

# The North Shore Curriculum Assessment Final Report

Prepared for the Minnesota Lake Superior Coastal Program  
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*Wolf Ridge  
Environmental  
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In Partnership With The Following Organizations:



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*Minnesota's Lake Superior Coastal Program is a voluntary federal-state partnership dedicated to the comprehensive management of our coastal resources. The Program provides technical and financial resources for the local community, by bringing federal dollars into Minnesota for the Lake Superior coastal area.*

*The Coastal Program's goal is to preserve, protect, develop, and where possible, restore or enhance coastal resources along Minnesota's North Shore of Lake Superior. Our annual [Grant program](#) is an important funding source for local communities to help them balance protection of coastal resources with providing places for people to live, work, and play.*

**Minnesota Coastal Program Final Report:  
*The North Shore Curriculum Assessment*  
Conducted by Wolf Ridge Environmental Learning Center  
December 2007**

## **1. Introduction**

In autumn of 2006, Wolf Ridge Environmental Learning Center, with the support of the Minnesota Department of Natural Resources Coastal Program and the National Oceanic and Atmospheric Administration, initiated a project to assess the needs of teachers and schools regarding coastal resources and environmental education in the Minnesota coastal zone. This project was conducted with the support of and in collaboration with the leading environmental education organizations within the Minnesota coastal zone: Hartley Nature Center, Department of Education - University of Minnesota Duluth, Great Lakes Aquarium, Hawk Ridge Bird Observatory, Boulder Lake Management Area, University of MN Extension Service and the Sugarloaf Cove Interpretive Center Association.

The need for this assessment developed from a collective vision of the collaborating partner organizations. Early in 2006, representatives from each of these organizations met several times with representatives from the Minnesota Lake Superior Coastal Program regarding available funding for the development of an environmental education curriculum that related to the coastal zone. Rather than develop a grant for new curriculum, the leaders of these organizations proposed conducting a needs assessment of schools within the coastal zone to gather input from teachers, administrators, and community members regarding coastal resources and environmental education. The Minnesota Lake Superior Coastal Program accepted an application to conduct this needs assessment, thus providing the majority of funding needed for this project.

The outcomes and knowledge gained from this project are to be used to assess the needs of environmental education curriculum in the coastal zone and subsequently make recommendations for future funding and efforts that best meet the needs of coastal area schools and educators.

## **2. Methods**

To gather information that would yield a more comprehensive view of the environmental education needs and barriers of teachers and schools in the coastal zone, this project was divided into three separate tasks:

Task 1: Feedback was gathered from teachers in grades K-12 through a written survey.

Wolf Ridge staff visited each of the 55 schools in the coastal zone. At each visit, the goals of the project and the survey were described to the principal. The principal was asked to recommend a teacher from each grade level group (K-2, 3-5, 6-8, and 9-12) to best represent and respond for the needs of faculty in those grades. Surveys were distributed to one representative teacher in each grade level group at every school. Of the 115 surveys that were distributed, 56 of them (48%) were returned. Of the 55 schools that were visited, 31 schools returned at least one survey (56%) to participate in the project. This rate of return is most likely attributed to visiting each school and explaining the value of participating in the survey.

Task 2: Community members were asked to share their needs regarding the implementation of environmental education into their local schools through a written survey and meeting discussion.

Community input meetings were held in four representative communities within the coastal zone. Two were held in the city of Duluth (Ordean Middle School and Kenwood Edison School), one was held in a smaller community near Duluth (Hermantown Elementary and Middle School) and one was held in a small rural community along the North Shore (William Kelley School in Silver Bay). Parent Teacher Associations from schools identified in the Minnesota Lake Superior Coastal Zone agreed to serve as hosts for these input meetings. Four community input meetings were held with a total of 36 individuals in attendance (28 parents, three administrators, and five teachers, two from grades K-2 and three from grades 3-5).

Task 3: A resource list of currently available, high quality environmental education curricula was developed to provide educators with a source of information on what resources are currently available and how to acquire them.

Representatives from each of the partner organizations provided input regarding quality environmental education curricular resources that are recommended and frequently used by their staff members. Information about each of these resources was compiled into an Environmental Education Curriculum Resource Guide that was distributed to each of the 55 schools in the coastal zone.

This resource guide is by no means intended to represent a comprehensive list of environmental education resources. However, it does serve as a listing of the curricular resources that the partner environmental education organizations in Northeastern Minnesota use to guide their programs

### **3. Limitations**

Because each school principal was asked to select one representative teacher from each grade level category to assess the needs of the faculty in their respected grade levels, it is believed that these teachers were typically those that had relatively higher levels of comfort and expertise in environmental education than the rest of their colleagues. Surveyed teachers described a very high level of comfort in teaching environmental education activities in their classroom yet noted a much lower level of comfort for the other teachers EE knowledge within their grade level group. Thus the survey results may or may not accurately represent the needs of all of the teachers with varying levels of experience or comfort with environmental education.

### **4. Results**

#### a. Environmental Education at Your School

##### *Teaching Methods*

The majority of surveyed teachers stated that they are quite comfortable teaching environmental education lessons in their classroom, resulting in one of the higher rankings (4.20) given in any area of the survey. This is supported by the fact that 77% of the teachers from this survey stated that they teach outdoors and 68% of them are currently using an outdoor school site. These numbers seem to indicate that many schools have an outdoor setting in which to teach. This is supported by the lowest ranking (2.83) for environmental education resource needs of obtaining an outdoor school site.

With 93% of surveyed teachers responding that they teach about the environment, it was surprising to note that only 38% of them use the identified published EE curriculum. Instead, many teachers (46%) have developed their own curriculum to teach about the environment.

In addition to teaching about the environment, a majority (64%) of the teachers are taking their students on field trips to Environmental Learning Centers or Nature Centers. However, most of these field trip opportunities are happening only once or twice during the school year.

The data also revealed that 19.6% of the surveyed teachers are teaching about the environment every week, which seemed to be a high percentage given the number of respondents.

### *Content Knowledge*

The teachers seemed to indicate that they were knowledgeable in the content areas of environmental education with the positive rankings in every area (all above 3.0).

The teachers in this survey rated that their greatest level of knowledge was among the area of outdoor recreation. This area is an integral part of our region and many may have gained experiential knowledge that would support this finding. Teachers indicated that they were more knowledgeable (3.70) about general environmental issues (climate change, acid rain, etc.) rather than specific issues relating to the coastal zone, (fisheries, forestry and development). Specific coastal zone issues was rated the lowest (3.02) in this category.

### *EE Curriculum (Resources) Use*

The data showed that a moderate number of teachers were unaware of many of the existing environmental education curricula. The data also showed that many teachers were aware of the listed curricula, but did not use them presently in their teaching. Overall, of the teachers that did indicate they used these curricular resources, there was a relatively low rate of usage of these resources, all with rankings below 2.50.

Many EE professionals would consider *Project WET*, *Project WILD*, and *Project Learning Tree* to be some of the most prevalent curricular sets available. While the percentage of teachers that indicated that they were either aware of or used these resources may seem high, the frequencies of use by teachers that use these curricula are rather low. Considering that the teachers chosen to complete this survey were likely to be more comfortable and familiar with EE, the results (30%-35%) for those aware of and not using the most common or other locally designed curricula is rather surprising.

## b. Environmental Education Needs

### *Resource Needs*

While funding for EE activities and resources was ranked as the highest need in this category, this resource need could be applicable to a variety of areas. The surveyed teachers expressed a need for more field trip opportunities and guest speakers to help support environmental education at their schools. Several teachers made additional comments regarding these needs that seemed to relate them to one another:

“So many opportunities are missed due to money, money for resources, supplies, equipment or for field trips.”

“We need funding to pay for field trips and busing.”

“Since we are a very small school with very limited financial resources, we would be interested in any free programs, field trips, or speakers.”

“Field trips are expensive for students today. Good field trips are invaluable and schools do not finance them anymore.”

“We need funds for field trips, bus money, and a list of speakers willing to come into the classroom.”

“We have little funding for anything new or for field trips.”

Activities, field trips and guest speaker needs were also mentioned by individuals at the community input meetings. Meeting participants described the need to provide funding for students to participate in field based learning opportunities, as well as bring in guest speakers and local experts to teach about the environment.

Teachers also ranked time for professional development and collaboration with other teachers as being important. Several teachers made additional comments regarding these two needs:

“Collaborating with other teachers would help for finding tried and true ideas.”

“We need more time to meet with colleagues to plan and learn about EE.”

“The problem most teachers have is lack of time. You can go a whole day without connecting with another adult. There is very little time for networking and meeting with other teachers.”

“We need time (within the work day) to meet with colleagues to share, network, and learn.”

“I believe there is a need for opportunities for EE staff development and training or possibly to be made more aware of available opportunities.”

“Time and money to receive training and continue self-education is difficult to find.”

“Teachers are more likely to incorporate EE with training and a better understanding of its value.”

In the larger district schools, where a curriculum specialist might be available to teachers, more comments were placed on the value of providing time for teachers to come together and brainstorm new curricular ideas, field trips, etc. Whereas in the smaller schools, comments seemed to be related to the need for someone to provide assistance to them, either through a professional development workshop or a paid coordinator position that has a focus in EE. This would be similar to the role a curriculum specialist serves in the larger school districts.

While not ranked as high in the survey, some teachers did make several comments regarding lesson plans and written curriculum:

“We have the outdoor school site. I would like materials to teach effectively (curriculum).”

“We have a school forest but no lesson resources or training.”

“A school-wide curriculum made available may increase the ease and willingness to incorporate EE by teachers.”

“Our district does not have an EE curriculum. At one point, we all had waste management kits. It would mean aligning state standards and our district learner outcomes.”

“Looking at the past section, I find I am unaware of many EE curricula that are available.”

It was surprising to note that the need for an outdoor school site was ranked as the lowest of the resource needs in this category. This seems to correlate with several comments made during the community input meetings. Individual responses regularly noted that schools in this area are fortunate to have the tremendous natural resources and settings for outdoor learning, many of which are in close proximity to their schools.

### *EE Professional Development Needs*

Specific coastal resource management issues were ranked as the highest level of need in terms of a specific content area, which seems to correlate with the prior result that showed this area to be ranked as the lowest item in the teachers’ level of knowledge. Other needed content areas that were ranked highest in this category were aquatic ecosystems, birds, current interaction of humans upon natural resources (an area similar to coastal resource management issues), historical interactions of human cultures upon natural resources, earth sciences and wildlife. Each of these content area needs for teachers could be met through a variety of ways.

The surveyed teachers indicated that outdoor teaching methods are an important need regarding pedagogy. Yet, all listed environmental methods were rated positively by participants.

Teachers ranked a high level of need for funding resources and grant writing that would be used to secure those funding sources. As to where those funding resources might be allocated, they ranked transportation to an outdoor EE site off campus and additional EE equipment resources as being important. This is supported by additional comments made by the surveyed teachers:

“No funding is available for outdoor activities or field trips.”

“Field trips are viewed as ‘extra’ and are the first thing we lose when money is tough.”

“Funding is limited for environmental education field trips.”

“Our transportation costs keep rising each year.”

“Transportation costs continue to rise each year which cause us to limit field trips.”

“We need EE equipment to use and funding for its purchase. We would like to have environmental educators come to our classrooms.”

“In order to effectively teach EE across grade levels and subjects, we need a great deal more resources. As a small school we have a very flexible curriculum and schedule, but limited staffing, transportation funds, and times for development of essential programs.”

“Anything to facilitate outdoor use would be useful - transportation, equipment, training – all are important.”

Community input meetings showed that individuals had similar responses. Several people commented that students should be developing a sense of place and understanding for where they live and that this requires an immersion experiences and field trip opportunities. Several also noted the many valuable opportunities that the Coastal Zone has to offer: Lake Superior beaches, numerous state, city and county parks, scientific and natural areas, as well as other large portions of publicly owned forest land. Teachers stated a high need for professional development in teaching methods that include Place-Based Education and Environment as an Integrated Context

(EIC). Both of these are approaches to teaching EE, not as separate subjects but as a context for learning all subjects such as math, science and reading.

### c. Potential Barriers to Environmental Education

The barriers to teaching environmental education identified by the surveyed teachers echo the responses listed in the needs categories mentioned above: inadequate funding, lack of access to transportation, lack of time amidst core subjects, inadequate EE equipment resources, and inadequate planning time. By addressing many of the listed needs described by these teachers, many of the described barriers will also be addressed.

## **5. Recommendations**

Through the process of reviewing the data from the teacher survey and the information gathered during the community input meetings, several patterns have emerged as well as some distinct needs that are specific to different types of schools. Wolf Ridge Environmental Learning Center would like to offer the following recommendations based upon the information gathered from this North Shore Curriculum Needs Assessment Project.

### Curriculum

From the knowledge gained in this project, it is the opinion and *recommendation of Wolf Ridge that no new generalized curriculum writing be funded until ample effort has been made to make teachers more aware of existing written EE curricula.* The fact that only 38% of the teachers use existing published curricula leads Wolf Ridge to believe that surveyed teachers either need to become more aware of existing EE curriculum or receive additional training in the curriculum.

This is not to say that schools should not take currently available curricula and package it to fit their needs. We strongly recommend that individual schools or districts design specific packages to better achieve their environmental, science and other educational outcomes. The distribution of the Environmental Education Curriculum Resource Guide should foster awareness of existing curricula teachers might use in their classrooms. The listed curriculum also includes hundreds of inexpensive class activities that can be incorporated into school specific packages.

### Collaboration and Coordination

While evaluating the survey, we discovered themes of need that related to size of school district or school. Schools, such as those in the Duluth district, have an infrastructure that the more rural or smaller schools do not. A greater number of teacher colleagues along with professional curriculum specialists exist in these larger schools and districts. In these cases *we recommend that teacher workshops be funded that enable large amounts of collaboration time so teachers can develop their own curriculum, field trip ideas, and further implementation of EE or coastal resource education.* These groups would benefit greatly from content knowledge seminars and support, workshops, or a series of shorter school year in-service trainings that are followed by a summer workshop that promotes collaboration.

In the more rural schools or smaller schools, the teachers and administrators described a need for more help in their implementation of EE. In these situations *we recommend future funding be prioritized for part-time EE coordinator positions that can support these schools or districts.* These positions do not need to be on-going. A coordinator can help faculty build a greater capacity for environmental education over the course of a few years, then step away allowing the

teachers to apply the new skills and abilities. This coordinator would serve somewhat of a similar role as the curriculum specialists do in larger districts.

With each school having varying needs, further research is needed to gather a more detailed inventory of information regarding the needs of each individual school.

### EE Resources

*Wolf Ridge recommends that future funding opportunities be created for teachers to acquire guest speakers in the schools, to conduct field trips, and for classroom equipment.* Guest speakers and field trips not only serve as educational opportunities for the students, but also create professional development and teaching methodology learning opportunities for teachers, a stated high need in the survey results.

Unified among all the surveyed teachers were funding needs for transportation and equipment resources. As school budgets have tightened over the years these are both areas commonly cut or diminished in budget allocations. Funding these areas would allow the teachers, the majority of who stated they teach about the environment to engage students more fully, to use appropriate equipment in authentic settings outside their classroom.

### Teacher Training

Surveyed teachers stated they need to gain more content knowledge and teaching methodology. *Wolf Ridge recommends funding be provided or secured to hire educators with natural resource expertise in specific coastal resource management issues to help provide professional development opportunities for teachers.* For example –hire an educator with a high level of forestry knowledge to offer forestry content development workshops for teachers. This trainer should be knowledgeable in non-formal setting EE as well as classroom applications for formal educators. These types of trainings for K-12 teachers could easily be achieved in short sessions that are interspersed throughout the school year, as this is the format of professional development most desired by the surveyed teachers.

*It is our recommendation that teacher training that includes content knowledge or curriculum training also focuses upon methodology.* It is our experience that training that includes all three components is most successful. Experts in the field of education exist in several places in the coastal zone area that can develop these kinds of workshops. Workshops that also include confidence and capacity building in teachers, as well as future collaboration time amongst colleagues are very valuable for developing quality EE experiences for students.

### Grant Writing

While the Community Input Meetings noted that the larger school districts have grant writers, the smaller districts did not and saw this as an extremely valuable resource. Even larger district respondents referenced an overwhelming burden that was being placed upon their grant writers. *Wolf Ridge recommends simplifying the public entity grant application and reporting process.* A streamlined method for developing teacher or school awareness about private grant opportunities would also be very valuable.



## School Structure

A few of the identified barriers are difficult to address as they are integral to the structure of the school, e.g. lack of time amidst core subjects, inadequate planning time or structure of daily school schedules. Training teachers in *Place Based Education* and *Environment as an Integrated Context (EIC)* could help address the barriers of school structure because both of these approaches teach EE not as separate subjects but as a context for learning across all subjects such as math, science and reading.