

DECEMBER 2018



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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. The plan includes a process to identify an informed and willing host, and supportive partnership for the implementation of a deep geological repository, which will contain and isolate Canada's used nuclear fuel, and Centre of Expertise. Ultimately, the project will only proceed with the involvement of municipal, First Nation and Métis communities in an area, working in partnership to implement it. More 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. The communities we work with also place significant importance on youth engagement, on ensuring awareness building and education about the project is widespread, and on opportunities provided by the project to benefit youth, now and in the future. Each year, the NWMO and communities work together to identify and support a range of youth engagement activities.

Youth engagement activities focus on:

- Building youth awareness of the NWMO and APM project in siting area communities;
- Building youth understanding and confidence in the project in siting area communities; and
- Building youth capacity for future decision-making regarding APM in siting area communities, and more broadly.

Through a range of programs, and working with communities, the NWMO works 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;
- 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;

- Provide opportunities for youth in potential siting areas to become involved and informed about APM;
- Work with municipal, First Nation and Métis communities to build capacity among youth populations to participate in implementing Canada's plan; and
- Support training and education programs that could foster the ability of local youth to participate in the APM project through early capacity-building activities that have a broad focus and are intended to include transferable skills that could be applied to other projects or workplaces.

This year, we developed a **Youth Engagement Scorecard** to systematically measure progress towards involving siting area youth in local initiatives, increasing youth awareness and understanding about Canada's plan, and increasing youth capacity for participation in the project. The scorecard includes a selection of indicators that are illustrative of progress towards these goals. 2018 scorecard results are included in the appendix to this report.

This year, we reached over 14,000 young people through a variety of activities, and this report provides an overview of initiatives that were implemented throughout the year. The report is structured around key engagement programs that include:

- The Learn More resource program ensures that communities have the resources they need to participate in the siting process, a portion of which is dedicated to youth participation in the learning process;
- Learn More agreements allocate funds specifically for youth well-being through supporting activities promoting positive mental and physical development, access to career and education support, and awareness of traditional knowledge;
- Indigenous engagement (First Nation and Métis) promotes youth participation to provide guidance to the project through the Council of Elders and Youth, and promotes youth leadership development and well-being;

- Youth outreach supports awareness of education and career pathways related to APM, as well as supports an understanding of the project;
- The Early Investments in Education and Skills (EIES) program supports training, education, and other capacity-building activities for both youth and community members;
- The NWMO sponsorships and donations program supports a variety of youth-related local initiatives and multi-year province-wide programs; and
- Post-secondary institutional outreach and collaborative research fosters career interests and research in disciplines related to the APM project.

Looking ahead, the NWMO will build upon our current youth engagement program by continuing to work collaboratively with Indigenous communities and municipalities to identify meaningful opportunities to support young people to implement activities in their communities, to learn about the project, and to be increasingly involved in the APM project.

>>> LEARNING TOGETHER AND BUILDING RELATIONSHIPS

Municipal and Indigenous communities, and the NWMO continued to work together to involve young people in activities that develop an understanding of the APM project, and that develop skills associated with participation in APM-related committees and/or work.

Across communities, youth are engaged in learning through community liaison committees (CLCs) or community-based groups, Learn More program activities, direct involvement in APM program activities, and employment. Over and above this, Indigenous youth are also involved in the Council of Elders and Youth, as well as community and regional learning initiatives. The latter are described in the next section.

Community liaison committees

The municipal councils of potential host communities have established CLCs to provide advice on and actively assist the community in learning more about the project. The communities of Ignace and South Bruce have included youth representatives on their CLCs in order to involve young people in programs that affect them now and in the future, to facilitate peer-to-peer outreach, as well as to bring a youth perspective to the CLC deliberations. A working group involving youth has been established in Wabigoon Lake Ojibway Nation, reflecting the spirit of collaboration to identify, explore and implement opportunities for youth engagement.

Learn More program activities

The Learn More resource program is designed to deepen understanding and continue community learning about APM, and what implementation of the project would mean to communities, people, and cultural/community practices. It provides funds to communities involved in the site selection process to cover the cost of youth initiatives and learning about Canada's plan.

In this context, youth learning is supported through a variety of activities, including school-based presentations, tours, youth workshops, and community events, as well as through outreach in communities. The program also provides opportunities for youth to participate in, and contribute to, the APM siting process.

Learning through school presentations

In 2018, communities invited the NWMO and other nuclear experts to present to primary, secondary and post-secondary school students. As an example, nuclear energy specialist, Prof. Jason Donev from the University of Calgary was invited to tour schools in the Bruce and North of Superior areas to deliver a presentation explaining nuclear energy and waste management. The NWMO has been invited into the schools to share information about the project and related career pathways in science, geology, and engineering.

Approximately 1,000 students from across the three siting areas engaged in learning and exchange with nuclear and other specialists through school-based activities.



NWMO staff talking to a student about the APM project.

TABLE 1: 2018 SCHOOL ACTIVITIES

Huron-Kinloss and South Bruce

- April 10 Ripley-Huron Community School: NWMO President and CEO and Vice-President of Site Selection visit a class and work with students to program Bee-Bots
- May 3 Mildmay Sacred Heart School: Dr. Jason Donev, University of Calgary, presentation introducing nuclear energy and waste management
- May 8 Teeswater Sacred Heart School: NWMO staff presentation on nuclear power and waste management, two presentations at the Learn More Centre
- May 11 Teeswater Sacred Heart School: NWMO staff presentation on nuclear power and waste management, two presentations at the Learn More Centre
- May 26 Mildmay-Carrick Public School: NWMO staff delivered a Learn More presentation about the APM project
- June 6 NWMO staff delivered a Learn More presentation to university students who supported the Bruce Power summer tours
- June 15 Ripley-Huron Community School, Living Library event: NWMO staff spoke about nuclear waste management and working at the NWMO
- November 5-13 Mildmay Sacred Heart School: Students visited the Bruce Power Visitors Centre, and NWMO staff spoke about nuclear waste management

Hornepayne and Manitouwadge

- May 23 Manitouwadge Public School and École publique: Dr. Jason Donev, University of Calgary, two presentations introducing nuclear energy and waste management
- May 24 Hornepayne Elementary School: Dr. Jason Donev, University of Calgary, two presentations introducing nuclear energy and waste management
- July 1 Manitouwadge students visited the Toronto office to learn about the site selection process, digital communications and careers at the NWMO

Ignace

- March 1 Ignace School: NWMO staff, including the Manager of Site Services, Engineer Officer and the Relationship Manager, discussed career pathways, including geology and engineering with the senior class, and provided greater awareness of APM and other career trajectories
- March 27 Ignace School: Visit by the NWMO President and CEO and Vice-President of Site Selection to elementary and high-school classes
- May 1 Ignace School: Staff visited the senior class to share the draft Partnership Principles and Values to collect feedback
- May 18 Dryden High School, mini powwow organized by Dryden High School: Staff attended, and NWMO booth set up



Kindergarten students at Ripley-Huron Community School show NWMO President and CEO Laurie Swami how to program Bee-Bots.

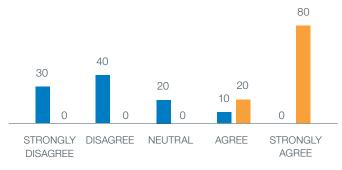
Learning through tours

The NWMO supports delegations of community and youth representatives to visit used fuel interim storage facilities in Ontario. Additionally, tours are organized to the NWMO proof test facility in Oakville, and the McMaster University nuclear reactor, both in Ontario.

Students from Wabigoon Lake Ojibway Nation Waabshki Penasi School, the Manitouwadge Public School, and the Ignace Public School visited the NWMO proof test facility this year. Out-of-province students from Énergie-École de Technologie Supérieure and Université du Québec also toured the Oakville facility. At the proof test facility, students met face-to-face with research scientists and engineers to learn about research and testing for the used nuclear fuel container, emplacement rooms, bentonite clay, and plans for transporting used nuclear fuel safely.

)) I HAVE A GOOD/BETTER UNDERSTANDING OF USED NUCLEAR FUEL MANAGEMENT





Before and after self-assessment of gained understanding from a tour.

Bruce area students were among the visitors to the Ontario Power Generation's Western Waste Management Facility and rock core storage facility, in Kincardine, Ont. There, 10 students toured the facility and learned from specialists on the interim storage of used nuclear fuel. Post-tour survey results indicated that the students found that the tour positively impacted their understanding of used nuclear fuel management.

Learning at community events

Young people were also engaged through staff presentations, open houses and community events. The range of community events held in 2018 is illustrated in the table below.

TABLE 2: 2018 COMMUNITY EVENTS FEATURING NWMO STAFF PARTICIPATION

Ignace

- Ignace Mary Berglund Community Health Centre Hub Teens in Motion, one day per month NWMO staff volunteers so youth can have access to the recreational space to participate in games and activities
- Ignace Township Recreation Department organized LEGO Night, March 15 Held at the Learn More Centre, families came to play and build together. NWMO staff supported event and provided healthy snacks
- Grand Council Treaty #3, March 15 APM presentation to Youth Advisory Group
- Open house, April 18 NWMO Learn More Centre, engaged members of the public, including youth and their families
- Ignace Family Movie Night, May 25 Held at Learn More Centre, NWMO staff volunteered and provided popcorn and beverages
- President and CEO community visit to Wabigoon Lake Ojibway Nation, July 9 Youth presented a model deep geological repository
- Ignace Mary Berglund Community Health Centre Hub/Northwest Health Unit Youth Zone Paint Nite,
 July 18 NWMO staff volunteered for event at the Learn More Centre
- Ignace Open House, July 18 NWMO Learn More Centre, presented project information, and engaged youth and their families
- Ignace Family Movie Night, August 7 Held at Learn More Centre, NWMO staff volunteered and provided popcorn and beverages
- Ignace Nursery School/Ignace EarlyON Centre Annual Scavenger Hunt, August 9 Ignace Learn More Centre used as a location for one of the clues, NWMO attended and provided an NWMO loot bag
- Wabigoon Village Community Barbecue, August 22 The NWMO engaged with members of the public, including youth and their families
- Dryden Fall Fair, August 23-25 The NWMO had a booth and engaged members of the public, including youth and their families
- Ignace School, September 5 Annual Back-to-School Barbecue NWMO staff hosted a youth rock painting activity
- Wabigoon Lake Ojibway Nation, September 20 Waabshki Penasi School students attended a presentation at the Sharing and Learning Gathering event
- Métis Nation of Ontario, Community Information Session/Open House, April 21, May 11, May 12, and September 26 – NWMO staff engaged Métis families, including youth members, and members of the public, including youth and their families
- Grand Council Treaty #3 Learning and Sharing Gathering, October 23-24 NWMO staffed a booth
- Ignace Halloween Safety Fun Day, October 28 The NWMO provided treats and had science activity tables
- Ignace Ontario Provincial Police Christmas Cheer Event, November 15 Toys for Tots activity held at Learn More Centre
- Ignace EarlyON Centre Christmas Annual Playgroup With Santa, December 14 The NWMO provided room to play and treats, and staff volunteered
- NWMO Teens in Motion Christmas Activity, December 18

TABLE 2: 2018 COMMUNITY EVENTS FEATURING NWMO STAFF PARTICIPATION (continued)

North of Superior

- Hornepayne High School, February 13 NWMO staff visited school and introduced to robotics activities
- Hornepayne Open House at Community Legion, March 5-6 School children and teachers visited NWMO open house events and were guided through displays by NWMO staff
- Manitouwadge Open House Community Centre, March 7-8 School children and teachers visited NWMO open house events and were guided through the open house display by NWMO staff
- Hornepayne 90th Anniversary Celebrations, August 12 NWMO staffed volunteered at youth activities area

Southwestern Ontario

- Huron-Kinloss Open House, April 3 The NWMO presented project information and engaged members of the public, including youth and their families
- South Bruce Open House, April 5 The NWMO presented project information and engaged with members of the public and families
- Ripley-Huron Community School kindergarten, May 10 NWMO CEO and Vice-President of Site Selection visited the classroom to see how children learned the first stages of early computing and programming through Bee-Bots educational materials
- Transforming Teeswater event, June 2 The NWMO participated in downtown business event, and engaged members of the public, including youth and their families
- Lucknow Strawberry Festival, June 23 The NWMO staffed a booth, and members of the public, including young families, visited
- Teeswater Fall Fair, August 25 The NWMO staffed a booth and engaged members of the public, including youth and their families
- Mildmay Fall Fair, September 8 The NWMO staffed a booth and engaged members of the public, including youth and their families
- Lucknow Fall Fair, September 15 The NWMO staffed a booth and engaged members of the public, including youth and their families
- Ripley-Huron Fall Fair, September 29 The NWMO staffed a booth and engaged members of the public, including youth and their families
- PD Day skates at the Teeswater and Mildmay Arenas, November 23 The NWMO sponsored activity and staffed an information booth



Youth painting northern landscapes during "Paint Nite" at the Learn More Centre in Ignace.

Youth participation in developing guiding values and principles

Interested communities engaged community members in preparing a set of values and principles to be used to guide future conversations with the NWMO on partnership. Through workshops, working groups, focus groups, and one-on-one conversations, a range of citizens participated in shaping a set of values and principles distinct to their community. Youth engaged in these discussions. For example, the Ignace Community Nuclear Liaison Committee included a youth representative in the working group that prepared a draft set of values and principles. Ignace also shared a draft with elementary school students to receive their feedback.

Youth employment

In 2018, the Township of Ignace hired a high-school and a university student to work at the Ignace Community Learn More Centre, where they planned and implemented community engagement activities. Wabigoon Lake Ojibway Nation Band Office and Business Centre hired a high-school and a university summer student to support administrative functions and to organize youth activities in the community. A former Ignace summer geology student has since taken up a permanent position with the NWMO as an Assistant Engineer/Scientist/Officer for the geoscience team, and works out of the Ignace office.

In addition, the NWMO hired four summer students at our head office in Toronto. A Western University law student joined the NWMO legal team on a pre-articling assignment. Three undergraduate science and engineering students from the University of Toronto and Queen's University joined the Engineered-Barrier Science and Repository Engineering teams, where they focused on:

-)) Bibliometric analysis of research publications to establish a database of NWMO-supported scientific literature;
-) Support for the implementation of an Enterprise Resource Planning system; and
- >>> Technical analyses related to the APM repository engineering and proof testing.

The NWMO's Toronto office also hired a student from the Community Integration Through Cooperative Education program at Humber College. The program places students with various disabilities to provide hands-on work experience in the community. The Stakeholder Relations team also took on a fourth-year Wilfrid Laurier University business student for a co-op term to focus on developing public engagement materials and revamping tours at the Oakville proof test facility.



NWMO summer student preparing youth activity in Ignace.

NWMO summer student testimonials

"I found the aspect of Indigenous Knowledge integration in the work of the NWMO very fascinating and enlightening to the way I viewed my work. I believe some of the knowledge I gained through this aspect of the program is something I can continuously apply going forward."

University of Toronto student, Jiyu Nam, Engineered-Barrier Science team "I never thought I'd have the opportunity to work with Aboriginal law, and I got the opportunity to do that with the NWMO, which was very interesting and not common. Additionally, I enjoyed being able to put into practice what I learned during my first year of law school.

Western University student, Jessica Fung, Law Clerk, pre-articling "I specifically enjoyed the opportunity to work across various engineering disciplines and alongside so many talented engineers. People were always willing to teach, share advice and help with projects. The summer ultimately provided me with a great learning experience that will help guide me along my future path."

Queen's University student, Kristen Dmytryshyn, Repository Engineering team

>>> INDIGENOUS YOUTH ENGAGEMENT

Indigenous youth engagement is an important objective for the NWMO and APM. The NWMO has involved Indigenous youth through work with Elders, and facilitated dialogue and engagement activities in and around the siting areas.

Council of Elders and Youth

Indigenous youth are involved directly in dialogue and planning with the NWMO through participation in the NWMO Council of Elders and Youth (Council). The Council is an advisory body that provides counsel on the application of Indigenous Knowledge in the implementation of APM, and more recently, on the NWMO's approach to reconciliation. 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 Council welcomed seven youth as official members to encourage young people to learn, voice their opinions in the context of the project, and participate in ceremonies associated with the meetings. In October 2015, the Council also created a youth co-chair position. Four youth members completed their term in April 2018, and a traditional blanket ceremony was held to honour their contributions and bid farewell. The Council will recruit four new youth members going forward. In 2018, Council meetings were held on:

- >> April 17-30, 2018, in King City, Ont.
-) July 16-18, 2018, in King City, Ont.
- >> October 17-19, 2018, in Toronto, Ont.

Throughout 2018, the Council and the NWMO prepared an NWMO Reconciliation Statement to acknowledge historical wrongs in Canada's past. Youth members contributed to the development of this statement, requesting language that is inclusive of both Indigenous and non-Indigenous peoples working together on reconciliation. The statement was finalized through an Indigenous ceremony held in July 2018, and was attended by members of the NWMO's Board of Directors, Council, and senior leadership. At the ceremony, youth members distributed tobacco to all participants, served as fire keepers, and performed the food offering. Following the ceremony, youth members, the Elders and senior NWMO leaders participated in a sharing circle and explored several ideas, including: What actions should the NWMO undertake to show it is serious about reconciliation? What do you think reconciliation will look like at the NWMO 10 years from now?



Youth member of the Council making an offering as part of the Reconciliation Statement ceremony.

Learn More agreements

Learn More resource agreements are designed to provide resources to assist communities and organizations that are participating in preliminary assessment studies to support their efforts to explore the project. These agreements support, among other initiatives, community activities involving youth, women and Elders to help plan and advance studies that will help sustain traditional life and ceremony, as well as promote community well-being. Often community-led work is focused on Indigenous Knowledge and the positive contributions this knowledge has on the community, and the APM project.

In 2018, youth initiatives promoted mental and physical well-being, culture, education and careers, traditional knowledge exchange, and information about APM. Youth from Wabigoon Lake Ojibway Nation, Eagle Lake First Nation and Wabauskang First Nation participated in the "Taking Care of Yourself" workshop for a week in February. There, young people listened to guidance on issues such as suicide prevention, bullying, grief, loss, and lateral violence.

This past summer, Missanabie Cree First Nation held youth activities as part of an overall annual general meeting and invited NWMO staff to talk to a small group of youth. Also this past summer, Grand Council Treaty #3 held the Dotigaanabiwin (Planning for the Future) Youth Summit, which included three days of workshops and presentations on topics that support youth planning for the future. Information presented included money management, self-defence, mental health, Ontario Student Assistance Program for schooling, forestry, and justice. Youth from eight communities attended. The NWMO staffed a booth at the event and discussed the APM project with participants.

The NWMO is also actively engaging with Indigenous youth in provinces currently storing used nuclear fuel. The 9th annual New Brunswick Indian Summer Games held in August at the Esgenoopetitj First Nation is an example of these engagement efforts. As part of the New Brunswick Indian Summer Games' Athletes Village, NWMO staff set up a booth to engage parents and children to bring awareness of the APM project, the safe containment and isolation of used nuclear fuel, and the transportation of used nuclear fuel. Following the games, Mawiw Council Inc. staff commented, "It meant a lot to see the NWMO so proactive in engagement of a community on the east coast. The kids loved it, and I heard really great feedback."

>>> EARLY INVESTMENTS IN EDUCATION AND SKILLS PROGRAM

The NWMO worked together with communities to advance youth initiatives in the context of the EIES program, now in its second year. The EIES program supports education and skills development associated with career development. Funded initiatives provide young people with transferable skills that can be applied to various projects or workplaces, and as well, set young people up for success should the project be sited in the area. The EIES program funding is available for both core siting area communities and regional neighbours.

Communities built on the success of previous year's programming in science, technology, engineering, and mathematics (STEM), and robotics. They also introduced new initiatives, including a handful that focused on job readiness. A total of 60 initiatives were supported, and of these, 24 had STEM and robotics content. Taken together, these activities contribute to the development of skills needed by young people now and in the future.

Promoting science, technology, engineering, and mathematics education

Several elementary and secondary schools purchased robotics coding kits and supplies. For example, the F. E. Madill Secondary School in Wingham provided Grades 7 and 8 students with EV3 robotics kits. These third generation LEGO robotics kits give students capability to build, program and command LEGO robots. The robots can perform specific manoeuvres and tasks, including driving, walking and spinning. In another example, the Ripley-Huron Community School provided kindergarten children with Bee-Bots (robots) that teach children the first stages of early computing and programming.

Building on the successful robotics program in 2017, the Manitouwadge Public High School extended a shared learning experience to other schools in Manitouwadge and Hornepayne through a Robotics Learning Fair. As a regional initiative, the fair brought together 125 students from eight schools that showcased the robots they had built throughout the school year. The event facilitated peer-to-peer learning and community building. Robotics increasingly play an important role in resource-based industries, and are anticipated to play a role in the operation of a deep geological repository.

Communities supported summer science programs and events. For example, Ignace invited Science North to run a weeklong science summer camp for the first time. The program featured hands-on activities and games, which enabled children to discover the world around them. The program was delivered by highly trained and inspiring educators.

Fostering job readiness

Some communities dedicated EIES program funding to job readiness initiatives. The Ignace Community Nuclear Liaison Committee supported a number of initiatives that addressed local barriers to job readiness. These included the 12-week Essential Skills program for youth and adults that provided training on basic computer and job preparation skills, and safe food handling training courses that provided food service operators with qualifications to meet new regulations. In addition, the Ignace School supported the participation of female students to attend the Skills Ontario Career Exploration Event in Thunder Bay. In Aamjiwnaang, science, mathematics and trades awards were given to high-school students to recognize achievements and to encourage continued educational pursuits. An illustrative list of the EIES program youth initiatives is found in Table 3 below.

TABLE 3: 2018 EARLY INVESTMENTS IN EDUCATION AND SKILLS - YOUTH

Ignace and area

- Ignace 12-week Essential Skills course Out-of-school young people and adults attended classes
 to upgrade their skills for job readiness and life literacy; classes took place from January to March
- Ignace École Immaculée-Conception STEM materials for elementary school students indoor and outdoor garden
- Ignace safe food handling course Young people under 30 years old participated in program held at the Learn More Centre
- Ignace School STEM materials for elementary and secondary school classes in technology and computer sciences, and additional LEGO, robotics and coding resources
- Ignace School Students received graduation awards
- Ignace Science North Elementary school students participated in a weeklong summer camp in July for hands-on learning using microscopes, digital cameras, and nets for collecting insects
- Ignace Skills Ontario Young women's initiative for Ignace high-school students
- Wabigoon Lake Ojibway Nation First Aid Training Participants attended two days of training

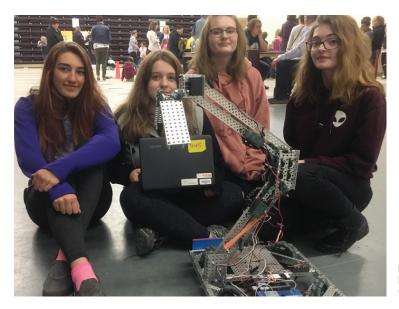


Ignace children in science camp.

TABLE 3: 2018 EARLY INVESTMENTS IN EDUCATION AND SKILLS – YOUTH (continued)

Hornepayne, Manitouwadge and area

- Hornepayne High School Educational music trip to Sault Ste. Marie
- Hornepayne High School Funding for transportation of students from Hornepayne to participate in Manitouwadge Robotic Tech Day in May for students from eight Hornepayne and Manitouwadge schools
- Hornepayne Holy Name of Jesus Catholic School Art Club supplies
- Hornepayne Holy Name of Jesus Catholic School Class trip to Science North, Sudbury
- Hornepayne Holy Name of Jesus Catholic School Purchase of robotics kits
- Hornepayne Holy Name of Jesus Catholic School Science books and supplies for students
- Hornepayne Holy Name of Jesus Elementary School Science program supplies
- Manitouwadge High School Several graduating high-school students planning to attend a post secondary institution received small grants
- Manitouwadge Public School Students participated in an educational trip to Toronto in July
- Manitouwadge Public School/École publique Manitouwadge and Our Lady of Lourdes Provided apples for elementary school students to participate in "The Big Crunch" cross-country activity, supported increased understanding of where food comes from and healthy diets
- Red Sky Métis Independent Nation Students attended the 38th Annual Canadian Nuclear Society Conference/42nd Canadian Nuclear Society/Canadian Nuclear Association Student Conference in Saskatoon



Hornepayne and Manitouwadge students at the Robotics Learning Fair.

TABLE 3: 2018 EARLY INVESTMENTS IN EDUCATION AND SKILLS - YOUTH (continued)

Huron-Kinloss, South Bruce and area

- Aamjiwnaang First Nation Education Department Grade 10 science awards were provided to students
- Aamjiwnaang First Nation Education Department Grade 11 mathematics and trade awards were provided to students
- Aamjiwnaang First Nation Environment Department Funding for youth to work in on-reserve greenhouse, and learn Ojibway traditional names and oral traditions for plants that are found in and around the Aamjiwnaang Territory
- Bruce County Federation of Agriculture Support to increase number of student bursaries awarded
- Bruce County Public Library Purchase of Sphero SPKT kits to teach kids the basics of robotics and coding
- Discovery Western Science Camp Weeklong summer science camp for elementary school kids
- F. E. Madill Secondary School FIRST Robotics Team, Wingham Entry fee for robotics competitions
- Huron Community School Funding for Ripley FIRST LEGO Robotics Team
- Huron Heights Public School Makerspaces for students to teach the basics of coding and engineering items
- Huron-Kinloss Continuing Education Enrolment in Business Administration courses at Yorkville University
- Huron-Kinloss Continuing Education Enrolment of one person in Fanshawe College Project Specialist Program
- Kinetic Knights Kincardine Robotics Team 781 Supported costs associated with league registration and equipment
- Mildmay Sacred Heart School Materials for the makerspace/"tech time" project in the school's library to help students learn about coding
- Ripley-Huron Community School Purchase of Sphero Ball Kit
- St. Anthony's School, Kincardine Purchase of micro:bit coding kit
- Teeswater Girl Guides Youth participated in an Astronomy in Action workshop
- Teeswater Sacred Heart School Purchase of robotic and coding kits, mini electrical kits, motors, and other tools
- Walkerton Sacred Heart High School Students work with community environmental stewardship
 initiatives and then mentor elementary school students about ecosystems, plant and animal
 identification, invasive species, etc.

>>> SPONSORSHIPS AND DONATIONS PROGRAM

The NWMO sponsorships and donations program distinguishes between two streams of support: that which is responsive to local initiatives that promote community well-being, including many education and youth initiatives; and that which provides year-over-year funding for broader long-standing science and education programs.

In 2018, the NWMO supported 110 community-based initiatives, of which 77 were youth related across the three siting areas inclusive of both municipal and Indigenous communities. These important initiatives are responsive to locally driven small-scale projects valuable to rural and remote communities.

We also supported a number of year-over-year science and technology programs, including:

- Science North, which delivered programs in 12 northern Ontario communities, reaching 3,729 elementary students;
- SHAD, where the NWMO delivered presentations at 11 universities, reaching over 650 high-school students;
- Scientists in School (SiS), which delivered 80 workshops to 2,160 students in southwestern Ontario.

These year-over-year initiatives enhance access to science and technology education, in particular for rural, remote and Indigenous communities.

Lacrosse Day at Great Lakes Secondary School

In May, approximately 140 students from the Great Lakes Secondary School participated in a day of lacrosse activities. In addition to a healthy workout, the day included traditional knowledge about the original game of stickball, teachings about life skills, and sharing by a professional National Lacrosse League player. The player provided advice on life goals, shared personal experiences, and demonstrated lacrosse pointers. The incorporation of Indigenous Knowledge in school curriculum provides for learning and exchange between non-Indigenous and Indigenous students, and deepens an understanding of Indigenous culture and history.



Students celebrated Indigenous culture at the inaugural lacrosse exhibition.

Sponsorship of local and regional initiatives

Communities accessed sponsorship funding for a variety of local initiatives, including sports, culture, education, community events, early childhood education, community well-being, youth development, cultural awareness, and skill building.

In 2018, a number of sponsorships went to early **childhood** education and development initiatives. The volunteer-led *Blessings in a Backpack* program organized through the Ignace Emmanuel Anglican/United Church provided non-perishable food for students throughout the school year. *Books in the Bruce*, a non-profit monthly literacy program, hosted 20 families at a time, providing access to healthy snacks and refreshments, and offered a variety of singalong and reading activities, along with books for families to take home.

Other sponsorships concentrated on **broader wellness and youth development** initiatives. The Eagle Lake Family Wellness Camp brought together families over several days of activities and sharing meals. Wabigoon Lake Ojibway Nation and Eagle Lake First Nation supported a number of youth to participate in the Ministry of Natural Resources and Forestry (MNRF) Stewardship Youth Ranger Program.

Indigenous communities also promoted sponsorships that **focused on cultural awareness and skills building** to nurture future community leaders. In July and August 2018, 12 Sarnia Lambton area youth participated in the YMCA's Project North program, which fosters personal leadership capability, communication skills, and community responsibility.

In June, the 12th Annual Métis Heritage Celebration (MHC) took place at Memorial Park in downtown Oshawa. The two-day Métis event has been a traditional part of the City of Oshawa's culture event, known as Fiesta Week. The MHC engages every age group and enables everyone to have hands-on learning of Métis culture, music and way of life. Métis youth singers and dancers came to the city to perform for approximately 200 families that attended the event.

An illustrative list of youth activities supported through the sponsorships and donations program is found in Table 4.



Sarnia youth reaching new heights in leadership program.

TABLE 4: 2018 LOCAL AND REGIONAL SPONSORSHIPS - YOUTH

Hornepayne, Manitouwadge and area

- Chapleau Cree First Nation Annual general meeting with youth activities
- Constance Lake Education Authority Constance Lake First Nation High School educational trip to Toronto
- Hornepayne 90th Anniversary Celebrations Children's play area
- Hornepayne and Manitouwadge Canada Day Celebrations
- Hornepayne and Manitouwadge Curling Clubs Funding supports youth access, including "Little Rockers"
- Hornepayne Minor Hockey New equipment
- Hornepayne Santa Clause Christmas Party
- Hornepayne, Best Hub Start Gym equipment
- Manitouwadge Handi-Action Christmas Hampers for families
- Manitouwadge Family Health Team, Colour Dash Run Sponsorship
- Manitouwadge Fitness Centre New equipment
- Manitouwadge High School Frosty Days Sponsored cardboard box race for kids
- Manitouwadge, Our Lady of Lourdes elementary school Hand drums for social studies class
- Manitouwadge, Our Lady of Lourdes elementary school Sports team uniforms
- Township of Manitouwadge Volunteer appreciation event sponsor

Ignace and area

- Aboriginal People of Wabigoon Annual carnival with arts and crafts, swimming
- Aboriginal People of Wabigoon Christmas gathering
- Dryden Dudley Hewitt Cup Regional Canadian National Junior A Hockey Championships
- Dryden Walleye Masters Fishing tournament
- Eagle Lake First Nation Family Wellness Camp
- Eagle Lake Annual Traditional Gathering Wabigoon Village, Canada Day fireworks
- Ignace Annual White Otter Days Festival Parade, fireworks, games, family barbecue, pancake breakfast, and hockey tournament
- Ignace Emmanuel Anglican/United Church Blessings in a Backpack program non-perishable food for children in need
- Ignace Mary Berglund Community Health Centre Hub Baby Box Program supplies for infants
- Ignace Mary Berglund Community Health Centre Hub Teens in Motion
- Ignace Nursery School/EarlyON Centre for children and families Well-being activities
- Lac des Milles Lacs First Nation Christmas event
- · Lac Seul First Nation Annual career fair
- Northwestern Ontario Secondary Schools Athletic Association Medals
- Seine River First Nation Christmas hampers
- Wabigoon Lake Ojibway Nation and Eagle Lake First Nation MNRF Ranger Program
- Wabigoon Lake Ojibway Nation Powwow
- Wabigoon Lake Ojibway Nation Security for fitness centre

TABLE 4: 2018 LOCAL AND REGIONAL SPONSORSHIPS – YOUTH (continued)

Huron-Kinloss, South Bruce and area

- Aamjiwnaang First Nation Pee Wee Hockey team
- Aamjiwnaang Social Services Every Child Program
- Belmore Sting Midget Softball Team Sponsor
- Belmore Maple Syrup Festival
- Bluewater District Regional Science and Technology Junior Fair Sponsor and NWMO staff were judges at the event
- Bluewater District Regional Science and Technology Senior Fair Sponsor and NWMO staff judged the event
- Books in the Bruce Access to reading
- Bruce County Farm Safety Progressive Agricultural Children's Safety Day
- Chelsey Kinsmen Annual Agricultural Fair youth job and information fair
- Clinton Minor Ball 6th annual baseball camp
- Goderich Hometown Heroes Hockey fundraiser Sponsor
- Great Lakes Secondary School Powwow
- Grey Bruce Highlanders Pee Wee hockey ice rental
- Kincardine Minor Ball Sponsor for 3rd annual baseball camp
- Mildmay Hanging of the Green
- Ripley Wolves Senior A Hockey Club Sponsorship
- Ripley-Huron Community Centre Family skate program
- Ripley-Huron Community School New playground equipment
- Sarnia F. E. McGibbon Public School Maker Night, learning Anishinabe culture through art
- Sarnia, Great Lakes Secondary School Lacrosse exhibition and traditional knowledge/life skills day
- Sarnia, YMCA Project North Youth Leadership program
- South Bruce and Huron Bruce Minor Hockey Associations
- South Bruce RBR (Rather Be Riding) Saddle Club Youth horseback riding club
- South Bruce Teeswater adults and tots skate
- Teeswater Agricultural Society sponsorship Interactive children's exhibit at the Teeswater Fall Fair
- Teeswater Kinsmen Family Fishing Derby

Indigenous organizations

Oshawa and Durham Region Métis Council – 12th Annual MHC





Left: Frosty Days participants having fun in Manitouwadge.

Right: Senior Environmental Scientist at the NWMO engages with the students of Constance Lake First Nation.

Sponsorship of youth science initiatives

The NWMO continued to fund year-over-year science and technology educational programs spanning early stages of learning through to secondary school education. These programs foster student exploration of, and curiosity and passion for, science, environment, and technology, and promote strong foundations for learning, as well as career paths in related disciplines.

SHAD

Each year, SHAD hosts a four-week summer program at universities across Canada. In 2018, over 900 high-school students from across Canada participated in SHAD's multidisciplinary program that highlighted science, technology, engineering, the arts, and mathematics. Of these, 650 students learned about the APM project through interactive presentations with NWMO staff. Staff invited students to learn about topics such as radiation and used nuclear fuel management. They shared information on how scientists are modelling and assessing safety through natural and engineered barriers. They offered perspectives on careers and education paths that support a project such as APM, and engendered lively interactive discussion.

TABLE 5: 2018 SHAD NWMO PRESENTATIONS			
Campus	Number of students		
Carlton University	60		
Lakehead University	65		
McGill University	64		
McMaster University	56		
Mount Allison University	48		
Queen's University	56		
Ryerson University	72		
University of New Brunswick	80		
University of Prince Edward Island	48		
University of Waterloo	54		
Western University	76		

Feedback

"I think we really need to plan for the future and make sure it [nuclear waste] is safe and sustainable. The NWMO is solving a major problem and helping society. I thought it was interesting to hear about plans that will protect used nuclear fuel from natural disasters. It's all science."

Mississauga Grade 12 student and SHAD participant

In 2018, the NWMO supported the program with an annual contribution of \$35,000. SHAD representatives delivered presentations in northern communities in the fall to raise awareness of the program and the bursaries available.

Scientists in School

The NWMO supported 70 SiS in-class workshops through our annual sponsorship, and the South Bruce Community Liaison Committee supported an additional 10 SiS in-class workshops. Combined, these reached over 2,000 kindergarten to Grade 8 Huron Bruce area students. SiS provides hands-on science-based workshops that make learning fun. In these, students interact with ecologists, physicists, biologists, and engineers (and many more) in age-appropriate topics. SiS supports existing science content in schools, and nurtures interests and skills that prepares students for future school and career choices.

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TABLE 6: SCIENTISTS	IN SCHOOL	WORKSHOPS	BY SCHOOL	YEAR

Year	Number of SiS workshops
2013-14	50
2014-15	65
2015-16	70
2016-17	70
2017-18	80

Student feedback

"Thank you for giving us the opportunities to learn science in a different way. I had fun doing all the experiments and learning more science. It was fun, Anne is a great person to work with, and she is a kind woman. I hope you can come back to our school so we can learn more science. It was a great learning experience. I also learned more than I knew before. Thank you for everything you have done for us."

Katisha, Grade 6/7 student

"Thank you for the free workshop class. We all had lots of fun, and it was a great learning experience. Scientist Anne was great, and I hope to see her again. I really liked the putt-putt boat because it was very cool. She really helped us understand science better, and hope we get to see her again in my future."

Adam, Grade 6/7 student

"Thank you for coming to our class yesterday. I had so much fun. My favourite experiment was the boat because it was really interesting. I had a lot of fun doing all the experiments; another one I really liked is the hot and cold water – it was so cool how when the cold water on top made it go purple. And it was really cool when the hot was on top because it didn't mix. I really hope you can come back to our class again!"

Ashlin, Grade 6/7 student

Science North

The NWMO has supported Science North for seven years. The classroom-based program brings hands-on learning to northern Ontario schools, and it is delivered in association with the Ontario Science and Technology curriculum. Science North's staff organize games and activities that encourage young learner's interest in science and the exploration of the world around them. This year, Science North reached 3,729 students across 12 Ontario communities, including siting area communities – Hornepayne, Manitouwadge, Ignace, and Wabigoon Lake Ojibway Nation.

TABLE 7: COMMUNITIES AND SCHOOLS REACHED				
Blind River	Blind River Public School École séparée Saint-Joseph St. Mary's Catholic School			
Constance Lake First Nation	Josie Bluff Memorial Christian School Mamawmatawa Holistic Learning Centre			
Dryden	École catholique de l'Enfant Jésus Open Roads Public School St. Joseph's School			
Elliot Lake	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 School			
Hornepayne	Holy Name of Jesus School Hornepayne Public School École Saint Nom de Jésus			
Ignace	École Immaculée-Conception Ignace Public School			
Manitouwadge	École publique Franco-Manitou Manitouwadge Public School Our Lady of Lourdes School			
Sagamok Anishnawbek First Nation	Sagamok Anishnawbek Biidaaban School			
Spanish	École séparée Sainte-Anne St. Mary Catholic School			
Upsala	Upsala Public School			
Wabigoon Lake Ojibway Nation	Wabshki Penasi School			
White River	St. Basil School			



Science North instructor provides demonstration to students.

Teacher feedback

"Great that you will travel to us in outlying areas to foster science enthusiasm in our students. We appreciate it!"

Open Roads Public School, Dryden

"It kept the kids entertained and on task. Definitely a wonderful program. Tied into the curriculum perfectly!"

Ignace Public School, Ignace

"Students love to learn by trying things out. This program does just that – handling objects in experiments. I am so impressed with the knowledge and interaction that kids get through this program. Thank you for coming to this school!"

St. Mary's Catholic School, Spanish

>>> YOUTH OUTREACH IN COLLABORATION WITH POST-SECONDARY INSTITUTIONS

The NWMO works with university and international partners to advance research and practice in related technical disciplines such as engineering, geoscience and safety assessment. Research initiatives supported through university-based partnerships harness the best of Canadian academic expertise, together with NWMO professionals, in testing and modelling key safety features such as the engineered- and natural-barrier systems associated with the repository. Research initiatives further support graduate and postgraduate students to pursue studies in nuclear waste management fields. The NWMO also participates in the University Network of Excellence in Nuclear Engineering (UNENE). UNENE is an alliance of universities, nuclear power utilities, and research and regulatory agencies with a mandate to support and develop nuclear education, and research and development capacities in Canadian universities.

In 2018, the NWMO supported work at 15 universities, involving 23 Canadian research groups. Ongoing research programs in 2018 included (partial list):

- An Industrial Research Chair in Radiolysis-assisted corrosion of carbon steel inside a used fuel container at Western University, with Natural Sciences and Engineering Research Council of Canada (NSERC) and UNENE;
- An Industrial Chair in High Temperature Aqueous Chemistry at the University of Guelph, with NSERC, UNENE and others;
- A Collaborative Research and Development (CRD) Grant in Degradation Processes of Nuclear Waste Container Materials at Western University, with NSERC;
- A CRD Grant in Diffusion of Corrosion Agents through an Engineered-Barrier System at York University, with NSERC:
- A CRD Grant in Discrete Fracture Network Modelling at Laurentian University, with NSERC;
- A CRD Grant in Geomechanics at McGill University, with NSERC; and
- A CRD Grant in Hydrogeochemistry for Radioactive Waste Management at the University of Ottawa, with NSERC.

In 2018, the Ontario Research Fund awarded a \$4-million research excellence grant to a university-NWMO team to further study the long-term stability of used fuel containers for deep underground applications. Over the next five years, the NWMO will collaborate as the industrial partner with four Ontario universities: Western University, University of Toronto, University of Waterloo, and York University. The grant supports a Youth Outreach Plan that encourages participation by academic partners in NWMO youth outreach activities. It also supports communication and data exchanges between research groups, and provides training for science students in PhD, M.Sc., undergraduate, and co-op programs.

TABLE 8: UNIVERSI	TY PRESENTATIONS AND EVE	NTS CONDUCTED IN 2018
Date	University	Subject
February 6	University of Toronto Scarborough	Canada's plan for long-term management of used nuclear fuel
February 16	McMaster University	NWMO/APM overview
February 22	University of Ontario Institute of Technology, University of Toronto, University of Waterloo, Western University	Hosted visit of professors and students to NWMO proof test facility
August 22	Lakehead University	Overview of NWMO/APM and an update on drilling in Ignace
October 2	University of Ontario Institute of Technology	NWMO/APM overview
October 26	McMaster University	Technical challenges and progress in long-term management of Canada's used nuclear fuel
November 8	McGill University	Geoscientific research to support Canada's plan for management of used nuclear fuel
November 19	Western University	Understanding the connection between academia and industry (four presentations)
November 20	Western University	Science and philosophy of nuclear waste



Learn More resource program – Lakehead University students

In August, 10 students from Lakehead University's 4th year geology program visited the Ignace Learn More Centre for a presentation by the NWMO's Section Manager, Geoscientific Site Evaluations. Students learned about borehole drilling activities, rock composition, fractures, hydraulic testing, acoustics, and geotechnical studies. The students were able to touch and examine the core samples. Students expressed interest in learning more about project economics, APM careers, and geotechnical studies related to their field of study.

Students visiting Ignace Learn More Centre take a look at core samples.

>>> THE NWMO ON SOCIAL MEDIA

The NWMO has for a full year posted content on two major social media channels – Facebook and LinkedIn – and in the summer of 2018, launched our Instagram account.

The Facebook page (@nwmocanada) has seen some success in reach and engagement as it steadily grows. Some of the best performing content on Facebook was community and youth oriented, such as a video about a students' robotics fair featuring both Manitouwadge and Hornepayne communities, and another video about an early reading program in Bruce County called *Books in the Bruce*.

On LinkedIn (/company/nwmocanada), the NWMO posts employee features such as a video series called NWMO profiles, which often attracts younger professionals curious about the organization's work.

After launching Instagram (@nwmocanada), the NWMO saw our following grow steadily and raise the organization's profile with a younger audience.

>> SUMMARY

The NWMO continues to work collaboratively with Indigenous communities and municipalities to implement APM, Canada's plan for the safe, long-term care of used nuclear fuel. This involves working alongside siting area communities, their neighbours, and First Nation and Métis communities to identify opportunities to help young people learn about and be involved in the project. In 2018, we reached over 14,000 youth in a wide range of educational, community, and project-specific activities. These activities deepened both awareness and appreciation by these young people about Canada's plan, as well as inspired some to think about learning more and engaging more in the process.

>>> APPENDIX: 2018 YOUTH ENGAGEMENT SCORECARD

Desired outcome	Build youth awareness of the NWMO and APM project	Build youth understanding and confidence in the project	Build youth capacity for regarding APM	or future decision-making
	The NWMO works with s	siting communities to:		The NWMO works more broadly to:
Strategic objective	Implement local youth initiatives in the siting area	Implement opportunities to engage siting area youth in gaining an understanding of the APM project	Create opportunities for siting area youth participation in dialogue on decisions affecting the potential project implementation in their area	Build the capacity of Canadian youth (post- secondary) to support the implementation of the project through building interest, awareness and skills in disciplines required by the APM project
Indicators	# of dollars spent on youth initiatives: - EIES and sponsorships and donations programs – \$538,000 - Learn More resource funding allocated funds for youth engagement – \$298,000 # of youth engagement activities (EIES, sponsorships and donations, Learn More activities, and post-secondary presentations) – 336 # of youth involved in initiatives/events: - Participants in sponsored sport, cultural, community events, and non-funded NWMO community-based outreach – 3,510 - Participants in SiS and Science North sponsored programs – 5,889 - Participants in SHAD APM presentations – 6550	 # of youth participating in Learn More tours, open houses and/or learning and sharing events, and NWMO classroom presentations – 1,095 # of youth participating in technical training, career learning and/or on the job experience that could help position them for future APM job opportunities: Career and technology fairs – 536 Robotics/STEM programs and activities – 1,436 Skills training programs and academic awards – 55 # of youth involved in continuing and life skills education, traditional knowledge sharing, and summer internships – 318 	# of youth on community liaison committees and APM community groups providing input into decisions – 35	# of post-secondary youth exposed to briefings and seminars about the NWMO and APM – delivered to university audience – 720

For more information, please contact:

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