



United Nations
Educational, Scientific and
Cultural Organization



**MOUNT
ARROWSMITH**
BIOSPHERE REGION

Mount Arrowsmith Biosphere Region

2020 Annual Report

The Mount Arrowsmith Biosphere Region (MABR) includes roughly 1200 square kilometres on Eastern Vancouver Island, spanning from Nanoose Bay to Qualicum Bay, and from the highest peak of Mount Arrowsmith (1817 metres) down 300 metres into the Salish Sea. This extensive vertical elevation and the incredible biodiversity are what make the MABR unique among Canadian Biosphere Regions. The boundaries of the MABR are defined by five watersheds – Englishman River, Little Qualicum, French Creek, Nanoose Creek, and Bonnell Creek. The MABR encompasses many unique ecosystems ranging from high alpine and coastal forests to intertidal and marine habitats.

The MABR acknowledges and thanks the Qualicum, Snaw-naw-as, Snuneymuxw, K'ómox, Tseshaht, Hupacasath, and Ditidaht First Nations, on whose traditional lands the Mount Arrowsmith Biosphere Region is situated within.

Cover photo courtesy of Arrowsmith Media



MABR Vision, Mission, and Mandate

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.

Our Vision

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

Our 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.

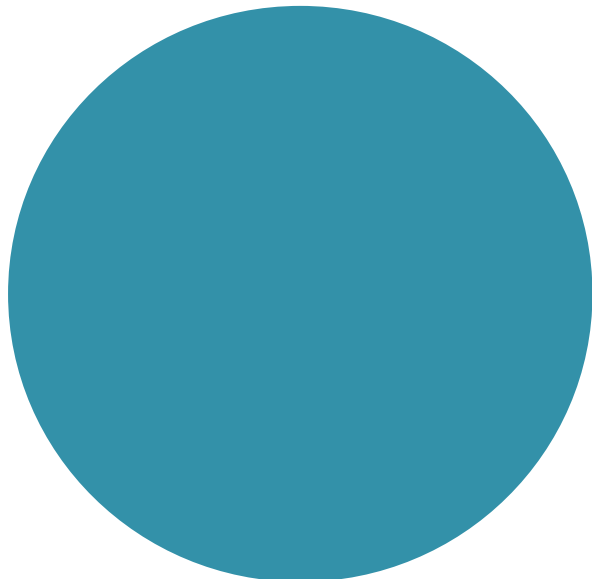
Our Mandate

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 MABR.

: Executive Summary

Due to the COVID-19 pandemic, this year looked a lot different than those prior. Most of this year was spent working remotely, social distancing, and meeting virtually; this was a challenge and an adjustment to say the least. However, this did not stop our team from working towards our goals and accomplishing what needed to be done. We are grateful to have been able to adapt and overcome barriers, allowing us to continue to make positive change in our Biosphere Region. Our amazing and dedicated team developed new projects, made new connections, and made changes to current initiatives to enable us to move forward.

We are grateful for the lessons learned in 2020, for those organizations and individuals we were able to partner with, and for the continued excitement we have witnessed for the MABR and Biosphere Reserves, in general. We hope that next year will be safer for all, and that we can return to meet in person again, but we know that no matter what, it will be another great year!



⋮ MABR Governance

Roundtable Governance

The MABR Roundtable meets quarterly and functions as the governing body of the MABR, providing direction to the MABR and the Mount Arrowsmith Biosphere Region Research Institute (MABRRI). The Roundtable aids MABRRI staff by identifying priority action areas and research to be pursued in the short, medium, and long-term. Through diverse representation, the MABR Roundtable itself is 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 2020, the MABR Roundtable met for three Roundtable gatherings. The second Roundtable gathering did not take place due to the COVID-19 pandemic. The two remaining gatherings of 2020 were hosted online using the platform Zoom © to enable social distancing and the safety of all members.

Current Roundtable Members

Steve Adams, Mosaic Forest Management, Resource Technologist

Kim Burden, Parksville & District Chamber of Commerce, E.D.

Chris Burger, MABR Liaison for the City of Parksville

Mandy Hobkirk, MABR Coordinator

Cheryl Jones, Snaw-naw-as First Nation, Councillor

Geraldine Manson, Snuneymuxw First Nation, Elder in Residence at Vancouver Island University

Ed Mayne, City of Parksville, Mayor

Ceri Peacey, MABR Roundtable Community Representative

Michael Recalma, Qualicum First Nation, Chief

Daniel Sailland, Town of Qualicum Beach, CAO

Graham Sakaki, MABRRI, Research & Community Engagement Coordinator

Blain Sepos, Parksville Qualicum Beach Tourism, E.D.

Pam Shaw, MABRRI, Research Director

Haley Tomlin, MABRRI, Assistant Research & Community Engagement Coordinator

Teunis Westbroek, Town of Qualicum Beach, Councillor

Brian Wiese, Town of Qualicum Beach, Mayor

Michael Wyse, Snuneymuxw First Nation, Chief

Maureen Young, Regional District of Nanaimo, Electoral Area C Director

Sonja Zupanec, Islands Trust, Island Planner



: Acknowledging All Collaborators

In 2020, 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 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 2020.

: MABR Communications and Marketing

United Nations Educational, Scientific and Cultural Organization (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 <https://www.mabr.ca/newsletter>.
- In 2020, we began seeking newsletter contributions from local community groups to ensure the biosphere newsletter has a well-rounded view of news, updates, research, and events that are occurring in the region. Organizations are invited to fill in a [Google Form](#) as their submission, or email their updates to the MABR Coordinator (Mandy.Hobkirk@viu.ca) to be included in the upcoming issue.
- By the end of 2020, 495 people were subscribed to our e-newsletter.

Other Marketing Materials



Website: mabr.ca



Facebook: [@MountArrowsmithBR](https://www.facebook.com/MountArrowsmithBR)



Twitter: [@MountArrowBR](https://twitter.com/MountArrowBR)



Instagram: [@mtarrowsmithbr](https://www.instagram.com/mtarrowsmithbr)



[Newsletter](#)



⋮ The Mount Arrowsmith Biosphere Region Research Institute

About MABRRI

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 UNESCO MAB Programme.

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 four 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, national, 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 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 [here](#), or on the 'resources' page.

2020 MABRRI Research Team

In 2020, MABRRI employed a total of 45 researchers. Some of the projects they contributed to, included Coastal Forest Plant Phenology and Monitoring, Wetland Mapping in the RDN, Forage Fish Spawning Habitat Monitoring, the View from 2117, and Promoting the Sustainable Development Goals (SDGs) in the MABR.

Below is a list of MABRRI's 2020 research team. A special thank you to the students who dedicated many hours to MABRRI and to the project coordinators who helped lead and coordinate projects (Names are in alphabetical order by last name).

Stephen Baugh	Molly Blower	Jason Bradley
Jacob Burnley	Laura Clark	Sonal Deshmukh
Cliff Feng	Alisha Feser	Felicia Fischer
Celina Fletcher	Sarah Foulkes	Teneal Gagnon
Kira Gill-Maher	Annie Girdler	Vickie Gould
Mandy Hobkirk	Annia Jahromi	Anna Lawrence
Colby Mahood	Zeb Martin	Emily Mayenburg
Pierce Melnick	Seamus McConville	Brittany Milner
Mikaila Montgomery	Jenica Ng-Cornish	Chris Oberg
Aishwarya Pathania	Melanie Poerner Louriero	Jessica Pyett
Brittani Rempel	Graham Sakaki	Chrissy Schellenberg
Chloe Shamash-McLaughlin	Samuelle Simard-Provencal	Andrew Stewart-Jones
Steffi Sunny	Neethu Syam	Becky Thiessen
Haley Tomlin	Cassy Twiname	Courtney Vaugeois
Ariel Verhoeks	Alanna Vivani	Bailey Walsh

⋮ MABR and the Sustainable Development Goals

Adopted in 2015 by the United Nations (UN) as part of the 2030 Agenda for Sustainable Development, the 17 Sustainable Development Goals (SDGs) aim to transform the world by 2030¹. The SDGs hold significant importance as they call all world nations - regardless of their economic status - to action to achieve a more sustainable future for all, while leaving no one behind¹. The SDGs incorporate a holistic approach to sustainable development, aiming to address a wide range of issues including: ending poverty and hunger, addressing climate change, reducing inequalities, and protecting and conserving biodiversity and ecosystems¹.

Although the SDGs were developed for nations, their achievement requires collaboration and solutions from all levels, including the local level². As a UNESCO Biosphere Reserve, the MABR plays a significant role in promoting and contributing to the SDGs locally. Biosphere Reserves are areas that model solutions for a sustainable future, celebrate cultural and biological diversity, and empower positive relationships between humans and nature³. The MABR involves partnerships between various community members, stakeholders, and organizations.



¹United Nations. (2020). *The 17 goals*. <https://sdgs.un.org/goals>

²United Nations. (2021). *Goal 17: Revitalize the global partnership for sustainable development*. <https://www.un.org/sustainabledevelopment/globalpartnerships/>

³UNESCO. (2019). *Biosphere reserves*. <https://en.unesco.org/biosphere>

Through these partnerships and its role as a UNESCO Biosphere Reserve, the MABR is in a position to make meaningful local contributions to the SDGs.

Globally and within Canada, the vision and goals of Biosphere Reserves can make connections to the SDGs. Acting as models for a sustainable future, Biosphere Reserves connect to the 2030 Agenda as a whole, by representing all 17 SDGs. By working towards solutions for conservation of biological and cultural diversity and climate change, while also promoting economic and social development, Biosphere Reserves inherently connect to SDGs 8, 11, 13, 14, and 15. SDG 4 also connects to Biosphere Reserves as they aim to facilitate education for sustainable development.

As the MABR focuses on sustainability, each of the projects conducted by the MABR and MABRRI touch on the SDGs in some way. Throughout the document, icons of the SDGs that each project or initiative relate to will be found following their description.



⋮ MABR and MABRRI in the Community

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 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 2020 were to continue promotion of this project among residents and tourists by engaging them in our website and social media, as well as by encouraging visitation to the Amazing Places locations. In addition to this, the Amazing Places Geocaching Adventure Labs were released in 2020. The aim of the Adventure Labs is to visit each Amazing Place, follow the story, and solve the clue on the app to complete the lab. Everyone who completes a lab has their name entered into a draw for a grand prize at the end of the season.

With travel restrictions imposed by the pandemic, the Amazing Places project was promoted to local residents as a way for those living in the MABR to enjoy their surroundings in a safe manner.

The Amazing Places project supports SDGs:

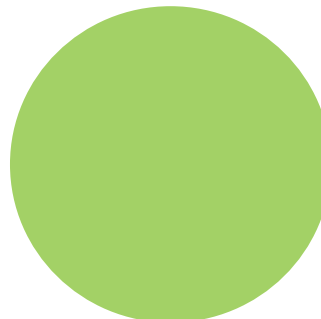
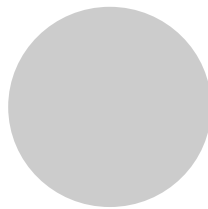


International Journal of UNESCO Biosphere Reserves

The International Journal of UNESCO Biosphere Reserves is, in perpetuity, 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 joint research and knowledge exchange agenda. The journal was launched in 2017, and by the end of 2020 included four volumes.

The Journal supports SDGs:



: 2020 Research and Community Engagement

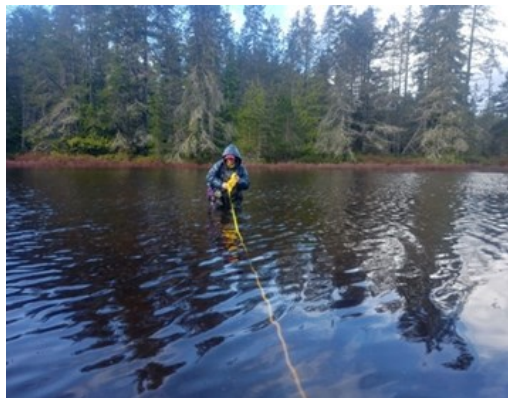
Wetland Mapping in the Regional District of Nanaimo

In partnership with the RDN's Drinking Water and Watershed Protection (DWWP) program and VIU, MABRRI has completed its final year of a five-year research agreement to map and classify wetlands, while quantifying their potential relationship to groundwater recharge. The Technical Advisory Committee (TAC) on the project includes Julie Pisani, Coordinator of the RDN's DWWP program; Alan Gilchrist, VIU Geography Professor; and Jerome Lesemann, VIU Earth Science Professor.

The MABRRI team completed mapping wetlands in each of the seven water regions and established six priority sites to monitor in order to get a more holistic understanding of how these wetlands function. The six priority sites were spread throughout the RDN: two in the Big Qualicum Water Region; two in the French Creek Water Region; one in the Little Qualicum Water Region; and one in the Cedar-Yellow Point Water Region. Each of the six selected sites are to be visited seasonally and within a week of one another, ensuring little variation regarding weather between sites. Further, the team installed instrumentation, including piezometers, trail cameras, and a rain gauge at one priority wetland to determine if the site was connected to the aquifer below, and if it was, was it either recharging or discharging that aquifer.

In 2020, the team installed instrumentation at two more priority sites and continued mapping all six priority sites. For the three sites with instrumentation, a preliminary analysis was conducted on the data that was collected. The *Prioritizing Wetland Systems to Install Instrumentation in the Regional District of Nanaimo* document that was produced in 2019 to outline the GIS analysis and the fieldwork that was completed to install the instrumentation, was updated to include the findings from the instrumentation data analysis. This report was created for the RDN and the greater community to gain a more in-depth understanding of local wetlands and their contribution to groundwater recharge. Lastly, the *Wetland Mapping & Monitoring in the Regional District of Nanaimo: Five Year Summary Report* was produced to provide an overview of the last five years of work that were completed on the wetland project. It also provides a comprehensive analysis of the findings from all aspects of the last five years and discusses some potential next steps and initiatives for the monitoring project. The report was created to provide a summary of the work that was been done on the project and offer future strategies for conservation and protection that can potentially be implemented into regional policy and planning. All reports can be found in the Document Library of the [RDN's Get Involved webpage](#).

The Wetland Mapping project supports SDGs:



MABR Youth Program

The MABR Youth Program was developed in order to introduce the UNESCO-designated MABR to youth in the region. Although there are a few ecological education youth programs in the MABR, none of them specifically discuss the MABR or Biosphere Reserves. The Youth Program offers four unique workshops to schools in the region. Three workshops are tailored to elementary students and focus on coastal ecosystems, terrestrial ecosystems, and sustainable development. The fourth workshop is tailored to high school students and focuses on the United Nations' Sustainable Development Goals (SDGs).

Due to COVID-19, we were unable to facilitate workshops in the classroom in 2020. In an effort to adapt to the new health regulations, the MABR felt the need to modify our programs to allow youth to learn about these topics while also maintaining social distancing. To engage youth in sustainability science in the safest way possible, we developed activities and materials that youth could complete from home. Activities were released twice a week beginning at the end of April 2020. In total, 11 activities were released for youth to do from home, each focusing on various aspects of sustainability.

In addition to this, early in December 2020, the MABR began developing course packages to help educators across the region engage youth in curriculum-based environmental sustainability lessons and activities. Our hope is, with further funding, we can continue to develop course packages for educators into the new year, and ultimately have enough resources to be used throughout the school year. This initiative came to fruition after several teachers and home-schooling parents expressed interest in lesson plans focused on place-based learning; a topic which the current curriculum does not have significant focus on.

Activities and Materials

Activities were shared with educators, parents, the national network of Biosphere Reserves, and the general public. A new page was created on the MABR's website to house each activity, and to provide links to additional resources for youth and educators. Between April and November, 2020 this page was visited over 550 times.

Eleven youth activities have been promoted to date. The development of activities included creating materials, promotion, and correspondence with teachers, parents, and guardians. Each activity focusses on sustainability in some form, and can be downloaded and printed directly from the MABR website. Each of the activities can be viewed on our website, [here](#).

Although this year presented various challenges and unforeseen circumstances, it also provided our team with an opportunity to re-evaluate our methods and the way we reach youth on varying scales. The changes in the lives of youth, guardians, and educators allowed us to identify gaps in the current curriculum and made room for more in-depth conversations with those involved in education regarding ways in which our organization can help fill the gaps. Our team hopes to resume facilitating youth program workshops in 2021 and are optimistic that we can reach even more students in the upcoming year.

**The MABR Youth
program
supports SDGs:**

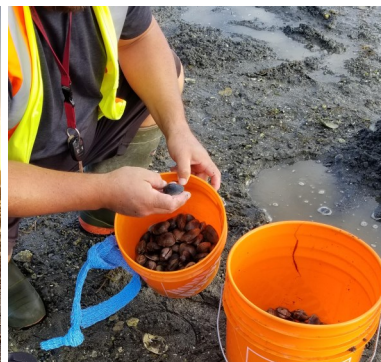


Nanoose Bay Recreational Shellfish Reserve Harvest Monitoring

In collaboration with the Nanoose Economic Development Corporation (NEDC), this project aims to determine whether recreational and commercial clam harvesting pressures could be impacting clam habitat in the public use area at the Nanoose Bay Recreational Shellfish Reserve. This study aims to provide a comprehensive outlook of the current harvesting practices in the study area and provide recommendations to improve the sustainability of harvesting practices.

Project components include a literature review to provide relevant background context to the impacts associated with harvesting and of sustainable harvesting practices in coastal British Columbia. Field observations were conducted on-site during the clam harvesting season to identify the extent of harvesting activity, as well as characteristics and patterns of harvesting in the study area. Field observations were conducted at the study area over multiple visits during low tide events to record the number of clams removed from the site by harvesters. Lastly, interviews were conducted to provide insight into historical patterns and the significance of clam harvesting to supplement the study. Phase one of the study was wrapped up in 2020, and phase two will begin in the spring of 2021. Phase two will include additional data collection to address the limitations discovered in phase one of the project.

*The Shellfish Reserve
Harvest Monitoring
project supports SDGs:*



Promoting the SDGs in the MABR Project

This project aims to increase awareness of the UN SDGs in the MABR. The SDGs address social, economic, and cultural prosperity while simultaneously caring for and protecting the earth. Successfully achieving the SDGs requires increasing awareness of them and promoting local and global change.

In the fall of 2020, MABRRI received funding through Colleges and Institutes Canada's (CICan) Career-Launcher Internship program to hire an MABR SDG Ambassador. The MABR SDG Ambassador's role is to lead the project and engage the MABR community in the SDGs through social media campaigns, virtual presentations and workshops, and by discussions with local businesses and organizations. The final deliverable will include a series of short videos that further increase awareness of the SDGs in the MABR. Once we collect information on how organizations within the region are contributing to the 17 goals, we will share best practices with the network of UNESCO Biosphere Reserves across Canada.



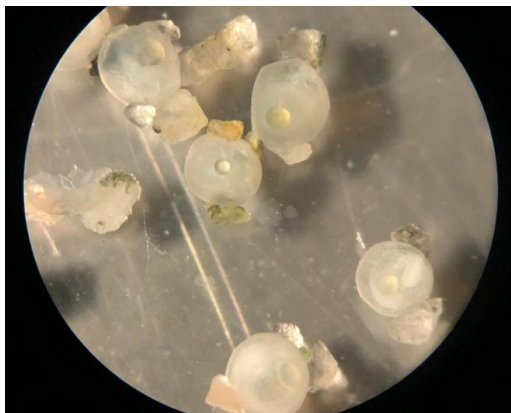
Forage Fish Spawning Habitat Monitoring

The forage fish project began in 2017 when Phillip Dionne, a research scientist, from the Washington State Department of Fish and Wildlife travelled to Nanaimo to train the MABRRI team to sample for forage fish embryos, specifically Pacific sand lance and surf smelt. MABRRI began sampling in December 2017. In mid-2018, MABRRI began hosting training sessions for local community stewardship groups in order to build the capacity of the project. By involving citizen scientists, MABRRI has been able to cover a lot more of the coastline than they would be able to do on their own. By the end of 2020, MABRRI had 8 dedicated citizen science groups (Gabriola Island Shorekeepers, Thetis Island Nature Conservancy, MVIHES, Qualicum Beach Streamkeepers, Dover Bay Eco-Club, a group from Cowichan Bay, Tsawalk Learning Centre, and the Pender Island Conservancy). MABRRI hopes to continue to expand the citizen science component into the future.

To date, MABRRI and the citizen scientists are now sampling over 60 sites regularly along the Vancouver Island and Gulf Island coastlines. Sites span from Cowichan Bay, north to Deep Bay, including sites on Gabriola Island, Thetis Island, and the Pender Islands.

Interest in the topic of forage fish continues to grow along the coast. As a result, MABRRI's collaborations in this project continue to expand, now working with individuals from a wide variety of organizations including Peninsula Stream Society in Victoria; Project Watershed in Courtenay/Comox; Parks Canada on the West Coast and southern Gulf Islands; the Sunshine Coast Friends of Forage Fish and Ruby Lake Lagoon Society from the Sunshine Coast; a Masters student from the University of British Columbia; and the Department of Fisheries and Oceans at the Pacific Biological Station. MABRRI could not do this work without the continued support of our sponsors at World Wildlife Fund Canada, the Pacific Salmon Foundation, and the Sitka Foundation. Data from all participating groups is uploaded to the Pacific Salmon Foundation's Strait of Georgia Data Centre; the most up-to-date data will be uploaded at the end of March 2021.

**The Forage Fish
project supports
SDGs:**



The View from 2117: Human Actions, Consequences, and Perspectives on Mountain Regions

In 2019, VIU and MABRRI joined the University of Alberta and a handful of other universities and communities across Canada as part of the Canadian Mountain Network (CMN). Established in 2019 and supported by the Networks of Centres of Excellence program, the CMN conducts research in support of the resiliency and health of Canada’s mountain peoples and ecosystems. Research through the CMN aims to inform and guide decision-making and action to support the long-term health of mountain regions.

As part of the CMN, VIU’s and MABRRI’s research project titled *The View from 2117: Human Actions, Consequences, and Perspectives on Mountain Regions* will examine the ways in which individuals and collective behaviour, population growth, regulatory regimes, and societal change have affected and will affect local First Nations, mountain communities, and mountain environments over the next century. The project will focus on the MABR, examining the human nature connection associated with the region. The title of the project, *The View from 2117*, references both the vertical extent of the MABR from the peak of the mountain to the base within the Salish Sea and the timeframe under consideration in this research. The project looks to the past to map the human impacts on the MABR and then into the future to determine how new policy and regulatory frameworks, ways of being, and advanced knowledge can be used to mitigate or eliminate these impacts. The methodology for this project will be multi-modal and will include demographic analyses, indicator development, field research, surveys, focus groups, and psychological assessments. Five research studies are being conducted to address the overarching question, which include: a comprehensive demographic analysis; a Vital Signs® study; an ecosystem analysis; a governance and regulatory study; and a sense of place study. Through these five studies, the interdisciplinary team hopes that the project will result in lessened human/nature impacts and improved policy and regulatory frameworks in the MABR.

*The View from
2117 project
supports SDGs:*



Coastal Forest Plant Phenology and Monitoring Project

In partnership with the Ministry of Forests, Lands, Natural Resource Operations and Rural Development and Milner Gardens & Woodland, MABRRI is working to assess and monitor climate change effects on local plant phenology – the timing of seasonally reoccurring events such as bud break, leaf size, flower development, and ripe fruit. By monitoring the growing seasons of different coastal plants, and by comparing these growing seasons to microclimate data, we can work to identify any potential changing trends in the growing seasons of Vancouver Island’s ecosystems.

Since 2017, we have been monitoring phenological changes in native plant species at Milner Gardens & Woodland, Thetis Lake Regional Park, and on Mount Arrowsmith. To date, we collect the timing and intensity of all phenophases for each of our identified species using two observation techniques: in-person and field camera observations. The field camera observation technique is used at all of the study sites; however, in-person observations are only collected at Milner Gardens & Woodland.

In 2020, we were awarded funding from BC Parks to expand the project and establish two more sites at Bowser Ecological Reserve and Koksilah River Provincial Park. The equipment for the new sites was installed in late summer, which includes microclimate stations and a series of trail cameras in order to link phenological records to local climate. The project team also continued to collect in-person observations at Milner Gardens & Woodland, which occurred weekly during the summer and biweekly during the spring and fall. Data collection will continue for a number of years in order to see how growing seasons may be shifting with changing climate patterns.

During the academic school year, MABRRI hired two students to conduct the data analysis phase of the project. Students are hired to interpret and analyze field camera photos to determine the species’ phenophase development and any other observable concerns. As mentioned above, the field camera observation technique has been implemented at all five study areas. The daily data collection with field cameras provides continuous phenophase development data through the growing season, whereas in-person data collection is not continuous and only occurs intermittently through the year.

**The Plant
Phenology project
supports SDGs:**

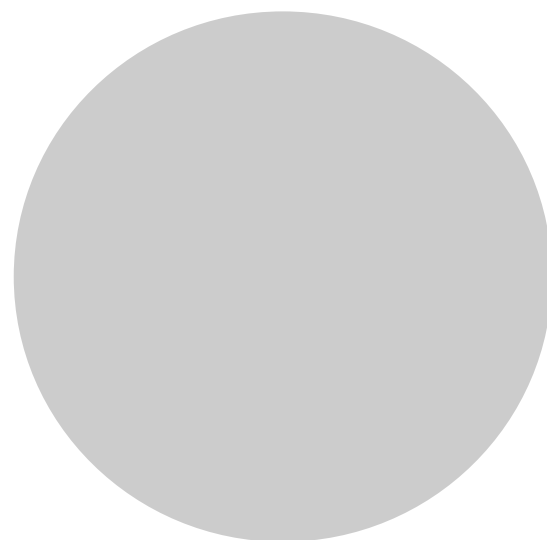
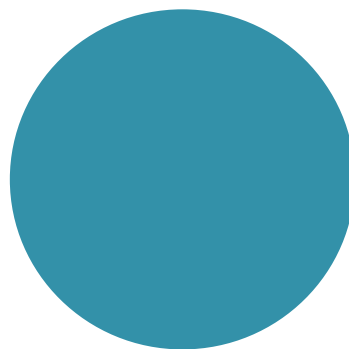


🌿 Looking Ahead to 2021

This year, although full of hurdles, was another successful year for the MABR and MABRRI. Looking forward to 2021, we are excited to get back out into the field and begin phase two of the Nanoose Bay Recreational Shellfish Reserve Harvest Monitoring Project. We are also hopeful to get back into the classroom with the MABR's Youth Program workshops, and continue developing course packages based on topics of environmental sustainability.

MABRRI's 2021 summer research team is expected to be about 20 people. We anticipate another busy summer, with various projects on the go. All of these projects will include some aspect of either biodiversity conservation, sustainable development, and/or reconciliation within the MABR and the surrounding areas.

We are eager to see what projects, connections, and success is coming our way in the coming year!



*Follow us for regular updates on
events and initiatives in our
Biosphere Region:*



mabr.ca



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