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“The kids in Winterport plan to approach their Clean Air Zone outreach campaign by talking to drivers parked outside their school about the effects of idling. They plan to ask drivers if they would refrain from idling, then give them a magnet or sticker to keep in their car to remind them about not idling later.” [See photo.]

M. Wibberly, MDEP Intern, UMaine.

“Our Maine Green Schools team here in Topsham is making headway with the students doing Intercept surveys to interview friends and relatives about their awareness of energy use and climate change connections. The students have gone through the full circle of collecting energy use data, analyzing it, and then presenting it to school officials. We are still trying to figure out the best way to educate people at the school and influence change in energy behaviors.”

- E. Rosen & L. Warren-Shriner, MDEP Interns, Bowdoin College

Around the state of Maine, class groups and eco-teams are finding innovative ways to influence people to do the right thing when it comes to the environment. Students and teachers are working with the **Maine Department of Environmental Protection (DEP) and Maine Energy Education Program (MEEP)** as part of the Maine Green Schools project. Participants are reaching out to their own communities with messages about living “energy efficiently” and adopting better driving habits to keep our air clean and reduce the impacts of climate change.

The two Maine Green School and Clean Air Zone (CAZ) Interns quoted above highlight students who are influencing friends and neighbors to make choices that reduce impacts on the environment. These civic action projects are providing students with real life skills and an understanding of how to foster sustainable behavior. They are effectively creating public awareness while gaining an understanding of issues related to sustainability, and learning what kinds of tools can truly influence change in our society.

A NEW EDUCATIONAL APPROACH – SERVICE LEARNING

While most schools have adopted some form of *community service* in their curriculum, *service learning* takes this idea a step further in that it requires a higher level of student engagement. It allows students to practice their decision-making skills to formulate a plan of action and gives them experience in evaluating their success.

The Maine Department of Education acknowledged the importance of involving students, of all grade levels, in civic action - when adding this new standard to the *2008 revised Maine Learning Results*. The state leaders encourage engaging students in “*taking action using social studies knowledge and skills; having students select, plan, and participate in a civic action or service learning project based on a classroom, school or community need; and to provide evidence of a project’s effectiveness and civic contribution.*”

These authentic educational experiences provide opportunities for youth to feel empowered to come up with ideas that can influence their schools or communities and make a positive difference.

LAYING THE FOUNDATION - ENTRY POINTS & APPROACHES

The **Maine Department of Environmental Protection (DEP) and Maine Energy Education Program (MEEP)** partners provide “*entry point*” presentations along with tools and support for student projects. *Entry points* for service learning are selected by a teacher or team coach to align with their curriculum objectives. An entry point discussion introduces an issue of concern and provides background information and tools to help students evaluate the problem, and guides them through a process to design an effective way to solve it.

A unique element that has been embedded into our Maine energy and transportation projects is the use of *behavioral science marketing* strategies. Students learn how to foster sustainable behavior through:

- doing initial research about what people think and why;
- identifying barriers and benefits in a target audience; and then,
- designing effective, positive messaging strategies to influence family, friends and fellow community members to make change.

Students are often asked to learn about a topic and then share what they’ve learned with others, but sharing information alone does not actively influence community behaviors. Learning some of the social marketing techniques embedded in our projects is a powerful way to support grassroots action on environmental issues. In these model projects, students are learning approaches to establish behaviors such as not idling vehicles and being energy efficient as *norms* in the community.

GETTING STARTED AND GAINING MOMENTUM

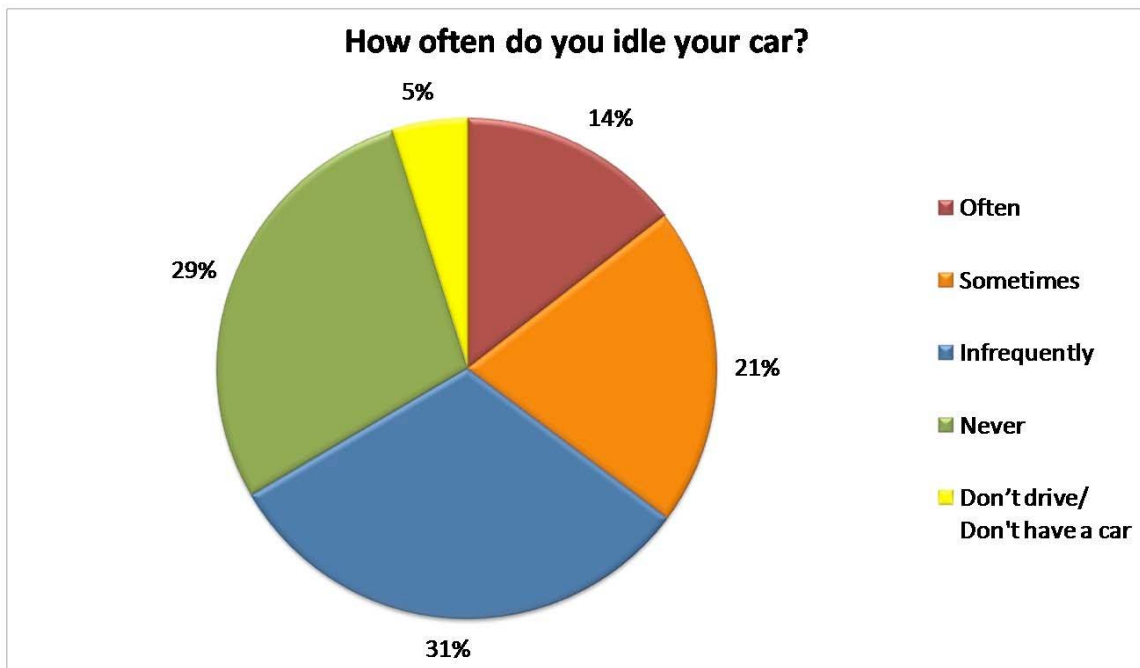
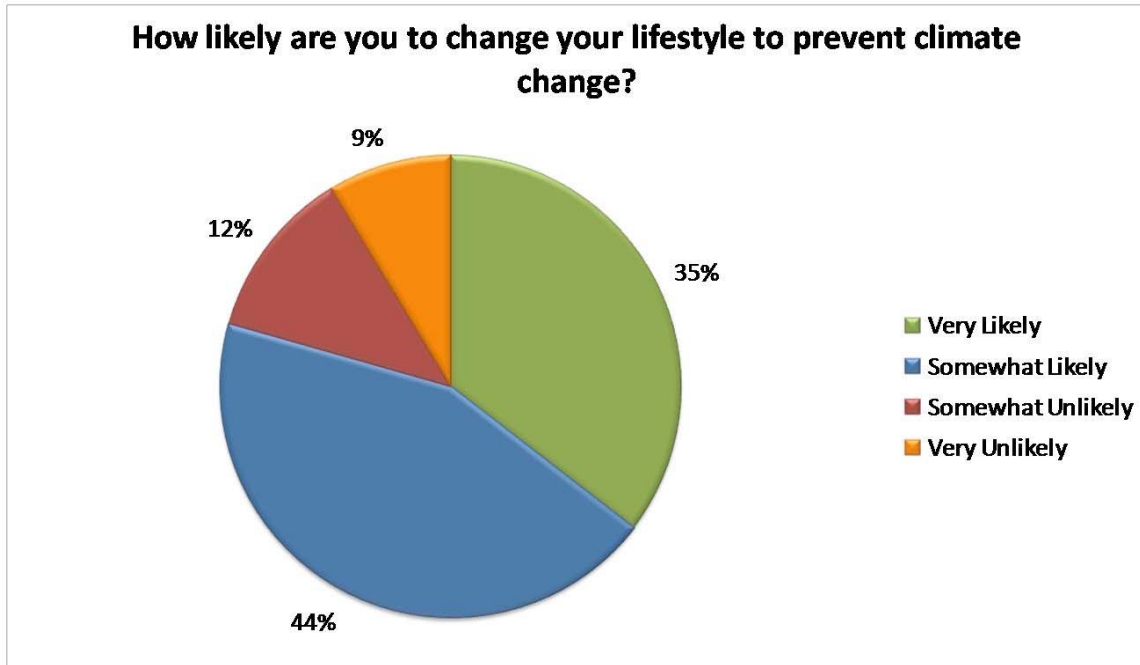
Maine DEP and MEEP recruited teachers and eco-team coaches who thought an environmental service learning project would fit in with their curricula or extra-curricular club interests. In 2008-09, we also recruited twenty college interns to work with a few of the teams and facilitate student projects.

Maine DEP and MEEP staff led introductory workshops to help teams understand how to get started with their research. Then we offered the student teams tools, training and resources to kick off their projects. The teachers and college interns helped student projects gain momentum by facilitating discussions around techniques for communicating concerns, identifying desirable behavior changes and selecting target audiences they could influence.

“CAZ Winterport is going strong. It was great to work with the kids on their video and see how they wanted to get the points across to their friends and family. It was specifically interesting to note which facts the students felt would be most pertinent. We had some great conversations about why one thing should be stated and not another. I love working with them! It's interesting to get their perspective, especially since they really know their community and what things would be best said to stir Winterporters to action.”

- M. Wibberly, MDEP Intern, UMaine

With EPA grant funding, the partners provided a survey tool that teams could use to find out about the awareness and attitudes people have on climate and energy-related issues. The survey results can be used to make students' thinking more complex, and to inform their ideas for designing an outreach campaign plan. Here are two sample questions:



CAZ teams are asked to start their projects by using this awareness survey to interview family and friends, as well as to observe drivers in the school yard and at various places in the community. Their next steps – to design an education campaign – are based on what they learned from that research..

CAZ Winterport: "In addition to approaching drivers and asking them not to idle their vehicles, the kids are working on some posters to post around the school and

in the town office. We're also going to find some sort of school function to set up a poster display. The kids will staff the table, talking to people in the community about what they've been doing and what they've found.

We're also going to put up the CAZ signs in the drop off areas. Winterport has a marquis sign that sits in the center of town, right across the street from where we did driver observations. The team thinks it would be great to have that large sign there so all of those people would certainly see it!"

Social networking websites have been used as a result of an intern's suggestion. Our interns and staff tried using *Facebook* groups for networking and sharing ideas online with mixed results. So a free *Google Groups* website was created that allowed teams to post photos, stories, data and videos from their projects. (This was considered a "safer site" for student access because it avoided sharing a lot of personal information that people have posted on social networking web pages.) The *Google Groups* web pages feature examples of what other teams are accomplishing:

<http://sites.google.com/site/greenschoolsprojects/Home/> .

The online presence helps students and interns feel they're part of a bigger effort in the state to influence change.

THE SCOOP ON CLEAN AIR ZONE PROJECTS

With the help of college interns in 2008, students at Pemetec School (Southwest Harbor), Wagner Middle School (Winterport), Bath Middle School and Lewiston's Farwell School and Lewiston High School's Green Team did Clean Air Zone projects. They actively influenced school policy development by asking school officials to create no-idling policies. They also developed outreach campaigns to encourage drivers at their school not to idle their vehicles. At Bath MS, teacher M. Wright reports:

"Each of my five classes has taken a different approach to promote no idling and raise awareness in the community:

- *Period 1 – students want to make sandwich boards and a cardboard bus that would walk around at ...a Saturday Farmer's market. They would likely have a booth as well.*
- *Period 2- wants to be a walking "float" in the Memorial Day parade. They plan to have matching t-shirts and have people make idling pledges. [See photo.]*
- *Period 3 - is making a public service announcement with intentions to go on local cable channel and YouTube.*
- *Period 5 – is planning a free car wash in June for anyone that pledges to not idle and will provide informational handouts to give people at the car wash.*
- *Period 7 – plans a series of letters to the editor of the local newspaper."*

For examples of all the Clean Air Zone "entry point" curriculum options teachers can use to best match their curriculum needs, see:

<http://www.maine.gov/dep/air/education/cleanairzone.htm>.

THE SCOOP ON GREEN SCHOOLS – ENERGY EFFICIENCY PROJECTS

In the Maine Green Schools project, students at Orono Middle School, Mt. Ararat Middle and High Schools (Topsham), Brunswick High School, BCOPE (Belfast) and Mt. View High School (Thorndike) and many other schools have been busy assessing energy use in their school buildings and interacting with school officials to improve energy efficiency. Over 20 schools signed up for training and projects this year.

One particularly hardworking school group from Jackman, Maine is well on their way to being more energy efficient. This year, the Environmental Science classes at Forest Hills School conducted an energy audit investigation of their school. The first semester class did a lighting and appliance analysis of their small K-12 school. They documented each fixture, its number of lamps and wattage; estimated annual operation time, and calculated annual cost for lighting. They also documented and calculated yearly cost to run appliances, analyzed the results and came up with recommendations to reduce lighting and electric load, and presented those recommendations to the school board.

MEEP provides an introductory session in how students can research energy efficiency in their schools using our new Energy Efficiency Audit Investigation Kits, which include a Kill-a-watt meter to measure electricity loads, an infrared thermometer, a HOBO data logger (which logs temperature, humidity and light intensity), a light meter, and a tape measure.

The second semester class focused on heating and cooling. They identified areas of the school that could be thermally scanned with their infrared thermometer, and on a cold February morning a MEEP staffer visited the school to examine the building heat patterns with the infrared camera. The students will use those images in their school board presentations.

The Jackman students also completed *MEEP's Vending Mi\$er Challenge* where they used MEEP's special equipment (Kill-a-Watt meter and Vending Mi\$ER) to analyze the electricity use of vending machines in the school. They completed an analysis and reported to the school officials on the potential savings from installing Vending Mi\$ERs which reduce the vending machine electricity load (and cost) by up to 50%. As a result, MEEP provided the class with a Vending Mi\$ER for one vending machine at the school, so they're already saving energy!

While most school efficiency audits encourage replacement of inefficient lighting and appliances, a group of students at George Stevens Academy in Blue Hill focused on energy use *behaviors*. Their school audit report was full of great graphs and powerful data. Their report to school officials suggested simple steps – like consolidating all beverages into one cooler – to save up to 50% in electricity consumption. They concluded their service learning project by presenting their findings to faculty, staff and the School Board.

In Belfast at the *BCOPE School*, students have conducted a detailed analysis of electricity use and are also exploring the possibilities for renewable energy on site with the help of college interns from Unity College. They made presentations to their school superintendent and hope to write grants for solar or wind demonstration projects after they've improved their building's energy efficiency potential.



Students using light meters to check light levels in the hallway of their school

SUMMARY

The results from the student Intercept surveys on public awareness and attitudes will provide insights on behavior changes over time. Student research and observations can also be reexamined in years to come to compare results and quantify improvements. The data is now being compiled and graphed and will be available on each of the project websites. A review of statewide results may provide some interesting comparisons.

Successes

- The students were clearly excited about their projects and felt they were doing something important that contributed to their school communities. They were very serious about their efforts to influence school policies and seemed to get a strong sense of self confidence from this work. They liked becoming experts in a particular topic and to share that expertise with their peers.
- The help from college interns in 2008-09 has been invaluable for the partners to maintain a closer connection to the project teams. They've really made the difference in getting information for the web-based educational outreach the teams are doing and have provided support to the teams for keeping up their

momentum. For many of the projects, the intern help was instrumental in getting field work accomplished because the teacher could delegate supervision of the students to the interns when they had other obligations to attend to.

- Recruiting teachers and eco-team mentors to participate in a project started out slowly, but many were very interested in borrowing the new energy efficiency toolkits.

Challenges

- TIME.....Getting started was a challenge. Teachers had to find the time to fit this into their class schedules and to introduce the basics. Teachers who were assigned interns found it a bit easier to manage independent student research outside of the classroom.
- We anticipated that the energy efficiency kits would be loaned out for one month, but the projects have taken several months to complete the work because of time constraints in the school schedules.
- Institutionalizing “check-ins” with teachers and interns at some reasonable interval after they have performed Green Schools or Clean Air Zone trainings would help ensure things are running smoothly.
- The college interns have found it a challenge to fit all the elements of projects into their schedule. What started out as a one semester commitment turned into a full year because things progressed slowly.
- As unwieldy and time consuming as it was to recruit, train and oversee interns, their involvement seemed to result in a greater likelihood that an “action project” would be completed. Of course, it is possible – perhaps even likely – that, given the number of teachers who were able to manage a project independently, those teachers who embraced interns are those who would have followed through with an “action” even without intern support.

The value of the social networking and internet sites is mixed.

- *Facebook* social networking wasn’t particularly useful for these projects. Since the schools restrict student access to social networking sites because of the personal information revealed there, it isn’t appropriate for a professional networking capacity.
- Although an afterthought in the 2008-09 phase of this initiative, the *Google Groups* pages turned out to be a good way to share project results. Maine DEP staff stepped up to take on the responsibility for posting data and info on the website because most of the teams and interns didn’t have the additional time and/or expertise.

Students at the participating schools deserve recognition for a lot of hard work conducting research, designing outreach campaigns and influencing school policy developments. They were leaders in an intensive learning process which has provided real life experiences that can be applied to other community issues later on in life. Their projects have given them expertise and ownership over some of the positive changes made in their schools. They've encouraged behavior changes including turning off rather than idling vehicle engines, shutting off lights and computer monitors when not in use and identifying simple ways to be more efficient.

We believe these are transferable skills that the students will be able to continue to use in the future to promote sustainable environmental change in their communities. Wherever possible, we have encouraged students to connect with adult volunteers to create and enrich local community service partnerships. With the knowledge, strategies and skills they now have, we can all have hope for a brighter future.

For examples of Maine Green Schools 'Entry Point' curricula:

<http://www.meepnews.org/>