



NUCLEAR WASTE MANAGEMENT ORGANIZATION SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

Engaging Youth

A REPORT ON NWMO YOUTH ENGAGEMENT ACTIVITIES



DECEMBER 2017

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ENGAGING YOUTH – AN OVERVIEW

The Nuclear Waste Management Organization (NWMO) is responsible for implementing Adaptive Phased Management (APM), Canada's plan for the safe, long-term care of used nuclear fuel. APM involves the development of a large infrastructure project that will include a deep geological repository and Centre of Expertise for technical, environmental, and community studies. We are currently in the site selection phase of implementing APM. The plan includes a process to identify an informed and willing host for a deep geological repository that will contain and isolate Canada's used nuclear fuel. Many more years of discussion and study are needed before a decision can be made about a location.

Given the long time frames associated with the implementation of APM, engaging people across multiple generations is an important consideration informing our work. We continue to explore various activities and outreach programs that would help young people learn about and be involved in the implementation of Canada's plan.

Current plans for youth engagement programs use a multi-pronged approach aiming to:

- Foster and promote a culture of science by supporting youth science organizations;
- Engage youth pursuing studies in a variety of disciplines related to APM;
- Make information about the NWMO and APM accessible and engaging for young people, for example, with more use of plain language, graphics and audiovisual tools;
- Provide opportunities for youth in potential siting areas to become involved and informed about APM;
- Engage First Nation and Métis youth in activities to understand the project and how to interweave Indigenous Knowledge into the implementation of Canada's plan; and
- Work with municipal, First Nation and Métis communities to build capacity among youth populations to participate in implementing Canada's plan.

The NWMO supports a Learn More Program that ensures that communities have the resources they need to participate in the siting process, and not to be out of pocket for their participation. Every year, communities direct a portion of their Learn More funds towards learning opportunities for youth that have included activities such as visits to interim storage facilities in southern Ontario and cultural learning among First Nations youth.

This year, we launched the Early Investments in Education and Skills (EIES) program to support training and education programs that could foster local ability to participate in the APM Project. Over the long term, investments in training and education are intended to provide community members, including youth, skills to participate in the project if it were sited in their area. Understanding that decisions about the project and where it will be located are some years away, early capacity-building activities have a broad focus and are intended to include transferable skills that could be applied to other projects or workplaces. In 2017, the EIES program supported a total of 47 youth initiatives, including activities such as science camps, robotics programming, and graduation awards for grade 12 students.

We also provide sponsorships and donations that advance local initiatives identified by communities. In 2017, we supported 133 initiatives including various youth activities ranging from education and cultural initiatives to community well-being and sports initiatives. In addition, we sponsored youth science learning programs that had significant reach: Science North delivered programs in 11 communities reaching 5,035 elementary students; SHAD delivered presentations at 8 universities reaching over 500 high school students; and the Scientists in the School program delivered 70 workshops.

The NWMO also provides support to communities in their youth outreach. In 2017, examples of these activities included arranging for school classroom trips to visit NWMO community offices and open houses, organizing learning events in schools, summer student employment, and encouraging youth involvement in a variety of community initiatives.

We also share information and make presentations to college and university students in a variety of post-secondary institutions and in disciplines such as engineering, earth sciences, public policy, environmental studies and more. These initiatives provide an important means of sharing findings from technical research, seeking informed discussion, and encouraging academic and career interest in the area. In 2017, the NWMO supported research at 16 universities, most of these in Canada.

Looking ahead, the NWMO will continue to build upon its current youth engagement program by enhancing existing activities in alignment with the phased multi-year implementation of APM.

LEARNING TOGETHER AND BUILDING RELATIONSHIPS

The NWMO continues to involve young people through work with community leadership and engagement activities collaboratively developed with the community. The NWMO has a number of resource agreements in place with communities to support planning and reflection as well as community activities involving youth and others in the community to help plan and advance studies.

Learn More Resource Program

The Learn More Program is designed to provide resources to assist communities, including young people, to learn more about Canada's plan for the long-term management of used nuclear fuel. It provides \$15,000 annually to communities involved in the site selection process to cover the cost of youth initiatives supporting science programs and learning about Canada's plan. This year, 46 high-school students from the siting communities visited the NWMO Learn More Centre in Toronto, where they heard from specialists about how used nuclear fuel will be safely transported to and managed in a deep geological repository. Some students also visited the proof testing facility in Oakville and the Darlington Interim Waste Storage Facility to see how used nuclear fuel is currently managed on an interim basis. After visiting these facilities, students from Ignace also had the opportunity to discuss careers in science and engineering with the NWMO staff. Others, such as young people from Sagamok First Nations, toured the Pickering Waste Management Facility and visited the McMaster University Nuclear Reactor.



A NWMO staff member delivers a presentation to an enthusiastic grade 5 class in Huron-Kinloss

The NWMO was invited to provide presentations to school children, host school groups at community open houses to view the APM exhibit, and also engaged hundreds of families at the NWMO booths set up at community events, such as fall fairs and community festivals. Throughout the year, staff have volunteered at youth-focused community events as judges, food servers, and provided advice at career fairs. Appendix A includes details on the 2017 presentations, open house events, and non-NWMO-related community events where staff were participants.

Community Liaison Committees

Municipal councils of communities in the siting process have established Community Liaison Committees (CLCs) to provide advice on and actively assist the community in learning more about the project. Many communities have included youth representatives on their CLCs in order to bring forward a youth perspective and identify opportunities for youth engagement.

Youth Employment

With NWMO funding, the Ignace Community Nuclear Liaison Committee (ICLC) hired two local summer students - a second-year University of Manitoba student and a grade 12 student. They helped host community events designed to build awareness and engage young people in learning about the project.



Summer student reading to children at the Learn More Centre in Ignace

These events included monthly movie nights at the Ignace Learn More Centre; participating in the local health and wellness fair; and staffing the Ignace CLC table at the Ignace Kid's Fest. This year, Wabigoon Lake Ojibway Nation also hired a college and a high-school student to support band activities. Among their many activities, both students helped organize a Pow Wow and a Learning and Sharing gathering with the Elders where the project was discussed.

The NWMO hired three summer students to work at its Toronto office in 2017. Olivia Al-Joundi, a third-year chemical engineering student at the University of Toronto, worked with the safety assessment team writing a report on *"Characteristics of Non-Processible Waste."*

"Knowing that I was creating a report that would be used in the future was my favourite part about working at NWMO," said Ms. Al-Joundi.

Solomon Asonye, a fourth-year mechanical engineering student at the Ontario Institute of Technology, worked with the low and intermediate level waste team. When asked about his future plans, Mr. Asonye said he wanted to contribute to some aspect of growing energy solutions in Canada. "My time at the NWMO has exposed me to people that share this same passion and I hope to continue to grow in this direction," remarked Mr. Asonye.

Robert Wu, a fourth-year chemical engineering student at Ryerson University, worked for the project controls team. "I enjoyed getting the project management experience – working with scheduling as well as forecasting costs. I learned a lot from everyone," said Mr. Wu, who added he eventually wants to be an engineering consultant.

INDIGENOUS YOUTH

The NWMO's Indigenous Engagement program allows young people to continue to be involved through work with Elders, facilitating dialogues and engagement activities in siting areas, and by participating in projects.

The NWMO has a number of resource agreements in place to support planning and reflection with First Nation and Métis communities and organizations. These agreements support, among other initiatives, community activities involving youth, women and Elders to help plan and advance studies that will help sustain traditional and cultural life and identity.

Several First Nation communities accessed funds from the NWMO's EIES program. The NWMO also sponsored a number of youth-oriented activities. The 2017 initiatives ranged from summer cultural camps, life-skills workshops, bursaries for high school students, computer equipment, and health and wellness workshops. These are outlined in related program sections.

The NWMO also supported in 2017 two regional youth projects aimed at empowering Indigenous youth to realize their potential: Youth Empowerment Initiatives Project, and People Acquiring Life Skills (PALS) Project.

Youth Empowerment Initiatives Project

The NWMO and the Regional Multicultural Youth Council (RMYC) worked together to provide 20 Indigenous young people from several northern Ontario communities the opportunity to attend high school in Thunder Bay and to participate in activities that helped them take ownership of their well-being. The project represents a response to the Truth and Reconciliation Commission's call to action to engage Indigenous youth to enhance their status and make a difference in their lives.

In addition to attending high school, the participants received support and guidance from trained peer leaders, and participated in forums, workshops, field trips and cultural-based learning to support their efforts to adapt to their new surroundings, to transform at-risk behaviours, and to develop life skills to graduate high school and realize their full potential.

As part of the program, the young people also learned about nuclear energy and APM, participated in Learn More Tours, and explored STEM-related careers.

People Acquiring Life Skills Project

The objective of the People Acquiring Life Skills (PALS) Project is to teach life skills to at-risk Indigenous North Shore and Lake Huron youth through learning how to live and travel within their traditional territories. Furthermore, it aims to build an understanding of APM and the deep geological repository and its potential social and economic impacts on the area.

Activities included walking the land with Elders and teachers of plants; wilderness first aid certification; a Trapper course; chainsaw training; driver training and hunter safety training. Young people also toured the Cameco Uranium Refinery in Blind River, the Western Waste Management Site in Bruce County, and attended CLC meetings and open houses in Blind River and Elliott Lake. PALS started in 2015 with the NWMO as a funding contributor, and based on its success in the first year, ran again from August 2016 to November 2017.

Council of Elders & Youth

The Council of Elders and Youth is an advisory body to the NWMO that provides counsel on the application of Indigenous Knowledge in the implementation of APM. The Council plays a crucial role in helping to build and strengthen relations with First Nation and Métis communities in the siting process.

In April 2014, the Elders welcomed seven youth as official members of the Council of Elders. The Elders wanted the young people to learn and to voice their opinions and to participate in ceremonies associated with the meetings. Since that time, the youth members have learned about the NWMO and APM. They have also learned about traditional practices, protocols and processes from the Elders.

In October 2015, the Council created a youth co-chair position that has benefited both the Elders and the youth. The youth worked together to develop their own objectives and they have initiated small group breakout sessions as part of the regular meetings. The youth facilitate these breakout sessions as well as document and report back to the group on the comments and themes emerging from the sessions.



Youth member of the Council of Elders and Youth (centre) at the IAEA meeting in Vienna, Austria

Some of the questions the youth tackled in 2017 include: *How can the NWMO demonstrate a commitment to reconciliation in terms of the Truth and Reconciliation Commission recommendation #92 that outlines calls to action for the corporate sector in Canada; and How do we hold NWMO accountable to incorporate advice received through the Council of Elders and Youth?*

The Elders have commented on how effective the small group breakout sessions have been for the Council as a whole, and also the growth they have seen among the youth members.

The annual Council of Elders and Youth meetings for 2017 were held on:

- March 2 to 4, 2017 in King City, ON
- July 5 to 7, 2017 in Toronto, ON
- November 13 to 15, 2017 in King City, ON

In addition, Council of Elders youth members participated in the following NWMO-related engagement activities.

Date	Meeting Description	Location
February 24, 2017	Council of Elders and Youth Terms of Reference Sub-Committee	Toronto, ON
May 4, 2017	Sagamok Anishnawbek Career Fair	Sagamok First Nation, ON
June 15, 2017	NWMO Transportation Workshop	Toronto, ON
August 16, 2017	Whitefish Bay Elders and Youth Circle	Whitefish Bay First Nation, ON
August 17, 2017	Wabigoon Lake Ojibway Nation Youth Circle	Wabigoon Lake Ojibway Nation, ON
August 17, 2017	Ignace Cultural Awareness Training	Wabigoon Lake Ojibway Nation, ON
December 4 to 8, 2017	International Atomic Energy Agency (IAEA) Technical Meeting on Learning from Experience of Local Involvement in Radioactive Waste Management Programs	Vienna, Austria

EARLY INVESTMENT IN EDUCATION AND SKILLS PROGRAM

The NWMO worked together with the communities to launch the Early Investment in Education and Skills (EIES) program that is intended to support advancement of education and development of skills to equip community members, including youth, to participate in the project should it be sited in their area. These investments are meant to include transferable skills that could be applied to other projects or workplaces.

Over the past year, communities identified a broad range of youth initiatives that aimed to encourage student exploration of science and technology, locally relevant subjects such as agriculture as well arts and culture. Initiatives ranged from summer science and/or cultural camps, learning about and using robotics, youth wellness activities, support for educational field trips, and graduation awards. A total of 47 initiatives were identified and funded as part of this year's program that is expected to continue and grow over the coming years.

Early Investments in Education and Skills

Elliot Lake and Blind River, and area	<ul style="list-style-type: none"> • École Georges Vanier - Elliot Lake, Leadership Camp YMCA John Island (one day) • École secondaire Villa Française des Jeunes – Elliot Lake, awards • École St. Joseph – Blind River, leadership conference • École secondaire catholique Nord - Blind River, awards • École secondaire Villa Française des Junes - Elliot Lake - Leadership Conference • Elliot Lake Secondary School, awards • Elliot Lake Secondary School, leadership conference • Northern Ontario School of Medicine – Blind River, STEM summer camp • Northern Ontario School of Medicine – Elliot Lake, STEM summer camp • Northern Ontario School of Medicine – Spanish, STEM summer camp • Sagamok First Nation, youth teaching elders how to use new computers • St. John's Ambulance – Elliot Lake, First Aid Training for young people being hired by the City Community Services Dept. • Township of Blind River, Smart Service training • W.C. Eaket Secondary School – Blind River, awards
Ignace and area	<ul style="list-style-type: none"> • Ignace School, STEM-related programming • Ignace School, graduation awards • École Immaculée-Conception, STEM-related supplies for school programs

<p>Hornepayne, Manitouwadge, White River, and area</p>	<ul style="list-style-type: none"> • École publique Franco-Manitou - Hornepayne, awards • École Saint Nom de Jésus - Hornepayne, awards • École Saint Nom de Jésus - Hornepayne, robotics • Holy Names of Jesus School - Hornepayne, awards • Holy Names of Jesus School - Hornepayne, robotics • Hornepayne High School Music Program, trip to Toronto • Hornepayne Public Library, robotics • Hornepayne Public School, awards • Hornepayne Public School, robotics • Hornepayne Secondary School, awards • Hornepayne Secondary School, career day • Hornepayne Secondary School, robotics • Manitouwadge High School - Hornepayne, career day • Manitouwadge High School, awards • Manitouwadge Public School, awards • Manitouwadge, robotics • Our Lady of Lourdes School - Hornepayne, awards • White River Library, robotics • White River, Service Excellence workshop
<p>Huron – Kinloss, South Bruce, Central Huron and area</p>	<ul style="list-style-type: none"> • Aamjiwnaang First Nation, bursary • Aamjiwnaang First Nation, adults working with youth Mental Health First Aid training session • Aamjiwnaang First Nation, Road to Freedom two-day workshop on empowerment and wellness • Aamjiwnaang First Nation, two laptops for use in local high schools and Aboriginal Centres • Bruce Botanical Food Gardens, summer student • Bruce Federation of Agriculture, bursary • FE Madill High School, robotics • Four County labour Market Planning Board, Teeswater First Lego League • Kincardine District Secondary School, Bus rental for Skills Ontario competition • Ripley-Huron Community School, robotics • Scientists in Schools, ten additional workshops

Spotlight on Community Initiatives

STEM Programming at Ignace School

Staff at Ignace School took a democratic approach when deciding how to use funds offered through the NWMO's EIES program. The principal formed a staff committee to determine new STEM (science, technology, engineering, and math) programs that would be both educational and engaging for students. After much discussion, the educators generated ideas for programs in Orienteering and GPS; Lego and Robotics; and Drones and Remote Sensing. For further guidance, the adults took the advice of those who would benefit the most: the students.

"We surveyed the children allowing them to pick materials and items out of science and technology magazines," said the principal. Staff then set about creating a Makerspace where students from kindergarten to grade 12 can explore a variety of STEM-related opportunities. The contribution helped support Ignace students to develop their talents, strengths and interests.

Building Robots at Hornepayne Library

The Hornepayne Public Library CEO made great use of the NWMO's EIES program, purchasing Cubelets for the younger children who visited the library. The popular robotic cubes can be snapped together to make robots that can act, sense, or think in unlimited ways depending on how they are configured. The CEO envisioned a drop-in program at the library where young children could play and learn.



Building robots at the Hornepayne Library

"These Cubelets allow children as young as four years' old to be successful. There is no wrong way to build a robot with the Cubelets because they automatically route power and data where needed, this empowers children to want to learn more." This summer, staff set up the Cubelets in the library for the children to use. "It is my hope that we will be able to initiate an interest and a love of robotics at this early age," said the CEO. She plans on introducing lessons to build on the children's learning, once they are comfortable with the Cubelets.

Science Camps in Blind River, Elliot Lake, and Spanish



Science camp goers having fun working together in teams

The NWMO and the Northern Ontario School of Medicine teamed up to sponsor three science camps for children ages seven to ten in Blind River, Elliot Lake, and Spanish. The young campers enjoyed themselves in various outdoor games and they also conducted experiments that included building marshmallow catapults, paper sky scrapers (that had to stand for 30 seconds), a bridge without posts, and rockets out of film canister, water and Alka-Seltzer tablets.

Ontario Skills Competition

Upon the request of the Kincardine District Secondary School (KDSS) staff, the NWMO EIES program provided the necessary funding for the renting of a bus for the students to participate at the annual Skills Ontario Competition in Toronto.

In May, the KDSS students and their teachers attended the full-day event, which drew about 2,300 students from elementary, secondary schools and colleges from across the province to compete in 68 skilled trades and technology contests. In addition to participating in and observing competitions, the students also learned about skills and careers in the manufacturing, transportation, construction, service, technology, and other sectors.

Road to Freedom

In July, Aamjiwnaang First Nation in southwestern Ontario received EIES funding to run a two-day *Road to Freedom* workshop designed to equip teenagers with life skills and techniques to overcome anxiety, while at the same time learning how to make a film.

The workshop, facilitated by two professionals from Winnipeg, introduced the teenagers to how to write a script and how to use a camera; they also discussed opportunities in the film industry and YouTube channels. Over the two days, the group – consisting of 17 young people – created a variety of film clips and a short trailer for a fictitious movie.

"I learned the process of filming and how to act in front of the camera, it was very interesting," said one participant. "The best part of the two-day workshop was – EVERYTHING".



Aamjiwnaang First Nation youth explore "Road to Freedom" through media and film and discussed the careers available in the industry

SPONSORSHIPS AND DONATIONS

The NWMO supports local initiatives in communities involved in the APM site selection process, including First Nation and Métis communities, and communities in the surrounding area. Priority is given to opportunities that support community well-being, including many education and youth initiatives. In 2017, the program had a maximum investment per local initiative of \$2,500, and a project eligibility requirement for significant support and collaboration from other sources in the community. In 2017, the NWMO sponsored over 133 local initiatives.

Sponsorship of Local Initiatives

Youth specific sponsorships represented a wide range of projects in education, health, arts and culture, amateur sports, and community well-being.

Examples of Local Sponsorships and Donations

Elliot Lake, Blind River, and area	<ul style="list-style-type: none">• Best Start Family Literacy, sing-a-long for-literacy movie fundraiser• Blind River Easter Egg Hunt, Grand Prize for age group 7-11• Blind River Figure Skating Club, CanSkate and Power Skating programmes• Blind River Moonlight Madness and Santa Clause Parade, contributed funding• Blind River Winter Carnival Snow Sculpture contest and Kid's Fish Derby, prizes• Camp Thompson Elliot Lake, Snowshoes• École Georges Vanier, White Board & Monitor• École Ste-Anne, iPads• Elliot Lake Easter Egg Hunt, chocolate bunnies• Elliot Lake Kids Soap Box, contributed funding• Elliot Lake Minor Hockey, uniforms• Elliot Lake Roundabout Exceptional Puppeteers, puppet shows• Sagamok Anishnawbek First Nation LNHL, travel• Sagamok Anishnawbek Regional Fish Inventory Management Walleye Classic• Sagamok First Nation, Annual Christmas Gathering• Villa Française des Jeunes High School, Elliot Lake's Got Talent fundraiser
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Hornepayne, Manitouwadge, White River, and area	<ul style="list-style-type: none"> • 60th Annual Fish Derby Caramat, prizes • Canada Day 150 Hornepayne, prizes and fireworks • Chapleau Cree First Nation, Youth Summer Cultural Camp • Hornepayne Public Library, computer desk and chairs • Manitouwadge High School, donation for Book Club Library • St. Basil's Elementary School, playground equipment • The Three Bears Day Care Cooperative, acquisition of electronic child behavior and development monitoring equipment • Township of White River Winnie the Pooh Festival, festival advertising • White River Figure Skating Club, new equipment • White River Public Library, TV and gaming area
Ignace and area	<ul style="list-style-type: none"> • APOW, Wabigoon Community Reunion • APOW, Winter Carnival • Eagle Lake Pow Wow • Ignace Nursery School, day care spot • Ignace Recreation Committee, sports jerseys and new logo • Lac Des Mille Lacs First Nation Family Activity Week • Lac Des Mille Lacs First Nation, 5 days on the land • Lac Seul Youth Conference, Youth Conference • MNO, Métis Heritage Celebration • Village of Wabigoon Village Canada Day, activities • Wabigoon Lake Ojibway Nation Powwow Committee, Aboriginal Day Activities • Wabigoon Lake Ojibway Nation, Culture Group • Wabigoon Lake Ojibway Nation, support for elders tent

<p>Huron – Kinloss, South Bruce, Central Huron and area</p>	<ul style="list-style-type: none"> • Aamjiwnaang First Nation LNHL, travel • Belmore Homecoming Committee, kids activities • Belmore Sting Softball Team, travel expenses • Bluewater Regional Science and Technology Fair, sponsorship and award • Books in the Bruce, literacy program • Chesley Kinsmen Career Fair, sponsorship • Mildmay Rotary Club, infant Swing Set • Municipality of South Bruce & South Bruce Tourism Committee, Adult and Tot Skate Program • Municipality of South Bruce & South Bruce Tourism Committee, donation to Toonie Tuesday Swim • RBR Saddle Club, funding for one show in a four show season • Ripley Huron Community School Parent Council, playground • Ripley Huron Skating Club, Learn to Skate • Ripley Minor Baseball Picnic Shelter, picnic shelter • Ripley-Huron Community Centre, contributed to Family Shiny and Public Skating programs • Sarnia-Lambton Native Friendship Centre, cultural workshops • Saugeen Ojibway Nation, Christmas Gathering and Dance • South Bruce 4-H Beef and Calf Club, 4-H livestock shelter and pavilion • Teeswater Agricultural Society Teeswater Fall Fair, contributed funding • Teeswater Lions Park Revitalization Committee – upgraded playground equipment • Walpole Island First Nation, Potawatomi Gathering
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Spotlight on Local Initiatives

Manitouwadge High School Book Club

In 2016, the Manitouwadge High School librarian technician created a book club to encourage the love of reading among students. The librarian technician applied for a donation from the NWMO that she used to purchase additional titles and other interesting books.



Members of the Manitouwadge book club displaying some of their new books

“Access to books is extremely important to educational development. Book club members love new and exciting books that expand and develop their personal interests,” said the librarian technician.

The intention is that the books chosen by the students will also hook new readers and encourage them to seek out new titles both for academic enrichment and for the simple joy of reading.

Belmore Sting Softball Team Canadian Champs

The Belmore Sting Softball team – consisting of boys from Teeswater, Mildmay, Belmore, and surrounding areas – have been playing softball together for the past seven years. To make the Canadian Softball Championship dream a reality, the team turned to the NWMO for a donation to cover their travel expenses to attend the tournament in Cobourg, Ontario. Over the course of five days, the Belmore Sting beat six teams in the round-robin play, but then lost to the Shallow Lake Red Devils in the first round of play-offs.



Canadian Champs, the Belmore Sting Softball Team (Bruce area)

At this point, three back-to-back wins would be necessary to win gold. After winning their first two games, the Stings again faced the Shallow Lake Red Devils in the gold medal game. The fans were in for a great ball game. The game remained scoreless until the fifth inning when Belmore broke through and took a 4-0 lead which was enough to gain them the 2017 U16 Canadian Bantam Championship.

Chapleau Cree First Nation Youth Summer Cultural Camp

In July, the NWMO contributed to Chapleau Cree First Nation's one-week camp where young people from ages 5 to 17 learned about their Aboriginal culture and heritage. The goal of the camp was to provide youth the opportunity to reconnect with Mother Earth in meaningful and memorable ways.

During the week, campers learned about their culture and participated in different ceremonies, sweat lodges, drumming and singing, Native games, soapstone carving and traditional crafts. The young people were also mentored by respected and knowledgeable Elders who shared, through interactive workshops, information on respect for themselves, Mother Earth, building of personal and fasting bundles, traditional songs, medicine picking, fasting teachings, building of personal fasting lodges and preparation, and respect for their surroundings.

Sponsorship of Youth Science Initiatives

The NWMO sponsored three not-for-profit science organizations in 2017 – SHAD, Scientists in School and Science North – as part of a shared commitment to fostering a culture of science among young people and expanding reach to Indigenous and rural students.

SHAD

Every summer, more than 900 high-school students attend the four-week SHAD program at host universities across Canada. The in-residence program provides a multi-disciplinary program focused on science, technology, engineering, arts & math (STEAM).

Since 2009, the NWMO has funded SHAD to provide bursaries to top science and technology students to participate in the program. From 2010 to 2014, the NWMO contributed \$20,000 per year for bursaries to 85 students. The NWMO signed a new three-year contract with SHAD, beginning in 2015, increasing our annual contribution to \$25,000. In addition to sponsoring the program, this year, the NWMO staff held interactive presentations with more than 500 SHAD students in Saskatchewan, Ontario and New Brunswick about Canada's plan for used nuclear fuel.



NWMO staff member engages with students who are learning about nuclear energy

Feedback

"NWMO has been an engaged SHAD partner for several years, providing funds that help us run excellent, accessible programs, and sharing the talented NWMO team to inspire and challenge our young participants. This July, I enjoyed taking part in NWMO's outstanding workshop at SHAD Lakehead in Thunder Bay. The information shared was impactful and relevant, and opened a lot of minds about the large-scale scientific and engineering planning underway to deal with Canada's spent nuclear fuel."

The SHAD participants were left with a much better understanding of the complex strategies and relationships that come into play. I appreciated the chance to personally experience NWMO's commitment to education the next generation of STEM leaders."

Tim Jackson,
SHAD President and CEO

NWMO PRESENTATIONS AT SHAD 2017

Campus	Number of Students
Carleton	60
Lakehead	65
McMaster	56
New Brunswick	80
Queen's	56
Ryerson	64
Waterloo	54
Western	68

In addition, in November 2017, a representative from SHAD travelled to seven schools to promote the program directly to students in the North of Superior region:

- École Secondaire Saint-Joseph - Wawa, ON
- Chapleau High School - Chapleau, ON
- Hornepayne High School - Hornepayne, ON
- Manitouwadge High School - Manitouwadge, ON
- Marathon High School - Marathon, ON
- École Secondaire Cité-Supérieure - Marathon, ON
- Lake Superior High School - Terrace Bay, ON

Scientists in School

Feedback

"The teacher and grade 4 and 5 students were very thrilled to have the SiS program in their classroom. The SiS teacher was very knowledgeable and had terrific hands-on learning tools and supplies to keep the children engaged throughout the workshop," NWMO staff member, who attended the Don't take Rocks for Granite workshop at Mildmay Public School in March.

"Thank you NWMO for being so supportive and excited about bringing our hands-on STEM program to elementary students in Grey, Bruce, Huron and Perth counties. Your local employees have been a great resource, coming out to workshops and helping to promote us in the community...We couldn't get more kids in these communities excited about STEM without you!"

Cindy Adams,
Executive Director of Scientists
in School.

Founded in 1989, Scientists in School (SiS) is a not-for-profit charity providing science workshops for students in kindergarten to grade 8. The hands-on workshops allow students to interact with ecologists, physicists, biologists and engineers (and many more) in age-appropriate topics ranging from *Magnet Magic for Little Explorers* and *Don't take Rocks for Granite* for younger kids to *Electricity: Get Charged* and *What in the World is Matter* for older kids.

In 2013, the NWMO began sponsoring Scientists in School. That year, 1,000 students within the Bruce and Huron counties took part. Four years later, that number has more than doubled to involve 2,900 students, 107 teachers and 265 parent volunteers in 2017.



Students participating in Scientists in School regional workshop

SCIENTISTS IN SCHOOL WORKSHOPS

Year	Number of related SiS Workshops
2013 - 2014	50
2014 - 2015	65
2015 - 2016	70
2016 - 2017	70

Science North

For the past six years, the NWMO has supported Science North's outreach programs to elementary schools in several northern Ontario communities engaged in the site selection process. This classroom-based program helps schools augment their existing science curriculum through hands-on interactive programs.

This year, students in grades 1 to 3 learned about the importance of pollination within plant communities and bees' roles on our ecosystem. Using basic coding skills, each student got to program a bee-robot to accomplish an important pollinating task and use their ingenuity to navigate a series of challenges. Students in grades 4 and 5 learned how to build and program a robot to perform a series of challenges, and students in grades 6 to 8 explored how an electrical circuit works, and then used that knowledge to design their own game controller.

In the school year 2016-2017, NWMO's sponsorship program enabled Science North to deliver 35 programs days in 11 communities to 5,035 students.

Feedback

"Excellent! Very cool intro to coding and using a great example – and a hot topic right now – bees!"

Esten Park Public School, Elliot Lake.

"Very interactive and hands on. Students were able to make connections to science concepts previously learned in class. Thank you for the opportunity."

St. Mary's Catholic School, Spanish.

"It's very nice to give kids access to technology that we can't necessarily afford as a school. We are grateful that you give access to it."

Ignace Public School, Ignace.

COMMUNITIES AND SCHOOLS PARTICIPATING IN SCIENCE NORTH

Ignace	<ul style="list-style-type: none">• École Immaculée-Conception• Ignace Public School
Hornepayne	<ul style="list-style-type: none">• Holy Name of Jesus School• Hornepayne Public School• Saint Nom de Jésus
Manitouwadge	<ul style="list-style-type: none">• École publique Franco-Manitou• Our Lady of Lourdes Catholic School• Manitouwadge Public School
White River	<ul style="list-style-type: none">• St. Basil's Catholic School
Dryden	<ul style="list-style-type: none">• École Catholique de l'Enfant Jésus• New Prospect School• Open Roads Public School• St. Joseph's School
Blind River	<ul style="list-style-type: none">• Blind River Public School• École Séparée Saint-Joseph• St. Mary's Catholic School

Elliot Lake	<ul style="list-style-type: none"> • Central Avenue Public School • École secondaire Villa Française des Jeunes • École Séparée Georges-Vanier • Esten Park Public School • Our Lady of Fatima Catholic School • Our Lady of Lourdes Catholic School
Spanish	<ul style="list-style-type: none"> • École séparée Sainte-Anne • St. Mary Catholic School
Constance Lake First Nation	<ul style="list-style-type: none"> • Josie Bluff Memorial Christian School • Mamawmatawa Holistic Education Centre
Sagamok Anishnawbek First Nation	<ul style="list-style-type: none"> • Biidaaban Kinoomagegamik School
Wabigoon Lake First Nation	<ul style="list-style-type: none"> • Wabshki Penasi School

YOUTH OUTREACH IN COLLABORATION WITH POST-SECONDARY INSTITUTIONS

The NWMO staff members attended university seminars as guest lecturers to build understanding among students about the NWMO and APM. These presentations allowed the NWMO to raise awareness among students pursuing studies in disciplines directly related to APM (such as engineering, earth sciences, public policy, environmental studies, etc.). At the same time, these activities served to strengthen relationships with relevant university faculties. University presentations and events conducted in 2017 include:

Date	University	Subject
March 1, 2017	McMaster University (graduate nuclear engineering students)	Adaptive Phased Management: Canada's Plan for Long-term Management of Nuclear Used Fuel: The Role of Geosciences
March 1, 2017	McMaster University (undergraduate nuclear engineering students)	Adaptive Phased Management: Canada's Plan for Long-term Management of Nuclear Used Fuel: The Role of Geosciences
May 17, 2017	University of Toronto	Adaptive Phased Management: Phase 2 Geoscientific Preliminary Assessments
July 19, 2017	McMaster University	Overview on NWMO Corrosion Program
August 25, 2017	Lakehead University	Learn More overview and borehole drilling presentation at Ignace Learn More Office
October 16, 2017	McGill University	Radioactive Waste Management in Canada: The Role of Geosciences
October 30, 2017	UOIT	Overview on NWMO Engineered Barrier Systems
November 2, 2017	UOIT	Working in the Nuclear Industry in Canada
November 15, 2017	Western University	Connection between Industry and Academia
December 5, 2017	University of Toronto	The Role of Geoscientists in Evidence-Based Decision Making

The NWMO also regularly seeks opportunities to engage young Canadians through youth chapters of professional associations, conferences, workshops and seminars. For example, the NWMO's 15th Annual Geoscience Seminar, held in June in Toronto, brought together Canadian and international specialists, including researchers from eight Canadian universities and professional associations. Attendees heard from graduate students whose work is being supported by the NWMO.

The NWMO supports research at 16 universities, most of them in Canada. Research partnerships play an important role in ensuring the NWMO's technical work is scientifically rigorous, and in supporting promising graduate and post-graduate students to pursue studies in nuclear waste management.

The NWMO participates in the University Network of Excellence in Nuclear Engineering (UNENE), an alliance of universities, nuclear power utilities, and research and regulatory agencies. UNENE is a not-for-profit corporation aiming to support and develop nuclear education, research and development capacities in Canadian universities.

The NWMO continues to partner with the Natural Sciences and Engineering Research Council of Canada (NSERC), UNENE, and others, to support an Industrial Chair in High Temperature Aqueous Chemistry at the University of Guelph.

The NWMO also continued in 2017 to support four research initiatives at Canadian universities:

- An Industrial Research Chair in Radiolysis-assisted localized stress and crevice corrosion of carbon steel inside a used fuel container at Western University, initiated by the NWMO, together with NSERC and UNENE;
- A Collaborative Research and Development Grant in Degradation Processes of Nuclear Waste Container Materials at Western University, initiated with NWMO, together with NSERC;
- A Collaborative Research and Development Grant in Diffusion of Corrosion Agents through an Engineered Barrier System at York University, initiated with NWMO, together with NSERC; and
- Starting in 2016, a five-year NSERC Collaborative Research and Development Grant that together with the University of Ottawa established a Hydrogeochemistry for Radioactive Waste Management Working Group at the University's Advance Research Complex.

THE NWMO ON SOCIAL MEDIA

Social media has become a primary communication tool for Canadians, with 64 percent having at least one network profile and more than half using multiple platforms.

The largest platform in Canada is Facebook, with 71% identifying it as the most popular social media channel in the country, and 87% of its Canadian users are aged 18-29 (<http://www.ufcw.ca>).

With these trends in mind, in the fall of 2017, the NWMO launched its Facebook page (www.facebook.com/nwmocanada) as a way to responsibly communicate Canada's plan using engaging, factual content. The NWMO has also started posting content on LinkedIn (www.linkedin.com/company/nwmocanada) that tends to reach a professional audience.

Looking forward, the NWMO also plans to establish a presence on Instagram and Twitter, both counting users aged 18-29 as its largest demographic.

APPENDIX A

Local Community Staff Presentations, Open Houses, Learn More Tours & Community Events with NWMO Staff Participation

Date 2017	Ignace	Activity
October 2016- June 2017	Loonie Lunch and Open Gym	Staff participation in response to invitation to provide volunteers as part of the local business community. Staff worked with volunteer community group (Loonie Lunch Ladies) to serve hot lunches to students.
January 26	Ignace Public Library Ignace Best Start Hub École Immaculée-Conception School, Ignace School	Donation of books to the youth of Ignace in support of Literacy Day.
February 20	Ignace Community	Sponsorship and staff participation at Family Skate Day.
March 1-2	Open House Visit at NWMO Learn More Office	School visit to the Learn More Office.
March 19	Gymnastics & Cheer Camp Spring Break	Sponsorship and staff participation
March 23	Ignace School Career Day	Staff participation - response to invitation to attend event
May 10-11	Ignace School	Learn More Tour to the Darlington Nuclear Plant, Darlington Visitor Information Centre, NWMO Oakville Test Facility, and NWMO Toronto office.
May 24	Ignace School Health and Wellness Fair	Staff participation and donation of healthy snacks at school/community event to help students with their social, emotional, physical & educational well-being.
May 30	Ignace School visit to the Ignace Learn More Centre	Primary class visit as part of their learning about community (Social Studies Curriculum) and jobs within their community.

June 7 July 12 August 16 October 11	Ignace Learn More Centre Movie Nights	Held four movie nights with snacks for children and parents.
June 14	Waabshki Penasi School (White Thunder Bird School) WLON	Wabigoon Lake Ojibway Nation School came to the Ignace Learn More Centre as an introduction to the centre as well as building the relationship with Wabigoon.
July-August	Best Start Hub - Ignace	Sponsorship of Summer Fun Program where parents bring their children to the Hub to engage in summer activities such as games, theme days, water activities.
July 24	Science North Planetarium	Staff organized and participated in bringing Science North Outreach portable planetarium to Ignace. Through the portable planetarium experience, visitors learned about the Indigenous worldview, developed an understanding of common constellations, and connected to the Anishinaabe stories that define them.
August 27	Ignace Skate Park Volunteer Committee	Donation to the Committee to purchase the door prize of a new skateboard at the Grand Opening of the skate park.
October 11	DAIRS - Dryden/Ignace Area Impaired Reduction Strategies	Staff helped organize and participated in this real life accident re-enactment.

Date 2017	North of Superior	Activity
February 15	École Saint Nom de Jésus Hornepayne	Class visit to the Learn More Office in Hornepayne.
March 9	Manitouwadge Public School, Our Lady of Lourdes School & École publique Franco-Manitou	Donation of apples for the Great Big Crunch event (part of Nutrition Month).
March 12	Hornepayne Family Fish Derby	Staff participation
May 15	Hornepayne Learn More Tours	Tour of Darlington Interim Waste Storage Facility.
June 19	Manitouwadge, Our Lady of Lourdes School	As part of their trip to Toronto, the students came to the NWMO offices to learn more about the project and potential career opportunities.
June 21	Manitouwadge Public School	Staff presentation via Skype on environmental studies and Frog Watch. Invited to present as part of an enhanced program on the environment/natural sciences.
July	St. Joseph Catholic School, Wawa	Through the encouragement of the NWMO, one student from Wawa was accepted into the SHAD program for July 2017. All high schools in North of Superior were encouraged to apply to SHAD. Students from White River attend high school in Wawa.
November 6 November 7	Hornepayne and Manitouwadge High Schools Career Days	4 NWMO staff plus community representatives discussed the education and skills required for their specific careers.

Date 2017	North of Huron	Activity
April 24	École Georges Vanier Elliot Lake	NWMO Open House Field Studies
April 24	Esten Park Elementary School Elliot Lake	NWMO Open House Field Studies
April 24	St. Anne's Elementary School Spanish ON	NWMO Open House at Spanish Site
June 7	Blind River 696 Golden Wing Squadron	Air Cadets Squadron Annual Ceremonial Review displayed skills learned during annual review for family and invited guests.
June 14	Timber Village Museum Blind River	Staff participation and organization of the Voyageur bingo booth at Voyageur Days. Outreach to local area teachers and update on the NWMO program while volunteering with the booth.
July 6	Timber Village Museum Blind River	Staff participation at Teddy Bear Picnic.

Date 2017	Southwestern Ontario	Activity
January-December	Children attending the Learn More Centre with parents	Throughout the year, several families have stopped into the Learn More Centre in South Bruce and Huron-Kinloss. The youth typically listen to conversations between the NWMO staff and their parents and the older youth sometimes inject with questions and comments.
January-December	Fall Fairs & Community Events	The NWMO booths at large community events often attract the attention of young families. Children often stand alongside their parents when listening and asking questions about APM. Occasionally youth interject in the discussion with their own questions and opinions.
May 10	Teeswater Kinsmen Club	NWMO briefing at the South Bruce Learn More Centre.
May 12	Visit to the Learn More Centre in Huron-Kinloss	Student from Ripley-Huron Community School came to learn about APM and involvement of three levels of government (supporting formal curriculum).
September 19-23	International Plowing Match	Annual agricultural event attracted more than 78,000 people from across Canada, including many schools.

Date 2017	First Nations	Activity
August 2016- August 2017	People Acquiring Life Skills (PALS) Project	Sponsorship of the program to provide at-risk Aboriginal youth with life skills and understanding of APM.
February 2-3	Wabigoon Lake Ojibway Nation	Two-day workshop on Suicide Prevention for youth from WLON, Eagle Lake, Lac de Mille Lac and the Dryden.
April 10	Wabigoon Lake Ojibway Nation	Ceremony held on Revell Site.
June 14	Waabshki Penasi School (White Thunder Bird School) & Wabigoon Lake Ojibway Nation	Wabigoon Lake Ojibway Nation School came to the Ignace Learn More Centre as an introduction to the centre.
July-August	Wabigoon Lake Ojibway Nation	Summer students
July 17-21	Sagamok Anishnawbek	Elders/Youth Indigenous Knowledge and Language Camp.
July 17-21 July 18-22	Sagamok Anishnawbek	Summer Cultural Camps
August 17	Wabigoon Lake Ojibway Nation	Presentation by Brandon Petahtegoose from Elders and Youth Council.
August 21	White Fish Bay	Presentation by Brandon Petahtegoose from Elders and Youth Council.
September 2017- June 2018	Youth Empowerment Initiatives Project	Sponsorship of program to provide at-risk Aboriginal youth with life skills and understanding of APM.
November 8-9	Sagamok First Nation	Tour of Pickering Waste Management Facility at the Pickering Nuclear Generation Station and McMaster Nuclear Reactor.