

# Alaska Natural Resource & Environmental Literacy Plan



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We appreciate the generosity and talent of the educators that contributed ‘Success Stories’ as well as the many photographs to bring this plan to life.

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## Advisors

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# Executive Summary

## Alaska Natural Resource and Environmental Literacy Plan

### The Vision

Alaska's students will graduate from high school with a strong foundation in natural resource and environmental literacy. Students will have personal connections to nature; understand the complex relationships between community, culture, economy, and the environment; and be prepared to make informed decisions about the sustainable management and development of our state's rich natural resources for today and for future generations.



### About the Plan

The Alaska Natural Resource and Environmental Literacy Plan provides a road map for supporting our schools in integrating natural resource and environmental education, including active outdoor learning, as part of the school curricula. It also provides opportunities to use local expertise, incorporate indigenous knowledge and culture, support thematic teaching by integrating subjects, and align with STEM (science, technology, engineering and math) national and state initiatives.

This plan has been initially developed by a diverse Working Group of educators and natural resource professionals facilitated by representatives from two state agencies, the Alaska Department of Education & Early Development and the Alaska Department of Fish & Game. During a six-month comment period individuals, organizations, and agencies provided input, resulting in this revised draft plan.

Implementation of the plan will result in no new educational mandates, nor will it dictate what should be taught in the classroom or during outdoor activities. It will allow schools and community partners to receive support to implement successful place-based learning opportunities, develop outdoor classrooms, and provide important professional development for teachers, administrators, and community members.

Alaska's students will benefit from the implementation of this plan. Educational research makes clear that students will do better in school, have fewer behavioral and health problems, be more engaged in learning, and will be more prepared for future jobs.

### Goals

1. Provide all PreK-12 children in Alaska with opportunities to engage in safe outdoor learning experiences as part of regular instruction.
2. Support Alaska Department of Education & Early Development Standards by further incorporating natural resource and environmental literacy across subject areas.



3. Foster partnerships with nonprofit organizations, businesses, industry groups, tribal organizations, and government agencies to enhance meaningful service-learning experiences for students that also benefit communities and their local environment.
4. Enhance professional development for educators, administrators, and community members in natural resource and environmental literacy.
5. Support the development of Alaska school facilities, grounds, and local natural areas that provide accessible learning opportunities and serve as community models for healthy living and sustainability.

## Implementation

Objectives and strategies that support the plan's goals are to be implemented over the next five years, with preliminary work beginning in 2014 as approval, funding, and staff resources are able to support it. While the Alaska Department of Education & Early Development and the Alaska Department of Fish & Game will continue to provide leadership for the plan, its successful implementation will require the participation and contribution of diverse individuals and entities throughout Alaska. Financial and in-kind support for the implementation of the plan will come from grants, collaboration, and partnerships among Alaska's school districts, organizations, agencies, and businesses.

The Working Group identified three structural components needed to achieve the plan's goals:

1. An active statewide Natural Resource and Environmental Literacy Leadership Council, comprising professionals from school districts, natural resource agencies and industries, tribal organizations and Native corporations, educational nonprofit organizations, and outdoor recreation organizations.
2. School or school district liaisons to facilitate the integration of the plan at the local level.
3. A paid coordinator who has the resources and flexibility necessary to provide assistance in plan implementation to the diverse stakeholders involved.

Visit [www.akelp.org](http://www.akelp.org) for updates or “Like” the Alaska Natural Resource & Environmental Literacy Plan Facebook page to get updates on plan activities.



# History of Environmental, Natural Resource, Outdoor and Place-Based Education in Alaska

**10,000+  
years ago**

- For many thousands of years, Alaska's indigenous people have been teaching their children the skills they need not only to survive but to understand and respect the natural world, principles that remain fundamental tenets of place-based environmental education.

**1968**

- The first grassroots effort to establish a formal Environmental Education program began in Juneau. Sea Week continues to thrive in many communities across the state.

**1972**

- Alaska Department of Education brought together a statewide team to develop "Planning Guidelines for Environmental Education in Alaska."

**1975**

- The Bureau of Land Management, Anchorage School District, and Anchorage Committee for Resource Education developed Outdoor Week. A similar program was developed in Fairbanks and both continue to thrive today.

**1983**

- Alaska Sea Grant began developing a series of Alaska Sea Week Curriculum Guides. The curricula was updated and revised into today's online Alaska Seas and Rivers curriculum in 2009.

**1983**

- Alaska Department of Fish & Game launched an annual thematic celebration called Alaska Wildlife Week, which led to development of the Alaska Wildlife Curriculum. ADF&G continues to provide professional development & resources to educators.

**1984**

- Alaska Natural Resource and Outdoor Education Association (ANROE) formed to serve as a statewide link between Alaska natural resource agencies, and organizations developing broad-based environmental education programs, and the educators who deliver the programs. ANROE continues to serve as a statewide network, and is the state affiliate of the North American Association for Environmental Education.

**1984**

- Alaska Resource Education, formerly AMEREF, began as a partnership between the Alaska Department of Education & Early Development and private industry. It continues to educate students about Alaska's natural resources. Kits and curricula related to energy, forestry, and mining are provided to educators throughout Alaska.

**1985**

- The national environmental education curriculum guide Project Learning Tree (PLT), was introduced in Alaska. PLT continues to provide professional development & resources to educators as a partnership between University of Alaska Fairbanks-Cooperative Extension and Alaska Department of Natural Resources, Division of Forestry.

**1986**

- The national environmental education curriculum guides Project WILD and Project WILD Aquatic were introduced in Alaska. Alaska Department of Fish & Game, Division of Wildlife Conservation continues to provide professional development for educators statewide using updated guides.





**1991**

- Alaska Legislature passed a law (AS 14.30.380) encouraging school boards to conduct environmental education as part of regular classroom studies for kindergarten through grade 12.

**1995**

- The Alaska Federation of Natives cooperated with the University of Alaska and communities in rural Alaska to form the Alaska Rural Systemic Initiative (ASRI). ASRI is organized into five major initiatives: Native Ways of Knowing & Teaching, Culturally Aligned Curriculum Adaptations, Indigenous Science Knowledge Base, Elders and Cultural Camps, and Village Science Applications. The Alaska Native Knowledge Network is an ARSI partner and provides an online resource of information related to Alaska Native knowledge systems and ways of knowing.

**2003**

- The national environmental education curriculum Project WET was introduced in Alaska. The Alaska Association of Conservation Districts is the state sponsor.

**2004**

- ANROE produced a *Status Report- EE in Alaska*. The report addressed what was working and what was needed.

**2008**

- The National Science Foundation provided five years of funding to establish the Alaska Center for Ocean Sciences Education Excellence to engage scientists and educators in increasing literacy in marine and aquatic sciences in Alaska.

**2005-  
2013**

- A national grassroots movement to reconnect children with nature gains strength and support. Several Alaska communities formed coalitions to support efforts to get children and families outdoors, including Get Outdoors Anchorage, Get Outdoors Fairbanks, Nature Rocks Homer, Juneau Children Outdoors Community Coalition, and Get Out Sitka.

**2009-  
2013**

- Alaska Department of Education & Early Development and the Alaska Department of Fish & Game led a Working Group that produced the Alaska Natural Resource and Environmental Literacy Plan.



# Our Vision

*Alaska's students will graduate from high school with a strong foundation in natural resource environmental literacy. Students will have personal connections to nature; understand the complex relationships between community, culture, economy, and the environment; and be prepared to make informed decisions about the sustainable management and development of our state's rich natural resources for today and for future generations.*







## What is natural resource & environmental literacy?

The Alaska Natural Resource & Environmental Literacy Plan Working Group drew on existing professional research (NAAEE 2010) to define what will lead to natural resources and the environment literacy for Alaska's students. To achieve literacy, students will:

- Develop inquiry, investigative and analysis skills;
- Acquire knowledge of natural processes and human systems. Human systems include awareness of how humans interact with the environment which can influence human health, local cultures, economies, and quality of life;
- Develop skills for understanding and addressing issues related to the environment;
- Practice personal and civic responsibility for natural resource use and environmental decisions.

Acquiring natural resource & environmental literacy depends on children going outdoors to experience and interact with nature on a regular basis. The Alaska Natural Resource & Environmental Literacy Plan (ANRELP) is based on the tenet that high-quality environmental education in schools will lead to natural resource & environmental literacy.

## What is environmental education?

Environmental education is a well-developed and recognized field of education that develops learners' ability to ask questions, speculate and hypothesize about the world around them, connect to the places where they live, and seek information to independently develop answers to their questions. Learners engage in inquiry, master fundamental skills for gathering and organizing information, interpret and synthesize information to develop and communicate explanations, and create solutions (NAAEE 2010). Environmental education is by nature interdisciplinary and broad in spectrum. Environmental education is not synonymous with environmental advocacy. It does not promote one view, but builds knowledge and experiences to enable students to make informed decisions (Texas Partnership for Children in Nature 2012). Throughout this document the term "environmental education" will be used as an umbrella term to include outdoor, place-based, natural resource and conservation education.

## Purpose of the plan

The Alaska Natural Resource & Environmental Literacy Plan provides a road map for supporting our school systems in integrating active outdoor learning within the broader context of environmental education. Districts and schools that choose to implement ANRELP will provide their students with greater opportunities to



## Why do we need natural resource & environmental literacy?

connect with their communities and local environment. Students will develop the knowledge and skills necessary to become citizens who understand natural processes and systems, and are able to make informed, responsible, personal, and collective decisions about the use of our natural resources.

The plan contains no new mandates; it seeks to leverage existing resources and strengthen community partnerships to increase outdoor environmental education opportunities for students throughout their schooling. Each school and community will have different needs and requirements for implementation. ANRELP is designed to provide place-based strategies and options that allow for flexible implementation using local knowledge and expertise. Without doubt, Alaska is one of America's richest outdoor classrooms, providing the opportunity for successful implementation.

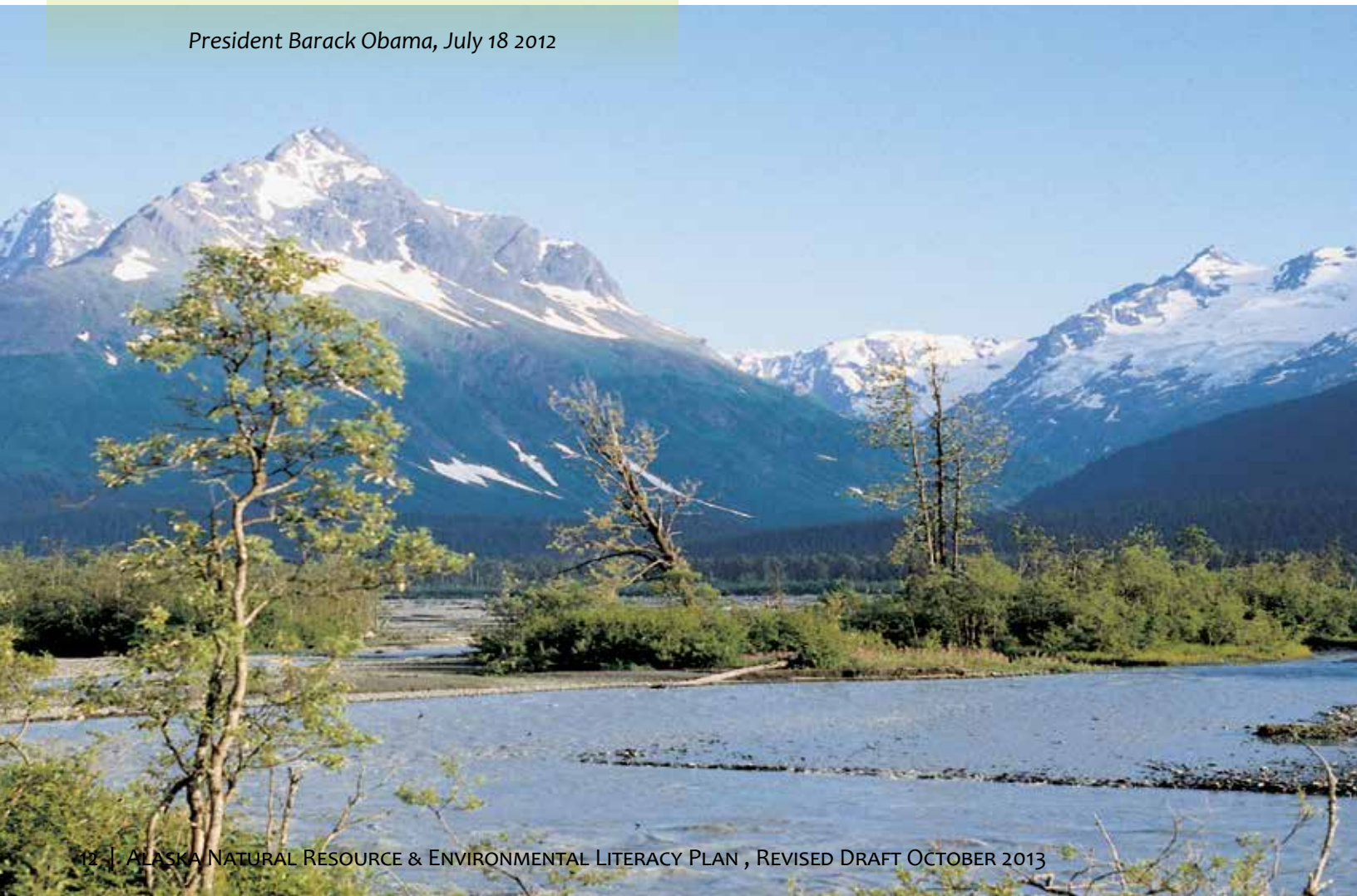
*"A world-class STEM workforce is essential to virtually every goal we have as a nation- whether it's broadly shared economic prosperity, international competitiveness, a strong national defense, a clean energy future, and longer, and healthier lives for all Americans."*

*President Barack Obama, July 18 2012*

Our outdoor heritage and economic future depend on preparing today's students to make informed decisions about managing and developing natural resources to maintain Alaska's ecological health, the long-term sustainability of our economy, and the well-being of our citizens and future generations. Alaska's vast natural resources lie at the nexus of our prosperity and way of life. Our state's Native cultures have depended upon the sustained productivity of the natural environment for thousands of years. Alaska's major businesses and industries are dependent on the wise and sustainable management of our natural resources.

*Natural resource & environmental literacy supports students' academic performance & career readiness.*

Problem-solving and critical thinking are essential skills in the 21st century job market and are strongly linked to learning of STEM subjects: science, technology, engineering and math, which include environmental science and environmental stewardship (Committee of STEM Education, National Science & Technology



Council, 2013). Alaska, like the rest of the nation, does not provide adequate opportunities in these subjects. It is particularly concerning that in many elementary classrooms, there is little focus on science learning along with limited opportunities to apply math in a real-world context. Students are entering middle and high school ill-prepared for more rigorous learning in these subjects. In a recent international assessment of 15-year-old students, the U.S. ranked 28th in math literacy and 21st in science literacy. Nationally, fewer than 15% of high school graduates take enough math and science to pursue scientific or technical degrees in college (Juneau Economic Development Council 2010). Meanwhile, 86% of the 50 fastest growing occupations in Alaska require significant STEM skills and 66% of these jobs pay more than the state's median wage of \$20.00/hour (unpublished report Alaska Department of Labor and Workforce Development, obtained from Yuancie Lee, Research and Analysis Section, Juneau, AK).

*Natural resource & environmental literacy is important to our economy.*

Alaska's economy is based on its rich natural resources. This wealth comes in the form of oil and gas resources, scenic beauty, wildlife, fish, timber, hard rock minerals, and agricultural lands. The Alaska State Constitution encourages the settlement of its lands and the development of Alaska's resources by making them available for maximum use consistent with the public interest (See Appendix F). Natural resources provide

more than 50% of the state's private sector jobs including private industry, tribes, and Native corporations.

(University of Alaska Research Summary 2008). The petroleum industry in Alaska employs 31% of jobs in the state. With its abundant energy resources, Alaska is in an important position to provide both renewable and non-renewable energy globally. Alaska's traditional resource industries also contribute to the state's economy. Mining supports nearly 12,000 jobs for Alaskans and the timber industry supports approximately 6,000 jobs. Alaska is the world's eighth largest seafood producer. Tourism is Alaska's largest renewable industry, bringing economic benefits to businesses and communities across the state. These industries demand skilled workers who are capable problem-solvers, autonomous learners, mathematically and scientifically literate and articulate - all skills developed through high quality, place-based, and engaging curriculum.

Alaska state government provides thousands of state and local natural resource and environmental related jobs. The federal government employs more than a third of Alaska's workforce, due in part to public lands that cover 65% of the state. These lands are national forests, parks, wildlife refuges, wild and scenic rivers, and conservation areas. Managing them provides many jobs for scientists and natural resource professionals (Goldsmith 2008). In order to ensure that Alaskans are prepared to fill these and other natural resource jobs, it is imperative that all





high school students have a solid foundation in natural resource & environmental literacy.

An important part of natural resource & environmental literacy is to prepare students to make informed and responsible decisions after they graduate and enter the workforce. Multinational corporations are demanding that employees think in new sustainable ways not yet taught in most of our schools. For example, Walmart, the world's largest retailer and 2nd largest private sector employer in Alaska, took unprecedented steps towards environmental sustainability, and is actively working to achieve the following goals: to be supplied 100% by renewable energy, to create zero waste and to sell products that sustain people, and the environment ([http://corporate.walmart.com/microsites/global-responsibility-report-2013/landing\\_EnvironmentResponsibility.aspx](http://corporate.walmart.com/microsites/global-responsibility-report-2013/landing_EnvironmentResponsibility.aspx), accessed June 2013). Walmart is not alone in reshaping its business plan, many companies are seeing their bottom line increase by reducing waste and developing more sustainable practices.

*Natural resource & environmental literacy is important to the lifestyles and health of Alaskans.*

Many Alaskans love hunting, fishing, hiking, camping,

boating, skiing, and other activities out in Alaska's wild landscapes. These active outdoor lifestyles help to keep people physically, emotionally, and mentally healthy.

However, the national trend is that children and their families are spending less time outdoors. In fact, they are spending less than half the time outdoors than their parents did growing up. A recent study reports that 8- to 18-year-olds in the U.S. typically spend more than six-and-a-half hours a day in front of electronic media (The Henry J. Kaiser Family Foundation 2010).

Surveys conducted by Alaska's Department of Health and Social Services (DHSS) indicate that a quarter of high school students spend more than six hours per day in front of some electronic media. DHSS found that 25% of Alaska high school students watched three or more hours

“Connecting children with nature is a moral issue, we all know it's good for kids...we feel it in our hearts.”

– Richard Louv

Louv wrote *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* (2005), *The Nature Principle* (2011), and is the Founding Chair of the Children and Nature Network.





of television, and 24% played video or computer games or used a computer for something that was not school work three or more hours per day on an average school day (Alaska Department of Health and Social Services 2011). Spending less time outdoors, being less physically active, and spending more time in front of a screen have significant ramifications for our children's health. In three statewide surveys of specific populations of Alaska children, between 35% to 40% of 2-to-5-year-olds were classified as either overweight or obese (Alaska Department of Health and Social Services 2001-2005, 2009, 2011). It has even been predicted that, due to obesity, today's children may be the first generation to have a shorter life expectancy than their parents' generation (Olshansky, Passaro, Hershow 2005).

Alaska Native peoples live in very different landscapes across the state. Their rich and diverse cultures are intricately linked and shaped by the environments in which they live. Harvests of fish, game, and berries reflect an intimate relationship with nature and remain vital in many areas. Protection of subsistence lifestyles and the cultural values that tie Alaska Natives to their land is critically important. Environmental changes affecting communities along with social challenges resulting in the loss of rural residents to urban hub cities. The future of Native communities depends on the abilities of their youth to understand and adapt to environmental changes as their ancestors did and to persevere in the face of significant social and cultural change.

## Benefits of a State Natural Resource & Environmental Literacy Plan

### *Improvements in academic achievement*

Environmental education has a long history in Alaska and throughout the world. The potential academic benefits to students have been demonstrated in numerous studies:

- Environmental education creates enthusiastic students and innovative teachers. It offers opportunities for rich, hands-on, real-world, and relevant learning across the curricula (Archie 2003).

- Environmental education builds critical thinking skills. It encourages students to question, investigate, hypothesize, interpret, and analyze data, and to develop conclusions about pertinent and relevant real-world problems (Archie 2003).
- Environmental education supports academic achievement across the curricula. School achievement of students is enhanced when curricula are place-based and frequently demonstrate the following results (Archie 2003, Lieberman and Hoody 1998, National Environmental Education & Training Foundation 2000):
  - ° Science, math, reading, writing, and social studies scores improve.
  - ° Students develop the ability to transfer their knowledge from familiar to unfamiliar contexts.
  - ° Students learn to do science rather than just learn about science.
  - ° Students apply systems thinking better and demonstrate increased ability to think creatively.
  - ° Classroom discipline problems decline. Student attendance improves.
- Environmental education and daily exposure to natural settings increases the ability of children to focus and improves cognition (Wells 2000).

### *Healthier children*

- Children who experience their school grounds or play areas as diverse natural settings are more physically active, more aware of good nutrition, more creative, and more civil to one another (Dymont and Bell 2006).

The plan supports playing and learning outdoors, resulting in better health & quality of life



- Outdoor play reduces childhood obesity (Cleland et al. 2008 and American Association of Pediatrics 2006).
- Unstructured time in the natural environment encourages student creativity and stimulates curiosity (Crane 2001).
- Time spent outdoors invigorates and refocuses students so they can pay more attention in the classroom (Wells 2000).
- Children with Attention Deficit Hyperactivity Disorder (ADHD) benefit from increased exposure to nature. They experience better self-control and improved concentration. The greener a child's everyday environment, the more manageable are the symptoms of ADHD (Faber, Kuo 2004 and 2011).
- Outdoor learning experiences help children to develop positive social skills. Children who play in natural environments demonstrate reduced anti-social behavior such as violence, bullying, vandalism, and littering. Research has also shown that exposure to outdoor activities and experiences can reduce school absenteeism (Coffey 2001, Malone and Tranter 2003, Moore 1996).

### *Education that is culturally-responsive to Alaska's Native cultures*

Environmental and natural resource education is an intuitive way to incorporate traditional knowledge and culture into formal schooling. It extends beyond the walls of the classroom and reaches throughout the community. Environmental education can promote and foster deep

generational relationships to the land and cultures of the places where students live; it may also be used to promote student motivation and reinforce community values.

ANRELP provides teachers with a framework to facilitate more culturally-appropriate instruction based on indigenous knowledge. This also supports the Alaska Department of Education & Early Development requirement that all teachers will facilitate culturally-appropriate instruction. Fostering respect and appreciation of the contribution of indigenous people to our understanding of the world around us is of benefit to all students, Native and non-Native alike.

ANRELP will help prepare Alaska students to meet all of the challenges they will face in succeeding academically, finding employment, and working with others as citizens and professionals to wisely manage Alaska's resources and sustain the state's economy. It will help them to consider and celebrate cultural diversity, and promote individual health and well-being.

### *The Alaska Natural Resource & Environmental Literacy Plan supports statewide initiatives.*

- **New Alaska Standards-** The Alaska English/Language Arts and Mathematics Standards have been adopted by the state. Professional development for teachers and administrators to implement the revised Alaska standards will be important during the transition from the former Grade Level Expectation requirements.





ANRELP will help teachers design meaningful and relevant learning opportunities for students to meet the new state standards.

- **Alaska Performance Scholarships-** In 2011, Governor Sean Parnell established the Alaska Performance Scholarship (APS) Program to provide incentives for Alaska students to pursue a rigorous secondary curriculum, by which they may earn scholarships for post-secondary education. The APS program is focused on increasing academic performance in our high schools, parental involvement, and graduation rates. It requires students seeking eligibility to take a demanding schedule of classes, including a significant number of both science and social studies credits, regardless of academic track.

*“Unstructured, natural play helps stimulate creativity and improves problem solving. The more time spent outside, the better the achievement levels inside our state’s schools and classrooms. But the issue goes beyond achievement. If we do not instill a love of the natural world and its care in our children, who will care for our state in the years to come?”*

Former First Lady Laura Bush  
The Texas Summit on Children and Nature  
January 2013

Strategies in ANRELP include the development of science and social studies course offerings that will also meet the needs of students aspiring to receive an APS award.

- **Alaska’s Culturally Responsive Schools-** In 1998, Alaska Native educators developed a set of cultural standards to support and compliment the State’s Content & Performance Standards through the Alaska Rural Systemic Initiative. ANRELP recognizes that we as a state have a cultural identity unlike the majority of other states. Any discussion of environmental literacy and education in Alaska must include traditional perspectives and Alaska Native ways of knowing. Therefore, ANRELP incorporates the principles set out through the initiative in the Alaska Standards for Culturally Responsive Schools to ensure that a broad and culturally-inclusive perspective is offered on the environment.

- **Alaska Statute 14.30.380** encourages school boards to conduct environmental education as part of the regular classroom studies for kindergarten through grade 12.

## ANRELP makes Alaska ready for federal initiatives under consideration

- **No Child Left Inside Act (NCLI)** - In 2008, the House of Representatives overwhelmingly passed the No Child Left Inside Act in a bipartisan vote of 293 to 109. Senator Jack Reed (RI) and Representative John Sarbanes (MD) reintroduced their bills in the 112th Congress on July 14, 2011. This bill, under consideration, would appropriate funds that would be distributed to state education





agencies for equipping teachers with the skills and knowledge to integrate environmental education into their curricula. Only states with approved environmental literacy plans will be eligible for a share of this funding (See Appendix G).

The No Child Left Inside legislation has two explicit goals:

1. Prepare students to address major environmental challenges facing the United States.
2. Strengthen environmental education as an integral part of the elementary and secondary school curriculum.

State environmental literacy plans are required to address five key areas:

- State Standards and courses/subjects
- Graduation requirements
- Measurement/assessment of environmental literacy
- Professional development to improve teachers' environmental literacy/field-based pedagogical skills
- Implementation and funding

• **The Elementary & Secondary Education Act (ESEA)** - It is expected that key elements of the 2011 “No Child Left Inside” Act will be included within the reauthorization of the ESEA. Currently, the Senate version has a section titled “Well-Rounded Education,” which includes environmental education as a subject eligible for federal funding under Title IV of ESEA.

• **Healthy Kids Outdoors Act** - In 2011, Rep. Ron Kind (WI) and Sen. Mark Udall (CO) introduced House and Senate versions of the Healthy Kids Outdoors Act to support state, local and federal strategies to connect youth and families with the natural world, with an eye toward improving children's health and supporting future economic growth and conservation efforts.

## Creating Alaska's Natural Resource & Environmental Literacy Plan

This revised draft plan was the product of a four-year grassroots effort of educators and natural resource professionals dedicated to advancing environmental literacy in Alaska. The Alaska Natural Resource and Outdoor Education Association (ANROE) was instrumental in starting the development process. ANROE, established in 1984, promotes and implements excellence in natural resource, outdoor and environmental education for all Alaskans.

Recognizing the importance of ANRELP, the Alaska Department of Education & Early Development (EED) and the Alaska Department of Fish & Game (ADF&G) stepped forward to lead the planning efforts with a core Working Group representing diverse stakeholders throughout Alaska. To encourage broad involvement and provide guidance throughout the process, the Working Group reached out to more than 500 stakeholders representing school districts, nonprofit organizations, businesses and industry groups, tribal governments and corporations, natural resource agencies, and more. Many of these stakeholders served as advisors to the Working Group throughout the plan's development. This broader group of formal and informal educators, school administrators, community leaders, and natural resource professionals made invaluable contributions toward the development of this plan (See Appendix A).



## Scope of the Alaska Natural Resource & Environmental Literacy Plan

Details of the Alaska Natural Resource & Environmental Literacy Plan support five comprehensive goals intended to provide Alaska students with a solid foundation in natural resource and environmental literacy. For each goal, the plan outlines background information, rationale, key objectives, and strategies as well as suggestions for evaluation and assessment. Each goal and objective is written to be measurable. This is necessary to comply with federal requirements for Alaska to be eligible to receive federal funding. It responds to an opportunity, not a mandate.

Also included are success stories, which provide real examples designed to serve as models. While great effort was made to include strategies suitable to many school districts and community partners in Alaska, the strategies are not intended to exclude other creative ways of achieving the plan's goals.

### Implementing the Plan

There are three structural components that are important to the successful implementation of this plan:

1. An active statewide Natural Resource and Environmental Literacy Leadership Council comprised of professionals from, school districts,

natural resource industries and agencies, tribal organizations and Native corporations, educational nonprofit organizations, and outdoor recreation organizations.

2. School or school district liaisons to facilitate the integration of the plan at the local level.
3. A paid coordinator who has the resources and flexibility necessary to provide assistance in plan implementation to the diverse stakeholders involved.

These recommendations are discussed more fully in the closing section of the plan.

### The Goals of the Alaska Natural Resource & Environmental Literacy Plan:

1. Provide all PreK-12 children in Alaska with opportunities to engage in safe outdoor learning experiences as part of regular instruction.
2. Support Alaska Department of Education & Early Development Standards by further incorporating natural resource and environmental literacy across subject areas.
3. Foster partnerships with nonprofit organizations, businesses and industry groups, tribal organizations, and government agencies to enhance meaningful service-learning experiences for students that also benefit communities and their local environment.
4. Enhance professional development for educators, administrators, and community members in natural resource and environmental literacy.
5. Support the development of Alaska school facilities, grounds, and local natural areas that provide accessible learning opportunities and serve as community models for healthy living and sustainability.



# GOAL 1: Provide all PreK-12 children in Alaska with opportunities to engage in safe outdoor learning experiences as part of regular instruction.

## Background & Rationale

Children today spend less time playing outdoors than any previous generation. Current research shows that kids spend an average of 6.5 hours/day with television, computers and video games. A child is six times more likely to play a video game than to ride a bike.

When children are raised with little or no connection to nature, they may miss out on the many health and academic benefits of spending time outdoors. Nature is important to children's development physically, emotionally, socially, and academically.

Environmental education experts agree that outdoor experiences are critical to building natural resource & environmental literacy. Experiences outside the classroom and beyond the existing curricula are important for students' direct discovery of the world around them.

Goal One focuses on building the capacity of teachers and local communities to ensure that every child enjoys the health and academic benefits of spending time outdoors.

### Objective 1:1

Students will be engaged in age-appropriate meaningful outdoor learning throughout the school year, averaging one to two hours per week and increasing incrementally over the course of the school year.

Meaningful outdoor experiences involve external sharing and communication and are

- *investigative or project-oriented,*
- *based on high-quality instructional design that is developmentally appropriate,*
- *an integral part of the instructional program,*
- *part of a sustained activity,*
- *enhanced by natural resource and environmental personnel, cultural leaders, and community members,*
- *for all students.*

See Appendix D "Stewardship & Meaningful Watershed Educational Experiences" for more discussion about meaningful outdoor experiences.

### Goal 1 in Action Odiak Pond Field Study

Since 2009, the Copper River Watershed Project has been working with the Cordova School District and other community partners to present the Odiak Pond Field Study. Each month during the school year a small group of seventh grade students go into the field to collect water quality data and stormwater debris. At the conclusion of the school year they work with scientists from state, federal and nonprofit organizations to conduct an in-depth habitat assessment.

During the 2009/10 school year, students collected the data necessary to successfully nominate Odiak Pond to the State of Alaska's Anadromous Waters Catalog. The new designation ensures more protection for this important salmon habitat in the face of future development.

In 2011/2012, students are connected monthly via SKYPE to exchange their data and observations with a classroom located in another part of the watershed studying a stream by their school.

Students culminated their Odiak Pond experience with an outreach project on salmon, habitat, or stormwater. Last year projects included short movies, podcasts, newspaper articles, and sculptures made from stormwater garbage collected over the course of the year.

*Information submitted by Kate Alexander, Project Coordinator, Copper River Watershed Project*





## Key Strategies

- a. Teachers, parents or community partners create regular opportunities for children to be outdoors in nature engaging their curiosity and encouraging exploration and discovery.
- b. School districts identify the natural spaces on or adjacent to school grounds and increase the availability and use of these local, regional, or statewide areas for outdoor learning.
- c. School Liaisons and the Natural Resource & Environmental Literacy Coordinator identify and mitigate obstacles (such as access and permission, trail development, safety concerns), that would prevent schools from utilizing nearby outdoor learning environments such as local parks, local water bodies, private land, nature centers, community gardens, tribal lands, etc.
- d. The Natural Resource & Environmental Literacy Leadership Council will identify model outdoor field experiences that can be integrated into the regular school curriculum.
- e. Teachers and informal education partners adapt or develop lessons relating to grade-level expectations for the outdoor classroom.
- f. Physical education programs include outdoor skills as part of curriculum (e.g cold weather survival, fishing, firearms safety, hunting, archery, hiking, skiing).

## Objective 1:2

Educational resources (e.g. programs, materials) for natural resource & environmental literacy will be identified and expanded. These resources will meet State Standards, and the North American Association for Environmental Education's (NAAEE) Guidelines for Excellence in Environmental Education Programs and Materials. Within five years of ANRELP implementation, 100% of schools will have access to these materials (20% per year).

### Key Strategies:

- a. Natural Resource & Environmental Literacy Leadership Council will Inventory natural resource & environmental education resources currently used by schools. Identify and address gaps and bring attention to exemplary resources.

- b. The Natural Resource & Environmental Literacy Leadership Council will evaluate available resources and whether they meet Alaska State Standards, and the North American Association's Guidelines for Excellence in Environmental Education Programs and Guidelines for Excellence in Environmental Education Materials

- c. EED will work with partners statewide to develop an searchable online Clearinghouse to include programs, curricula, facilities, professional development opportunities, regional and statewide partners, service projects, rewards and recognition programs, grants, and other funding opportunities. The Clearinghouse is repeated as a strategy in goals/objectives throughout the plan.

## Objective 1:3

Educate parents and guardians about the importance of outdoor learning. They should be able to articulate why outdoor learning is important, and be supported to act upon that knowledge.

### Key Strategies:

- a. The Natural Resource & Environmental Literacy Coordinator will work with partners to develop and implement an outreach campaign to parents and caregivers.
- b. Teachers provide students with the opportunity to demonstrate knowledge and comprehension through community projects (outdoor field demonstrations with parents and community leaders, student created podcasts and Tedx including observations, questions, inquiry projects etc.).

- c. The Natural Resource & Environmental Literacy Coordinator will identify nonprofit or agency partners to provide community workshops and training opportunities to parents and guardians that model outdoor learning.

## Objective 1:4

Natural Resource & Environmental Literacy Coordinator works with School Liaisons to coordinate and expand opportunities for students to experience outdoor learning environments throughout their communities.

### Key Strategies

- a. Schools increase provision of interpretive activities for children and families by informal educators, naturalists, and scientists at nature centers, state parks, refuges

## Goal 1 in Action: **Nature Journaling**

One of the most effective ways to help students learn about the environment is also one of the simplest. Imagine sitting in the woods, in a place you have chosen, where all you do is pay attention for a short while, to all that's around you. How else would anyone ever know about the leaf pattern on a blueberry bush, or how the creek water pushes the snow off the bank, or how there are so many different kinds of plants growing in a square foot area. According to Juneau teacher Pam Garcia "Not many of my students ever did know until they got the chance to sit and observe, and just be in nature."

Students use "nature journals" to illustrate and record observations from the natural world. The supplies needed are minimal, very inexpensive and readily available. Each child only needs a pencil, a sketchbook and a "sit-upon" to stay warm and dry when sitting on damp or frozen ground.

Through nature journaling, students become better scientific observers, training their eyes to look for small details and recording what they see with sketches and labels. Nature journals can also be used to learn art and creative writing techniques as well as an outlet for students to record personal thoughts and reflections.

According to teacher Ellie Sharman, in Gustavus "The journal/sketchbooks are used for multiple years and travel with the child to the next teacher/grade level. When they are 'full' they are valued keepsakes."

*Information submitted by Ellie Sharman, 1st, 2nd, 3rd Grade Teacher at Gustavus School and Pam Garcia 4th Grade Teacher at Auke Bay Elementary in Juneau*





and other public lands, to enhance their discovery and enjoyment of Alaska's natural resources.

b. Schools increase student participation in culture camps with local elders or subsistence specialists to increase understanding of cultural practices and strengthening each student's sense of place within his or her community.

c. Schools increase involvement of existing outreach specialists in natural resource & environmental education at the school site (i.e. informal education organizations, local elders, natural resource agency and industry personnel).

d. Teachers invite parents, elders and community members to assist and be a part of regular outdoor learning experiences with students.

e. Teachers, School Liaisons, and Natural Resource & Environmental Literacy Council promote educator and family use of existing resource centers that directly foster natural resource & environmental literacy, such as the Alaska Center for Coastal Studies, Campbell Creek Science Center, Sitka Sound Science Center, Alaska State Game Refuges, Alaska Botanical Garden, 4-H facilities,

cultural centers, camps, visitor centers, museums and businesses that provide tours of facilities, such as mines, power stations, waste & water treatment facilities, sawmills, and fish hatcheries.

f. Support existing and develop more high-quality informal education centers that provide professional, state standards-based environmental education opportunities for students, educators, and families.

## Objective 1:5

Teaching methodologies will incorporate the local, regional, and statewide context drawing upon the state's cultural diversity and Alaska Native indigenous knowledge.

## Key Strategies

a. Teachers receive professional development to help them incorporate the recommendations in the documents *Alaska Standards for Culturally Responsive Schools* and *The Guide to Implementing the Alaska Cultural Standards for Educators* in their classroom teaching (see Goal 4).



## Goal 1 in Action: Place-based Education

The Watershed School in Fairbanks fosters the development of students with a strong sense of place so that they will be prepared to serve as stewards of their community. By gaining an understanding of the history, government, culture, and ecology of Alaska's interior, students achieve academic excellence and expand their competency to the rest of the world. At every opportunity, the Watershed School provides students with meaningful explorations and activities outside the classroom. The Watershed School emphasizes critical thinking skills, and a sense of social and ecological responsibility.

Nearly the entire Watershed School physical education program takes place outdoors. Students participate in physical activity significantly more than traditional schools. Developing skills and interest in lifetime physical activity for students is a priority at Watershed School. The school strongly believes that the first step towards engagement in the natural world is to get kids out-of-doors, fit enough to enjoy it, and comfortable with the natural environment. Through the natural landscape The Watershed School helps combat the obesity epidemic in school-age children, increases awareness in children of the natural systems, and leads children towards a lifetime of ecological literacy and community engagement.

*Submitted by John Carlson, Watershed School Principal*

b. Teachers invite Elders and other culture bearers to share indigenous knowledge about ecosystems, traditional arts, seasons, outdoor skills and other cultural activities related to the local environment with students throughout the year.

## Objective 1:6

Offer professional development for teachers. 60% of teachers and paraprofessionals will be given training to use the outdoor classroom for instruction within two years of beginning to teach in Alaska or within three years of implementation of this plan.

### Key Strategies

See Objective 4:2 for professional development strategies related to this objective. Goal 4 and its objectives focus entirely on professional development.

## Evaluation and Assessment

a. The Natural Resource & Environmental Literacy Coordinator will work with graduate researchers or

professional evaluators to collect longitudinal data, which will be used to track incremental change over the five-year implementation period. Outdoor learning opportunities will vary across districts. Success will be based on consistent, incremental growth annually. This data will be provided annually to EED. Districts will subsequently receive feedback as part of an annual report on relative progress toward the full implementation of ANRELP.

b. Schools and school districts track how standards in “Alaska Standards for Culturally Responsive Schools” are being incorporated school-wide. Schools will identify strengths and areas for improvement.

c. School Administrators note outdoor learning experiences in a weekly “walk thru” completed as part of “best practices” in school administration.

d. Track student progress via Standards Based Assessment testing data off DIASA (Data Interaction for Alaska Student Assessments) as the standards pertain to natural resource & environmental literacy to assess progress of student performance over time.

### Goal I In Action: St. Mary's Relevant Education

Relevant education is a focus for students at Andreafski School in St. Mary's, Alaska. Throughout the school year, students participate in culturally-based activities that support the Alaska State Grade Level Expectations (GLEs). Beginning in the fall, students go on a multi-day moose hunting trip with parents, teaching staff, and local community members.

During the outdoor portion of the educational experience, students collect data on local plants and animals, prepare the meals for the field camp, hunt, and learn about Yup'ik traditions. After the hunt, any animals that have been harvested are brought back to St. Mary's and the meat is distributed to community members.

Teachers and students apply the experiences learned and use the data collected during the moose hunt to create standards-based reading, writing, math, and science lessons. As winter starts to set in, bounties from other fall activities like berry picking, fishing and seal hunting are celebrated during a fall community feed. During this culminating activity, K-12 students present their standards-based projects through different forms of media, following a rubric which supports the state Grade Level Expectations to the community. As the school year progresses, students and teachers continue to use data and material collected during the fall trips to support reading, writing, math, science and technology standards. In this way, students at St. Mary's stay motivated to learn by using topics that are relevant to them and their culture.

*Submitted by Woody Woodgate, 7th-12th Grade Math and Technology Teacher, Andreafski School, St. Mary's*





## GOAL 2: Support Alaska Department of Education & Early Development Standards by further incorporating natural resource and environmental literacy across subject areas.

### Background & Rationale

To be effective, education for natural resource & environmental literacy needs to be integrated throughout the curricula in every classroom in Alaska. In 1991, the Alaska Legislature added strength to this idea by passing statute (AS 14.30.380), which encourages school boards to include environmental education as a part of their regular studies. This was an important step in demonstrating the state's support of environmental education.

While Alaska lacks state standards related specifically to natural resource and environmental literacy, the Alaska State Content & Performance Standards and the Alaska Standards for Culturally Responsive Schools provide a foundation from which to advance natural resource & environmental literacy for all grades. The state standards are periodically reviewed and revised by the Alaska Department of Education & Early Development and are approved by the state's Board of Education. The new state standards for Math and English/Language Arts both incorporate key components of natural resource & environmental Literacy, such as problem-solving, communication skills, and modeling.

ANRELP is informed by the National Project for Excellence in Environmental Education, a series of guidelines developed by the North American Association for Environmental Education (NAAEE), which provide a

construct to ensure excellence in the development of standards, programs, and materials, and in preparation of educators for both formal and informal settings.

ANRELP makes use of several resources to identify Alaska's Standards that currently align with natural resource & environmental literacy standards and to identify the important concepts and skills that are missing from our state's current framework. The resources useful to complete a gap analysis of current state include the following:

- Association of Fish & Wildlife Agencies- K-12 Conservation Education Scope and Sequence
- National Academy of Sciences- the National Science Education Standards
- National Oceanic Atmospheric Administration-The Essential Principles of Ocean Science
- National Oceanic Atmospheric Administration-The Essential Principles of Climate Science
- U.S. Partnership for Education for Sustainable Development- the National Education for Sustainability K-12 Student Learning Standards
- The Partnership for 21st Century Skills- Interdisciplinary Themes
- The Next Generation of Science Standards

### Objective 2:1

At least 90% of natural resource & environmental literacy standards are evidenced in Alaska Standards for K-12 students within five years of plan implementation.

### Key Strategies

- a. Identify how natural resource & environmental literacy are linked to current state standards and identify gaps.
- b. Ensure that members of the ANRELP Working Group, the Alaska Natural Resource & Environmental Literacy Leadership Council and/or the Coordinator participate in future discussions of state standards.





## Objective 2:2

Alaska Performance Scholarship (APS) curriculum specifications will include natural resource and environmental science courses as approved science courses, and will include environmental studies as an approved social studies course.

### Key Strategies:

a. Natural Resource & Environmental Literacy Coordinator and EED will analyze science and social studies course offerings in high schools and make recommendations for new courses and revisions to existing courses that will enhance natural resource and environmental literacy. (e.g. UAS Mining Training Program, Sportsmen's Biology, Fisheries Science, Environmental Science, Introduction to Natural Resource Management.)

b. Coordinator and School Liaisons will document middle schools elective class offerings and make recommendations for new and revisions to existing courses that will enhance natural resource & environmental literacy (e.g. technology, vocation skills).

## Goal 2 in Action:

### 3rd-5th Grade Year-Long Scientific Study

For the past three years, the Gustavus 3rd-5th grade students have designed and completed a year-long scientific study that focuses on the local area. At the beginning of the year they brainstorm and choose a topic. Then, they develop questions and hypotheses. Throughout the school-year, on a weekly or biweekly basis, they go outdoors so they can collect data and learn more about their topic. At the end of the year, they compile their data, analyze it, and develop a conclusion. They finish the project by creating a presentation to share their results and experience with their peers and the community.

This project integrates all subject areas, effectively meets standards and gets the students out in their community. Topics for the study have included a comparison of salt and fresh water, the local watershed and the intertidal zone. Several National Park Service scientists and staff have helped with this project.

The benefits of the project are numerous. Not only are students learning more about where they live. They are learning to ask good questions, think critically, speak publicly, and solve problems. Lastly, at the completion of this project, students are proud of their accomplishments and proclaim their love of science.

*Information submitted by Jessie Soder, 3rd-5th Grade Teacher, Gustavus School*





## Goal 2 in Action: Burchell High School Archeology Field Study

The Burchell High Archeology Field School is a summer program offering students an opportunity to conduct scientific research in a remote outdoor setting. Since 2005, Tanana Chiefs Conference (TCC) and the Matanuska Susitna Borough School District have partnered to provide this three-week class, highlighted by nine days of living together in a remote bush camp.

Students provide substantial service to Tanana Chiefs - surveying, excavating, and cataloging artifacts – TCC in-turn provides state-of-the-art technology, training in scientific method, and logistical support. Costs are shared between the school district and TCC.



Every April students apply for this program. They do so with the understanding that for nine days the field school is accessible only by boat, with no cell phone service, and no electronic media allowed on-site. Selections are made, not so much based on academic achievement, but more with consideration of group dynamic and potential for individual growth. Several students have completed graduation requirements during this program and, as a result, attended a special summer school commencement to receive diplomas.

*Information submitted by Paul Morley, Language Arts Teacher, Burchell High School, in Wasilla*

c. Coordinator will assist teachers with and inform them about the review process for approval of new courses for the Alaska Performance Scholarship.

d. Coordinator will work with colleges and universities of education to prepare teachers for teaching natural resource and environmental science and environmental studies courses.

### Objective 2:3

Work with local school boards to develop and include natural resources, environmental science, and environmental studies courses in the high school curriculum. Courses will be offered at 75% of schools by completion of the five year implementation period.

#### Key Strategies

a. Natural Resource & Environmental Literacy Coordinator and/or Leadership Council will analyze course offerings in high schools, identify other opportunities including summer academies/camps and service learning experiences, and make recommendations for courses that will enhance natural resource & environmental literacy.

b. Coordinator will assist curriculum directors, principals, and superintendents to identify existing programs that might qualify as a natural resource, environmental science

or environmental studies elective.

c. Coordinator will work with high school teachers to develop sample syllabi that districts may use to develop their own courses to improve natural resource & environmental literacy of students.

d. Coordinator will work with teachers to suggest topics for discussion for the required high school course in *Alaska History* to include the Alaska Constitution, Article 8 and the importance of natural resources to the state's economy and jobs.

### Evaluation and Assessment

a. Coordinator will compare Content Standards at the end of the timeline to those in place in 2011 and identify any changes or growth in those areas as they relate to natural resource & environmental literacy.

b. Coordinator will work with evaluator (EED staff or staff from Institute for Social & Economic Research at University of Alaska) to identify elements of state assessments that align to measurements of environmental literacy of students.

c. Professional evaluator will analyze data available from Data Interaction for Alaska Student Assessments (DIASA) and state supported formative assessment tools to evaluate improvement in students' natural resource & environmental literacy.

# GOAL 3: Foster partnerships with nonprofits, tribal organizations, government agencies, universities and businesses to enhance meaningful service-learning experiences for students that also benefit communities and their local environment.

## Background & Rationale

For the natural resource & environmental literacy plan to be implemented successfully, it must have community involvement. For more than forty years, Alaskan educators, resource managers, resource industry professionals and others have worked to build a framework of collaboration between those equipped with environmental knowledge and those who would teach it. As early as 1972 a team was formed with support from EED to develop planning guidelines for environmental education, with the objective of enabling “formal and community educational systems to make better use of the total learning environment to further the concept of harmony between man and the environment.”

In 1984, the Alaska Natural Resource and Outdoor Education Association (ANROE) provided the first organized statewide link between Alaska natural resource agencies and organizations developing education programs and materials and the teachers and informal educators who deliver the programs. ANROE serves as the Alaska affiliate organization to the North American Association for Environmental Education. The Alaska Resource Education, formerly known as AMEREF, was established in 1984, to educate student’s about Alaska’s natural resources and is a partnership between the Alaska Department of Education & Early Development and private industry. The Alaska Native Knowledge Network also serves as an important bridge to partnerships. As part of the 1995 Alaska Rural Systemic Initiative, the Alaskan Native Knowledge Network was established to serve as a resource for compiling and exchanging information related to Alaska Native knowledge systems and ways of knowing. Other organizations, such as Alaska Sea Grant are bringing scientists and educators together and through collaboration are increasing environmental literacy in marine and aquatic sciences in Alaska.

Many state and federal government agencies have implemented successful programs to help young people

experience the outdoors. As these programs have developed, nonprofit managers, agency and natural resource industry professionals, and citizens have formed partnerships with teachers across the state. These partnerships, loosely formed, created a multitude of educational opportunities, including, for instance, national initiatives adapted for Alaska, such as the Globe Project and U.S. Fish & Wildlife Service Schoolyard Habitats, and programs developed in-state, such as the participation of individual classrooms in the Alaska Department of Fish and Game’s annual “salmon egg take.”

While these successful partnership programs exist in many parts of our state, there is no coordinated strategy to ensure that all stakeholders are working together to create access to the wealth of opportunities that already exist and to create new and sustaining opportunities for all students in Alaska.

### Goal 3 In Action: **Scheffler Creek- The Salmon Stream at the Beginning of the Iditarod Trail**

In 2009 Seward Elementary School adopted nearby Scheffler Creek via a program with the Alaska Department of Fish and Game. The stream adoption program provided real life, place-based, service learning opportunities for fifth grade students on the creek, along mile 2 of the original Iditarod Trail. Students tested water quality, set live minnow traps and hunted for macroinvertebrates. They also spent time at Scheffler Creek with their Kindergarten “Reader Buddies.”

In the spring of 2010 students began monitoring water quality of the creek, picking up trash and notifying landowners about the program. They later interviewed people about the history of the creek and asked  
*(continued on next page)*



## Objective 3:1

Within two years of implementation of this plan, a network of natural resource & environmental literacy partnerships will be identified, including nonprofit organizations, tribal councils, businesses, universities, private industries, and government agencies, at the local, regional, statewide, and national levels.

### Key Strategies

- a. The Natural Resource & Environmental Literacy Coordinator will facilitate partnerships throughout the state and identify/disseminate existing models such as the Anchorage School District's School-Business Partnerships Program.
- b. Each school will identify an individual to serve as a liaison. Larger school districts will identify a liaison to represent several schools within a district. Each Liaison will provide partnership updates to teaching staff and the Natural Resource & Environmental Literacy Coordinator for inclusion in the online Clearinghouse.

serious questions as to why salmon weren't returning to spawn. They found that there are agencies and landowners independently developing sections of the creek banks, as well as agencies interested in conservation, but there was a lack of communication. With this in mind, students held a very successful Scheffler Creek Partners meeting. As a result they were able to change the name "Fish Ditch" in Seward documents to Scheffler Creek, were able to help pass Ordinance 2011 (regulates development near salmon stream banks) at the Borough level and were able to stop the cutting of vegetation along stream banks.

In 2014 students are continuing the stream adoption program. Teachers hope to continue monitoring and nurturing Scheffler Creek for years to come.

*Information submitted by MaryLynn Barnwell, 5th Grade Teacher, Seward Elementary School*

- c. The online Clearinghouse will house regularly updated information related to partnership opportunities within communities across the state.

## Objective 3:2

Within five years of the plan's implementation, all existing and new community partnerships between schools and government agencies, industry, nonprofits, tribal organizations will be documented. The goal of these partnerships is to connect teachers and students with local community elders, scientists, natural resources managers, and other experts to facilitate natural resource & environmental literacy.

### Key Strategies:

- a. Existing school district partnership coordinators or an identified School Liaison will identify a list of local partners from various government agencies, area nonprofits, tribal organizations, etc. with knowledge in the district's region, share the list with every teacher and provide annual updates to the Coordinator for inclusion in the online Clearinghouse.
- b. School Liaisons will work within their schools or districts to invite partners to "career and community service fairs" to network with students and teachers.
- c. The Student Council and School Liaison will work with school partners to develop additional community stewardship and service-learning opportunities.
- d. The Natural Resource & Environmental Literacy Coordinator and School Liaisons will expand the number and diversity of environmentally-related STEM (Science, Technology, Engineering, Math) internships for teachers and students through partnerships with higher education, laboratories, state agencies, and business and industry.
- e. The Natural Resource & Environmental Literacy Coordinator will work with School Liaisons to make information available to other schools regarding community service opportunities.
- f. School Liaisons will create peer-to-peer learning opportunities for educators to increase collaboration with community/ business partners on place-based projects for students.



g. The Natural Resource & Environmental Literacy Coordinator will work with a nonprofit to survey informal educators (local elders, environmental education providers, natural resource agency and industry professionals) to determine what assistance and/or resources they might need to develop programs that meet the needs of schools and which achieve natural resource & environmental literacy goals.

## Objective 3:3

Regional, statewide, and national natural resource and environmental education providers/programs will be identified, disseminated, and updated annually on the online Clearinghouse.

### Key Strategies

a. Natural Resource & Environmental Literacy Coordinator and Leadership Council will identify, facilitate, and disseminate information about a network of resource providers and opportunities, to students, educators, and administrators, using the online Clearinghouse and social media such as Facebook.

b. Natural Resource & Environmental Literacy Coordinator and Leadership Council will host biannual web-based video conferences among partners for schools to bring attention to model programs/projects and strengthen partnerships.

c. Natural Resource & Environmental Literacy Coordinator and Leadership Council will publicize information about successful partnerships that reflect the efforts of all natural resource & environmental literacy partners via the online Clearinghouse, local newspapers and to School Liaisons for inclusion in school newsletters and websites.

## Objective 3:4

For school districts with community service requirements, students are encouraged to perform five hours of natural resource & environmental literacy service learning annually in grades 6 through 12 during or after school.

### Key Strategies:

a. School Liaisons will foster collaborative service-learning opportunities for students and teachers.

b. Natural Resource & Environmental Literacy Coordinator will provide organizational structure for students to

earn credit in districts without community service requirements.

## Evaluation and Assessment

a. Establish partnerships with universities so that undergraduate and graduate degree candidates can be recruited from UAA, UAF, UAS, and APU for projects that evaluate environmental education in Alaska.

b. Use a tracking system to record natural resource/ environmental service learning hours and partnerships to the School Liaison, who will report to the Department of Education and Early Development's Natural Resource & Environmental Literacy Coordinator.

c. Invite all collaborative partners to participate in a program showcase webinar or video conference annually.

### Goal 3 In Action: Mears 7th Grade Service Learning Project

For the past three school years, Mears Middle School 7th grade students have been able to actively contribute to the community thanks to partnerships. Alaska Geographic has helped coordinate and fund service learning opportunities between Mears students and public agencies from all levels of government. This program started as a pilot for the Iditarod Trail to Every Classroom Program (ITREC!) but has grown into its own unique program.

The ultimate goal of these partnerships is to take all Mears 7th grade students to public lands for an outdoor day of service learning. To prepare students for this work, guest speakers visit science classrooms and teach students about the effects of the Spruce Bark Beetle and other invasive insects and plants in Alaska, trail etiquette, proper tool use for trail maintenance, and how to dress for the weather. These lessons, and the hands-on work that follows, help students master Alaska science and geography standards, while at the same time improving our community. A typical service learning day is divided into three activities or learning stations. These include a GPS or geocaching activity, a lesson about the local ecology such as a stream or forest study and a work component such as pulling invasive weeds, adding signage to a trail or improving the actual condition of the trail by adding gravel or trimming alders.

Teachers at Mears hope to complete a public lands service learning project with their students every year.





### Goal 3 In Action: **Teeland Middle School River Rangers Program**

For the eighth year, seventh grade students from Wasilla are participating in the “River Rangers” program. With grants and support from a number of agencies and companies, the school has been able to have 200 students participate in five, full-day watershed investigations during the school year and implement a stream restoration project. The purpose of the program is to provide students meaningful science instruction, along with opportunities to conduct and share scientific research, and join with their community in “hands-on” service-learning projects that help preserve local salmon streams.

Initially, students study stream ecology in a classroom setting. In late August through mid-September, they visit different stream sites to establish baseline data and monitor water quality. Students return to stream sites in the spring to gather additional data. Then they

identify one site to implement a streamside restoration project.

To evaluate the program, teachers give a short science oriented test at the beginning of the year, and then again at the end of the year. 59% of students showed a 40% or more increase in their score, and 92% of students showed an increase in their score of 10% or more. Student scores on the annual Alaska Standards-Based Assessment indicate significant growth. Learning is also assessed by evaluating what students have written in their field in their journals.

*Submitted by Mike Shea, 7th Grade Teacher, Teeland Middle School, Wasilla*

*Mears Story Submitted by Cynthia Holderith, Gifted Coordinator, Mears Middle School, Anchorage*



# GOAL 4: Enhance professional development for educators, administrators, and community members in natural resource & environmental literacy.

## Background & Rationale

For many thousands of years, Alaska's indigenous people have been teaching the skills they need not only to survive but to understand and respect the natural world, skills that remain the fundamental tenets of place-based environmental education today. This has been used by many teachers as a model to integrate Alaska's amazing natural areas adjacent to their schools into formal education. Additional training will help motivate more teachers to use the outdoors as a context for learning.

The vast majority of teachers will require professional development opportunities to develop and refine their knowledge of natural resource & environmental literacy, and skills in environmental education principles. By providing high quality training, teachers may use environmental education and service-learning techniques to meet State Standards, while keeping students excited about learning and lowering drop-out rates.

While a number of excellent professional development opportunities currently exist to help teachers incorporate environmental education into the classroom, there needs to be an organized effort to make them more accessible statewide. Education certification in the state of Alaska would be strengthened by additional exposure to content knowledge in environmental education principles.

### Objective 4:1

Increase access, provide incentives, and promote options for educators (formal, informal, pre-service) on an ongoing basis to learn about and participate in professional development opportunities.

### Key Strategies

a. The Natural Resource & Environmental Literacy Leadership Council will work at the grassroots level to educate and inform community leaders, school board members, superintendents, administrators and teachers about the benefits of environmental literacy professional development in their classrooms and schools.

b. The Natural Resource & Environmental Literacy Coordinator and Leadership Council will identify and promote organizations and agencies that provide professional development opportunities related to natural resource & environmental literacy and environmental education pedagogy on a quarterly basis.

c. The Natural Resource & Environmental Literacy Coordinator and Leadership Council will work with existing databases of professional development offerings to develop and maintain an online Clearinghouse of professional development offerings in Alaska and nationwide related to natural resource & environmental literacy.

1. EED works with partners to develop a professional development section of the Clearinghouse.
2. Transfer data from ANROE resource directory to this online Clearinghouse.
3. Compile information from relevant sites or link to other related Alaska education resource sites.
4. Market the Clearinghouse to local schools and train teachers in its use.
5. Link the Clearinghouse to STEM, STREAM, EE listservs etc. to ensure that educators are aware of professional development available (e.g. Science Matters, Project Wild, GLOBE, iTREC).





d. The Natural Resource & Environmental Literacy Coordinator and School Liaisons provide assistance to teachers with finding/registering professional development opportunities.

e. The Natural Resource and Environmental Literacy Leadership Council and school districts identify a cadre of experts well versed in natural resource & environmental literacy and teaching methodology to serve as mentors within school communities (i.e., Instructional Coaching Model).

f. The Natural Resource & Environmental Literacy Leadership Council and School Liaisons promote site visits and web-based tours for educators to exemplary environmental education programs.

g. Professional development providers examine and adapt training models and strategies to serve the unique needs of Alaska educators (e.g., time, money, credit).

## Objective 4:2

Teaching methodologies will incorporate the local, regional and statewide context in which students live in a fair and balanced manner, drawing upon the state's cultural diversity, Alaska Native knowledge, and the broad spectrum of attitudes toward the environment.

### Key Strategies:

a. Teachers will receive professional development to help them incorporate into their classroom teaching recommendations in the *Alaska Standards for Culturally Responsive Schools* and *Guide to Implementing the Alaska Cultural Standards for Education*.

b. Schools and teachers include education partners, local experts and community leaders representing diverse viewpoints related to natural resources and the environment throughout the school year.

## Objective 4:3

Increase knowledge of philosophy and practice of environmental education among educators (informal, pre-service, and in-service teachers).

### Key Strategies:

a. Professional development providers offer trainings using the *Guidelines for Preparation of Environmental*

## Goal 4 In Action:

### Old Minto Cultural Camp for Educators

For more than twenty years, the Old Minto Cultural Camp has taken place during the middle week of a three-week cultural orientation course for teachers. The camp contributes enormously to the overall level of cross-cultural understanding that teachers/students achieve in a relatively short period of time- a level of understanding that could not be achieved in a year's worth of reading and discussion in a university campus-based seminar. Part of the reason for this is that teachers/students come back to class on the University of Alaska, Fairbanks campus during the third week with a common experience of immersion in a culture deeply rooted in a particular place, against which they can share their ideas and build new levels of understanding. More significantly, however, teachers have been able to immerse themselves in a new cultural milieu in a non-threatening and guided fashion that allows them to set aside their own predispositions long enough to begin to see the world through other peoples' eyes. For this, most of the credit needs to go to the Elders of Minto, who have mastered the art of making themselves accessible to others, and to the Director, Robert Charlie, who makes it all happen. For the Minto people, it provides an opportunity to reconnect with their own heritage and ancestral place, and to enlist the teachers' help in experimenting with new ways to pass on that heritage to their children and grandchildren.

*Information submitted by Ray Barnhardt, Professor, Center for Cross Cultural Studies, University of Alaska, Fairbanks*



Educators from NAAEE as part of summer academies, institutes, workshops and conferences.

b. University of Alaska (UAA, UAF, UAS) and Alaska Pacific University teacher education programs partner with EED to examine and develop coursework requirements for K-8 certification that support natural resource & environmental literacy.

c. The Natural Resource & Environmental Literacy Leadership Council identifies successful national and local 'Outdoor Classroom Modules' for pre-service teachers to be used by current instructors in teacher certification programs at universities in Alaska.

d. Environmental education providers explore ways to build natural resource and environmental knowledge into pre-service science and technology courses.

e. Professional development providers integrate NAAEE *Guidelines for Learning* into teacher trainings.

f. Professional development providers develop credit courses covering ANRELP goals and best practices (including standards integration) in environmental education.

g. The Natural Resource & Environmental Literacy Coordinator and School Liaisons identify experts well versed in environmental literacy, standards integration, and teaching methodology to serve as mentors within their own school communities.

h. Existing professional development providers conduct professional development for informal educators to help make their messages and materials relevant to students and to align lessons to natural resource & environmental literacy concepts embedded within state standards.

### Objective 4:4

Increase content knowledge of STEM (Science, Technology, Engineering, Math) topics related to natural resource & environmental literacy in Alaska.



#### Goal 4 In Action: **The Iditarod Trail to Every Classroom (iTREC!)**

iTREC! is a yearlong professional development program that provides teachers with place-based service learning skills to help today's youth become lifelong stewards of Alaska's public lands, natural resources and cultural heritage. iTREC! teachers develop their own curriculum to increase student literacy skills and foster student understanding of and appreciation for the public lands and resources connected by over 2,400 miles of the Iditarod National Historic Trail (INHT). These curricula integrate hands-on study of the natural and cultural resources of communities from Seward to Nome addressing concepts in ecology, sense of place, civics, outdoor recreation and volunteerism.

iTREC! is supported by a number of nonprofit, governmental and school district partners. Although iTREC! is a fairly new program, already there is evidence of its success. Teachers who have participated in iTREC! are using curricula they developed for the class. Their enthusiasm is infectious and teachers are inspiring more place-based education throughout their school. As one iTREC! participant wrote: "The time and resources that were committed to this program really made me feel valued as a teacher. It was obvious that many partners were personally invested in the project and that really motivated me to be successful. I feel really well supported and that a lot of people are wanting me to succeed and willing to help me."

*Information submitted by Jaime Schmidt, U.S. Forest Service Iditarod National Historic Trail Coordinator*



## Key Strategies

- a. The Natural Resource & Environmental Literacy Coordinator will organize and promote speaker's bureaus (including web casts) as resources for educators on a variety of natural resource and environmental topics. Involve students in the production and delivery of information on specific topics.
- b. Alaska higher education institutions with partners to develop undergraduate or graduate degree program for K-8 teachers that increases content knowledge of STEM topics related to natural resource & environmental literacy in Alaska.
- c. Professional development providers offer trainings as part of summer academies, institutes, conferences and in-services focused on increasing content knowledge of K-8 teachers in STEM topics related to natural resource & environmental literacy.

## Objective 4:5

Create on-site experiential opportunities for educators and community members at or near schools to use outdoor classrooms as a learning tool.

## Key Strategies:

- a. Professional development providers assist teachers in using buildings and surrounding outdoor spaces as vehicles for school-based sustainability instruction.
- b. School Liaisons create peer-to-peer learning/teaching opportunities for educators to support ongoing interactions after professional development.

## Objective 4:6

Increase knowledge of the broad range of natural resource related jobs available to Alaskan students.

- a. Professional development providers coordinate with natural resource industries, businesses, universities, and agencies to introduce teachers to the types of jobs, training required and opportunities available.

## Evaluation and Assessment

- a. Professional development providers conduct pre and post interviews to examine how and to what degree new teachers have implemented training/s.

- b. University staff or intern develops a database of undergraduate/graduate level courses in environmental education including the number of students & course offerings per semester. This will be included in the ANRELP Annual Report (see Goal 1).

- c. The Natural Resource & Environmental Literacy Coordinator works with informal education organizations to develop a database of informal professional development providers and course offerings.

- d. Coordinator works with EED staff and schools to track how standards in *Alaska Standards for Culturally Responsive Schools* are being incorporated. Schools will identify strengths and areas for improvement.

## Goal 4 In Action:

### Alaska Wildlife Curriculum and Project WILD

The Alaska Wildlife Curriculum and Project WILD have been a standard in environmental education in Alaska for nearly three decades. Through the ebb and flow of funding challenges and personnel shifts throughout state government, the Alaska Department of Fish and Game has held on tightly to the curricula and programming that has helped sustain teachers throughout Alaska. But what has made the program and the curricula so successful?

**Relevance:** The Alaska Wildlife Curriculum, where Alaska species and circumstances have been integrated into multi-disciplinary, hands-on lessons emphasize the uniqueness of the tundra, wetlands and forests, Alaska's ecology and the future of wildlife in our state. **Accessibility and Flexibility:** Continuing Education teacher workshops demonstrate how to use the curricula and remind us that learning can be fun! Trained facilitators across the state help deliver workshops to a wide and diverse audience. **Awareness to Stewardship Model:** We're growing critical thinkers to lead Alaska's future by teaching through a continuum of basic information from observation, to field investigations using the scientific process. **Partnerships:** We partner with a wide variety of agencies and groups to leverage the best of all who provide environmental education in Alaska.

Sound and credible environmental education curricula and programs are important for demonstrating the validity of place-based learning in Alaska. From a strong foundation, we can grow to reach our students' learning needs with materials that withstand the test of time.

*Submitted by Brenda Duty, Alaska Department of Fish & Game, Project WILD & Youth Education Coordinator*

# GOAL 5: Support the development of Alaska school facilities, grounds, and local natural areas that provide accessible learning opportunities and serve as community models for healthy living and sustainability.

## Background & Rationale

The school building, the outdoor learning environments on the school grounds, and adjacent lands are often untapped resources for hands-on, real world experiences that reinforce classroom learning. They also can provide the structure for students to embrace a healthy lifestyle and consider sustainable practices as part of their everyday lives. Collaboration between education groups and community partners can identify and provide access to local resources to develop relevant, meaningful, and engaging educational opportunities.

Alaska schools are often the hub or center of community activity. Through the implementation of this plan, schools will have access to resources to extend the learning environment beyond the walls of the classroom. The use of school grounds will look different for each community. Some schools may need access to green space or tools to incorporate outdoor wildlife habitat areas and school gardens, while others will focus on responsible environmental management or energy efficiencies. Schools will become community models for sustainability and healthy lifestyles.

### Objective 5:1

60% of Alaska schools will identify, create, or improve outdoor learning landscapes, including schoolyard habitats, outdoor classrooms, natural playscapes, gardens, certified wildlife habitats and structures that reflect the cultural identity of the community, within five years of plan implementation.

#### Key Strategies

a. School Liaisons and school districts assess the status of the outdoor learning environments at all Alaska schools and document existing programs/projects supporting outdoor learning environments as a baseline for planning efforts.

b. The Natural Resource & Environmental Literacy Coordinator, Leadership Council and School Liaisons promote collaboration between education groups and community partners, including cultural organizations, to identify and use local facilities and resources (including nature centers, fish camps, berry patches, etc.) for outdoor learning opportunities.

c. The Natural Resource & Environmental Literacy Coordinator and Leadership Council establish cooperation between educational and government agencies, nonprofits and Alaska EED to administer a grant program focused on equitable, regional distribution of funds to support outdoor learning landscapes. Small grants will be available to individual teachers and classrooms. Larger grants will be available to districts and regional schools.

d. School Liaisons and school districts encourage active Parent-Teacher organization involvement in the support, financial and in-kind, and long-term sustainability of outdoor learning environments.

e. EED establishes and promotes a statewide “Green Schools” program that will reward schools and education facilities that develop and provide outdoor learning landscapes (e.g., National Green Ribbon Schools).

f. EED uses the online Clearinghouse to feature or highlight model schools and education facilities.

### Objective 5:2

Within 5 years of plan implementation, 60% of Alaska schools will be using outdoor learning areas beyond the school grounds more frequently than they are currently.



## Goal 5 In Action: Schoolyard Habitats

A Schoolyard Habitat is an improvement to school grounds or nearby lands that makes them more hospitable for native fish and wildlife while providing an accessible place outdoors for children to learn about and connect with nature on a daily basis. The U.S. Fish and Wildlife Service has funding to foster the development of Schoolyard Habitats and provides on-site technical assistance to school-communities who wish to create sustainable outdoor classrooms that also benefit native fish and wildlife.

Schoolyard Habitats can take many forms as they are designed to achieve the mission and goals of the school, the Service, and the community. Schoolyard Habitats are also dynamic – they can be planned through multiple phases, with new students building upon the existing work of past students. Schools are encouraged to engage their students in coming up with ideas for habitat features that foster learning and provide habitat for native fish and wildlife.

Restoring or creating a native habitat on or adjacent to school grounds benefits students, teachers, and the community while helping the Service achieve its mission to conserve fish and wildlife for the American people.

The first step towards a successful Schoolyard Habitat project is creating a team that includes students, teachers, parents, administrators, ground maintenance staff, community members, and natural resource experts who will support the project. This team will ensure that the project is created with full participation of the school and will create the foundation of support the school needs to create and maintain the Schoolyard Habitat.

*Information submitted by Katrina Mueller, US Fish and Wildlife Service Fisheries Outreach Coordinator*



## Key Strategies

- a. School Liaisons identify opportunities for student participation in service-learning projects that help schools and community organizations plan/construct learning landscapes that enhance natural resource & environmental literacy.
- b. School Liaisons and the Natural Resource & Environmental Literacy Coordinator identify and mitigate obstacles (such as access and permission, trail development, safety concerns), that would prevent schools from utilizing nearby outdoor learning environments such as local parks, local water bodies, private land, nature centers, community gardens, tribal lands, etc.
- c. School districts establish committees including teachers, administrators, and parents to review existing field trip guidelines, address hurdles, and modify as appropriate to ensure safe access to outdoor learning areas beyond school grounds.
- d. School districts promote alternative means of transportation to nearby outdoor learning environments including walking, bicycling, and public transportation.

## Objective 5:3

Within 5 years of plan implementation, 60% of Alaska schools will incorporate two or more of the strategies listed below for facilities and/or grounds that model sustainable and healthy lifestyles.

## Key Strategies:

- a. Schools promote food gardens and structures that teach the importance of producing, preserving, and using local foods. Locally produced foods are used in both instruction and as part of the school lunch program. Associated structures may include community gardens, greenhouses, smokehouses, and compost piles.
- b. Schools will educate students on healthy lifestyles and stewardship using appropriate production and preservation methods.
- c. Schools will model environmentally-sustainable practices and involve students in completing regular audits that consider factors such as energy and water use, energy alternatives, transportation use, recycling/garbage, and use of locally acquired foods.

d. New construction or renovation of buildings used for educational purposes should reflect green design and sustainability principles whenever possible.

e. Schools, teachers, and students will become sources of information on creating school facilities that support sustainable and healthy lifestyles. They will share what they know with other schools and their local communities through workshops, community open houses, web sites, and a variety of other media to provide networking opportunities and skill sharing.

f. The Natural Resource & Environmental Literacy Coordinator will send out a statewide e-newsletter to share success stories as well as challenges. The e-newsletter may be customized by each school with student stories, artwork, video clips etc.

## Evaluation and Assessment

a. EED establishes criteria for participation in Green Schools based on national models.

b. EED documents participation in the Green Schools initiative over the life of the plan.

c. The Natural Resource & Environmental Literacy Coordinator works with professional evaluator to review objectives to assess measures of success over the life of the plan.

## Goal 5 In Action: Center for Alaskan Coastal Studies Outdoor Education Programs

For almost 30 years the Center for Alaskan Coastal Studies (ACS) has been providing education and stewardship programs around Kachemak Bay. These programs engage more than 11,000 people every year. The goal of programs is to provide students direct experiences with natural environments and inspire participants to apply what they learn when making decisions and taking actions that promote the health and integrity of coastal and forest ecosystems. An ACS keystone program is the Alaska Coastal Ecology Program, which centers on the forest and intertidal ecology of Kachemak Bay. Teachers bring their students to Homer, travel across the bay on the 65 ft. Rainbow Connection and spend three days learning, exploring, and playing in the world's greatest classroom – the outdoors.

One teacher wrote: "This field trip was incredible, informative, educational, and exciting. The hands-on experiences that my students have had in these last two days are something that they could never get in the classroom, and the learning that I saw happening with my class was amazing!"

*Submitted by*

*Beth Trowbridge, Executive Director, Center for Alaskan Coastal Studies*





## Goal 5 In Action: **Rain Garden Installation and Beaver Tree Wraps**

Two Mears Middle School teachers developed outdoor-based curricula designed to get kids excited about being outside, and doing community service at the same time.

In the summer of 2010, the Mears parking lot was remodeled. Unintentionally, the front parking lot ended up having a corner that was lower and directed all of the run-off from storms into the front lawn. Seventh grade students designed and built a rain garden, a depression in the landscape designed to catch and filter water that runs off impervious surfaces. It acts as a buffer by filtering storm water runoff and improving water quality before it reaches streams, rivers and lakes.

Students worked with a variety of partners to learn how to complete this task including:

- \* Earthscapes Landscaping and the Anchorage Municipality to design and build the garden.
- \* Chugach National Forest to map and plot the trees prior to creating the design.
- \* U.S. Fish and Wildlife Service to determine if the design was appropriate and not creating more impact.

The school also adopted a nearby section of the Campbell Creek Trail System and the adjoining waterway. After noticing all the trees being eaten by beavers along the stream and trail, a teacher contacted the Anchorage Waterways Leadership Council, learning that there was an initiative to wrap trees in a protective mesh to inhibit access to trees by beavers. With their assistance and funding from the Alaska Community Foundation, the school conducted several days of community service along the trail. Students hiked to the work site and participated in activities, including water sampling, litter patrol, beaver wraps, and removal of the invasive plant bird cherry.

The school hopes to continue yearly partnerships with various public land agencies to educate students on the importance of service learning.

*Information submitted by Heather Johnson, 7th Grade Science Teacher and Janie Klueber, 7th Grade Social Studies Teacher, Mears Middle School, Anchorage*





## Implementation

Implementation of the Plan will involve all aspects of the PreK-12 system and will require a coordinated effort that engages stakeholders from the education sector; local, state, and federal government; tribal organizations and corporations; nonprofit organizations; businesses; family and community members; and of course, the students themselves. While the Alaska Department of Education & Early Development and the Alaska Department of Fish & Game will continue to provide leadership for ANRELP, the successful implementation of this plan can be accomplished only with the participation and contribution of diverse individuals and entities throughout Alaska.

ANRELP is designed to be implemented over five years, and provides five long-term goals for Alaska's education system to work toward. It is not, however, a static document. As objectives are accomplished, or contributors find areas to improve upon, the plan will be updated and modified as needed.

## Recommendations

There are three structural components that are important to successful implementation:

1. An active statewide Natural Resource & Environmental Literacy Leadership Council.
2. School or school district liaisons to facilitate the integration of the plan at the local level.
3. A paid coordinator who has the resources and flexibility necessary to provide assistance in plan implementation to the diverse stakeholders involved.

### Leadership Council

A key first step in implementing ANRELP will be the establishment of the Natural Resource & Environmental Literacy Leadership Council. The formation of the Council will be administered by the ANRELP Project Managers and appointments made by the Commissioners of the Departments of Education & Early Development and Fish & Game.

Both EED and ADF&G will provide representatives on this Council. In addition, the Leadership Council should include key members from natural resource and environmental education organizations, school districts, universities, tribal organizations, councils and corporations, natural resource industries and businesses, outdoor recreation organizations, and government agencies. It is recommended that the Council have no more than 13 people appointed to the Council and that members agree to serve an initial 3 year term.

The Council will be the responsible body for putting ANRELP into practice. The Council will be responsible for ensuring a communication plan for awareness and dissemination of the plan, periodic updates and generating funding for implementation. Additionally, the Council will be tasked with strategies as specified within the plan.

### State Coordinator

Successful implementation of the plan will depend on the hiring of a state Natural Resource & Environmental Literacy Coordinator. EED and the Natural Resource & Environmental Literacy Leadership Council will be



responsible for hiring and defining the responsibilities of this position, which will include, but should not be limited to working with EED and ADF&G on implementation of the plan and administering a state granting process. It is recommended that this position be housed in or contracted out of the Alaska Department of Education & Early Development and work in collaboration with other state content specialists.

## School Liaisons

Each school or school district will have an identified environmental literacy liaison. While these positions will be voluntary, the goal is to compensate individuals via stipends similar to athletic coaching positions and/or to provide professional development days to support implementing strategies at their school.

## Funding

Funding will be required for both state and local implementation. A state coordinator will be responsible for locating funding sources, while the Leadership Council will work to develop other opportunities. Funding may come from the re-prioritization of existing funds or by obtaining new funds through grants, federal funds, and other sources. Potential funding sources include:

- Alaska Legislature. Both the operating budget and capital budget provide potential funding opportunities to support implementation of ANRELP; these budgets are developed by Alaska's governor and the full body of the Legislature.
- Alaska Native Regional Corporations and urban/village Corporations. The Alaska Native Claims Settlement Act (ANCSA) of 1971 created Native-owned corporations to provide stewardship of ancestral lands and financial and other resources for Alaska's Native people. There are currently 13 regional corporations, and most have funding mechanisms in place to support educational opportunities and projects.
- Local Community Foundations and Corporate Sponsorships. There are several community and regional foundations that offer environmental education grants in Alaska. These include but are not limited to the following foundations: Community Foundations in Alaska, Alaska Conservation, Alaska Outdoor Heritage, Atwood, Brainerd, Bullitt, Captain Planet, Melinda Gray

Ardie, Mountaineers, Rasmuson, Skaggs, and more. Corporations doing business in Alaska will be contacted directly about sponsoring implementation of ANRELP projects in schools and with community partners.

- No Child Left Inside Act. If passed, this will only distribute funds to states that have a qualifying environmental literacy plan.
- Elementary and Secondary Education Act (ESEA). The Senate Committee on Health, Education, Labor, and Pensions completed its draft of the ESEA. Environmental education is included as a subject eligible for federal funding.
- National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency both offer environmental education grants.

## Timeline

The goals and objectives outlined in this plan are intended to be implemented over the next five years, from 2014 through 2018, with preliminary work beginning as funding and staff resources are able to support it. The following chart outlines the goals and strategies and a timeline for implementing the ANRELP as it is currently conceived and written.



# ANRELP Implementation Timeline

## Goals

## Objectives

### Goal 1

Provide all PreK-12 children in Alaska with opportunities to engage in safe outdoor learning experiences as part of regular instruction.

#### Objective 1:1

Students will be engaged in age-appropriate meaningful outdoor learning throughout the school year, averaging one to two hours per week and increasing incrementally over the course of the school year.

#### Objective 1:2

Educational resources for natural resource & environmental literacy will be identified and expanded. These resources will meet State Standards, and the NAAEE Guidelines for Excellence in Environmental Education. Within 5 years of ANRELP implementation, 100% of schools will have access to these materials.

#### Objective 1:3

Educate parents and guardians about the importance of outdoor learning. They should be able to articulate why outdoor learning is important, and be empowered to act upon that knowledge.



## Strategies

2014 2015 2016 2017 2018

- a. Teachers, parents or community partners create regular opportunities for children to be outdoors.
- b. School districts identify the natural spaces on or adjacent to school grounds and increase the availability and use of these local, regional, or statewide areas for outdoor learning.
- c. School Liaisons and the Natural Resource & Environmental Literacy Coordinator identify and mitigate obstacles that would prevent schools from utilizing nearby outdoor learning environments.
- d. The Natural Resource & Environmental Literacy Leadership Council will identify model outdoor field experiences that can be integrated into the regular school curriculum.
- e. Teachers and informal education partners adapt or develop lessons relating to grade-level expectations for the outdoor classroom.
- f. Physical education programs include outdoor skills as part of curriculum.

- a. Natural Resource & Environmental Literacy Leadership Council will Inventory natural resource & environmental education resources currently used by schools and identify gaps.
- b. The Natural Resource & Environmental Literacy Leadership Council will evaluate available resources and decide if they meet necessary criteria.
- c. EED will work with partners statewide to develop an **searchable online Clearinghouse**.

- a. The Natural Resource & Environmental Literacy Coordinator will work with partners to develop and implement an outreach campaign to parents and caregivers.
- b. Teachers provide students the opportunity to demonstrate knowledge and comprehension through community projects.
- c. The Natural Resource & Environmental Literacy Coordinator will identify non-profit or agency partner to provide community workshops and training opportunities.

# ANRELP Implementation Timeline

## Goals

## Objectives

### Goal 1

Provide all PreK-12 children in Alaska with opportunities to engage in safe outdoor learning experiences as part of regular instruction.

#### Objective 1:4

Natural Resource & Environmental Literacy Coordinator works with School Liaisons to coordinate and expand opportunities for students to experience outdoor learning environments throughout their communities.

#### Objective 1:5

Teaching methodologies will incorporate the local, regional, and statewide context drawing upon the state’s cultural diversity and Alaska Native indigenous knowledge.

#### Objective 1:6

Offer professional development for teachers. 60% of teachers and paraprofessionals will be given training to use the outdoor classroom for instruction within two years of beginning to teach in Alaska or within three years of implementation of this plan.



## Strategies

2014 2015 2016 2017 2018

<p>a. Schools increase provision of interpretive activities for children and families by informal educators, naturalists, and scientists at nature centers, state parks, refuges and other public lands.</p> <p>b. Schools increase student participation in culture camps with local elders or subsistence specialists to increase understanding of cultural practices and strengthening each student's sense of place within his or her community.</p> <p>c. Schools increase involvement of existing outreach participants in natural resource &amp; environmental education at the school site.</p> <p>d. Teachers invite parents, Elders and community members to assist and be a part of regular outdoor learning experiences with students.</p> <p>e. Teachers, School Liaisons, and Natural Resource &amp; Environmental Literacy Council promote educator and family use of existing resource centers that directly foster natural resource &amp; environmental literacy.</p> <p>f. Expand high-quality informal education centers that provide professional, state standards-based environmental education opportunities for students, educators, and families.</p>					
<p>a. Teachers receive professional development to help them incorporate the recommendations in the documents Alaska Standards for Culturally Responsive Schools and <i>The Guide to Implementing the Alaska Cultural Standards for Educators</i> in their classroom teaching (see Goal 4).</p> <p>b. Teachers invite Elders and Native leaders to share indigenous knowledge, as well as traditional arts and outdoor skills about Alaska's ecosystems, with students throughout the year.</p>					
<p>See Objective 4:2 for professional development strategies related to this objective. Goal 4 and its objectives focus entirely on professional development.</p>					

# ANRELP Implementation Timeline

## Goals

## Objectives

### Goal 2

Support Alaska Department of Education & Early Development Standards by further incorporating natural resource and environmental literacy across subject areas.

#### Objective 2:1

At least 90% of natural resource & environmental literacy standards are evidenced in Alaska Standards for K-12 students within five years of plan implementation.

#### Objective 2:2

Alaska Performance Scholarship (APS) curriculum specifications will include environmental science as an approved science course, and will include environmental studies as an approved social studies course.

#### Objective 2:3

Work with local school boards to develop and include natural resources, environmental science, and environmental studies courses in the high school curriculum. Courses will be offered at 75% of schools by completion of the five year implementation period.



## Strategies

2014 2015 2016 2017 2018

<p>a. Identify how environmental literacy is linked to current State standards and identify gaps.</p> <p>b. Ensure that members of the ANRELP Working Group, the Alaska Natural Resource &amp; Environmental Literacy Leadership Council and/or the Coordinator participate in future discussions of state standards. .</p>	●				
<p>a. Natural Resource &amp; Environmental Literacy Coordinator and EED will analyze science and social studies course offerings in high schools and make recommendations for new courses and revisions to existing courses that will enhance natural resource and environmental literacy.</p> <p>b. Coordinator &amp; School Liaisons will document middle schools elective class offerings and make recommendations for new and revisions to existing courses that will enhance natural resource and environmental literacy.</p> <p>b. Coordinator will assist teachers with and inform them about the review process for approval of new courses for the APS.</p> <p>c. Coordinator will work with colleges and universities of education to prepare teachers for teaching natural resource and environmental science and environmental studies courses.</p>		●			
<p>a. Natural Resource &amp; Environmental Literacy Coordinator and/or Leadership Council will analyze course offerings in high schools, identify other opportunities including summer academies/camps and service learning, and make recommendations for courses that will enhance natural resource &amp; environmental literacy.</p> <p>b. Coordinator will assist curriculum directors and superintendents to identify existing programs that might qualify as a natural resource, environmental science or environmental studies elective.</p> <p>c. Coordinator will work with high school teachers to develop sample syllabi that districts may use to develop their own courses to improve natural resource &amp; environmental literacy of students.</p> <p>d. Coordinator will work with teachers to suggest topics and discussion for the required high school course in <i>Alaska History</i> to include the Alaska Constitution, Article 8 and the importance of natural resources to the state's economy and jobs.</p>		●	●		
		●	●		
		●			
		●	●	●	●

# ANRELP Implementation Timeline

## Goals

## Objectives

### Goal 3

Foster partnerships with non-profits, tribal organizations, government agencies, universities and businesses to enhance meaningful service-learning experiences for students that also provide benefits to communities and their local environment.

#### Objective 3:1

Within two years of implementation of this plan, a network of natural resource & environmental literacy partnerships will be identified including non-profit organizations, tribal councils, businesses, universities, private industries and government agencies at the local, regional, statewide, and national levels.

#### Objective 3:2

Within five years of the plan’s implementation, all schools will identify, document and cultivate existing and new community partnerships between schools and government agencies, industry, non-profits, tribal organizations, and others. The goal of these partnerships is to connect teachers and students with local community elders, scientists, natural resources managers, and other experts to facilitate natural resource & environmental literacy.

#### Objective 3:3

Within the first year of adoption of this plan regional, statewide, and national natural resource and environmental education providers/programs will be identified, disseminated, and updated annually on the online Clearinghouse.

#### Objective 3:4

For school districts with community service requirements, students are encouraged to perform five hours of natural resource & environmental literacy service learning annually in grades 6 through 12 during or after school.



## Strategies

2014 2015 2016 2017 2018

<ul style="list-style-type: none"> <li>a. The Natural Resource &amp; Environmental Literacy Coordinator will facilitate partnerships throughout the state and identify/disseminate existing models.</li> <li>b. Each school will identify an individual to serve as a liaison.</li> <li>c. The online Clearinghouse will house regularly updated information related to partnership opportunities within communities across the state.</li> </ul>					
<ul style="list-style-type: none"> <li>a. Existing school district partnership coordinators or an identified School Liaison will identify and share a list of local partners from various government agencies, area non-profits, tribal organizations, etc.</li> <li>b. School Liaisons will work within their schools or districts to invite partners to network with students and teachers.</li> <li>c. Student Council and School Liaison will work with school partners to develop additional stewardship and service-learning opportunities.</li> <li>d. The Natural Resource &amp; Environmental Literacy Coordinator and School Liaisons will expand the number and diversity of environmentally-related STEM internships for teachers and students.</li> <li>e. The Natural Resource &amp; Environmental Literacy Coordinator will make information available to other schools regarding community service opportunities.</li> <li>f. School Liaisons create peer-to-peer learning opportunities for educators to increase collaboration with community/business partners on place-based projects for students.</li> <li>g. The Natural Resource &amp; Environmental Literacy Coordinator will work with a nonprofit to survey educators to determine what assistance and/or resources they need to develop programs that meet the needs of schools.</li> </ul>					
<ul style="list-style-type: none"> <li>a. Natural Resource &amp; Environmental Literacy Coordinator and Leadership Council will identify, facilitate, and disseminate information about a network of resource providers and opportunities.</li> <li>b. Natural Resource &amp; Environmental Literacy Coordinator and Leadership Council will host biannual video conferences.</li> <li>c. Natural Resource &amp; Environmental Literacy Coordinator and Leadership Council will publicize information about successful partnerships.</li> </ul>					
<ul style="list-style-type: none"> <li>a. School Liaisons will foster collaborative service-learning opportunities for students and teachers.</li> <li>b. Natural Resource &amp; Environmental Literacy Coordinator will provide organizational structure for students to earn credit in districts without community service requirements.</li> </ul>					

# ANRELP Implementation Timeline

## Goals

## Objectives

### Goal 4

Enhance professional development for educators, administrators, and community members in natural resource & environmental literacy.

#### Objective 4:1

Increase access, incentive, and options for educators (formal, informal, pre-service) on an ongoing basis to learn about and participate in professional development opportunities.

#### Objective 4:2

Teaching methodologies will incorporate the local, regional and statewide context in which students live in a fair and balanced manner, drawing upon the state’s cultural diversity, Alaska Native knowledge and the broad spectrum of attitudes toward the environment.



## Strategies

2014 2015 2016 2017 2018

- a. The Natural Resource & Environmental Literacy Leadership Council will work at the grassroots level to educate and inform community leaders, school board members, superintendents, and administrators about the benefits of environmental literacy professional development in their classrooms and schools.
- b. The Natural Resource & Environmental Literacy Coordinator and Leadership Council will identify organizations and agencies that provide professional development opportunities.
- c. The Natural Resource & Environmental Literacy Coordinator and Leadership Council will work with existing databases of professional development offerings to develop & maintain online Clearinghouse of professional development offerings in Alaska and nationwide related to natural resource & environmental literacy. Compile information from relevant sites or link to other related Alaska education resource sites.
- d. The Natural Resource & Environmental Literacy Coordinator and School Liaisons will provide assistance to teachers with finding/ registering professional development opportunities.
- e. The Natural Resource and Environmental Literacy Leadership Council and school districts will identify experts well versed in natural resource & environmental literacy and teaching methodology to serve as school mentors.
- f. The Natural Resource & Environmental Literacy Leadership Council and School Liaisons will promote site visits for educators to exemplary environmental education programs.
- g. Professional development providers examine and adapt training models and strategies to serve the unique needs of Alaska educators (e.g. time, money, credit).

- a. Teachers will receive professional development to help them incorporate into their classroom teaching the recommendations in the documents *Alaska Standards for Culturally Responsive Schools* and *Guide to Implementing the Alaska Cultural Standards for Education*.
- b. Schools and teachers include education partners and local experts and community leaders representing diverse viewpoints related to natural resources and the environment throughout the school year.

# ANRELP Implementation Timeline

## Goals

## Objectives

### Goal 4

Enhance professional development for educators, administrators, and community members in natural resource & environmental literacy.

#### Objective 4:3

Increase knowledge of philosophy and practice of environmental education among educators (informal, pre-service and in-service teachers).

#### Objective 4:4

Increase content knowledge of STEM (Science, Technology, Engineering, Math) topics related to natural resource & environmental literacy in Alaska.

#### Objective 4:5

Create on-site experiential opportunities for educators and community members at or near schools to use outdoor classrooms as a learning tool.

#### Objective 4:6

Increase knowledge of the broad range of natural resource related jobs available to Alaskan students.



## Strategies

2014 2015 2016 2017 2018

a. Professional development providers offer trainings using the Guidelines for Preparation of Environmental Educators from NAAEE.		●	●	●	●
b. University of Alaska and Alaska Pacific University teacher education programs partner with EED to examine and develop coursework requirements for K-8 certification.			●	●	●
c. The Natural Resource & Environmental Literacy Leadership Council identifies successful national and local ‘Outdoor Classroom Modules’ for pre-service teachers.			●	●	
d. Environmental education providers explore ways to build natural resources and environmental knowledge into pre-service science courses.			●	●	
e. Professional development providers integrate NAAEE <i>Guidelines for Learning</i> into teacher trainings.		●	●	●	●
f. Professional development providers develop credit courses covering ANRELP goals and best practices in environmental education.		●	●	●	●
g. The Natural Resource & Environmental Literacy Coordinator and School Liaisons identify experts well versed in environmental literacy, standards integration, and teaching methodology to serve as school mentors.			●	●	●
h. Existing professional development providers conduct professional development for informal educators.	●	●	●	●	●
a. The Natural Resource & Environmental Literacy Coordinator organize and promote speaker’s bureaus (including web casts) as resources for educators on a variety of natural resource and environmental topics.		●	●	●	●
b. The University of Alaska works with partners to develop undergraduate or graduate degree program for K-8 teachers that increases content knowledge of STEM topics related to natural resource & environmental literacy in Alaska.			●	●	●
c. Professional development providers offer trainings as part of summer academies, institutes, workshops, conferences and in-services.	●	●	●	●	●
a. Professional development providers assist teachers in using buildings and surrounding outdoor spaces as vehicles for school-based sustainability instruction.	●	●	●	●	●
b. School Liaisons create peer-to-peer learning/teaching opportunities for educators to support ongoing interactions after professional development.		●	●	●	●
a. Professional development providers coordinate with natural resource industries, businesses, universities agencies to introduce teachers to the types of jobs, training required and opportunities available.	●	●	●	●	●

# ANRELP Implementation Timeline

## Goals

## Objectives

### Goal 5

Support the development of Alaska school facilities, grounds, and local natural areas that provide accessible outdoor learning opportunities and serve community models for healthy living and sustainability.

#### Objective 5:1

Sixty percent of Alaska schools will identify, create, or improve outdoor learning landscapes, including schoolyard habitats, outdoor classrooms, natural playscapes, gardens, certified wildlife habitats and structures that reflect the cultural identity of the community, within five years of plan implementation.

#### Objective 5:2

Within 5 years of plan implementation, 60% of Alaska schools will be using outdoor learning areas beyond the school grounds more frequently than they are currently.

## Strategies

2014 2015 2016 2017 2018

- a. School Liaisons and school districts assess the status of the outdoor learning environments at all Alaska schools and document existing programs/projects supporting outdoor learning environments as a baseline for planning efforts.
- b. The Natural Resource & Environmental Literacy Coordinator, Leadership Council and School Liaisons promote collaboration between education groups and community partners for outdoor learning opportunities.
- c. The Natural Resource & Environmental Literacy Coordinator and Leadership Council establish cooperation between educational and government agencies, non-profits and Alaska EED to administer a grant program focused on equitable, regional distribution of funds to support outdoor learning landscapes.
- d. School Liaisons and school districts encourage active Parent-Teacher organization involvement in the support, financial and in-kind, and long-term sustainability of outdoor learning environments.
- e. EED establishes and promotes a statewide “Green Schools” program that will reward schools and education facilities that develop and provide outdoor learning landscapes.
- f. EED uses the online Clearinghouse to feature or highlight model schools and education facilities.

- a. School Liaisons identify opportunities for student participation in service-learning projects that help schools and community organizations plan/construct learning landscapes that enhance natural resource & environmental literacy.
- b. School Liaisons and the Natural Resource & Environmental Literacy Coordinator identify and mitigate obstacles that would prevent schools from using nearby outdoor learning environments such as local parks, local water bodies, private land, nature centers, community gardens, tribal lands, etc.
- c. School districts establish committees including teachers, administrators, and parents to review existing field trip guidelines and modify as appropriate to ensure safe access to outdoor learning areas beyond school grounds.
- d. School districts promote alternative means of transportation to nearby outdoor learning environments including walking, bicycling, and public transportation.



# ANRELP Implementation Timeline

## Goals

## Objectives

### Goal 5

Support the development of Alaska school facilities, grounds, and local natural areas that provide accessible outdoor learning opportunities and serve community models for healthy living and sustainability.

### Objective 5:3

within 5 years of plan implementation, 60% of Alaska schools will incorporate two or more of the strategies listed for facilities and/or grounds that model sustainable and healthy lifestyles.

Strategies

2014 2015 2016 2017 2018

- a. Schools promote food gardens and structures that teach the importance of using, producing, and preserving local foods. Locally produced foods are used in both instruction and as part of the school lunch program. Associated structures may include community gardens, greenhouses, smokehouses, and compost piles.
- b. Schools will educate students on healthy lifestyles and environmental stewardship using the production and preservation methods listed in Key Strategy (a).
- c. Schools will model environmentally-sustainable practices and involve students in completing regular audits that consider factors such as: energy and water use, energy alternatives, transportation use, and use of locally acquired foods.
- d. New construction or renovation of buildings used for educational purposes should reflect green design and sustainability principles whenever possible.
- e. Schools, teachers, and students will become sources of information on creating school facilities that support sustainable and healthy lifestyles. They will share what they know with other schools and their local communities through workshops, community open houses, web sites, and a variety of other media to provide networking opportunities and skill sharing.
- f. EED establishes a statewide reward programs such as the National Green Ribbon Schools Program to encourage schools to develop more sustainable and healthy facilities while reducing operating costs. Energy savings are shared with qualifying schools as monetary grants.
- g. The Coordinator will send out a statewide e-newsletter to share success stories as well as challenges. The e-newsletter may be customized by each school with student stories, artwork, and video clips, etc.

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## School & Community Partnerships In Action- Nature Studies Program

At Discovery Southeast, we make possible learning about nature by learning in nature. Since 1989, we have been connecting children to nature through one of our most successful programs, Nature Studies. This program uses a hands-on, science based curriculum and is delivered to over 800 3rd, 4th and 5th graders in Juneau. Nature Studies is the ultimate hands-on, inquiry-based, locally-focused, natural history learning adventure. The dual goals of the program are to teach children the science of nature and to engage our children with nature so they may develop a life-long, respectful relationship with their natural home here in Southeast Alaska. The benefits of this model are notable as one Glacier Valley teacher's comments reveal: "Nature Studies made science come alive for the children. The Jordan Creek area became the classroom. It was the highlight of the science program for my students."



*Submitted by Beth Weigel, Discovery Southeast Nature Studies Program, Juneau.*

## BLM Campbell Creek Science Center

The BLM Campbell Creek Science Center provides outdoor educational opportunities for students of all ages. We offer hands-on science programs on creek studies, Alaska animals, energy, minerals, and many other topics. We also offer programs for scouts, lectures for adults, morning bird walks, and family friendly events such as National Public Lands Day.

One recent program at the Science Center was a cooperative effort with the Anchorage School District's 21st Century after-school program that targets economically-disadvantaged communities. Over the course of two weeks, more than 550 students explored the woods on snowshoes, participated in team-building exercises, and gathered around a campfire for conversation and making s'mores.

"A trip into the woods was a real treat for them," wrote one teacher. "Believe it or not, for some it was a new experience! Not one of my students had ever been snowshoeing before, and every one of them loved it."

Susan Williams, manager of the 21st Century Program, agreed. "The Center staff was exemplary to work with and we hope to continue this partnership in the future. I think experiences like this one can be life changing for some of our students."

*Submitted by Brian Lax- BLM Campbell Creek Science Center, Anchorage.*







# ANRELP References

## Introduction References

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- Alaska Department of Health and Social Services, Alaska Division of Public Health, Chronic Disease Prevention and Health Promotion. 2011. Alaska Youth Risk Behavior Survey (AK YRBS).
- Alaska Department of Health and Social Services, 2001-2005. Division of Public Assistance, Family Nutrition Programs, height and weight data extract from the AKWIC Management Information System Nutrition Report.
- Alaska Department of Health and Social Services, Alaska Division of Public Health. 2009. Maternal and Child Health Epidemiology Unit. Alaska Childhood Understanding Behavior Survey (CUBS).
- Alaska Department of Health and Social Services, Division of Public Health. 2011. Oral Health Program, Oral Health Basic Screening Survey of Kindergarteners.
- Alaska Department of Natural Resources. 2009 Statewide Comprehensive Outdoor Recreation Plan 2009-2014 for Division of Parks & Outdoor Recreation.
- Alaska Native Science Commission. <http://www.nativescience.org> (Accessed November 2011).
- American Association of Pediatrics. May 2006. Active Healthy Living: Prevention of Childhood Obesity Through Increased Physical Activity, *Pediatrics* 117(5): 1834-1842.
- Archie, M. Advancing Education through Environmental Literacy. 2003. Association for Supervision and Curriculum Development, Alexandria, VA.
- Cleland, V., Crawford, D., Baur, L.A., Hume, C., Timperio, A., & Salmon, J. 2008. A prospective examination of children's time spent outdoors, objectively measured physical activity and overweight. *International Journal of Obesity* 32(11): 1685-1693.
- Coffey, Ann. 2001. Transforming School Grounds, in *Greening School Grounds: Creating Habitats for Learning*, (eds) Grant, Tim and Littlejohn, Gail. Green Teacher, Toronto and Gabriola Island, BC: New Society Publishers.
- Crane, William. 2001. How Nature Helps Children. *Montessori Life*, 13(N3):22-24.
- Committee of STEM Education, National Science and Technology Council. 2013. Federal science, technology, engineering, and mathematics (STEM) education: Five-Year Strategic Plan, Washington, DC.
- Dyment, J. E. & Bell, A.C. 2006. Grounds for Action: Green School Grounds as Sites for Promoting Physical Activity. *Oxford Journals* 23(6): 952-962.
- Faber Taylor, A., & Kuo, F.E. 2011 Could Exposure to Everyday Green Spaces Help Treat ADHD? Evidence from Children's Play Settings. *Applied Psychology: Health and Well-Being* 3: 281-303.
- Goldsmith, Scott. 2008. What Drives the Alaska Economy? Institute of Social & Economic Research, UA Research Summary. No. 13, University of Alaska, Anchorage.

- Henry J. Kaiser Family Foundation. 2010 Generation M2: Media in the lives of 8 to 18 year olds. <http://www.kff.org/entmedia/mh012010pkg.cfm> (Accessed November 2011).
- Juneau Economic Development Leadership Council. 2010. Alaska STEM: Education and the Economy. Report on the Need for Improved Science, Technology, Engineering and Mathematics Education in Alaska, Juneau, Alaska.
- Juster, F. Thomas et al. (2004). "Changing Times of American Youth: 1981-2003", Institute for Social Research, University of Michigan. Child Development Supplement
- Kuo, F.E. & Taylor, A.F. 2004. A potential natural treatment for attention-deficit/hyperactivity disorder: Evidence from a national study. *American Journal of Public Health* 94(9):1580-1586.
- Lieberman, G.A. & Hoody, L.L. 1998. Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning. State Education and Environment Roundtable.
- Malone, Karen & Tranter, Paul. 2003. Children's Environmental Learning and the Use, Design and Management of School Grounds. *Youth and Environments* 13(2).
- Moore, Robin. 1996 Impact Nature: The Role of Playing and Learning Gardens on Children's Lives. *Journal of Therapeutic Horticulture* 8:72-82.
- The National Environmental Education and Training Foundation. 2000. Environment-based Education Creating High Performance Schools and Students, Washington. DC.
- The National Environmental Education and Training Foundation. Environmental Literacy in America. 2005. National Environmental Education and Training Foundation. Washington, DC <http://dev.neefusa.org/pdf/ELR2005.pdf> (Accessed November 2011).
- Olshansky S.J., Passaro D.J., Hershow R.C., et al. 2005. A potential decline in life expectancy in the United States in the 21st Century. *NEJM*. (352):1138-1145.
- Walmart Corporation. 2013 Global Responsibility Report. [http://corporate.walmart.com/microsites/global-responsibility-report-2013/landing\\_EnvironmentResponsibility.aspx](http://corporate.walmart.com/microsites/global-responsibility-report-2013/landing_EnvironmentResponsibility.aspx), (accessed June 2013).
- Wells, N.M. 2000. At Home with Nature: Effects of 'Greenness' on Children's Cognitive Functioning. *Environment and Behavior* 32(6):775-795.
- Wells, N.M. 2000. At Home with Nature: Effects of 'Greenness' on Children's Cognitive Functioning. *Environment and Behavior*. 32(6):775-795.
- Woodgate, W.A. 2007. Teacher's Resource Guide to Implementing a Place-based Education Program into a Re-Inventing Schools Coalition (RISC) School: Projects to Support Traditional Yupik subsistence Culture in the Lower Yukon School District. Masters of Education Thesis, University of Alaska Fairbanks.





## Additional References

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Several plans developed by other states were referred to throughout the development of ANRELP. There are several objectives and strategies from other state plans, including the following that, where relevant and applicable, have been adopted for use in the Alaska Natural Resource & Environmental Literacy Plan:

- Colorado Environmental Literacy Plan, Colorado Department of Education and Colorado Department of Natural Resources (Final 2012)
- Hawaii Environmental Literacy Plan, Hawai'i Environmental Education Alliance (Final 2011)
- Illinois Environmental Literacy Plan, Illinois State Board of Education & Illinois Department of Natural Resources (Draft, 2010)
- Kansas Environmental Literacy Plan , Kansas Association for Conservation & Environmental Education (Draft 2010)
- Maine Environmental Literacy Plan, Maine Department of Education in collaboration with Maine Department of Conservation, Maine Environmental Education Association and Maine Audubon (Final 2010)
- Nebraska Environmental Literacy Plan, Nebraska Conservation & Environmental Education Alliance (Final 2010)
- Oregon Environmental Literacy Plan, Oregon Environmental Literacy Task Force (Final 2010)
- Texas Natural Resource & Environmental Literacy Plan, Texas Partnership for Children in Nature (Final 2012)
- Wisconsin's Plan for Environmentally Literate & Sustainable Communities, Wisconsin Association for Environmental Education, Wisconsin Environmental Education Board and Wisconsin Environmental Education Foundation (Draft 2011)

Alaska Comprehensive Center: Alaskan Partner in the School Improvement Process. <http://alaskacc.org> (Accessed December 2011).

Alaska Department of Education & Early Development. 1972. Planning Guidelines for Environmental Education. Prepared by Larry Hill for the Alaska Department of Education, Juneau, AK.

Alaska Department of Education & Early Development. 2006. Content & Performance Standards for Alaska Students. Fourth Edition. <http://eed.alaska.gov/standards/> (Accessed January 2012).

Alaska Department of Education & Early Development. 2010. Alaska Performance Scholarship web page. [http://akadvantage.alaska.gov/Grants\\_and\\_Scholarships/Alaska\\_Performance\\_Scholarship.aspx](http://akadvantage.alaska.gov/Grants_and_Scholarships/Alaska_Performance_Scholarship.aspx) (Accessed January 2012).

Alaska Natural Resources and Outdoor Education Association. 2001. Science and Environmental Education Programs in Southcentral Alaska: forging a new alliance. Summary report of the Oil Spill Recovery Institute educator's workshop, August 23-25, 200. Prepared for the Oil Spill Recovery Institute, Cordova, AK.

Alaska Natural Resource & Outdoor Education Association. 2004. Status Report of Environmental Education in Alaska. Prepared by Alaska Natural Resource & Outdoor Education Association Board of Directors, Anchorage, AK.

Alaska Natural Resource & Outdoor Education Association. 2009. Targeting Excellence: Aligning Alaskan Environmental Education With Standards. Anchorage, AK.

Alaska Standards for Culturally Responsive Schools. 1998. Prepared by Alaska Native Educators for the Alaska Native Knowledge Network as part of the Alaska Rural Systemic Initiative, Fairbanks, AK.

Alaska Statute AS 14.03.120 (e), Section 14.03.380. 1991. Environmental Education.

Anderson, A. and D. Plude. 2010. Needs assessment of Alaska teachers for teaching about Alaska's marine environments and climate change. Final report. Prepared for the Alaska Center for Ocean Science Education Excellence and the International Arctic Research Center. COSEE Alaska, Anchorage, AK.

Association of Fish & Wildlife Agencies. 2008. K-12 Conservation Education Scope and Sequence- An Educator's Guide to Sequential Learning about Fish and Wildlife. Prepared by Oksana Bartosh, University of British Columbia for the North American Conservation Education Strategy, Washington DC.

Barnhardt, R. (2007). Creating a Place for Indigenous Knowledge in Education: The Alaska Native Knowledge Network. In G. Smith & D. A. Gruenewald (Eds.), Place-Based Education in the Global Age: Local Diversity. Hillsdale, NJ: Lawrence Erlbaum Associates.

British Columbia Ministry of Education Sustainable Schools Best Practices Guide: <http://www.bced.gov.bc.ca/greenschools/pdfs/sustbestpractices.pdf> (Accessed December 2011).

Callister, L., Jamogochian, R., Lemos, W., Weddle, M., & Yoder, J. 2010. Community-based Education: Model Programs. Northwest Center for Sustainable Resources.

Center for Green Schools. <http://centerforgreenschools.com/utilitynav/resources/Greenclassroom.aspx> (Accessed December 2011).

Devaney, L., Hoag, S., and Pratt, C. 1999. Guide to Alaska Natural Resource Education Materials. Prepared for Alaska Natural Resource & Outdoor Education Association, Anchorage, AK.

Environmental Education Alliance. [http://www.eealliance.org/assets/Documents/COOL\\_resources/bmps.pdf](http://www.eealliance.org/assets/Documents/COOL_resources/bmps.pdf) (Accessed December 2011).

Georgia Wildlife Federation. 2004. Planning First to Make Your Outdoor Classroom Last- A Best Management Practices Guide for Creating and Sustaining Outdoor Classrooms. Covington, Georgia. Kolstad, C., Mullin, K., Vollherbst, K. 2011. Schoolyard Habitat Project Guide. Second Edition. Prepared for the U.S. Fish and Wildlife Service, Washington D.C.

Guidelines for Preparing Culturally Responsive Teachers for Alaska's Schools. 1999. Prepared by Alaska Native Educators for the Alaska Native Knowledge Network as part of the Alaska Rural Systemic Initiative, Fairbanks, AK. Kachemak Bay Research Reserve. 2011. Education needs assessment results. Kachemak Bay Research Reserve, Homer, Alaska.

Kenai Natural and Cultural History Group. 2000. Report on K-12 needs assessment of Kenai Peninsula School District teachers. Kenai Natural and Cultural History Group, Kenai, AK.

Louv, Richard. 2005. Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder. Algonquin Books, Chapel Hill, North Carolina.

Louv, Richard. 2011. The Nature Principle: Human Restoration & the End of Nature-Deficit Disorder. Algonquin Books, Chapel Hill, North Carolina.



National Oceanic & Atmospheric Administration (NOAA) and the Association for the Advancement of Science (AAAS). 2009. Climate Literacy- Essential Principles of Climate Sciences for All Ages, Washington, DC.

National Geographic Society and National Oceanic & Atmospheric Administration (NOAA). 2006. Ocean Literacy- Essential Principles of Ocean Sciences K-12. Washington, DC.

National Staff Development Leadership Council. [http://www. nsdc.org](http://www.nsdc.org) (Accessed December 2011).

North American Association for Environmental Education (NAAEE). 2008. Excellence in Environmental Education: Guidelines for Learning (K-12). Washington, DC.

North American Association for Environmental Education (NAAEE). 2010. Guidelines for the Preparation and Professional Development of Environmental Educators. Washington DC.

Partnership for 21<sup>st</sup> Century Skills. <http://www.p21.org> (Accessed December 2011).

Smith, G. A., & Sobel, D. 2010. Place-based and Community-based Education in Schools. New York, NY: Taylor & Francis.

Smith, G. and D. Sobel. *Unpublished manuscript*. Chapter 4. Place-based education in practice: Starting with local knowledge and issues. In Gregory Smith and David Sobel (eds.) *Reclaiming a role for place and community in schools*.

U.S. Partnership for Education for Sustainable Development. 2009. National Education for Sustainability K-12 Student Learning Standards. Washington DC.

Wettstein, W. and D. Sitzler. 2005. Contributing to ocean literacy in Alaska: an education plan for the Alaska Ocean Observing System. Final report. Prepared for the Alaska Ocean Observing System, Anchorage, AK.





# **ANRELP Appendices**



## Appendix A

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**We wish to thank the following people who served as advisors throughout the development of the plan and also provided written comments to the draft plan.**

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## Appendix B

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### We wish to thank the many contributing partners.

Throughout the state of Alaska partnerships enable school districts, universities and others to enrich their environmental education programs. Partners provide outdoor experiences, subject matter experts, facilities, sites, equipment, transportation, and funds. Along with professional educators, they are instrumental in engaging youth in outdoor activities. Listed below are some of the partners who worked on this plan and the partners who helped with and/or funded programs nominated as success stories for inclusion in this plan. The list is by no means inclusive of the hundreds of partners across Alaska who provide quality natural resource, environmental and place-based education in the state.

Alaska Airlines	Natural Resources Conservation Service
Alaska Community Foundation	Prince William Sound Science Center
Alaska Department of Education & Early Development	Project Learning Tree
Alaska Department of Environmental Conservation	Project Wet
Alaska Department of Fish and Game	Project Wild
Alaska Department of Health and Social Services	Resurrection Bay Conservation Alliance
Alaska Department of Natural Resources	Rural Alaska Honors Institute
Alaska Geographic	Sitka Conservation Society
Alaska Marine Highway System	State Farm Insurance
Alaska Native Knowledge Network	Tanana Chiefs Conference
Alaska Natural Resource & Outdoor Education	Toyota
Alaska Pacific University	UAF Cooperative Extension Services
Alaska Plant Materials Center	University of Alaska
Alaska Resource Education	US Forest Service
Alaska State Parks	US Fish and Wildlife Service
Alaska Sustainable Salmon Fund	Wasilla Soil and Water Conservation District
Alaska Teen Media Institute	Wrangell Institute for Science and Environment
Anchorage Department of Parks and Recreation	
Anchorage Municipality	
Anchorage Waterways Leadership Council	
BLM- Campbell Creek Science Center	
Center for Alaska Coastal Studies Program	
Center for Ocean Sciences Excellence Education	
City of Seward	
Copper River Watershed Project	
Discovery Southeast	
Earthscapes Landscaping	
Elders of Old Minto	
Elders of St. Mary's	
Environmental Protection Agency	
Fairbanks Soil & Water Conservation District	
Friends of Creamers Field	
General Mills	
Hewlett Packard	
Iditarod Historic Trail Alliance	
Iditarod Trail Committee	
Lowes	
National Oceanic and Atmospheric Administration	
National Park Service	

## Appendix C

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### List of acronyms used in this document:

ADF&G	Alaska Department of Fish & Game
ADHD	Attention Deficit Hyperactivity Disorder
AK	Alaska
ANRELP	Alaska Natural Resource & Environmental Literacy Plan
ANCSA	Alaska Native Claims Settlement Act
ANKN	Alaska Native Knowledge Network
ANROE	Alaska Natural Resource and Outdoor Education Association
APS	Alaska Performance Scholarship Program (state)
CO	Colorado
COSEE	Center for Ocean Sciences Education Excellence
DHSS	Alaska Department of Health and Social Services
DIASA	Data Interaction for Alaska Student Assessments, a database of student performance on State Standards Based Assessment tests
EE	Environmental Education
EED	Alaska Department of Education & Early Development
ESEA	Elementary & Secondary Education Act (federal)
FAA	Federal Aviation Administration
GLEs	Grade Level Expectations
MD	Maryland
NAAEE	North American Association for Environmental Education
NCLB	No Child Left Behind, federal K-12 schools legislation
NCLI	No Child Left Inside
NGSS	Next Generation of Science Standards, the forthcoming national science standards
NOAA	National Oceanic and Atmospheric Administration
NWF	National Wildlife Federation
PreK-12:	Public schools from pre-school through 12th grade
STEM	Science, Technology, Engineering, and Mathematics
RI	Rhode Island
USFWS	United States Fish & Wildlife Service
WI	Wisconsin



## **Appendix D**

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### **Meaningful Outdoor Experience as Defined by Maryland's Children in Nature Plan**



## STEWARDSHIP AND MEANINGFUL WATERSHED EDUCATIONAL EXPERIENCES

The “Stewardship and Community Engagement” Commitment of the *Chesapeake 2000* agreement clearly focuses on connecting individuals and groups to the Bay through their shared sense of responsibility and action. The goal of this Commitment, included below, not only defines the role of the jurisdictions to *promote* and *assist*, but formally engages schools as integral partners to *undertake initiatives* in helping to meet the Agreement. This goal commits to:

*Promote individual stewardship and assist individuals, community-based organizations, businesses, local governments and schools to undertake initiatives to achieve the goals and commitments of this agreement.*

Similarly, two objectives developed as part of this goal describe more specific outcomes to be achieved by the jurisdictions in promoting stewardship and assisting schools. These are:

*Beginning with the class of 2005, provide a meaningful Bay or stream outdoor experience for every school student in the watershed before graduation from high school.*

*Provide students and teachers alike with opportunities to directly participate in local restoration and protection projects, and to support stewardship efforts in schools and on school property.*

There is overwhelming consensus that knowledge and commitment build from first-hand experience, especially in the context of one’s neighborhood and community. Carefully selected experiences driven by rigorous academic learning standards, engendering discovery and wonder, and nurturing a sense of community will further connect students with the watershed and help reinforce an ethic of responsible citizenship.

To this end, the Chesapeake Bay Program Education Workgroup seeks to define a common set of criteria to help the Bay watershed jurisdictions meet the intent of this Commitment of the *Chesapeake 2000 Agreement*. From these criteria, each jurisdiction will continue to craft and refine its own plan, tailored to its own population, geography, and fiscal and human resources.

### **Defining a Meaningful Bay or Stream Outdoor Experience**

A *meaningful* Bay or stream outdoor experience should be defined by the following.

**Experiences are investigative or project-oriented.** Experiences include activities where questions, problems, and issues are investigated by the collection and analysis of data, both mathematical and qualitative. Electronic technology, such as computers, probeware, and GPS equipment, is a key component of these kinds of activities and should be integrated throughout the instructional process. The nature of these experiences is based on each jurisdiction’s academic learning standards and should include the following kinds of activities.

- Investigative or experimental design activities where students or groups of students use equipment, take measurements, and make observations for the purpose of making interpretations and reaching conclusions.
- Project-oriented experiences, such as restoration, monitoring, and protection projects, that are problem solving in nature and involve many investigative skills.
- Social, economic, historical, and archaeological questions, problems, and issues that are directly related to Bay peoples and cultures. These experiences should involve fieldwork, data collection, and analysis and directly relate to the role of the Bay (or other bodies of water) to these peoples' lives.

Experiences such as tours, gallery visits, simulations, demonstrations, or "nature walks" may be instructionally useful, but alone do not constitute a *meaningful* experience as defined here.

**Experiences are richly structured and based on high-quality instructional design.** Experiences should consist of three general parts including a) a preparation phase; b) an outdoor action phase; and c) a reflection, analysis, and reporting phase. These "phases" do not necessarily need to occur in a linear fashion. These include the following.

- The *preparation phase* should focus on a question, problem, or issue and involve students in discussions about it. This should require background research and student or team assignments as well as management and safety preparation.
- The *action phase* should include one or more outdoor experiences sufficient to conduct the project, make the

observations, or collect the data required. Students should be actively involved with the measurements, planning, or construction as safety guidelines permit.

- The *reflection phase* should refocus on the question, problem, or issue; analyze the conclusions reached; evaluate the results; and assess the activity and the student learning.

**Experiences are an integral part of the instructional program.** Experiences should not be considered ancillary, peripheral, or enrichment only, but clearly part of what is occurring concurrently in the classroom. The outdoor experiences should be part of the division curriculum and be aligned with the jurisdiction's learning standards. Experiences should make appropriate connections among subject areas and reflect an integrated approach to learning. Experiences should occur where and when they fit into the instructional sequence.

**Experiences are part of a sustained activity.** Though an outdoor experience itself may occur as one specific event, occurring in one day, the total duration leading up to and following the experience should involve a significant investment of instructional time. This may entail smaller amounts of outdoor time spread over an entire school year. Likewise, the actual outdoor experiences may not necessarily involve all students in a class at the same time. Rich learning experiences, especially those involving monitoring and restoration activities, may require time increments spread over weeks or even months. A sustained activity will generally involve regularly-scheduled school time and may involve extended day or weekend activity.

**Experiences consider the watershed as a system.** Experiences are not limited to water-based activities directly on the Bay, tidal rivers, streams, creeks, ponds, wetlands, or other bodies of water. As long as there is an



intentional connection made to the water quality, the watershed, and the larger ecological system, outdoor experiences that meet the intent of the Commitment may include terrestrial activities in the local community (e.g., erosion control, buffer creation, groundwater protection, and pollution prevention).

**Experiences involve external sharing and communication.** Experiences should warrant and include further sharing of the results beyond the classroom. Results of the outdoor experiences should be the focus of school-based reporting, community reporting, publishing, contribution to a larger database of water quality and watershed information, or other authentic communication.

**Experiences are enhanced by natural resources personnel.** Utilizing the expertise of scientists and natural resources professionals can heighten the impact of outdoor experiences. This includes both their participation in the classroom and leadership on-site during outdoor activities. These personnel have technical knowledge and experience that can serve to complement the classroom teacher's strengths and augment the array of resources for the learning. Additionally, these professionals can serve as important role models for career choices and as natural resources stewards.

**Experiences are for all students.** As it is crucial for all citizens to have an understanding of and connection with their own watershed, an outdoor experience is for all students regardless of where they live. Much of the land area in the jurisdictions is outside of the Bay watershed; however, it is intended that students residing in those areas have similar opportunities within their own local setting or beyond.

It is also clear that these kinds of experiences must be extended to all students including students with disabilities, in alternative programs, and special populations. No child

should be excluded from a *meaningful* watershed experience.

## ***Meaningful Experiences across the K-12 Program***

It is the intention that every student somewhere in the K-12 program will have a *meaningful* outdoor watershed experience before graduation from high school; however, it is the expectation that these kinds of activities will occur throughout formal schooling. Beginning with the primary grades, the jurisdictions' academic learning standards in the social and natural sciences call for inquiry, investigation, and active learning. These skills, concepts, and processes increase in complexity and abstraction, "spiraling" and building throughout the elementary, middle, and high school programs. Likewise, the experiences should reflect this progression.

Outdoor experiences should occur at each level, elementary, middle, and high school. These experiences should be defined by the local curriculum, be aligned with the jurisdiction's learning standards, and mirror the developmental level of students.

The following example "scope and sequence" describes experiences that should be appropriate for many students in the K-12 program.

**K-5 experiences** should be predominantly local, school, or neighborhood-based, including activities reflecting students' background knowledge, shorter attention span, and physical capabilities. Experiences must clearly relate to academic learning standards across subject areas and reinforce basic concepts such as maps and models, habitat principles, and the concept of the water cycle and watersheds. Care must be taken with the introduction or discussion of complex issues.

**6-8 experiences** should focus on team and class projects and investigations. These experiences should reinforce research skills requiring the use and analysis of more authoritative print and electronic resources. Longer-term restoration, monitoring, or investigative projects should be conducted locally or on school grounds. Actual student experiences in or near water may be appropriate for many middle school students (following school safety guidelines carefully). Activities such as water-quality testing can be used to reinforce many science, mathematics, and technology skills developed in middle school.

**9-12 experiences** should reflect students' more abstract reasoning and detailed planning ability. Locally based activities continue to be important, but student watershed experiences beyond the immediate community will have considerable impact in meeting academic and stewardship goals. First-hand experiences in or near water should be part of the implemented curriculum, especially as these experiences relate to the Earth and biological sciences, concepts developed in civics and government, and attitudes reinforcing responsible citizenship.

## Conclusion

The preceding consensus criteria define a clear vision for bringing the Bay into every classroom and every child out into the watershed in a *meaningful* way. It will be the goal of every educator, teacher and administrator, to move toward incorporating those experiences that build academic success, reinforce responsible citizenship, and work toward the goals of the *Chesapeake 2000* agreement. With inspired leaders, committed parents, and supporting communities garnering the fiscal and human resources to help make this happen, young people will be significant contributors to healthy, bountiful, and enduring watersheds.

## Appendix E

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### Alaska State Statute

#### Article 08. ENVIRONMENTAL EDUCATION

##### Sec. 14.30.380. Environmental education.

The board shall encourage each school board to initiate and conduct a program of environmental education for kindergarten through grade 12. The program should include, but is not limited to, education regarding the need to balance resource development with environmental safeguards, the dependence of the state on resource development, and the opportunity for pollution prevention, waste reduction, and recycling. A school board may implement environmental education as a part of regular classroom studies.



## **Appendix F**

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### **Constitution of the State of Alaska- Article 8 Natural Resources**

# **Constitution of the State of Alaska**

## **ARTICLE 08 -- NATURAL RESOURCES**

### **Section 8.1 - Statement of Policy.**

It is the policy of the State to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest.

### **Section 8.2 - General Authority.**

The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the State, including land and waters, for the maximum benefit of its people.

### **Section 8.3 - Common Use.**

Wherever occurring in their natural state, fish, wildlife, and waters are reserved to the people for common use.

### **Section 8.4 - Sustained Yield.**

Fish, forests, wildlife, grasslands, and all other replenishable resources belonging to the State shall be utilized, developed, and maintained on the sustained yield principle, subject to preferences among beneficial uses.

### **Section 8.5 - Facilities and Improvements.**

The legislature may provide for facilities, improvements, and services to assure greater utilization, development, reclamation, and settlement of lands, and to assure fuller utilization and development of the fisheries, wildlife, and waters.

### **Section 8.6 - State Public Domain.**

Lands and interests therein, including submerged and tidal lands, possessed or acquired by the State, and not used or intended exclusively for governmental purposes, constitute the state public domain. The legislature shall provide for the selection of lands granted to the State by the United States, and for the administration of the state public domain.

### **Section 8.7 - Special Purpose Sites.**

The legislature may provide for the acquisition of sites, objects, and areas of natural beauty or of historic, cultural, recreational, or scientific value. It may reserve them from the public domain and provide for their administration and preservation for the use, enjoyment, and welfare of the people.

## Section 8.8 - Leases.

The legislature may provide for the leasing of, and the issuance of permits for exploration of, any part of the public domain or interest therein, subject to reasonable concurrent uses. Leases and permits shall provide, among other conditions, for payment by the party at fault for damage or injury arising from noncompliance with terms governing concurrent use, and for forfeiture in the event of breach of conditions.

## Section 8.9 - Sales and Grants.

Subject to the provisions of this section, the legislature may provide for the sale or grant of state lands, or interests therein, and establish sales procedures. All sales or grants shall contain such reservations to the State of all resources as may be required by Congress or the State and shall provide for access to these resources. Reservation of access shall not unnecessarily impair the owners' use, prevent the control of trespass, or preclude compensation for damages.

## Section 8.10 - Public Notice.

No disposals or leases of state lands, or interests therein, shall be made without prior public notice and other safeguards of the public interest as may be prescribed by law.

## Section 8.11 - Mineral Rights.

Discovery and appropriation shall be the basis for establishing a right in those minerals reserved to the State which, upon the date of ratification of this constitution by the people of Alaska, were subject to location under the federal mining laws. Prior discovery, location, and filing, as prescribed by law, shall establish a prior right to these minerals and also a prior right to permits, leases, and transferable licenses for their extraction. Continuation of these rights shall depend upon the performance of annual labor, or the payment of fees, rents, or royalties, or upon other requirements as may be prescribed by law. Surface uses of land by a mineral claimant shall be limited to those necessary for the extraction or basic processing of the mineral deposits, or for both. Discovery and appropriation shall initiate a right, subject to further requirements of law, to patent of mineral lands if authorized by the State and not prohibited by Congress. The provisions of this section shall apply to all other minerals reserved to the State which by law are declared subject to appropriation.

## Section 8.12 - Mineral Leases and Permits.

The legislature shall provide for the issuance, types and terms of leases for coal, oil, gas, oil shale, sodium, phosphate, potash, sulfur, pumice, and other minerals as may be prescribed by law. Leases and permits giving the exclusive right of exploration for these minerals for specific periods and areas, subject to reasonable concurrent exploration as to different classes of minerals, may be authorized by law. Like leases and permits giving

the exclusive right of prospecting by geophysical, geochemical, and similar methods for all minerals may also be authorized by law.

#### Section 8.13 - Water Rights.

All surface and subsurface waters reserved to the people for common use, except mineral and medicinal waters, are subject to appropriation. Priority of appropriation shall give prior right. Except for public water supply, an appropriation of water shall be limited to stated purposes and subject to preferences among beneficial uses, concurrent or otherwise, as prescribed by law, and to the general reservation of fish and wildlife.

#### Section 8.14 - Access to Navigable Waters.

Free access to the navigable or public waters of the State, as defined by the legislature, shall not be denied any citizen of the United States or resident of the State, except that the legislature may by general law regulate and limit such access for other beneficial uses or public purposes.

#### Section 8.15 - No Exclusive Right of Fishery.

No exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State. This section does not restrict the power of the State to limit entry into any fishery for purposes of resource conservation, to prevent economic distress among fishermen and those dependent upon them for a livelihood and to promote the efficient development of aquaculture in the State.

#### Section 8.16 - Protection of Rights.

No person shall be involuntarily divested of his right to the use of waters, his interests in lands, or improvements affecting either, except for a superior beneficial use or public purpose and then only with just compensation and by operation of law.

#### Section 8.17 - Uniform Application.

Laws and regulations governing the use or disposal of natural resources shall apply equally to all persons similarly situated with reference to the subject matter and purpose to be served by the law or regulation.

#### Section 8.18 - Private Ways of Necessity.

Proceedings in eminent domain may be undertaken for private ways of necessity to permit essential access for extraction or utilization of resources. Just compensation shall be made for property taken or for resultant damages to other property rights.



## **Appendix G**

### **Federal No Child Left Inside (NCLI) Legislation**

112TH CONGRESS  
1ST SESSION

# H. R. 2547

To amend the Elementary and Secondary Education Act of 1965 regarding environmental education, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

JULY 14, 2011

Mr. SARBANES (for himself, Ms. BALDWIN, Mr. CONNOLLY of Virginia, Ms. BERKLEY, Mr. LEWIS of Georgia, Ms. MCCOLLUM, Mr. MORAN, Mr. MCGOVERN, Mr. GRIJALVA, Mr. JACKSON of Illinois, Mr. HOLT, Mr. ISRAEL, Mr. OLVER, Mr. ELLISON, Mrs. NAPOLITANO, Mr. COURTNEY, Mr. FILNER, Mr. BLUMENAUER, Mr. SABLAN, Mr. KUCINICH, Ms. CASTOR of Florida, Mrs. CHRISTENSEN, Mr. YARMUTH, Mr. MCNERNEY, Mr. KILDEE, Mr. FARR, Mr. MEEKS, Mr. WELCH, Mr. HINCHEY, Ms. HIRONO, Ms. SUTTON, Mr. HEINRICH, Mr. PRICE of North Carolina, Ms. PINGREE of Maine, Mrs. MCCARTHY of New York, Mr. POLIS, Mr. LANGEVIN, Ms. NORTON, Mr. SCHIFF, and Mr. CUMMINGS) introduced the following bill; which was referred to the Committee on Education and the Workforce

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## A BILL

To amend the Elementary and Secondary Education Act of 1965 regarding environmental education, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

4 (a) SHORT TITLE.—This Act may be cited as the  
5 “No Child Left Inside Act of 2011”.

1 (b) TABLE OF CONTENTS.—The table of contents for  
 2 this Act is as follows:

Sec. 1. Short title; table of contents.  
 Sec. 2. Findings.  
 Sec. 3. References.  
 Sec. 4. Authorization of appropriations.

#### TITLE I—ENVIRONMENTAL LITERACY PLANS

Sec. 101. Development, approval, and implementation of State environmental literacy plans.

#### TITLE II—ESTABLISHMENT OF ENVIRONMENTAL EDUCATION PROFESSIONAL DEVELOPMENT GRANT PROGRAMS

Sec. 201. Environmental education professional development grant programs.

#### TITLE III—ENVIRONMENTAL EDUCATION GRANT PROGRAM TO HELP BUILD NATIONAL CAPACITY

Sec. 301. Environmental education grant program to help build national capacity.

### 3 **SEC. 2. FINDINGS.**

4 The Congress makes the following findings:

5 (1) Environmental education is essential for—

6 (A) enhancing student learning and prob-  
 7 lem solving skills, especially in science;

8 (B) creating responsible and engaged citi-  
 9 zens; and

10 (C) producing graduates who are prepared  
 11 to address the challenges, adjustments, and op-  
 12 portunities that will be present in the life and  
 13 the workforce of the 21st century due to threats  
 14 to human health, economical development, bio-  
 15 logical diversity, and national security arising  
 16 from environmental stresses.

1           (2) Studies documenting the increasing indica-  
2           tors of nature deficit show that time spent out of the  
3           classroom for learning during the school day is crit-  
4           ical to the intellectual, emotional, and physical  
5           health of children and that providing students with  
6           quality opportunities to directly experience the nat-  
7           ural world can improve students’ overall readiness to  
8           learn and academic performance, as well as self-es-  
9           teem, personal responsibility, community involve-  
10          ment, personal health (including child obesity  
11          issues), and understanding of nature.

12          (3) Fewer and fewer students are becoming in-  
13          volved in important environmental education  
14          courses, classwork, and field investigations as an un-  
15          intended consequence of the No Child Left Behind  
16          Act of 2001.

17          (4) Hands-on, experience-based environmental  
18          education as part of the school curriculum connects  
19          children to the natural world, and research supports  
20          that time spent outdoors lessens the symptoms of  
21          Attention Deficit/Hyperactivity Disorder (ADHD),  
22          reduces stress and aggression, helps children sleep  
23          better, and improves physical health.

24          (5) Environmental education “in the field” as  
25          part of the regular school curriculum gets kids out-



1 side contributing to healthy lifestyles through out-  
2 door recreation, exercise, play and experience in the  
3 natural world that is critical to helping prevent obe-  
4 sity and address other related health problems.

5 (6) Environmental education for elementary  
6 and secondary school students is critical as our Na-  
7 tion transitions to a green economy where manufac-  
8 turing workers, as well as architects, engineers,  
9 planners, scientists, business managers, financial ex-  
10 perts, lawyers, entrepreneurs, political leaders, re-  
11 source managers, and others, must be environ-  
12 mentally literate to succeed in a green economy.

13 (7) Environmental education provides critical  
14 tools for a 21st century workforce by providing stu-  
15 dents with the skills to understand complex environ-  
16 mental issues so they may make informed decisions  
17 in their own lives and find solutions for real world  
18 challenges facing us as a nation. Business leaders  
19 also increasingly believe that an environmentally lit-  
20 erate workforce is critical to their long-term success.  
21 Environmental education helps prepare students for  
22 real world challenges.

23 **SEC. 3. REFERENCES.**

24 Except as otherwise specifically provided, whenever in  
25 this Act an amendment or repeal is expressed in terms

1 of an amendment to, or a repeal of, a section or other  
 2 provision, the reference shall be considered to be made to  
 3 a section or other provision of the Elementary and Sec-  
 4 ondary Education Act of 1965 (20 U.S.C. 6301 et seq.).

5 **SEC. 4. AUTHORIZATION OF APPROPRIATIONS.**

6 (a) AUTHORIZATION.—There are authorized to be ap-  
 7 propriated to carry out section 5622(g) and part E of title  
 8 II of the Elementary and Secondary Education Act of  
 9 1965 such sums as may be necessary for fiscal year 2012  
 10 and each of the 4 succeeding fiscal years.

11 (b) DISTRIBUTION.—With respect to any amount ap-  
 12 propriated under subsection (a) for a fiscal year—

13 (1) not more than 70 percent of such amount  
 14 shall be used to carry out section 5622(g) of the El-  
 15 elementary and Secondary Education Act of 1965 for  
 16 such fiscal year; and

17 (2) not less than 30 percent of such amount  
 18 shall be used to carry out part E of title II of such  
 19 Act for such fiscal year.

1           **TITLE I—ENVIRONMENTAL**  
 2                           **LITERACY PLANS**

3   **SEC. 101. DEVELOPMENT, APPROVAL, AND IMPLEMENTA-**  
 4                           **TION OF STATE ENVIRONMENTAL LITERACY**  
 5                           **PLANS.**

6           Part D of title V (20 U.S.C. 7201 et seq.) is amended  
 7 by adding at the end the following:

8           **“Subpart 22—Environmental Literacy Plans**

9   **“SEC. 5621. ENVIRONMENTAL LITERACY PLAN REQUIRE-**  
 10                           **MENTS.**

11           “In order for any State educational agency, or a local  
 12 educational agency served by a State educational agency,  
 13 to receive grant funds, either directly or through participa-  
 14 tion in a partnership with a recipient of grant funds,  
 15 under this subpart or part E of title II, the State edu-  
 16 cational agency shall meet the requirements regarding an  
 17 environmental literacy plan under section 5622.

18   **“SEC. 5622. STATE ENVIRONMENTAL LITERACY PLANS.**

19           “(a) SUBMISSION OF PLAN.—

20                   “(1) IN GENERAL.—Not later than 1 year after  
 21 the date of enactment of the No Child Left Inside  
 22 Act of 2011, a State educational agency subject to  
 23 the requirements of section 5621 shall, in consulta-  
 24 tion with State environmental agencies and State

1 natural resource agencies, and with input from the  
2 public—

3 “(A) submit an environmental literacy plan  
4 for prekindergarten through grade 12 to the  
5 Secretary for peer review and approval that will  
6 ensure that elementary and secondary school  
7 students in the State are environmentally lit-  
8 erate; and

9 “(B) begin the implementation of such  
10 plan in the State.

11 “(2) EXISTING PLANS.—A State may satisfy  
12 the requirement of paragraph (1)(A) by submitting  
13 to the Secretary for peer review an existing State  
14 plan that has been developed in cooperation with a  
15 State environmental or natural resource manage-  
16 ment agency, if such plan complies with this section.

17 “(b) PLAN OBJECTIVES.—A State environmental lit-  
18 eracy plan shall meet the following objectives:

19 “(1) Prepare students to understand, analyze,  
20 and address the major environmental challenges fac-  
21 ing the students’ State and the United States.

22 “(2) Provide field experiences as part of the  
23 regular school curriculum and create programs that  
24 contribute to healthy lifestyles through outdoor  
25 recreation and sound nutrition.



1 “(3) Create opportunities for enhanced and on-  
 2 going professional development for teachers that im-  
 3 proves the teachers’—

4 “(A) environmental subject matter knowl-  
 5 edge; and

6 “(B) pedagogical skills in teaching about  
 7 environmental issues, including the use of—

8 “(i) interdisciplinary, field-based, and  
 9 research-based learning; and

10 “(ii) innovative technology in the  
 11 classroom.

12 “(c) CONTENTS OF PLAN.—A State environmental  
 13 literacy plan shall include each of the following:

14 “(1) A description of how the State educational  
 15 agency will measure the environmental literacy of  
 16 students, including—

17 “(A) relevant State academic content  
 18 standards and content areas regarding environ-  
 19 mental education, and courses or subjects where  
 20 environmental education instruction will be in-  
 21 tegrated throughout the prekindergarten to  
 22 grade 12 curriculum; and

23 “(B) a description of the relationship of  
 24 the plan to the secondary school graduation re-  
 25 quirements of the State.

1           “(2) A description of programs for professional  
2           development for teachers to improve the teachers’—

3                   “(A) environmental subject matter knowl-  
4           edge; and

5                   “(B) pedagogical skills in teaching about  
6           environmental issues, including the use of—

7                           “(i) interdisciplinary, field-based, and  
8           research-based learning; and

9                           “(ii) innovative technology in the  
10          classroom.

11           “(3) A description of how the State educational  
12          agency will implement the plan, including securing  
13          funding and other necessary support.

14          “(d) PLAN UPDATE.—The State environmental lit-  
15          eracy plan shall be revised or updated by the State edu-  
16          cational agency and submitted to the Secretary not less  
17          often than every 5 years or as appropriate to reflect plan  
18          modifications.

19          “(e) PEER REVIEW AND SECRETARIAL APPROVAL.—  
20          The Secretary shall—

21                   “(1) establish a peer review process to assist in  
22          the review of State environmental literacy plans;

23                   “(2) appoint individuals to the peer review  
24          process who—

1           “(A) are representative of parents, teach-  
2           ers, State educational agencies, State environ-  
3           mental agencies, State natural resource agen-  
4           cies, local educational agencies, and nongovern-  
5           mental organizations; and

6           “(B) are familiar with national environ-  
7           mental issues and the health and educational  
8           needs of students;

9           “(3) include, in the peer review process, appro-  
10          priate representatives from the Department of Com-  
11          merce, Department of Interior, Department of En-  
12          ergy, the Environmental Protection Agency, and  
13          other appropriate Federal agencies, to provide envi-  
14          ronmental expertise and background for evaluation  
15          of the State environmental literacy plan;

16          “(4) approve a State environmental literacy  
17          plan not later than 120 days after the plan’s sub-  
18          mission unless the Secretary determines that the  
19          State environmental literacy plan does not meet the  
20          requirements of this section;

21          “(5) immediately notify the State if the Sec-  
22          retary determines that the State environmental lit-  
23          eracy plan does not meet the requirements of this  
24          section, and state the reasons for such determina-  
25          tion;

1 “(6) not decline to approve a State environ-  
2 mental literacy plan before—

3 “(A) offering the State an opportunity to  
4 revise the State environmental literacy plan;

5 “(B) providing technical assistance in  
6 order to assist the State to meet the require-  
7 ments of this section; and

8 “(C) providing notice and an opportunity  
9 for a hearing; and

10 “(7) have the authority to decline to approve a  
11 State environmental literacy plan for not meeting  
12 the requirements of this part, but shall not have the  
13 authority to require a State, as a condition of ap-  
14 proval of the State environmental literacy plan, to—

15 “(A) include in, or delete from, such State  
16 environmental literacy plan 1 or more specific  
17 elements of the State academic content stand-  
18 ards under section 1111(b)(1); or

19 “(B) use specific academic assessment in-  
20 struments or items.

21 “(f) STATE REVISIONS.—The State educational  
22 agency shall have the opportunity to revise a State envi-  
23 ronmental literacy plan if such revision is necessary to sat-  
24 isfy the requirements of this section.

25 “(g) GRANTS FOR IMPLEMENTATION.—



1           “(1) PROGRAM AUTHORIZED.—From amounts  
2           appropriated for this subsection, the Secretary shall  
3           award grants, through allotments in accordance with  
4           the regulations described in paragraph (2), to States  
5           to enable the States to award subgrants, on a com-  
6           petitive basis, to local educational agencies and eligi-  
7           ble partnerships (as such term is defined in section  
8           2502) to support the implementation of the State  
9           environmental literacy plan.

10           “(2) REGULATIONS.—The Secretary shall pro-  
11           mulgate regulations implementing the grant pro-  
12           gram under paragraph (1), which regulations shall  
13           include the development of an allotment formula  
14           that best achieves the purposes of this subpart.

15           “(3) ADMINISTRATIVE EXPENSES.—A State re-  
16           ceiving a grant under this subsection may use not  
17           more than 2.5 percent of the grant funds for admin-  
18           istrative expenses.

19           “(h) REPORTING.—

20           “(1) IN GENERAL.—Not later than 2 years  
21           after approval of a State environmental literacy  
22           plan, and every 2 years thereafter, the State edu-  
23           cational agency shall submit to the Secretary a re-  
24           port on the implementation of the State plan.

1 “(2) REPORT REQUIREMENTS.—The report re-  
2 quired by this subsection shall be—

3 “(A) in the form specified by the Sec-  
4 retary;

5 “(B) based on the State’s ongoing evalua-  
6 tion activities; and

7 “(C) made readily available to the public.”.

8 **TITLE II—ESTABLISHMENT OF**  
9 **ENVIRONMENTAL EDU-**  
10 **CATION PROFESSIONAL DE-**  
11 **VELOPMENT GRANT PRO-**  
12 **GRAMS**

13 **SEC. 201. ENVIRONMENTAL EDUCATION PROFESSIONAL**  
14 **DEVELOPMENT GRANT PROGRAMS.**

15 Title II (20 U.S.C. 6601 et seq.) is amended by add-  
16 ing at the end the following:

17 **“PART E—ENVIRONMENTAL EDUCATION PRO-**  
18 **FESSIONAL DEVELOPMENT GRANT PRO-**  
19 **GRAMS**

20 **“SEC. 2501. PURPOSE.**

21 “The purpose of this part is to ensure the academic  
22 achievement of students in environmental literacy through  
23 the professional development of teachers and educators.

1 **“SEC. 2502. GRANTS FOR ENHANCING EDUCATION**  
 2 **THROUGH ENVIRONMENTAL EDUCATION.**

3 “(a) DEFINITION OF ELIGIBLE PARTNERSHIP.—In  
 4 this section, the term ‘eligible partnership’ means a part-  
 5 nership that—

6 “(1) shall include a local educational agency;  
 7 and

8 “(2) may include—

9 “(A) the teacher training department of an  
 10 institution of higher education;

11 “(B) the environmental department of an  
 12 institution of higher education;

13 “(C) another local educational agency, a  
 14 public charter school, a public elementary  
 15 school or secondary school, or a consortium of  
 16 such schools;

17 “(D) a Federal, State, regional, or local  
 18 environmental or natural resource management  
 19 agency that has demonstrated effectiveness in  
 20 improving the quality of environmental edu-  
 21 cation teachers; or

22 “(E) a nonprofit organization that has  
 23 demonstrated effectiveness in improving the  
 24 quality of environmental education teachers.

25 “(b) GRANTS AUTHORIZED.—

1           “(1) PROGRAM AUTHORIZED.—From amounts  
 2           appropriated for this subsection, the Secretary shall  
 3           award grants, through allotments in accordance with  
 4           the regulations described in paragraph (2), to States  
 5           whose State environmental literacy plan has been  
 6           approved under section 5622, to enable the States to  
 7           award subgrants under subsection (c).

8           “(2) REGULATIONS.—The Secretary shall pro-  
 9           mulgate regulations implementing the grant pro-  
 10          gram under paragraph (1), which regulations shall  
 11          include the development of an allotment formula  
 12          that best achieves the purposes of this subpart.

13          “(3) ADMINISTRATIVE EXPENSES.—A State re-  
 14          ceiving a grant under this subsection may use not  
 15          more than 2.5 percent of the grant funds for admin-  
 16          istrative expenses.

17          “(c) SUBGRANTS AUTHORIZED.—

18               “(1) SUBGRANTS TO ELIGIBLE PARTNER-  
 19               SHIPS.—From amounts made available to a State  
 20               educational agency under subsection (b)(1), the  
 21               State educational agency shall award subgrants, on  
 22               a competitive basis, to eligible partnerships serving  
 23               the State, to enable the eligible partnerships to carry  
 24               out the authorized activities described in subsection



1 (e) consistent with the approved State environmental  
2 literacy plan.

3 “(2) DURATION.—The State educational agency  
4 shall award each subgrant under this part for a pe-  
5 riod of not more than 3 years beginning on the date  
6 of approval of the State’s environmental literacy  
7 plan under section 5622.

8 “(3) SUPPLEMENT, NOT SUPPLANT.—Funds  
9 provided to an eligible partnership under this part  
10 shall be used to supplement, and not supplant, funds  
11 that would otherwise be used for activities author-  
12 ized under this part.

13 “(d) APPLICATION REQUIREMENTS.—

14 “(1) IN GENERAL.—Each eligible partnership  
15 desiring a subgrant under this part shall submit an  
16 application to the State educational agency, at such  
17 time, in such manner, and accompanied by such in-  
18 formation as the State educational agency may re-  
19 quire.

20 “(2) CONTENTS.—Each application submitted  
21 under paragraph (1) shall include—

22 “(A) the results of a comprehensive assess-  
23 ment of the teacher quality and professional de-  
24 velopment needs, with respect to the teaching  
25 and learning of environmental content;

1 “(B) an explanation of how the activities  
 2 to be carried out by the eligible partnership are  
 3 expected to improve student academic achieve-  
 4 ment and strengthen the quality of environ-  
 5 mental instruction;

6 “(C) a description of how the activities to  
 7 be carried out by the eligible partnership—

8 “(i) will be aligned with challenging  
 9 State academic content standards and stu-  
 10 dent academic achievement standards in  
 11 environmental education, to the extent  
 12 such standards exist, and with the State’s  
 13 environmental literacy plan under section  
 14 5622; and

15 “(ii) will advance the teaching of  
 16 interdisciplinary courses that integrate the  
 17 study of natural, social, and economic sys-  
 18 tems and that include strong field compo-  
 19 nents in which students have the oppor-  
 20 tunity to directly experience nature;

21 “(D) a description of how the activities to  
 22 be carried out by the eligible partnership will  
 23 ensure that teachers are trained in the use of  
 24 field-based or service learning to enable the  
 25 teachers—

1 “(i) to use the local environment and  
2 community as a resource; and

3 “(ii) to enhance student under-  
4 standing of the environment and academic  
5 achievement;

6 “(E) a description of—

7 “(i) how the eligible partnership will  
8 carry out the authorized activities de-  
9 scribed in subsection (e); and

10 “(ii) the eligible partnership’s evalua-  
11 tion and accountability plan described in  
12 subsection (f); and

13 “(F) a description of how the eligible part-  
14 nership will continue the activities funded under  
15 this part after the grant period has expired.

16 “(e) AUTHORIZED ACTIVITIES.—An eligible partner-  
17 ship shall use the subgrant funds provided under this part  
18 for 1 or more of the following activities related to elemen-  
19 tary schools or secondary schools:

20 “(1) Creating opportunities for enhanced and  
21 ongoing professional development of teachers that  
22 improves the environmental subject matter knowl-  
23 edge of such teachers.

24 “(2) Creating opportunities for enhanced and  
25 ongoing professional development of teachers that

1 improves teachers’ pedagogical skills in teaching  
 2 about the environment and environmental issues, in-  
 3 cluding in the use of—

4 “(A) interdisciplinary, research-based, and  
 5 field-based learning; and

6 “(B) innovative technology in the class-  
 7 room.

8 “(3) Establishing and operating environmental  
 9 education summer workshops or institutes, including  
 10 follow-up training, for elementary and secondary  
 11 school teachers to improve their pedagogical skills  
 12 and subject matter knowledge for the teaching of en-  
 13 vironmental education.

14 “(4) Developing or redesigning more rigorous  
 15 environmental education curricula that—

16 “(A) are aligned with challenging State  
 17 academic content standards in environmental  
 18 education, to the extent such standards exist,  
 19 and with the State environmental literacy plan  
 20 under section 5622; and

21 “(B) advance the teaching of interdiscipli-  
 22 nary courses that integrate the study of nat-  
 23 ural, social, and economic systems and that in-  
 24 clude strong field components.



1           “(5) Designing programs to prepare teachers at  
2           a school to provide mentoring and professional devel-  
3           opment to other teachers at such school to improve  
4           teacher environmental education subject matter and  
5           pedagogical skills.

6           “(6) Establishing and operating programs to  
7           bring teachers into contact with working profes-  
8           sionals in environmental fields to expand such teach-  
9           ers’ subject matter knowledge of, and research in,  
10          environmental issues.

11          “(7) Creating initiatives that seek to incor-  
12          porate environmental education within teacher train-  
13          ing programs or accreditation standards consistent  
14          with the State environmental literacy plan under  
15          section 5622.

16          “(8) Promoting outdoor environmental edu-  
17          cation activities as part of the regular school cur-  
18          riculum and schedule in order to further the knowl-  
19          edge and professional development of teachers and  
20          help students directly experience nature.

21          “(f) EVALUATION AND ACCOUNTABILITY PLAN.—

22               “(1) IN GENERAL.—Each eligible partnership  
23               receiving a subgrant under this part shall develop an  
24               evaluation and accountability plan for activities as-

1       sisted under this part that includes rigorous objec-  
 2       tives that measure the impact of the activities.

3           “(2) CONTENTS.—The plan developed under  
 4       paragraph (1) shall include measurable objectives to  
 5       increase the number of teachers who participate in  
 6       environmental education content-based professional  
 7       development activities.

8           “(g) REPORT.—Each eligible partnership receiving a  
 9       subgrant under this part shall report annually, for each  
 10      year of the subgrant, to the State educational agency re-  
 11      garding the eligible partnership’s progress in meeting the  
 12      objectives described in the accountability plan of the eligi-  
 13      ble partnership under subsection (f).”.

14   **TITLE           III—ENVIRONMENTAL**  
 15       **EDUCATION    GRANT    PRO-**  
 16       **GRAM   TO   HELP   BUILD   NA-**  
 17       **TIONAL CAPACITY**

18   **SEC. 301. ENVIRONMENTAL EDUCATION GRANT PROGRAM**  
 19       **TO HELP BUILD NATIONAL CAPACITY.**

20       Part D of title V (20 U.S.C. 7201 et seq.) (as amend-  
 21      ed by section 101) is further amended by adding at the  
 22      end the following:

1       **“Subpart 23—Environmental Education Grant**  
2                               **Program**

3   **“SEC. 5631. PURPOSES.**

4 “The purposes of this subpart are—

“(1) to prepare children to understand and address major environmental challenges facing the United States; and

8                   “(2) to strengthen environmental education as  
9                   an integral part of the elementary school and sec-  
10                  ondary school curriculum.

11 **“SEC. 5632. GRANT PROGRAM AUTHORIZED.**

12           “(a) DEFINITION OF ELIGIBLE PARTNERSHIP.—In  
13   this section, the term ‘eligible partnership’ means a part-  
14   nership that—

15           “(1) shall include a local educational agency;  
16           and

17 “(2) may include—

18 “(A) the teacher training department of an  
19 institution of higher education;

20 “(B) the environmental department of an  
21 institution of higher education;

22 “(C) another local educational agency, a  
23 public charter school, a public elementary  
24 school or secondary school, or a consortium of  
25 such schools;

1           “(D) a Federal, State, regional, or local  
 2           environmental or natural resource management  
 3           agency, or park and recreation department,  
 4           that has demonstrated effectiveness, expertise,  
 5           and experience in the development of the insti-  
 6           tutional, financial, intellectual, or policy re-  
 7           sources needed to help the field of environ-  
 8           mental education become more effective and  
 9           widely practiced; and

10           “(E) a nonprofit organization that has  
 11           demonstrated effectiveness, expertise, and expe-  
 12           rience in the development of the institutional,  
 13           financial, intellectual, or policy resources needed  
 14           to help the field of environmental education be-  
 15           come more effective and widely practiced.

16           “(b) GRANTS AUTHORIZED.—

17           “(1) IN GENERAL.—The Secretary is authorized  
 18           to award grants, on a competitive basis, to eligible  
 19           partnerships to enable the eligible partnerships to  
 20           pay the Federal share of the costs of activities under  
 21           this subpart.

22           “(2) DURATION.—Each grant under this sub-  
 23           part shall be for a period of not less than 1 year and  
 24           not more than 3 years.



1 **“SEC. 5633. APPLICATIONS.**

2 “Each eligible partnership desiring a grant under this  
3 subpart shall submit to the Secretary an application that  
4 contains—

5 “(1) a plan to initiate, expand, or improve envi-  
6 ronmental education programs in order to make  
7 progress toward meeting—

8 “(A) challenging State academic content  
9 standards and student academic achievement  
10 standards in environmental education, to the  
11 extent such standards exist; and

12 “(B) academic standards that are aligned  
13 with the State’s environmental literacy plan  
14 under section 5622; and

15 “(2) an evaluation and accountability plan for  
16 activities assisted under this subpart that includes  
17 rigorous objectives that measure the impact of ac-  
18 tivities funded under this subpart.

19 **“SEC. 5634. USE OF FUNDS.**

20 “Grant funds made available under this subpart shall  
21 be used for 1 or more of the following:

22 “(1) Developing and implementing State cur-  
23 riculum frameworks for environmental education  
24 that meet—

25 “(A) challenging State academic content  
26 standards and student academic achievement

1 standards for environmental education, to the  
 2 extent such standards exist; and

3 “(B) academic standards that are aligned  
 4 with the State’s environmental literacy plan  
 5 under section 5622.

6 “(2) Replicating or disseminating information  
 7 about proven and tested model environmental edu-  
 8 cation programs that—

9 “(A) use the environment as an integrating  
 10 theme or content throughout the curriculum; or

11 “(B) provide integrated, interdisciplinary  
 12 instruction about natural, social, and economic  
 13 systems along with field experience that pro-  
 14 vides students with opportunities to directly ex-  
 15 perience nature in ways designed to improve  
 16 students’ overall academic performance, per-  
 17 sonal health (including addressing child obesity  
 18 issues), and understanding of nature.

19 “(3) Developing and implementing new ap-  
 20 proaches to advancing environmental education and  
 21 the adoption and use of environmental content  
 22 standards at the State and local levels.

23 **“SEC. 5635. REPORTS.**

24 “(a) ELIGIBLE PARTNERSHIP REPORT.—In order to  
 25 continue receiving grant funds under this subpart after

1 the first year of a multiyear grant under this subpart, the  
 2 eligible partnership shall submit to the Secretary an an-  
 3 nual report that—

4 “(1) describes the activities assisted under this  
 5 subpart that were conducted during the preceding  
 6 year;

7 “(2) demonstrates that progress has been made  
 8 in helping schools to meet the State academic stand-  
 9 ards for environmental education described in sec-  
 10 tion 5634(1); and

11 “(3) describes the results of the eligible part-  
 12 nership’s evaluation and accountability plan.

13 “(b) REPORT TO CONGRESS.—Not later than 2 years  
 14 after the date of enactment of the No Child Left Inside  
 15 Act of 2011 and annually thereafter, the Secretary shall  
 16 submit a report to Congress that—

17 “(1) describes the programs assisted under this  
 18 subpart;

19 “(2) documents the success of such programs in  
 20 improving national and State environmental edu-  
 21 cation capacity; and

22 “(3) makes such recommendations as the Sec-  
 23 retary determines appropriate for the continuation  
 24 and improvement of the programs assisted under  
 25 this subpart.

1 **“SEC. 5636. ADMINISTRATIVE PROVISIONS.**

2 “(a) FEDERAL SHARE.—The Federal share of a  
3 grant under this subpart shall not exceed—

4 “(1) 90 percent of the total costs of the activi-  
5 ties assisted under the grant for the first year for  
6 which the program receives assistance under this  
7 subpart; and

8 “(2) 75 percent of such costs for each of the  
9 second and third years.

10 “(b) ADMINISTRATIVE EXPENSES.—Not more than  
11 7.5 percent of the grant funds made available to an eligible  
12 partnership under this subpart for any fiscal year may be  
13 used for administrative expenses.

14 “(c) AVAILABILITY OF FUNDS.—Amounts made  
15 available to the Secretary to carry out this subpart shall  
16 remain available until expended.

17 **“SEC. 5637. SUPPLEMENT, NOT SUPPLANT.**

18 “Funds made available under this subpart shall be  
19 used to supplement, and not supplant, any other Federal,  
20 State, or local funds available for environmental education  
21 activities.”.

○





### Dig Afognak

Dig Afognak is a cultural immersion camp for youth on Kodiak Island hosted and facilitated by one of Kodiak's ten federally recognized Tribes, the Native Village of Afognak. Dig Afognak has a long successful history of partnering with the local school district and many community agencies. Not only are participants Kodiak school district students, but the camp also includes a teacher training program component in which new and seasoned local teachers and district staff can participate. Additionally, there is a young worker program to have young people experience all aspects of putting together a program such as this.

Dig Afognak hosts six, one-week camps which are able to house 25-30 youth per week. Each week, campers learn a variety of traditional Alutiiq cultural values taught through various activities. The camp also integrates environmental and marine science stewardship activities.

It would be nice to say Dig Afognak was logistically simple and affordable, but it is not. However, those who offer the camp believe that there are aspects that can be replicated in a simpler, more cost effective manner.

They have worked very hard to build the infrastructure and secure ongoing funding for the project, and with the continued support from partners they believe Dig Afognak will be around for quite a long time.

*Information submitted by Melissa Borton, Tribal Administrator, Native Village of Afognak*

### Alaska Seas and Rivers Program

The Alaska Sea Week program, later expanded into the Alaska Sea and Rivers program, has been central to education about Alaska's seas, rivers, and all of Alaska's aquatic ecosystems since the mid-1980's. Thousands of Alaskan kids have been introduced to local beaches, streams, and wetlands during schoolwide Sea Week and River Week celebrations

Thematic online Alaska Seas and Rivers curricula provide K-8 educators with lesson plans and units aligned with state standards. The lesson plans feature current Alaska science, stewardship activities, and hands-on and place-based educational strategies. The curriculum reflects the richness and diversity of Alaska and fosters respect and appreciation for the environment in our future decision-makers. Trained facilitators help deliver on-site workshops to teachers.

Students gain field trip experiences, science and social studies learning, and a sense of stewardship for Alaska's coast and watersheds. As one teacher described the program: "The lessons and units really focus on getting kids into their outdoor environment and there are always components that get kids focusing on how to take care of their environment."

The Alaska Seas and Rivers program is sponsored by Alaska Sea Grant which has goals of increasing environmental literacy for Alaskans and contributing to the development a workforce of highly skilled Alaskans in the diverse marine, fisheries, seafood and maritime occupations in Alaska

*Information submitted by Marilyn Sigman, Assistant Professor, Marine Education, University of Alaska Fairbanks*



