

# Mount Arrowsmith Biosphere Region

## 2017 Annual Report

*The Mount Arrowsmith Biosphere Region (MABR) inspires a positive future on the east coast of Vancouver Island, British Columbia, Canada, by facilitating collaboration, coordinating participatory research, and supporting community initiatives that promote environmental, social, cultural, and economic sustainability.*



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# MABR Vision, Mission, and Mandate

## Vision

The Mount Arrowsmith Biosphere Region (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

## Current Roundtable Members

Steve Adams, TimberWest

Kim Burden, Parksville & District Chamber of Commerce

Chris Burger, MABR Liaison for City of Parksville

Ken Epps, Island Timberlands

Michelle Harnett, MABR Amazing Places Coordinator

Neil Horner, Councillor, Town of Qualicum Beach

Marc Lefebvre, Mayor, City of Parksville

Mackenzie Leine, Island Timberlands

Geraldine Manson, Elder in Residence, Vancouver Island University

Lawrence Mitchell, Councillor, Snaw-Naw-As First Nation

Ceri Peacey, MABR Roundtable Community Representative

Michael Recalma, Chief, Qualicum First Nation

Thomas Reid, Vancouver Island Conservation Land Management Program

Daniel Sailand, CAO, Town of Qualicum Beach

Graham Sakaki, Research and Community Engagement Coordinator, MABRRI

Pam Shaw, Research Director & Master of Community Planning Program Director, MABRRI

Ashley Van Acken, MABR Coordinator

Teunis Westbroek, Mayor, Town of Qualicum Beach

David Witty, Provost & Vice President Academic, Vancouver Island University

Sonja Zupanec, Islands Trust

## Roundtable Governance

The MABR Roundtable meets quarterly and functions as the governing body of the MABR, providing direction to the MABR and Mount Arrowsmith Biosphere Region Research Institute (MABRRI) staff on priority action 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.

## MABR and MABRRI in the Community

### Regional Engagement

In 2017, 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 and Celebrations*

- **Annual MABR BioBlitz** – Approximately 70 people participated in the 2017 MABR BioBlitz on April 22<sup>nd</sup>, 2017, Earth Day. The event was hosted at two locations within the MABR: Milner Gardens & Woodland and Oak Leaf Drive Community Park. The BioBlitz is a local citizen science based event that connects Vancouver Island University students and expert knowledge holders with community members. The participants conducted a rapid biological survey of plant and animal species within a short time period to provide a snapshot of biodiversity of the region. The MABR BioBlitz runs annually in collaboration with the Brant Wildlife Festival and is supported by the Nature Trust of British Columbia, Vancouver Island University, Milner Gardens & Woodland, and the Regional District of Nanaimo (RDN). Moving forward, the goal is to continue to expand the geographic boundaries of the annual MABR event with new locations for biological surveys to be conducted.
- **RDN Water Day in Parksville** – The MABR joined the RDN's Team Watersmart, for its annual Water Day celebration. We hosted a booth to discuss some of MABRRI's water based research projects.
- **Biosphere in your Backyard Presentation** – On November 2<sup>nd</sup>, 2017, Ashley Van Acken and Michelle Harnett hosted a presentation at VIU's Milner Gardens & Woodland. Students from the Master of Sustainable Leisure Management program were engaged in a thirty-

minute presentation and discussion about the significance of the United Nations Educational, Scientific, and Cultural Organization (UNESCO)-designated MABR. Students were also informed about the local research and community engagement initiatives that are currently underway in the region.

- **World Café** – On March 25<sup>th</sup>, 2017, VIU students and researchers at MABRRI, in association with staff from the City of Parksville, hosted a World Café for the Community Park Master Plan Project. At the event, students met with community members to draw ideas about the future of the Parksville Community Park. The event was a positive community engagement exercise, a great learning experience, and contributed to the development of the Parksville Community Park Master Plan.
- **Gazebo Talks** – On June 8<sup>th</sup>, 2017, as part of the consultation process for the parks inventory report and Community Park Master Plan, the MABRRI team in partnership with the City of Parksville, held an open house at the gazebo located in Parksville’s beautiful Community Park. The purpose of this event was to update the community on what has been found through the consultation process so far, ask participants to share their opinions, and provide the community with insight into the future plans of the consultation process. A total of 135 people attended and participated in the Gazebo Talks open house, with even more stopping by for a brief chat.
- **Watershed Visioning Forum** – On November 3<sup>rd</sup>, 2017, the MABR held its first Watershed Visioning Forum at the Bradley Centre in Coombs. The event was facilitated by Eli Enns, the co-chair of the Indigenous Circle of Experts (ICE) Core. During the day, Eli led a group of over 50 participants through meaningful dialogue and thought provoking exercises. The event was used as a way to introduce a new way of thinking and to change the lens in which we view our watersheds.

### **Amazing Places Project**

The Amazing Places Project is a Canadian UNESCO biosphere reserve initiative brought to British Columbia in 2017 through a collaboration between the MABR, Parksville and Qualicum Beach Tourism Association, Destination British Columbia, and VIU. The project connects people with nature and educates residents and visitors about the ecological significance of our incredible local outdoor spaces.

The primary goals for the Amazing Places project in 2017 were to raise the profile of the national project among residents and tourists by engaging them through our website and social media, and by encouraging visitation to the Amazing Places sites. This was accomplished through the creation of 10 short videos on each Amazing Place and the creation of new MABR Amazing Places and Instagram platforms. To enhance this promotion, branded Amazing Places apparel was designed and distributed to local tourism shops and visitor centres within the MABR, accompanied by a substantial digital advertising campaign.



Nearing the end of 2017, the development of a geotourism product was initiated in collaboration with local businesses. This initiative is aimed at driving visitation to the Amazing Places sites, as well as providing economic benefit to local businesses. This initiative will be enhanced, moving forward into 2018, with a postcard photograph contest in which submissions for each of the Amazing Places will be solicited.

## *Indigenous Engagement and Knowledge Exchange*

In 2017 the MABR welcomed Geraldine Manson, VIU Elder in Residence and community member from Snuneymuxw First Nation to the MABR Roundtable. There are now representatives from Snuneymuxw, Snaw-naw-as, and Qualicum First Nations on the Roundtable. In 2017 the MABR Culture of Engagement, and MABR Guiding Principles for Collaboration with First Nation documents were reviewed to ensure they were still appropriate for our work.

Multiple projects including the Snaw-naw-as Garden of Spiritual Healing, Canada C3 layover, 2017 Canadian Biosphere Reserves Association's (CBRA) AGM Indigenous Circle Gathering, and EuroMAB 2017 all provided engagement and learning experiences for the Roundtable to grow as a group and bring forward steps and initiatives to work towards Reconciliation. The MABR was recognized nationally by CBRA as a leader in this context, and were asked to participate in the CBRA Reconciliation in Action Video Series. Since the MABR has been approached to author a Reconciliation in Action white paper in 2018.

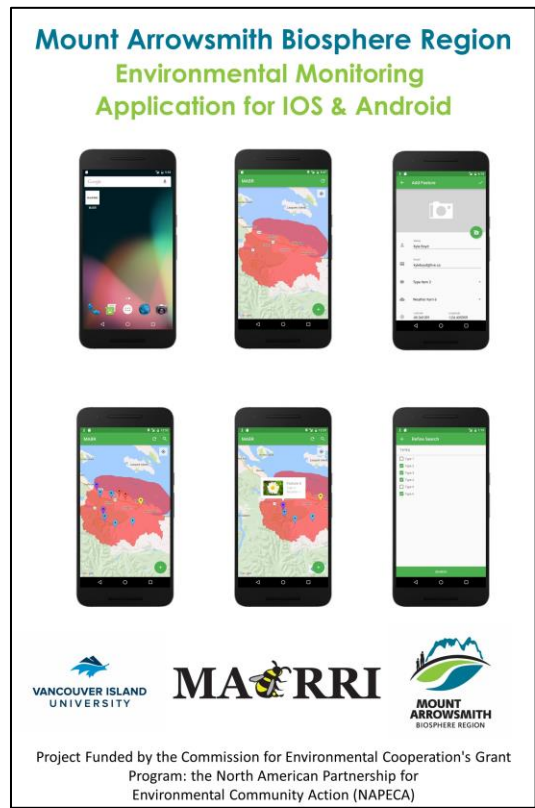




## ***MABR's Collaborative Environmental Monitoring App***

The new MABR Environmental Monitoring App allows users to record observed features (e.g. recent landslides, native plants of cultural significance) or issues (e.g. cougar sightings, invasive species) in the MABR. Information collected by citizens is reviewed by MABRRI and then incorporated into a “living” community map linked to the MABR website. Recorded data is publically available and is used to inform researchers and community members about current environmental issues in the region. The aim for this shared map is to serve as the spark for additional conversation and collaboration to address identified regional issues.

The development of the MABR Environmental Monitoring App began in 2016 with funding from the North American Partnership for Environmental Community Action and was launched in 2017. The app design included VIU students, faculty, and community members’ feedback and input on types of information to collect and how to share information within the region. Data is recorded in real-time using handheld devices (phones or tablets) and the collector for ArcGIS app.



## National Engagement

### *2017 Canadian Biosphere Reserve Association (CBRA) AGM and Conference*

From June 18<sup>th</sup> to 22<sup>nd</sup>, Chief Michael Recalma of Qualicum First Nation and Sarah Lumley, Interim MABR Coordinator, attended the 2017 Annual General Meeting of the Canadian Biosphere Reserve Association (CBRA) and the Co-Building Sustainability and Reconciliation Event in Baie –Comeau, Quebec. The event was hosted in the Manicouagan-Uapishka Biosphere Reserve and brought together biosphere reserve representatives, academics, and Indigenous partners from across the country in a series of workshops and knowledge sharing activities on the role of biosphere reserves and how they can become drivers of reconciliation in Canada. Chief Recalma and Sarah both shared their own experiences about reconciliation with regards to the MABR Roundtable. They were also part of creating an Action Plan for Reconciliation, from which all biosphere reserves will choose several actions to commit to.



## ***2017 Canadian Commission for UNESCO and CBRA Day on the Hill***

On May 29<sup>th</sup>, the Canadian Commission for UNESCO and CBRA hosted a special Day on the Hill in Ottawa. The goal was to allow Members of Parliament, Senators, and federal bureaucrats to discover the important role and contributions of Canada’s 18 UNESCO biosphere reserves.

The non-partisan event was co-organized by MABR Coordinator, Monica Shore, with the support of Members of Parliament Gord Johns (BC: Courtenay-Alberni, NDP), Hon. Ginette Petitpas Taylor (New Brunswick: Moncton-Riverview-Dieppe, Liberal), and Robert Sopuck (Manitoba: Dauphin-Swan River-Neepawa, Conservative).

The focus of the day was a special reception, hosted at Centre Block in the Speaker’s Lounge by Deputy Speaker and Chair of Committees of the Whole, Bruce Stanton, MP. Over 100 MPs and Parliamentary Secretaries attended the event. The Attendees had the opportunity to learn more about how our unique network of UNESCO biosphere reserves contributes to biodiversity conservation, sustainable development, and reconciliation. The reception also featured sustainably crafted edibles from Canada’s biosphere reserves.



## *Canada C3*

On October 21<sup>st</sup>, passengers of Canada C3's 143-day voyage arrived in Nanoose Bay to be greeted by Snaw-naw-as First Nation and the MABRRI team. The group gathered at Snaw-naw-as First Nation's Health Centre where everyone was given a healthful welcome from Councillor Lawrence Mitchell and words of thanks were provided on behalf of Canada C3. Following the welcome, passengers were divided into two groups to learn about the Snaw-naw-as Garden of Spiritual Healing, or to participate in a wetland mapping demonstration and geocaching activity at Rath Trevor Provincial Park. In the afternoon, Chief Recalma of Qualicum First Nation led an informative tour of the Big Qualicum Fish Hatchery. Canada C3's long voyage from coast to coast brought individuals from all walks of life to share a day in the MABR and learn about the importance of truthful storytelling and the reconciliation of past relationships between aboriginal and non-aboriginal communities.



## *Amazing Places National Website*

The MABR contributed project funding to develop the national Amazing Places website, which can be found at <http://www.biospherecanada.ca/amazingplaces>. The site showcases the connection of five of Canada's 18 UNESCO biosphere reserves that have Amazing Places programs.

## International Engagement

### *EuroMAB 2017 in France*

From April 4<sup>th</sup> to 7<sup>th</sup>, biosphere reserve representatives from Europe and North America gathered for the Man and the Biosphere (MAB) Programme’s bi-annual conference. Over 350 participants from nearly 40 countries came together for the 15<sup>th</sup> EuroMAB conference. This conference focussed on “keeping with the world congress of the biosphere reserves held in Lima in March 2016, which led to the definition of a framework for the biosphere reserve Action Plan for the 2016-2026 period. Through EuroMAB 2017, participants worked to define how and with what means the biosphere reserves can contribute to Sustainable Development Goals (SDG), to multilateral agreements on the environmental agreements (MEA), and to the Paris agreement on the climate.”



The conference provided a valuable opportunity for members of the Canadian MAB Committee, CBRA, and the CBRA Indigenous Circle to meet. Canadian biosphere reserves directly contributed to the conference agenda by coordinating and delivering a number of workshops including: [1] Partnerships between Biosphere Reserves and Universities; [2] Biosphere Reserves and Scientific

Partnerships; [3] International Centre for Sustainable Rural Communities; [4] Indigenous Leadership and Participation in Biosphere Reserves; and [5] Biosphere Reserves and Climate Change. They also engaged in other workshop discussions and developed important networks and contacts during the breaks and evening sessions.

## ***UNESCO MAB Programme Youth Forum in Po Delta Biosphere Reserve, Italy***

In September, two representatives from MABRRI (Ashley Van Acken and Larissa Thelin) had the opportunity to attend the first ever MAB Programme Youth Forum located in the Po Delta Biosphere Reserve, Italy. Throughout the five-day conference, 282 representatives from over 140 biosphere reserves in 85 countries worked together to help determine how to better engage youth in research, decision making, and management of biosphere reserves on a global scale. The outcome of the forum, a final declaration, includes a list of objectives and actions that biosphere reserves, biosphere reserve networks, and the UNESCO MAB programme can do to ensure increased participation of youth in biosphere reserves around the world.

The final declaration is an ambitious document that calls for active participation from all levels of the MAB Programme. Objectives included increasing youth employment opportunities, spreading scientific and traditional knowledge regarding the values of biosphere reserves, developing relationships with educational institutions, improving communication between biosphere reserves, and promoting youth exchanges between biosphere reserves. These were all agreed upon by attendees of the forum, and thus represent a consensus driven by youth from incredibly diverse backgrounds. The final declaration was presented at the 10<sup>th</sup> UNESCO Youth Forum in Paris in October 2017.



## ***International Journal of UNESCO Biosphere Reserves***

In 2017, the International Journal of UNESCO Biosphere Reserves was launched. The journal is a digital, open-access, subscription-free publication, making this a cost-effective publication, reducing the ecological footprint of the journal and allowing for full-colour/full-spectrum production across a range of digital formats. This journal is part of a wave of new journals that are abandoning the confines of paper publications and embracing a digital future that includes video, audio, full-colour mapping, and interactive formats that are not limited by the challenges of

publication costs and hard copy dissemination. This format also allows for a much shorter delay between submission and publication.

The journal is fully interdisciplinary and instead of focusing on a selected scientific research sub-area, it is a resource for sharing information across disciplines and into practice, promoting the cross-pollination of ideas and creating new research connections. It can therefore be regarded as a contribution to the implementation of the Lima Action Plan for the MAB programme and its World Network of Biosphere Reserves (WNBR) (2016-2025). This calls for not only applied research in biosphere reserves, but also for an active and open interdisciplinary network of scientists and knowledge holders working in and with biosphere reserves, with a joined research and knowledge exchange agenda.

For researchers interested in the 669 biosphere reserves designated by UNESCO's MAB Programme, an in-depth review initiated by Professor Martin Price in 2013 and continued by Dr. Pamela Shaw in 2015, revealed that a wealth of information across a wide range of disciplines was being published. However, given differences in terminology and the great diversity of publications involved, the materials developed were not always available to individuals involved in the WNBR. In addition, obtaining articles at no cost was not a simple matter for biosphere reserve staff and volunteers who were not affiliated with academic institutions. Beyond this, a mechanism to bring together information on a range of community-based and applied practical activities currently undertaken within many biosphere reserves, was simply not available.

## **MABR Communications and Marketing**

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 Newsletter***

- Our e-newsletter is published every two months. All previous issues can be found at <http://www.mabr.ca>.
- In 2017, we added a section to the newsletter featuring one article in each issue that highlights the work of a local 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 2017, 416 people were subscribed to our e-newsletter.

### ***Canadian Commission for UNESCO's 'Reconciliation in Action' Series***

The MABR was featured in a 3-minute documentary about the Roundtable model of governance. This film was part of Canadian Commission for UNESCO's Reconciliation in Action Series, which highlights initiatives across the Commission's various networks, including Canada's 18 biosphere reserves. To view the video and see our Roundtable in action please go to [facebook.com/MountArrowsmithBR](https://facebook.com/MountArrowsmithBR).

### ***Other Marketing Materials***

- Website: [mabr.ca](http://mabr.ca)
- Facebook: [facebook.com/MountArrowsmithBR](https://facebook.com/MountArrowsmithBR)
- Twitter: @MountArrowBR
- Instagram: @mtarrowsmithbr
- Flyers and event posters



## **The Mount Arrowsmith Biosphere Region Research Institute (MABRRI)**

### **About MABRRI**

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 VIU, 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".



## 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, which include objectives for conducting research in the MABR, research themes and priority areas to focus on 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](http://mabrri.viu.ca) on the 'Resources' page.

MABRRI is an academic entity of 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 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 UNESCO MAB Programme.

## 2017 MABRRI Student Researchers

In 2017, MABRRI welcomed a total of 40 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 2017 MABR BioBlitz, Wetland Mapping in the RDN, Lake Monitoring, Forage Fish Spawning Habitat Monitoring, MABR Garry Oak ecosystems mapping, Snaw-naw-as Garden of Spiritual Healing and Education & Outreach program, Shelly Creek Education and Outreach, the Parksville Community Park Master Plan and Parks Survey, and new ideas and initiatives along the way. Read about the 2017 projects in the following section.

We are grateful to the following exceptional students for being part of the MABRRI family in 2017. Names in bold are MABRRI's Senior Research Assistants or Project Coordinators, who helped lead and coordinate projects. A special thanks to team leaders! (Names are in alphabetical order by last name).

<b>Table 1: 2017 List of Student Researchers</b>		
Taylor Alexander	Nathan Hambrook	Lauren Shaw
Daniela Almeida	<b>Kayla Harris</b>	Kidston Short
Carson Anderson	Mandy Hobkirk	Janet Smyrski
Robyn Bartle	<b>Sarah Holden</b>	Jaime Smythe
Chantelle Butler	Amanda Jefferies	Victoria Stuart
Stacey Cayetano	Diana Jerop	<b>Larissa Thelin</b>
Daniel Cockcroft	Ally Keir	Brian Timmer
Allison Cronk	Maria Kawahara	<b>Haley Tomlin</b>
Devan Cronshaw	Sandra Lawson-Body	<b>Ashley Van Acken</b>
Benafshaw Dashti	<b>Sarah Lumley</b>	Courtney Vaugeois
Trevor Dickinson	Mark Mudryk	Luca Vigotti
Jeffrey Fontaine	Tricia Reynes	Landon Walters
<b>Ryan Frederickson</b>	Curtis Rispin	Kenneth Williams
Rushi Gadoya	Jessica Rye	Alexandra Young
<b>Michelle Harnett</b>	Eric Sanchez	

## 2017 Research and Community Engagement at MABRRI

### 1. *Wetland Mapping in the Regional District of Nanaimo*

In partnership with the RDN’s Drinking Water and Watershed Protection (DWWP) program and VIU, MABRRI has completed its second year of a five-year contract to map and classify wetlands, while quantifying their potential relationship to groundwater recharge.

Project deliverables for 2017 were: [1] mapping and classifying of wetlands throughout the RDN, [2] the creation of three wetland mapping classification and geologic assessment reports, [3] identification of possible priority site locations for long-term monitoring from both an ecological perspective and in regards to hydrogeology, [4] a literature review of existing policy on wetland protection with recommendations, [5] and the creation of a GIS layer, attribute table, and mapping of currently mapped wetlands within the RDN. In total, MABRRI has mapped thirty wetlands in five water regions in the RDN, including Big Qualicum, Little Qualicum, French Creek, Englishman River, and South Wellington to Nanoose.

The Technical Advisory Committee (TAC) on the project includes Julie Pisani, Coordinator of the RDN’s DWWP program, Bernd Keller of the Mid-Vancouver Island Habitat Enhancement Society (MVIHES), VIU Geography Professor Alan Gilchrist, and VIU Earth Science Professor Jerome

Lesemann. In the spring of 2018, students will continue mapping in all water regions of the RDN and establish priority sites for regular monitoring.

## ***2. Lake Monitoring in the Regional District of Nanaimo***

Lake Monitoring in the RDN began in 2016 as a trial monitoring program funded by VIU's Research Awards Committee. The goal of the project was to train VIU students on lake monitoring methods and lake health following the BC Lake Stewardship Society's (BCLSS) standards. Student researchers prioritized data collection in both Cameron Lake and Spider Lake during the first and second year of the project and will continue monitoring these two lakes into 2018. Student researchers' measure and record water clarity, surface temperature, dissolved oxygen, and other water chemistry parameters. All data collected will contribute to the BCLSS lake monitoring program to help gauge the current health of these two lakes.

## ***3. Ecological Research as Education Network Permanent Forest Plot Project***

Ecological Research as Education Network (EREN) developed the Permanent Forest Plot project (PFPP), which involves universities throughout North America, to provide students and faculty from different institutions a strict protocol to follow when establishing forest plots, ultimately creating comparative data. The goal of the PFPP is to establish Permanent Forest Plots (PFPs) in a range of different ecosystems, which will allow students and faculty to observe and compare different ecosystems. Collecting and sharing this data allows observations and comparisons for different aspects of the forest, including biomass, carbon sequestering abilities, species diversity, and presence or absence of invasive species, in varying ecosystems.

In 1999, Dr. Glen Jamieson and the Mount Arrowsmith Biosphere Foundation (MABF) established a 100m by 100m forest plot at Englishman River Falls Provincial Park. The MABF collected the location, size, and type of each tree in the plot. In 2016, MABRRI established two interior 20m by 20 m forest plots using the EREN protocol within the MABF's original plot, as well as two edge plots outside the MABF plot. In addition to the sites at Englishman River Falls Provincial Park, MABRRI student researchers established two new plots at Milner Gardens & Woodland in February 2017, which included one interior and one edge plot. All data collected is uploaded on the EREN database to allow VIU and other Institutions to use this data.

## ***4. Forage Fish Spawning Habitat Monitoring***

The initial idea for this project was inspired by one of MABRRI's Student Research Assistants, Maria Kawahara. She had a significant interest in forage fish because of their importance in the marine ecosystem and food web. It is known that there is a lack of data regarding where active forage fish spawning habitat is located, therefore MABRRI saw an opportunity to make an impact and begin filling data gaps. The idea for this project was brought to the MABR Roundtable in August, where

the Nature Trust of British Columbia, indicated their interest in funding the project. It was at this Roundtable that this first partnership was established, with a contract being signed later, in mid-September. This initial partnership ensured that MABRRI's first sampling efforts would be focused in the Parksville-Qualicum Beach Wildlife Management Area (PQBWMA).

In October, MABRRI also partnered with the World Wildlife Fund (WWF) Canada, which provided a contact at the Washington State Department of Fish and Wildlife (WDFW), who are also doing a large scale forage fish spawning habitat sampling project. An individual from WDFW came to VIU in November and trained seven members of the MABRRI team to use the most recent and most efficient forage fish sampling method, referred to as the "Vortex Method." It was in late November to early December that the team got out sampling in the PQBWMA and Parksville Qualicum Beach region in general. By the end of December, three sites had been sampled, of which one tested positive for forage fish embryos. The sampling efforts will continue into 2018, in addition to a Geographic Information Systems (GIS) Intern being hired to develop predictive mapping for the Eastern coastline of Vancouver Island, including the MABR. This mapping will assist MABRRI in identifying more active forage fish spawning sites, and sites that should be monitored regularly because of the favourable characteristics they maintain.

### ***5. Coastal Forest Plant Phenology and Monitoring Project***

Student researchers from MABRRI have developed a pilot plant phenology research project in partnership with VIU's Research Awards Committee, VIU professor Matt Bowes, the Ministry of Forest Lands and Natural Resource Operations (MFLNRO), and Milner Gardens & Woodland. Plant phenology studies provide important information on species' biological responses, and can help to understand impacts of climate change, as well as support land and resource management. The primary objective of this project is to connect VIU students, researchers, and faculty with the MFLNRO research program and Milner Gardens & Woodland's Climate and Phenology Project in a collaborative effort to assess and monitor climate change effects on local forest plant phenology. The main outcomes of this proposal include: [1] development of plant phenophase data collection methodologies, [2] collection of plant phenophase observations for the 2017 growing season, and [3] assessment of long-term project development, based on one growing season of piloting methods.

### ***6. Bull Kelp Sample Collection and Marine Monitoring in the Salish Sea***

The aim of this project is to contribute to the work that the Pacific Salmon Foundation (PSF) has been conducting through the development of their Salish Sea Marine Survival project, as well as the work that the Nile Creek Enhancement Society (NCES) has underway regarding enhancement of bull kelp within the Salish Sea in relation to climate change. The goals of this project are: [1] through meeting with tenured marine biologists and program coordinators that work for the PSF,

NCES, and Project Watershed determine locations in the Salish Sea that are currently lacking data with regards to bull kelp, [2] conduct a literature review on factors limiting the successful development of bull kelp, [3] collect bull kelp sori (seeds) to be sent in for genetic analysis, and [4] capture the water profile, recording water parameters at one metre intervals from the surface to the bottom, at each site sori are collected from.

### ***7. Shelly Creek Education and Outreach***

Over time, due to the development of the surrounding area, the Shelly Creek watershed's health has degraded. The development and installation of increasingly more impermeable surfaces has resulted in a greater amount of surface runoff flowing directly into Shelly Creek. The greater volume of water surges into the creek has caused significant erosion, which has led to sediment build up in some of the lower sections of the creek, negatively impacting the quality of salmon spawning habitat. Additionally, the changes in surrounding land use have resulted in less water being retained in higher sections later in the year, which is impacting the resident cutthroat trout population. In the summer of 2017, the Mid Vancouver Island Habitat Enhancement Society (MVIHES) had a water infrastructure engineer conduct a water balance and sediment reduction plan for the Shelly Creek watershed. In this report, the engineer identified the major issues that are causing erosion and the decline in the extent of water in the summer. Further, the engineer determined and explained six mitigation strategies that could be implemented to improve the health of the watershed.

In September 2017, Peter Law from MVIHES approached MABRRI with a potential project that would complement their current restoration efforts in the Shelly Creek watershed. He asked MABRRI to come up with a community engagement strategy that would effectively communicate the issues and mitigation strategies to the communities that neighbour the Shelly Creek watershed, specifically Parksville and Errington. Ultimately, MVIHES would like to disseminate this information to increase interest in their restoration efforts and build capacity to restore more of the watershed to a healthier state, with a specific focus on the lower reaches where Pacific salmon are known to spawn. In addition to developing a community engagement strategy for MVIHES to approach knowledge dissemination in these areas, MABRRI also created hand-out materials that will aid MVIHES in the initial stages of gaining interest from the communities.

### ***8. Snaw-naw-as Garden of Spiritual Healing: Education & Outreach Program***

MABRRI broke ground and began construction of the Snaw-naw-as Garden of Spiritual healing at the beginning of May 2017. By mid-May there were Snaw-naw-as community members in the garden planting vegetables in the garden boxes that had been constructed. By the end of 2017, MABRRI has made significant progress having built 14 garden boxes, a greenhouse, a toolshed, a pathway, and enclosed the garden with a wooden fence. In the fall of 2017, MABRRI switched the

project focus to begin working on the education and outreach component. It was decided that students would research a topic and present an educational course to the Snaw-naw-as community with regards to gardening.

In September and October, five students from a variety of different departments including nursing, geography, anthropology, and psychology, were hired to begin developing one educational course each. MABRRI had chosen topics pertaining to different aspects of gardening, which were approved by Snaw-naw-as Elders; the students could choose to base their educational courses on any of the approved topics. Some of the different topics students had to choose from included the mental and physical benefits of gardening, therapeutic benefits of gardening, seed to compost, growing a garden, and healthy cooking. Once topics were selected and research began, the students were able to meet with the Snaw-naw-as Elders to have lunch, and present their ideas and topics to receive feedback with regards to what they would like to learn in each of the proposed courses. The students will begin instructing these education courses to the Snaw-naw-as community in March of 2018.

### ***9. Parksville Community Park Master Plan and Parks Survey Project***

On December 4<sup>th</sup>, the City of Parksville's Mayor and Council adopted the Community Park Master Plan, marking the conclusion of this project for the MABRRI team. Work for this Plan started with a formal contract signing with Mayor Marc Lefebvre in January 2017, and has been a key project for MABRRI since then.

Residents of Parksville consider the Community Park to be the “jewel” of their City. As such, the project team has felt a strong responsibility to develop a community engagement strategy that would inform a Master Plan to be used to support the Community's vision for the Park and ensure that residents can enjoy the Park for years to come. Consultation events gave students and staff the opportunity to engage with almost 1500 people at a series of events, including: [1] Parks on the Street day, where students canvassed community members to generate ideas to inform the direction for subsequent consultation; [2] a World Café, an event where students facilitated 20 minute discussions on the themes identified at Parks on the Street day; [3] the Resident's Survey, which provided each resident in the City with an opportunity to share their vision for the Community Park on an electronic or paper survey; [4] Gazebo Talks, which served to update park goers about the project to date and to introduce the “Guiding Principles” for the Master Plan; [5] the Tourist Survey, which gave visitors the opportunity to share their ideas for the Park; [6] Picnic Table Talks, where key stakeholders in the Park gave their input for how the Park could be developed to support their specific needs; and [7] a final open house, where residents were invited to comment on the draft Master Plan in order to identify changes to improve the document.

Students from many different programs had the opportunity to work on the project and gain first-hand experience in parks planning, research, consultation, engagement, survey writing, and

report writing. The final document that was produced will guide the development of Parksville's Community Park for the next 20 years. We are grateful to have been a part of the process and look forward to our next projects with the City!

### ***10. Garry Oak Ecosystem Mapping Project***

In partnership with Dr. Hannah Wilson from the Geography Department at VIU, MABRRI will begin the Garry Oak Ecosystem Mapping Project in early 2018. The project aims to gain a better understanding of the location and extent of vulnerable Garry oak ecosystems within the MABR. It is important to determine where Garry oak ecosystems are located because of their current endangered status, their highly fragmented present-day distribution, and because they are more biodiverse than any other ecosystem in Canada. Understanding where they are located is crucial to understanding their current wellbeing and how to continue conserving them in the future. From preliminary research conducted by MABRRI in 2017, the identified locations will be mapped by VIU student researchers using GIS and remote sensing technologies, and the surrounding land use analysis will help determine whether or not the location is vulnerable to encroachment or other potential impacts.

### ***11. Student Blog***

Student researchers at MABRRI contribute to a student blog throughout the year. Although more often during the summer field season, the blog showcases their experiences and adventures while conducting research at MABRRI. With every post, they include a photographic slideshow with a first-person narrative describing their adventures that day and any interesting experiences they had out in the field. The 2017 adventure blog continued to be an excellent way to highlight MABRRI's exceptional cohort of student researchers. The blog can be found at [www.mabrri.viu.ca/blog](http://www.mabrri.viu.ca/blog).

## **Acknowledging All Collaborators**

In 2017, 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 these individuals and community groups for their ideas, inspiration, and most importantly – their dedication to helping the MABR achieve its full potential as a model for sustainable development. Without their support, the MABR would not be able to achieve as much as it did in 2017.

## 2017 MABR and MABRRI Executive Team



In 2017, the following people were involved in the day-to-day management and coordination of the MABR and its associated research institute at VIU. The team received direction from Dr. David Witty, VIU's Provost and Vice-President Academic, as well as guidance from the Roundtable that was inaugurated in November of 2015.

### **Dr. David Witty, PhD MRAIC FCIP RPP Provost and Vice-President Academic, Vancouver Island University—MABR Director**

These past years have been an important further transformation for the Mount Arrowsmith Biosphere Region (MABR) as it continues to strengthen working relationships with Roundtable members. Through common effort and collaboration within the Roundtable format, we have been allowed to listen, discuss, and consider in interactive, respectful ways.

As well, the creation of MABRRI that is housed at VIU, has enabled many students and faculty to work with local communities and First Nations to explore biophysics, cultural, and associated environmental considerations. Recent successful funding applications will permit further and more varied research within the MABR. Much has transpired in the past two years. Recent history suggests that much more will be accomplished in future.

VIU is proud to be part of a community that cares; cares for its relationship with the First Nations within whose territory the MABR is situated; cares for the UNESCO designation that promotes environmental sustainability; and cares for the general well-being of the region.



### **Monica Shore, MA – MABR Coordinator**

Monica has stepped back from her position as MABR Coordinator in 2017 and is currently 2<sup>nd</sup> Vice-Chair of CBRA's Executive Committee. She managed the MABR's internal and external communications, coordinated community-based events, facilitated meetings and community forums, and represented the MABR both nationally and internationally. Originally from Montreal, Monica's background is in sustainability, cultural development and tourism, as well as the performing arts and communications. She is fluent in English, French, and Spanish.





**Pamela Shaw, PhD MCIP RPP FRCGS – MABRRI Research Director**

Pam is the Director of the Master of Community Planning Program VIU and the Research Director of MABRRI. 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, MA – MABRRI Research and Community Engagement Coordinator**

Graham has been involved with MABRRI since it was established in 2014 and oversees the coordination of all ongoing research projects and research. In 2017, he completed his Masters in Community Planning at VIU. Graham’s education background includes a degree in Natural Resources Geography and a diploma in Forest Resource Technology. The skills he acquired in the hospitality industry and in organizational management have transferred seamlessly to MABRRI.



**Ashley Van Acken, B.Sc – Interim MABR Coordinator & Assistant Community Engagement Coordinator**

Ashley is both the Interim Coordinator for the MABR and MABRRI's Assistant Research and Community Engagement Coordinator. She has been an integral part of MABRRI since joining in early 2016 and helps to supervise project coordinators, student research assistants, and ongoing research projects. Her education background includes a Bachelor of Science degree in Geoscience with a primary focus on geologic systems, geomorphology, and hydrogeology. As Interim MABR Coordinator, she has organized the MABR’s roundtable meetings, bi-monthly newsletter, and social media page. Further responsibilities include: co-hosting community engagement events, leading meaningful discussions of local relevance, strengthening regional partnership building with local First Nations, industries, municipalities and stewardship groups, and to secure funding for undergraduate student research opportunities.

## Contributions to the Lima Action Plan 2016-2025

Strategic Action Area A: The World Network of Biosphere Reserves consisting of effectively functioning models for sustainable development.	
<p><b>A1. Biosphere reserves recognized as models contributing to the implementation of the Sustainable Development Goals (SDGs) and Multilateral Environmental Agreements (MEAs).</b></p>	<p><b>A1.1 – Promote biosphere reserves as sites that actively contribute to achieving the SDGs.</b></p> <p>In 2017, the MABR contributed to three of the seventeen 2030 SDG’s, including:</p> <ul style="list-style-type: none"> <li>• <i>Goal 4: Clean Water and Sanitation</i> Scientific findings from the wetland mapping and lake monitoring projects aim to provide recommendations for implementing integrated water resource management protocols, while increasing protection and restoration efforts within these ecosystems.</li> <li>• <i>Goal 6: Quality Education</i> MABR/RI continues networking and collaborating with regional partners and community members, building connections and developing more projects. Through our established partnership with VIU, our team has had the opportunity to hire over 45 students. These partnerships have substantially increased the number of youth who have received technical and vocational training for future employment opportunities.</li> <li>• <i>Goal 14: Life Below Water</i> Two of MABRRI’s projects, within the MABR, Bull Kelp Sampling in the Salish Sea and Forage Fish Habitat Monitoring, are increasing regional scientific knowledge with the purpose of improving ocean health while also enhancing marine biodiversity.</li> </ul>
	<p><b>A1.2 – Promote biosphere reserves as sites that actively contribute to implementing Multilateral Environmental Agreements (MEAs), including the Aichi Biodiversity Targets.</b></p> <p>The MABR contributes to Aichi Target 3, which states “by 2020, Canada's wetlands are conserved or enhanced to sustain their ecosystem services through retention, restoration, and management activities.” MABRRI has developed a 5-year partnership (2016-2020) with the RDN’s DWWP 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 include: [1] development of long-term processes for mapping, monitoring, conserving,</p>

	<p>and enhancing wetlands; [2] sustainable use and management of ecosystem services; and [3] contribute to informed decision-making and regional policy regarding wetlands.</p>
	<p><b>A1.3 – Establish alliances at local, regional, international levels for biodiversity conservation and benefits to local people taking into consideration the rights of Indigenous people.</b></p> <p>The MABR has established a close partnership with Snaw-naw-as First Nation to develop the <i>Garden of Spiritual Healing</i> with therapeutic, health, spiritual, and educational functions. The garden will be constructed by members of the Snaw-naw-as community and VIU 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.</p>
	<p><b>A1.4 – Use biosphere reserves as priority sites/observatories for climate change research, monitoring, mitigation and adaptation, including in support of the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parities (COP) 21 Paris Agreement.</b></p> <p>The purpose of MABRRI’s plant phenology project, in partnership with MFLNRO, is to observe phenophases of plant species at Milner Gardens &amp; Woodland to understand how climate change may be altering seasonal timing of plant phenophases.</p>
	<p><b>A1.5 – Promote green/sustainable/social economy initiatives inside biosphere reserves.</b></p> <p>In 2016, the MABR brought the Amazing Places Project to the west coast with funding from Destination BC, Parksville Qualicum Beach Tourism, and VIU. The project’s goal was 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.</p>
	<p><b>A1.6 – Undertake research and ensure the long-term conservation of the socio-ecological systems of biosphere reserves including restoration and appropriate management of degraded ecosystems.</b></p> <p>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. An additional 18 projects are being planned for the summer of 2018. All projects study some aspect of the socio-ecological systems in the MABR. For a list of projects, visit <a href="http://mabrri.viu.ca/projects">mabrri.viu.ca/projects</a>.</p>

<p><b>A2. Open and participatory selection, planning and implementation of biosphere reserves.</b></p>	<p><b>A2.2 – Ensure processes for selecting, designing, planning, and nominating biosphere reserves are open and participatory, involving all concerned stakeholders, taking into account local and Indigenous practices, traditions and cultures, and based on sound science.</b></p> <p>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. The Roundtable governance structure includes all major stakeholders in the MABR, as well as local community representatives.</p>
	<p><b>A2.4 – Ensure that biosphere reserves have clear communication plans and mechanisms to implement these.</b></p> <p>Every year, the MABR reviews and updates its marketing and communications plan to ensure that the maximum number of people are being reached through the social media platforms.</p>
<p><b>A3. Integration of biosphere reserves into relevant legislation, policies, and/or program complemented by support for the functioning of biosphere reserves.</b></p>	<p><b>A3.1 – Recognize biosphere reserves in legislation, policies, and/or programmes at national and/or subnational levels.</b></p> <p>The MABR has written Memoranda of Understanding with the City of Parksville and the Town of Qualicum Beach. In 2017, MABRRI worked 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.</p>
	<p><b>A3.2 – Support effective governance and management structures in each biosphere reserve.</b></p> <p>Since 2014, VIU 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 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.</p>
<p><b>A4. Research, practical learning, and training opportunities that support the management of</b></p>	<p><b>A4.1 – Establish partnerships with universities/research institutions to undertake research, especially UNESCO Chairs and Centres.</b></p> <p>MABRRI was founded at VIU in August 2014. MABRRI hires students as research assistants, hosts visiting scholars from around the world, and</p>

<b>biosphere reserves and sustainable development in biosphere reserves.</b>	engages community partners in participatory research projects that explore sustainability within the MABR.
	<b>A4.3 – Provide adequate research infrastructure in each biosphere reserve.</b>  MABRRI is a well-established research institute at VIU with space, research equipment, and funding.
	<b>A4.5 – Encourage managers, local communities and other biosphere reserve stakeholders to collaborate in designing and implementing projects that inform the management and sustainable development of their biosphere reserve.</b>  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.
<b>A5. Financial sustainability of biosphere reserves.</b>	<b>A5.1 – Develop a business plan for each biosphere reserve including, generation of revenues and effective partnerships with potential funders.</b>  See A3.2
<b>A7. Biosphere reserves recognized as sources and stewards of ecosystem services.</b>	<b>A7.3 – Implement mechanisms for the equitable payment for ecosystem services.</b>  See A1.3
<b>Strategic Action Area B: Inclusive, dynamic and result-oriented collaboration and networking within the MAB Programme and the World Network of Biosphere Reserves.</b>	
<b>B1. Effective biosphere reserve managers/coordinators and engaged stakeholders of biosphere reserves.</b>	<b>B1.2 – Organize regional education, capacity building, and training programmes.</b>  The MABR hosted educational sessions on watershed visioning, wetland training, and engages with roundtable members to identify areas for capacity building.
<b>B2. Inclusive regional and thematic networks.</b>	<b>B2.1 – Ensure the participation of all relevant stakeholders in regional and thematic networks.</b>  The MABR’s Roundtable collaborated on a number of projects in 2017, including the Snaw-naw-as Garden of Spiritual Healing, the forage fish monitoring project, and wetland mapping. Partners are always welcome to join MABRRI researchers in the work they are conducting.
<b>B4. Effective regional and thematic level collaboration.</b>	<b>B4.1 – Create opportunities for collaborative research, implementation, and monitoring.</b>

	MABRRI creates these opportunities through the collaborative research projects and implementation of monitoring programs. All of MABRRI's projects are in partnership with another local organization; they work together to collect the necessary data and fill existing data gaps.
<b>Strategic Action Area C: Effective external partnerships and sufficient and sustainable funding for the MAB Programme and the World Network of Biosphere Reserves.</b>	
<b>C2. Recognition of the MAB Programme as a key partner within UNESCO and with other international organizations and relevant conventions.</b>	<p><b>C2.1 – Create and realize opportunities for collaboration and partnerships within UNESCO.</b></p> <p>The MABR is working with the Canadian Commission for UNESCO (CCUNESCO) and CBRA on the IPCA/OECM project, achieving Canada Target 1.</p>
<b>C3. Biosphere reserves and regional networks generating their own revenues.</b>	<p><b>C3.2 – Promote partnerships to raise funds from external entities with objectives that are compatible with those of the MAB Programme.</b></p> <p>In 2016, the MABR and MABRRI secured over 10 grants from external funders to support projects and research that address the biosphere reserve mandate.</p>
<b>C4. Recognition of the MAB Programme as a key partner by private sector.</b>	<p><b>C4.2 – Create opportunities for collaboration and partnerships with private sector which are open, accountable, and sustainable.</b></p> <p>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 within the biosphere reserve.</p>
<b>Strategic Action Area D: Comprehensive, modern, open, and transparent communication, information and data sharing.</b>	
<b>D1. Full availability of MAB documents, data, information, and other material.</b>	<p><b>D1.1 – Implement the open access policy adopted by the International Coordinating Council (ICC) (of the MAB Programme) in 2014.</b></p> <p>The MABR provides public access to governance documents on its website (mabr.ca), and MABRRI provides public access to project information and data on its website (mabri.viu.ca). Furthermore, MABRRI 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.</p>
<b>D2. Increased awareness of all aspects of the MAB Programme.</b>	<p><b>D2.3 – Implement a coordinated publications programme to facilitate data and knowledge sharing.</b></p> <p>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, including: peer-reviewed journal articles,</p>

	<p>research notes, stories and narratives, photography, and videography. Visit <a href="http://www.biospherejournal.org">www.biospherejournal.org</a> to see the journal.</p>
<p><b>D3. Broader engagement and outreach.</b></p>	<p><b>D3.1 – Use social media and other novel information and communication technologies.</b></p> <p>The MABR uses Facebook and Twitter to communicate its activities and to engage the public.</p>
<p><b>Strategic Action Area E: Effective governance of and within the MAB Programme and the WNBR.</b></p>	
<p><b>E4. Effective functioning of regional and thematic networks.</b></p>	<p><b>E4.1 – Develop plan with objectives, performance assessment mechanism, and timeframe for each regional and thematic network.</b></p> <p>The MABR will work with the Mountains thematic network to develop new objectives, performance assessment mechanisms, and a timeframe for established goals.</p>

## Looking Ahead to 2018

Since we finished 2017 on such a high note, having accomplished so much, we are extremely optimistic that 2018 will be an incredible year for the MABR and MABRRI. We will begin the year with a visit from the film crew *Striking Balance*. They will be creating a documentary about the MABR that will be televised in 2020; it will showcase the Roundtable governance structure, our amazing local environments, and highlight a number of the projects that MABRRI currently has underway.

In February, the MABR Coordinator, along with members from Qualicum and Snaw-naw-as First Nations, will have the opportunity to travel to Ottawa, Ontario where they will meet with other Canadian biosphere reserves and discuss CBRA's upcoming project. CBRA will be launching their Other Effective Area-Based Conservation Measures (OECMs) project, which will allow biospheres to collaborate with local First Nation groups to identify areas that are not currently federally protected, but would benefit from doing so, ultimately allowing us to reach Canada Target 1.

In 2017, MABR/MABRRI will be taking on a pro-bono project with the Friends of French Creek Conservation Society, developing a land use and environmental planning report to aid their group in purchasing and preserving a large swath of land found adjacent to the French Creek estuary. This report will provide background information on the historical, cultural, ecological, and community values of the area.

Additionally, the MABR/MABRRI will be taking part in another CBRA initiative, locally. The team will be partnering with the City of Parksville, Island Timberlands, and TimberWest to plant 1,000 Douglas fir trees. The planting will involve VIU students, local youth, and Snaw-naw-as First Nation. It will be conducted in order to counteract the emissions that result from those travelling to the G7 Summit in Charlevoix, Quebec. The 1,000 trees that are planted will sequester approximately 143 tonnes of carbon.

MABRRI's 2018 summer student research team will continue to grow in size relative to past years, this year we anticipate hiring over 20 students to take part in approximately 30 different research projects. All of our projects study biodiversity conservation, sustainable development, and/or reconciliation within the MABR and in the surrounding areas.

We are grateful for all the lessons learned in 2017, for those organizations and individuals we partnered with, and for the continued excitement we have witnessed for the MABR and biosphere reserves, in general. We are eager to see what projects, connections, and success is coming our way in the upcoming year!