Mount Arrowsmith Biosphere Region
2016 Annual Report

The Mount Arrowsmith Biosphere Region (MABR) inspires a positive future for all living species by facilitating collaboration, coordinating participatory research, and supporting environmental, social, cultural, and economic sustainability.

Figure MABR 2016 BioBlitz
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MABR Annual Report 2016
MABR Vision, Mission, and Mandate

Vision
The MABR is a place where communities work together to inspire a positive future for people and nature.

Mission
The MABR works with diverse communities and organizations to develop and implement policies, practices, and initiatives that promote environmental, economic, cultural, and social sustainability. Different worldviews and ways of knowing are shared to ensure that our mission has meaning for all.

Mandate
The MABR’s mandate is to promote the conservation of biological and cultural diversity, support the development of sustainable communities and livelihoods, and facilitate collaboration, reconciliation, and knowledge sharing in the Mount Arrowsmith Biosphere Region.

MABR Governance

The Roundtable

The MABR Roundtable meets quarterly and functions as the governing body of the MABR, providing direction to MABR and MABRRI staff on priority actions areas and research to be
pursued in the short, medium, and long-term. Through diverse representation, the MABR Roundtable itself sets a model for how people with different interests and mandates can work together in a respectful, collaborative, and effective way. Members have collectively developed a culture of engagement that ensures that everyone feels comfortable, engaged, and eager to return.

In 2016, the Mount Arrowsmith Biosphere Region (MABR) facilitated four quarterly Roundtable gatherings, attended by nineteen people, including representatives from Snaw-Naw-As (Nanoose) First Nation, Qualicum First Nation, the City of Parksville, the Town of Qualicum Beach, the Regional District of Nanaimo’s Drinking Water and Watershed Protection Program, the Vancouver Island Conservation Land Management Program, Island Timberlands, TimberWest, Parksville and District Chamber of Commerce, and Vancouver Island University.

Community Representatives at the Roundtable

In November of 2016, nominations for Community Representatives were held in the fall of 2016 and two community members were appointed to the Roundtable to begin their respective one- and two-year mandates in February 2017: Madeleine Dwyer and Ceri Peacey (left to right in photos below). Madeleine and Ceri will join their first Roundtable gathering in February 2017. Having established the Roundtable in November 2015, the group knew what kind of added expertise was needed around the table.

Madeleine Dwyer (above, left) graduated from Vancouver Island University in 2015 with a B.A. in First Nations Studies and is now a student-teacher in VIU’s Post-Bac Education Degree. While currently living in Nanaimo to pursue her studies, Madeleine has been a long-time resident of Qualicum Beach and is deeply connected to the Mount Arrowsmith Biosphere Region and Oceanside community. Her passions and work over the past few years have included environmental education and youth engagement with a focus on food security, as well as yoga and healthy living. She looks forward to bringing her enthusiasm for environmental stewardship and health into her education career.

Ceri Peacey (above, right) has resided within the Mount Arrowsmith Biosphere Region in the community of Hilliers for almost 20 years. She lives in awe of wetlands and of their value to both humans and wildlife. Currently, Ceri is a director with the Friends of French Creek Conservation Society and has been chair of the Hamilton Marsh Committee for the past 10 years. In 2016, Ceri was the recipient of the Ducks Unlimited Canada Wetland Conservation Award for leadership in promoting wetland values. Ceri is the owner of Oceanside Celebrant Services. When she's not out conserving wetlands, Ceri is busy writing and officiating marriages, memorials, and milestones.

MABR Annual Report 2016
MABR & MABRRI in the Community

Regional Engagement

In 2016, the MABR coordinated, participated in, and facilitated numerous initiatives with the goal of engaging and collaborating with community groups and residents within our region. Engagement took many forms and involved a broad diversity of people. Examples of collaborative research can be found in a later section about MABRRI, the MABR’s Research Institute.

Educational Events & Celebrations

- **MABR BioBlitz** – Over 80 people showed up to identify species and connect with nature for the first annual Mount Arrowsmith Biosphere Region BioBlitz at VIU’s Milner Gardens on April 17th, the final day of the 2016 Brant Wildlife Festival. This was a local citizen science event, in which teams of community volunteers and Vancouver Island University (VIU) students worked together to identify plant and bird species in the area. Data collected during the BioBlitz was compiled into a species inventory, which will be compared to future years’ BioBlitz data and provide a snapshot of biodiversity in the region. This event was part of the Brant Wildlife Festival and was supported by Vancouver Island University, The Nature Trust of BC, and Milner Gardens and Woodland. Moving forward, our goal is to host a BioBlitz each year that will eventually expand to include several locations within the region. The 2017 BioBlitz is scheduled for April 22.

- **RDN Water Day in Qualicum Beach** - The MABR joined the Regional District of Nanaimo’s Team Watersmart for its inaugural Water Day celebration. We were active members of the organizing committee, hosted a booth, and gave a lecture about the interconnections between water and biodiversity in the biosphere region.

- **MABR Guest Lecture for the Friends of French Creek Conservation Society** – What is a UNESCO designated biosphere reserve and what makes our region worthy of this designation? What is the story of the MABR and what key changes have occurred since 2000? How is MABRRI, the MABR’s affiliated research institute, addressing the biosphere reserve mandate? And finally, how can you get involved? These were the questions around which this session was based. The lecture was presented by Dr. Pam Shaw, MABRRI Research Director, and Monica Shore, MABR Coordinator.

- **MABRRI Anniversary Summer BBQ** – Mid-summer, we invited members of the community to join our team in celebrating the 2nd year anniversary of VIU’s Mount Arrowsmith Biosphere Region Research Institute (MABRRI). We hosted a casual and festive community BBQ at Rathrevor Beach Provincial Park with burgers, snacks, and cake for all.

- **VIU ElderCollege Community Course** – In the fall, MABR and MABRRI staff and student researchers taught a 4-session weekly course about the MABR and what it means to be a UNESCO biosphere reserve. 25 community members enrolled in the course, filling all
available spaces. Through interactive workshops, mini-lectures, lively discussions, and hands-on activities, students explored the diverse relationships between people and nature in the MABR. Most participants knew very little about the biosphere reserve coming into the course, but “graduated” with enough knowledge to become MABR champions, able to share their learnings with friends and neighbours. Feedback was overwhelmingly positive and we’ve been invited back to do it again in the coming years.

- **Qualicum Beach Family Day** – Every year on the last Sunday in May, Qualicum Beach area residents have come together to celebrate the community at Family Day. Since 1976, Family Day has been sponsored by the Town of Qualicum Beach and organized by a group of dedicated volunteers to offer this free community event. The MABR hosted a booth with educational activities for kids and general information about the biosphere reserve and our impact in the community.

- **Engaging with VIU Sustainable Leisure Management Graduate Students in the MABR** – In the fall, MABR Coordinator Monica Shore met with 30 M.A. candidates pursuing VIU’s Sustainable Leisure Management program at Milner Gardens and Woodland, located in the biosphere region. Students attending this program are from all around the world and many come from countries where UNESCO biosphere reserves
exist. After providing a short lecture about UNESCO biosphere reserves, their role in peace-building through education, science, and culture, and discussing some of the current projects, Monica accompanied the students on a tour of some key places in the MABR. Students were introduced to case studies and people that embody the UNESCO biosphere reserve mandate.

- **MABR Guest Lecture for the Nanoose Naturalists** – At this event, we spoke about research being pursued at MABRRRI, VIU's research institute dedicated to increasing collective knowledge about the Mount Arrowsmith Biosphere Region. Presented by Monica Shore, Kayla Harris (Student Researcher) and Mike Anderson (Student Researcher).

### Amazing Places Project

The Amazing Places project is a Canadian UNESCO biosphere reserve initiative brought to BC in 2016 through a collaboration between the Mount Arrowsmith Biosphere Region, Parksville Qualicum Beach Tourism, Destination British Columbia, and Vancouver Island University. The project connects people with nature and educates residents and visitors about the ecological significance of well-loved outdoor spaces.

The MABR officially launched Year 1 of the MABR Amazing Places Project in June 2016. Following a promotional campaign in the summer of 2016, the MABR created an online platform to allow residents and visitors to nominate publicly accessible outdoor spaces that would become Amazing Places and promoted as the top locations to visit within the region. A web page was created to host information about the project and to announce the 10 selected Amazing Places which were unveiled through social media and in the Parksville Qualicum Beach Newspaper over the final 10 weeks of 2016. A 2-minute promotional video featuring all 10 Amazing Places was filmed in the fall, to be launched in early 2017.

### Indigenous Engagement and Knowledge Exchange

- **Snaw-Naw-As Healing and Teaching Garden** – The MABR worked closely with Snaw-Naw-As First Nation Health Director and former Chief David Bob as well as Snaw-Naw-As Elders, community members, and volunteers on the design of a large garden with educational, spiritual, and nutritional values. Our role has been to listen, provide space and tools for people to share ideas, and capture the ideas through notes and drawings. Drawings are brought back to the community for further feedback, after which new
sketches are created. The purpose, design, and naming of the garden come from Snaw-Naw-As community members. The first phase will be constructed in the spring of 2017 with Snaw-Naw-As youth and students from Vancouver Island University's Mount Arrowsmith Biosphere Region Research Institute (MABRRI).

Former Chief David Bob has been developing the idea for this garden with the support of Snaw-Naw-As community volunteers for eight years. MABRRI Research Coordinator Graham Sakaki has joined the effort as the focus of his Master of Community Planning. We’re excited to be a part of this initiative, which we plan to celebrate through a meal with food harvested from the garden next fall.

Snaw-Naw-As community members and friends design the garden layout.

- **Regular gatherings with Snaw-Naw-As and Qualicum First Nations** – to further our understanding of respectful engagement and protocol and to develop collaborative projects

- **Conversations around Reconciliation** – MABR Coordinator Monica Shore took a course in the spring of 2016 co-taught by Snuneymuxw Elders and VIU's Director of Aboriginal Education to learn about the personal and collective meanings of reconciliation, and how we can turn reconciliation into action in our lives and work.

**Community Contributions to the MABR’s UNESCO Mandate**

The MABR is home to many organizations and institutions whose work contributes significantly to UNESCO's Man and the Biosphere mandate. Through an online survey shared via email, the MABR’s e-newsletter, and social media channels, the MABR invited community organizations, businesses and institutions to share some of the ways in which they sustain the environmental, social, cultural, and economic health of the region, thus exemplifying what it means to be a biosphere reserve. The fabric of community and environmental health is woven through the efforts of many people and groups, and one of the MABR’s jobs is to celebrate and promote the important work done by all. Here are the responses we received.

**Arrowsmith Naturalists**

- The Arrowsmith Naturalists working with a local school secured a grant through the BC Naturalists’ Foundation and BC Nature to provide native plant signage along a new RDN trail through mature second growth forest and seasonal wetlands adjacent to the Errington Elementary School. The colourful signage provides a plant ID photo, species identification, wildlife use, and traditional uses by First Nations. Similar native plant signage was also developed and placed at the North Island Wildlife Wildlife Recovery Centre and the Parksville Museum has plans to place this signage on their grounds. The
native plant information gathered for this project is available to any others in the MABR who might wish to develop such signage to familiarize community members and visitors with common, fascinating and important plants in our region.

**Arrowsmith Parks and Land-use Council**
- APLUC provided serious input to the Roundtable make-up promoting the inclusion of environmentally focused members. APLUC regularly engages in community, government and industry liaison regarding environmental issues.

**Arrowsmith Watersheds Coalition Society**
- In 2016 AWCS along with an umbrella group Vancouver Island Water Watch Coalition continued to participate in the discussions to complete the implementation of the Water Sustainability Act and in efforts to place watershed governance in the hands of those who live in a watershed. Our goal is to ensure there is enough good, safe water for all for a long time into the future.

**Backyard Creative**
- In 2016, Backyard Creative volunteered time to refresh the Mount Arrowsmith Biosphere Region’s visual identity (through our Good Neighbour Award program) which, in turn, helps to connect people with nature by attracting them to the MABR and educating them about what is unique about this region.

**Friends of French Creek Conservation Society (FFCCS)**
- Measurement of the flow in Dudley Creek out of Dudley Marsh and the control of that flow when necessary.
- Trapping and then releasing salmon fry in the spring to monitor size etc and ensure that the water flow continued while they were in the creek.

**Hamilton Marsh Committee (part of FFCCS)**
- Since 2006 the Hamilton Marsh Committee has been hosting annual tours of the largest wetland in our area - Hamilton Marsh. Kids and adults learn wetland watershed values, bugs, birds, dragonflies and nature. Young children are invited to become “Certified Bug Detectives.” Working with the Arrowsmith Naturalists on this project we raise the profile of the importance of wetlands for the water, for the wildlife, and for the future.

**Kwalikum Food Forest**
- Students from Kwalikum Secondary School and the Collaborative Education Alternative Program of School District 69 used the food forest to learn about growing food, ecology, and native plants.

**Mid Vancouver Habitat Enhancement**
- In 2016 the MVIHES undertook a study of the hydrology of Shelly Creek, a tributary of the Englishman River. This study uses a Water Balance Model to define the pathways which rainfall influences, including deep groundwater, shallow groundwater and base flows in the creek. The goal of the study is to understand why this creek is subject to extreme variations in annual flows, from peak (winter) flows that are damaging channel conditions and impacting fish and fish habitat to low summer flows.

**Milner Gardens & Woodland (VIU)**
- In 2016 Milner Gardens & Woodland began a Phenology project to monitor the timing of annual growth phases in plants species within various ecosystems on site. The project brought together community volunteers, government experts, VIU staff, and MABRRRI student researchers.
Mount Arrowsmith Rhododendron Society
- In collaboration with other Island Rhododendron societies and Vancouver Island University, a species rhododendron garden is being established at VIU’s Milner Gardens. In part, the intent is to educate the public about rhododendron species, their conservation and their protection wherever they are found in the world. The Milner site will also maintain a collection of some endangered rhododendron species, to help ensure their overall survival.

North Island Wildlife Recovery Association
- In 2016 NIWRA embarked on a water conservation project on our site in Errington. We began by utilizing an existing pond as a holding or sediment tank and excavated a much larger pond adjacent to this. During construction we were able to tap into an artesian system (which we expected was there) so the new, enlarged pond will be self-sustaining, will act as a waterfowl ecosystem and will provide NIWRA with water security well into the future years.

Nour-ish Farm, Qualicum Beach
- We are a 14-acre certified organic farm using sustainable methods to produce food to the community year-round. We help others learn the skills needed to provide for themselves or learn to grow as a market gardener, whereby providing a living wage for themselves. We encourage our students to share their learning with others.

Parksville Museum
- In 2016 we taught farming/gardening using material from the Canadian Organic Growers association & Gaia College to educate 16 students well enough to qualify as Master Organic Gardeners. We also taught ~20 lessons on Organic Gardening as well as establishing a Garden.
- We preserve Buildings and Artifacts from the area.
- We promote Farmers through our Farmers Markets, and use the Ministry of Agriculture’s Food Coupon Programme to help people in need at the Market.

Parksville Qualicum Beach Tourism Association
- Partnered with the Mount Arrowsmith Biosphere Region to implement the Amazing Places initiative that is currently underway in four UNESCO-designated biosphere reserves in Eastern Canada. Amazing Places connects people and nature through a unified strategy targeting publicly accessible trails and natural spaces. The goal of the project is to increase tourism across Canadian biosphere reserves and to raise awareness of the biological, cultural, and social significance of trails and natural areas within each region.

Qualicum Community Education and Wellness
- In 2016, Qualicum Community Education and Wellness Society (QCEWS) volunteers held Root Bag planting sessions for 200 elementary school children at multiple local schools. Each student selected a vegetable seedling and planted it in a small, portable Root Bag to take home and nurture. Teachers used the Root Bag project to anchor many classroom science lessons. Students become more mindful about what they eat, and the food’s effect on the health of their body and the planet.

Qualicum Beach Streamkeepers Society
- In 2016, Qualicum Beach Streamkeepers worked with the Regional District of Nanaimo, Ducks Unlimited and the British Columbia Conservation Foundation on a multi-year project to improve native habitat on the Little Qualicum River estuary. The estuary is a key area for migrating salmon and has been negatively impacted by decades of industrial use. The project involves planting native tree and shrubs in selected areas protected by fences to research how these survive, and to provide a guide for future plantings.
Streamkeepers help in both the planting and the watering of the new plants during the height of summer.

**TimberWest**
- Taking elementary school students on watershed field tours to discuss water, plants, and balancing decision making in watershed management.

**T. Buck Suzuki Environmental Foundation**
- In 2016, bucksuzuki.org supported salmon work by Community Fisheries Centre & VIU Resource Management students on Englishman River’s C.W. Young side-channel. Communication in support of this important work in the MABR and RDN Park raises awareness and builds collaborations.

**Vancouver Island Conservation Land Management Program**
- In 2016, the VICLMP implemented an estuarine monitoring program throughout Vancouver Island focusing on ecosystem resiliency and sea level rise as well as ecosystem condition/utilization for fish and wildlife. In the Mount Arrowsmith Biosphere Region, the Englishman River Estuary was selected for this monitoring work and will help inform restoration actions moving forward.

To all who responded to the survey, we are grateful for your contributions to the 2016 Annual Report and proud to be working with you in making this region a better place for people and nature.

**National Engagement**

**2016 AGM for the Canadian Biosphere Reserve Association (CBRA)**
The 2016 AGM of the Canadian Biosphere Reserve Association (CBRA) was hosted by the Canadian Commission for UNESCO in Winnipeg in April 2016. Two new biosphere reserves were welcomed to the Canadian network: Tsa Tué BR in the Northwest Territories and Beaver Hills BR in Alberta. Members of the 18 sites discussed three broad themes: the periodic review process that biosphere reserves undergo every ten years, a national funding strategy for the Canadian network, and the significant role that the national network can play in supporting and modelling reconciliation between Indigenous and non-Indigenous peoples.

**MABR Coordinator Appointed to the National Executive Committee**
At the CBRA AGM in Winnipeg, MABR Coordinator Monica Shore was elected 2nd Vice-Chair on CBRA’s Executive Committee. She will play an active role in developing the Canadian network’s internal and external communications.

**Communications with MABR Federal Member of Parliament**
Following Canada’s October 2015 federal elections, NDP MP Mr. Gord Johns was elected to represent the riding that encompasses the Mount Arrowsmith Biosphere Region. Mr. Johns also represents the Clayoquot Sound Biosphere Reserve, on whose board of directors he once sat. In the spring, MABR Coordinator Monica Shore and former Mayor of Parksville Chris Burger (Parksville’s official liaison to the MABR) met with MP Gord Johns to discuss the MABR’s impact in the community and plans for the Amazing Places project. In the fall, Monica met again with Mr. Johns in Ottawa and discussed ideas for a non-partisan Day on the Hill that would put a spotlight on the work and objectives of Canada’s 18 biosphere reserves. Monica accepted the role of event coordinator on behalf of the Canadian Biosphere Reserve Association and will be working closely with staff from Gord Johns’ office, the Canadian Commission for UNESCO, and the offices of a Liberal and Conservative MP who both have biosphere reserves in their ridings, to plan the event. This Day on the Hill is expected to be held at the end of May 2017.
Contributing to Dr. Maureen Reed’s Book on Canadian Biosphere Reserves

In 2016, Dr. Maureen Reed, professor at the University of Saskatchewan, published an e-book about Canadian biosphere reserves called *Sustaining Home*. The MABR collaborated with Dr. Reed and is featured in Chapter 8, entitled Building Peace. The section dedicated to the MABR is called ‘Renewal and reconciliation at Mount Arrowsmith’ and speaks about how VIU and the City of Parksville worked with First Nations to rebuild the biosphere reserve’s governance model and structure following a challenging periodic review in 2010.

Development of the Amazing Places National Website

To further its commitment to the success of the Amazing Places project as a national project that connects five of Canada’s 18 UNESCO biosphere reserves, the MABR used some of its own project funding to develop the national Amazing Places website, working with professional communication designers to create a strong visual impact. We also sponsored the development of a national Amazing Places map, displaying Canada’s 18 biosphere reserves and highlighting the five sites that have spearheaded the Amazing Places project since it was created by the Fundy Biosphere Reserve in 2010. National website: biospherecanada.ca/amazingplaces.

International Engagement

The 4\textsuperscript{th} World Congress of Biosphere Reserves, Lima, Peru

“The dawn of a new era for UNESCO’s Man and the Biosphere Programme” - In March of 2016, the MABR was part of a delegation of fourteen Canadians who attended the 4th World Congress of Biosphere Reserves (4WCBR) in Lima Peru. The purpose of the 4WCBR was to endorse a new action plan for the World Network of Biosphere Reserves that ensures that all entities are working toward clearly defined and shared goals. The Lima Action Plan, now endorsed and adopted, will guide the actions of all networks, committees, and national commissions that are involved in the management of biosphere reserves from 2016 to 2025. The MABR presented in three different sessions on the following topics: (1) climate research in high alpine areas; (2) biosphere reserve-related curriculum in post-secondary institutions, and; (3) strengths and gaps in existing
research on UNESCO biosphere reserves. We were also part of a working group that ensured that Indigenous knowledge was respected and acknowledged within the Lima Action Plan.

The International Union for the Conservation of Nature (IUCN) Congress, Hawaii

"Held once every four years, the IUCN World Conservation Congress brings together several thousand leaders and decision-makers from government, civil society, indigenous peoples, business, and academia, with the goal of conserving the environment and harnessing the solutions nature offers to global challenges" (sustainabledevelopment.un.org). At the beginning of September, the IUCN hosted its World Conservation Congress in Honolulu. Monica Shore attended the congress on behalf of the MABR. 9500 delegates collectively participated in over 1300 sessions and workshops over 10 days.

Learnings and Reflections from the Congress:

- Through many of the sessions, the international community confirmed that a focus on Reconciliation with Indigenous communities is indeed a focus on the conservation of biological diversity. This is supported by the UN Convention on Biological Diversity and by the UN Declaration on the Rights of Indigenous Peoples.
- Certain organizations in Canada such as our network of UNESCO biosphere reserves, the ICCA Consortium (known in BC as Tribal Parks), and Parks Canada have similar goals, such as helping to meet the Aichi Biodiversity Targets and Canada’s Biodiversity Goals and Targets. We built new relationships within and across these organizations and agreed to work together to implement these national and international objectives.
- At the Opening Ceremony, US Secretary of the Interior Sally Jewell spoke of President Obama’s most recent addition to the national monument system, Papahānaumokuākea Marine National Monument, now the largest protected area in the world. This protected area was designated with the support of Indigenous peoples and through strong inter-tribal relationships. This success story provided a snapshot of where our neighbours to the south have been going and was a reminder that the First Nations of Vancouver Island—those in the MABR and beyond—are members of the Salish Sea, and therefore of international waters. The ecological integrity of international bodies of water impacts us all.
- The 'Aloha Spirit' was a gift from native Hawaiians to the people of Hawai‘i. ‘Aloha’ means mutual regard and affection and extends warmth in caring with no obligation in return. ‘Aloha’ is the essence of relationships in which each person is important to every
other person for collective existence. 'Aloha' means to hear what is not said, to see what cannot be seen and to know the unknowable."

Raising Awareness of the MABR within and beyond our Borders

UNESCO biosphere reserves were conceived as model regions that exemplify how collaboration amongst human beings can create a more sustainable existence for people, animal and plant species, and the environments that we share and inhabit. The UNESCO designation honours all people and organizations whose collective efforts have earned this region its international status. The MABR seeks to communicate and celebrate this message through various media:

**MABR Logo Refreshed in 2016**

The MABR’s brand has been professionally refreshed by Lisa Hemingway, owner and creative consultant of Backyard Creative, who selected the MABR for her 2016 Good Neighbour Award. Here is a glimpse of the old and new logos, side by side.

The rebranding process was prompted by several high-level goals; one was to better represent the commitment to collaboration that’s at the heart of the biosphere reserve mandate (more than one human); another was to enliven the MABR's identity by using colour, shapes, and fonts that reflect and attract a broader audience; a third goal was to change the word 'reserve' to 'region.' We have greatly enjoyed our fresh new look, which had much exposure and visibility in 2016.

**MABR Newsletter**

- Our e-newsletter is published every 2 months. All previous issues can be found at [mabr.ca](http://mabr.ca).
- In 2016, we added a section to our newsletters, featuring one article in each issue that featured the work of a community organization. There are over 150 not-for-profit organizations in the MABR alone, each doing important work, and many are volunteer-based. The goal with this addition to our newsletter is to help raise awareness in the community as to how people with different interests can contribute their time and make a positive difference.
- By the end of 2016, 375 people were subscribed to our e-newsletter.

**The MABR on Camera**

- *Stories from the Mount Arrowsmith Biosphere Region* – A full-length documentary produced by Arrowsmith Media and partners about people’s personal connection to land
in the Mount Arrowsmith Biosphere Region. Launched at the Parksville Museum on April 16. Available for viewing at mabr.ca.

- **10 Amazing Places in the Mount Arrowsmith Biosphere Region** – This 2-minute video was produced by TheNumber.ca with funding from Destination British Columbia and Parksville Qualicum Beach Tourism. It features aerial and ground footage of the MABR and introduces viewers to the ten Amazing Places that were nominated by the community in September 2016. The video will launch in January 2017.

**Features in Local Newspapers**

- In 2016, the MABR was featured eleven times in the Parksville Qualicum Beach Newspaper and once in the Nanaimo News Bulletin. The greatest interest was in two of our new programs, both launched in 2016—Amazing Places and the MABR BioBlitz.

**Other Marketing Materials**

- Website: mabr.ca
- Facebook: facebook.com/MountArrowsmithBR
- Twitter: @MountArrowBR
- Instagram: @mtarrowsmithbr
- Flyers and event posters
MABRRI: The Mount Arrowsmith Biosphere Region Research Institute

About MABRRI

The Mount Arrowsmith Biosphere Region Research Institute (MABRRI) is the engine behind the MABR's research and educational programs. MABRRI's mission is to advance a program of inquiry that involves regional stakeholders in meaningful explorations of issues of local relevance. By harnessing the knowledge of the MABR community and the interdisciplinary strengths of students and faculty at Vancouver Island University, MABRRI is a centre for collaborative research, innovation, and knowledge sharing that elevates the relationship between people and nature in the biosphere region.

MABRRI contributes to the success of the MABR through research and education, which is one of the three main functions of all UNESCO biosphere reserves. MABRRI envisions, funds, and coordinates research projects and educational programs or initiatives that advance “environmental, economic and social (including cultural and spiritual) sustainability”¹

MABRRI Strategic Plan

MABRRI’s Strategic Plan for Research and Education aims to provide the foundation for the research institute to become a regional and international leader in community-based, student-led environmental, social, and economic sustainability research. The plan outlines the next steps for MABRRI, including objectives for conducting research in the Mount Arrowsmith Biosphere Region, research themes and priority areas for research focus over the next three years, and our vision for collaborating with stakeholders in the region. A link to the strategic plan is available at mabrri.viu.ca on the ‘resources’ page.

MABRRI is an academic entity at Vancouver Island University (VIU) that supports and conducts natural and social science research in the MABR and surrounding areas. MABRRI was established at VIU in 2014 when the MABR transitioned from a charitable not-for-profit model to a regional roundtable partnership model spearheaded by VIU and the City of Parksville. The research institute conducts, supports, and facilitates research that meets the environmental, social, cultural, and economic sustainability goals of the MABR and upholds the mandate of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Man and the Biosphere Programme.

2016 Student Researchers

In 2016, MABRRI tripled its 2015 capacity, welcoming a total of 28 student researchers to the Institute. Projects included fieldwork, research with Milner Gardens and the Ministry of Forests Lands and Natural Resource Operations, organization of the 2016 & 2017 BioBlitz, Wetland Mapping, Lake Monitoring, and new ideas and initiatives along the way. Read about the 2016 projects in the following section.

We are grateful to the following exceptional students for being a part of the MABRRI family in 2016. Names in bold are MABRRI’s Senior Research Assistants, who helped lead and coordinate projects. A special thanks to these team leaders! (Names are in alphabetical order by last name.)

Projects at MABRRRI in 2016

1. Wetland Mapping in the Regional District of Nanaimo

A partnership has been formed between the RDN’s Drinking Water and Watershed Protection program and Vancouver Island University that supports academic research by MABRRRI on local water-related topics over the next 5 years. The 2016 research plan includes regional wetland mapping and monitoring, among other topics of interest such as how wetlands contribute to the fresh water system through ground water recharge, natural filtration and other naturally occurring processes.

To date, MABRRRI student researchers have mapped a total of eleven wetlands across four Water Regions in the Regional District of Nanaimo: Little Qualicum, Englishman River, French Creek, and Lantzville to South Wellington. (See a map of all the water regions here.) During the fall of 2016, MABRRRI student researchers focused on wetland mapping in the Little Qualicum Water Region.

The Technical Advisory Committee (TAC) on this project includes Julie Pisani, Coordinator of the RDN’s Drinking Water & Watershed Protection Program, Faye Smith and Bernd Keller of the Mid-Vancouver Island Habitat Enhancement Society (MVIHES), and VIU Geography Professor Alan
In the spring of 2017, MABRRRI student researchers will finalize mapping in the Little Qualicum, Englishman River, and French Creek Water Regions.

2. **BCLSS LakeKeepers Course**

Seven members of the MABRRRI research team participated in a BCLSS LakeKeepers Course, which was hosted by MABRRRI here on campus. This 2-day course consisted of a variety of topics that covered lake ecology, limnology 101, how to organize a stewardship group, watershed assessment as well as lake monitoring techniques. The instructor, Rick Nordin, was a very knowledgeable LakeKeeper who taught the ins and outs of how to take responsibility and get involved with research and restoration of our lakes. Having a basic understanding of water fundamentals (limnology) gives citizen-scientists or the general public a step up in their ability to conduct surveys on lakes and allow them to take responsibility and get involved. This course was very important because it allowed the MABRRRI team to get a grasp on field techniques for monitoring lakes, which will be used to conduct our research for our Lake Monitoring in the Regional District of Nanaimo project. More info in Nanaimo New Bulletin article.

3. **The GLORIA Project**

During the summer of 2016, MABRRRI Student Researchers spent time on the summit of Mount Arrowsmith, collecting data at the Global Observation Research Initiative in Alpine Environments (GLORIA) sites that were established in 2006. The long-term monitoring sites were originally created by Kristina Swerhun as part of her Master’s thesis research. Student research included re-establishing the survey areas, collecting vegetation data, and installing new temperature loggers. Project management has now been handed over to MABRRRI to monitor and maintain in perpetuity, as every five years the temperature loggers need to be replaced, and the vegetation re-surveyed.
4. Lake Monitoring
The MABR is home to many spectacular lakes that provide habitat for an abundance of flora and fauna. A couple of these lakes are also used as water sources for human consumption, while others are part of major river networks that eventually enter the Salish Sea. Through long-term monitoring the quality of the fresh water in these lakes will be measured helping to inform the current states of these local lakes.

5. Collaborative Environmental Monitoring and Community Mapping (an APP)
With a North American Partnership for Environmental Community Action grant, MABRRI created and piloted a mobile application that will be available to all residents and visitors in the MABR. This application will allow users to contribute to a collaborative mapping database containing information and photographs regarding flora, fauna, disturbance or other environmental features in the region. This tool will be used to increase knowledge-sharing in the MABR and to allow for exploration of issues and patterns of change that become apparent in the data collected. To develop the application, MABRRI asked for community input through an online survey and in-person questionnaires. Students stationed themselves outside the libraries in Parksville and Qualicum Beach to interview passersby and to engage with those who had seen the call in our newsletter.

6. Eelgrass Mapping in Mid-Island Estuaries
The Englishman River and Little Qualicum estuaries are vital habitat for many species. Eelgrass mapping provides a measure of current health of the estuaries, as eelgrass is a source of shelter, habitat, spawning grounds, food, protection, and nutrient cycling within these rich ecosystems.

7. Student Blog
The first summer research team of students at MABRRI started a blog on the MABR website, showcasing the work that they did and all the incredible places that they explored in the region. With every posting, they included a photographic slideshow with a first-person narrative describing their adventures that day and any interesting experiences they had out in nature. In 2016, the Adventure Blog continued and it remains a great way to “meet” MABRRI’s exceptional cohort of student researchers: mabrri.viu.ca/blog

Acknowledging all Collaborators
In 2016, the MABR and MABRRI were fortunate to receive support from many individuals and organizations in the region. This support came in many forms, from networking and idea sharing to providing funding and student learning opportunities. We would like to take this opportunity to thank all individuals, groups, and agencies for their ideas, inspiration, and most importantly – their dedication to helping the MABR achieve its full potential as a model region for sustainability. Without your support, the MABR would not be able to achieve as much as it did in 2016.
MABR 2016 Executive Team

In 2016, the following people were involved in the day-to-day management and coordination of the MABR and its associated research institute at Vancouver Island University. The team received direction from Dr. David Witty, Vancouver Island University’s Provost and Vice-President Academic, as well as guidance from the Roundtable that was inaugurated in November of 2015.

Monica Shore is the MABR Coordinator and 2nd Vice-Chair of the Canadian Biosphere Reserve Association’s Executive Committee. She manages the MABR’s internal and external communications, coordinates community-based events, facilitates meetings and community forums, and represents the MABR both nationally and internationally. Originally from Montreal, Monica’s background is in sustainability, cultural development and tourism, the performing arts, and communications. She is fluent in English, French, and Spanish.

Dr. Pamela (Pam) Shaw is MABRRI’s Research Director as well as the Director of the Master of Community Planning Program at Vancouver Island University. Pam has more than 30 years of experience in land use planning and facilitation, and is currently researching new forms of governance for biospheres and community organizations. She brings ideas, connections, and experience to the research team.

Graham Sakaki is MABRRI’s Research and Community Engagement Coordinator. He has been involved with MABRRI since it was established in August of 2014. Graham oversees the coordination of all ongoing research projects. His education background includes a degree in Natural Resources Geography and a diploma in Forest Resource Technology, and he is currently pursuing VIU’s Master of Community Planning, which he will complete in the spring of 2017. Graham’s professional experience in organizational management has transferred seamlessly to MABRRI.

Sarah Lumley was MABRRI’s Assistant Coordinator from January to August 2016. She managed MABRRI’s online communications, led numerous projects including the Institute’s first citizen science BioBlitz, and was the main contact for all students involved in research at MABRRI. Sarah obtained her degree with honours in Urban Geography from VIU in 2015 and has been pursuing a Master of Community Planning at Queens University since September 2016. Sarah’s positive outlook, initiative, and leadership skills add incredible value to MABRRI. She will be back to assist the MABR and MABRRI in a leadership role in the summer of 2017.
## The MABR’s Contribution to the Lima Action Plan 2016-2025

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<thead>
<tr>
<th>Strategic Action Areas</th>
<th>Actions Implemented by the MABR in 2016, where it has been indicated that biosphere reserves hold shared responsibility</th>
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| A. The World Network of Biosphere Reserves consisting of effectively functioning models for sustainable development | • A1.2 – The MABR contributes to Aichi Target 3 (“By 2020, Canada’s wetlands are conserved or enhanced to sustain their ecosystem services through retention, restoration and management activities.”): The MABR Research Institute at Vancouver Island University has developed a 5-year partnership (2016-2020) with the Regional District of Nanaimo’s Drinking Water and Watershed Protection program to pursue wetland monitoring and restoration activities in the region. The project will determine how the hundreds of wetlands in the MABR—most of which reside on privately owned lands—contribute to the freshwater system through groundwater recharge, natural filtration and other naturally occurring processes. Anticipated outcomes: (1) Development of long-term processes for mapping, monitoring, conserving, and enhancing wetlands; (2) Sustainable use and management of ecosystem services; (3) Contributing to informed decision-making and regional policy regarding wetlands.
• A1.3 – The MABR has established a close partnership with Snaw-Naw-As First Nation to develop a Garden of Spiritual Healing with therapeutic, health, spiritual, and educational functions. The garden will be constructed by members of the Snaw-Naw-As community and Vancouver Island University students, and overseen by Elders and members of a special garden committee. Goals of this project include increasing community and regional food security, the preservation of cultural knowledge including language, cross-generational knowledge sharing, and biodiversity conservation.
• A1.4 – In 2015-2016, the MABR installed a weather station on Mount Arrowsmith that functions as an observatory for climate change research, monitoring, mitigation and adaptation. The weather station is connected to a network of weather stations across British Columbia and allows us to understand, better respond to, and plan for changes in climate, precipitation, and snow pack in the region.
• A1.5 – In 2016, the MABR brought the Amazing Places Project to the west coast with funding from Destination BC, Parksville Qualicum Beach Tourism, and Vancouver Island University. The project’s goal is to contribute to sustainable development in the region by promoting multi-day trips in collaboration with local businesses which aim to increase overnight stays, particularly during the off-and shoulder seasons.
• A1.6 – The MABR’s Research Institute at Vancouver Island University (VIU)—MABRRI—is the research engine of the biosphere reserve. Between August 2014 and January 2017, MABRRI has conducted over 35 collaborative projects involving regional partners, community members and VIU students and faculty. 18 additional projects are planning for the summer of 2017. All projects study some aspect of the socio-ecological systems of the MABR. For a list of projects, visit mabrri.viu.ca/projects.
• A2.2 – Following its 2010 periodic review, the MABR underwent a major governance and structural transition, redeveloping both from scratch. The redesign process put Indigenous Peoples and principles at the forefront of the new governance model and was inclusive of a broad range of regional stakeholders.
• A2.4 – Every year, the MABR reviews and updates its Marketing and |
Communications Plan.

- **A3.1** – The MABR has written Memoranda of Understanding with the City of Parksville and the Town of Qualicum Beach. In 2017, the MABR’s research institute is working with the City of Parksville on a major redesign of its main community park, engaging locals and Indigenous communities on each aspect of the design.

- **A3.2** – Since 2014, Vancouver Island University has been the financial backbone of the MABR, providing salary and office space for a full-time coordinator. In 2017, conversations with members of the governance Roundtable have begun to plan for the long-term financial security of the MABR. The financial vision for the MABR is a funding structure which divides responsibility between those members of the Roundtable who can afford it, spreading annual funding support across a broader number of regional partners. This will create greater financial resilience, less of a dependency on one institution, and a greater sense of “ownership” of the biosphere reserve. It has been made clear, however, that financial contributions will come with greater power, as it is important that those Roundtable members who are crucial to the MABR’s governance are not limited by their financial capacity.

- **A4.1** – The Mount Arrowsmith Biosphere Region Research Institute (MABRRI) was founded at Vancouver Island University in August 2014. MABRRI hires students as research assistants, hosts visiting scholars from around the world, and engages community partners in participatory research projects that explore sustainability with the MABR.

- **A4.2** – MABRRI has established partnerships with Simon Fraser University’s Institute for Environmental Learning, the University of Belize, Brazil’s Instituto Federal Fluminense (Campus Macaé), and the Universidad Iberoamericana Ciudad de México to advance some of its educational outreach and research goals. Visiting scholar exchanges have been occurring regularly and research projects explore sustainability and biosphere reserves.

- **A4.3** – MABRRI is a well-established research institute at Vancouver Island University with space, research equipment, and funding.

- **A4.5** – All projects at MABRRI are collaborative. Community members may submit their project ideas to MABRRI’s Research Coordinators using a form provided on the website. Many projects have Technical Advisory Committees that include community members and enable greater sharing of local knowledge and expertise.

- **A5.1-3** – See A3.2
- **A7.3** – See A1.3

| B. Inclusive, dynamic and result-oriented collaboration and networking within the MAB Programme and the World Network of Biosphere Reserves | B1.1 – The MABR is working on global biosphere reserve curricula in collaboration with Canada, Sweden, France, and Australia - B1.1  
B1.2 – The MABR has developed a community course for interested stakeholders about the basics of biosphere reserves and of the MABR itself - B1.2  
B2 – The MABR has been an active participant in the Mountains network and has encouraged the rejuvenation of this thematic group - B2.  
B7.1 – The MABR is a member of EuroMAB’s Science Subcommittee, which seeks to engage with a broad number of scientists and Indigenous knowledge holders - B7.1 |
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<td>C. Effective external</td>
<td>C2.1 – The MABR worked with the Canadian Commission for UNESCO on the development of its Reconciliation in Action</td>
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| partnerships and sufficient and sustainable funding for the MAB Programme and the World Network of Biosphere Reserves | • C3.2 – In 2016, the MABR and its affiliated research institute at VIU secured over 10 grants from external funders to support projects and research that address the biosphere reserve mandate.
• C4.2 – The MABR has partnered with the private industry on climate monitoring, food security, and sustainable tourism projects. Furthermore, the MABR’s governance model includes the regional Chamber of Commerce as well as the two major forestry companies who own a substantial amount of land with the biosphere reserve.
• C8.1 – CBRA’s Day on the Hill in Ottawa on May 29, 2017 will feature local edible products from Canada’s network of biosphere reserves. |
| D. Comprehensive, modern, open, and transparent communication, information and data sharing | • D1.1 – The MABR provides public access to governance documents on its website (mabr.ca) and its research institute provides public access to project information and data on its website (mabrri.viu.ca). Furthermore, MABRRI, the research institute, is creating new open-access data collection tools to facilitate public contributions to data about regional sustainability. One example of this is our Collaborative Environmental Monitoring App.
• D2.3 – In January 2017, the MABR designed and launched the first International Journal of UNESCO Biosphere Reserves. The journal accepts bi-annual submissions in many forms: peer-reviewed journal articles, research notes, stories and narratives, photography, and videography. Visit www.biospherejournal.org to see the journal.
• D3 – The MABR uses Facebook and Twitter to communicate its activities and to engage the public. |
| E. Effective governance of and within the MAB Programme and the WNBR | • E4.1 – The MABR will work with the Mountains thematic network to develop new objectives, performance assessment mechanisms and a timeframe for established goals. |
Looking Ahead to 2017

2017 looks extremely promising. We will begin the year by launching the 1st Issue of the International Journal of Biosphere Reserves. The journal provides a forum for the collective body of multidisciplinary research occurring in biosphere reserves across the globe. It is digital, open access, and subscription-free, and is published by VIU’s Mount Arrowsmith Biosphere Region Research Institute (MABRRRI). Read the 1st Issue in January 2017 at biospherejournal.org.

January will also see the launch of the MABR’s first Amazing Places promotional video, which provides a stunning overview of the 10 locations that received the “Amazing Place” designation. This will be followed by a Community Launch Party and the development of Year 2 of the program, which will focus on leveraging the marketing materials created in 2016. We will produce ten 2-minute videos about each of the sites and develop a passport program that creates economic off-spins for local businesses near each Amazing Place. Keep an eye on mabr.ca/amazingplaces for regular updates.

The MABR has been invited by the Canadian Commission for UNESCO to produce a mini documentary about our governance Roundtable, as it has been acclaimed by the Commission as a model of “Reconciliation in Action.” Cameras will be rolling in February and the final product will be launched online in the spring of 2017.

In 2016, MABR Coordinator Monica Shore was elected as the 2nd Vice-Chair of the Canadian Biosphere Reserve Association (CBRA). She will be coordinating CBRA’s first ever Day on the Hill in Ottawa, raising federal awareness of the work of Canada’s 18 UNESCO biosphere reserves. The event is due to take place on May 29, 2017.

In 2017, MABRRRI, our research institute, will double the size of its 2016 summer student research team, thus quadrupling the number of researchers hired in 2015. Successful research funding applications continue to allow MABRRRI to make a greater impact in a vast number of project areas, assisted by newly established Technical Advisory Committees involving local and Indigenous knowledge holders. A total of 18 research projects are planned at MABRRRI during the summer of 2017 with 16 VIU students to be hired as research assistants; all projects study biodiversity conservation, sustainable development, and/or reconciliation within the MABR. Visit mabrri.viu.ca for a description of all current projects.

One of the MABR’s favourite projects continues in 2017: The Snaw-Naw-As Garden of Spiritual Healing. Graham Sakaki will continue to work with Snaw-Naw-As Elders and community members to design and construct the first phases of the garden, located outside the Snaw-Naw-As Health Centre. While we predict that it will take two years to complete the garden construction, the MABR is committed to staying involved for as long as it takes to bring the community vision to life.

We are grateful for what we have learned in 2016, for the people and organizations with whom we’ve had the opportunity to collaborate, and for the growing enthusiasm for the Mount Arrowsmith Biosphere Region and UNESCO biosphere reserves in general. We look forward to another year of hard work, new connections, and anticipated success.