

MOUNT ARROWSMITH BIOSPHERE REGION RESEARCH INSTITUTE



Strategic Plan for Research and Education | 2015-2018



United Nations
Educational, Scientific and
Cultural Organization



Mount Arrowsmith
Biosphere Reserve



VANCOUVER ISLAND
UNIVERSITY



Mount Arrowsmith Biosphere Region Research Institute

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Executive Summary

The Mount Arrowsmith Biosphere Region Research Institute's (MABRRI) 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.

Introduction

The Mount Arrowsmith Biosphere Region Research Institute (MABRRI) is an academic entity at Vancouver Island University (VIU) that supports and conducts natural and social science research in the Mount Arrowsmith Biosphere Region (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 Mount Arrowsmith Biosphere Region (MABR) and upholds the mandate of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Man and the Biosphere Programme.

MABRRI's mission is to advance a program of inquiry that involves all regional stakeholders in meaningful explorations of issues of local relevance. By harnessing the knowledge of the MABR community and the interdisciplinary strengths of students at VIU, MABRRI seeks to be a centre for collaborative research, innovation, and knowledge sharing that will elevate the relationship between people and nature in the biosphere region.

Context

MABRRI functions as the research arm of the Mount Arrowsmith Biosphere Region, a UNESCO designated biosphere reserve. The purpose of UNESCO's Man and the Biosphere Programme is to improve the relationships between people and their environments through a global network of locally managed and internationally recognized biosphere reserves.¹ Biosphere reserves support and facilitate collaboration between Indigenous Peoples, stewardship organizations, all levels of government, corporations, academic institutions, and residents. Partners work together to address the three complementary functions of all biosphere reserves: (1) conservation of biodiversity; (2) sustainable development and; (3) support for research, monitoring, and education. Biosphere reserves seek to inspire a positive future by connecting people and nature today.

¹ UNESCO, 2015

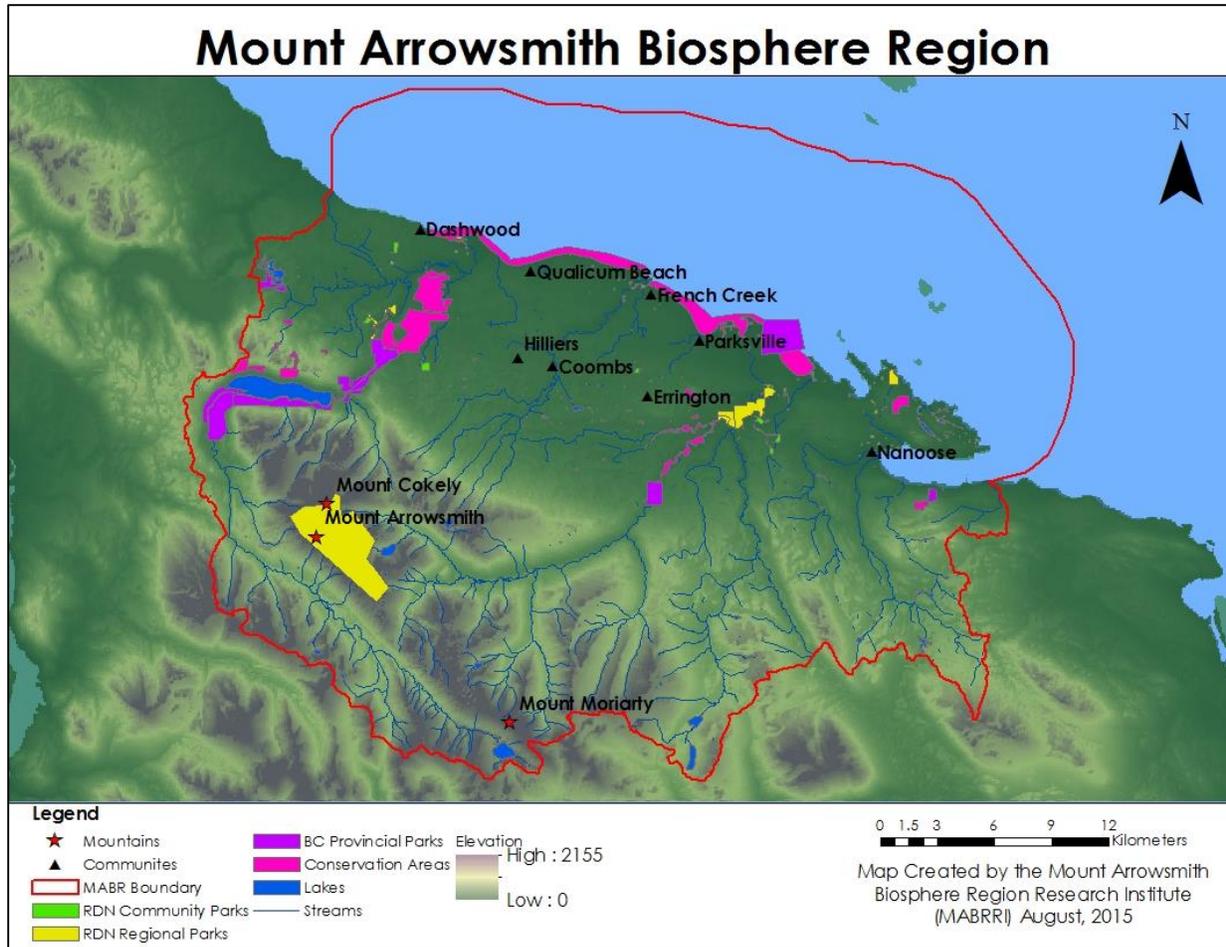


Figure 1: Map of the MABR, 2015

The Mount Arrowsmith Biosphere Region (MABR) is located on Vancouver Island, extending from the top of Mount Arrowsmith—the highest mountain on Southern Vancouver Island—to the bottom of the Salish Sea (Figure 1). It includes five watersheds that drain from Mount Arrowsmith and Mount Moriarty into the sea, the Nanoose Peninsula and the Ballenas-Winchelsea Archipelago. Within 1186 square kilometers, MABR encompasses many unique ecosystems ranging from high alpine and coastal forests to intertidal and marine habitats. The drastic vertical range gives the MABR incredible biodiversity and makes it unique among biospheres in Canada. The region is home to 45,000 people and is also within the traditional territories of seven First Nations: Qualicum, Snaw-Naw-As, K'ómox, Snuneymuxw, Tseshaht, Hupacasath, and Ditidaht.

The MABR is currently managed in partnership by VIU, the City of Parksville, and the Town of Qualicum Beach. One of the MABR's top priorities is to build a roundtable governance model by establishing foundational relationships in the region with a wide variety of stakeholders and communities. As these relationships are being formed, the MABR has been working with partners to find opportunities for collaboration and knowledge sharing. The MABR partners have developed a set of Guiding Principles to assist in collaborative opportunities with First Nations. MABRRI has been an integral part

of the process, setting up research projects, applying for funding, and providing the initial academic and logistical support to initiate research with interested partners.

In one year, MABRRI has achieved a level of research output and competency that justifies the need for a unified research strategy to guide our work. This plan will serve to frame the objectives of all future research at MABRRI and narrow the focus of research efforts and resources into priority areas that will best serve the MABR.

MABRRI Research Objectives

The overarching objective of MABRRI's work is to support the research and educational goals of the Mount Arrowsmith Biosphere Region, UNESCO's Man and the Biosphere Programme, and the academic objectives of Vancouver Island University. MABRRI aims to support the logistic function of biosphere reserves. Specifically, MABRRI's objectives are to:

1. continue to establish meaningful partnerships with a diverse range of people, organizations, and communities in the MABR;
2. continue to foster relationships with local First Nations based on trust and mutual respect by adhering to the Guiding Principles established in 2015 for collaboration with First Nations (see Appendix A);
3. facilitate respectful dialogue between MABR stakeholders to determine the current research needs within the Mount Arrowsmith Biosphere Region;
4. advance the research goals of the MABR community by providing logistical support, equipment, training, and expertise and encouraging community-based participatory research;
5. provide a venue for regional partners to share knowledge, review current research, and collaborate on solutions to increase the environmental, social, cultural, and economic sustainability of the region;
6. provide practical hands-on learning experiences to students at VIU and opportunities for conducting relevant applied research in the MABR;
7. integrate education about sustainable development, science, and culture in the MABR into VIU course curricula and other educational venues in the region, and;
8. promote a diverse range of perspectives through interdisciplinary research and collaboration.

Research Themes and Priority Areas

MABRRI is focusing its research efforts and capacity on three primary research themes: environmental sustainability, cultural and social sustainability, and economic sustainability. Within each of these research themes are several priority areas of focus.

Environmental sustainability

- i. Biodiversity
- ii. Climate change
- iii. Fresh water

Environmental sustainability is a key component of biosphere reserves and a subject in which they are expected to act as models for other regions around the world. The Mount Arrowsmith Biosphere Region is seeking new opportunities to ease conflict between natural and human systems and find ways for the two to mutually benefit each other. The first step to finding these solutions is to learn more about current environmental challenges, impacts, and drivers in the region. MABRRI will focus on three primary areas for future environmental research. These are biodiversity, climate change, and fresh water.

Biodiversity has been declining globally due to many factors, such as habitat destruction and fragmentation, changing global temperatures, the introduction of invasive species, and pollution. This can have many consequences on both natural systems and the ecosystem services that they provide for people. What MABRRI seeks to focus on is local biodiversity: how it is changing over time; what factors are affecting those changes; and how conservation efforts can be structured to have the most positive impact in the region. This will likely involve studying keystone species populations in the region, establishing a regional environmental monitoring program, inventorying current conservation efforts, and consolidating research already being conducted on biodiversity in the region.

Climate change is a global problem and we are beginning to observe its impacts at a local and regional scale. Current schools of research have demonstrated a substantial link between human actions in the past century and changing global temperatures². This magnitude of change will have drastic consequences for the future of the planet and all of its inhabitants. To address this issue, MABRRI will direct its efforts towards monitoring the impacts of climate change in the region and determining both mitigation and adaptation strategies that can be implemented at a local level. Potential research topics will likely include studying the impacts of rising ocean temperatures and sea levels, determining potential carbon offset and sequestration policies and techniques, and studying the impacts of climate change on aquaculture and agriculture in the region.

² IPCC, 2015

Fresh water is the third key research area in the focus on environmental sustainability. Fresh water is an essential resource for both the people and nature. With climate change and increased pressure on water systems, the MABR will need to find ways to ensure that this precious resource remains available for future generations. Potential research topics include measuring and analyzing snow pack on Mount Arrowsmith, studying human water consumption in the region, and inventorying important wetland habitats and groundwater recharge areas.

Cultural and social sustainability

- i. Traditional knowledge and history
- ii. Relationships of people and nature
- iii. Youth engagement and education

Cultural and Social Sustainability are key elements of healthy and vibrant communities and an integral part of UNESCO's Man and Biosphere Programme mandate. The MABR encourages community based-participatory research that recognizes local people as the experts of their places. The biosphere region is home to a diverse population and user groups, many whom have lived in the area for the majority of their lives. It is these lived experiences that MABRRI seeks to capture and shine a spotlight on in the next three years.

Traditional knowledge and history are elements that make the MABR a place that is unique to the rest of the world. MABRRI recognizes that the history of the MABR includes the rich pre-colonial history of the many First Nations who lived and looked after the land before colonial settlement. There are many stories to be told in the region of changing environments, traditional ecological management practices, and the development of local communities over time, which MABRRI seeks to learn and understand, and to help ensure that these traditions survive.

The relationships of people and nature are the primary focus of biosphere reserves. There are countless ways that people interact with nature in the MABR, from residents and business owners to recreational users and tourists. Each person has a unique relationship with the biosphere, and MABRRI hopes to harness these experiences through digital storytelling, art, and other creative mediums. Researching and documenting these relationships will allow MABRRI to better understand the needs of the MABR and both its natural and human inhabitants as well as highlight the region's sense of place.

Youth engagement and education is an important component of cultural and social sustainability. The youth of today will be inheriting the biosphere of tomorrow. Much research has been done on the relationship of current youth with nature, indicating that there is a deficit of natural exposure in the lives of children³. MABRRI is working to create opportunities for children to form these special relationships with nature and learn about the natural systems in the place that they live. Armed with a good understanding

³ Juster et al 2004; Burdette & Whitaker, 2005

of the essential functions of natural systems and the integral part that they play in our lives, youth will be more equipped to participate in the stewardship of the MABR. MABRRI will focus on determining public outreach opportunities, developing curricula for different levels of education about the MABR and its natural systems, and developing experiential learning and career-focused training programs for youth in the region.

Economic sustainability

- iv. Sustainable development
- v. Natural resource management
- vi. Local and regional planning

Economic sustainability is essential for ensuring a positive future for the MABR. MABRRI will focus its efforts on determining ways for the MABR to thrive and develop economically whilst protecting the other pillars of sustainability in the region.

Sustainable development is a major component of UNESCO's Man and the Biosphere (MAB) Strategy for 2015-2025.⁴ It is essential to plan for future generations to ensure that they will have equal or greater opportunities for economic success while also preserving the quality of the natural environment. Green technology, renewable energy, and environmental design are some areas of priority for MABRRI research, as well as an economic assessment of ecosystem services in the region.

Natural resource management is a major part of economic development and sustainability in the region. The majority of lands in the MABR are owned and operated by private forestry companies. In partnership with forestry and other natural resource sectors, MABRRI is looking to collaborate on projects that will be of mutual benefit to these industries, other user groups of the MABR, and the natural environment. Such projects could include environmental monitoring, studying salmon populations, and defining important habitat and wildlife corridors.

Local and regional planning is one of the methods that will help determine the desired future of the MABR and all of the communities within. MABRRI will work to develop new and innovative planning strategies such as collaborative management and roundtable governance models that can be used to manage the MABR itself and potentially other biospheres across the country. Potential projects could include establishing a new way of conducting business in the biosphere that incorporates traditional ways of knowing and decision-making, developing goals for the region and all of its levels of government to work towards, and studying the impacts of aging demographics.

⁴ UNESCO, 2015

Vision for Collaboration

As outlined in MABRRI's research objectives, a main focus of the institute is the formation of collaborative research projects with various stakeholders in the region. An integral part of MABRRI's vision for collaboration starts with building foundational relationships in the community. In building these relationships, MABRRI is better able to learn about the needs and interests of its partners, which can then be used to identify the most suitable projects to collaborate on. In addition to building relationships in the greater community, MABRRI will also be forming these relationships with students at VIU. There are many ways to incorporate student learning in MABRRI projects, and give students relevant research experience in their chosen field. MABRRI hopes to pair some of these students with interested community partners to establish projects that will be mutually beneficial.

One of MABRRI's research objectives is to meet the research needs of the MABR by being open to any person who comes forward with a research project. At the same time, the institute is still growing and developing with a small, dedicated research team. This makes it essential for MABRRI to focus its efforts on a selective number of projects at one time to allow for quality of research and a reasonable turn-around time for projects. In order to balance these needs, MABRRI invites community members and stakeholders to propose project ideas, recognizing that the institute cannot directly conduct and manage each project brought forward; MABRRI can however, provide advice, technical expertise, contacts, and equipment to assist with project development and initiation. Those interested may submit a proposal in writing that fits the current MABRRI research themes and priority areas. Please see Appendix B for MABRRI's Research Submission Guidelines.

Indicators of Success

MABRRI will use several indicators to monitor how well it is achieving its research goals. The first is MABRRI's overall research output, which can be gauged by the number of reports, presentations, and publications MABRRI produces between 2015 and 2018. The second is the number of students directly or indirectly involved in research in the MABR over this time period. Another important indicator will be the number of partnerships that the MABR and MABRRI have formed with community organizations and stakeholders in the region. MABRRI will also evaluate its impact on the surrounding community through community feedback and level of awareness. This will include the number of public events that MABRRI is a part of and the level of participation it can generate at those events. As MABRRI is still relatively new, the institute has the ability to set the bar high for what it can achieve.

Conclusion

The next several years are full of opportunity for MABRRI, as the institute continues to develop and expand its research capabilities. During this time, it is hoped that many more people and partners will become involved in MABRRI and contribute to its success through their innovative ideas, expertise, and passion for the Mount Arrowsmith Biosphere Region. The Strategic Plan for Research and Education is meant to serve as a guiding document for the development of MABRRI's research initiatives over the course of the next three years. This document is not intended to limit the creativity, drive, or ideas of knowledge holders, experts or researchers in the region. Within the research themes and priority areas outlined in this plan, there are many areas of overlap between topics, which MABRRI seeks to capitalize on as opportunities for collaboration and knowledge exchange. With its community-based, interdisciplinary approach to research and a dynamic research team, MABRRI is well on its way to becoming a leader and model of excellence for applied social and natural sciences research.

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Figure 1: MABRRI. (2015). Mount Arrowsmith Biosphere Region map.

Appendix A



Collaboration with First Nations

First Nations have lived on the lands that encompass the Mount Arrowsmith Biosphere Region (MABR) since time immemorial. The First Nations of the Salish Sea have a unique relationship with the lands and waters that transcends time. It is a relationship rooted in a deep, rich cultural connection to nature; a connection and relationship that has informed their way of life.

Through its Man and Biosphere Programme, the United Nations Educational Scientific and Cultural Organization (UNESCO) has recognized the MABR for the outstanding qualities of the traditional territories of the First Nations.

MABR's institutional partners, initiated by a collaboration between Vancouver Island University and the City of Parksville, want to work with First Nations in a respectful and supportive relationship that recognizes the special association that each Nation has with its traditional territory, including the MABR. As a UNESCO biosphere region, MABR should complement the interests of the First Nations; not compete with them. To that end, all institutional partners will be directed by the following Guiding Principles in their MABR-related work.

Guiding Principles

The MABR's work will be premised upon processes, procedures and protocols that reflect a collaborative, comprehensive and collegial course of action with First Nations that is rooted in Guiding Principles that:

1. Honour the deep, rich, cultural connection to the land and the sea; a connection and relationship that informs First Nations way of life;
2. Honour the fact that First Nations have lived from time immemorial in their traditional territories and, through that special relationship as stewards of the land, have a unique association with the MABR;
3. Explore and promote ways and means of enhancing the role of the MABR within the region while being respectful of First Nation interests;
4. Continue to develop a trusting and respectful relationship with First Nations and support appropriate projects that First Nations would like to collaborate on, protecting the confidentiality of knowledge or culturally sensitive information of First Nations communities;
5. Establish respectful processes that value First Nation perspectives, methods of decision-making, cultural values and historical connections to the land;
6. Identify First Nation community engagement opportunities and associated research that relates to the mandate of the MABR;
7. Ensure that the interests and perspectives of First Nations frame future discussions about the MABR;
8. Work with First Nations to identify potential sources of funding to undertake MABR-related initiatives of interest to First Nations;
9. Promote the Mandate and Goals of the UNESCO designation in general and the MABR in particular while recognizing that First Nations have a special relationship with the MABR lands that transcends time and creates a special bond with the MABR.



Appendix B

MABRRI Research Idea Submission Guidelines

MABRRI Welcomes idea submissions from any individual or organization. Please follow the steps below to ensure we receive your idea in a manner that allows us to respond to you efficiently.

Step 1: Please write a one page statement of intent that addresses the following:

1. Project idea
2. Previous research that has been conducted on this topic in the MABR
3. Potential partners and their involvement
4. Contribution to the goals of the MABR
5. Alignment with MABRRI's Strategic Plan for Research and Education
6. Estimated timeline for project completion
7. Potential funding or grant opportunities
8. Opportunities for student involvement
9. Vision for MABRRI's involvement

Step 2: Email your statement of research intent to mabr@viu.ca with the subject line "MABRRI Statement of Intent".

Step 3: MABRRI will contact you about your submission