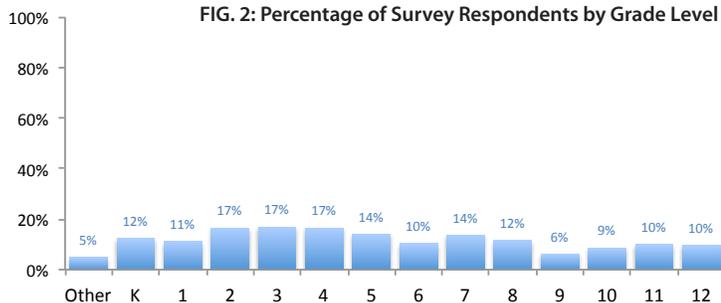
## 2. What grade level(s) do you teach?

**Check all that apply.**

Each K-12 grade level was represented by 6-17% of survey respondents.

*Note: Some respondents taught more than one grade level.*

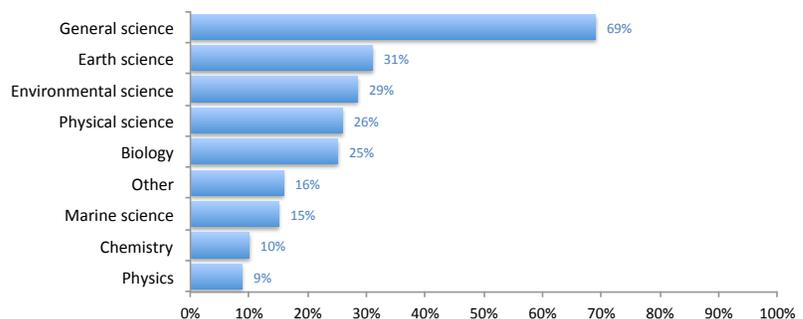
FIG. 2: Percentage of Survey Respondents by Grade Level



## 3. Which of the following science subjects do you teach? Please check all that apply.

More than two-thirds of the respondents (69%) taught general science. Earth science (31%), environmental science (29%), physical science (26%), and biology (25%) were the next highest-ranking subjects. 15% of the respondents taught marine science. Those who selected Other (16%) commented that they taught subjects such as nonfiction reading, writing, language arts, and social studies.

FIG. 3: Science Subjects Taught by Survey Participants



*Grades 9-12:* A much lower percentage taught general science. The highest-ranking subjects were biology, chemistry, and environmental science.

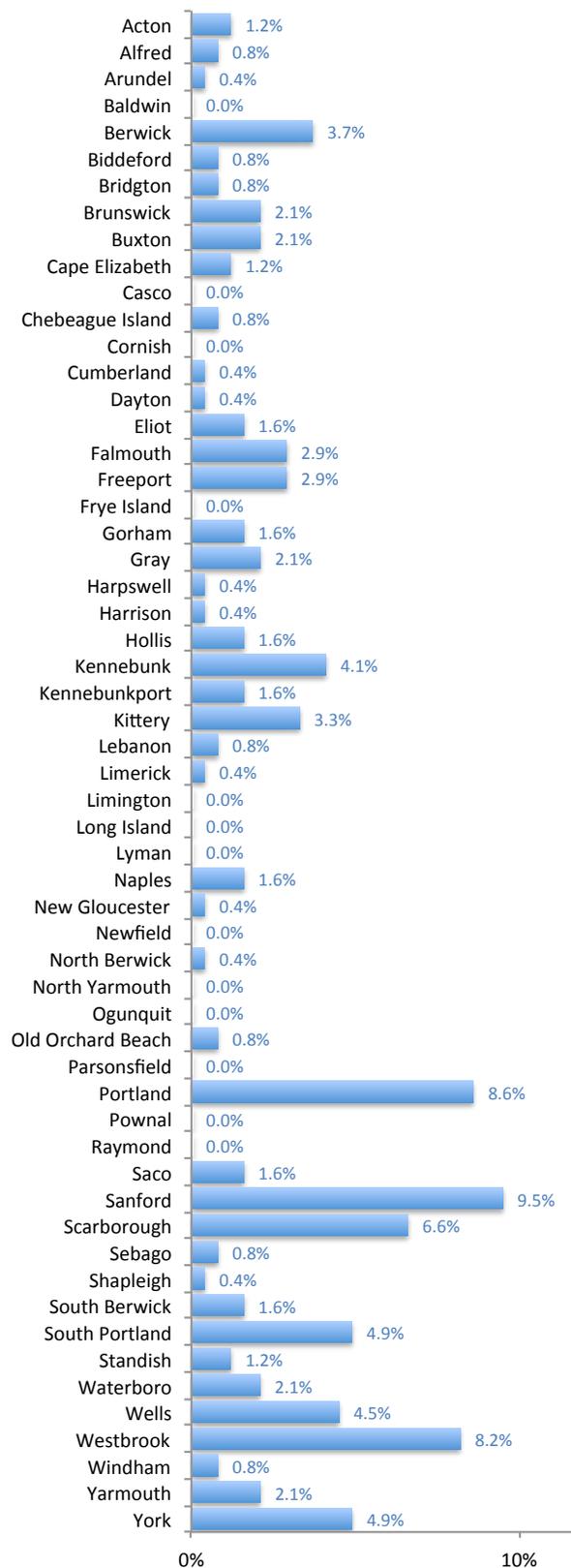
#### 4. In what town do you teach?

The survey included responses from teachers in 77% of the towns in York and Cumberland Counties. The two counties have a total of 57 towns, and survey respondents represented all but 13. While some towns in close proximity to the Wells Reserve had relatively high percentages of respondents (e.g., Kennebunk, 4.1%; Kittery, 3.3%; Sanford, 9.5%; Wells, 4.5%; and York, 4.9%), they did not dominate the survey, and some distant towns had comparably high percentages (e.g., Portland, 8.6%; Scarborough, 6.6%; South Portland, 4.9%; and Westbrook, 8.2%).

#### 5. At what school do you teach?

The 243 respondents represented 128 different schools.

FIG. 4: Towns in Which Survey Respondents Taught



**6. Approximately what percentage of students in your school or program identify with the following racial/ethnic groups?**

Most survey respondents indicated that their student populations were more than 80% white. Each of the other racial/ethnic groups represented less than 20% of the student population at most schools. However, the percentage of students identifying as black or African American was as high as 61-80% at some schools/programs.

TABLE 1: Racial/Ethnic Groups of Students

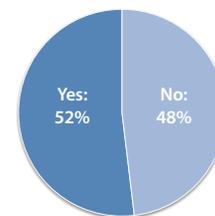
	0%	1-20%	21-40%	41-60%	61-80%	81-100%
White	1	1	5	12	35	182
Black or African American	15	171	7	3	2	0
Hispanic, Latino, or Spanish Origin	30	142	3	0	0	0
American Indian or Alaska Native	73	79	0	0	0	0
Asian	23	167	3	0	0	0
Native Hawaiian or Other Pacific Islander	90	46	0	0	0	0

**7. Are estuary and estuary-related topics a required part of your school's/district's/state's science teaching requirements?**

More than half of the survey respondents (52%) indicated that estuary and estuary-related topics were part of their teaching requirements.

*Grades 3-5:* A higher percentage of respondents selected Yes.  
*Grades 9-12:* A higher percentage of respondents selected No.

FIG. 5: Are Estuaries a Required Part of Curriculum?

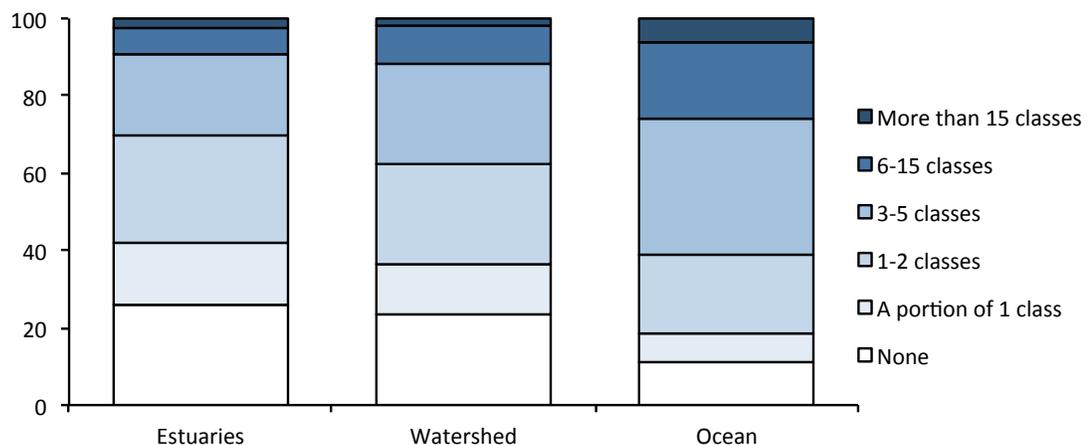


**8. How many class or activity periods of estuary, watershed, and/or ocean instruction do your students receive in a typical school year?**

26% of survey participants indicated that their students do not receive any instruction on estuaries, compared to 24% for watersheds and 11% for the ocean. Only 58% said that their students receive at least 1 class per year of instruction on estuaries, compared to 63% for watersheds and 81% for the ocean.

*Grades 6-8:* Higher percentages of teachers indicated that their students receive at least 3 classes per year in each of the three topics (estuaries, watershed, ocean).

FIGURE 6: Number of Classes per Year of Estuary, Watershed, and Ocean Instruction



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

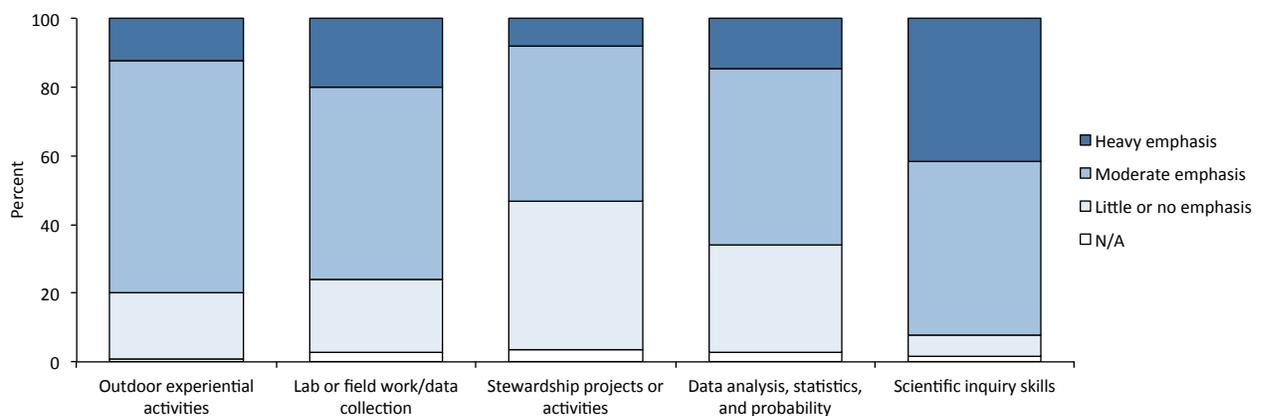
92% of respondents said they give heavy or moderate emphasis to scientific inquiry skills. The next highest ranking were outdoor experiential activities (80%); lab or field work/data collection (76%); and data analysis, statistics, and probability (66%). Stewardship projects or activities ranked lowest with 53%.

*Grades K-2:* Respondents placed less emphasis on scientific inquiry skills; lab or field work/data collection; and data analysis, statistics, and probability.

*Grades 6-8:* Respondents placed more emphasis on scientific inquiry skills; lab or field work/data collection; and data analysis, statistics, and probability.

*Grades 9-12:* Respondents placed more emphasis on scientific inquiry skills; lab or field work/data collection; and data analysis, statistics, and probability. Respondents placed less emphasis on outdoor experiential activities and stewardship projects or activities.

**FIG. 7: Amount of Emphasis Placed by Teachers on Skills and Activities**

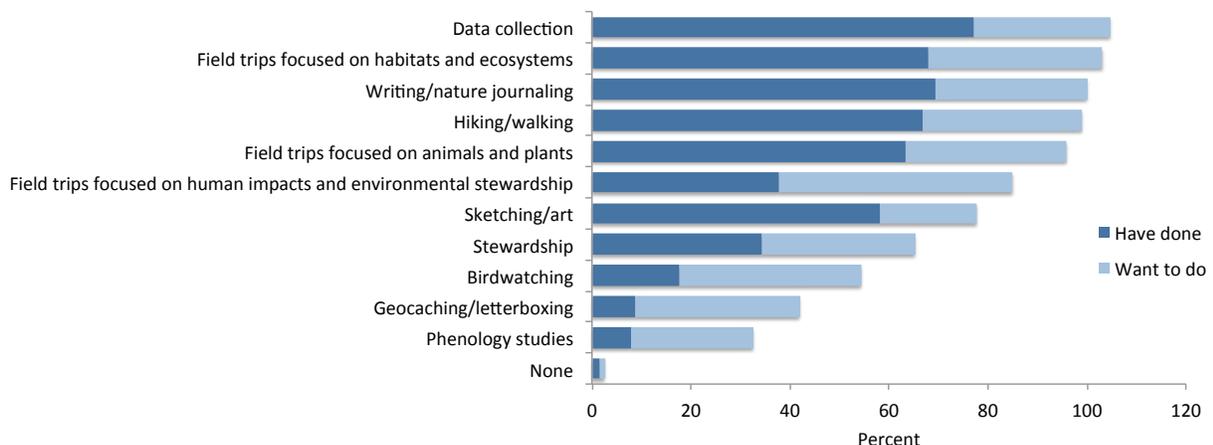


**10. What kinds of outdoor experiential learning opportunities have your classes done in the last two years? Which kinds do you want to do more of in the next three years? Please check all that apply.**

The highest percentages of survey participants selected (1) data collection, (2) field trips focused on habitats and ecosystems, (3) writing/nature journaling, (4) hiking/walking, and (5) field trips focused on animals and plants. Three of the choices—geocaching/letterboxing, phenology studies, and birdwatching—had relatively low total percentages in which the “Want to do” percentage was much greater than the “Have done” percentage, suggesting that these activities may be gaining popularity among teachers.

*Grades 9-12:* For both stewardship and field trips focused on human impacts, lower percentages selected “Have done”, and higher percentages selected “Want to do”.

**FIG. 8: Interest in Outdoor Experiential Learning Activities**



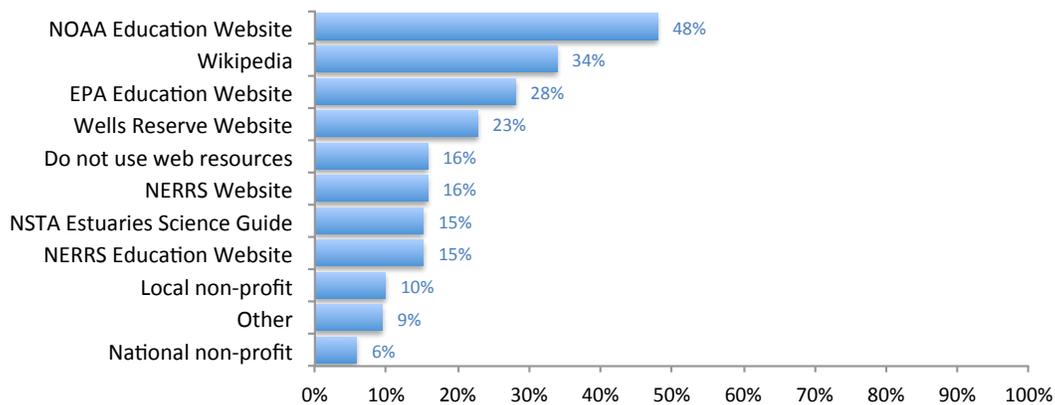
**11. From which web resources do you currently obtain estuary, watershed, and ocean information for use in your classroom? Check all that apply.**

The NOAA Education website was the most-used web resource, with 48% of respondents indicating that they use it. The next most used were Wikipedia (34%), the EPA Education website (28%), and the Wells Reserve website (23%).

*Grades K-2:* A higher percentage selected “Do not use web resources”. Wikipedia was the most-used web resource. Much lower percentages selected the NOAA Education Website and the EPA Education Website. Lower percentages also selected all other choices except “Local non-profit” and “Other”.

*Grades 9-12:* Much higher percentages selected the NOAA Education Website and the EPA Education Website.

**FIG. 9: Use of Web Resources for Estuary, Watershed, and Ocean Information**



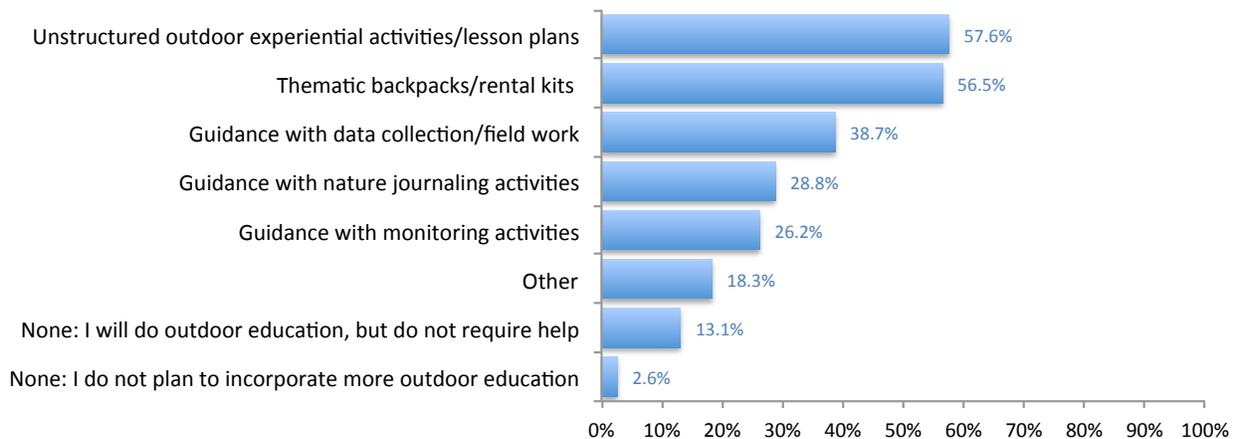
**12. What help do you need to incorporate more outdoor education into your teaching? Check all that apply.**

A majority of the respondents indicated that they needed unstructured activities/lesson plans (57.6%) and thematic backpacks/rental kits (56.6%) to help them incorporate outdoor education into their teaching. The next highest ranking choices were guidance with data collection/field work (38.7%), guidance with nature journaling activities (28.8%), and guidance with monitoring activities (26.2%). Approximately 13% of respondents said they planned to incorporate more outdoor education but did not need assistance doing so. Very few teachers (2.6%) said they did not plan to incorporate more outdoor education into their teaching.

*Grades K-2:* A higher percentage selected thematic backpacks/rental kits. A smaller percentage selected data collection/field work.

*Grades 9-12:* Much higher percentages selected guidance with monitoring activities and guidance with data collection/field work. A much lower percentage selected thematic backpacks/rental kits.

**FIG. 10: Support Needed for Outdoor Education**



**13. Listed are topics for which scientific data sets are available. Which of these data types have you used in your teaching? Select any that apply.**

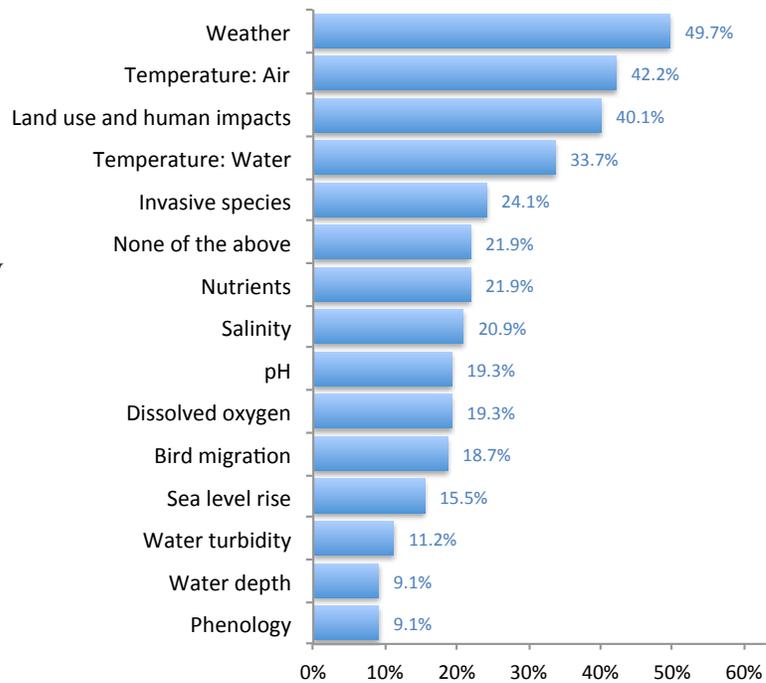
The top four types of data sets used for teaching were weather (49.7%), air temperature (42.2%), land use and human impacts (40.1%), and water temperature (33.7%). All of the next seven most-used types of data sets were used by approximately 20% of respondents. The least-used data sets were sea level rise (15.5%), water turbidity (11.2%), water depth (9.1%), and phenology (9.1%).

*Grades K-2:* The rank order was similar, but the percentages dropped sharply after the top several choices. Five data types were selected by more than 20%, but all others were selected by less than 10%.

*Grades 6-8:* Higher percentages selected invasive species and sea level rise.

*Grades 9-12:* Higher percentages selected all topics except weather, which was approximately the same. Seven of the 14 topics were selected by at least 50%. The highest were dissolved oxygen, pH, and water temperature.

FIG. 11: Data Sets Used for Teaching



**14. Listed are topics for which real-time/archived science data sets are available. Which types do you need synthesized into age-appropriate learning materials and visualizations for your teaching?**

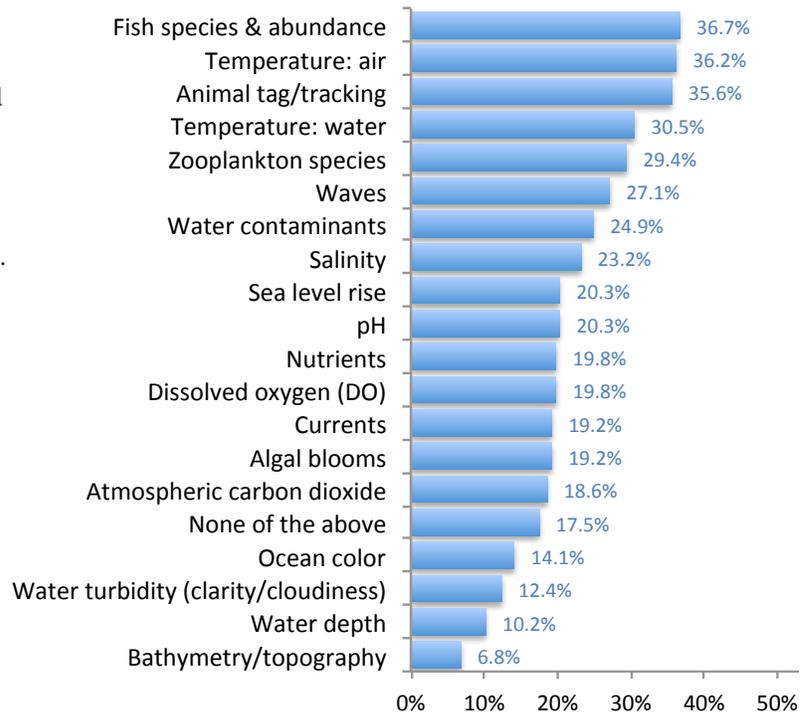
The top five choices for data sets that need to be synthesized into learning materials were fish species and abundance (36.7%), air temperature (36.2%), animal tag/tracking (35.6%), water temperature (30.5%), and zooplankton species (29.4%).

*Grades K-2:* The rank order was similar, but as in Question 12 the percentages dropped sharply after the top several choices.

*Grades 6-8:* Higher percentages selected atmospheric carbon dioxide, algal blooms, and fish species and abundance.

*Grades 9-12:* Higher percentages selected many of the topics, and the top four were dissolved oxygen, pH, algal blooms, and atmospheric carbon dioxide. A lower percentage selected animal tag/tracking.

FIG. 12: Learning Materials Needed Based on Data Sets



**15. Which topics would you like to see developed into educational materials related to estuaries?**

This question asked the respondents to rate the topics as “Do not need”, “Low-priority need”, or “High-priority need”. As shown in Figs. 13 and 14, the top three priority topics for educational materials were (1) habitats and land conservation, (2) adaptations of animals and plants, and (3) human impacts and stewardship. These top three priorities were consistent whether ranked based on high-priority need (Fig. 13) or based on total need (sum of low- and high-priority need percentages)(Fig. 14). The topics that received the most “Do not need” ratings were saltwater farm history, plankton, and history of land use over time (Fig. 15). The top three priorities from Figs. 13 and 14 received the fewest “Do not need” ratings in Fig. 15, supporting the finding that materials on the top three priority topics—habitats and land conservation, adaptations of animals and plants, and human impacts and stewardship—are strongly needed by many teachers.

*Grades K-2:* A higher percentage selected wildlife. Lower percentages selected invasive species; climate change; data collection and analysis; and scientific research methods.

*Grades 6-8:* Higher percentages selected high priority for human impacts and stewardship; data collection and analysis; invasive species; environmental sustainability; biodiversity; and climate change/sea level rise.

*Grades 9-12:* Higher percentages selected climate change/sea level rise and scientific research methods. Lower percentages selected wildlife and trees/forestry.

FIG. 13: Priorities for Educational Materials - Ranked by High-Priority Need

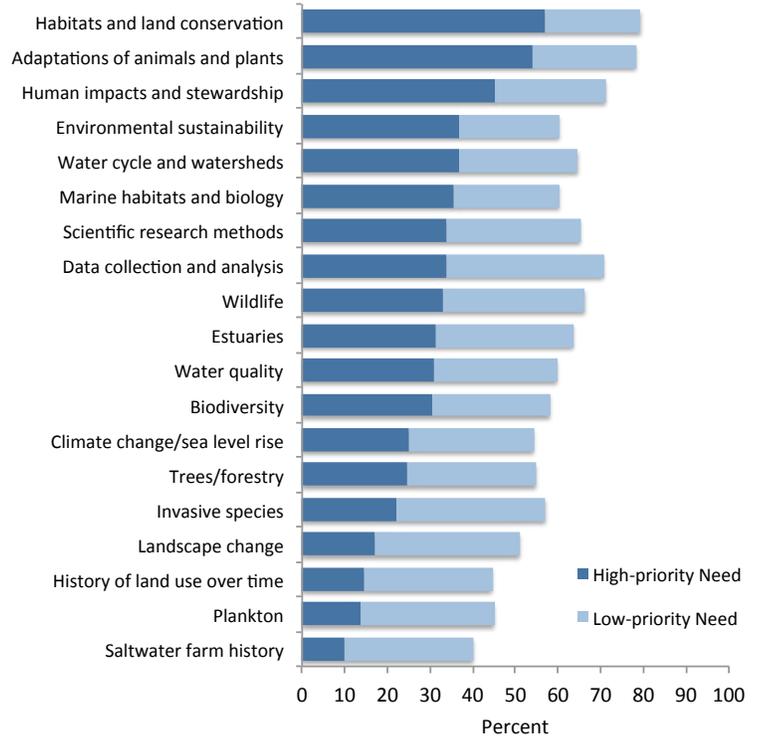


FIG. 14: Priorities for Educational Materials - Ranked by Total Need

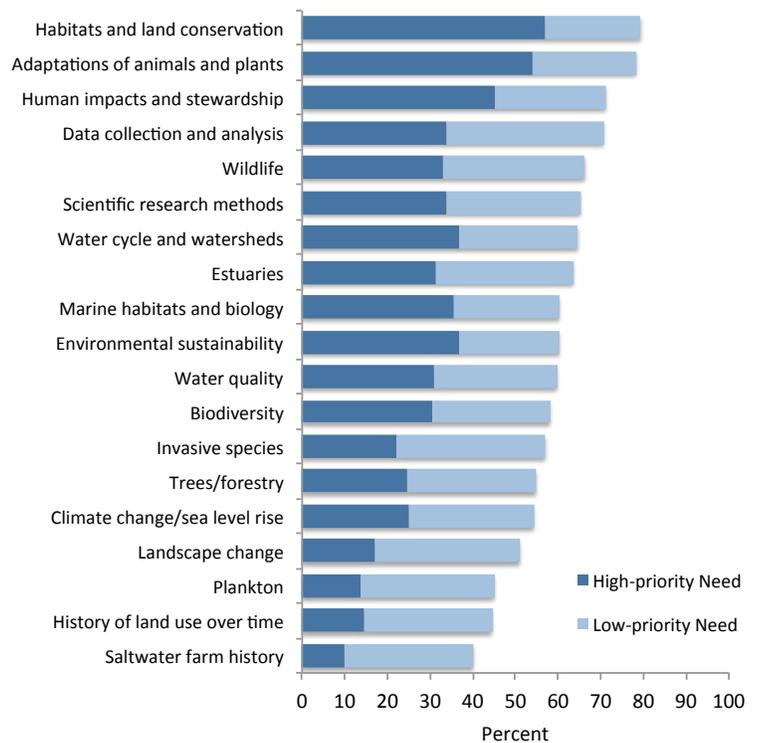
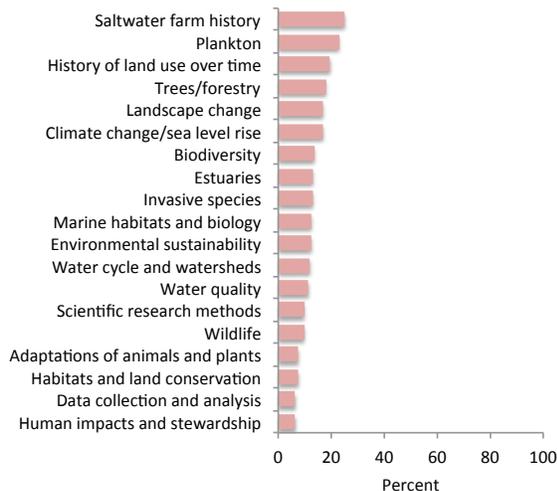


FIG. 15: Topics for Which Materials Not Needed



**16. What help do you need to incorporate more discussion about the effects of climate change on coastal areas into your curriculum? Please check all that apply.**

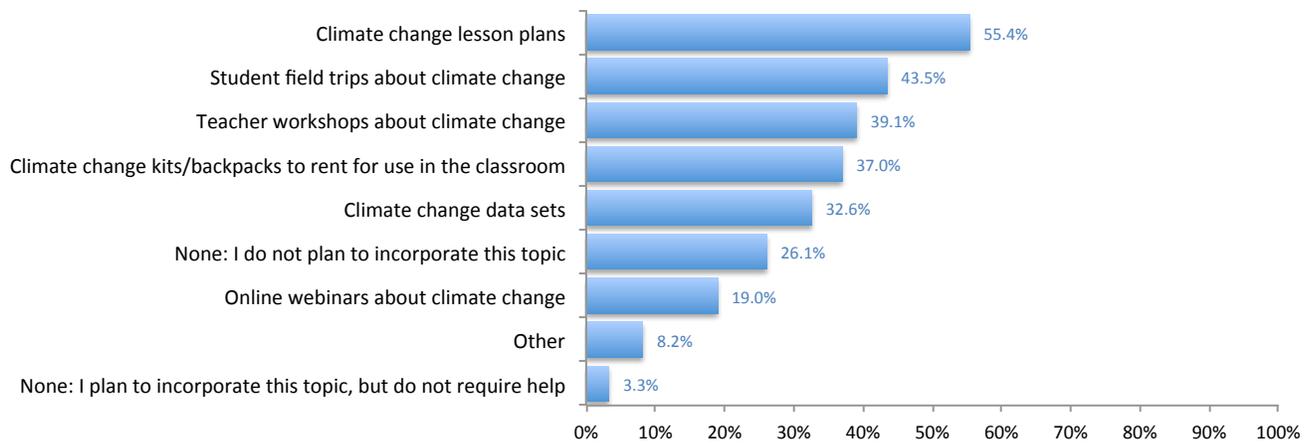
The top three needs were lesson plans (55.4%), student field trips about climate change (43.5%), and teacher workshops about climate change (39.1%). 26.1% of respondents said they do not plan to incorporate this topic into their curriculum.

*Grades K-2:* The rank order was similar but with lower percentages for nearly all choices. A larger percentage said they do not plan to incorporate the topic of climate change into their teaching.

*Grades 6-8:* A higher percentage selected climate change data sets. A smaller percentage said they do not plan to incorporate this topic into their curriculum.

*Grades 9-12:* Higher percentages selected all 6 listed types of support, and some of the percentages were dramatically higher. The top four types—lesson plans, data sets, field trips, and teacher workshops—were all selected by at least half of the grade 9-12 respondents. A very small percentage selected “None: I do not plan to incorporate this topic”.

**FIGURE 16: Support Needed for Climate Change Education**

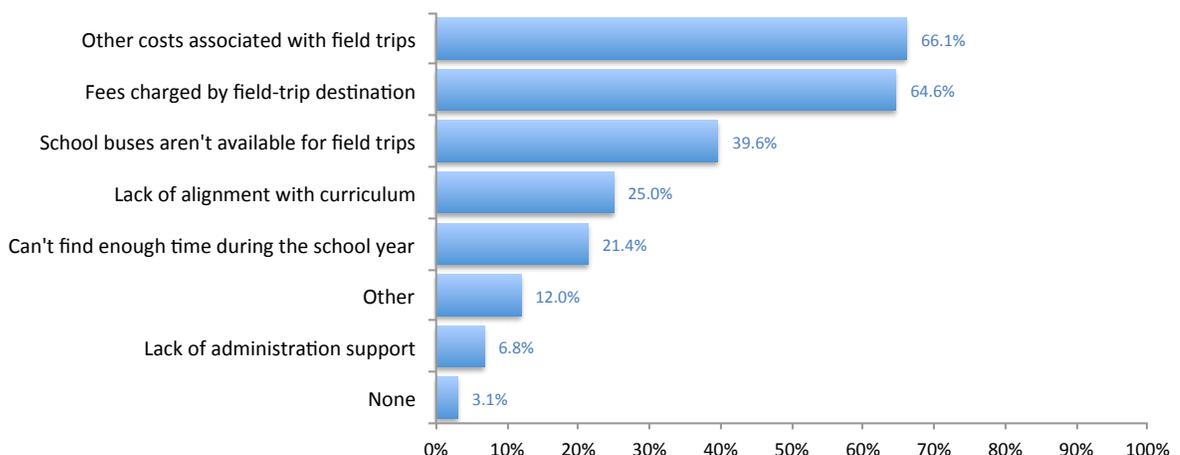


**17. What factors most commonly prevent you from taking class field trips? Please select up to three.**

The top three barriers to class field trips were (1) costs other than fees charged by the field trip destination (66.1%), (2) fees charged by the field-trip destination (64.6%), and (3) lack of available school buses (39.6%). In the Comments field, several respondents indicated that recent reductions in school budgets have curtailed field trips, as the high cost of buses, fees, and other expenses are prohibitive.

*Grades 9-12:* A higher percentage selected “Can’t find enough time during the school year”.

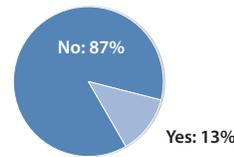
**FIG. 17: Barriers to Field Trips**



**18. Do you foresee a need for new estuary/ocean/watershed related educational materials in languages other than English?**

87% of respondents did not anticipate needing materials in languages other than English. 13% did see a need, and these respondents were generally in the more urban school districts. They indicated that materials were needed primarily in Somali, Spanish, and Arabic.

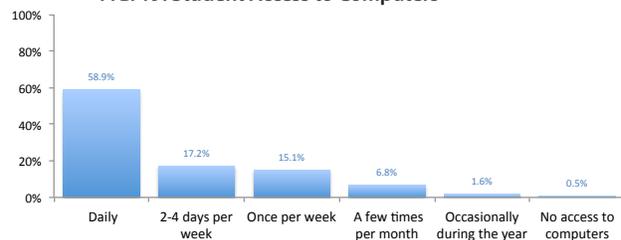
FIG. 18: Need for Materials in Other Languages



**19. Do your classes have access to computers? If yes, how often?**

58.9% of respondents said their students have daily access to computers. A total of 91.2% have access to computers at least once per week.

FIG. 19: Student Access to Computers

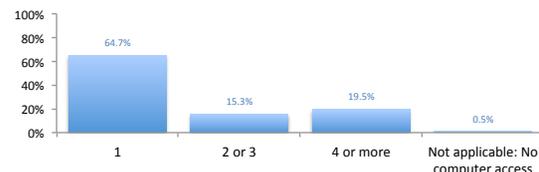


*Grades 6-8:* A much higher percentage said their students have daily access to computers.

**20. If your classes have access to computers, how many students are there per computer on average?**

Nearly two-thirds of respondents (64.7%) said their classes have 1 student per computer. 15.3% said they have 2 or 3 students per computer, and 19.5% said they have 4 or more students per computer.

FIG. 20: Number of Students Per Computer



*Grades K-2:* A lower percentage selected 1 student per computer, and a higher percentage selected 4 or more students per computer.

*Grades 6-8:* A higher percentage selected 1 student per computer, and a lower percentage selected 4 or more students per computer.

*Grades 9-12:* A higher percentage selected 1 student per computer, and a much lower percentage selected 4 or more students per computer.

**21. What type of professional development training related to estuaries do you need? Check all that apply.**

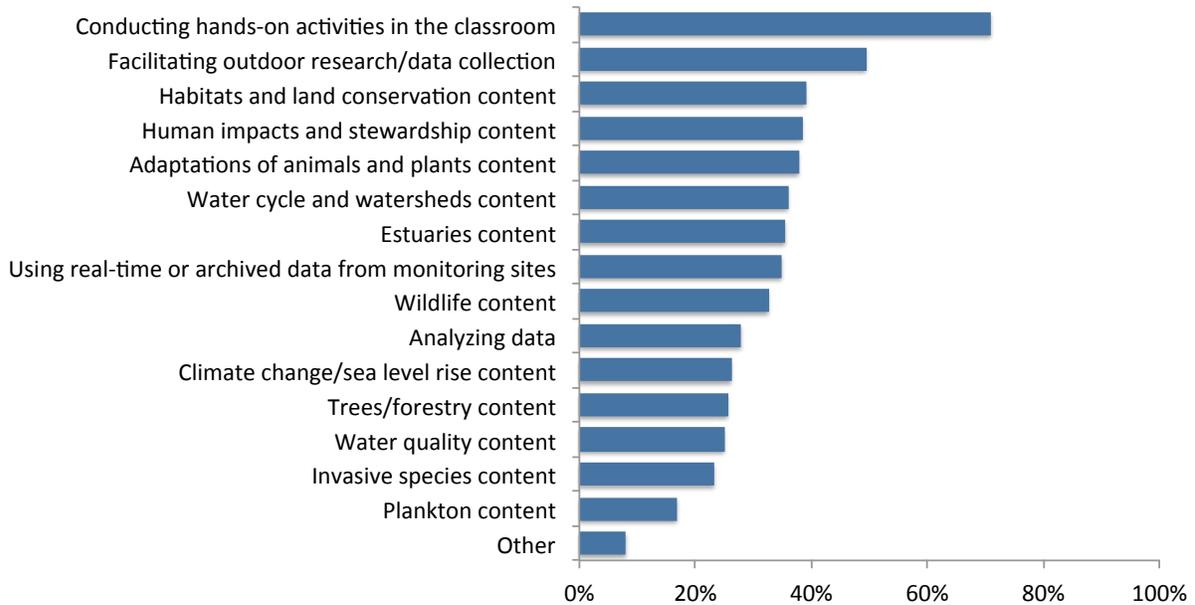
The top-ranked need by a substantial margin was training in hands-on activities in the classroom; 70% of respondents indicated that they needed this training. The next four highest-ranked needs were facilitating outdoor research/data collection (49%), habitats and land conservation content (39%), human impacts and stewardship content (38%), and adaptations of animals and plants content (38%).

*Grades 3-5:* A higher percentage selected water cycle and watersheds content.

*Grades 6-8:* Higher percentages selected analyzing data; climate change/sea level rise; invasive species content; and using real-time or archived data from monitoring sites. Lower percentages selected wildlife content and water cycle and watersheds content.

*Grades 9-12:* A lower percentage selected wildlife content. Higher percentages selected most of the other listed types, and more than 50% selected each of the highest-ranking types: facilitating outdoor research/data collection; using real-time or archived data from monitoring sites; conducting hands-on activities in the classroom; analyzing data; and climate change/sea level rise content.

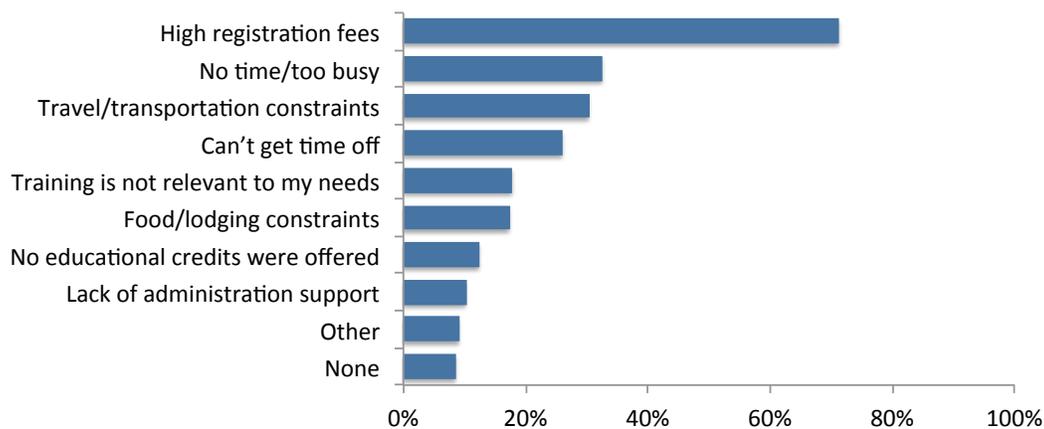
FIG. 21: Needs for Teacher Professional Development



**22. What factors prevent you from attending professional teacher development? Please check the three that most commonly occur.**

High registration fees are by far the most common barrier that prevents teachers from attending professional development; 71% of respondents indicated that this was a factor. Lack of time (33%) and travel/transportation constraints (30%) were the second and third highest-ranking barriers.

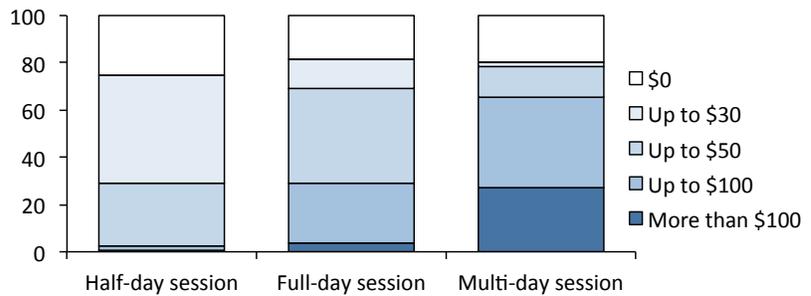
FIG. 22: Barriers to Teacher Professional Development



**23. How much would you be willing to pay for a high-quality, useful training session of the following durations?**

75% of respondents were willing to pay up to \$30 for a half-day session. For a full-day session, 69% were willing to pay up to \$50. For a multi-day session, 66% were willing to pay up to \$100, and 27% would pay more than \$100.

FIG. 23: Willingness to Pay for Professional Development

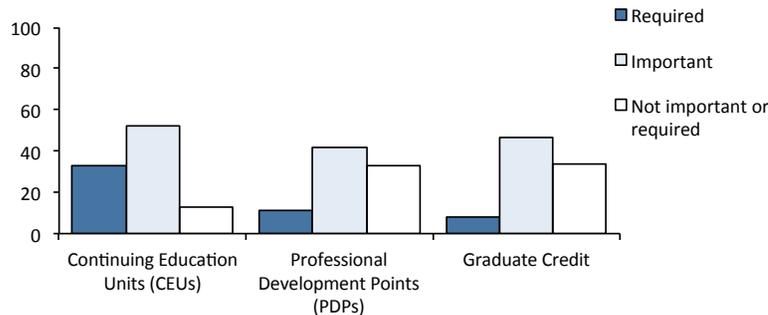


**24. Professional development opportunities for teachers sometimes provide Continuing Education Units (CEUs), Professional Development Points (PDPs), or graduate credit for participants. Are these important or required in determining which professional development opportunities you select?**

A total of 85% of respondents said that CEUs were required or important in determining which professional development opportunities they select. A majority said that PDPs (53%) and graduate credits (54%) were required or important.

*Grades 9-12:* Higher percentages selected “Not important or required” for each of the three types.

FIG. 24: Factors in Selection of Professional Development

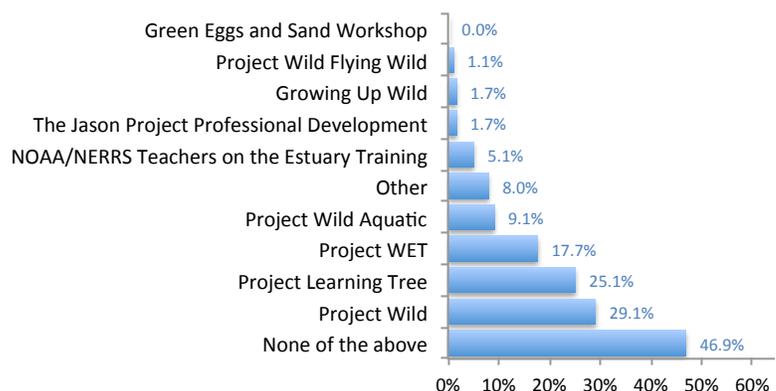


**25. Which professional development trainings have you taken to supplement your estuary/watershed/ocean education? Check all that apply.**

The top four trainings were Project Wild (29.1%), Project Learning Tree (25.1%), Project WET (17.7%), and Project Wild Aquatic (9.1%). Almost half of the survey respondents (46.9%) had not taken any professional development trainings related to estuary, watershed, or ocean education.

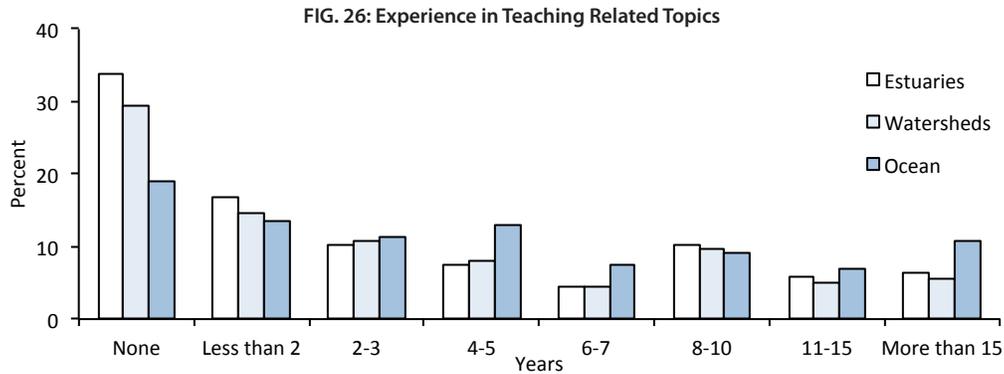
*Grades 6-8:* A lower percentage selected “None of the above”. Higher percentages selected most of the listed trainings.

FIG. 25: Professional Development Trainings Attended



**26. How many years have you been teaching estuary-, watershed-, and ocean-related topics?**

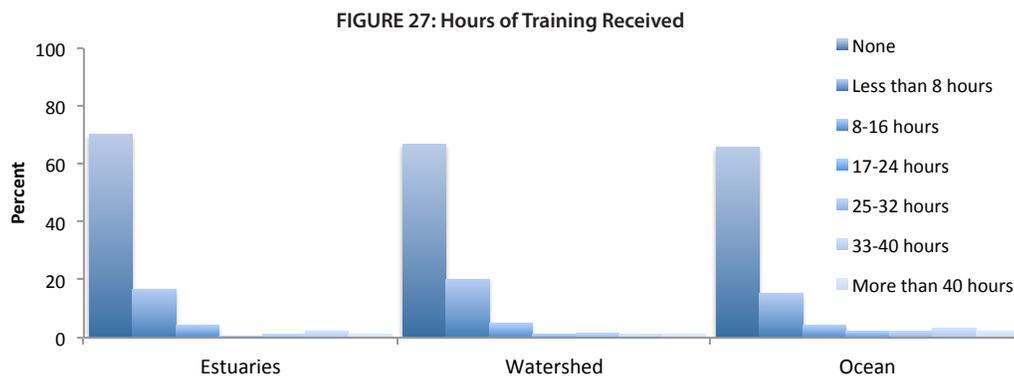
The survey respondents had a wide range of experience in teaching these topics. 51% had no experience teaching estuary-related topics, compared to 44% with no experience teaching about watersheds and 33% with no experience teaching about the ocean. In contrast, 11% of respondents had taught about oceans for more than 15 years, and 7% had taught about estuaries and 5% about watersheds for that length of time.



**27. In the last three years, how many hours of professional development training in science have you obtained related to estuaries, watersheds, and the ocean?**

Approximately two-thirds of the survey respondents have received no training related to estuaries, watersheds, and the ocean in the last three years. 15-20% have received 8 hours or less of training. Approximately 10% have received more than 8 hours of training, and a few have received more than 40 hours.

*Grades 6-8:* For each of the 3 topics, lower percentages selected “None”.



**28. There is a National Estuarine Research Reserve located in Wells, Maine, called the Wells National Estuarine Research 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 a National Estuarine Research Reserve?**

71% of survey respondents indicated that they were aware of the Wells National Estuarine Research Reserve. 29% were not aware.

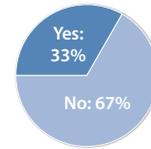
**FIG. 28: Awareness of WNERR**



**29. Have you ever used any of the Wells Reserve’s educational services or products?**

33% of survey respondents indicated that they had used WNERR services or products. 67% had not.

FIG. 29: Use of WNERR Products

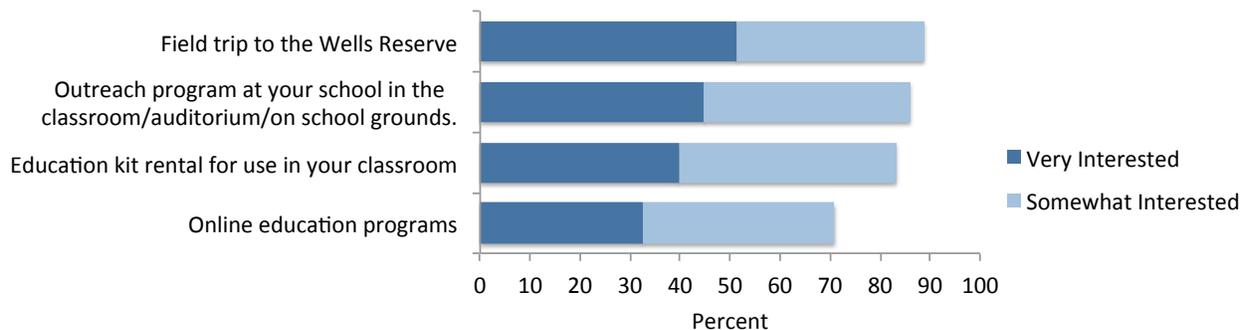


**30. How interested are you in having the Wells Reserve provide the following types of educational opportunities for your classes?**

The survey respondents were most interested in field trips to the Wells Reserve, with 51% very interested and 37% somewhat interested. Outreach programs at schools ranked second (45% very interested, 41% somewhat interested), and education kit rentals ranked third (40% very interested, 44% somewhat interested).

*Grades 6-8: A lower percentage selected education kit rental.*

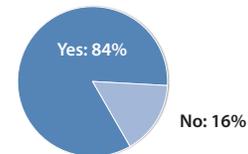
FIG. 30: Interest in Educational Opportunities



**31. Would you consider coming to the Wells Reserve at Laudholm for a class field trip?**

84% of survey respondents would consider taking a class field trip to the Wells Reserve. 16% would not.

FIG. 31: Interest in WNERR Field Trip



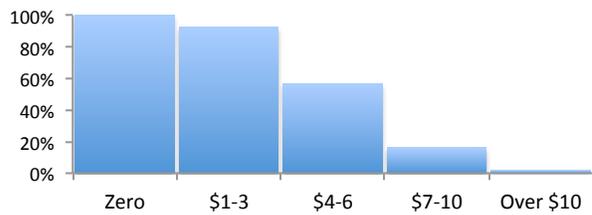
**32. What is your ideal field trip?**

The survey participants provided a total of 132 responses to this open-ended question. Many indicated that the ideal field trip would have interactive, engaging, active learning. For example, the term “hands-on” was used 50 times in the 132 responses. Some responses did not use that specific term but included similar language such as “experiential”, “engages students”, “actively involved”, and “opportunity to learn through experiences and activities”. Also, many responses said that the field trip should be clearly aligned with the school curriculum, and there should be materials provided to connect the field trip with school-based learning before and after the field trip. Low cost was also mentioned several times. Several people made positive statements about their previous experiences with WNERR field trip offerings. The following excerpts illustrate the key themes in the responses: (a) “A hands-on activity based field trip where students are totally engaged in meaningful learning.” (b) “I would like a teacher’s guide about how to best prepare my students for the field trip. I would like to have a follow-up activity to do when we return to school.” (c) “One where students are engaged in hands-on authentic experiences that will tie classroom learning to the real-world.” (d) “A trip that relates to the curriculum with very low cost.” (e) “The [WNERR] Exploring Estuaries program is outstanding! We’ve been taking our classes for many years.”

**33. How much are you willing to pay per student for a one-day, high-quality field trip that aligns with your curriculum requirements?**

93% of survey respondents were willing to pay \$1-3 per student for a field trip, 57% would pay \$4-6, 16% would pay \$7-10, and 2% would pay more than \$10.

FIG. 32: Willingness to Pay Per Student for Field Trip



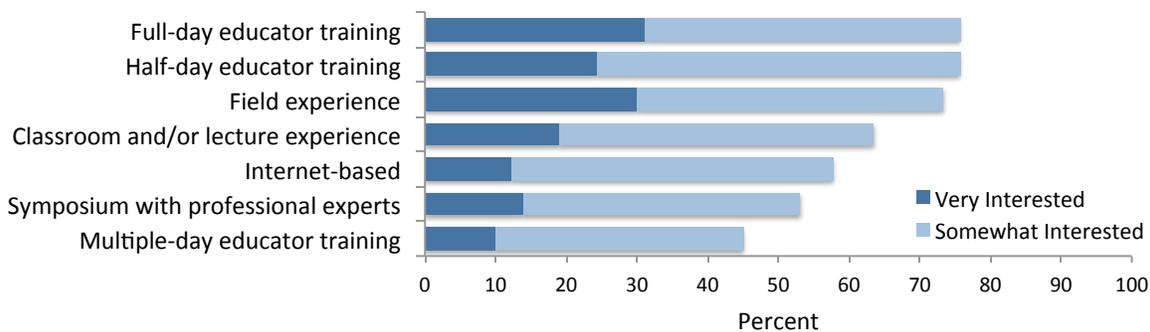
**34. How interested are you in having the Wells Reserve provide the following types of teacher professional development?**

The top three choices were full-day educator training (31% very interested; 45% somewhat interested), half-day educator training (24% very interested; 51% somewhat interested), and field experience (30% very interested; 43% somewhat interested).

*Grades 6-8:* A lower percentage selected Internet-based.

*Grades 9-12:* Symposium with professional experts ranked highest in the percentage that were very interested, and field experience ranked second.

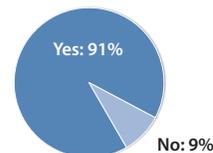
FIG. 33: Interest in Types of Teacher Training



**35. Would you consider coming to the Wells Reserve at Laudholm for a teacher workshop?**

91% survey respondents would consider coming to a teacher workshop at the Wells Reserve. 9% would not.

FIG. 34: Interest in WNERR Teacher Workshop



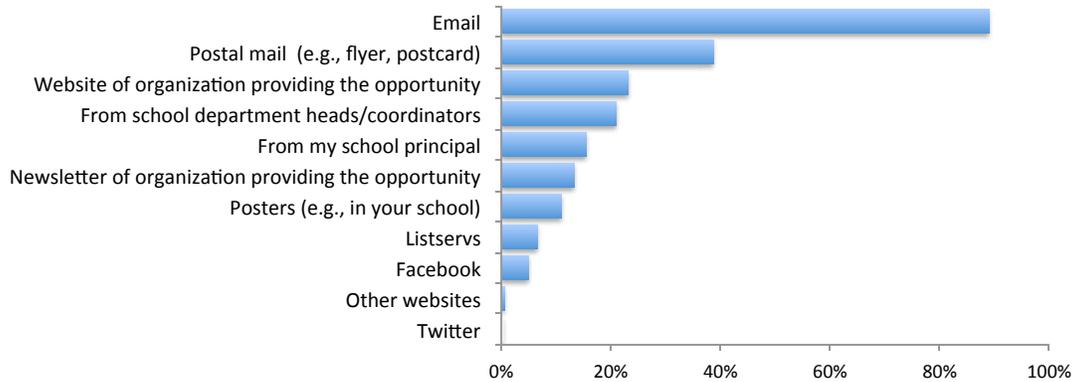
**36. What is your ideal teacher workshop?**

The survey participants submitted 130 responses to this open-ended question. Just as in the responses regarding the ideal field trip (see Question 31), many of the responses to Question 35 emphasized hands-on, interactive learning. The term “hands on” was used 40 times in the 130 responses. Many responses said that the workshop should equip teachers with information and activities that they can use immediately in their classrooms. The term “immediately” was used in 10 responses, and other responses used similar terms such as “right away” and “the next day”. Many responses indicated the ideal workshop would include pre- and post-workshop take-home materials for participants to enable them to prepare for the workshop and to apply what they learn back in the classroom. The following excerpts illustrate the key themes in the responses: (a) “led by knowledgeable teachers with lots of hands on and experiments that can be replicated in the classroom”, (b) “Hands on, interesting, informative and useful. A workshop that engages teachers and we leave with materials, ideas that are useful and can be incorporated immediately without modification”, (c) “ideas that translate easily and realistically to the classroom”, (d) “Booklet with all material covered”, and (e) “Engaging, hands on, inexpensive/free, appropriate for grade level and take aways something I can do with the kids the next day”.

**37. How do you like to hear about field trip opportunities, educational programs, and teacher workshops of interest? Select the top three.**

Email was the top choice for hearing about educational opportunities. 89% of survey respondents indicated that they like email announcements, and 39% indicated postal mail, which ranked second.

**FIG. 35: Preferred Methods for Hearing About Educational Opportunities**



**38. Following is a list of current Wells Reserve education program offerings for school groups. Please check those offerings that are of potential interest to you. For descriptions, download the Wells Reserve education brochure [link provided].**

The top five choices were Wild Friends in Wild Places (59%), Guided Walks (56%), Exploring Estuaries (52%), Discovery Program Trail Guides and Backpacks (42%), and Exhibits at the Reserve (37%).

*Grades K-2:* A higher percentage selected Wild Friends in Wild Places and Kit Rental, Topic: Birds. A lower percentage selected Exploring Estuaries, Microscopic Marvels, and Exhibits at the Reserve.

*Grades 3-5:* A higher percentage selected Exhibits at the Reserve.

*Grades 6-8:* Higher percentages selected Exploring Estuaries, Microscopic Marvels, and Discovery Program Trail Guides and Backpacks. Lower percentages selected Wild Friends in Wild Places and Kit Rental, Topic: Birds.

*Grades 9-12:* Higher percentages selected Exploring Estuaries and Microscopic Marvels. Lower percentages selected Wild Friends in Wild Places and Discovery Program Trail Guides and Backpacks.

**FIG. 36: Interest in Current WNERR Educational Program Offerings**



**39. How much are you willing to pay for a three-week rental of an education kit that includes hands-on materials/objects and lesson plans to use with your students? Example: A bird kit that includes skull replicas, egg replicas, books, field guides, track replicas, puppets, and more.**

63% of survey respondents were willing to pay up to \$50 for the kit rental. Only 16% were willing to pay up to \$75, and 4% would pay up to \$100.

*Grades 9-12: A higher percentage selected Zero.*

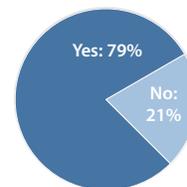
FIG. 37: Willingness to Pay for 3-Week Rental of Education Kit



**40. Would you like to be added to the Wells Reserve email list to receive occasional announcements about programs and events?**

79% of survey respondents wanted to be added to the WNERR email list, and 21% did not.

FIG. 38: Opt-in to WNERR Email List



## **Appendix A: Conclusions and Recommendations for the Wells Reserve Education Program**

The main body of this report presented the data and results of the WNERR Education Needs Assessment survey. This appendix presents conclusions and recommendations based on the needs assessment data. The conclusions and recommendations reflect key findings that emerged during the needs assessment process, and they address the objectives stated in the original proposal for the needs assessment.

**Conclusion:** Many teachers want to bring their classes on field trips to the Wells Reserve, but recent school budget cuts have made it extremely difficult or impossible for them to do so.

**Recommendations:**

1. Seek grants and other funding to pay for school buses or other transportation to the Reserve (see Figure 16).
2. If possible, do not charge field trip fees. Otherwise, charge no more than \$1-3 per student (see Figs. 17 & 32).
3. Offer field trips that (a) actively engage students in outdoor experiential learning, (b) strongly align with school curriculums, and (c) include pre- and post-trip lesson plans for the classroom (see Question 32).

**Conclusion:** Teachers seek ways to provide more outdoor, experiential education for their students and to further integrate art, writing, and other activities into the science curriculum.

**Recommendations:**

4. Increase the Reserve's educational offerings that involve writing/nature journaling, sketching/art, birdwatching, geocaching/letterboxing, and phenology studies (see Fig. 8).
5. Offer unstructured experiential activities/lesson plans, thematic backpacks/rental kits, and guidance with data collection/field work to help teachers with outdoor, experiential education (see Fig. 11).

**Conclusion:** Clear priorities exist for the types of estuary-related educational resources that teachers need.

**Recommendations:**

6. Provide educational resources on (a) habitats and land conservation, (b) adaptations of animals and plants, and (c) human impacts and stewardship (see Fig. 13).
7. Identify other high-ranking topics (see Fig. 13) for which the Wells Reserve has the capacity and expertise to provide educational materials.
8. When developing educational resources, find opportunities to include data sets on (a) fish species and abundance, (b) air and water temperature, and (c) animal tagging/tracking (see Fig. 12).

**Conclusion:** Middle school and high school teachers need educational resources on climate change.

**Recommendations:**

9. Provide lesson plans, data sets, field trips, and professional development workshops on climate change for middle and high school teachers (see Question 16).

**Conclusion:** Many teachers have received little or no estuary-related professional development. They need low-cost workshops that give them practical training in conducting hands-on activities.

**Recommendations:**

10. Provide teacher workshops that help teachers to conduct hands-on activities in the classroom and to conduct outdoor research/data collection with students (see Fig. 21).
11. Ensure that workshops are hands-on and interactive, and provide the participants with practical lesson plans, materials, and ideas that they can use immediately in their classrooms (see Question 35).
12. Charge less than \$30 for half-day and \$50 for full-day teacher trainings (see Figs. 22 and 33).
13. Provide continuing education units (CEUs) for teacher workshops, and when feasible offer professional development points (PDPs) and graduate credits (see Fig. 24).

**Conclusion:** While teachers were generally aware of the Wells Reserve, many said they were not familiar with the Reserve's K-12 educational offerings and wanted to know more about them.

**Recommendation:**

14. Compile an email list for the Education Program with the 79% of survey participants who said they wanted to be added to the WNERR email list (see Fig. 38).
15. Raise the Wells Reserve's profile among teachers, principals, and curriculum coordinators through increased use of email and postal mail to announce the Reserve's educational offerings (see Fig. 35).

**Conclusion:** WNERR's educational resources can and should be tailored to grade-level specific needs.

**Recommendations:**

16. While following the other general recommendations provided here, consider the following specific recommendations for particular grade levels.

*For grades K-2:*

- (a) provide outdoor experiential activities and stewardship projects or activities (Q9),
- (b) offer thematic backpacks/rental kits to support outdoor education (Q12),
- (c) focus on the topics of wildlife, animal tracking, fish species and abundance, and/or air and water temperature (Q14 and Q15), and
- (d) market WNERR's Wild Friends in Wild Places and kit rentals, and develop additional educational resources of these types (Q38).

*For grades 3-5:*

- (e) actively market new and existing estuary-related educational resources, particularly the exhibits at WNERR (Q38), and how they can be used to address curriculum requirements (Q7), and
- (f) provide professional development training related to the water cycle and watersheds (Q21).

*For grades 6-8:*

- (g) focus on scientific inquiry skills, lab or field work/data collection, and data analysis, statistics, and probability (Q9),
- (h) provide learning materials based on data sets for climate change atmospheric carbon dioxide, algal blooms, and fish species and abundance (Q14),
- (i) offer educational materials on human impacts and stewardship, data collection and analysis, invasive species, environmental sustainability, biodiversity, and climate change/sea level rise (Q15),
- (j) consider incorporating computer-based activities for the classroom (Q19 and Q20),
- (k) provide professional development on analyzing data, climate change/sea level rise, invasive species, and using real-time or archived data from monitoring sites (Q21), and
- (l) market WNERR's Exploring Estuaries, Microscopic Marvels, and Discovery Program Trail Guides and Backpacks, and develop additional educational resources of this type (Q38).

*For grades 9-12:*

- (m) identify and share with teachers ways that estuary-related educational resources can be used to address non-estuary-specific curriculum requirements (Q7),
- (n) focus on scientific inquiry skills, lab or field work/data collection, and data analysis, statistics, and probability (Q9),
- (o) provide opportunities for stewardship and field trips focused on human impacts (Q10),
- (p) market WNERR's Exploring Estuaries and Microscopic Marvels, and develop additional educational resources of this type (Q38),
- (q) support outdoor education by offering guidance with monitoring and guidance with data collection/field work (Q12),
- (r) produce learning materials based on data sets, especially dissolved oxygen, pH, algal blooms, and atmospheric carbon dioxide (Q14),
- (s) develop educational materials on climate change/sea level rise and scientific research methods (Q15),
- (t) support climate change education by providing all types of educational resources listed in Fig. 16,
- (u) consider incorporating computer-based activities for the classroom (Q19 and Q20), and
- (v) provide professional development training that includes symposiums with professional experts and field experience (Q34) on the topics of facilitating outdoor research/data collection, using real-time or archived data from monitoring sites, conducting hands-on activities in the classroom, analyzing data, and climate change/sea level rise content (Q21).

**Overall Conclusion:** WNERR's educational expertise and goals are well aligned with the needs and priorities of the area's K-12 teachers. There are rich opportunities for WNERR to further support K-12 science education.

**Overall Recommendation:**

17. Use an integrated, strategic, efficient approach to address Recommendations 1-16. Develop a portfolio of educational resources that each encompasses multiple Recommendations and that together address complementary Recommendations.\*

\* For example, an integrated set of educational resources on the topic of climate change and its impacts on coastal habitats could include: (a) a field trip during which students engage in ecological data collection, sketching, and geocaching, (b) pre- and post-field trip lesson plans involving writing/nature journaling and analyzing data on air and water temperature, and (c) a professional development workshop that prepares teachers to conduct (a), (b), and other related hands-on activities. This set of resources would address many of the Recommendations.

## **Appendix B: Survey Instrument**

## K-12 Education Needs Assessment



Located in Wells, Maine, the Wells National Estuarine Research Reserve is one of 28 Reserves within the National Estuarine Research Reserve System (NERRS), which is dedicated to estuary education, research, and stewardship. The Wells Reserve is often called Laudholm Farm, after the restored saltwater farm campus within its boundary.

The Wells Reserve is conducting a needs assessment for K-12 environmental education in York and Cumberland Counties. Currently, we provide school groups with guided and self-guided field trips on a range of topics, kit rentals, and educational exhibits. The needs assessment will enable us to target our future efforts to address the priorities of schools and teachers in these two counties. It is also part of a national effort by NERRS to evaluate education needs.

The online survey should take approximately 20 minutes to complete. As a thank you for your time, survey participants will be entered into a drawing to win

- **one of four \$50 gift certificates to Kittery Trading Post** or
- **one of two free 3-week educational kit rentals (\$50 to \$75 value)** from the Wells Reserve.

Survey responses must be received no later than **Wednesday, June 1**.

All of us at the Wells Reserve and the National Estuarine Research Reserve System greatly appreciate your valuable input.

*If you have questions or need assistance with this survey, please contact Peter Taylor ([Waterview Consulting](mailto:peter@waterviewconsulting.com)) at 207-847-6000 or [peter@waterviewconsulting.com](mailto:peter@waterviewconsulting.com). Waterview Consulting is conducting this needs assessment for the Wells Reserve.*

*If you have questions about the Education Program at the Wells Reserve, please contact Suzanne Eder at 207-646-1555 x116 or [suzanne@wellsnerr.org](mailto:suzanne@wellsnerr.org).*

# K-12 Education Needs Assessment

**1. To be entered to win one of the "thank you" gifts for survey participants, please provide your email address.**

## SECTION 1: EDUCATIONAL SETTING

**2. In what education setting(s) do you teach? Check all that apply.**

Public school

Private school

Other (please specify):

**3. What grade level(s) do you teach? Check all that apply.**

K

5

10

1

6

11

2

7

12

3

8

4

9

Other (please specify):

**4. Which of the following science subjects do you teach? Please check all that apply.**

General science

Biology

Chemistry

Physics

Physical science

Earth science

Environmental science

Marine science

Other (please specify):

**5. In what town do you teach?**



# K-12 Education Needs Assessment

## SECTION 2: EDUCATIONAL CONTENT AND APPROACH

Please note the following definitions for terms used in the survey.

- *Estuary*: An estuary is a semi-enclosed coastal body of water where fresh and salt water meet and mix.
- *Watershed*: An area of land where all the water drains to a common place.
- *Ocean*: Related to a system of open-ocean habitats, characterized by exposure to wave action, tidal fluctuations and ocean currents.

### 8. Are estuary and estuary-related topics a required part of your school's/district's/state's science teaching requirements?

- Yes
- No

### 9. How many class or activity periods of estuary, watershed, and/or ocean instruction do your students receive in a typical school year?

	None	A portion of 1 class	1-2 classes	3-5 classes	6-15 classes	More than 15 classes
Estuaries	<input type="radio"/>					
Watershed	<input type="radio"/>					
Ocean	<input type="radio"/>					

### 10. 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"/>

**11. What kinds of outdoor experiential learning opportunities have your classes done in the last two years? Which kinds do you want to do more of in the next three years? Please check all that apply.**

	Have done	Want to do
Writing/nature journaling	<input type="checkbox"/>	<input type="checkbox"/>
Data collection	<input type="checkbox"/>	<input type="checkbox"/>
Hiking/walking	<input type="checkbox"/>	<input type="checkbox"/>
Birdwatching	<input type="checkbox"/>	<input type="checkbox"/>
Phenology studies	<input type="checkbox"/>	<input type="checkbox"/>
Geocaching/letterboxing	<input type="checkbox"/>	<input type="checkbox"/>
Sketching/art	<input type="checkbox"/>	<input type="checkbox"/>
Stewardship	<input type="checkbox"/>	<input type="checkbox"/>
Field trips focused on animals and plants	<input type="checkbox"/>	<input type="checkbox"/>
Field trips focused on habitats and ecosystems	<input type="checkbox"/>	<input type="checkbox"/>
Field trips focused on human impacts on the environment (e.g., climate change, land use) and environmental stewardship	<input type="checkbox"/>	<input type="checkbox"/>
None	<input type="checkbox"/>	<input type="checkbox"/>

Other / Comments:

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

- National Oceanic and Atmospheric Administration Education Website: [www.education.noaa.gov](http://www.education.noaa.gov)
- National Estuarine Research Reserve System's Website: [nerrs.noaa.gov](http://nerrs.noaa.gov)
- National Estuarine Research Reserve System's Education Website: [www.estuaries.gov](http://www.estuaries.gov)
- Wells Reserve's Website: [www.wellsreserve.org](http://www.wellsreserve.org)
- National Science Teachers Association Estuaries Science Guide: [sciguides.nsta.org](http://sciguides.nsta.org)
- Environmental Protection Agency Education Website: [www.epa.gov/enviroed/](http://www.epa.gov/enviroed/)
- Wikipedia: [www.wikipedia.org](http://www.wikipedia.org)
- National non-profit. Which one(s)? \_\_\_\_\_ (Specify in comments box below)
- Local non-profit. Which ones(s)? \_\_\_\_\_ (Specify in comments box below)
- Other \_\_\_\_\_ (Specify in comments box below)
- I do not use web resources.

Comments:

**13. What help do you need to incorporate more outdoor education into your teaching?**

**Please check all that apply.**

- Unstructured outdoor experiential activities/lesson plans to implement with students
- Thematic backpacks/rental kits with field guides, binoculars, magnifying glasses, activity guides, etc.
- Guidance with monitoring activities
- Guidance with data collection/field work
- Guidance with nature journaling activities
- None: I plan to incorporate more outdoor education, but do not require help.
- None: I do not plan to incorporate more outdoor education.
- Other / Comments (please specify):

**14. Listed below are topics for which scientific data sets are available. Which of these data types have you used in your teaching? Select any that apply.**

- Bird migration
- Dissolved oxygen
- Invasive species
- Land use and human impacts
- Nutrients
- pH
- Phenology
- Salinity
- Sea level rise
- Temperature: Air
- Temperature: Water
- Water depth
- Water turbidity
- Weather
- None of the above

Notes / Comments (please specify):

**15. Listed below are topics for which real-time/archived\* science data sets are available. Which types do you need synthesized into age-appropriate learning materials and visualizations for your teaching? Select any 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

Notes or comments:

*\*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.*

**16. Which topics would you like to see developed into educational materials related to estuaries?**

	Do not need	Low-priority need	High-priority need
Habitats and land conservation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adaptations of animals and plants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human impacts and stewardship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildlife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water cycle and watersheds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Invasive species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trees/forestry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estuaries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Climate change/ sea level rise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plankton	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marine habitats and biology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biodiversity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Landscape change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data collection and analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scientific research methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Saltwater farm history	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
History of land use over time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Notes or comments:

**17. What help do you need to incorporate more discussion about the effects of climate change on coastal areas into your curriculum? Please check all that apply.**

- Student field trips about climate change
- Teacher workshops about climate change
- Online webinars about climate change
- Climate change lesson plans
- Climate change data sets
- Climate change kits/backpacks to rent for use in the classroom
- None: I plan to incorporate this topic, but do not require help.
- None: I do not plan to incorporate this topic.
- Other:

**18. What factors most commonly prevent you from taking class field trips? Please select up to 3.**

- School buses aren't available for field trips
- Can't find enough time during the school year
- Fees charged by field-trip destination
- Other costs associated with field trips
- Lack of alignment with curriculum
- Lack of administration support
- None
- Other (please specify):

**19. Do you foresee a need for new estuary/ocean/watershed related educational materials in languages other than English?**

- No
- Yes. Please specify:

**20. Do your classes have access to computers? If yes, how often?**

- No access to computers
- Yes: Daily
- Yes: 2-4 days per week
- Yes: Once per week
- Yes: A few times per month
- Yes: Occasionally during the year

**21. If your classes have access to computers, how many students are there per computer on average?**

- 1 student per computer
- 2-3 students per computer
- 4 or more students per computer
- Not applicable: No computer access

# K-12 Education Needs Assessment

## SECTION 3: TEACHER PROFESSIONAL DEVELOPMENT

### 22. What type of professional development training related to estuaries do you need?

Check all that apply.

- Conducting hands-on activities in the classroom
- Facilitating outdoor research/data collection
- Using real-time or archived data from monitoring sites
- Analyzing data
- Climate change/sea level rise content
- Human impacts and stewardship content
- Habitats and land conservation content
- Invasive species content
- Water cycle and watersheds content
- Water quality content
- Estuaries content
- Wildlife content
- Adaptations of animals and plants content
- Trees/forestry content
- Plankton content
- Other (please specify):

**23. What factors prevent you from attending professional teacher development? Please check the three that most commonly occur.**

- High registration fees
- Travel/transportation constraints
- Food/lodging constraints
- Can't get time off
- No time/too busy
- Lack of administration support
- Training is not relevant to my needs
- No educational credits were offered
- None
- Other (please specify):

**24. How much would you be willing to pay for a high-quality, useful training session of the following durations?**

	\$0	Up to \$30	Up to \$50	Up to \$100	More than \$100
Half-day session	<input type="radio"/>				
Full-day session	<input type="radio"/>				
Multi-day session	<input type="radio"/>				

**25. Professional development opportunities for teachers sometimes provide CEUs, PDPs, or graduate credit for participants. Are these important or required in determining which professional development opportunities you select?**

	Not important or required	Important	Required
Continuing Education Units (CEUs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional Development Points (PDPs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Graduate Credit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Notes or comments:



# K-12 Education Needs Assessment

## SECTION 4: WELLS RESERVE EDUCATION PROGRAM

**29. There is a National Estuarine Research Reserve located in Wells, Maine, called the Wells National Estuarine Research 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 a National Estuarine Research Reserve?**

- Yes
- No

**30. Have you ever used any of the Wells Reserve's educational services or products?**

- Yes. Which ones? Please specify in comments box below.
- No. Why not? Please specify in comments box below.

Comments:

**31. How interested are you in having the Wells Reserve provide the following types of educational opportunities for your classes?**

	Not interested	Somewhat interested	Very interested
Outreach program at your school in the classroom/auditorium/on school grounds.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Education kit rental for use in your classroom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Field trip to the Wells Reserve	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online education programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other / Comments:

**32. Would you consider coming to the Wells Reserve at Laudholm for a class field trip?**

- Yes
- No. Why not? Please specify:

**33. What is your ideal field trip?**

**34. How much are you willing to pay per student for a one-day, high-quality field trip that aligns with your curriculum requirements?**

- Zero
- \$1-3
- \$4-6
- \$7-10
- Over \$10

Comments:

**35. How interested are you in having the Wells Reserve provide the following types of teacher professional development?**

	Not interested	Somewhat interested	Very interested
Half-day educator training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Full-day educator training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multiple-day educator training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Field experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Classroom and/or lecture experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Symposium with professional experts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet-based	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other / Comments:

**36. Would you consider coming to the Wells Reserve at Laudholm for a teacher workshop?**

- Yes
- No. Why not? Please specify:

**37. What is your ideal teacher workshop?**

**38. How do you like to hear about field trip opportunities, educational programs, and teacher workshops of interest? Select the top three.**

- Email
- Postal mail (e.g., flyer, postcard)
- Listservs: Which ones? (specify in comments box below)
- Posters (e.g., in your school)
- Website of the organization that provides the opportunity
- Other websites (specify in comments box below)
- Newsletter of the organization that provides the opportunity
- Facebook
- Twitter
- From my school principal
- From school department heads/coordinators (science, curriculum, etc.)

Comments:

**39. Following is a list of current Wells Reserve education program offerings for school groups. Please check those offerings that are of potential interest to you. For descriptions, download the [Wells Reserve education brochure \(PDF, 300 KB\)](#).**

- Guided Walks at the Reserve. Topics: History of a saltwater farm, tides, intertidal zone habitat, salt marsh habitat, wildlife, trees, wildflowers.
- Wild Friends in Wild Places (guided program at the Reserve). Topics: wildlife, habitats, live animals, adaptations.
- Exploring Estuaries (guided program at the Reserve). Topics: estuaries, habitats, salinity, watersheds, wildlife, human impacts, interdependence, food web.
- Microscopic Marvels (guided program at the Reserve). Topics: plankton, water quality, data collection, salt marsh and estuary, tides.
- Self-guided Visit (using the Reserve's 7 miles of trails)
- Discovery Program Trail Guides & Backpacks. Topics: habitats, life cycles, adaptations, watersheds, water cycle, stone walls, farm life, wildlife, estuaries, Native Americans, invasive species, camouflage.
- Kit Rental (for your classroom). Topic: Birds.
- Kit Rental (for your classroom). Topic: Estuaries.
- Kit Rental (for your classroom). Topic: Trees and forestry.
- Kit Rental (for your classroom). Topic: Animal skulls, tracks, fur, and scat.
- Exhibits at the Reserve. Topics: Landscape change, Native Americans, European colonists, glaciers, farming, industrialization, human land use, salt marshes, estuaries, tides, watersheds, water quality, fish, plankton, research techniques, habitats, wildlife.

**40. How much are you willing to pay for a three-week rental of an education kit that includes hands-on materials/objects and lesson plans to use with your students?**  
*Example: A bird kit that includes skull replicas, egg replicas, books, field guides, track replicas, puppets, and more.*

- Zero
- Up to \$50
- Up to \$75
- Up to \$100
- More than \$100

**SECTION 5: SURVEY CONCLUSION**

**41. Thank you for completing the survey. Would you like to provide any other information, feedback, or ideas?**

**42. Would you like to be added to the Wells Reserve email list to receive occasional announcements about programs and events?**

- No
- Yes

If you did not enter your email address at the beginning of the survey, please enter it here:

Thank you for participating in the K-12 Education Needs Assessment Survey. **Please be sure to click the Submit button below.** We will notify you by email if you are a winner of a gift certificate or kit rental.

We greatly appreciate your input, which we will use to provide the best possible educational programs. We welcome you to make use of our Education Program offerings and to come visit the Reserve.