



DISTRICT OF METCHOSIN

AGENDA

ENVIRONMENTAL ADVISORY SELECT COMMITTEE MEETING

November 26, 2024 at 7:00 p.m.

Council Chambers

Metchosin Municipal Hall

1. **Agenda, Additions, Approval**
2. **Presentations**
3. **Public Participation**
4. **Adoption of Minutes**
 - a) Environmental Advisory Select Committee, September 24, 2024..... 1
5. **Receipt of Minutes**
 - a) Environment and Natural Areas Committee November 18, 20245
 - b) Parks & Trails Advisory Select Committee Meeting, September 17, October 15, 20247
6. **Business Arising from the Minutes**
 - a) Sensitive Environments in Metchosin – Fulfilling the Requirements of Section 2.3.9 of the *Metchosin Official Community Plan Bylaw, No. 258, 1995*
 - i. BioBlitz Species Data – Conservation Data Centre
 - ii. Mapping of Potential Sensitive Areas in Metchosin: Conservation Data Centre, Data Submission
 - b) MEASC Internal Performance Review and Terms of Reference
 - c) Tax Exempt Properties
 - d) District of Metchosin Public Works Policy W-100: Elimination of Pesticides and Herbicides for Cosmetic Purposes on Municipal Grounds
7. **Reports**
 - a) Chair's Verbal Report
 - b) Council Liaison Verbal Report
8. **Correspondence**
 - a) Cougar Predation Response from Minister George Heyman Dated September 13, 2024 to Mayor and Council 15
9. **Other Business**
 - a) 2013 Shoreline Protection Plan.....23
 - i. Metchosin Shoreline Report 2013
 - ii. [BC Coastal Marine Strategy](#)
 - b) 2007 Green and Blue Spaces Strategy 129
 - c) Managing Invasive Himalayan Blackberry on District Grounds
 - d) Stan A. Orchard, Metchosin Bullfrog Management Project Results for 2024 145
 - e) Spongy Moth Spraying Program
 - f) Climate Action Plan – 2024 Update
 - g) 2015 AVICC Deadline for Resolutions – February 6, 2025
10. **Adjournment and Next Meeting**

District of Metchosin

Minutes

Environmental Advisory Select Committee Meeting

Tuesday, 24 September 2024 at 7:00 p.m.

Council Chamber

Metchosin Municipal Hall

Present: Councillor Steve Gray, Andy MacKinnon, Bill Cave, Merrilee Hoen (recorder), Garry Fletcher (Chair), Anna Hall, Erin Van de Water

Regrets: Ric Perron

The meeting was called to order at 7:05 p.m.

1. Agenda, Additions and Approval

Moved and Seconded by Andy and Bill that the Committee approve the agenda as presented.

Carried

2. Presentations

None.

3. Public Participation

None.

4. Adoption of Minutes

a) Environmental Advisory Select Committee, May 28, 2024

Moved and Seconded by Steve and Anna that the Committee adopt the minutes of the Environmental Advisory Select Committee meeting held May 28, 2024.

Carried

5. Receipt of Minutes

a) Environment and Natural Areas Committee, June 10, 2024

Moved and Seconded by Erin and Andy that the Committee receive the minutes of the Environment and Natural Areas Committee meeting held June 10, 2024.

Carried

b) Parks & Trails Advisory Select Committee Meetings, May 29, June 26, July 16, August 7, 2024

Moved and Seconded by Erin and Andy that the Committee receive the minutes of the Parks & Trails Advisory Select Committee meetings held May 29, June 26, July 16, and August 7, 2024.

Carried

6. Business Arising from the Minutes

a) Beckingham Subdivision Referral

MEASC has submitted its referral to the CAO who is also the Approving Officer for this project. The response from Al Herle, District engineer (now retired) was that he believed the developers would need to change their plan if provincial government recommendations were followed to minimize development impact on wetland functioning and he asked for a map showing the boundaries of the wetland protection area. This was done and we have not had any further response.

Examination of OCP section 2.3 indicates that Council has responsibility for the sensitive area indicated on Map 4 and other sensitive areas not specifically shown on that map. Riparian areas are of particular concern. The Beckingham proposal would have a considerable impact on a wetland. Provincial experts have indicated that improvements to the plan can be made to reduce impact of the development on wetland function. Various provisions of OCP 2.3 indicate Council's general responsibility and encourage the Approving Officer to require developers to maintain the proper functioning condition of riparian-wetlands and protection of sensitive areas. Also, an inventory of sensitive areas must be updated on an annual basis or as required.

MEASC is investigating how the inventory of sensitive areas might be updated as indicated by OCP 2.3 but also as preparation for future development applications. Some suggestions were to contact the Conservation Data Centre for guidance and consult with Deborah Curran (UVic) to clarify some points of Environmental Law.

Moved and Seconded by Steve and Andy that the Committee explore ways to fulfill the requirements of the OCP section 2.3.9 referring to Sensitive Environments in Metchosin.

Carried

Action Item for staff: Add this item to our October agenda.

Action item for Steve: Bring OCP section 2.3 to the attention of the CAO.

Action item for Andy, Anna and Steve: investigate linking the BioBlitz species data to the Conservation Data Centre's list of Endangered and Threatened species. Investigate defining habitat requirements for those species to for reference when considering future development applications.

b) 2013 Shoreline Protection Plan

Steve is arranging a follow-up meeting to take place soon with Colwood to discuss what they have done to protect shoreline. We also want to ask Habitat Acquisition Trust about the educational activities relating to shoreline protection as part of their landowner contact programs.

It was noted that Chief Dunlop intends to make a shoreline spill response plan which is separate from the federal ocean spill response plan and will include an evacuation plan.

Action item staff: Attach the 2013 Shoreline Protection Plan to the October agenda. Steve will supply a link to the BC Coastal Marine Strategy which should also be included in the next agenda.

c) Mapping of Potential Sensitive Areas in Metchosin: Conservation Data Centre, Data Submission.

We are investigating how to convert our paper-based data into a form which can be added to the CDC's digital dataset. We will be contacting them about this, and the topics discussed in item 6.a.

d) District of Metchosin Public Works Policy W-100: Elimination of Pesticides and Herbicides for Cosmetic Purposes on Municipal Grounds

Council has asked MEASC to advise about expanding our Pesticide and Herbicide policy. Colwood has recently updated their bylaw, and we have gathered a number of documents for study. We also have made note of Montreal's golf course pesticide ban. We believe, based on others' experience and the Green Bylaws Toolkit, a good approach is to say, in effect, "In our municipality – it is prohibited to use pesticides except for the following." e.g., to control invasive species where there are specific reasons to do so.

Action item: Steve will take all the information collected to the Planner for guidance.

Action item for staff: Add this item to the October agenda.

e) Tax Exempt Properties

If additional criteria are implemented for organizations to maintain their tax-exempt status, MEASC would recommend such things as the maintenance of the forest where applicable.

f) Spongy Moth Spraying Program

This year's spraying has already taken place although we don't believe Metchosin was included. Activities such as overhead spraying will be considered during the redrafting of the pesticide policy (item 6.d).

7. Reports

a) Chair's Verbal Report

The chair was pleased with the MEASC members' participation and the public response to our display at Metchosin Community Day and hopes that we can have a bigger tent next year. The "straw poll" was popular, and we should consider making one with more topics next year.

b) Council Liaison Verbal Report

The Building Step Code will be adopted soon. We expect that two new EV pay chargers will be installed in Metchosin by the end of the year. The Agriculture Plan was approved at the last meeting of the Finance Committee. The biosolids and predator letters have been sent. Steve will continue to forward information to us concerning potential invasive species. An inquiry has been made about installing a bat box on Blaney Trail Park. HAT could provide the materials and advise about siting. Tax increases are expected in response to initiatives being implemented by organizations outside our community such as the ECOM system.

8. Correspondence

The following correspondence was received for information.

- a) District of Metchosin letter to the Hon. Pam Alexis, Minister of Agriculture and Food and the Hon. George Heyman, Minister of Environment and Climate Change Strategy, Cougar Predation on Sheep in Metchosin
- b) District of Metchosin letter to the Capital Regional District, Long-Term Biosolids Management Strategy

9. Other Business

a) MEASC Internal Performance Review

There may be a reduction in the number of committee meetings during the year to reduce the workload on staff surrounding preparation of agendas and the receipt of minutes. At the October meeting, we will discuss if there are any changes we would like to make to the Terms of Reference. We would especially like to maintain a two-way communication with Council to respond to their initiatives and bring forward some of our own.

10. Adjournment and Next Meeting

Moved and Seconded by Erin and Anna that the Committee adjourn the meeting at 8:40 p.m.

Carried

The next meeting will be held on Tuesday, 22 October 22, 2024 at 7:00 p.m. unless an arrangement can be made to change the meeting to the October 29, 2024 to accommodate the availability of the Chair.

District of Metchosin

Minutes

**Environment and Natural Areas Committee Meeting
November 18, 2024 at 7:00 p.m.**

Council Chambers
Metchosin Municipal Hall

PLEASE NOTE: The meeting has been recorded.

Present: Councillor Gray in the Chair, Mayor Little, Councillors Shukin, Donaldson and Epp. Also present was Bob Payette, Chief Administrative Officer, and Jennifer Miller, Legislative Services Assistant (recorder).

The meeting was called to order at 9:05 p.m.

1. Agenda, Additions and Approval

Moved and Seconded by Councillors Epp and Donaldson that the Committee approve the agenda as presented.

Carried

2. Public Participation

Nicole Shukin, resident, inquired about progress on the five priority actions in the Climate Action Plan, particularly in relation to retrofitting buildings for energy efficiency and noted that concrete action cannot happen fast enough if the District is to meet the climate targets. In addition, Ms. Shukin questioned the practicality of the proposed request around conservation corridors and amenity zoning, recommended a stronger proof of water policy for any proposed subdivision on well water, and suggested that staff would be better able to support conservation goals if the Official Community Plan contained a more nuanced ecological calculus for determining density.

3. Adoption of Minutes

Moved and Seconded by Councillors Shukin and Donaldson that the Committee adopt the minutes of the Environment and Natural Areas Committee meeting held June 10, 2024.

Carried

4. Receipt of Minutes

Moved and Seconded by Councillors Shukin and Epp that the Committee receive the minutes of the Environmental Advisory Select Committee meeting held September 24, 2024.

Carried

5. Reports

a) Councillor's Update

Councillor Gray provided the following updates:

- Use of Pesticides and Herbicides

- Installation of a Bat Box at Blaney Trail
- ECCC Salish Sea Gull Project: 2025 Fieldwork
- Encouraging and Connecting Conservation Corridors in Metchosin
- Metchosin Creek Stormwater Management Planning

Committee discussion:

- Invasive species, pesticides, staff resources, prioritizing bylaw updates
- Bat box installation options, materials, and labour
- Conservation corridors
- Amenity zoning
- Streamside Protection and Enhancement Area (SPEA)
- Stormwater management planning and costs

Moved and Seconded by Councillors Shukin and Epp the Committee recommend Council request staff work with the Habitat Acquisition Trust in collaboration with the Parks & Trails Advisory Select Committee to install a donated bat box at Blaney Trail.

Carried

Moved and Seconded by Councillor Shukin and Mayor Little that the Committee recommend the Chief Administrative Officer advise the Finance Committee on potential Metchosin Creek stormwater management costs including water quality testing in relation to the 2025 Budget.

Carried

6. Adjournment

Moved and Seconded by Councillors Shukin and Donaldson that the meeting be adjourned at 9:44 p.m.

Carried

Certified Correct:

Chair

Corporate Officer

District of Metchosin

Minutes

Parks and Trails Advisory Select Committee Meeting

Tuesday, September 17, 2024 at 7:00 p.m.

Council Chamber

Metchosin Municipal Hall

Present: Ron Aubrey (meeting chair), Kathy Atherton, Ryan Carter, Caroline Donahue, Karen Hoffman, Jim Nan, David Shanks (recorder)

Regrets: Jay Shukin (Councillor Liaison)

The meeting was called to order at 7:02 p.m.

1. Agenda, Additions and Approval

Moved by Caroline that the Committee approve the agenda as presented.

Carried

2. Presentations

None.

3. Public Participation

- Tim Howard (Saddleback)
 - In 2005 connector trail between Hi Mount & Saddleback was defeated. Again in 2016, defeated by petition.
 - Concerned & unaware who wants trail in this area.
 - Chair noted there is no current plan for trail on Hi Mount. There is municipal easement
 - PTASC note: believe this is actually dedicated as a park, not just a municipal easement.
- Much discussion about agenda or meeting notes that identify need for trail access or signage
 - Clarification that there is no plan nor current ask for trail in Hi Mount area.
 - There will be public input sought for any new updates and new trails within Metchosin.
- Ken Ward (Stirrup)
 - Sought clarification about public input for P&T master update.
 - Asked about future discussion on opening alternate access to area, relative to risk in case of fire & single escape route, and that trails that would bring more people into area & increase the risk.
 - Chair suggested to provide feedback into ATP development survey.
- Kyara Kahakauwilla
 - Context on PTASC process, requires direction from council.
 - Noted piece of land is on the books as green space, but is very rough & difficult access.
 - Suggested if District looks into trail in this area, that staff make note to specifically reach out to affected community areas.

- Maryann Dylan (Saddleback)
 - Commented that she directed letter to Mayor, Council, & PTASC, asked if it will be on future agenda for PTASC.
 - **Note for follow-up** up with District to direct letter to PTASC for future agenda.

4. Adoption of Minutes

a) Parks & Trails Advisory Select Committee, August 7, 2024

Moved by Karen that the Committee approve the minutes of the Parks and Trails Advisory Select Committee meeting held on Aug 7, 2024.

Carried

5. Receipt of Minutes

None.

6. Business Arising from the Minutes

a) Memorial Benches

- Wooton Road
 - No further updates from members present
 - To cover in later Reports

b) Bradene Stairs

- New stringers were installed. Existing railings
- Need to check if work complete & warning signs need to stay in place

c) Weir Beach stairs

- Noted the new stairs look to be very well done

d) Tipton Memorial Bench – Councillor Shukin’s Report

- To cover in later Reports

7. Reports

a) Parks and Trails Coordinator

- Duke Road bench has foundation framed
- Updated Parks Donation document to be shared at next meeting
- Few trail maintenance items
- Current need is for Volunteers, more maintenance than we have volunteers to undertake.
 - i. Scouts/Cubs have expressed interest to volunteer & cleanup
 - ii. Volunteer already stepped forward to support to assist with repairs on Latoria Community Bridge

b) Council Liaison Written Report: Not available.

c) Chair Verbal Report

- Report sent to CAO after Aug meeting regarding DRE survey. Understands RFP is now out for tender.

8. Correspondence

- a) Ronsee, Branson-Duke Connector Trail Cleanup
 - Note that planned events for cleanup are good way to engage & cleanup entire trail at once.

9. Other Business

- a) Potential Roadside Trail Duke Road East
 - Request to contract survey for Duke Road East project (includes notes from the Community Input Session held July 31, 2024) - Councillor Shukin's Report
 - Update earlier in Chair's report
- b) An Equestrian Mounting block at the Corner of Rocky Point and Happy Valley Roads
 - Some riders have asked about some tall object to help mounting horses.
 - Could this be a Donation item? Need measurement on what height this should be. (to measure at Hillman trail)
 - Large boulder/rocks could be used, placed as steps
 - Appropriate location at this corner to be determined
 - To present proposal to & coordinate with Public Works
- c) Additional signage in Eleanor Mann Park
 - Public correspondence that signage is not clear once visitor is in the park. Seeks committee input on general signage strategy for Metchosin Parks?
 - General agreement clear signage supports non-intrusive trail usage
- d) TrailStewards and Volunteer Insurance
 - Definition of TrailStewards program needed
 - Is typical ask to work with hand tools only, power tools, or otherwise?
 - **Action** for Ryan to ask for direction from CAO on what general volunteers and Trail Stewards can be asked to do, if there are liability considerations, what is needed to cover volunteers under District liability insurance.
 - Clarification that volunteers not part of Select Committee
 - If there is need for insurance on P&T volunteers, consider using PTASC budget for this cost.
- e) Metchosin Community Day Draw and Review
 - Draw for gift card from P&T survey respondents. Winner: Claire Mulligan
 - Caroline to compile Survey responses
 - Expression of interest for Updates, Volunteering, etc.
 - Caroline to provide to Ryan

10. Adjournment and Next Meeting Date

Moved by Caroline that the Committee adjourn the meeting at 8:45 p.m.

Carried

The next meeting will be held on Tuesday, Oct 15, 2024 at 7:00 p.m.

District of Metchosin

Minutes

Parks and Trails Advisory Select Committee Meeting

Tuesday, October 15 at 7:00 p.m.

Council Chamber

Metchosin Municipal Hall

Present: Ron Aubrey (meeting chair), Jay Shukin (Councillor Liaison) Ryan Carter, Karen Hoffman, Jim Nan, David Shanks (recorder)

Regrets: Kathy Atherton, Caroline Donahue

The meeting was called to order at 6:58 p.m.

1. Agenda, Additions and Approval

Moved by David that the Committee approve the agenda as presented.

Carried

2. Presentations

None.

3. Public Participation

None.

4. Adoption of Minutes

a) Parks & Trails Advisory Select Committee, September 17, 2024

Moved by Ryan that the Committee approve the minutes of the Parks & Trails Advisory Select Committee meeting held on September 17, 2024.

Carried

5. Receipt of Minutes

a) Special Community Planning Committee, September 23, 2024

Moved by Karen that the Committee receive the above Committee Minutes for information.

Carried

b) Environmental Advisory Select Committee, September 24, 2024

Discussed email from Kathy regarding PTASC meeting frequency. Agreed current monthly, per call of Chair is appropriate.

Moved by Karen that the Committee receive the above Advisory Committee Minutes for information.

Carried

6. Business Arising from the Minutes

a) Bradene Stairs

- Discussed state of stairs. Runners have been replaced; existing railings remain.
- Jay has requested Public Works to contact PTASC in advance for similar future work. This was done quickly due to apparent safety concerns.
- **Action** to remove topic from future meeting minutes

b) Equestrian Mounting Block at the Corner of Rocky Point and Happy Valley Roads

- Still in works, Ron will be in contact to Public Works about options available.

c) Trail Stewards Program

- PTASC to provide proposal to CAO on what program would entail.
- Noted Colwood has strict policy on volunteers. Applicable policy should be generic to all District volunteers.
- **Action** Jay to ask Tina to look into Colwood Volunteer Policy as starting point for District.

7. Reports

a) Parks and Trails Coordinator

- Scouts cleanup of Lisandra Trail successful. Interested to do again in the spring.
- Latoria Creek Bridge; area neighbour working with Ron to undertake getting wood milled for repairs. Fir handrails to be replaced with stained cedar.
 - Future consideration needed to design addition to keep gravel from sitting on first board and causing damage/rot.
- Trail repair of wall in Blinkhorn Park.
- Ryan will be moving, anticipating stepping down in future from Trails Coordinator role, with appropriate transition.
 - **Action** Now need to post two committee roles; Trails coordinator another another member.

b) Council Liaison

- Letter and petition from Hi-Mount neighbours to upcoming Community Planning Committee.
- Budget process underway, consider any PTASC needs coming for 2025.
- Duke Road East survey began last Friday, expected to complete this week. Will be considered both for Trail and for Active Transportation Plan.
- Humane Society purchased property near Buffer Lands.
- Buffer Lands updates expected in future.

c) Chair Verbal Report

- Bridge and mounting block topics noted earlier.
- Envision two PTASC subcommittees will be needed soon, trail development and Master Plan updates.

8. Correspondence

None.

9. Other Business

a) Parks Donation Application – Buchanan, September 26, 2024

- Cricket pitch bench application for discussion. Suggested two benches make sense. Suggested to remove existing bench, assuming it is not a memorial bench.

Moved by Ryan that the Committee refer to Council for approval of Buchanan bench application at Cricket pitch, pending confirmation existing bench is not a memorial bench and will it be removed.

Carried

b) Parks Donation Program Inventory

- Memorial Bench/Picnic Table Inventory, July 9, 2024
- Memorandum to the Parks Committee, November 29, 2018
 - Excerpt from the Parks Committee Meeting Minutes, February 5, 2018
 - Metchosin Memorial Bench Inventory Report from PTASC, 2018
 - Public Works Policy W-100.80, Donations to Community Parks
- PTASC received this inventory with thanks

c) Parks Donation Program Guidelines

- Proposed Updates.
- Existing Parks Donation Program Guidelines, Approved March 4, 2024.

Moved by Ryan that the Committee refer the Updated Parks Donation Program Guidelines to Council to be adopted.

Carried

d) Hillman Trail Memorial Bench

- Council Resolution, September 9, 2024.
- PTASC Recommendations, July 16, 2024.
- Mr. Tipton does want to proceed with proposed replacement and donation for plaque and maintenance. Noted that existing plaque has been kept. **Action** Jay to contact CAO regarding path forward.

e) Parks & Trails Master Plan Update

- To resume as monthly agenda item.
- Discussed 2009 update & community brainstorming session, would like to follow similar process and engagement
 - Jay noted PTASC should prepare and make a recommendation to Council on the proposed process for updates.
 - Need to ensure update considers parks in addition to trails.
 - For the November meeting, Jay to develop an initial outline regarding process and scope for PTASC's input.

f) Metchosin Community Day Engagement Summary

- 17 people added their name to the sign-up sheet
 - 14 for P&T Updates
 - 13 for Volunteering Opportunities
 - 11 for Becoming a Trail Steward
- 30 people filled out the survey
 - 11 said they use our parks very regularly, 13 often, and 6 monthly

10. Adjournment and Next Meeting Date

Moved by Karen that the Committee adjourn the meeting at 8:26 p.m.

Carried

The next meeting will be held on Tuesday, November 19, 2024 at 7:00 p.m.



Reference: 411992

September 13, 2024

Their Worship Mayor Marie-Térèse Little
and Councillors
District of Metchosin
4450 Happy Valley Road
Victoria BC V9C 3Z3

Sent via email: mtliddle@metchosin.ca

Dear Mayor Little and Council:

Thank you for your letter of August 2, 2024, which was also addressed to my colleague, the Honourable Pam Alexis, Minister of Agriculture and Food, regarding cougar predation on sheep in Metchosin and the Conservation Officer Service (COS). As Minister of Environment and Climate Change Strategy, I am pleased to respond on behalf of my colleague.

Please allow me to begin by acknowledging that we recognize that co-existence with wildlife can be challenging, particularly in agricultural communities. I can assure you that public safety is the priority of the COS.

Conservation Officers continue to work with area producers, farmers, ranchers and the community of Metchosin on proactive measures to reduce cougar conflicts.

As I'm sure you're aware, the COS met with Metchosin Council and related committees as recently as July, to present information and answer questions regarding cougar predation on sheep. I can also tell you the COS has recently met with the BC Cattlemen's Association – Livestock Prevention Program (LPP), Ministry of Agriculture and Food representatives and an experienced sheep producer to discuss this topic.

...2

The COS is working with the LPP to initiate a Verification Course on Vancouver Island to assist producers in identifying the perpetrating predator when livestock is killed, as well as discuss good husbandry practices. This course also assists producers when completing verification forms for compensation when livestock is killed.

The COS continues to work with Metchosin farmers on mitigation techniques to minimize the number of sheep lost to cougars and other predators. Implementing best practices to protect both livestock and wildlife are always encouraged to help prevent conflicts from happening in the first place.

These strategies include:

- Educating farmers on best management practices regarding livestock, including installing an electric fence, locking up sheep in a barn overnight (where possible), regularly checking the condition of the herd and the use of livestock guardian dogs;
- Maintaining proactive outreach in the community around preventing human-wildlife conflicts; and
- Working with partners such as WildSafeBC to further help educate the public on the importance of attractant management.

Proper livestock husbandry management is critical to help reduce predation and lessen livestock losses.

Conservation Officers must prioritize public safety calls for service as the highest priority, such as those related to dangerous hunting or dangerous wildlife in urban and rural settings that pose a significant risk to human safety. It is important to note that Conservation Officers cannot be on standby to immediately respond to cougar/livestock issues. The COS will continue to monitor cougar activity in the area and respond as necessary to ensure public safety.

It may also interest you to know that the COS has entered into enhanced service-level agreements with other municipalities and regional districts, whereby local governments financially support enhanced compliance and enforcement and public outreach efforts. This position—Wildlife Safety Response Officer (WSRO)—is a formalized auxiliary position housed within the COS and is the direct liaison between the municipality and our agency.

I hope you find this information helpful. The COS welcomes further discussions to help mitigate cougar conflicts in the Metchosin area.

Sincerely,



George Heyman
Minister

cc: Honourable Pam Alexis, Minister of Agriculture and Food
Tina Hansen, Deputy Corporate Officer, District of Metchosin



DISTRICT OF METCHOSIN

File No. 0400-08

August 2, 2024

Honourable Pam Alexis
Minister of Agriculture and Food
PO Box 9043 Stn Prov Govt
Victoria, BC V8W 9E2
AF.Minister@gov.bc.ca

Honourable George Heyman
Minister of Environment and Climate Change Strategy
PO Box 9047 Stn Prov Govt
Victoria, BC V8W 9E2
ENV.Minister@gov.bc.ca

Dear Ministers Alexis and Heyman,

RE: Cougar Predation on Sheep in Metchosin – BC Conservation Officer Service

The District of Metchosin is a rural and farming community located on Southern Vancouver Island. From a regional perspective, Metchosin serves several significant functions. It contains much of the productive agricultural land within the Capital Regional District which provides food for our communities and the local markets and farmstands. [The Metchosin Grown Guide and Map](#) offers a snapshot of our diverse growers and producers. Metchosin's unique and diverse natural environment has a strong marine orientation and is a gateway to four regional parks and numerous green spaces that serve as a significant corridor for wildlife. Metchosin provides opportunities for rural living in a landscape in which farms, market gardens and grazing fields are interspersed with residential lots. Due to the rapid pace of urban development in the adjacent municipalities of Colwood, Langford and Sooke, wildlife increasingly moves through Metchosin's farming lands as well as its greenspaces, leading at times to conflict between livestock and wildlife.

In 2023 and 2024 the farmers of Metchosin experienced 61 and 31 sheep/lamb kills due to cougars. Some of these attacks took place during the day, raising public safety concerns for children and others living or playing in the vicinity. The loss of sheep due to predation represents significant impacts for small farmers who are operating on very tight margins. While Metchosin farmers are doing their best to follow the BC Cattlemen's Association Livestock Protection Guidelines, wildlife-livestock conflicts continue to impact their operations. Please note that the District of Metchosin is committed to preserving biodiversity; thus, we are certainly not seeking a cull of the cougar population. However, it is important that "problem cougars" who become habituated to preying on sheep be dealt with in as timely a manner as possible, both in the interests of public safety and of Metchosin's small farmers.

We understand the mandate of the province's Conservation Officer Service and the number of demands on Officers in British Columbia. Delays in Officers' response time often results in more sheep kills and an agriculture community on edge as to when and where the next strike will occur. Local farmers would like to see Conservation Officers respond more quickly to their calls. Since quick responses from Conservation Officers is vital to the agricultural viability of Metchosin and the broader food security of the region, we are advocating for allocation of additional resources for the Service. Ideally this would take the form of additional Officers serving South Vancouver Island.

We appreciate the conversations that we have had with the Conservation Officers, and we welcome the opportunity to discuss the issue of large carnivore and livestock conflicts within our District.

Sincerely,



Marie-Térèse Little PhD.
Mayor

cc: Capital Regional District (CRD)

Attachment: The Metchosin Grown Guide and Map:

https://www.metchosin.ca/sites/metchosin.ca/files/2023-10/Metchosin%20Grown%20Map_0.pdf

THE METCHOSIN GROWN GUIDE & MAP



7 Gathering Sage Medicinal Herb Farm
We are a small, artisan farm growing high-quality medicinal and culinary herbs for our community. There is a U-pick available and we sell dried and fresh herbs, culinary offerings, plants, herbal medicine, and bath products. Our farmstand and U-pick are open early spring to fall. Thurs., Fri., & Sat.: 10-4.
4488 William Head Rd
FB: /Gathering Sage Medicinal Herb Farm

8 Wind Whipped Farm
We are a small certified organic vegetable farm growing a wide range of crops which we sell primarily through our CSA subscription program, The Local Food Box. We also have a road-side stand open on weekends, from 9-5, starting in May. The Local Food Box is a collaborative marketing venture with eight Metchosin farms and producers. Members may choose to receive vegetables, meats, flower bouquets, honey, flour, and eggs. The box program runs for 20 weeks from the beginning of June into October, to sign up or for more information please visit our website.
4645 B William Head Road
thelocalfoodbox.com/
wind-whipped-farm/
IG: @windwhippedfarm

9 Sea Bluff Farm
Crunchy carrots and succulent snap peas are among the many delights to be found on our farmstand all year round. Tues. and Sat. have the best selection but we're open daily. You can proudly grow 40+ varieties of certified organic fruits and veggies, we have our seeds and seedlings for sale in the spring, and we offer workshops and events during the year. We're passionate about helping new farmers get established, about community food security and about creating habitat for native pollinators.
565 Wootton Rd
seablufffarm.com
FB: /seablufffarm
IG: @seablufffarm

10 Metchosin Farm
Growing since 2004, we produce 200+ varieties of certified organic and open-pollinated seeds, plant starts, tubers and fruit bushes including original varieties created right here at the farm. Self-serve farmstand open daily at the Sea Bluff trail parking lot. Visit our website to purchase seeds and to view our schedule of food security skills workshop! Farm and on-farm nursery open occasionally - check website for dates.
542 Wootton Rd
metchosinfarm.ca
FB: /MetchosinFarm
IG: @metchosinfarm

11 White's Greens
It's not kombucha to consume food grown from your blood, sweat and tears. The life that is given to soil by my tilling nourishes the plants, and those plants nourish you and your kin. The marvel that is mind will tell you through the sophistication that is taste, that food you consume from my farm is above all common food in nutrition and spirit.
4230 Metchosin Rd
farmstand@shaw.ca

12 Willow Flower Farm
We love everything about growing our flower blooms. We grow them using organic practices, save seeds where we can, and try our best to nurture pollinating insects. Our bouquets are available at our road-side stand mid-May to mid-Oct. We are located at Happy Valley and Metchosin Rd.
4387 Metchosin Rd

13 Willow Flower Farm
We have everything and love to enjoy our lavender farm between forest and sea. Picnic in a lavender orchard on a blanket with create beautiful experiences and body, kitchen and home. Our entire collection is made on the farm with our lavender, apples and honey, and locally foraged botanicals, and sold on site and online.
4185 Metchosin Rd
Bilston.ca
FB: /bilstonorekfarm
IG: @bilstonorekfarm

14 Round the Bend Farm
Our family farm has been operating in Metchosin since 2018. We're passionate about ethically and responsibly raising beef and lamb to provide a local, sustainable product. We raise Belted Galloway and Angus beef and generally sell direct from farm to consumer in the late summer/fall, we also have a flock of Suffolk and Scottish Blackface sheep and can sell lamb to your custom specifications.
FB: /Round the Bend Farm
candacez@btmail.com

15 Nine Bark Farm
We provide specialty cut flowers to Island flower lovers Aug-Oct, and aim to energize the local flower sector while building relationships between farms and those who are inspired by our vision. In 2020, we helped found the Island Flower Growers Co-operative. IFGC operates a weekly, online wholesale market to connect Island florists with specialty blooms. You can find our bouquets at Sea Bluff Farm and through Wind Whipped Farm's Local Food Box subscription program. Custom orders are welcome by Instagram.
IG: @ninebarkfarm

16 Eweview Farm
We are a family-owned business focused on providing a healthy source of lamb and pork meat for our community. We breed Suffolk sheep and raise free-range lambs and pigs on our small acreage. Our product is ethically raised, hormone free locally grown in Metchosin. Pork is sold by the side and lamb by the carcasses. Custom cut choices to suit your family's menu. Along with our meat we sell aged manure composed of horse and sheep dung along with bedding material.
eweview@btis.us.net

17 Blue Dog Farm
We have yet to find our niche in the wonderful world of farming. We're trying our hands at most everything that grows: livestock, poultry, fruit, vegetables and berries. We find that building our soil using animal impacts and raising them organically and in ways that allow them to express their natural behaviours is the most satisfying part of farming. We're always learning. To see what we have available throughout the year, follow along on Instagram, YouTube and Facebook.
FB: /Blue Dog Farm

18 Stillmeadow Farm
We take a lot of pride in raising our sheep, hogs and chickens, as well as several varieties of grain on our farm. We have been in operation for over six decades. Our animals are treated well - with lots of green grass for the sheep, straw and bedding for pigs to root in and fresh air for the chickens. Our stock includes pure-bred Dorset sheep, and Berkshire, Large Black and Tanworth pigs. You can purchase our products at Parry Bay Farm Store and at Nookka Rose Milling. We believe in agriculture as a part of healthy communities, and we host groups for tours.
stillmeadowfarm.ca
FB: /stillmeadowfarm
IG: @stillmeadowfarm

19 Tideview Farm
We've raised sheep for more than three decades, specializing in Icelandic sheep for the past 20 years. Our focus is on raising hardy grass-fed animals, and we provide breeding stock and fleeces throughout Western Canada. Breeding stock availability is posted on our website in May or June, although we work with breeders throughout the year. Fleeces are available after Nov. 1, until they're gone.
TideviewFarm.net

20 Windsoning Farm
Windsoning Farm is 14 acres of hayfields and sheep pastures. The sheep are marketed through Parry Bay Sheep Farm and the hay is sold locally.
WindsoningFarm.com
FB: /umiamifarm
IG: @umiamifarm
YouTube.com/@umiamifarm

'OFF THE MAP' METCHOSIN GROWERS

1 Haven Acres Farm
On this farm, the creamiest milk flows, and it's our pleasure to offer you beef on a seasonal basis. Succulent, tender pork, grown with hugs and kindness, sustain your body and soul. Rainbow butt nuggets are available on a subscription basis by the dozen. Assorted veggies and fruits, kissed by the sun, will satisfy your body with their natural goodness.
havenacresfarm@yahoo.com

2 Stillmeadow Farm
We take a lot of pride in raising our sheep, hogs and chickens, as well as several varieties of grain on our farm. We have been in operation for over six decades. Our animals are treated well - with lots of green grass for the sheep, straw and bedding for pigs to root in and fresh air for the chickens. Our stock includes pure-bred Dorset sheep, and Berkshire, Large Black and Tanworth pigs. You can purchase our products at Parry Bay Farm Store and at Nookka Rose Milling. We believe in agriculture as a part of healthy communities, and we host groups for tours.
stillmeadowfarm.ca
FB: /stillmeadowfarm
IG: @stillmeadowfarm

3 Umi Nami Farm
We offer a year-round box program, featuring certified organic vegetables. We specialize in Japanese vegetables along with Western favourites and various fruit. Through the box program, we make it our priority to serve local people eating at home, tailoring box sizes and providing cooking instructions to connect with the way each person eats day to day. We also partner with Sea Bluff Farm to provide vegetables to their farmstand.
Umi Nami Farm originally started in Iwaki, Japan and moved to Victoria in 1986.
961 Methuen Lake Park Rd
umiamifarm.com
FB: /umiamifarm
IG: @umiamifarm
YouTube.com/@umiamifarm

4 Parry Bay Sheep Farm
We are a mixed farm that has been operating for more than 40 years in the Metchosin area. We also lease pasture land throughout the region, so our sheep can be seen grazing in the Highlands, on the Saanich Peninsula and in View Royal. We provide pasture-based lamb year round to many fine butcher shops and restaurants in Victoria. We have a farm store open every Sat. from noon until 3. We're also at the Metchosin Market.
4335 Lindholm Rd
parrybaysheepfarm.com
FB: /Parry Bay Farm Market

5 Three Creeks Farm
Home to the Henry family since 1989, we are a small farm that sells free-range chicken eggs in early summer. In late spring and through summer, there is a U-pick flower garden on the property with many dahlias, zinnias and other flowers for cutting. There is often some produce available as well, in the fall, apples and pears are sold. Stop in for a visit. Park in the driveway. Knock at the door if we don't come out to meet you.
777 Winfall Rd

6 Glenrosa Farm
Glenrosa is a heritage farm in Metchosin, with many different incarnations over the years. We offer seasonal garden produce, eggs and heritage apples and pears for sale when available. Currently we are featuring Neapolitana-style pizza for take-out/drive-through with limited picnic table seating available. We are firm believers in sourcing local, seasonal ingredients whenever possible, using toppings such as Metchosin meats and vegetables farmed a short distance away. Hours of operation for pizza are Fri. and Sat. between 3-7. Pre-ordering in advance is strongly encouraged as we often sell out on our website.
5447 Rocky Point Rd
glenrosafarm.com
FB: /glenrosafarm
IG: @glenrosafarm

7 Blue Dog Farm
We have yet to find our niche in the wonderful world of farming. We're trying our hands at most everything that grows: livestock, poultry, fruit, vegetables and berries. We find that building our soil using animal impacts and raising them organically and in ways that allow them to express their natural behaviours is the most satisfying part of farming. We're always learning. To see what we have available throughout the year, follow along on Instagram, YouTube and Facebook.
FB: /Blue Dog Farm

Want to add your farm to the map?
Contact: info@metchosin.ca

Sponsored by the Metchosin Agricultural Committee



Metchosin Shoreline Report 2013



**Prepared by the
Metchosin Environmental Advisory Select Committee
May 2013**

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Executive Summary

The unique values attributed to the Coastal Areas of Metchosin have been outlined at length in the Official Community Plan and other documents produced for the District. They have also been recognized both historically and by outside researchers.

The objective of the Metchosin Shoreline Report is to provide Mayor and Council with a background document and decision-making tools for issues related to Metchosin's shoreline environment: the jurisdictional boundaries are delineated; examples of ecologically sensitive areas are highlighted; and the biological and geographical values of eight zones of the 45 km of shoreline are profiled.

The values of biodiversity, education, natural capital, aesthetics, philosophy, and ecotourism are all affected by our coastal areas. Therefore, the risks from human activity on the sustainability of these areas are emphasized.

With the increasing likelihood of changing climatic events impacting on our shoreline, and in order to mitigate these risks, a number of recommendations are proposed for the Municipality to implement:

1. Create a development permit zone in the area between the end of provincial jurisdiction at the high water mark and the end of the high tide storm-driven wash on the landowner's property.
2. Prevent the human-caused hardening of the shoreline by sea walls, roadways or bulkheading, and shoreline modifications.
3. Establish Development Permit Areas on the full length of the coast of Metchosin.
4. Design a "Coastal Covenant," which landowners could voluntarily sign, in order to guarantee the protection of the integrity of their section of shoreline.
5. Establish and protect vegetation buffer zones along streams and along the total shoreline, with special attention to salt marshes and eelgrass beds.
6. Protect eelgrass and macroalgae beds by reducing damage from log booms, docks and other structures.
7. Divert the runoff from farms, which might contain fertilizers, pesticides and herbicides, away from shoreline, salt marsh, and eelgrass habitats.
8. Develop emergency response plans for the District in the event of a land or ocean-based toxic spill which could potentially threaten the shoreline.

Introduction

Metchosin is highly regarded within the Capital Regional District (CRD) for its variety of natural ecosystems balanced by its rural lifestyle. It is this unique character of Metchosin that has been valued historically and continues to be valued by its residents and visitors. The diversity of natural terrestrial ecosystems that have been preserved by the community are well represented in the numerous parks and open areas. However, while the community has the power to exert authority over terrestrial environments, the 45 km of shoreline marine environments bordering Metchosin are governed by a variety of agencies and jurisdictions, leaving the risk of key issues being overlooked.

(See Appendix 1, Metchosin's Coastal Jurisdictions)

The Metchosin shoreline has been recognized by others as having a variety of unique features and ecosystems. In the past, most of the shoreline was considered for designation as a National Marine Park by the federal government. Two extensive reports were prepared in the mid 1970's, one for Parks Canada and the other for Indian Affairs. The area off Bentinck Island and Race Rocks is now a federally recognized Rockfish Conservation Area and a designated Marine Protected Area.

<http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-acr/rca-acr/south-sud/BentinckRaceRocksChart3461-eng.htm>

A provincial ecological reserve was established at Race Rocks in 1980.

http://www.env.gov.bc.ca/bcparks/eco_reserve/racerocks_er.html

(See Appendix 2, Recognition by Others of the Value of Metchosin's Shoreline)

The District and residents of Metchosin are keenly aware of the benefits of living adjacent to the marine shoreline. Marine values are documented in both the Official Community Plan and the Blue Green Spaces Strategy. *(See Appendix 3, Previous Shoreline Documents Presented to Metchosin Council)*. In light of the variety of potential impacts to marine shorelines, such as the predicted rise in sea level and an increase in extreme weather events associated with climate change, the District must be concerned with the preservation and protection of the environmental, social, and economic values of these shores.

(See Appendix 4, Global Risks to Shorelines)

Purpose

The purpose of this document is to:

- Identify the ecological, educational, aesthetic, and economic values of Metchosin's 45 km of marine shorelines.
- Summarize the physical and ecological risks to our shoreline environments.
- Propose actions enabling the District to prepare for, and act on, shoreline risks.
- Describe the jurisdictional boundaries of Metchosin's shorelines.
- Provide reference material for further information



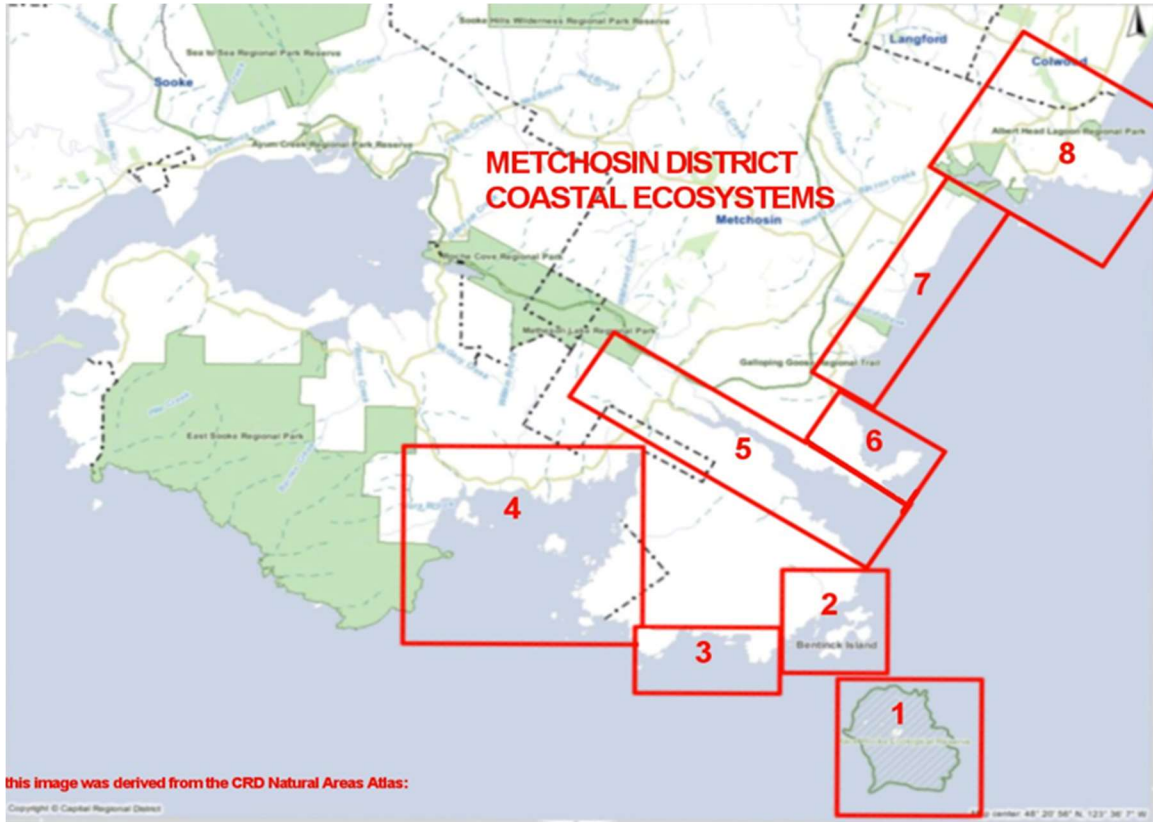
Physical Structure and Ecological Resources of the Metchosin Shoreline

In order to document various coastal features, this analysis takes the shoreline of Metchosin and divides it into eight smaller sections representing areas of similar physical and ecological make up. This approach is used in the website on Coastal Metchosin. (<http://powweb.racerocks.ca/metchosinmarine/mapindex.htm>)

The coastal aerial images were provided by the Integrated Land Management Bureau, GEOBC Spatial Analysis Branch.

Aerial Maps were made available courtesy of the CRD Natural Areas Atlas <http://www.crd.bc.ca/regionalplanning/maps/index.htm>

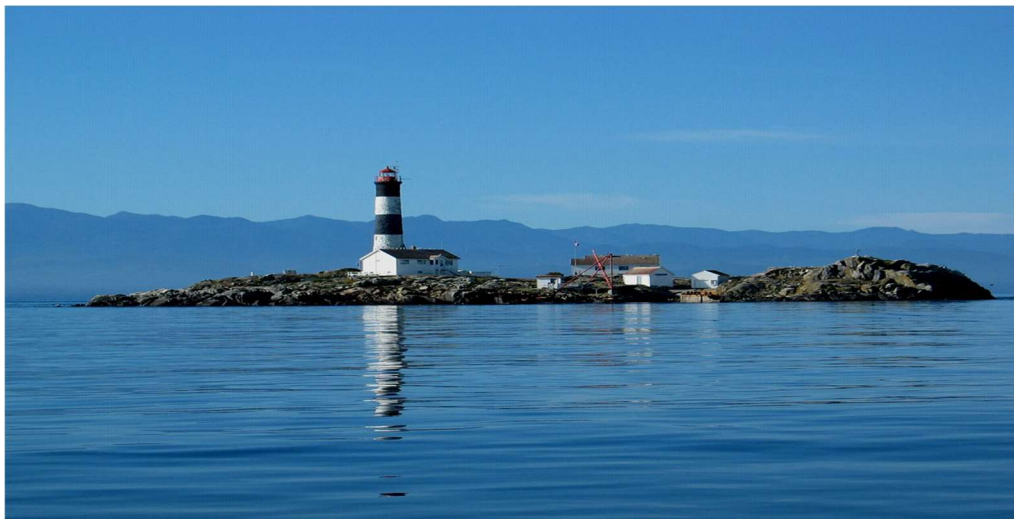
The following map depicts the shoreline of Metchosin divided into eight sections representing areas of similar physical and ecological characteristics:



The following images provide examples of the coastlines of these zones. When the ecology and geography of each area is studied, and the different life forms are recognized, one can start to appreciate the variety in landforms and incredible biodiversity of the areas.

See Appendix 5 Coastal Areas and Sensitive Ecosystems for maps and details of these eight zones.

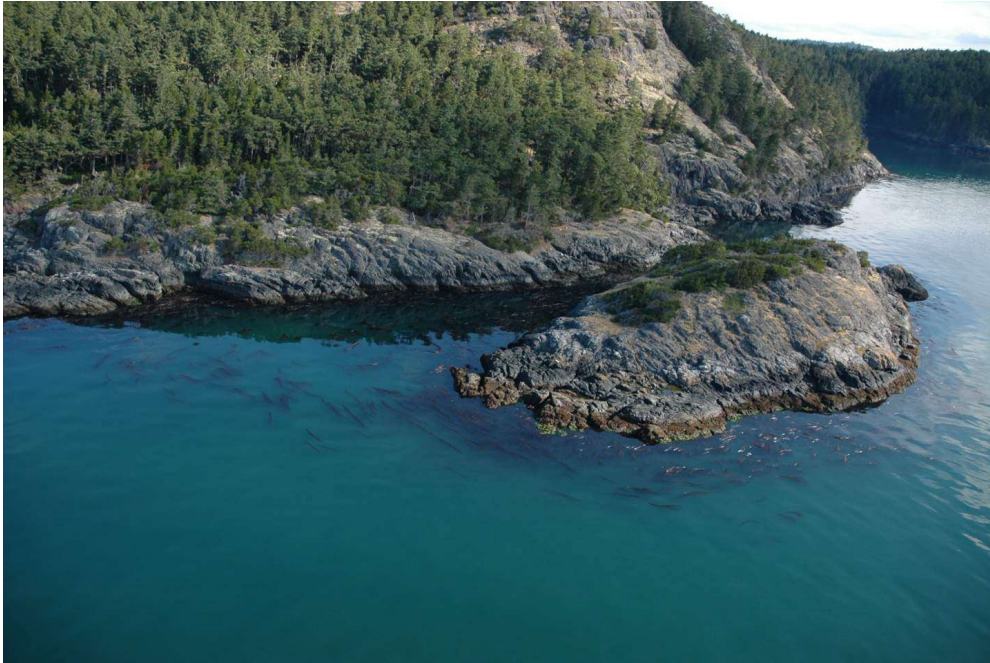
Zone 1. Race Rocks. Nine islands.



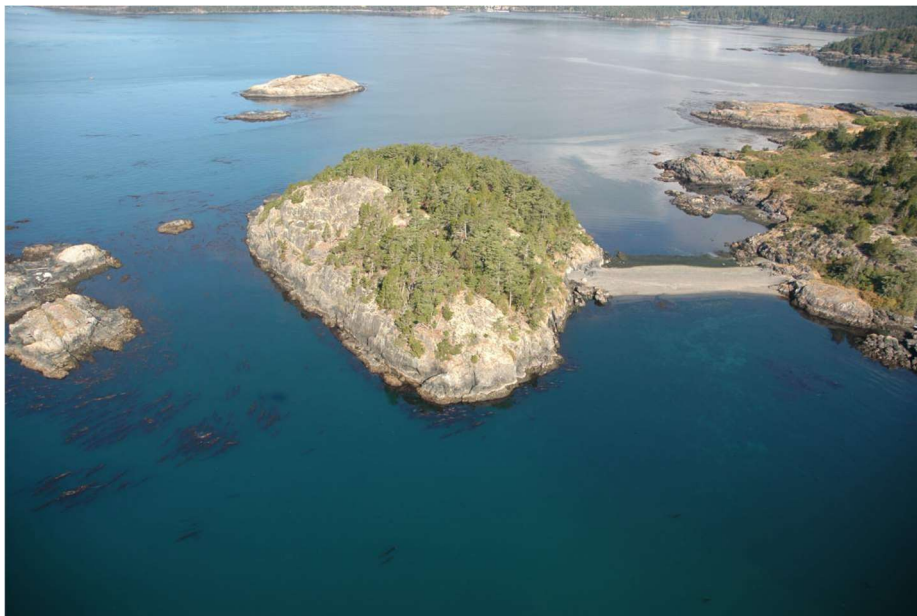
Zone 2. Bentinck Island and Rocky Point. DND property, a variety of ecosystems.



Zone 3. Church Island and Whirl Bay. Island and rocky coast.



Zone 4. Beecher Bay. First Nations reserve, shoreline, DND land, private land and park.



Zone 5. Pedder Bay. The shores of the Bay with Pearson College and Pedder Bay Marina; estuary and riparian areas.



Zone 6. William Head. A rocky shore headland.



Zone 7. Parry Bay Cliffs, Taylor Beach to Weir's Beach. Cliffs and beaches.



Zone 8. Witty's Lagoon to Albert Head. Beaches and lagoons.



Shoreline Values

Biodiversity (ecological values and sensitivities)

The term “biodiversity” encompasses the processes and variety of life on earth. It includes the complete range of organisms, their genetic differences, communities and ecosystems in which they occur, and the ecological and evolutionary processes that allow them to change, adapt and persist. Biodiversity manifests itself on the genetic, species, ecosystem, and landscape levels as well as in the interactions within and among levels. It supports:

- *Resource values (e.g. agricultural crops, fisheries as a food source, and medicinal uses of plants)*
- *Ecosystem services (e.g. maintaining air and water quality)*
- *Recreational and aesthetic values*
- *Intrinsic, spiritual, and ethical values*

With global resource challenges, such as the collapse of Atlantic cod fish stocks, monoculture crop failures, and locally the devastation of the forest industry due to pine beetle infestations, the necessity of maintaining a high natural biodiversity for environmental resilience has become very apparent.

Marine environments are extremely rich in their biodiversity and the ecosystem services they provide.

Natural Capital

Natural capital refers to the indispensable resources and benefits, essential for human survival and economic activity, provided by the ecosystem.

(<http://www.businessdictionary.com/definition/natural-capital.html>)

Natural capital refers to any of the many goods (e.g. food and fuel) and services (e.g. water purification and carbon cycling) provided by the natural cycles. Natural ecosystems and biodiversity provide services that we take for granted, but which have immeasurable value. Eelgrass beds, kelp beds, and estuaries, in particular, supply critical habitat for juvenile fish and migratory birds, and provide a high degree of carbon sequestration.

Educational Value

Environmental education creates awareness and understanding of the relationship between humans and their many environments – natural, man-made, cultural, and technological. Environmental education is concerned with knowledge, values, and attitudes, and has as its aim responsible environmental behaviour. (NEEAC, 1996 North American Association for Environmental Education.

<http://www.naaee.net/what-is-ee>)



Educational opportunities present themselves in many forms, from the structured ecology field studies in high school and colleges to less formal classroom field trips and casual family outings at Witty's lagoon. All of these represent opportunities to learn about biodiversity and ecological values while engaging in outdoor physical activity. The education of our youth represents an important step in creating greater awareness of the limits of natural resources and in developing future generations of responsible citizens, natural resource managers, and scientists, i.e. custodians of our planetary resources.

Aesthetic and Philosophical Values

Shoreline aesthetics are undeniably ingrained into the psyche of the human spirit, so much so that there is an extremely high demand for shoreline property, even at high property costs and potential environmental risks (such as tsunamis). Shorelines feature prominently in artistic endeavours (e.g. poetry, verse, song, photography,

painting and other visual arts). People enjoy the experience of walking near the sea, breathing sea air, bird watching, sunbathing, and seeing the expansive vistas. The artistic, spiritual and philosophical value of such experience is unquantifiable and priceless.

Eco-tourism

Eco-tourism is tourism designed to contribute to the appreciation and protection of the environment, or at least minimize damage to it. Regions and communities which have substantial natural resources offering aesthetics, biodiversity, natural capital, and educational value have much potential for developing an eco-tourism market. As the public has become more environmentally aware, so has eco-tourism grown.

Risks to Local Shorelines

- Natural shoreline erosion/change
- Shoreline alteration/disruption (dumping, filling, hard surfaces, groynes, seawalls, piers etc.)
- Shoreline erosion from climate change, storm surges, and associated extreme weather events
- Downstream impacts from developments, including increased sedimentation, more fresh water output, and erosion from stream channeling
- Contaminants in storm sewers and seepage from septic fields (sewage, toxic cleansers, fuel, oil, detergents, cosmetic pesticides/herbicides, anti-freeze, prescription drugs, etc.)
- Agriculture runoff (pesticides, herbicides, fertilizers, manure)
- Contamination from marine traffic in Georgia Strait and the Strait of Juan de Fuca. With the increase in marine traffic, there is an increase in the likelihood of collisions, bilge dumping, spills, and marine garbage
- Flotsam on shorelines (increased potential from tsunamis)
- Disturbance by recreational boaters, including kayakers and personal watercraft, of seabird feeding and nesting areas, and marine mammal haulout and nursery colonies
- Eco-tourism/recreational impacts – tread gently, observe from a distance, minimize disturbance
- Invasive species: Minimal so far but potential for alteration of ecosystems by the green crab, certain algae, and certain tunicates

Sustainable Shoreline Guidelines

- Preserve coastal processes.
- Restrict and control shoreline modifications, which can have wide-reaching effects. (See Coastal Shore Stewardship: A Guide for Planners, Builders and Developers on Canada's Pacific Coast http://stewardshipcentrebc.ca/PDF_docs/StewardshipSeries/Coastal.pdf)
- Maintain, and when possible, enhance habitat diversity. See the description of the variety of shoreline habitats in Metchosin (Appendix 5).
- Ensure the variety of habitats is protected. Important ecological services are derived from these habitats for various plant and animal species, for foraging and spawning habitats for marine fish and invertebrates, and for breeding and feeding areas for birds.
- At a local scale, reduce pollutant input to the marine environment (e.g. boating guide, information sessions at Pedder Bay). On a broader scale, observe and report any inbound pollutants (e.g. shoreline watch).
- PLAN to avoid cumulative impacts to the coastal environment. The shore is an important part of defining Metchosin's character.

Recommendations

- Create a municipal development permit zone in the “No man's land” between the end of provincial jurisdiction at the high water mark and the end of the high tide storm-driven wash zone. This is a zone of the landowners property that may be inundated or eroded in extreme conditions. It is not possible to put an exact setback distance on this zone as the slope and substrate of the coastline determines the potential impact. As examples, a rock cliff obviously has more stability than a clay cliff; a naturally vegetated sand beach has more resistance to storm damage than one that has been hardened by compaction from human activity (building roadways or cement pathways).
- Consider a bylaw to prevent the human-caused “hardening of the natural area:” prohibit sea walls, dumping, rip-rapping, bulkheading or groyne construction, or excavator work which could lead to eventual destabilization of the shoreline. This zone could be defined as the slope of natural repose of the shoreline, or the area to which the coastline may erode when impacted by extreme ocean storm events.

- Consider establishing Development Permit Areas on the full length of the coast of Metchosin, with a 100 metre minimum distance from the natural boundary area. An increase in this distance should be implemented where alterations to near-ocean topography could result in potential impacts on sedimentation and nutrient load in the coastal area (for example installation of sewer fields and watercourse alterations due to building of roads, creation of dams etc).
- Consider designing a “*Coastal Covenant*”, which landowners could voluntarily sign, in order to guarantee the protection of the integrity of their section of shoreline. The description of Metchosin’s coastline, outlining the ecologically sensitive areas discussed in the report, is presented as Appendix 5. The land-sea interface along the entire coast of Metchosin exhibits a wide diversity of landforms and marine communities within a relatively confined geographical area. The eight zones shown in the map above are perhaps the most pristine, varied and ecologically sensitive sites of the entire Victoria region. It is in these areas where the coastal habitats, marine communities, and oceanographic phenomena achieve their greatest expression.
- Establish and protect vegetation buffer zones along streams and the shoreline adjacent to salt marshes and eelgrass and macroalgae beds.
- Protect eelgrass and macroalgae beds by reducing damage from log booms, docks and other structures.
- Divert the runoff from farms, which may contain fertilizers, pesticides and herbicides, away from shoreline, salt marsh, and eelgrass and macroalgae habitats.
- Evaluate the role of the Municipality in the event of a land- or ocean-based toxic spill which could potentially threaten the shoreline.

References

Coastal Shore Stewardship: A Guide for Planners, Builders and Developers on Canada's Pacific Coast

http://stewardshipcentrebc.ca/PDF_docs/StewardshipSeries/Coastal.pdf

The above reference is excellent and should be required reading for all municipal employees and owners of shoreline property.

If people have limited reading time the following 4 links give valuable information

Fact Sheet: Marine Guide to Preventing Shoreline Erosion. Fisheries and Oceans Canada

<http://www.dfo-mpo.gc.ca/Library/281618.pdf>

Living by Water Project. Working towards healthier human and wildlife habitat along the Shorelines of Canada. Nature Canada

<http://livingbywater.ca/main2.html>

Ecosystems of Southern Vancouver Island.

<http://metchosinmarine.ca/>

There are many other links to information on the topic on this page.

Coastal Sediment Process. Capital Regional District

<http://www.crd.bc.ca/watersheds/protection/geology-processes/coastalsediment.htm>

And more:

Chapman, Colin R. Blue Carbon — British Columbia. The Case for the Conservation and Enhancement of Estuarine Processes and Sediments in B.C.

http://www.sierraclub.bc.ca/publications/scbc-reports/Blue%20carbon%20bc%20report%20final_web.pdf

Estuaries in British Columbia.

http://www.env.gov.bc.ca/wld/documents/Estuaries06_20.pdf

Green Shores Technical and Advisory Committees: <http://www.greenshores.ca>

<http://www.stewardshipcentre.bc.ca>

IOC/UNESCO, IMO, FAO, UNDP (2011). [*Summary for Decision-Makers : A Blueprint for Ocean and Coastal Sustainability*](#). Paris: IOC/UNESCO

NEEAC, 1996 North American Association for Environmental Education (NAAEE) a network of environmental educators throughout North America & in over 55 countries around the world. <http://naaee.org/>

Nelleman, C., E. Corcoran, C.M. Duarte, L. Valdes, C. DeYoung, L. Forseca, G. Grimsditch (editors) (2009) Blue Carbon: The Role of Healthy Oceans in Binding Carbon: A Rapid Response Assessment. UNEP, FAO, IOC/UNESCO.
[http://books.google.ca/books?hl=en&lr=&id=onCVCHQl4RoC&oi=fnd&pg=PA17&dq=Nelleman,+C.+et.+al.+\(2009\)+Blue+Carbon&ots=ZQuieTBfoW&sig=-Yk_uu9GkEhIhcAWke9S5DIpu9Q#v=onepage&q=Nelleman%2C%20C.%20et.%20al.%20\(2009\)%20Blue%20Carbon&f=false](http://books.google.ca/books?hl=en&lr=&id=onCVCHQl4RoC&oi=fnd&pg=PA17&dq=Nelleman,+C.+et.+al.+(2009)+Blue+Carbon&ots=ZQuieTBfoW&sig=-Yk_uu9GkEhIhcAWke9S5DIpu9Q#v=onepage&q=Nelleman%2C%20C.%20et.%20al.%20(2009)%20Blue%20Carbon&f=false)

Additional Web Links

Environment Canada	http://www.ec.gc.ca
Canadian Environmental Assessment Agency	http://www.ceaa-acee.gc.ca
Cumulative Effects Assessment Practitioners Guide	http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=43952694-1
Environmental Assessment: Making a Difference	http://publications.gc.ca/collections/Collection/En21-201-2000E.pdf
The Citizens Guide: Canadian Environmental Assessment Process	http://publications.gc.ca/site/eng/46875/publication.html
Fisheries and Oceans Canada (DFO) Pacific Region	http://www.pac.dfo-mpo.gc.ca/pages/default_e.htm
Transport Canada - Office of Boating Safety	http://www.tc.gc.ca/eng/marinesafety/debs-obs-menu-1362.htm
Ecosystem Management Branch	http://www.pac.dfo-mpo.gc.ca/sep-pmvs/contact-contactez/oheb-dohmv-eng.htm
Marine Guide to Preventing Shoreline Erosion	http://www-heb.pac.dfo-mpo.gc.ca/publications/pdf/erosion_e.pdf
Marine Guide to Small Boat Moorage	http://www-heb.pac.dfo-mpo.gc.ca/publications/pdf/moorage_e.pdf
Navigable Waters Protection Division	http://www.th.gov.bc.ca/key_enviro_topics/navigable.html
Salish Sea: A Handbook for Educators	http://www.artistresponseteam.com/handbooks/
Government of Canada Legislative Summaries (SARA)	http://www.parl.gc.ca/common/Bills_ls.asp?lang=E&ls=c5&source=library_prb&Parl=37&Ses=1
Natural Resources Canada	http://www.nrcan.gc.ca/
Geological Survey of Canada	http://www.nrcan.gc.ca/earth-sciences/about/organization/organization-structure/geological-survey-of-canada/9590
Ministry of Environment: Develop with Care 2012: Environmental Guidelines for Urban and Rural Land Development in British Columbia	http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2012/index.html

Government-Provincial

BC Environmental Assessment Office	http://www.eao.gov.bc.ca
Guide to the British Columbia Environmental Assessment Process March 2011)-	http://www.eao.gov.bc.ca/pdf/EAO_User_Guide%20Final-Mar2011.pdf
BC Fisheries Act-	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96149_01
BC Treaty Commission	http://www.bctreaty.net/
BC Waste Management Act Finfish Aquaculture Water Control Regulation	http://www.env.gov.bc.ca/epd/industrial/regs/finfish/
Ministry of Agriculture, Food and Fisheries	http://www.gov.bc.ca/agf/
Fisheries and Aquaculture	http://www.agf.gov.bc.ca/fisheries
Ministry of Energy and Mines	http://www.gov.bc.ca/ener/
Ministry of Environment, Environmental Protection Div.	http://www.env.gov.bc.ca/epd/

Best Management Practices to Protect Water Quality

http://www.env.gov.bc.ca/wat/wq/nps/BMP_Compendum/BMP_Introduction/bmphome.htm

Environmental Impact Study Guideline:

A Companion Document to the Municipal Sewage Regulation

http://www.env.gov.bc.ca/epd/epdpa/mpp/pdfs/EIS_Guideline_Dec2000.pdf

Environmental Management/Industrial Waste:

Species and Ecosystems at Risk: A Guidebook for British Columbia <http://wlapwww.gov.bc.ca/wld/serisk.htm>

Stormwater Planning: A Guidebook for British Columbia <http://www.env.gov.bc.ca/epd/mun-waste/waste-liquid/stormwater/>

Baynes Sound Shellfish Aquaculture Action Plan

http://archive.ilmb.gov.bc.ca/slrp/marine/south_island/baynes/docs/Baynes_Plan_Dec19_2002.pdf

British Columbia Biophysical Shores Zone Mapping System <ftp://ftp.luco.gov.bc.ca/pub/coastal/rpts/BCBiophysicalShore-ZoneMapping.pdf>

British Columbia Marine Ecological Classification System

http://www.ilmb.gov.bc.ca/risc/pubs/coastal/marine/version%202/bcmec_version_2.pdf

Coastal Planning <http://archive.ilmb.gov.bc.ca/cis/coastal/planning/index.html>

Coastal Data <http://archive.ilmb.gov.bc.ca/cis/coastal/others/crimsindex.htm>

Coastal Resource Information Management System (CRIMS) <http://geobc.gov.bc.ca/coastal/index.htm>

Endangered Species and Ecosystems <http://www.env.gov.bc.ca/atrisk/red-blue.htm>

Resources Information Standards Committee <http://www.ilmb.gov.bc.ca/risc/about.htm>

Sensitive Ecosystem Inventory of Southeast Vancouver Island & the Gulf Islands

<http://a100.gov.bc.ca/pub/acat/public/viewReport.do?reportId=2124>



Surfgrass (*Phyllospadix scouleri*) and hydrocoral (*Allopora sp.*) community which is visible at the lowest tides in high current areas.

Appendices

Appendix 1: Jurisdiction: Who owns the Shoreline Features of Metchosin?

Appendix 2: Recognition by Others of the Value of Metchosin's Shoreline

Appendix 3: Previous Shoreline Documents Presented to Metchosin Council

Appendix 4: Global Risks to Shorelines

Appendix 5: Coastal Areas and Sensitive Ecosystems of Metchosin

Appendix 1: Jurisdiction: Who Owns the Shoreline Features of Metchosin?

Marine shorelines are governed by a number of jurisdictions.

<http://salishsea.ca/resources/Riparianrights/Greenshores%20JurisdictionIssueSheetfinalVer4.pdf>

The provincial government

owns the ocean floor and the foreshore (the area between the low water level and the natural boundary) along Metchosin's Coastline as well as the beds of inland seas such as the Strait of Georgia, Juan de Fuca Strait, and Johnstone Strait. The Integrated Land Management Bureau (under the Ministry of Forests and Range) administers these aquatic lands and issues permits, licences or leases for a wide range of uses – private and public moorage, wharves, marinas, aquaculture, and log storage to name a few. The Province also establishes regional coastal zone plans where these are needed.

The federal government

has jurisdiction over offshore waters – from the low water mark out to 12 nautical miles along the outer coast. The federal Department of Fisheries and Oceans is responsible for managing and protecting fish populations and fish habitat under the Fisheries Act, including shoreline “riparian” habitats, as well as for maintaining maritime safety through the Coast Guard.

Local governments (municipalities and regional districts)

hold the authority to plan and regulate land use within their respective boundaries, which may extend over foreshore and nearshore areas. They do this through official community plans, zoning, development permits, subdivision authority, building permits, and a variety of regulatory bylaws that affect land development.

First Nations

have authorities similar to provincial and local governments over upland and aquatic lands within Indian Reserves. Outside Reserves, traditional rights to marine resources are the subject of ongoing Treaty negotiations for many of the First Nations along BC's coast. The provincial and federal governments have a duty to consult with First Nations on any shoreline tenure applications to ensure that they do not significantly affect aboriginal or treaty rights.

Waterfront property owners

hold “riparian rights” in association with their upland property. Based on “common law” these rights include:

- unimpeded access from their property to deep water for navigation. Waterfront improvements cannot interfere with the right of access for neighbouring properties.
- protection of property from erosion or flooding by installing protective structures on the property holders land. Extending structures below the current natural boundary requires approval of the Province. The Land Act specifically defines the boundary between upland and foreshore as: “natural boundary means the visible high water mark of any lake, river, stream or other body of water where the presence and action of the water are so common and usual, and so long continued in all ordinary years, as to mark on the soil of the bed of the body of water a character distinct from that of its banks, in vegetation, as well as in the nature of the soil itself.” In marine systems the natural boundary is generally determined as the lower elevation of terrestrial vegetation or the upper boundary of distinctive aquatic vegetation.

Public

is permitted the use of foreshore and other aquatic lands held by the Crown. When the Province issues tenures, a leaseholder may restrict public access to the leased area; a permit or license of occupation does not allow the holder to restrict access.

See the diagram on page 35 of *Coastal Shore Stewardship: A Guide for Planners, Builders and Developers on Canada’s Pacific Coast*

http://stewardshipcentrebc.ca/PDF_docs/StewardshipSeries/Coastal.pdf

Appendix 2: National Recognition by Others of the Value of Metchosin's Shoreline

National Park Proposals:

Background: In 1972, a task force comprised of representatives from the Governments of Canada and British Columbia identified ten areas in the Straits of Georgia and Juan de Fuca warranting National Marine Park consideration. Federal-Provincial discussions earlier that year resulted in the selection of the "Royal Roads" site as having the highest priority for establishment as a National Marine Park. A joint Federal-Provincial study team was subsequently formed to undertake the necessary studies in order to develop a proposal in this regard.

Preliminary investigations by the study team revealed that there was little or no information on the biota occurring in the coastal waters of the proposed Royal Roads National Marine Park area making it impossible for the study team to assess its national significance or importance, and to develop a complementary management plan. Consequently, there was an urgent need for a systematic and comprehensive survey of the macroinvertebrate fauna and seaweeds which occur in the area's coastal waters in order to fill this information gap and permit the orderly completion of the proposal. The results of this study are recorded in:

A study of the benthic macroinvertebrates, fauna and seaweeds at selected sites in the proposed Juan de Fuca National Marine Park. (From: <http://www.racerocks.com/racerock/rreo/rreoref2/jdfmarpk/juanmarpark.htm>)

Purpose: in brief, this study included: (1) a professional discussion of the environmental factors which influence the vertical and horizontal distribution of marine organisms in the study area, e.g., type of substrate, salinity, degree of exposure to wave action; (2) a qualitative survey of the benthic macroinvertebrate fauna and seaweeds of six preselected sites within the proposed National Marine Park area.

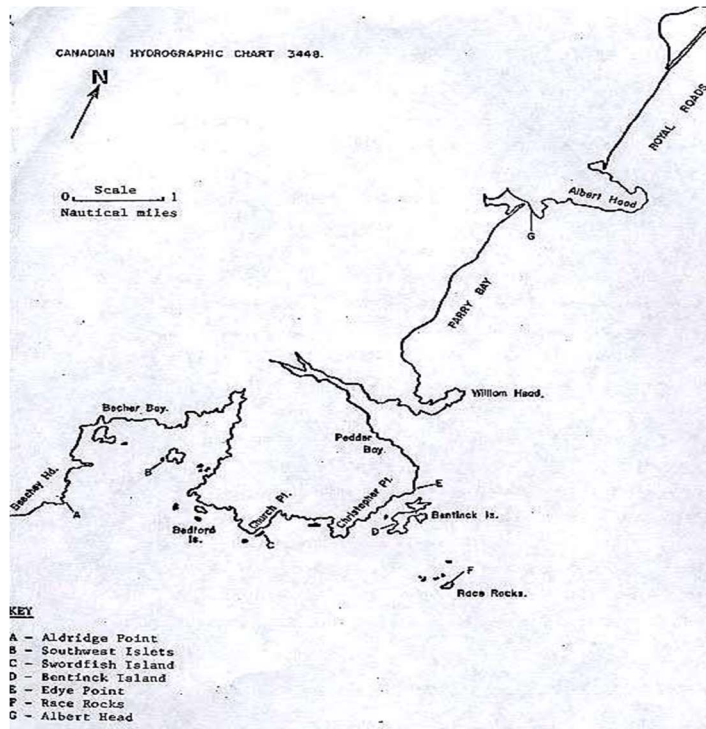
A second federal proposal came later: Race Rocks National Marine Park: A Preliminary Proposal. Indian and Northern Affairs, Parks Canada
(From: <http://www.racerocks.com/racerock/rreo/rrrefer/rrnatpark.htm>)

The result of these two studies was to recommend National Park Status for the coastline of Metchosin.

In reading these reports, a person who is not familiar with the marine biology of southern Vancouver Island will overlook the significance of the data presented here in support of the proposed marine park. Westwards from Race Rocks, one finds the marine flora and fauna of the partially exposed southwest coast of Vancouver Island, gradually merging with the species of the exposed (to heavy wave action) west coast of the Island. Thus, the flora and fauna of the William Head - Race Rocks - Beechey Head shoreline is not typical of conditions closer to Victoria and in Georgia Strait, but is still within a short distance of Victoria. The high current velocities around Race Rocks and towards Beechey Head tend to concentrate organisms to higher population densities than occur elsewhere. Thus some species, usually rare, may be found in this area in surprising numbers. The proposed park therefore encompasses an area which supports an unusual flora and fauna, of surprising beauty even to the non-biologist.

From Goddard, James M. 1975. The Intertidal and subtidal macroflora and macrofauna in the proposed Juan de Fuca National Marine Park. Dobrocky Seatech Ltd.

(<http://www.racerocks.com/racerock/rreo/rreoref2/jdfmarpk/juanmarpark.htm>)



Below are some excerpts:

Proposed Park Boundaries

The proposed Park consisted of approximately twenty square miles of surface water and offshore lands defined on the west by Sooke Peninsula in a straight line from Beechey Head to Rosedale Rock and on the east by a line extending from Rosedale Rock to Fisgard Light. The proposed Park fronted on the regional land districts of Sooke, Metchosin and Esquimalt and encompassed some thirty-six miles of rugged shoreline, much of which remained in a relatively undisturbed state. The proposed shoreland component included portions of Rocky Point, Albert Head Peninsula and Aldridge Point and totaled some 2.5 square miles.

Marine Setting

The proposed Park is located in the transition zone between the Vancouver Island Inland Sea and the Pacific West Coast Marine Region. These two regions are part of a much larger oceanic system, namely the Pacific Coastal Domain, a temperate faunistic province extending from the middle of Baja California into the Bering Sea.

Tides and currents of varying velocities and direction control the exchange of waters as well as the chemical and physical properties of the water column in the Park and in Juan de Fuca Strait in general. The oceanographic phenomenon associated with this transition zone are responsible for the development of an outstanding marine environment with varied and abundant intertidal and subtidal community assemblages

A variety of erosional and depositional phenomenon characterize the coastal zone. The coastal geomorphology is controlled by the structural geology and the various facets of erosion and deposition common to the land-sea interface. The relatively undisturbed rugged volcanic coastline with secluded beaches, headlands, marshes, steep sandcliffs and offshore islands, offers a striking contrast to the more industrialized coastline surrounding Victoria to the east.

“A rich coastal and natural marine history combined with a congenial climate makes the Race Rocks area an excellent setting for Canada's first National Marine Park.”

The politicians who endorsed the study and supported the park were indeed visionaries but unfortunately only Race Rocks is protected.

Appendix 3: Previous shoreline documents presented to Metchosin Council

There is a history of concern about the values associated with the coastal part of Metchosin and the recognition of these values. The following examples illustrate this.

1. Sustainability Report

A large section of the **Sustainability Report** to Council of 2011 is devoted to marine systems:

Recommendations from Sustainability 2011 Report:

Metchosin's existing shoreline slopes development permit area, large lots and low density zoning have helped to reduce development impacts along coastlines, and have protected marine coastal habitat and its ability to store and sequester carbon.

Metchosin will help achieve sustainability and resiliency in its coastal areas by implementing the following:

- Lobby senior governments to recognize that municipalities are often the first to notice problems along their marine coasts and municipalities need the authority to protect these ecosystems;
- Consider zoning all marine shorelines in Metchosin as a development permit area in order to protect their natural values;
- Establish a program to document and monitor coastal resources, including eelgrass and kelp beds, and forage fish habitat, with the goal of ensuring no net loss of those resources;
- Identify and map areas important to forage fish and consider a method of restricting beach fires and other damaging activities in these areas at times of the year which are sensitive for forage fish.
- Emergency Preparedness Program – know who to contact, how, when where, why and in what circumstances
- Produce a pamphlet and help to educate both the public, and land owners with property bordering on the shoreline, of the sensitivity of coastal ecosystems, in order to reduce harmful impacts on coastal ecosystems.
- Post essential messages from and distribute Transport Canada's boaters guide at key locations to educate public.

2. The Blue Green Spaces Document

The Blue Green Spaces Document of 2008 emphasized the need for recognition of the Coastal Area. From Part 5 of this document:

Marine areas.

- a. Nearshore marine areas. These areas occur along the coastlines of Metchosin. They are productive nursery areas and habitat for marine life, and include eelgrass beds, kelp beds, and subtidal rocky areas.
- b. Marine shorelines. These are areas of natural shoreline on land. They are an important part of the scenic character of the community, contain recreational trails or beach access points, and provide a buffer between buildings and natural dynamic processes such as shoreline erosion. Examples include: rocky marine shorelines and beaches (especially between Albert Head and Church Island), tidal lagoons, estuaries and offshore islands.

3. The Official Community Plan

The Official Community Plan (1995) makes reference to the Marine Area of Metchosin.

2.6 Marine Shorelands:

Definition: Within Metchosin, there are Rocky Shores, Drift Sector Beaches, Pocket Beaches, Low- Energy Shores and Lagoon Ecosystems.... In addition, the two types of beaches are further categorized into three distinct classes of beach based on the accretion and erosion characteristics. The combinations of shore categories and distinct beach classes produce a diverse range of marine shorelands. Most of the geotechnical and environmental concerns about shores relate to the processes of drift and accretion along the shore and the process of slope regression above the shores.

(a) General Marine Shoreland Policies:

2.6.1 The District of Metchosin may give consideration to the following:

- (1) discuss with senior levels of government for coordinating future land use policies as they pertain to the management of Metchosin's marine shorelands.

(2) monitor shore processes with particular concern for slope regression rates, lateral drift rate and stability of Class I accretion beaches.

(3) determine, in conjunction with the Ministry of Environment, Lands and Parks, ways and means of undertaking:

(a) where desirable and feasible, a program of beach stabilization using natural nonstructural techniques, such as the planting of dune grasses where appropriate;

(b) beach enhancement programs wherever it is possible to upgrade a Class II beach to a Class I beach (see Definitions of beaches); and

(c) the removal or reduction of development intrusions not consistent with the maintenance of the shoreline.

2.6.2. The set-back requirements specified in this Section may be increased as local conditions warrant.

2.6.3 The improvement of public access should be ensured in the course of land development where such access is not detrimental to Sensitive Environments.

2.6.4 Any desired works to be placed on foreshore lands from the mean high water mark seaward requires application to the appropriate provincial and/or federal government agency responsible.

2.6.5 Public recreational use of marine shorelands should be consistent with the suitability of each shore type for the proposed use.

(b) Rocky Shores:

Definition: Rocky shores are stable shores comprised of exposed bedrock with an absence of unconsolidated material at extreme low tide. Relative to other types of shores, they are low in biological productivity but rich in biotic diversity and aesthetic quality and are characterized by lichens, snails, barnacles, mussels, seaweeds, anemones and sea stars.

2.6.6 No building or structure shall be located and no fill shall be placed or removed from any site within 15 horizontal metres (50 feet) of mean high water on Rocky Shore slopes except where engineering and resource management studies indicate that a lesser setback is acceptable.

2.6.7 Although the biological capability of Rocky Shore slopes to support life is relatively low, the natural biota may provide habitat for rare species of animal life and that value should be considered with each development proposed.

(c) Drift-Sector Beaches:

Definition: A Drift-Sector is an integrated and independently operating erosion beach system which may extend for many miles in length and be separated from adjacent drift-sectors by either natural or artificial boundaries.

Metchosin contains one large drift-sector extending from Weir Beach to Witty's Lagoon. A drift-sector generally contains the following three classes of beaches:

Class III Beaches are erosional beaches located at the base of coastal bluffs or cliffs from which sand and gravel is provided for accretion of Class I beaches further along the drift-sector. Class III beaches are totally submerged at high tide with no dry backshore berm.

Class II Beaches are marginal erosion beaches located at the base of coastal bluffs or cliffs from which sand and gravel is eroded providing a secondary source of beach material for accretion on Class I beaches further along the drift-sector. Class II beaches are largely submerged at high tide with only a limited amount of walkable dry backshore under such conditions.

Class I Beaches are the accretion terminals of a drift-sector where material eroded from Class II and III beaches is deposited. Class I beaches remain dry and walkable at high tide and have a large backshore berm permitting ease of public access and use. They constitute the most important recreational beaches. Biotically, beach shores are of intermediate productivity and diversity relative to the other shore types.

2.6.8 The use and management of the Drift-Sector Beaches should be based on the maintenance of the present natural system of erosion, transport and build-up of beach material along the length of the Drift-Sector designated on Map 5 (*see OCP*).

2.6.9 Because the existence and maintenance of the Class I beaches are dependent on the supply of material eroded from Class II and III beaches, no bulkheading or placement of any shore protection structures will be permitted within a drift-sector except where engineering and resource management studies indicate otherwise.

2.6.10 To ensure that material eroded from Class II and III beaches is transported the full length of the shoreline to Class I beaches, docking or other facilities which impede the natural processes will not be permitted within drift-sectors.

2.6.11 Due to active slope recession with considerable sloughing and slide evidence, no building or structure will be permitted within a minimum of 60 horizontal metres (200 feet) from mean high water adjacent to Class II and Class III drift-sector beaches except where geotechnical engineering and resource management studies indicate a lesser setback is acceptable.

2.6.12 On the slopes adjacent to Drift Sector Beaches, no material of any kind shall be removed within a minimum of 60 horizontal metres (200 feet) landward of mean high water.

2.6.13 The location of the mean high water mark and the establishing of setbacks from Class II and Class III slopes should be reviewed at 5 year intervals, or as required, to determine if slope regression has placed residences at risk.

(d) Pocket Beaches:

Definition: A Pocket Beach is a sand and gravel beach along which no lateral drift of beach material takes place because it is contained between two headlands. The Pocket Beach is formed by the onshore and offshore movement of material. Pocket beaches are generally between 30.5 metres (100 feet) and 91.5 metres (300 feet) in length.

With Pocket Beaches, as with Drift-Sector Beaches, there are three classes. However, unlike the classes of Drift-Sector Beaches which are contained adjacent to one another within the Drift- Sector, each class of Pocket Beach exists independently.

Class III Beaches are erosional beaches located at the base of coastal bluffs or cliffs with no dry backshore berm. Such beaches are totally submerged at high tide.

Class II Beaches are marginal erosion beaches located at the base of coastal bluffs or cliffs that supply the upper foreshore with a fairly heavy drift berm without creating a stable dry backshore zone above high tide.

Class I Beaches are rollback pocket beaches characterized by a backshore wetted only under extreme tide and wave conditions permitting ease of public

access and use. They constitute the most important recreational class of beach.

2.6.14 No building or structure shall be located and no fill shall be placed or removed from any site within 15 horizontal metres (50 feet) of mean high water adjacent to Class I and Class II pocket beaches except where engineering and resource management studies indicate that a lesser setback is acceptable.

2.6.15 Because Class III pocket beaches are located at the base of cliffs which are subject to erosion, no building or structure, no placing or removal of fill or other material will be permitted within 15 horizontal metres (50 feet) landward of mean high water adjacent to Class III pocket beaches.

2.6.16 No bulkheading or placement of any shore protection structures will be permitted on Class I, Class II or Class III pocket beaches except where engineering and resource management studies indicate otherwise.

(e) Low-Energy Shore Zone

Definition: Low-Energy Shores are estuarine shores which form part or all of a cove or inlet. They may be characterized by marshy shores, shallow and muddy foreshores, and generally having low banks. As with Pocket Beaches, there are three classes of Low-Energy Shores each existing independently. However, in Metchosin, there is only one Low-Energy Shore - entirely a Class III (erosional) located at the head of Pedder Inlet.

Similar to a Lagoon Ecosystem, the estuarine shore also provides a unique biological environment. Fresh-water creeks and streams flowing into the cove or inlet offer rather unusual habitat. There is currently insufficient information available relating to the protection and preservation of the Low-Energy Shore zones. Therefore, further research is recommended.

2.6.17 No building or structure shall be located and no fill shall be placed or removed from any site within 15 horizontal metres (50 feet) of mean high water adjacent to the Low-Energy Shore, except where engineering and resource management studies indicated that a lesser setback is acceptable.

2.6.18 No bulkheading or placement of any shore protection structures will be permitted on a Low- Energy Shore except where engineering and resource management studies indicate otherwise.

(f) Lagoon Ecosystems:

Definition: The central component of a Lagoon Ecosystem is a body of salt water which has been cut off from the ocean by a barrier or spit of land and which allows the formation of a sheltered biological environment. This unique environment frequently includes a salt-water marsh and estuarine area into which flows fresh water from upland creeks and streams. This combination of fresh and salt water has very high biological productivity and diversity. It offers significant aesthetic and habitat attributes.

2.6.19 Only such uses as limited agriculture and low intensity recreational uses, which do not require structural intrusion, will be permitted in Lagoon Ecosystems.

The Official Community Plan. Development Permit Areas. 2.16

The Municipal Act provides that a community plan may designate development areas to be protected from hazardous conditions. The Municipal Act further provides that in such areas land shall not be altered in any way or subdivided, and structures cannot be built or added to until a Development Permit has been issued. (see: http://www.retooling.ca/Library/docs/WCEL_climate_change_FINAL.pdf *Preparing For Climate Change: An Implementation Guide for Local Governments in British Columbia* Page 35 Development Permit Areas)

There are well-established practices and many examples in BC with respect to using Development Permit Areas (DPAs) to manage land use in areas with defined hazards, such as slope stability issues. DPAs can also be used to restrict development and protect and/or restore natural features and areas, and to help protect key natural ecosystems in the face of climate change.

DPAs can offer local governments a more flexible approach to regulating development than zoning because guidelines can specify results and allow site-specific solutions.

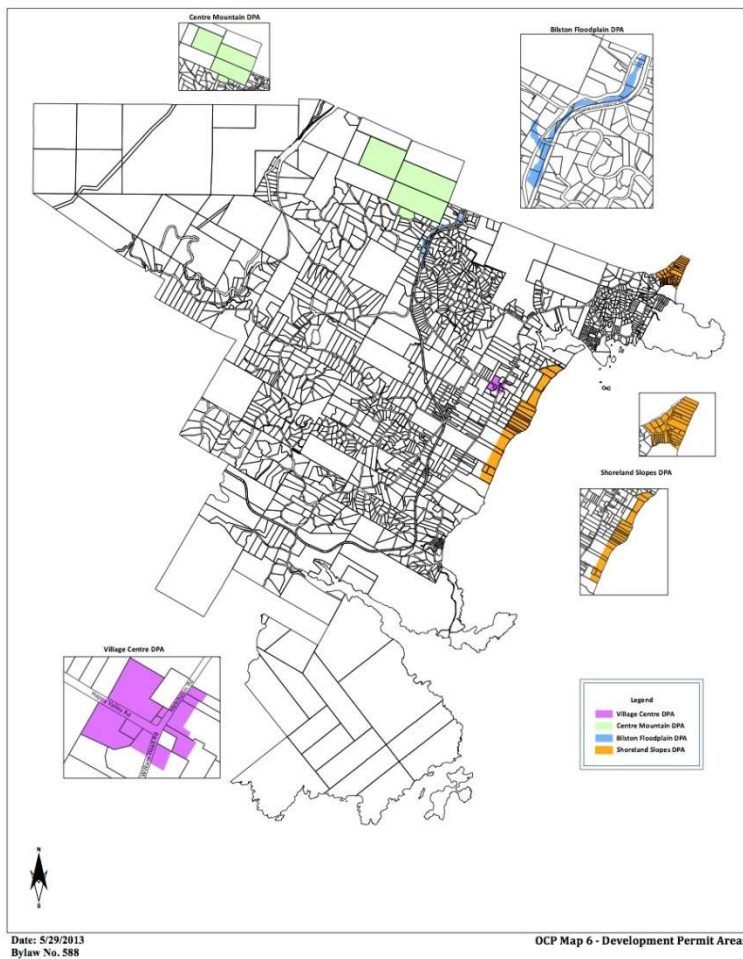
Metchosin's OCP has good provisions for establishing DPA's in sensitive areas. Unfortunately the District has not extended the DPAs to all of the sensitive areas of the coast and has not been entirely successful in enforcing development restrictions on existing DPA's.

From: District of Metchosin Official Community Plan Section on Shoreline Slopes Development Permit Areas:

"Designation: (Bylaw 418, 2004)

The 1993 Hazard Land Management Plan has identified areas of the Metchosin shoreland slopes as having erosion, land sloughing and drainage problems.

Map 6 (See website <http://metchosinmarine.ca/gf/?tag=development-permit-areas>)

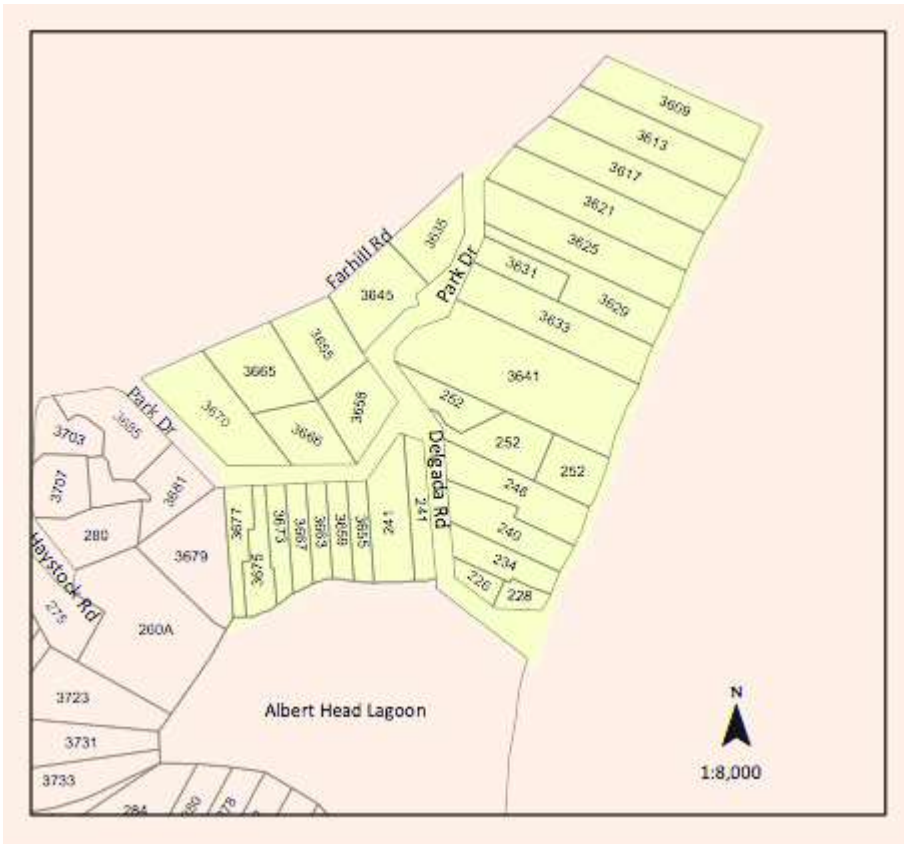


The Shoreland Slopes areas are shown on Map 6 Shoreline Slopes DPA, and are hereby designated as areas for the protection of development from hazardous conditions pursuant to Section 919.1(1)(b) of the Local Government Act.

The Plan has identified three Shoreland Slope classification zones, based on the degree of slope instability and surface erosion potential. Slopes classified as zone 2 and 3 are slopes with the greatest potential for sloughing, slumping and debris flows and have been included in the Development Permit Area.

2.16.2 Special Conditions:

The major concern is that lands, particularly in the **Park Drive – Farhill Road area**, have experienced a dramatic rise in ground water levels due to adjacent developments during the last two decades. Other areas of the Shoreland slopes have experienced significant slope erosion in the past. There is a community desire to mitigate any further development related impacts on the marine shorelands.



2.16.3 Policies Development Permits issued shall be in accordance with the following:

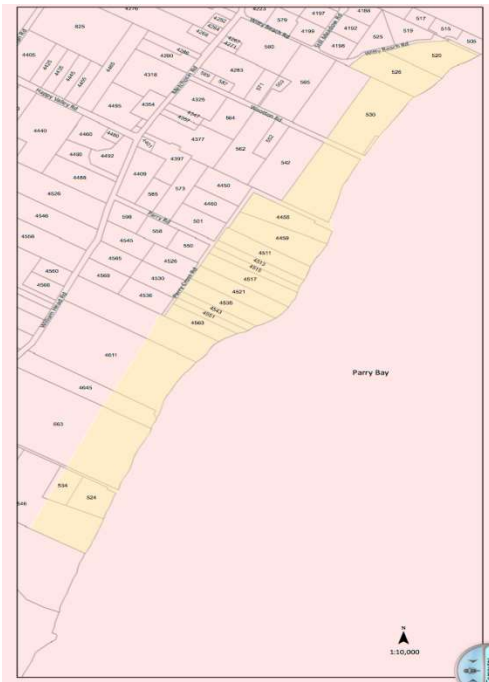
(1) The construction or alteration of buildings on existing lots shall be permitted subject to the Building Permit process when Council is satisfied that the Development Permit Guidelines (Section 2.14.4) have been met, and, when required, Council is satisfied with the Engineer’s Report (Section 2.14.5).

(2) Where a Development Permit is applied for in conjunction with an application for subdivision approval, rezoning, or both, the Development Permit shall be conditional on the successful completion of those other permits and shall lapse if the subdivision or rezoning is not approved.

2.16.6 Municipal Response

The District should

- (1) evaluate the feasibility of purchasing environmentally sensitive shorelands for use as park, forest reserve, or greenbelt;
- (2) initiate programs to monitor both surface and ground water to establish patterns of change;
- (3) work with proximate agencies to establish erosion and land sloughing control measures."



Parry Bay (Taylor Beach) section of DPA lands

Information and maps on DPA's in Metchosin are found at <http://metchosinmarine.ca/gf/?tag=development-permit-areas>



Taylor Beach looking towards William Head

Appendix 4: Global risks to shorelines

Perhaps one of the most compelling arguments for the value of marine environments came in 2011 from IOC/UNESCO, IMO, FAO, UNDP. A Blueprint for Ocean and Coastal Sustainability. Paris: IOC/UNESCO.

(http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/interagency_blue_paper_ocean_rioPlus20.pdf)

"...Maintaining the quality of life that the ocean has provided to humankind while sustaining the integrity of ocean ecosystems, requires changes in how we view, manage, govern and use ocean resources and coastal areas. Ocean and coastal areas provide many benefits to sustainable development, including both human (social and economic) and environmental (ecosystem services). This includes benefits to economic sectors such as fisheries, energy, tourism, and transport/shipping, as well as 'non-market' benefits such as climate regulation, carbon sequestration, habitat and biodiversity, among many others. The scale and intensification of the stresses on the ocean mean that deferring action will increase costs in the future leading to even greater losses of benefits. Many traditional economic and consumer values that formerly served society well, when coupled with current rates of population increase and economic growth, are not sustainable.

Sustainable development is defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' Sustainable development is the approach recognized by the international community to deal with environmental, social and economic issues the world has faced in the past 20 years....Problems, for example, include the fact that very little of the world's ocean is monitored or protected; coastal habitats continue to be lost or degraded; the majority of global fish stocks are under pressure; invasive species are expanding; hypoxic zones are increasing; the ocean is acidifying; sea level is rising."

The IOC/UNESCO document puts forth three major objectives for ocean and coastal sustainability. The first objective identifies "...Actions to reduce stressors and maintain or restore the structure and function of marine ecosystems for equitable and sustainable use of marine resources and ecosystems..."

Two of the main actions are to:

- Develop and Execute a Global Program aimed at Greater Protection and Restoration of Vital Ocean and Coastal Habitats, and develop a Global Blue Carbon Market as a means of Creating Direct Economic Gain through Habitat Protection

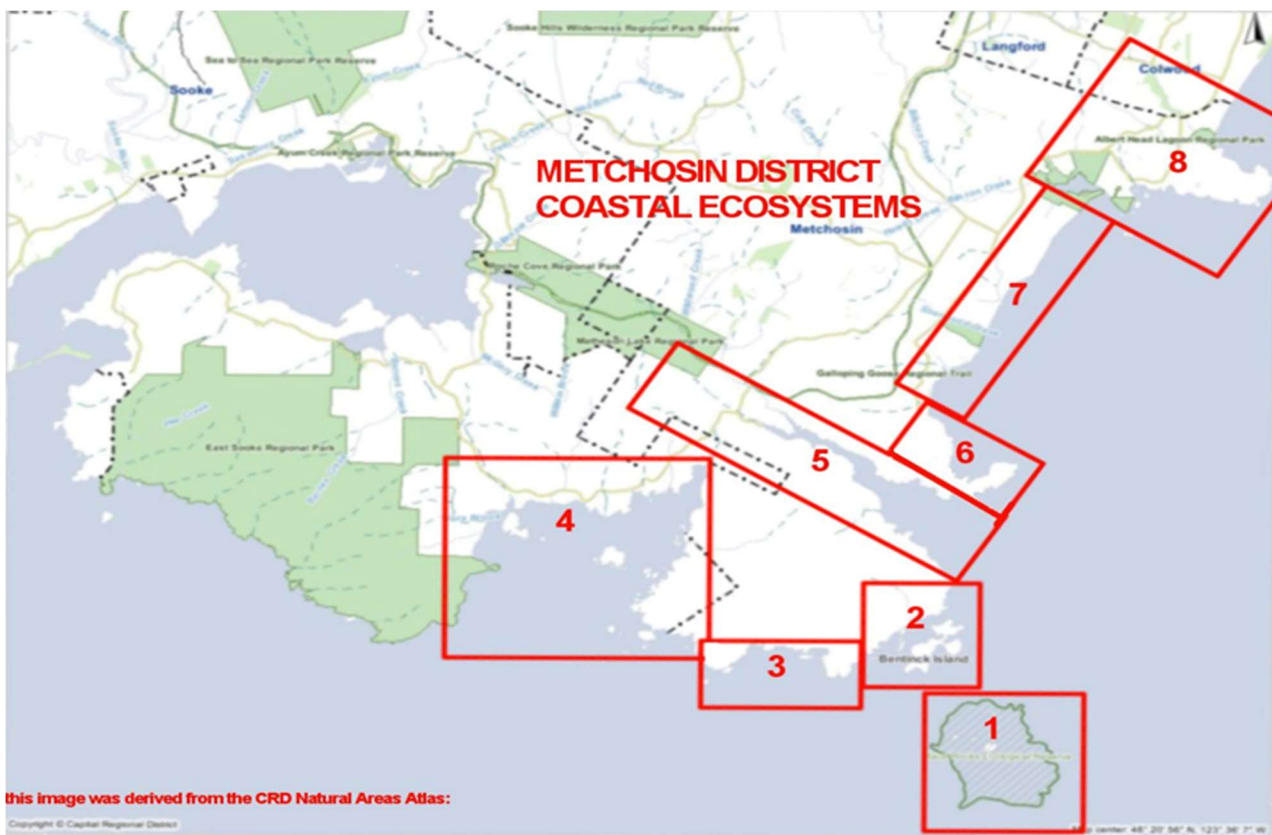
- Strengthen the Legal Framework to Effectively Address Aquatic Invasive Species

These same principles can be considered and applied to local shorelines.

Appendix 5: Ecologically Sensitive Areas and the Ecology of the Eight Zones of Metchosin Shoreline

The land-sea interface along the coast of Metchosin exhibits a wide diversity of landforms and marine communities within a relatively confined geographical area. It is in these areas, where the coastal habitats, marine communities and oceanographic phenomenon achieve their greatest expression.

For descriptive purposes, the map below (also on page 7) divides the coastal part of Metchosin into eight zones.



Each of the zones is described in more detail in the following pages, and some of the notable features are outlined. This is based on the Metchosin District Coastal maps of the Coastal South Vancouver Island website done by Garry Fletcher (2003)

<http://powweb.racerocks.ca/metchosinmarine/ecoareas.htm>

We have started our descriptions at Zone 8 since Zones 5 – 8 will be more familiar to most readers.

Zone 8: Albert Head Beach to Witty's Beach.



On the Zone 8 map above: Areas 1 and 2: Albert Head Lagoon and Beach

Ecosystems represented	Importance (these overlap)
Lagoon ecosystem (intermittent salt water intrusions)	Migratory and resident seabird habitat. Nursery and rearing area for marine invertebrates, fish, and waterfowl
Sand spit and dune ecosystems	Sensitive dune vegetation
Sand-gravel beaches	Waterfowl and shorebird feeding and breeding area
Tide flats	Shellfish habitat – high concentration of univalves
Sand, mud, silt subtidal habitats	High nutrient and detritus production

Comments

This area is closest to the former gravel pit which is slated for high density development, and will be severely impacted by increased human traffic.

The south end of Albert Head on the inland side is a bird sanctuary where species such as killdeer and sandpipers nest. Native vegetation struggles hard with the human traffic. Gumweed grows on the upper part of the berm and Sand Burr, a native species, has a woody root deeply anchored in the sand. The American Sea Rocket grows closest to the ocean and, along with beach grass with its long underground root stems, helps to stabilize the beach.

Eco notes

The most stable shorelines which are resistant to erosion are those that have an unconsolidated berm of sand, pebbles, rocks and logs, and a vegetated backshore area, with sea grasses and other plants adapted with long and intertwined roots which anchor the sand. Natural areas have evolved through thousands of years and are able to absorb the impact of storms, as well as provide essential habitat for invertebrates and fish.

On the Zone 8 map above: Areas 3 - 9: Albert Head, Tower Point, and Duke Road waterfront

Coastal Islands with harbour seal haulouts

Ecosystems represented	Importance
Islets	Migratory seabird resting areas; nesting areas for resident birds
Geologically significant "pillow lava" islands	Harbor seal haulouts
Rocky intertidal and subtidal habitats	Rocky shore tide pools; kelp forests

Comments:

The islands provide good habitats for marine mammals and birds including protection from predators and food in the form of algae, fish, and invertebrates.

On the Zone 8 map above: Areas 10, 11: Witty’s lagoon, estuary and beach spit

Coastal lagoon, migratory and resident seabird habitat.

Ecosystems represented	Importance (these overlap)
Salt water marsh	Specialized vegetation communities; example of natural succession
Fresh water estuary	Nursery area; waterfowl and shorebird feeding and roosting area; important for overwintering birds; nutrient supply for marine ecosystem
Tidal flats	Nursery area; shorebird feeding area
Sandspit and beach	Marine life adapted to sandy beaches; plant life adapted to bind sand.
Arbutus-Garry oak stands	Both are endangered tree species
Aspen parkland	One of the plants found on a complex coastal beach area

Comments

Witty's beach is an accretional beach with materials supplied from long shore drift from the cliffs to the south. Behind the beach is a large tidal lagoon, and estuary fed by Bilston Creek.

Salt pans form in the upper reaches of the lagoon where only the highest tides reach. In the fall, concentric layers of salt tolerant plant species form intriguing patterns in these pans. Two of these salt tolerant species are *Salicornia* sp. and *Distichlis spicata*. The dune grass, *Leymus mollis*, has underground creeping rootstocks that bind the sand together and can absorb heavy wave impact. Unfortunately, the introduced species scotch broom, *Cytisus scoparius*, has colonized the area, suppressing the natural beach vegetation and possibly leading to instability in high storm surges.

The edge of the lagoon gets flooded at high tide. The nutrients accumulated in the marsh are important to nourish the marine ecosystem. Runoff from golf courses, septic systems, and agriculture carry nutrients which cause algal growth and eutrophication when the lagoon is poorly flushed.

Seabirds frequent the lagoon throughout the year but are more abundant in migration periods.

Eco notes

Lagoons and salt marshes are a type of estuary - bodies of water that form at the mouths of rivers, where tidal water and fresh water meet and mix. They are among the earth's most productive environments providing an extremely rich and important habitat for a great variety of life. They support more plant and animal growth per unit of area than even the best agricultural lands. (Pacific Coast by Bayard H. McConnaughey and Evelyn McConnaughey, 1994). The interaction of salt water and fresh water result in fluctuating conditions and make this habitat an unstable and demanding one. Plants and animals that live in estuaries must be able to cope with these fluctuations. Plant growth consists of small to microscopic algae that live in the water, and most of the animals are either very small or are concealed in burrows within the mud or the sand.

The rich variety of seashore and underwater life along the coast of Metchoin is partly due to the many different habitats that are represented. Each habitat has a characteristic assemblage of organisms. Some of the biological interactions that go on in a particular situation are obvious, as when a sea star attacks a mussel, or when a limpet grazes on seaweed. More often, however, the interactions are subtle and many are still not understood.

Each environment has its own challenges for the organisms, both plant and animal, living there. For example, rocky shores often have surf or large waves so the plants and animals need to have good methods of attachment; sandy beaches shift and leave little space between grains of sand to live so the animals there need to make burrows or tubes with some substance, and the plants are mostly microscopic; pebbly beaches move so the organisms need to be able to withstand crushing; high speed current channels require organisms with special means of attachment and the animals need special ways to obtain food.

Each animal species has needs – food, oxygen, excretion, reproduction, protection. Each habitat is different and the organism inhabiting it has adaptations that allow it to live in that habitat. Some organisms are generalists and can live in several habitats; other organisms can only live under very specific conditions.

If any environment is changed, either naturally or by people, many organisms living there will not be able to meet their needs and will perish.

Zone 7: Parry Bay cliffs, Taylor Beach to Weir's Beach



On the Zone 7 map above: Area 1: Parry Bay cliffs north of Taylor Beach and south of Witty's Beach with boulder foreshore

Ecosystems represented	Importance (these overlap)
Subtidal boulders	Provide a stable substrate for a variety of attached green, brown and red algal species such as <i>Fucus</i> , <i>Ulva</i> and <i>Iridea</i> .
Intertidal rocky area	Habitat for many species of snails, chitons and tubeworms (which when submerged are a valuable food resource for fish)

Comments:

At the toe of the cliff, there is natural erosion caused by wave action. As sea levels rise, the risk of further cliff erosion increases.

In addition to natural erosion, the effects of grazing, water diversion, tree removal, and development on the top of the cliffs is evident in the increased slumping of soil and vegetation. As an example, the destabilization of the bluff at the north end of Taylor Beach, just south of the Witty's beach area resulted in a massive slide in the fall of 2007. Clay deposits covered the intertidal zone for 20 to 50 metres. Erosional deposits like this smother intertidal life.

On the Zone 7 map above: Areas 2,3,4: North end of Taylor Beach-Gooch Creek to cliffs; Gooch Creek and Lagoon; Taylor road to Gooch Creek

Ecosystems represented	Importance (these overlap)
Fresh water lagoon	Habitat for blue-listed coastal cutthroat trout and red-legged frogs
Fresh water estuary	High nutrient and detritus production; nutrient supply for marine ecosystem
Sand / gravel / rock beaches	River otter habitat; overwintering shorebirds, and shallow water feeders, (western and eared grebes, buffleheads and scoters, with pacific loons appearing occasionally). Several species of gulls feed in large numbers in the fall
Subtidal sand / gravel / rock	subtidal species adapted to the various habitats; green, brown and red algae; offshore concentration of eelgrass beds; Commercial crab fishing offshore

Comments:

Gooch Creek and associated ecosystems provides habitat for two provincially blue-listed species: coastal cutthroat trout (*Oncorhynchus clarki clarki*) and red-legged frog (*Rana aurora*) as well as three-spine stickleback (*Gasterosteus aculeatus*). The cumulative effects of land conversion, land use, livestock usage, invasive species encroachment, and road practices have altered the aquatic health of this system.

Eco note

The algae which ends up on the beach in the autumn is homogenized by wave action into small pieces. In this state, nutrients are more easily released in the decomposition process. They are then recycled offshore. An important part of energy conversion is the large numbers of amphipods or beach hoppers which use the cover of the algae to feed on decomposing material.

On the Zone 7 map above: Areas 4, 5 and 6: Devonian Park cobble beach and lagoon (south of Taylor Road), rocky shore of lower Taylor Beach to Weir’s Beach

Ecosystems represented	Importance (these overlap)
Fresh water pond	Red-winged blackbird habitat; swan nesting habitat; sea-run cutthroat trout
Gravel / rock beaches	River otter habitat; waterfowl and shorebird feeding
Rocky intertidal and subtidal habitats	Subtidal species adapted to the various habitats; green, brown and red algae; offshore concentration of eelgrass beds; Commercial crab fishing offshore; sports fishing offshore
Pocket cobble beaches	Forage fish spawning areas
Rocky cliffs	Intertidal and subtidal organisms adapted to steep rocky habitats; plants adapted to rocky exposed habitats; Garry oak meadows with camas

Comments

The southern part of Taylor beach is made of coarse and fine cobbles. The profile of the beach changes from winter to summer as the wind patterns change. Behind the berm on the south end of Taylor beach lies Sherwood Pond. Devonian Park protects the riparian zone along the creek feeding Sherwood Pond. This is an important habitat for preservation of sea-run cutthroat trout. Sherwood Creek is held back from the ocean by a high ridge of coarse gravel. Throughout the early winter and late spring, the water seeps through the berm of gravel. After heavy rains the creek will often break out and erode the beach and the next big storm will fill the gravel berm back in again. From Taylor Beach to Weir’s Beach there is a series of cliffs and pocket beaches.

Eco Notes

The gradient of living conditions for shore organisms is partly determined by the topography and substratum which affect the water-retaining capacity of the shore. As the tide recedes, the intertidal areas start to dry out. The rate of drying depends, firstly, upon the slope of the shore, with steeply sloping rock faces draining more rapidly than undulating platforms or shallow slopes. Cracks and crevices provide micro-environments in which the rate of drainage and the drying effects of sun and wind are greatly reduced, and permit colonization to higher levels on the shore than occurs on the open rock faces in the same location.

The vertical distribution of subtidal organisms is largely dependent upon illumination. Most of the green and brown algae are restricted to situations within 15 feet of the lowest tide level, whereas certain red algae may be found down to 50 feet in depth. Animals which graze upon the green and brown algae will thus be found only near the surface. The deeper-living species of invertebrates are primarily filter-feeders, predators or scavengers, rather than grazers.

On the Zone 7 map above: Area 7: Weir's beach and ponds

Ecosystems represented	Importance (these overlap)
Fresh water ponds	Nesting and feeding habitat for various duck species and swans; river otter habitat
Sand beach	Great variety of waterfowl and shorebirds feeding; several species of gulls feed in large numbers in the fall; high nutrient and detritus production from decomposing seaweed; seaweed collecting by local farmers and gardeners of the fall die-off of the sea lettuce, <i>Ulva lactuca</i>
Subtidal sand / gravel	offshore concentration of eelgrass beds; Commercial crab fishing offshore; sportsfishing offshore

Comments

Weir's Beach was originally a Class I beach with undisturbed porous berm and backshore lagoon. It has been heavily impacted by human modification.

Eco Note

Eelgrass (*Zostera marina*) is a seed-producing marine plant. It grows in flat shallow underwater muddy or sandy habitats.

- Eelgrass is not a seaweed; it is a blooming underwater grass which spreads by rhizomes or roots.
 - Eelgrass meadows build up in the spring and summer, then decay in the fall and winter.
 - Eelgrass blades can grow up to 3 feet long.
- <http://www.ecy.wa.gov/programs/sea/pugetsound/species/eelgrass.html>
- Eelgrass is protected by law, under the Federal Fisheries Act, due to its high fisheries value (primary production, substrate for food organisms, spawning substrate and cover).

Why are eelgrass beds important?

- Eelgrass beds assist with coastal protection by providing a physical baffle (leaves) and reducing erosion (roots & rhizomes).
- The beds support a high biodiversity of species. It has been estimated that over 80% of all commercial fish and shellfish species depend on eelgrass habitat for at least part of their lifecycle. Damage to eelgrass affects whole populations of fish (including salmon), waterfowl, shellfish, and other animals.
- Eelgrass contributes to marine food webs, and is carried by tides and currents throughout the ocean.
- Seagrasses, such as eelgrass, play a critical role in global climate and ocean cycles. Recent reports by the United Nations Environmental Protection Department demonstrate the value and urgency of seagrass conservation: "We are becoming aware of the role that seagrass plays in the climatic and oceanic carbon cycles and in coastal protection. The true economic value is difficult to measure, but work suggests it is immense. Seagrass beds have been overlooked by conservationists and coastal development planners throughout their range. Biosphere restoration must include seagrass conservation and restoration."

Zone 6: William Head



On the Zone 6 map above: Areas 1 to 4: Rocky headland

Ecosystems represented	Importance (these overlap)
Rocky shore habitats	Arbutus - Garry oak stands
Pocket beaches	Protected areas for migrating birds
Protected bays	Rocky tide pools; kelp forests (seasonal)
Shallow subtidal habitat	Important shellfish regeneration area
Deepwater habitats	Rich subtidal marine life; marine mammals (harbour seals and killer whales)

Comments

The shoreline surrounding William Head is a rich and productive area due to the upwelling wave action from the Strait of Juan de Fuca and current patterns around the Head. Due to this productivity, biological diversity of marine life is high in and amongst its shores. As recently as 1997 there were studies on the feasibility of making William Head a Marine Protected Area.

Since its establishment, the William Head Institution has provided *de facto* protection of marine life around William Head from fishermen and divers. Recent survey dives around William Head have revealed this area to be very productive with high biological diversity. For example, Northern Abalone (*Haliotis kamtschatkana*), a commercially extinct species in British Columbia, are possibly much larger and more abundant around William Head than anywhere else on the West coast. In addition, there is an abundance of marine mammals and plants, crustaceans, echinoderms, sponges, kelp beds, seaweeds, and fish. There are several valuable references illustrating the underwater diversity of this area:

<http://www.racerocks.com/racerock/INVERTS/dgibbs.htm>. This gives the species list from Dive 431 of Donna Gibbs (Vancouver Aquarium), William Head, June 12, 1997

<http://www.racerocks.com/racerock/rreo/rrefer/wmhead.htm> (paper by Julie Barr, 1996 Interests of Stakeholders and Options for Establishing a Marine Protected Area at William Head - A Discussion Paper)

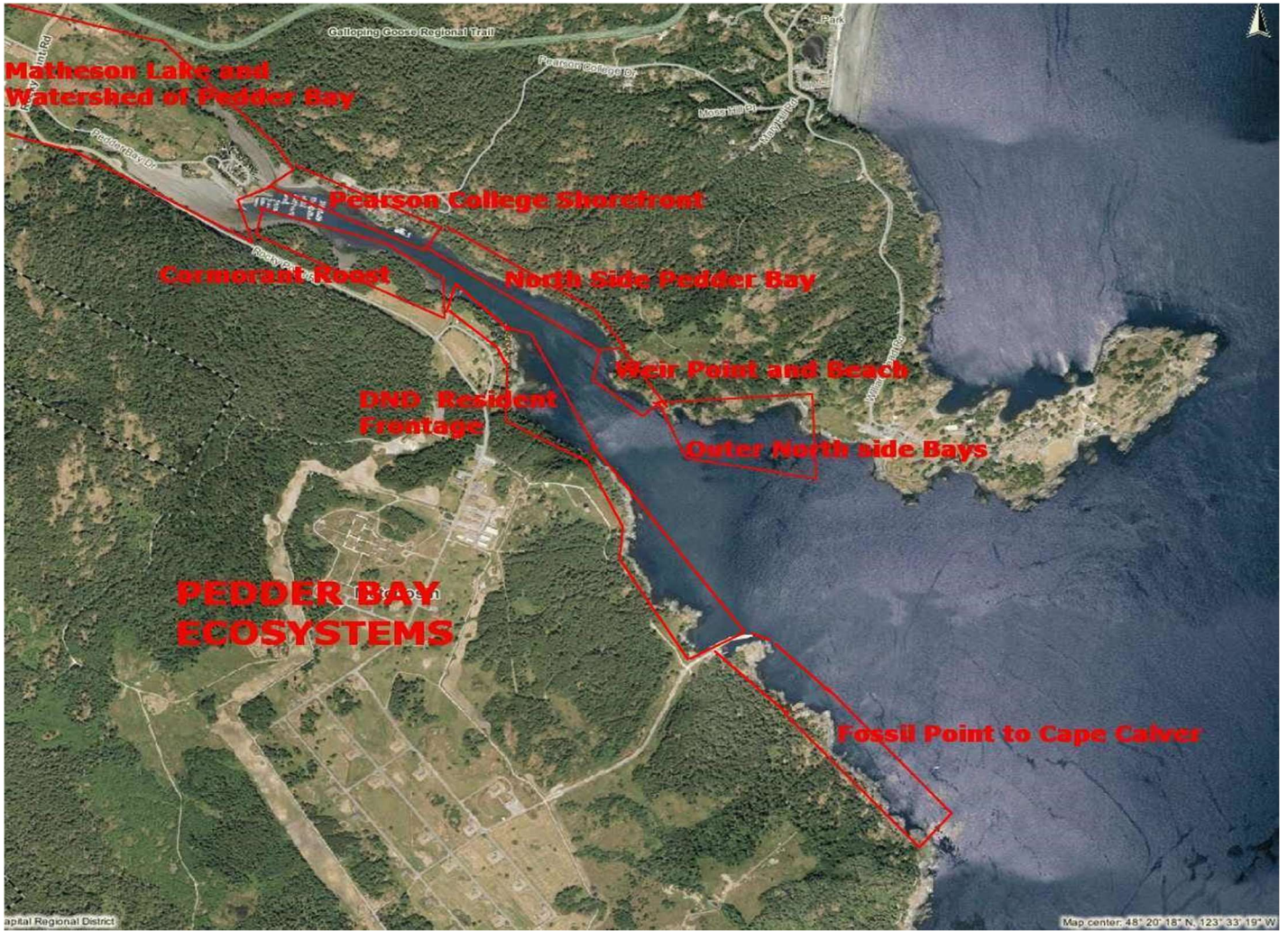
<http://www.racerocks.com/racerock/rreo/rreoref2/jdfmarpk/juanmarpark.htm> (Goddard, James M. 1975)

Econotes

Bull kelp (*Nereocystis luetkeana*) grows in large “forests” off the coast of William Head and other areas in this region. It is attached to the seafloor by a holdfast and can grow up to 60 cm/day, hence the fastest growing seaweed in the world. They have a high rate of photosynthesis and fix significant carbon.

Kelp beds provide ecosystem services including shelter and habitat for many species of fish and invertebrates including urchins, sea stars, snails, and crabs. They are an important food source for sea urchins and a feeding ground for seals, sealions, and birds.

Zone 5: Pedder Bay



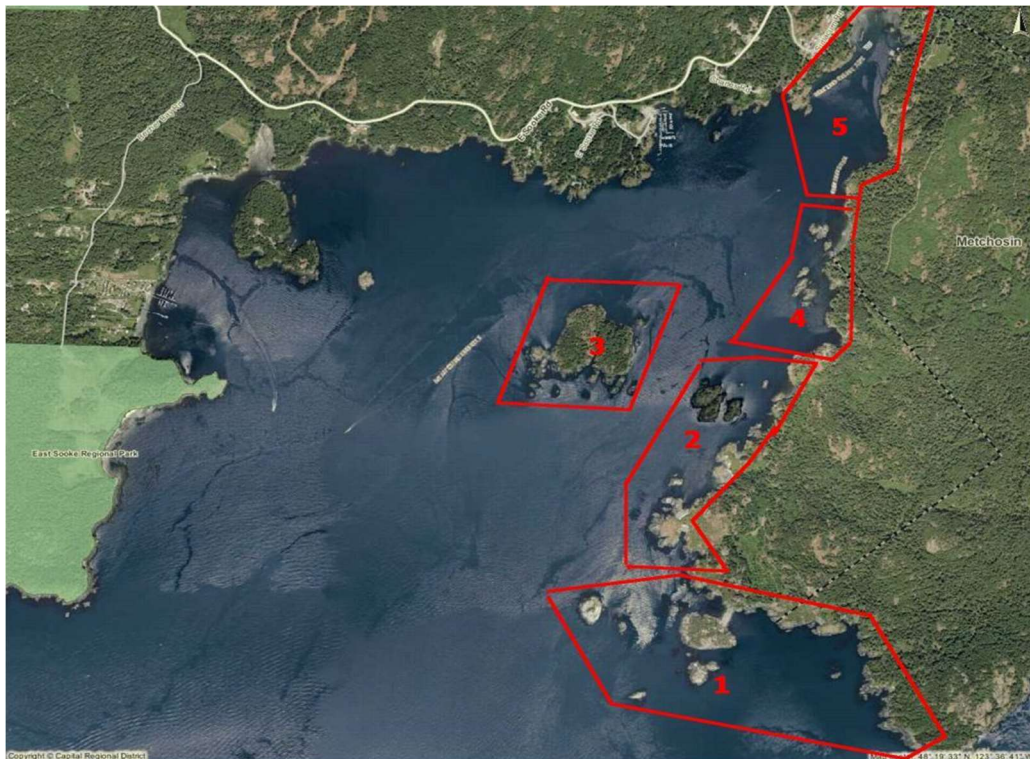
Ecosystems represented	Importance (these overlap)
Estuary mudflat at upper end	a valuable source of food for waterfowl throughout the year; habitat for burrowing organisms adapted to mud such as cockles and marine worms
Fresh water estuary	overwintering shorebirds such as Western Grebes, Scoters, and Buffleheads; Cormorant wintering roosting colony
Protected rocky intertidal shoreline	larva of organisms living here contribute to the rich planktonic mix in the waters of the bay

Comments:

The geography of Pedder Bay and the exposure of its shores to the marine environment results in a number of contrasting ecosystems on the upland part of the shores. It also contributes significant materials to the marine environment and through four or five months of the year contributes a large volume of freshwater, acting more like an estuary than a regular bay.

Zone 4: Beecher Bay and islands

Island ecosystems with significant invertebrate and kelp beds



Zone 4:

Area 1: Swordfish Island to Bedford Island

Area 2: North West corner of Beecher Bay

Area 3: Islands in Beecher Bay

Area 4: East side of Beecher Bay

Area 5: North east inner corner of Beecher Bay

Ecosystems represented	Importance (these overlap)
Protected bays	Garry oak – arbutus habitat; Western hemlock forest
Sand beaches	Valuable habitat for forage fish
Spectacular headland and steep sea cliffs	Interesting geologic formations; salmon fishery; marine mammals (harbour seals, sea lions, killer whales and other cetaceans)
Parkland shoreline	Rocky tide pools; First Nations cultural remains
Rocky and sand subtidal habitats	Eelgrass beds; unique subtidal benthos including dense populations of the soft coral, <i>Gersemia rubiformis</i> , and the anemone, <i>Metridium farcimen</i> , in seacave

Comments:

Although much of this part of the Coast borders on First Nations Land, some of the islands are crown land and some of the shoreline is DND and privately owned land. Parts of the area have been used for years as log booming grounds and dock areas where some impacts are evident.

James M. Goddard (1975) gives a detailed description of the animal populations of Aldridge Point in Beecher Bay.

(<http://www.racerocks.com/racerock/rreo/rreoref2/jdfmarpk/juanmarpark.htm>)

Zone 3: Whirl Bay Area

Island and shoreline ecosystems swept with strong currents and bearing significant underwater invertebrate colonies



Several important areas are in Zone 3:

- Christopher Point
- Shelter Island
- Whirl Bay
- Swordfish Island
- Church Island

Ecosystems represented	Importance (these overlap)
Steep nearshore topography	Vertical intertidal zonation
Surge channels	Rich subtidal flora and fauna
Strong ocean currents	Salmon fishery
Cold water upwelling	Rich subtidal flora and fauna; salmon fishery
Underwater caves and cliffs	Specialized flora and fauna
Protected bays and shallows	Waterfowl and seabirds; eelgrass, and kelp forests (seasonal)
Offshore islands, islets, shoals and reefs	Kelp forests; seabirds; harbor seals

Comments

Swordfish Island

A rare hydroid species, *Tubularia* sp., occurs near Swordfish Island. This species has been found in only two locations: here and in Norway. In the waters at Swordfish Island it grows in association with colonial ascidians and is as large as 15 cm in height. Pearson College students, observing this species over the last twenty years report that it has very limited distribution, with no more than one or two polyps appearing at any one time.

This area also contains populations of the soft pink coral, *Gersemia rubiformis*, at unusually shallow depths.

Church Island

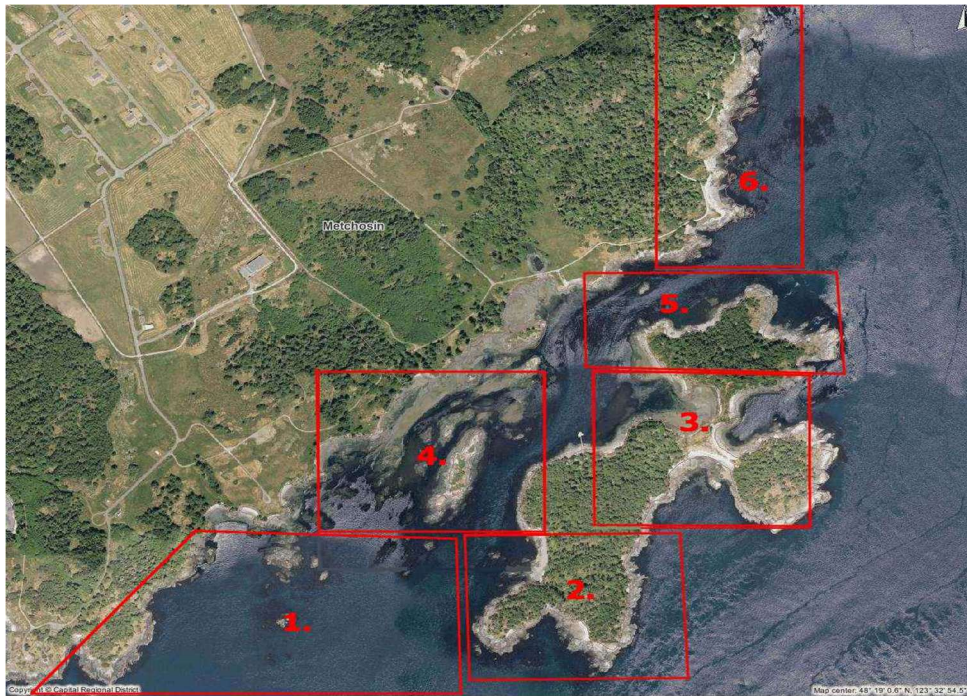
A large patch of the rare blue-listed seaside plant, *Romanzoffia tracyi*, (Tracy's mist maiden) sits on the north facing ridge at the top.

Eco Notes

This area is an example of the semi-exposed outer coast ecosystems. It has a relatively unsettled climate due to the influence of the outer coast climatic patterns and frequent southwesterly gales. The shoreline is exposed and experiences pronounced and continuous wave swells and tide surge due to the extended fetch across Juan de Fuca Strait.

The vegetation on the islands is considerably influenced by salt spray, resulting in flag-form and stunted vegetation, including mature trees of Gary Oak and Douglas-fir which grow uphill close to the ground for several metres.

Zone 2 Rocky Point and Bentinck Island



Important Areas of Zone 2 shown on the above map

Area 1: South entrance to Eemdyk Pass

Area 2: South Bentinck Island

Area 3: Central bays and east wing of Bentinck Island

Area 4: Central Island in Eemdyk Passage

Area 5: North Bentinck Island

Area 6: Rocky Point shoreline between Cape Calver and Edye Point

Ecosystems represented	Importance (these overlap)
Steep nearshore topography	Good zonation of intertidal habitats; marine mammals (killer whales, porpoises and other whales)
Shoals and reefs	Rich subtidal flora and fauna; kelp forests (and over 30 species of macroalgae), marine mammals (harbor seal, sea lions)
Shingle beaches	Waterfowl and seabirds; otters, mink
Strong ocean currents; high current channels	Specialized invertebrates
Rocky shore tide pools	Variety of invertebrates; birds

Rocky salt-sprayed headlands	Populations of mist maiden, <i>Romanzoffia tracyi</i> , and highly coloured crustose lichens
Shallow high current velocity (Areas 2 & 4)	Specialized subtidal ecosystems
Protected Bays	Winter feeding grounds for seabirds; harbor seals

Comments

Sports fishery is closed due to Rockfish Conservation
 Area 5 has historic burial cairns

Eco Notes

This marine area is an example of a “transition coast” with a variable climate pattern, frequent fogs and unsettled weather. The shoreline is exposed and experiences pronounced wave action and tide surge.

Offshore areas are subject to strong current and tide action; tide range approximates 1.86m (6.1 feet) but may reach 3.02m (9.9 feet); tide occurrence is similar to inner coast; 7°C to 9°C surface water temperature; water subject to constant mixing; whirlpools common in passages; variable water clarity (seasonal); mean salinity approximates 31 parts /1000 yearly; steep forested shoreline topography; rugged intertidal zone; offshore islands and islets occur throughout the area.

Currents are of relatively minor importance in influencing the local distribution of intertidal organisms. It matters little whether the currents are strong or weak so long as food and nutrients are supplied, and reproductive stages are dispersed to colonize or replenish distant as well as nearby areas. In subtidal situations, however, the magnitude of the current does have a marked influence upon the biotic communities. Certain species assemblages are found only where high-velocity currents occur, whereas other forms are characteristic of quiet, sheltered waters. Many of these areas show the species characteristic of moderate to high-velocity areas.

Zone 1 Race Rocks Ecological Reserve

This Ecological Reserve serves as a fish and invertebrate nursery which helps to provide species diversity to the nearby Metchosin Coastline.



Ecosystems represented	Importance (these overlap)
Strong ocean currents	Huge biodiversity of the community of organisms that live on, in or near the seabed; surf grass, <i>Phyllospadix scouleri</i> habitat
Shoals and reefs	Kelp forests (seasonal); seabird feeding
Rocky islands	Marine mammal feeding and resting area, (harbour seals, sea lions, elephant seals); birthing colonies for elephant seals and harbour seals; nesting areas for four species of seabirds
Current upwelling around the islands	Provides nutrients for high species diversity
Abundant subtidal flora and fauna community assemblages	High biodiversity values with several rare species, and a source of food for many fish, birds and mammals including killer whales and other cetaceans, seals, sealions, elephant seals

Comments

All areas subtidal to 40 metres is a rockfish conservation area (see below)

Area 4 and 5 - Elephant seal and harbour seal pupping

Area 5 - Black oystercatcher, Pigeon guillemot and Glaucous-winged gull nesting area

Area 5 - *Romanzoffia tracyi*, a rare plant (on the Blue list) often referred to as mist maiden. (<http://www.racerocks.com/racerock/eco/taxalab/genevievea.htm>)

Area 5 – an important wintering habitat for many species of marine seabirds and an important stopover for migrant birds.

Area 5 - historic lighthouse built in 1860 and also First Nations Burial Cairns

The Race Rocks website (<http://www.racerocks.ca/wp/home/>) has a large collection of historical and current information as well as documentation of its role as an Ecological Reserve, with photo and video galleries. A log is kept of significant events in the area.

For information on the Ecosystems see:

<http://www.racerocks.com/racerock/eco/ecosystem.htm>

This includes a list of animal and plant species recorded at Race Rocks as either residents or transients. The list is currently at 332 species, 87 of those being vertebrates. This is an incredible number of species in a very small area.

The ocean environment in the area of Race Passage has also been recognized as an important habitat for the regeneration of Rockfish stock leading to the creation of a DFO rockfish conservation area where all fishing is prohibited.

<http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-ac/south-sud/BentinckRaceRocksChart3461-eng.htm>

Eco Notes

At Race Rocks, the other marine flowering plant, the Surf Grass, *Phyllospadix scouleri*, is found. This is largely because of the different environmental factors: eelgrass prefers shallow sandy-bottomed inlets with some current as it cannot withstand the pounding surf of the rocky coast.

The islands now have the world's most northerly breeding colony of the northern elephant seal, *Mirounga angustirostris*.



B.C. Coastal Marine Strategy

Acknowledgements

The Province of British Columbia acknowledges the traditional custodians of these lands and waters, and pays respect to their Elders past, present and emerging. We pay respect to their continuing connection to land and sea, and the continuation of their cultural, spiritual and educational practices. In preparing for the future, we acknowledge the importance of looking beyond the immediate past to learn from First Nations unique history of land management, art, culture and society that began thousands of years ago.

The work to develop this strategy spanned many First Nations territories and treaty areas, and we are grateful for the knowledge, teachings and

holistic worldviews contained within. Through strength and resiliency, the relationship between the ocean and coastal First Nations peoples remains unassailable. The B.C. Coastal Marine Strategy could not have been written without the participation of First Nations, and the Province looks forward to continuing collaboration and furtherance of government-to-government relationships in its implementation.

Appreciation is also expressed to all contributing authors, reviewers and those who supported the development of this work, including staff across the provincial government, federal departments and agencies, local governments, stakeholders, business owners and citizens.

Summary

We live alongside thousands of marine species that dwell in some of the most biologically diverse habitats on the planet, including estuaries, kelp forests, rocky reefs, cold water coral colonies and hydrothermal vents. Some of these habitats protect us from extreme weather, build our resilience to climate change, and offer a place to collect and grow food, express culture, learn, seek adventure, find solace, move goods and people, and earn a living. Coastal marine-dependent industries – such as fishing, tourism, ports and shipping – make significant contributions to local and regional economies.

These benefits are only possible when the coastal marine environment is healthy. Climate change, pollution, habitat loss and the cumulative impacts of development bring significant challenges and responsibilities.

This B.C. Coastal Marine Strategy fulfils a commitment to develop a made in B.C., coast-wide, holistic vision for how to steward our use and enjoyment of the coast in balance with nature. It is the result of a close collaboration with many First Nations governments and it reflects the priority interests of coastal communities, governments, stakeholders and concerned citizens who shared their points of view during an extensive consultation process. It focuses on areas closer to shore and concentrates on activities, uses and values that the Province of British Columbia is responsible for, while recognizing that we need strong collaboration and co-operation with other governments who share responsibility.

Our vision is for “a diverse, productive and resilient coastal marine environment that is valued in its own right and that supports the prosperity, health and well-being of coastal communities now and into the future.”

First Nations values and teachings will help guide our way of thinking and decision-making. They remind us of the connections between land, water, wildlife and people, and our collective obligation and responsibility to care for and protect the ocean, and each other.

At a glance, the themes, goals and actions in the strategy are:

A Healthy Coast

Goal 1: Diverse Marine Life

Action 1: Monitor coastal health

Action 2: Protect and restore nearshore ecosystems

Action 3: Help recover species at risk

Goal 2: Abundant Wild Pacific Salmon

Action 4: Improve salmon survival

GOAL 3: CLEAN COAST

Action 5: Prevent marine pollution

Action 6: Clean up marine pollution

Resilience to Climate Change

Goal 4: Climate-Ready Communities

Action 7: Improve understanding

Action 8: Support First Nations climate action

Action 9: Incorporate nature-based solutions

Thriving Coastal Economies and Communities

Goal 5: A Sustainable Coastal Economy

Action 10: Nurture coastal wealth and health

Action 11: Build talent

Action 12: Diversify the workforce

Action 13: Support commercial harvests

Goal 6: Vibrant Coastal Communities

Action 14: Help restore First Nations traditional (sea)food systems

Action 15: Expand sustainable seafood production

Action 16: Support recreation and adventure

Informed Governance

Goal 7: Trusting, Respectful Relationships

Action 17: Advance First Nations self-determination

Action 18: Advance collaborative stewardship

Goal 8: A Robust Tool Kit

Action 19: Modernize policies and procedures

Action 20: Improve compliance

Goal 9: Integrated And Balanced Management

Action 21: Establish knowledge partnerships

Action 22: Reflect the ocean's true value

Action 23: Update and refresh spatial data

Action 24: Plan for the future

Details concerning strategy implementation will be worked out in partnership with coastal First Nations and in collaboration with other governments and stakeholders. Our first tasks will be deciding on the structures and/or agreements to put in place, our shared priorities for near-term focus and our approach to engaging others in this important work.

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Message from the Honourable Nathan Cullen and Kelly Greene

Minister of Water, Land and Resource Stewardship and Parliamentary Secretary for Fisheries and Aquaculture

British Columbia is blessed with more than 26,000 kilometres of coastline and our marine areas are home to an incredible diversity of species and habitats. As the foundation of the planet's life support system, we count on it every day for our physical, social, cultural, and economic well-being. All of this comes with an abiding responsibility.

Co-developed with several coastal First Nations and with significant input from federal and local governments, stakeholders and the public, the Coastal Marine Strategy marks fundamental progress in articulating and leading strong stewardship of our coastal and marine habitats. The Strategy expresses a cohesive forward-looking vision for coastal B.C. with a comprehensive suite of actions to support an ocean economy that is sustainable and inclusive and one that enables an intentional, coordinated and effective approach to taking care of the coastal marine environment in B.C.

Overwhelmingly, participants expressed support for the Province to take a more active role in

stewardship—protecting coastal ecosystem health and wild salmon, addressing marine pollution, building resilience to climate change, supporting a blue economy, and creating jobs in our communities. The Strategy connects to the broader work government is doing for communities and ecosystems across the province.

Our thanks to many First Nations' governments, the federal and local governments, and organizations for engaging in this work and sharing your knowledge and perspectives to co-develop the province's first Coastal Marine Strategy. And thank you to everyone who participated in the public open houses and online engagement; your feedback helped us understand and consider a diversity of views that was critical to shaping this piece of work.

The Strategy positions British Columbia strongly in North America with well-envisioned coastal policy and governance for the ocean we cherish. We look forward to our collective implementation efforts and all the great work to come.

Sincerely,

Nathan Cullen

Minister of Water, Land and Resource Stewardship

Kelly Greene

Parliamentary Secretary for Fisheries and Aquaculture

Introduction

In 2020, the B.C. government committed to developing a coast-wide vision that would improve the health and stewardship of coastal marine environments, build climate change resiliency, nurture a sustainable blue economy, support coastal community well-being and advance reconciliation with First Nations. This B.C. Coastal Marine Strategy fulfils that promise.

The strategy presents a long-term vision for the well-being of people and places in British Columbia. It is the product of close collaboration with many First Nations with deep ties to the ocean and it reflects the priority interests of other governments, stakeholders, local communities and concerned citizens across the province. To address the breadth and depth of the challenges and opportunities, and to bring governmental departments responsible for stewarding the coast together, input was sought from provincial ministries responsible for water and land stewardship, forests, agriculture and food, the environment and climate change, Indigenous relations and reconciliation, energy, economic development and transportation.

The policies, programs and projects developed over the next 20 years will create results that people can see in four key areas: the environment, climate change resilience, coastal economies and communities, and governance. Some of the actions outlined in the strategy, like new coastal zone legislation and gender inclusivity in the ocean economy, are long overdue. Others, like the cleanup of marine debris and implementation of marine plans developed under the Marine Plan Partnership for the North Pacific Coast, are a continuation of existing initiatives that have received broad support. A few, like the

development of new metrics to account for the ocean's true contribution to our society and the economy, represent a new approach to managing resources. As a whole, the strategy reflects government's commitment to understanding and appreciating the coastal marine environment, finding a good balance between taking and giving, and nurturing respectful relationships so that current and future generations may thrive.

We can achieve much more when we work together. Implementation of the strategy will require strong co-operation and collaboration with many First Nations and other partners, since no single government, industry sector or organization can tackle the challenges and build on the opportunities alone.

The coastal marine environment

The rugged coastline of British Columbia stretches for more than 26,000 kilometres between Alaska and Washington. The coastal marine environment, shaded blue in Figure 1, is a place of abundance. It is full of nutrients that support ecosystems and species that can thrive at the margins between ocean and land or ocean and river. Kelp forests, seagrass meadows, rocky intertidal shores, sandy beaches, mudflats, salt marshes and glass sponge reefs provide homes to thousands of plant and animal species. Many, like barnacles and sponges, are stationary and don't move around freely, while others travel great distances. North Pacific humpback whales swim hundreds of kilometres to feed in the highly productive marine waters of B.C. These "filter feeders" eat massive amounts of zooplankton and small schooling fish. Some

seabirds travel over 20,000 kilometres a year along the Pacific Flyway – a major corridor for millions of migratory birds travelling between breeding grounds in the Arctic to wintering grounds in southern South America. During fall and spring migrations, marine ecosystems along B.C. provide places to rest and refuel.

The coast connects life on land with life in the open ocean. For instance, marbled murrelets – perhaps the most mysterious seabird on the Pacific coast – nest on large, wide branches of coastal old growth trees and can travel over a hundred kilometres a day between their nest sites and marine foraging areas where they hunt for small fish. The Fraser, Skeena and Nass river watersheds – along with hundreds of other rivers in the province – bring fresh water and minerals into the Pacific Ocean. Coastal watersheds also receive nutrients from the sea when wild Pacific salmon return from the open ocean to spawn in rivers. Here they become food for bears and wolves that drag their catch into nearby forests, where trees are fertilized with ocean nutrients stored in the bodies of decaying salmon.

People also depend on the ocean and some coastal species, like wild Pacific salmon and orcas, are woven into cultures and histories. For millennia, Indigenous peoples have travelled up and down the coast fishing, harvesting and trading with one another. Marine animals, plants and ecosystems are vital to the identities, languages, communities, economies and knowledge systems of many First Nations in B.C. Almost half of their communities are located in coastal areas, and for these Nations, the ocean is

often the primary source of healthy food for community members and the highway that keeps people in touch with relatives and neighbours.

Nearly three-quarters of the province's population lives in coastal areas where people benefit from the ocean's recreational, aesthetic, spiritual, nutritional and economic values. The ocean-based economy in British Columbia is valued at over \$21 billion, representing about eight percent of the province's gross domestic product.¹ Thousands of people in British Columbia work in fishing and mariculture, shipping and shipbuilding, ports and harbours, tourism and technology – all of which rely on coastal resources.

Many of us spend time in nature to relax, recharge and reconnect. Beachcombers, divers, recreational fishers, wildlife viewers, boaters, kayakers, surfers and paddle boarders all derive positive physical and mental health benefits from a healthy ocean.

The coast also helps keep us safe. As allies against climate change, intact coastal habitats absorb energy from incoming waves and slow down storm surge, protecting coastal communities and infrastructure from the effects of erosion, flooding, storms and natural disasters. Nearshore habitats like estuaries also trap vast amounts of carbon in water-logged soils where it can stay stored for thousands of years.

This vital coastal marine environment is also vulnerable. Regional pressures to coastal health include commercial and residential development, increased shipping activity, fishing at various

¹ Source: Big River Analytics. (2021). Economic Contribution Analysis for the Economic Contribution of the Oceans Sector in Coastal BC. Prepared for the governments of British Columbia and Canada.

intensities, the spread of invasive species, pollution and upland resource use. Global pressures include warming ocean temperatures and sea rise, deoxygenation, ocean acidification and severe weather.

A single stressor, such as pollution or overfishing, can do considerable damage. Unfortunately, the harm to habitats, species and people is cumulative

and interactive. We need to address the combined effects of a changing climate and our activities on the coastal values important to people living in British Columbia. And as the demand for natural resources continues to grow, we must find ways to reduce the pressures that threaten marine life, community well-being and economic stability, so that we can help restore resilience and return to a place of abundance.



Figure 1. The strategy focuses on coastal marine waters between the borders of Alaska to the north and Washington to the south.

What do we mean?

Ocean and sea: These terms are used interchangeably to refer to a huge body of salt water. There is one “world ocean” divided into five oceans: the Pacific (the largest), Atlantic, Indian, Southern and Arctic (the smallest). The ocean extends between the coasts of continents and is incredibly deep, with an average depth of almost four kilometres.

Coastline: Used interchangeably with shoreline, the coastline is the land along the sea. Waves, tides and currents help create coastlines.

Coastal marine: We use this term to describe the area where the coastline meets the open ocean. Water depths range from the high tide mark to thousands of metres deep. In B.C., the size of the coastal marine areas spans a few kilometres (such as the waters between Vancouver Island and the mainland) to hundreds of kilometres (such as the waters between Haida Gwaii and the Central Coast).

Stewardship: In its most basic definition, stewardship is the responsible use and protection of the environment. It is the recognition of our responsibility to care for and maintain the quality and natural function of ecosystems. Environmental stewardship includes restoration and protection, research and monitoring, community and civic action, and everyday choices.

Our shared opportunity

How we govern and interact with the environment influences how we generate benefits for society and how we can sustain these benefits. Good management begins with respect: for the natural environment, for the connections between people and place, and for responsible stewardship by all parties.

In British Columbia, coastal marine management is a complex undertaking, with many levels of government having responsibilities and interests in different ocean activities and values (Table 1). The provincial government manages and authorizes activities and uses that require access to the seabed and/or the coastline, such as aquaculture, clean energy, docks and wharves, log handling sites and underwater utilities. The provincial government is also accountable for land

use planning and management (such as parks and protected areas), seafood development and aquatic plant culture and harvesting. Habitat conservation and restoration, monitoring, and emergency management are some of the ways the Province takes care of the coastal marine environment. Figure 2 illustrates a few of these provincial roles in coastal marine stewardship.

The connectivity of marine life means that we need to co-ordinate efforts and policies, share knowledge, expertise and resources, and build long-lasting and meaningful partnerships. Now, perhaps more than ever, we need to work together towards a common goal.

Table 1: Examples of the stewardship responsibilities across governments²

Federal Government	First Nations Governments	Provincial Government	Local Governments
<ul style="list-style-type: none"> • Fishing • Fish habitat • Finfish and shellfish aquaculture • Species at risk • Shipping • Navigation • Oil spill response • Search and rescue • Migratory birds • Environmental assessments • Protected areas 	<ul style="list-style-type: none"> • Aboriginal and treaty rights and responsibilities as per individual First Nations • Coastal guardian and stewardship programs • Research and monitoring • Community planning • Protected Areas, including Indigenous Protected and Conserved Areas • Community management of harvesting for food, social and ceremonial use • Oil spill response • Restoration of marine habitats 	<ul style="list-style-type: none"> • Tenures over seabed and foreshore (such as aquaculture) • Tourism and recreation licensing • (Sea)food safety • Marine spatial planning • Protected areas • Aquatic plants • Flood management • Environmental emergency management, such as oil spill response • Waste management and authorizations • Heritage and cultural protection • Cumulative effects management 	<ul style="list-style-type: none"> • Zoning (such as regulating shoreline development) • Bylaws • Parks and trails • Public education

² This table does not include an exhaustive list of responsibilities.

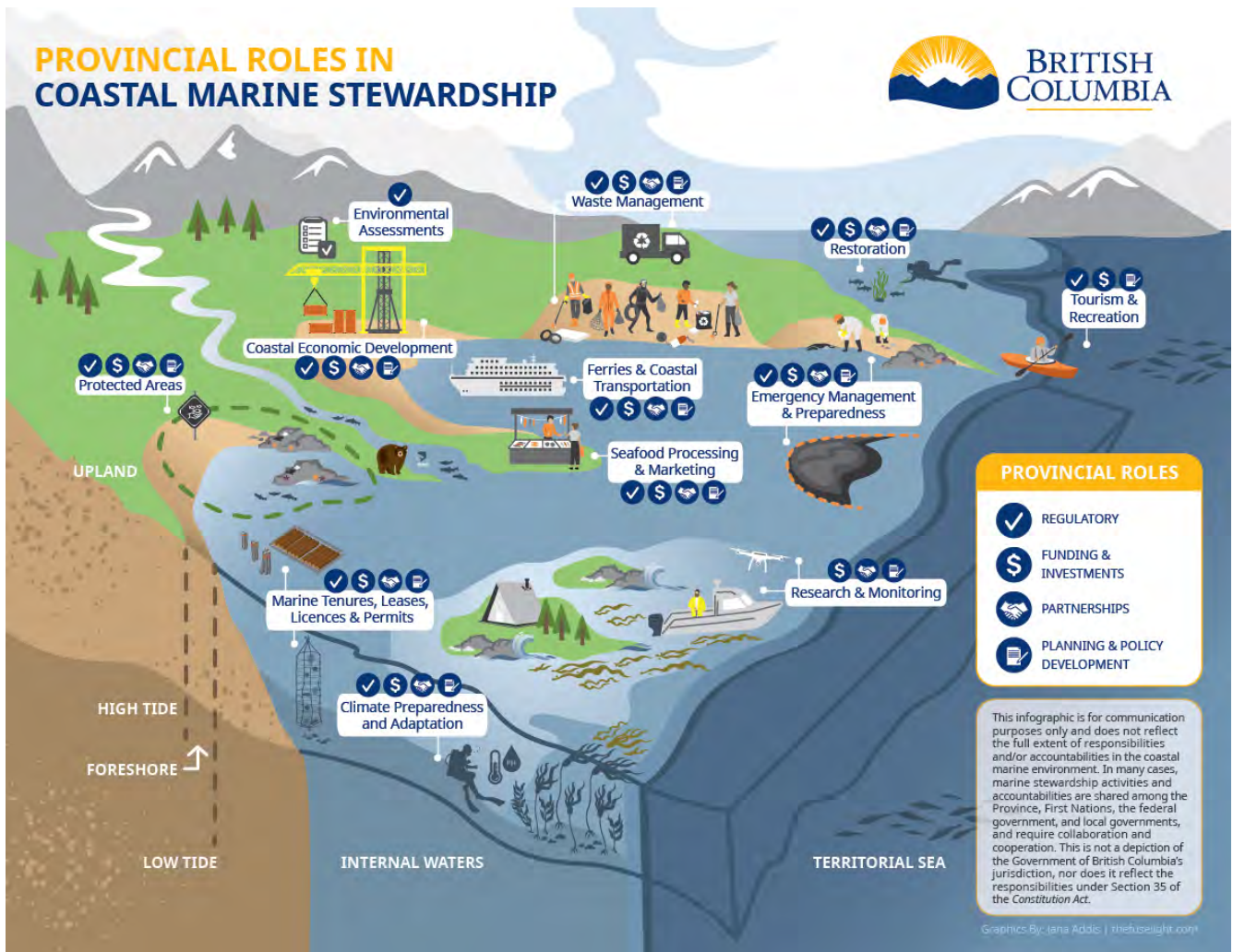


Figure 2. This illustration shows many different provincial roles in the stewardship of the coastal marine environment.

Reconciliation

Government policies that worked to suppress Indigenous cultures, languages, economies and systems of governance have had lasting effects on the health, well-being and wealth of Indigenous peoples in B.C. Despite this, Indigenous communities remain strong and resilient.

The Province of British Columbia recognizes that all relations with Indigenous peoples need to be based on the recognition and implementation of the right to self-determination, including the inherent right of self-government. As recognized

in the Shared Priorities Framework between the Province and Modern Treaty Nations, Modern Treaties provide a blueprint for reconciliation and a foundation for government-to-government relationships based on mutual respect and established rights. The *Declaration on the Rights of Indigenous Peoples Act* (Declaration Act) establishes the United Nations Declaration on the Rights of Indigenous Peoples (UN Declaration) as a framework for reconciliation, as called for by the Truth and Reconciliation Commission's Calls to

Action. The Declaration Act aims to create a path forward that respects the human rights of Indigenous peoples while introducing better transparency and predictability in the work we do together.

Reconciliation is a cross-government priority and the Province is working in every sector, together with Indigenous peoples, to support healthy communities and create shared prosperity that benefits all British Columbians. As work continues, the provincial government is weaving Indigenous perspectives into all programs and supports it offers. This work is part of government's recognition that Indigenous peoples have unique constitutionally protected rights, interests and circumstances that must be considered when developing and implementing all government policies, including this strategy.

The Province has adopted a distinctions-based approach to advancing reconciliation and implementing the UN Declaration and the Shared Priorities Framework. A distinctions-based approach means that the Province's work with First Nations, Métis and Inuit people will be conducted in a manner that acknowledges the specific rights, interests, priorities and concerns of each, while respecting and acknowledging these distinct peoples with unique cultures, histories, rights, laws, treaties and governments. The distinctions between coastal First Nations have been recognized and respected in the work to develop this strategy, and the Province will continue to apply a distinctions-based approach

to engage appropriate rights holders in its implementation.

Guiding values

Values play an integral role in how we understand the world around us, choose courses of action, set goals, measure success and work together.

First Nations ethics and values will help guide our way of thinking and decision-making, helping further our shared goals for stewardship and integrating First Nations concepts and sacred teachings into policy and practice.

Shared with permission from the Nuu-chah-nulth-, Haida- and Tsimshian-speaking Nations, the following values remind us of the connections between land, water, animals and people, and our collective obligation and responsibility to care for and protect mother earth and each other.³

Adopting a values-based approach to our work will make it easier to navigate complexity and achieve balance and harmony. Ethical thinking leads to ethical practice, and the following values and teachings are at the foundation of this strategy.

hišukiš c̓awaak⁴ (everything is one): Everything is connected, everything is one, everything depends on everything else. The well-being of communities is intricately tied to the well-being of the land and sea.

ʔiisaak⁴ (utmost respect): Respect for mother earth, for people, living things, the ocean. We take

³ Values are embedded in First Nations worldviews and philosophies and cannot be considered in isolation from one another. While First Nations in British Columbia have distinct knowledge systems and traditions, these values – expressed in First Nations distinct languages – resonate in many of their cultures. There are 34 First Nations languages in B.C.; we have not included them all here.

⁴ Nuu-chah-nulth language.

only what we need, we give thanks. Everything has a purpose, and that purpose must be respected.

Gin 'laa hl isdaa.uu⁵ (responsibility): We accept the responsibility passed on by our ancestors to manage and care for our sea and land. We will ensure that our heritage is passed on to future generations.

?uu?atuk⁴ (taking care of): Looking after, caring for the sea, the seabed, marine life, the land, our communities and our people.

Giid tlljuus⁶ (balance): Balance is needed in our interactions with the natural world. If we aren't careful in everything we do, we can easily reach a

point of no return. Our practices and those of others must be sustainable.

Isda ad dii gii isda⁶ (giving and receiving): Reciprocity is essential in our interactions with each other and the natural world. We continually give thanks to the natural world for the gifts received.

syt güülm goot⁷ (being of one heart): Community-based sharing and distribution of resources from different areas of the territory, between families and lineages, ensures survival and nutritional balance, and sustainable harvests.

Quw'utsun snuw'uy'ulh (Cowichan Tribes' teachings)

For the Quw'utsun – which in addition to Cowichan Tribes includes the other Quw'utsun Nation communities of Lyackson First Nation, Stz'uminus First Nation, Halalt First Nation and Penelakut Tribe – ways of being are firmly grounded in the Hul'q'umi'num' language and the Quw'utsun snuw'uy'ulh (teachings). Hul'q'umi'num' is a language spoken on Vancouver Island from Malahat in the south to Nanoose Bay in the north, with some differences in dialect. Quw'utsun snuw'uy'ulh are central to learning from the natural world and understanding our place within it, and our responsibility to, the wider universe. These teachings have been shared by the Quw'utsun and will help guide our work together.

Mukw' stem 'o' slhihukw'tul: All things are connected.

Hwial'asmut tu Tumuhw: Take care of the earth – the air, the water, the land.

Stl'atl'um stuhw tun kwunmun: Take only what you need.

Hiiye'yutul tst 'u to' mukw' stem 'I'u tun'a tumuhw: Everything in nature is part of our family; we are all relatives.

⁵ Haida language, Xaad Kil dialect.

⁶ Haida language, Xaayda Kil dialect.

⁷ Tsimshian language.

How we got here

British Columbians care deeply – and are concerned about – the health of the ocean. They want to ensure coastal ecosystems are healthy and resilient and they want to see their family, friends and neighbours prosper and succeed. These are the values that we heard expressed by participants during our in-person and online engagement sessions held in 2022 and 2023.

In keeping with government's commitment to the Shared Priorities Framework, the UN Declaration and the Calls to Action of the Truth and Reconciliation Commission, the Province worked closely with First Nations governments and organizations to frame a meaningful, respectful and inclusive process for developing this strategy, together (Appendix A). This co-development approach acknowledged the thousands of years of First Nations economic activity, knowledge (contemporary and traditional), traditions and cultures that have evolved with the ocean. It also helped ensure that First Nations needs and priorities flow throughout this strategy.

In December 2022, the Province released a co-developed Intentions Paper for public feedback (see the timeline for development of the strategy in Appendix B). We heard from individuals, including Indigenous youth and young professionals (Figure 3), environmental non-governmental organizations, local and regional governments, First Nations governments, industry associations, unions and businesses. Hundreds of people joined the conversation and shared their ideas, personal experiences and stories of their present day and historical connections to the people and places of the coast.

There are many areas where more provincial support could make a real difference in the health of coastal ecosystems and communities. Through engagement, we learned that the top areas of interest include, in no particular order:

- Prioritizing the environment and protecting coastal ecosystems and their biodiversity
- Protecting wild Pacific salmon
- Tackling pollution in coastal and marine environments
- Addressing climate change and prioritizing climate change mitigation and resilience
- Minimizing the impacts of shipping and vessel traffic in coastal waters
- Consulting and engaging with all partners
- Respecting the importance of non-economic values in decision-making
- Supporting the economy and industry
- Assessing and managing the cumulative effects of human activities and climate change on the environment and human well-being of coastal communities
- Improving Indigenous peoples access to coastal resources and the coastal economy
- Developing and enforcing meaningful legislation
- Stepping up monitoring, information gathering and data sharing
- Advancing reconciliation with Indigenous peoples
- Including Indigenous knowledge in decision-making

These priorities, summarized in a What We Heard Report, serve as a roadmap for this strategy, which brings together activities being taken across government, combines them with new

initiatives, and complements other government policies and programs. When they're all added together, they will help to achieve a shared vision for the coast.



CMS Indigenous Youth Summit, March 8, 2023

Michelle Buchholz | **CASSYEX** CONSULTING

Figure 3. Youth and young professionals are the future of coastal marine stewardship, and it is essential that their voices are heard. In March 2023, 18 Indigenous youth from across the coast came together to share their perspectives on what a Coastal Marine Strategy should address. Their discussions, recorded graphically by Michelle Buchholz, have informed this strategy.

Future vision

Our vision is for a diverse, productive, and resilient coastal marine environment that is valued in its own right and that supports the prosperity, health and well-being of coastal communities now and into the future.

This strategy sets out nine goals organized under four themes. The 24 supporting actions work together to achieve the strategy's vision and goals.

- Theme 1: Healthy coastal marine ecosystems
 - Goal 1: Diverse marine life
 - Goal 2: Abundant wild Pacific salmon
 - Goal 3: Clean coast
- Theme 2: Resilience to climate change
 - Goal 4: Climate-ready communities
- Theme 3: Thriving coastal economies and communities
 - Goal 5: A sustainable coastal economy
 - Goal 6: Vibrant coastal communities
- Theme 4: Informed governance
 - Goal 7: Trusting, respectful relationships
 - Goal 8: A robust tool kit
 - Goal 9: Integrated and balanced management

Theme 1: Healthy coastal marine ecosystems

A healthy and productive coast that sustains abundant marine wildlife is the foundation from which our other aspirations evolve. Healthy and biodiverse coastal marine ecosystems are stable, vibrant and full of life; generate a range of benefits for people; and are resilient to change.

Goal 1: Diverse marine life

Action 1: Monitor coastal health

Responsible stewardship of the coastal marine environment requires careful and consistent monitoring. From tracking contaminants in the

water and the spread of alien invasive species, to monitoring sea level rise and surveying the coastline, monitoring helps inform decisions in the best interests of coastal communities and the environment.

Governments, organizations and research institutions all play a role in ocean and coastal monitoring. Across many parts of the coast, First Nations are the eyes and ears on the water. First Nation-led initiatives such as Guardians, Watchmen and stewardship programs document changes in coastal habitats and the species that

rely on them, such as crab, herring, eulachon and wild Pacific salmon. Their contemporary observations, combined with an intricate knowledge of the natural world, have greatly improved understanding of the health of nearshore habitats and their resilience to climate change, stress and disturbance.

Activities:

- Further develop or establish water quality objectives and monitoring programs in coastal areas of concern, starting with areas where pollution is impacting the growing and harvesting of food. Link monitoring results to coastal watershed planning and protection and other strategic planning processes (such as estuary management plans and stormwater management plans).
- Scale up the monitoring of coastal habitats that are critical for maintaining biodiversity, such as kelp beds, eelgrass beds, estuaries, salt marshes, and forage fish habitat and use this information to guide management decisions and planning initiatives.
 - Assess the rate of coastal habitat loss or degradation.
 - Continue to support First Nations-led programs and monitoring systems.
 - Maintain and expand partnerships with other governments, research centres and academic institutions.
 - Develop and implement a coast-wide aquatic plant research and monitoring network.
 - Expand efforts for preventing, detecting, monitoring and managing invasive aquatic plant

species (such as *Spartina spp.*, *Mazzaella japonica* and *Sargassum muticum*).

- Work with partners to establish a robust ecological and socioeconomic monitoring program for the Northern Shelf Bioregion Marine Protected Area Network, and report on performance assessments.

Action 2: Protect and restore nearshore ecosystems

Kelp forests, eelgrass beds, sandy beaches, mud flats, salt marshes and rocky intertidal areas are critical migrating, feeding, breeding and sheltering grounds for hundreds of unique species. In addition to being sites of great biodiversity, coastal ecosystems play a vital role in enhancing climate change resiliency.

The carbon stored in coastal ecosystems is often referred to as blue carbon. Salt marshes, like the large one in Boundary Bay, are blue carbon ecosystems, as are eelgrass beds in estuaries. Blue carbon ecosystems can capture and store up to five times more carbon than trees and plants in a similar-sized area on land. When a blue carbon ecosystem is degraded or lost, stored carbon is released, contributing to climate change. Conserving and restoring blue carbon ecosystems are therefore important actions we can take to mitigate and adapt to climate change and support biodiversity.

Representative examples of nearshore habitat types are included in the Canada-B.C.-First Nations plan for a marine protected area network in the Northern Shelf bioregion. The Province is committed to collaboratively implementing this plan to protect biodiversity and maintain these vital ecosystems.

Activities:

- Collate information on the status of estuaries across B.C. and support initiatives to increase the number and scope of estuary protection and restoration projects.
- Protect nearshore habitats from the impacts of small vessel anchoring and mooring buoys, in collaboration with First Nations, federal and local governments.
- Explore establishing innovative protected area models for the coastal marine environment in collaboration with interested First Nations and the federal government, including the use of Indigenous Protected and Conserved Areas, to help realize shared objectives for marine and coastal areas.
- Assist in the collation of information on the location and status of intertidal spawning habitat for forage fish (sand lance and surf smelt), support additional forage fish habitat spawning surveys and help to encourage citizen involvement in habitat conservation.
- Co-develop and implement climate-informed management plans for marine parks and protected areas established under provincial legislation, beginning with sites identified in the marine protected area network action plan in the Northern Shelf bioregion.

Taking Care of Lands and Waters

The health of coastal habitats and the species that rely upon them are influenced by both terrestrial and marine conditions. The steps we're taking with others to improve the stewardship of forests, fresh water and watersheds will benefit the ocean and the communities that are closely tied to it. Here are a few of the initiatives underway.

- The Watershed Security Strategy will lead the changes needed to create a future where our watersheds are better cared for and stewarded together.
- The B.C. Flood Strategy provides a unifying vision on priorities to improve resilience to coastal, riverine, local stormwater and groundwater flood events.
- The B.C. Biodiversity Ecosystem Health Framework sets the stage for a transformational shift in resource management. Under the framework, conservation and management of ecosystem health and biodiversity will be prioritized.
- The Conservation Financing Mechanism, a partnership launched by the Province and the BC Parks Foundation, aims to address biodiversity loss and improve climate security through activities related to the conservation and protection of lands, ongoing stewardship and guardianship measures led or supported by First Nations, and support for low-carbon economic opportunities.
- The Tripartite Framework Agreement on Nature Conservation is a first-of-its-kind agreement between B.C., Canada and the First Nations Leadership Council to protect and conserve biodiversity, habitats and species at risk in the province. With \$1 billion in joint federal and provincial funding, the agreement enables action rooted in recognition of First Nations title and rights to reach B.C.'s and Canada's goal of protecting 30 percent of lands and waters in B.C. by 2030.
- The 2016 *Great Bear Rainforest Land Use Order and Great Bear Rainforest (Forest Management) Act* will conserve 85 percent of the forest and 70 percent of old growth over time, achieving a high level of ecological integrity.
- In 2019, the governments of B.C. and Canada launched the five-year, \$142.85-million B.C. Salmon Restoration and Innovation Fund. In response to the program's success, the fund doubled in size in 2022 and was extended to 2026. Projects across the province have brought tangible benefits to wild salmon and their freshwater and marine habitats, the fishing and seafood sectors, and coastal communities.
- Shared stewardship agreements between B.C. and First Nations accomplish many goals that benefit all British Columbians. For example, modern treaties include provisions to monitor lands and waters under long-standing cultural laws, restore watersheds, and protect fish and aquatic plant habitat. Collaborative stewardship forums in the North Coast support land use planning, compliance and enforcement, and monitoring of watershed and wildlife (such as caribou, moose, stone sheep and mountain goat).

Action 3: Help recover species at risk

Many marine species found in the coastal marine waters of British Columbia are endangered, threatened or of special concern, including resident killer whales, some Pacific salmon populations, basking sharks, sixgill sharks, great blue herons, Olympia oysters, northern abalones, several rockfish species and marbled murrelets.

The federal *Species at Risk Act* (SARA) provides protection to species in danger of disappearing. Recovery plans for SARA-listed species can include interventions meant to improve the survival of individuals (such as fisheries restrictions) and the protection of some habitat critical to a population (such as establishing sanctuary zones).

Responsibility for the conservation of wildlife is shared among the governments, and the Province will do its part to help in the recovery of coastal marine species at risk.

Activities:

- Continue to work with partners to improve outcomes for species listed under the *Species at Risk Act* (such as continued participation in the Southern Resident Killer Whale Task Force).
- Contribute to status assessments of coastal marine species in decline and the development and implementation of appropriate measures to conserve and protect marine species at risk.

Goal 2: Abundant wild Pacific salmon

Action 4: Improve salmon survival

The overall abundance and diversity of wild Pacific salmon has declined since the 1950s, and many populations are at an all-time low. The causes are complex and are thought to include water quality and quantity, harvesting, predation, availability of prey, industrial use in nearshore environments, forestry operations and land use decisions in salmon-spawning watersheds. Changing hydrologic and ocean conditions as a result of climate change are also stressing maturing and adult salmon.

Salmon can spend anywhere between one to seven years of their lives feeding and growing in the ocean. Their ocean phase is one of the least understood parts of their lives, but we do know that some salmon species, like chinook and pink, are sparsely distributed throughout the ocean and migrate vast distances as they feed and mature. Others, like coho and chum, prefer to stay in coastal waters.

Adult salmon accumulate almost all their weight in the ocean, where they prey on plankton, copepods, herring, smelt, sand lance, shrimp, krill, squid and other species. Estuaries and coastal wetlands are crucial to the survival of young smolts. While allowing their bodies to adjust to new saltier conditions, salmon take shelter in shallower estuarine waters and feed heavily to boost their chances of survival in the ocean.

Extensive conservation and fisheries management measures have helped slow the decline of salmon populations, although some are responding better than others. Sustained, transformative

action building on previous and ongoing initiatives is needed to protect wild salmon populations. A collaborative approach that weaves together the work of First Nations, the federal government, citizens, industry, stewardship groups and stakeholders is our best chance for addressing the complex and cumulative threats facing wild salmon populations.

Activities:

- Develop and implement management plans for salmon habitat in estuaries that include designated conservation areas, robust monitoring, and recovery and restoration.
- Connect habitat protection and restoration in the coastal marine environment with salmon habitat protection and restoration in upland aquatic and terrestrial habitats, following holistic principles that value all forms of knowledge and ways of knowing.
- Sponsor research and monitoring that elevates our understanding of marine survival rates for salmon, focusing on the:
 - Distribution of maturing and adult salmon.
 - Availability of suitable prey (such as zooplankton, shrimp, krill, sand lance, herring and squid).
 - Threats to survival (such as invasive species, pinniped predation, loss of critical habitat and pollution).
 - Impacts of climate change to salmon and salmon prey.
- Recognize wild Pacific salmon as a priority marine feature when licensing marine activity. Develop a consistent framework for prioritizing consideration of the potential ecological and sociocultural

impacts of an activity or use on wild salmon when making decisions on provincial Crown land in the coastal marine environment.

- Assess the feasibility of establishing First Nations-led “salmon sanctuaries at sea” under provincial legislation and connect these at-sea sanctuaries with First Nations-led salmon parks in watersheds.
- Report on provincially led conservation actions and outcomes every five years.
- Continue working through international treaty processes with other governments to advocate for better harvest data from Alaska and reduced bycatch of B.C.-origin fish in Alaska’s wild salmon fishery.
- Maintain support for Canada’s Pacific Salmon Strategy Initiative, which is leading transformative change in how wild salmon are managed.

Goal 3: Clean coast

Action 5: Prevent marine pollution

Marine debris is a long-standing and growing problem, and while it appears in many forms, most marine debris is plastic. Plastic can be produced in a wide variety of forms and used in different ways, from water bottles and disposable medical supplies to food packaging, clothing and fishing gear. Globally, it’s thought that more than 20 million tonnes of plastic waste end up in the ocean every year. About 80 percent of this plastic is estimated to come from land-based sources, with the remaining 20 percent coming from boats and other marine sources. Marine debris also includes polystyrene foam (such as Styrofoam), cigarette stubs and filters, rope, nets, glass, metal and rubber.

There are other forms of pollution that impact human and ecosystem health. These include fertilizer from our yards, runoff from farmland and city streets, waste from industry, poorly treated or untreated wastewater, and failing septic systems. Human-caused noise pollution is a problem for marine mammals, seabirds and fish, disrupting their ability to navigate, mate, feed and escape predators. Vessel discharge and oil spills are a significant concern and given that B.C. is part of a major shipping corridor between Asia and North America, response preparedness is crucial to protecting the province's complex coastline.

Marine pollution degrades the beauty of our shorelines, contaminates our seafood, creates navigation hazards, injures or kills wildlife, and damages marine habitat. It can impact the exercise of Aboriginal and treaty rights, and can threaten the health and safety, well-being, economic livelihood, and food security of coastal First Nations and other coastal communities reliant on a healthy ocean. Pollution is everyone's problem, and we all have a role to play in preventing it.

Activities:

- Address gaps in provincial policy and legislation around point and non-point sources of pollution.
- Develop changes to marine tenure licence application requirements and adopt best management practices to prevent pollution, in collaboration with the federal government where required.
- Make targeted investments in research and technology to speed up the adoption of greener practices that reduce plastic pollution, improve wastewater and

stormwater treatment and decrease reliance on polystyrene.

- Prohibit the use of polystyrene in future marine infrastructure construction and collaborate with the federal government to promote replacing existing polystyrene marine floats with environmentally friendly alternatives.
- Boost support for projects that prevent marine debris through outreach and education experiences that deepen understanding of the issue and encourage and support changes in behaviour.
- Continue to examine the life cycle of boats to identify waste prevention, reduction and end-of-life opportunities.
- Engage with First Nations and the federal government to develop a framework for marine incident preparedness, response and recovery for the south coast of B.C., modelled after the framework developed in the north.
- Develop and implement post-spill environmental monitoring and clean-up standards for coastal shorelines and areas under provincial jurisdiction. Provide more support to First Nations for shoreline cleanup and assessment technique training.

Action 6: Clean up marine pollution

Pollution is persistent. Plastics do not easily degrade in the ocean, and they can accumulate in the environment for centuries. Similarly, persistent synthetic chemical pollutants (known as "forever chemicals") have very long half-lives and can stick around for decades after they enter aquatic environments. Both microplastics and chemical

pollutants are now commonly found in orcas and other marine mammals in B.C.

Another type of marine debris commonly found in our coastal waters is abandoned or derelict vessels, which are aground, broken apart, sunken or in dilapidated condition. They can damage infrastructure; disrupt First Nations cultural uses, interfere with navigation and recreation, pose safety concerns, become eyesores to look at, smother valuable habitat and impact water quality. More than 1,400 abandoned or derelict vessels are awaiting cleanup in the coastal marine waters of B.C.

Since pollution is persistent, we must continue our efforts to clean it up. B.C. is building a circular economy focused on sharing, reusing, repairing and recycling materials to eliminate waste, pollution and emissions. Everyone needs to be a part of the solution, and small actions can make a big difference. Every bottle, tire, barrel, piece of foam and derelict vessel removed and sorted can help “close the loop” and minimize waste.

Activities:

- Develop a long-term vision for the Clean Coast, Clean Waters initiative that supports the prevention, cleanup, monitoring, removal, recycling and disposal of polluting marine debris and derelict vessels while providing employment opportunities in coastal communities.
- Support additional coastal cleanups of plastics and debris, including actions to address abandoned and derelict trespass structures and derelict vessels in the intertidal zone.
- Inventory degraded sites along the coast and prioritize remediation of sites to address local concerns around contaminants from residential and industrial uses (such as leaky septic fields, abandoned mines and historic log handling sites).

Clean Coast, Clean Waters

In 2020, B.C. coastal First Nations, local governments, non-profits, organizations and businesses tackled marine debris cleanup projects under B.C.'s Clean Coast, Clean Waters initiative. In just three years, 1,500 tonnes of plastics pollution were removed from over 4,600 kilometres of coastline, while creating job opportunities in rural communities. Long before this initiative was launched, volunteers have sponsored coastal cleanups across the province, collecting valuable data as they bring communities together to make a positive difference.

Theme 2: Resilience to climate change

Climate change is altering the temperature, chemistry and circulation of ocean water. It is shifting how and where ice is formed and distributed and leading to rising sea levels. These systemic changes have critical impacts on biodiversity and the lives and livelihoods of people, and the impacts are expected to become more severe over the coming decades. To withstand the challenges of climate change – and to thrive – we need climate resilience. Resilience is about preparing, recovering from and adapting to the impacts of climate change.

Goal 4: Climate-ready communities

Action 7: Improve understanding

The climate is changing. Wind and precipitation patterns are more variable, and fires, droughts, floods and other extreme weather events are occurring more frequently. Sea levels are changing around the globe as ice caps melt, causing fluctuations along the coast of B.C. Sea surface temperatures are rising and ocean waters are becoming more acidic and carrying less oxygen. Warmer temperatures are altering the geographic distribution of some species and opening new pathways for marine invasive species. These changes ripple through the entire ocean ecosystem, impacting marine life and people.

Communities and businesses across B.C. will experience the effects of climate change in the ocean differently. First Nations and coastal communities are disproportionately affected since their cultures, livelihoods and food security are intertwined with the ocean. Damage to, disappearance of, or loss of access to sacred and cultural sites, harvesting areas and coastal routes due to extreme weather events and flooding are matters of deep concern, as are changes in the quantity, quality and timing of harvested species. Traditionally harvested seafood is fundamental to

the diet, nutritional health and overall well-being of First Nations. Seafood connects many First Nations to their landscape, ancestors and very existence as peoples.

Communities are the first line of response to severe weather events and disasters and play a critical role in applying policies and strategies to help prevent and manage climate risks. While some impacts of climate change will affect all communities, other changes pose different levels of risk based on where we live. At the same time, the needs and capacities of rural, remote communities are different from those of urban centres.

Activities:

- Expand our collective understanding of climate risks to coastal communities, ecosystems and economies through monitoring, research, data acquisition, modelling and vulnerability studies. Work with government partners to enhance and support the climate resilience of coastal communities.
- Identify and help to address the disparities among coastal communities in their

capacity to respond to changing ocean conditions in partnership with First Nations, federal and local governments.

- Continue to investigate the role of aquatic vegetation in mitigating ocean acidification, buffering against storm surge, storing carbon and contributing to carbon sequestration.
- Help provide the information needed to develop or update regional climate action plans.
- Assess climate risks to seafood and the marine species that serve as bioindicators of abundance and health (such as phytoplankton and top predators).
- Commission a report that examines the ability of provincial marine protected areas to enhance ecosystem resilience to climate change impacts.
- Work with partners to improve rapid response capabilities to unanticipated

biodiversity/fisheries emergencies, such as sea star wasting disease, harmful algal blooms, sudden rapid population growth of invasive species and kelp forest collapse.

- Map the current and projected future habitat space for seagrass meadows, salt marshes and kelp forests along the coast, and address data needs in current distribution mapping and future habitat suitability models. Set appropriate targets for restoration.
- Identify coastal tourism areas at risk from sea level rise, land subsidence, sediment deficit and coastal flooding.
- Continue to implement the actions in the BC Ocean Acidification and Hypoxia Action Plan.

Vital signs of the ocean: Temperature, pH and oxygen

Rising temperatures and falling pH and oxygen levels are having a significant impact on the ocean and the life it supports.

The average sea surface temperature has increased by 0.7°C since 1880, putting stress on species that depend on colder water, such as kelp and salmon. In 2023, surface temperatures in a warm water mass off the coast of B.C. were up to five degrees higher than usual. This extreme heat can cause extreme weather, contribute to faster-melting ice caps and threaten all marine life – from tiny plankton to whales.

Ocean acidification is a global problem with local impacts. Ocean acidity, measured on a pH scale, has increased by an estimated 25 percent since the Industrial Revolution. For marine species that build shells and skeletons, this increased acidity has “osteoporosis-like” effects. Under severe conditions, skeletons and shells can dissolve faster than they can form. Marine ecosystems will likely become less vibrant and diverse.

Hypoxia refers to low or depleted dissolved oxygen conditions that can cause die-offs of fish, shellfish and aquatic plants. It is often associated with the overgrowth of certain species of algae arising from nutrient pollution. While the amount of oxygen in water fluctuates naturally, changes in global and regional climates have the potential to make coastal and marine ecosystems even more vulnerable to hypoxic conditions.

In 2023, the Province completed the British Columbia Ocean Acidification and Hypoxia Plan. In 2024, the Province provided funding to begin implementing high-priority actions identified in the plan, such as research to improve the scientific understanding of acidification and hypoxia, advancing marine carbon removal technologies, and developing and testing acidification and hypoxia mitigation and adaptation strategies.

Action 8: Support First Nations climate action

First Nations are global leaders in climate action. Supporting First Nations climate leadership is central to advancing reconciliation and self-determination. Many First Nations governments and organizations have climate action strategies that align with provincial initiatives and policy directives. The Province will continue to collaborate with First Nations to develop

innovative, long-term climate action solutions that improve our collective ability to adapt to changing coastal conditions.

Activities:

- Support First Nations-led approaches to mitigating and adapting to the impacts of climate change on their interests, including traditional coastal foods and food systems.

- Support First Nations-led adaptation and/or mitigation strategies for coastal sacred, cultural and archeological sites that are vulnerable to climate change impacts such as storm surges and sea level rise.
- Hold space for Elders, knowledge holders and youth in coastal marine climate discussions and response initiatives.
- With interested First Nations, support the creation of Nation-specific climate terminology and self-determined climate responses grounded in traditional languages.
- Enhance public knowledge and understanding of the social, cultural and economic consequences of climate change impacts on coastal ecosystems and the disproportionate impacts to First Nations on the coast.

Action 9: Incorporate nature-based solutions

Nature-based solutions are cost-effective actions designed to conserve, sustainably manage and restore blue carbon ecosystems to address climate change. These solutions can include protecting living shorelines (such as native beach grass and sedges), applying green stormwater management techniques and protecting and restoring wetlands and estuaries. Nature-based solutions prevent pollution, reduce impacts from storm surge and wind-blown flooding, help avoid habitat loss through “coastal squeeze” and attract and sustain wildlife. They add recreational benefits, increase property values and can create

economic and livelihood opportunities as global demand for carbon credits grows.

Increasingly, First Nations and local governments are exploring how nature-based solutions can help fight climate change. We will work with them and others to advance these efforts.

Activities:

- Investigate and consider incentives to homeowners and developers to maintain or restore natural shorelines (such as through grants and rebates, tax relief and permitting efficiencies).
- Improve access to Green Shores training, education and technical support to help homeowners, developers and local governments implement nature-based solutions to a high standard. Explore the establishment of a First Nations Green Shores working group to bring an Indigenous lens to the program.
- Support research to better understand the benefits of nature-based solutions for addressing climate impacts along shorelines.
- Expand the implementation of B.C.’s expedited permit process for nature-based shoreline projects.
- Replace hard armoured approaches with soft shoreline stabilization techniques in coastal marine parks and protected areas managed by the provincial government, where appropriate.

Theme 3: Thriving coastal economies and communities

A thriving coastal economy is a diverse web of sustainable activity. Fishing, marine tourism and recreation, aquaculture, water transportation, coastal forestry operations, research and monitoring, and boatbuilding and repair provide stable employment opportunities. Young people have the education and resources they need to build a future in the communities they grew up in. Infrastructure is in place to support traditional livelihoods and entrepreneurial thinking.

Thriving coastal communities are resilient and self-reliant. They can meet the basic needs of all members. They encourage social and economic development, inspire learning, maintain cultural identities and provide access and connection to nature. They are places where families have enough nutritious food to eat, and where everyone is included.

Goal 5: A sustainable coastal economy

Action 10: Nurture coastal wealth and health

There's growing interest worldwide in the transformative power of the blue economy. By focusing on long-term sustainability, the blue economy prioritizes ocean-based activities that benefit the ocean and communities. Blue economies can increase food and energy production, improve the quality of jobs in the ocean sector, and benefit millions of people – while minimizing pressure on ecosystems.

Blue economies are not created by themselves. Long-term strategies are needed to pursue a balanced economic mix that is mindful of local social objectives and preferences, and includes greater First Nations participation and sharing in the wealth generated.

Activities:

- Identify specific opportunities for blue growth in partnership with other governments and stakeholders.
- Continue to invest in emerging conservation and restoration economies

that provide significant benefits for communities and ecosystems, including job creation, economic prosperity, social empowerment, cultural vitality and biodiversity conservation.

- Guide and support coastal tourism development that puts an equal focus on wealth generation and the well-being of people and places. For example:
 - Develop a shared vision for a thriving marine tourism sector that gives back to nature and communities and is respectful of First Nations values and interests.
 - Assess opportunities and challenges for sustainable growth.
 - Support marine tourism operators' transition to energy-efficient, carbon-neutral modes of transportation.
- Develop new guidelines for coast-reliant sectors, such as commercial sport fishing, forestry, aquaculture and wildlife viewing,

to align operations with the principles of a blue economy.⁸

- Use a consistent and standardized approach to assess the current condition of a selection of key provincial- and regional-scale coastal marine values, in collaboration with other governments. Apply the results of these evaluations to:
 - Help assess existing or potential cumulative effects.
 - Inform project assessments and decision-making on authorizations.
 - Support the development of new local and regional marine plans and implement existing ones.

Action 11: Build talent

A healthy ocean has the potential to support sustainable growth and new jobs. Advances in aquaculture, ocean technology, shipping and renewable energy are expected to contribute to the growth of the national blue economy – and we'll need individuals with relevant education and up-to-date skills to stay at the forefront of these advances. The blue economy needs people with education and training in areas that include marine biology, environmental monitoring, mechanics, marine vessel operation, systems engineering and data analysis.

To ensure that B.C. remains competitive and achieves the full potential of ocean-related industries, it is vital to prepare the workforce. This will require an improved understanding of the

barriers that historically marginalized groups face in acquiring specific sector-relevant education, knowledge and skills training.

Activities:

- Identify and reduce the skills gaps between education on offer and labour market needs now and into the future.
- Help create a positive perception of the ocean sector and the opportunities it presents to youth and those interested in upgrading their skills.
- Explore increasing coastal and marine-based education opportunities, certification programs and skills training in partnership with First Nations, learning institutions and the private sector.

Action 12: Diversify the workforce

The ocean economy contributes over \$21 billion to provincial gross domestic product (GDP) and employs over 196,000 people full time.⁹ But not everyone has had the same opportunity to benefit. Some face barriers to equal access, opportunities, and resources in the ocean economy based on age, Indigeneity, ethnicity, disability, economic status, gender identity and gender expression, nationality, race and/or sexual orientation. Some of these inequities are systemic, while others are created by conditions in the workplace (such as facilities, hiring strategies and cultural understanding).

⁸ Principles of a blue economy are not strictly defined but can include prioritizing ocean health; recognizing and including First Nations knowledge, interests and values; acknowledging and addressing links between the ocean and climate; promoting equitable opportunities and gender equality; and supporting science, technology and innovation.

⁹ GDP and employment figures represent direct, indirect and induced contributions within the 2018 reference year, quoted in 2020 prices. Source: Big River Analytics. (2021).

Equitable access to employment – irrespective of age, gender, ability, race, ethnicity, origin, religion or economic or other status – is central to achieving a sustainable economy. Individuals of all backgrounds and experiences bring different perspectives that lead to innovative solutions and new discoveries. Without all voices, management decisions, for example, cannot consider all knowledge of, and effects on, marine ecosystems and people.

Activities:

- Identify the types of inequities prevalent in the ocean sector’s labour force and determine the actions needed to make spaces for everyone. Apply intersectional lenses to understand compounding factors.
- Address inequities with directed policies and practices that explicitly improve social and economic equity in relation to people’s use of the ocean.
- Partner with coastal First Nations to develop a blue economy, workforce and business climate that supports greater leadership, inclusion and participation of First Nations.

Action 13: Support commercial harvests

The wild fish, shellfish and aquatic plants harvested in the waters of B.C. are an important source of food, jobs and community benefits. Over 190 seafood species are harvested here, and

getting seafood products from boats and farms to plates involves the hard work of 10,000 directly employed people.¹⁰

Recently, the long-term viability of commercial harvesting of some species in British Columbia has come into question. Challenges include declines in the health and abundance of some fish stocks, barriers to accessing fish, harvester conflicts, increasing regulations and aging or insufficient infrastructure. Although fisheries are managed by the federal government, the provincial government can do a lot to support fishers.

Activities:

- Increase participation with the federal government in managing fisheries and advocate for:
 - Introduction of Atlantic-type fisheries policies (such as owner-operator and fleet separation) to restore and strengthen the economic viability of B.C.’s harvesting sector, attract and retain new entrants from diverse backgrounds, support robust food systems and improve the distribution of benefits to local and First Nations economies and communities.
 - Better access to capital to address issues related to the high cost of entry into a fishery.

¹⁰ Employment figures represent direct full-time-equivalent jobs across the seafood sector for 2018. Source: Big River Analytics. (2021).

- Addressing socioeconomic and fish stock data needs to inform better decision-making.
- Greater transparency of science, data and decision-making.
- Enhanced First Nations presence and participation in international fisheries treaty negotiations and transboundary issues.
- Develop a plan to evaluate and meet critical coastal infrastructure needs (like ice plants, live storage tanks, offloading stations, seafood processing plants, seaweed plant processing and wharves).
- Reinstate key data collation and reporting on harvest, landed value, wholesale value, and international export values and markets from the former provincial “Seafood Year in Review” report.
- Co-develop with First Nations a vision for effectively and sustainably managing the commercial aquatic plant harvest industry.

Pacific versus Atlantic fisheries

The Department of Fisheries and Oceans Canada has differing approaches to commercial fisheries policy in the Atlantic and Pacific regions of Canada. In Atlantic Canada, policies and laws ensure that a majority of licences are held by independent owner-operated fleets who meet regional residency requirements. This model tends to lead to economic and social benefits being retained more directly by local harvesters and coastal communities.

In contrast, fisheries in the Pacific region don't have ownership restrictions and, consequently, there is a higher degree of corporate and foreign ownership of fishing licences and seafood processing plants. The higher costs of licences and quotas on the West Coast (relative to the East Coast) may be excluding ownership by local harvesters and First Nations.

Goal 6: Vibrant coastal communities

Action 14: Help restore First Nations traditional (sea)food systems

Many First Nations have been vocal about the challenges they experience with food sovereignty and security and the impacts to well-being when communities are disconnected from their traditional food systems. Government regulations,

land use decisions, climate change, pollution and other challenges can alter First Nations access to areas important for harvesting, teaching and healing as well as their ability to practise traditional resource management and harvesting

methods (such as sea gardens, harvest wheels, fish traps and weirs and estuarine root gardens).¹¹ These same challenges also impact the quantity and quality of traditional foods, which include a diversity of nutritious plant and animal species that are harvested, cultivated, taken care of, prepared, preserved, shared or traded based on values of respect, reciprocity and ecological sensibility. Wild Pacific salmon, kelp, herring roe, eulachon and clams are just some examples of the foods that are important to coastal First Nations health and well-being.

Upholding or strengthening generational participation in cultural harvesting practices at the individual, family and community levels is key to First Nations food sovereignty and security. The provincial government is committed to reconnecting First Nations knowledge and value systems with food systems, deepening collective awareness of self-sustaining Indigenous food systems, and improving access to traditional foods harvested from the ocean.

Activities:

- Support the development and implementation of community-level, climate-informed food sovereignty visions/plans focused on reclaiming ancestral seafoods and building food resiliency.

- Ensure consideration of First Nations access to traditional seafoods in planning processes and land use decisions (such as tenures, permits and licences).
- Make it easier for First Nations to access the technical capital needed to harvest traditional foods (such as boats, mooring infrastructure, processing facilities, transportation, technology and communication).
- Take steps to reduce marine-based sources of pollution that directly impact the safety of traditional shellfish harvesting areas and marine terrestrial foods.
- Co-create a “Healthy Shellfish Initiative” with First Nations partners, modelled off successful programs and pollution correction legislation in Washington State. Set specific goals for remediation, in partnership with others. Identify pilot projects that can inform a coast-wide program flexible enough to meet distinct needs.
- Advocate for changes to the federal Canadian Shellfish Sanitation Program, including more funding to support increased water quality testing and pollution remediation.

¹¹ The right to fish for food, social and ceremonial purposes is protected under section 35 of the *Constitution Act, 1982*. Modern Treaty Nations have rights to fish that are protected under their treaties, and fishing is integral to Modern Treaty Nations and their economies. Fishing rights are also integral to historic treaties and these rights are constitutionally protected.

Harvesting in sync with the seasons

First Nations rely on their generations-old knowledge of seasons and plant and animal life cycles to anticipate the harvest times for foods, materials and medicines. Often, this intimate knowledge of place is brought together visually in the form of a “harvest wheel” – like the one developed by the Nisga’a Lisims government and shown on the next page (Figure 4). The traditional names of the months reflect seasonal relationships with the land. In the Nisga’a language, the month of March is known as X̄SAAK – literally, “to eat oolichans.” X̄SAAK is the time of year when saak (oolichans) return to fresh waters to spawn, marking the beginning of Hobiye (Nisga’a new year), the end of winter foods and the start of feasting. The sophisticated monitoring, harvesting and storing systems developed for oolichan and hundreds of other traditional foods requires close observations of land and sea – the appearance of flowers, the calls of migrating birds, the behaviour of insects or the flow of water. With disruptions in the timing and abundance of seasonal foods, traditional practices are disrupted too, challenging the ability of First Nations to maintain and honour their ancestral ways and teachings.

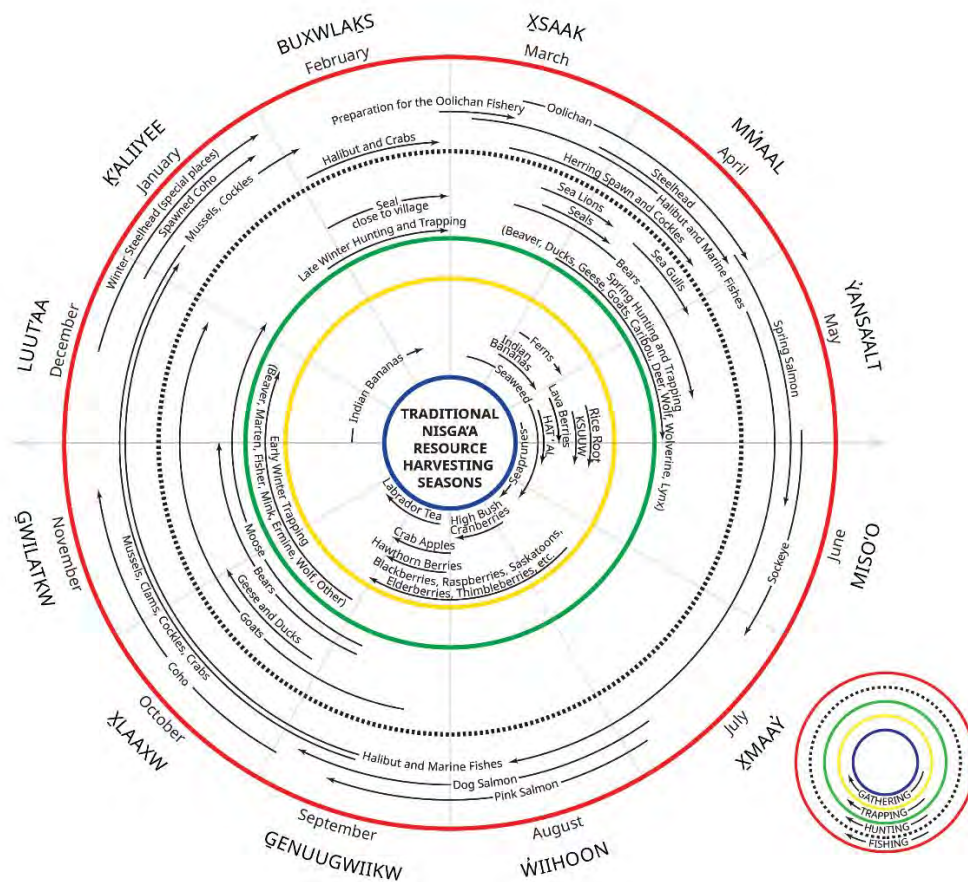


Figure 4. A harvest wheel depicting Nisga’a harvesting seasons. Shared with permission from the Nisga'a Lisims Government.

Action 15: Expand sustainable seafood production

No one should have to go to bed worrying about how they will get their next meal or feed their families. Yet food insecurity is a serious public health issue. Seafood can play an essential role in food production and fighting hunger and malnutrition.

Just over half of the fish harvested commercially in B.C. is caught in the wild, including halibut, prawn, crab, wild geoduck and tuna. The other half is grown in aquaculture facilities up and down the coast. Scallops, oysters, mussels, kelp and salmon are some examples of the species farmed in B.C. Like commercial fishing, aquaculture can boost economic growth in coastal and rural areas, providing year-round jobs, supporting resilient working waterfronts, and generating employment in areas such as seafood processing and equipment manufacturing.

The largest gains in seafood production will likely come from aquaculture. Bivalve shellfish and marine plants, including algae, offer a particularly high development potential, and since they don't need added food, they put less pressure on other resources. Key species of promise include native cockles, scallops and kelp.

To be able to confidently expand their operations, seafood harvesters and producers need strong and clear support from governments.

Activities:

- Develop and implement a growth and diversification plan for aquaculture, with equitable support for Indigenous aquaculture practices.
- Promote the essential role of seafood in sustainable food production and the economic prosperity of coastal communities.
- Inform the collaborative development of responsible plans to transition from open-net pen salmon farming in coastal waters.
- Support community-led workshops and research to improve the understanding of food insecurity and identify the barriers to consuming local edible marine resources. Apply results to improve food and nutrition security for coastal communities.
- Develop and implement strategies to boost valued-added seafood processing in British Columbia. Expand domestic seafood processing and promote local consumption of nutritious seafood, emphasizing fish stocks that are abundant, in season and caught and processed locally.

Restoring abundance

For thousands of years, First Nations along the coast constructed and nurtured clam gardens to feed people. Once established, clam gardens increase food production between 150 and 300 percent and can be sustained with small inputs of time and care.

Maa-nulth First Nations are among the Nuu-chah-nulth Nations actively striving to achieve food sovereignty in their communities by reconnecting with and reviving the ancestral practice. For example, in 2023 the Huu-ay-aht First Nation constructed a clam garden through the youth Warriors program, which will also, alongside Coastal Voices, support a new clam garden for Ka:'yu:'k't'h'/Che:k'tles7et'h' First Nations.

Clam restoration efforts are also underway in the Saanich Peninsula, where the Pauquachin First Nation has been working tirelessly to reopen harvesting beaches in Coles Bay. Here, shellfish beds have been closed for over 25 years in response to poor water quality caused by sanitation and other pollution. Their restoration planning work has highlighted how Indigenous knowledge can be integrated with best scientific practices to generate novel solutions. Learning from successful initiatives in Washington State, the Pauquachin First Nation has identified key aspects for success, including multi-stakeholder engagement, good site selection and effective pollution monitoring.

Action 16: Support recreation and adventure

The beauty of the coastline in British Columbia isn't a secret. As the population grows, more people are choosing to visit and explore the province's beaches, bays, inlets, islands and fjords. Access to the coast allows us to peek inside tidal pools, take a swim in cool water, play in the waves, photograph wildlife, set sail and catch fish for dinner.

In some parts of the province, it can be hard to access the ocean. Safe access may be limited by docks, floating structures, private land ownership, shoreline armoring and development, or vessel traffic. Some places are easy to get to, and visitor use may need to be managed to reduce negative impacts on animals, habitats, First Nations cultural sites and features, and historical and archaeological sites. In 2022, BC Parks completed

a Marine Recreation Action Plan to ensure that high-quality and sustainable recreational opportunities are available in the 274 coastal protected areas within the traditional territories of First Nations. The plan includes five goals, such as improving understanding of the natural and cultural values of marine areas, strengthening relationships with First Nations coastal communities, providing high-quality marine recreation, and promoting ocean stewardship and responsible marine recreation.

There are countless opportunities for aquatic adventure in British Columbia; enjoyable, safe, sustainable and respectful marine recreation is everyone's responsibility.

Activities:

- Partner with First Nations to help secure safe public access to, and enjoyment of, beaches and coastal waters in ways that respect coastal ecosystems and First Nations rights and sensitive cultural sites, and that are inclusive of marginalized people.
- Provide supports to First Nations interested in developing public education tools guiding appropriate access and respectful enjoyment of culturally sensitive places.
- Continue to market the coastal marine environment as an international and domestic destination for recreational fishing, wildlife viewing and cultural tourism in ways that are aligned with coastal community and First Nations values.
- Identify ways to support improved business planning for commercial lodges offering opportunities for the sustainable enjoyment of nature.

Theme 4: Informed governance

Governance refers to how decisions are made, who gets to make decisions and how accountability is ensured. When it comes to managing the use of coastal marine ecosystems, a collaborative form of governance is essential for creating sustainable benefits for both people and the environment. Successful models of governance create space for diverse perspectives, encourage the free flow of knowledge across organizations, and recognize and advance First Nations rights to self-determination. Governance also encompasses the policies and legislation that guide action, as well as the tools to ensure compliance.

Goal 7: Trusting, respectful relationships

Action 17: Advance First Nations self-determination

First Nations have cared for their homelands and traditional territories since time immemorial, monitoring, protecting and restoring wildlife and habitats under systems of governance that embody an intrinsic sense of responsibility. And while this crucial work continues, colonial policies and practices have eroded First Nations authorities and their capacity to practise those authorities.

Nations traditions and their distinct social, cultural, economic and political characteristics. To move forward with reconciliation, First Nations governments must be able to implement the priorities they have set for their communities, lands, waters and resources. The Province must continue to build government-to-government relationships with First Nations based on respect, co-operation and partnership.

Recognizing First Nations right to self-determination is fundamental to protect First

Activities:

- Work with First Nations to reshape the frameworks and processes through which timelines are set, decisions are made, policies are formulated and actions are coordinated to help ensure their rights are respected in the governance of the coastal marine environment.
- Identify and implement strategies to build understanding and acceptance of First Nations rights and management authorities as they relate to the stewardship of marine values in First Nations territories. Emphasize the importance of multiple ways of knowing and world views.
- Continue to support First Nations-led education programs that transfer language, knowledge and practices to younger generations to help prepare them for their roles as future community leaders.
- Support First Nations-led solutions to protect and restore their cultural and spiritual heritage sites and features, particularly in publicly accessible areas sensitive to human disturbance and coastal erosion.
- Co-develop with First Nations distinctions-based recommendations for facilitating First Nations access to diverse streams of revenue from coastal marine activities and resources, consistent with the Province's new fiscal framework.

Action 18: Advance collaborative stewardship

Many individuals, communities, environmental groups, institutions and governments are taking action to steward the coastal marine environment. They are conducting ecological and social research, monitoring environmental change, restoring degraded habitat, protecting species at risk and educating the public. When multiple and diverse groups act together, they draw on each other's perspectives and expertise, building a shared understanding of the issues and opportunities and developing a clear view of desired outcomes. Collaboration is powerful: duplication of effort is avoided, costs and tasks are shared (allowing the resource-constrained to participate), relationships are formed and strengthened, and positive outcomes for ecosystems and communities are more impactful and enduring.

First Nations, local governments, coastal communities and stakeholders need more opportunities to contribute meaningfully to coastal marine management. Their participation can unlock additional knowledge that improves the quality and credibility of decisions, enhances compliance with rules and reduces conflict.

Activities:

- Establish new, integrated participatory structures and processes that:
 - Bring diverse voices and interests together to inform decision-making and planning.
 - Target underserved/underrepresented groups.

- Offer opportunities to mentor young leaders and encourage cross-cultural knowledge exchange.
- Improve collaboration and coordination across governments.
- Sponsor regular gatherings to celebrate the ocean and our collective efforts to steward it.
- Enhance ocean knowledge, help nurture an emotional connection to the ocean, and support and encourage citizens and stakeholders to act in a positive way for the ocean.
- Help to clarify the roles of governments in stewarding the marine environment.
- Seek opportunities to improve cross-border collaboration and knowledge exchange in managing migratory fish and wildlife (such as continued participation in the Pacific Wild Salmon Treaty), monitoring water quality and planning for climate change impacts. Support transboundary forums that bring people together (such as the Salish Sea Ecosystem Conference).

Goal 8: A robust tool kit

Action 19: Modernize policies and procedures

With the growing challenges of climate change, greater pressures on land and sea, and commitments to meaningful reconciliation with Indigenous peoples, it is time to assess the effectiveness of provincial policies and resourcing for managing the coastal marine environment.

A key challenge to coastal management in B.C. is the absence of a legal framework specifically designed to govern and manage coastal marine areas. Such a framework, developed in

partnership with First Nations, could, for example, advance the authority of First Nations to steward their territories and protect their access to cultural heritage resources in the intertidal area. It could establish guidelines for planning and shoreline management, such as requiring new infrastructure to be built with coastal flood projections in mind; enable effective, proactive responses to climate-related changes and marine pollution; and address legacy and emerging concerns related to the siting and management of marine-based industrial uses. It could also ensure that integrated coastal marine plans have regulatory and policy weight.

Law-making is one of the most significant responsibilities of government, and since laws affect lives and livelihoods, new legislation must be considered carefully. The legislative process begins with an assessment of issues and options (the policy development stage), and if legislation is recommended and approved, legislation is prepared and then enacted. As an interim step towards new legislation, the Province will address long-standing concerns with existing policies and procedures.

Activities:

- Assess the information needed and develop a proposal for coastal marine legislation, in partnership with First Nations. As appropriate, proceed through the legislative stages.
- Update, as required, provincial policies, best management practices and authorization requirements for tenures tied to activities in the coastal marine environment.
- Streamline authorization processes for activities that promote ecosystem health

(such as First Nations sea gardens and ecological restoration).

- Help establish regulatory certainty for the marine renewable energy sector, in close collaboration with other governments and industry.

Action 20: Improve compliance

Rules, policies and plans put in place to steward the natural environment are just the start. We need to make sure individuals, organizations and communities comply. Natural resource officers, conservation officers and park rangers enforce provincial laws that protect coastal ecosystems and natural resources in B.C., but with such a long, remote and complex coastline, this can be a challenge. Infringements can happen without awareness or consequence.

First Nations stewardship programs, like Guardians and Watchmen, play an increasingly important role in making sure the coast is managed responsibly. Guardians protect, monitor and study their territories. They keep eyes on resource use, observe changes in the ecosystems they oversee, educate and inform the public, and promote compliance with laws, land use plans and agreements. With additional support, First Nations can do more of this important work.

Activities:

- Develop a coast-wide approach to ensure marine and foreshore activities comply with Crown land policy and local marine plans.
- Take steps to better respond to compliance monitoring information gathered.

- Explore shared compliance and enforcement of marine protected areas.
- Increase provincial capacity to maintain a presence in the coastal marine environment and to take enforcement action.
- Raise awareness of laws and regulations through education and outreach.

Goal 9: Integrated and balanced management

Action 21: Establish knowledge partnerships

Western science and Indigenous knowledge represent different ways of looking at the world around us. Western science tries to understand the natural world through observation, experimentation and hypothesis testing that can be replicated in different locations by different researchers. Knowledge is transferred through academic proceedings, presentations and research papers.

Indigenous knowledge and science seek to understand the world in a holistic way through close observations of and engagement with the natural world. “Ways of knowing” are tied to land and language, and are rooted in worldviews, values, practices and relationships. Knowledge can be transferred from one generation to the next through storytelling, dance, song, shared experiences on the water, witnessing ceremonies and potlatches.

We are just beginning to scratch the surface of the benefits of braiding diverse knowledge systems together. They must be braided carefully – Indigenous knowledge systems are not simply

sources of data and information that can be used apart from the contexts in which they are produced. Knowledge systems must be respected in their entirety. It's also important to acknowledge and respect the differences between individual Indigenous knowledge systems.

Better stewardship of coastal marine values can only be achieved when everyone brings knowledge to the table as equals. In ways that are consistent with First Nations distinct protocols, laws, processes and protections, the Province will partner First Nations knowledge systems with western scientific and local community insights to inform decision-making.

Activities:

- Elevate First Nations knowledge systems when developing coastal policy and managing use of the coastal marine environment.
- Together, develop and implement protocols to co-produce knowledge and embed distinct First Nations knowledge systems in decision-making.
- Include more First Nations authors and knowledge keepers in provincial assessments of coastal ecosystem health and climate change vulnerability. Ensure opportunities for full collaboration of First Nations in designing, monitoring, reporting and verifying research.
- Build public understanding of the value and importance of First Nations traditional and informed knowledge and experience.

- Practice storytelling and art to share science with the public, with permission from knowledge keepers.

Action 22: Reflect the ocean's true value

Over the last two decades, the provincial and federal governments have twice assessed the value of British Columbia's ocean-based economy (2006, 2020) using "traditional" indicators such as GDP and employment. Although these indicators are essential for understanding monetary trends in the ocean sector and sub-sectors, they don't capture the true value of the ocean.

GDP-based valuations are not designed to account for the value of natural assets (such as fish populations and intertidal reefs), infrastructure assets like docks and wharves, or the social values that an ocean sub-sector – like commercial fishing – brings to families and communities. They also do not address concepts of well-being that are important to First Nations, including the strong spiritual connection to territory; values, teachings, languages and ways of living rooted in place; and, responsibility for lands, waters, and resources.¹²

To measure progress towards a sustainable blue economy in B.C., we must consider the natural wealth of the ocean and the status of coastal communities, including their social, cultural, mental and physical health and well-being.

¹² Source: British Columbia Assembly of First Nations. 2020. "Centering First Nations concepts of well-being: Toward a GDP-alternative index in British Columbia."

Activities:

- Develop a holistic set of metrics to estimate the value of the ocean. Partner with others to reflect diverse perspectives. Apply results to guide policy decisions and planning.
- Collect the data needed to support more accurate valuations of the ocean.
- Continue assessing the value of the ocean-based economy using traditional indicators.
- Create interactive dashboards to allow for the exploration of data in ways that protect confidential information.

Action 23: Update and refresh spatial data

We need up-to-date information to guide decision-making as we take care of coastal and marine habitats. Habitat mapping, which describes the physical and biological characteristics of an area, is essential for protecting biodiversity, building climate resiliency and ensuring the sustainable use of the environment. For a complete picture, cultural and economic values and human uses – as well as the threats to them – also need to be mapped or spatially characterized.

The Province already collects spatial data for coastal and marine values, including species, habitats, select fisheries and human uses. Some datasets that are critical for decision-making need to be updated, such as data on the distribution of kelp forest beds and eelgrass meadows. Other datasets need to be created to support sustainable economic development. For example, the data needed to assess the potential for aquaculture and marine renewable energy in

remote communities is unknown for parts of the coast.

We will work in partnership with others to update provincial spatial datasets and fill key gaps, with privacy protection measures in place and acknowledgement of knowledge holders' requests for confidentiality, as needed. We will be innovative in the ways we collect, validate and communicate diverse knowledge (such as Arc GIS storytelling and collaborative decision-making software tools) and devote more attention to the different domains of coastal community health (including ocean use patterns, features of well-being and climate change vulnerability). Many organizations also collect and compile spatial data and we'll encourage these organizations to collaborate with each other. We will continue to provide broad, open access to provincial data.

Activities:

- Identify areas where we are missing important spatial data (such as nearshore habitats and patterns of human use) and develop and implement a plan to fill spatial data needs and maintain datasets.
- Incorporate knowledge and citizen science in novel ways and at different scales, aligning data generation and sharing with the interests of knowledge holders.
- Identify and seek solutions to challenges in accessing coastal data experienced by individual First Nations.

Action 24: Plan for the future

Changes in the distribution, abundance, and diversity of marine species and the resulting disruptions to human well-being signal that we need to re-establish balance. One way to nurture

a more sustainable and harmonious relationship with the ocean is to carefully plan and allocate human use to specific areas. Similar to how we plan cities and towns, we can zone the ocean for conservation, cultural use and continuity, and specific economic activities.

Collaborative processes that bring people and multiple knowledge systems together to zone the ocean can contribute to long-term ecological, economic and cultural resilience; support climate action; and address cumulative effects. Local stressors can be identified and mitigation, adaptation and repair strategies can be developed to effectively address challenges.

Decisions about using and accessing coastal marine areas are the responsibility of First Nations, federal, provincial and local governments. For some parts of the province, marine spatial plans are well into the implementation phase (such as marine plans successfully developed under the Marine Plan Partnership for the North Pacific Coast) and may need to be refreshed. In other parts of the province, more work is needed to build trusting relationships, understand community needs, document social and environmental conditions, and identify blue economy opportunities.

Activities:

- Continue implementing existing integrated marine plans and address the challenges that have made it difficult to achieve some key ecosystem-based management objectives.
- Participate in efforts to update marine plans in response to changing conditions and lessons learned.

- Advance planning in areas of the coast where it is needed most and where there is shared interest. Support collaborative, inclusive development and implementation of coastal marine plans that:
 - Advance reconciliation and respect for Aboriginal and treaty rights.
 - Partner with First Nations to include their knowledge, practices, cultures and values.
 - Engage user groups, local governments, stakeholders, non-government organizations and the public.
 - Are climate- and, where appropriate, wild salmon-informed.
 - Bring a spatial dimension to the management of multiple marine activities within a given area, reducing conflicts among users and increasing certainty for users and investors.
 - Deliver social, cultural, environmental and economic benefits under an ecosystem-based management framework.
 - Advance the principles of justice, equity, diversity and inclusion.
- Identify a pilot area to develop and implement an integrated plan across the land-sea interface that brings together watershed and coastal marine planning.
- Continue to participate in federally led marine planning initiatives in British Columbia and advocate for shared decision-making.
- Work with other governments and industry to collaboratively develop a plan for vessel anchorages to address the concerns of First Nations, local governments and

communities regarding ship vessel noise and light pollution, discharge and habitat disturbance.

Conclusion

The B.C. Coastal Marine Strategy signifies the beginning of the provincial government's commitment to improving stewardship of the coastal marine environment at a province-wide scale under a collective and holistic vision. It is the blueprint for future work and decision-making related to coastal ecosystems and economies over the next two decades.

This strategy doesn't exist in isolation. There are many policies and investments directed at the stewardship of land and freshwater systems and clean and inclusive economic growth that will deliver improvements to coastal ecosystems and coastal communities. Equally, implementing the actions articulated in this strategy will provide

benefits beyond our coastal marine waters, including social benefits such as job growth and food security, as well as contributions towards tackling biodiversity loss and climate change. Implementing the strategy will also take us further along our journey towards reconciliation with First Nations who have deep ties with the ocean.

The B.C. Coastal Marine Strategy has been co-developed with many First Nations who will continue to have a leadership role in helping to deliver it. As a first step together, we will put processes and structures in place to complete a co-developed implementation plan. Together, we will identify the initiatives to be implemented first; which actions will be undertaken locally and which will be implemented more broadly; the opportunities for collaboration with federal and local governments and stakeholders; and how we will measure and report on our success.

Appendix A: First Nations contributors

The following First Nations governments and First Nations organizations contributed to the development of this first B.C. Coastal Marine Strategy. We thank each and every one.

First Nations Governments

- Ahousaht First Nation
- Council of the Haida Nation
- Cowichan Tribes
- Da'naxda'xw First Nation (Elected)
- Da'naxda'xw First Nation (Hereditary)
- Ditidaht First Nation
- Ehattesaht Chinehkinit First Nation
- Esquimalt First Nation
- Kwakiutl First Nation
- Kwikwasut'inuxw Haxwa'mis First Nation
- Gitga'at First Nation
- Gitxaala Nation
- Gwa'Sala-Nakwaxda'xw Nations
- Gwawaenuk Tribe
- Haisla Nation
- Halalt First Nation
- Heiltsuk Nation
- Huu-ay-aht First Nations
- Ka:'yu:'k't'h'/Che:k'tles7et'h' First Nations
- Kitasoo Xai'xais Nation
- Kitselas First Nation
- Kitsumkalum First Nation
- K'ómoks First Nation
- Kwiakah First Nation
- Lax Kw'alaams Band
- Lyackson First Nation
- Malahat Nation
- Mamalilikulla First Nation
- Metlakatla First Nation
- Mowachaht/Muchalaht First Nation
- Musqueam Indian Band
- 'Namgis First Nation
- Nisga'a Lisims Government
- Nuchatlaht First Nation
- Nuxalk Nation
- Pacheedaht First Nation
- Pauquachin First Nation
- Penelakut Tribe
- Quatsino First Nation
- Semiahmoo First Nation
- Sc'ianew (Beecher Bay) First Nation
- shíshálh
- Snuneymuxw First Nation
- Songhees Nation
- Squamish Nation
- Stz'uminus First Nation
- Tla'amin Nation
- Tla-o-qui-aht First Nation
- Tlatlasikwala First Nation
- Tlowitsis Nation
- Toquaht Nation
- Tsartlip First Nation
- Tsawout First Nation
- Tsawwassen First Nation
- Tseshaht First Nation
- Tseycum First Nation
- Tsleil-Waututh Nation
- T'Sou-ke First Nation
- Uchucklesaht Tribe
- Wei Wai Kum Nation
- We Wai Kai Nation
- Wuikinuxv Nation
- Xwemalhkwa (Homalco) First Nation
- Yuułu?i?ath Government

First Nations Organizations

- Coastal First Nations – Great Bear Initiative
- First Nations Fisheries Council of British Columbia
- The First Nations of Maa-Nulth Treaty Society
- Nuu-chah-nulth Tribal Council
- North Coast-Skeena First Nations Stewardship Society
- A-Tlegay Fisheries Society
- Central Coast Indigenous Resource Alliance
- N̓anwak̓olas Council
- W̓SÁNEĆ Leadership Council

Appendix B: Timeline for the development of the strategy

Drafting the Strategy:	
Project Scoping	Jan – Nov 2021
First Nations-B.C. Leadership Dialogues Primary challenges and opportunities identified.	Jan – Feb 2022
First Nations-B.C. Technical Sessions Some solutions to primary challenges and opportunities identified.	Mar – Apr 2022
First Nations-B.C. Writing Team Team members undertook research, agreed on policy framework and structure, developed vision, identified and refined priority actions.	Jun – Nov 2022
Intentions Paper	
Public Engagement	Dec 2022 – Apr 2023
Policy Forum and Indigenous Youth Summit Stakeholders and local governments exchanged feedback on Intentions Paper. Indigenous youth gathered to discuss Intentions Paper.	Mar 2023

Finalizing the Strategy:

Analysis of Submissions	Apr – Jun 2023
First Nations-B.C. Technical Sessions Specific goals, actions, activities developed in response to submissions.	May – Jun 2023
What We Heard Public engagement results shared with the public.	Aug 2023
Draft Strategy Development Actions and activities further refined with collaborators. Supporting text reviewed and updated with help of third-party writer.	Aug – Dec 2023
Draft Strategy Draft shared with First Nations, provincial ministries, federal and local governments for review. Feedback incorporated into a final strategy.	Apr 2024
Government Review	May 2024
B.C. Coastal Marine Strategy	

The GREEN and BLUE SPACES STRATEGY

NOVEMBER 24, 2007

CONTENTS:

Introduction: The historical context and the need for voluntary conservation of green and blue spaces in Metchosin as set out through the Regional Green/Blue Spaces Strategy, the Regional Growth Strategy and the Official Community Plan for Metchosin is outlined.

Purpose of the Strategy: With community input, a plan for voluntary conservation of Green and Blue spaces in Metchosin is set out.

Objectives of the Strategy: Eight goals of the strategy are defined.

Public Consultation: The process of community involvement to date is summarized.

Types of Green and Blue Spaces:

1. Large undeveloped natural areas
2. Agricultural and managed forest lands
3. Viewpoints and landscapes
4. Connecting corridors
5. Marine areas
6. Valuable remnant ecosystems
7. Small lot stewardship areas

Recommendations:

1. Public Education
- 2. Acquisition and Protection**
- 3. Stewardship**
4. Municipal Government

Further Tools for Conserving Green and Blue Space Values and Areas:

1. Conservation covenants
2. Partners in conservation
3. Supporting agricultural and managed forest land
4. Develop voluntary best management practices guidelines
5. Municipal tax incentives for retention of natural areas for conservation purposes
6. "Naturescape" and other programs providing suggestions on restoration and/or maintenance of habitat

Priority Actions:

1. Moratorium on Disposition of BC Crown lands in Metchosin.
2. Grant BC crown lands to CRD Parks as Park land

Updating the Strategy:

The strategy as a living document

Appendix A: Desired outcomes of the Green and Blue Spaces Strategy

Appendix B: Planning and regulatory documents which provide context for the strategy

Introduction:

Before European contact, First Nations people maintained and nurtured the landscape of sections of Metchosin by deliberately setting fires to clear the shrubs and trees and by their intensive cultivation of the camas bulb. This interaction with the forests and open areas produced fields and woodlands that greatly impressed early settlers with Metchosin's agricultural potential.

From the time of the first pioneer settlers, Metchosin has also been a refuge for the "city folk". 1200 acres around Matheson Lake was bought by the Gillespie family as their summer retreat and hunting lodge and Sir James Douglas purchased Section 2, 320 acres near Happy Valley and Metchosin Rd, also as a hunting lodge and retreat. He wrote of Metchosin in a report from 1842 "it is a very pretty place" and in a letter from 1873 "Metchosin looked at its best, the richly tinted foliage, the bright clear sky, the warm sunshine, the glassy smooth sea, and the grand mountains in the distance, formed a continuation of undescrivable beauty" (Footprints, 1983).

The Metchosin of today is not too much different. Sir James Douglas and others of those first farming pioneers, if they were to travel forward in time, would still recognize and love much of this landscape. It is to help maintain some of this impressive and cherished natural history that the Green and Blue Spaces Strategy Committee was formed.

What are these green and blue spaces? Green spaces are the forests, moss-covered rocky hilltops, wildflower meadows, wetlands and the agricultural fields, pastures that make Metchosin a green oasis in an increasingly developed landscape. Blue spaces are the lakes, ponds and streams that are the 'life blood' of our community, and the marine shorelines that link the land to the sea.

Many green and blue spaces contain native plants, animals and ecosystems with high ecological significance. These species and ecosystems are rapidly disappearing from southeast Vancouver Island as urban development increases.

There has been increasing recognition of the importance of green and blue space in the Capital Region. The CRD's Regional Green/Blue Spaces Strategy and the Regional Growth Strategy highlight the importance of conserving remnant natural and rural areas in the region.

Much of Metchosin is made up of a relatively natural landscape and agricultural land, largely as a result of the responsible management of past and present property owners. Green and blue space areas in our community contain some of the best remaining examples of the older coniferous forests, Garry oak woodlands and coastal meadows that have mostly disappeared from south east Vancouver Island and have been recognized as globally significant.

The natural and rural character of Metchosin defines the community. The protection of the natural environment and agricultural lands are key elements of Metchosin's Official Community Plan (OCP). However, Metchosin residents cannot take their green and blue spaces for granted. As other parts of the region develop, remaining rural and undeveloped lands become more attractive. Property and timber values increase, leading to additional pressures to develop and alter lands. Properties change hands and new owners want changes. There may be changes on federal and provincial crown lands that affect their green and blue space values.

Such changes, taken together over time, can erode the natural values of the community, as they have for most other CRD municipalities. Therefore, it is important to gain a 'big picture' view of the elements of the natural and rural character of Metchosin, to explore ways to increase awareness of these values, and to take action as a community to ensure that these values are sustained for future generations.

There are some large sections of land in Metchosin that are in the public domain, as municipal and regional trails and parks, as provincial crown lands and as federal Department of National Defence and penitentiary properties, as well as the leased Pearson College. All of these properties have retained much of the natural environment and provide links to other relatively intact areas. One of the main aims of the green and blue space strategy is to work with federal and provincial governments to maintain these important green and blue spaces in perpetuity.

Much of Metchosin land is in private hands. An important goal of this strategy is to increase public awareness of Metchosin's green and blue spaces among its residents, and to assist interested landowners in voluntarily taking action to maintain and enhance green and blue spaces on their properties.

This document presents a strategy for voluntarily conserving green and blue spaces in Metchosin through using the context set out in the Regional Green/Blue Spaces Strategy, the Regional Growth Strategy and the Official Community Plan for Metchosin.

PURPOSE OF THE STRATEGY

To set out a comprehensive plan, developed with input from community landowners and residents, for voluntary ways to conserve the green and blue spaces of Metchosin

OBJECTIVES OF THE STRATEGY

1. Raise awareness and appreciation of the many values and benefits associated with green and blue spaces in Metchosin
2. Gain broad public support for the conservation of green and blue space areas to maintain key features of the natural environment, agricultural and managed forest lands, recreation opportunities, and the scenic rural character of the community
3. Provide an opportunity for landowners and residents to provide input into the identification of important green and blue spaces areas and the development of the strategy
4. Define criteria and develop a framework for evaluating and ranking the significance of green and blue spaces in Metchosin that incorporates ecological, cultural, heritage, rural, recreational and aesthetic values

5. Identify and map important green and blue spaces in Metchosin, their linkages to other green and blue space areas, and describe why these areas and links are important
6. Encourage all levels of government (national, provincial, regional, municipal, First Nations) and local landowners and residents to voluntarily conserve green and blue space areas and values on their lands
7. Identify opportunities for partnerships to help conserve green and blue space areas in the community
8. Provide recommendations for the voluntary conservation and stewardship of green and blue space areas and values in Metchosin

PUBLIC CONSULTATION

An important component of the Green and Blue Spaces Strategy was public consultation which took several forms:

- Information displays at community events (e.g., Metchosin Day)
- Special events (evening talks and morning walks on appropriate subjects)
- Presentation of the framework for the strategy to the West Metchosin Ratepayer's Association and the Association for the Protection of Rural Metchosin
- A public workshop and questionnaire to solicit input into the goal and objectives of the strategy, the proposed green and blue space categories, the benefits of green and blue space, to identify important green and blue space areas in Metchosin, and to obtain ideas for voluntary tools for the conservation of green and blue spaces.

TYPES OF GREEN AND BLUE SPACES

The categories of green and blue space in this strategy expand upon, but are intended to be consistent with, the categories set out in the CRD's Regional Green/Blue Spaces Strategy.

1. Large undeveloped natural areas These large areas of native vegetation have few, if any, roads and appear to be in a relatively natural state. Most of these areas were included in the Unprotected Green Space Policy Areas identified in the Regional Growth Strategy, and some are identified in Metchosin's OCP. These large undeveloped areas are mostly forested but may contain rocky outcrops, meadows, stream corridors, wetlands, and ponds. These large undeveloped natural areas fall into 4 groups:

a. Existing parks and protected areas. This category includes regional parks (CRD Parks e.g., Witty's Lagoon), municipal parks (e.g., Buckbrush Swamp), and lands with some form

of protection, such as a conservation covenant (e.g., van der Meer Nature Conservancy, Camas Hill).

b. Federal crown land. Federal lands such as those at Rocky Point, Mary Hill and Albert Head, and institutional lands such as Pearson College and William Head Institute.

c. Provincial crown land. There are parcels of unallocated provincial Crown land in Metchosin. Some of these are important recreational properties in our community (e.g., Section 25, also known as '100 Acre Wood').

d. Private land. Some of Metchosin's existing large undeveloped natural areas are large land holdings on private land.

2. Agricultural and managed forest lands.

Considerable portions of Metchosin are 'working landscapes' devoted to agriculture or forestry. We consider these part of Metchosin's Green and Blue Spaces.

a. The agricultural lands are based on the extensive area within the Agricultural Land Reserve (ALR) in Metchosin and existing field and pastures outside the ALR used or potentially usable for food production.

b. The managed forest lands are those areas of private land within the Private Managed Forest Lands (formerly known as Forest Land Reserve) that will be periodically harvested and replanted.

3. Viewpoints and landscapes.

Viewpoints and landscapes are two categories of Green and Blue Spaces valued for their aesthetic significance.

a. Hill top viewpoints Many trails in the upland portions of Metchosin lead to viewpoints that provide beautiful views, such as those designated in the OCP.

b. Scenic landscapes These are the hills, valleys and other green and blue space features visible from key points in the community, such as at the Municipal grounds. These vistas are an important part of the natural and rural character of Metchosin.

4. Connecting corridors.

a. Green space corridors These are natural areas that provide connections between existing parks and protected areas, and large undeveloped areas of green space. Green space corridors allow the movement of animals and spread of plants and often contain recreational trails of value to the community. Examples include CRD's Galloping Goose Regional Trail and many local Metchosin trails.

b. Blue space corridors These are areas of intact native vegetation along streams and around wetlands and watercourses. They protect the aquatic environment and provide pathways for the spread of plants and the movement of animals. Examples include

protected riparian vegetation alongside Bilston Creek, Cole Creek, Martin Brook, Gooch Creek, Veitch Creek.

5. Marine areas.

a. Nearshore marine areas These areas occur along the coastlines of Metchosin. They are productive nursery areas and habitat for marine life, and include eelgrass beds, kelp beds, and subtidal rocky areas.

b. Marine shorelines These are areas of natural shoreline on land. They are an important part of the scenic character of the community, contain recreational trails or beach access points, and provide a buffer between buildings and natural dynamic processes such as shoreline erosion. Examples include: rocky marine shorelines and beaches (especially between Albert Head and Church Island), tidal lagoons, estuaries and offshore islands.

6. Valuable remnant ecosystems These are small relatively isolated areas of native ecosystems, such as Garry oak wildflower meadows, wetlands, rocky outcrops or old-growth forest that have high natural heritage values. Most of these areas are identified in the Sensitive Ecosystems Inventory and are highlighted in the regional green and blue spaces strategy.

7. Small lot stewardship areas Most of the residential properties in Metchosin, even lots less than 2 ha, contain green space. These lawns, pastures, fields and trees taken together, constitute a major portion of the green space in the community.

RECOMMENDATIONS

Public Education

- The Talk and Walk series are an example of a public education program to raise awareness and support for native ecosystems and species and the conservation of green and blue spaces in Metchosin.
- Provide additional information on green and blue spaces on the District of Metchosin website with links to sites with information on specific topics
- Initiate a series of articles, information sheets, workshops and other initiatives on green and blue space topics (eg) ways that private land stewardship can contribute to the conservation of green and blue space areas and values in Metchosin, use of native plants in gardens.
- Initiate a series of articles and/or information sheets on how to support local agricultural producers and processors.
- Inform land owners about the options of placing a conservation covenant on their land or entering into some type of voluntary stewardship agreement.
- Develop a list of 'guest speakers' who could make presentations to local clubs,

seniors' groups, schools, etc. on green and blue space topic.

- Explore additional opportunities for raising awareness and support for the conservation of green and blue spaces in the community.

Acquisition and Protection

- Establish parks and trails and access to viewpoints and landscapes during the subdivision or rezoning process or in negotiations with other levels of government.
- Develop a fund for acquisition of priority green and blue spaces as they become available.
- Encourage CRD Parks to consider establishing new protected areas in our community.
- Encourage the Department of National Defence and Lester B. Pearson College of the Pacific, through the management of their lands in Metchosin, to maintain their green and blue space values, especially in light of their municipal, regional, provincial, federal and global importance (as refuge of rare species and ecosystems).
- Notify the appropriate provincial government agencies of the importance of all crown lands in Metchosin for green and blue space preservation and the interest of the District in the protection of these lands in perpetuity, be it under municipal, regional, provincial, federal or non-governmental authority.
- Support landowners who wish to place voluntary conservation covenants on their property.

Stewardship

- Carry out local environmental restoration projects and invite members of the community to participate (eg) Fireproof Metchosin Day-roadside broom and gorse removal.
- Continue the community project "Mapping Special Places in Metchosin"
- Develop a stewardship certification program for private landowners and developers.
- Consult local land trusts and conservation groups to discuss ideas and opportunities for the voluntary stewardship of green and blue spaces and values in Metchosin
- Bring together local farmers to discuss their role and needs in the conservation of green and blue space areas and values and how best to integrate and sustain natural and agricultural values on rural lands.

- Develop a not-for-profit foundation to facilitate the conservation of green and blue spaces in Metchosin.

Municipal Government

- Refer to the maps that are generated through the “Mapping Special Places in Metchosin” project, Sensitive Ecosystems Inventory, Metchosin Ecological Inventory and the Green and Blue Spaces Strategy for use in consideration of land use decisions.
- In general, oppose applications to withdraw land in our community from the ALR or Private Managed Forest Lands.
- Where legally authorised, acquire parks and trails (including viewpoints) during the subdivision or rezoning process.
- Develop voluntary guidelines ('best management practices') for conserving green and blue space values during the development of large properties for residential and commercial uses.
- Encourage partnerships to help develop incentives for the conservation of green and blue space values on public and private lands (eg preferential tax status similar to ALR)
- Recognise forest lands as having high value for absorbing carbon dioxide emissions and as a positive tool to counter climate change.
- Incorporate the elements of the green and blue spaces strategy into the next update of Metchosin’s Official Community Plan
- Update the maps in the OCP.
- Designate a percentage of the forest land base that should be allowed to mature into old growth forest.
- While Metchosin has no formal management responsibility for nearshore marine areas, we should continue to acquire and maintain inventories of these areas, and have municipal input into provincial and federal government decisions regarding their management.
- Recognise the importance of, and encourage the protection and restoration of, Metchosin’s natural shoreline.
- Use the municipal website to inform residents of Green and Blue Space initiatives, stewardship options, etc

Further Tools for Conserving Green and Blue Space Values and Areas

There are a number of voluntary tools for conserving green and blue space areas and values in Metchosin:

1. Conservation covenants. If residents wish to ensure that the special features of their property are protected forever, they may choose to establish a conservation covenant on their property. This covenant protects these special features in perpetuity, regardless of who owns the land in the future, without restricting the right to sell the land. There are several conservation covenants already established in our community e.g., the Camosun College van der Meer property, Camas Hill.
2. Partners in conservation. Some conservation groups have a program to protect and enhance important natural areas and habitat on privately owned land by providing recognition, incentive and assistance to landowners who agree to conserve these areas. The agreement is totally voluntary and does not restrict use of the land as long as the identified areas are maintained. Landowners are provided with a sign at the entrance to their property or a label to place on their farm produce containers, e.g., The Land Conservancy (TLC) “Conservation Partners Program”
3. Supporting agricultural and managed forest land. Farm lands and managed forest lands are important components of Metchosin’s green and blue spaces. Agricultural land and farmers are currently supported in a number of ways: for example there are reductions in property tax if agricultural sales reach a certain value and Metchosin allows the Farmer’s Market to use the municipal grounds for commerce, at no cost. There is a need to explore additional ways to encourage and support residents engaged in agriculture and sustainable forestry, where appropriate and permitted, in Metchosin.
4. Develop voluntary best management practices (BMP’s) guidelines for land developers that reduce the proliferation of invasive species and diminish negative impacts on the natural environment.
5. Local governments in BC currently do not have the power to grant municipal tax incentives for retention of natural areas for conservation purposes. The Islands Trust does have the power to do this, and offers tax incentives for landowners who place conservation covenants over their property. If the Municipal Act is changed to allow this power, Metchosin should consider including it in the options for encouraging voluntary stewardship of green and blue spaces on private lands. Metchosin could join with other municipalities in lobbying the provincial government to permit this conservation tool.
6. “Naturescape” and other programs provide suggestions aimed at landowners on how to restore and/or maintain habitat. These include directions for building and placing bird and bat houses, and nature friendly ponds, gardening with native plants, attracting butterflies and pollinators, etc. Disseminate this information through the municipal website, workshops, brochures, etc.

Priority Actions

1. Contact the provincial government to request a moratorium on the development or disposition of BC Crown lands in Metchosin.

2. Request that the province grant BC crown lands to CRD Parks (or other appropriate authority) as park land.
3. Develop a brochure highlighting the values of green and blue spaces in Metchosin and options for voluntary conservation of these areas and associated values

Updating the Strategy

The green and blue spaces strategy is a 'living' document that will be updated as new information becomes available or new actions and priorities are identified. It is recommended that the document be updated as required and formally reviewed every five years to ensure it remains relevant.

Appendix A

Desired Outcomes of the Green and Blue Spaces Strategy

Broad community awareness of the many benefits and values associated with green and blue spaces in Metchosin and support for their conservation.

Public and private landowners voluntarily conserving the green and blue space values on their lands.

A community that retains and enhances:

- clean air and water
- productive and functioning agricultural and managed forest lands
- green and blue features that are important elements of the scenic natural and rural character of the community
- healthy, viable, functioning terrestrial, aquatic and marine ecosystems
- large undeveloped areas containing a diversity of native ecosystems and species
- important areas of habitat for wildlife and threatened and endangered species
- green and blue space buffers around, and connections between, parks and undeveloped natural areas
- the natural and rural character of important viewsapes
- access to recreational trails, shorelines, and upland viewpoints

Appendix B

Planning and Regulatory Documents that Provide Context for the Green and Blue Spaces Strategy

This appendix lists the planning and regulatory documents that provide the context for the Metchosin Green and Blue Spaces Strategy and sets out the key elements of each document in relation to the conservation of green and blue spaces in the community.

A number of existing planning and regulatory documents provide direction and context for the protecting and maintaining green and blue spaces in Metchosin:

- *Regional Green/Blue Spaces Strategy*

This document:

- provides a definition for regional green and blue spaces
- identifies green space areas, stream corridors and marine shorelines of regional significance in the Capital Region
- suggests strategies for conserving and restoring these areas
- specifically identifies ways that municipalities, the federal and provincial government, institutions and private landowners can contribute to the conservation and restoration of green and blue spaces

- *Regional Growth Strategy*

The *Regional Growth Strategy* sets out a framework for growth and development in the Capital Region. The Strategy specifies the location of an urban containment boundary with the objective of protecting the integrity of rural communities and designates agricultural and forest lands within the provincial land reserves as *Renewable Resource Lands* requiring long-term protection.

The *Regional Growth Strategy* identifies large undeveloped areas outside of parks as *Unprotected Green Space Policy areas* (these are based on the *Core Green Space Areas* in the *Regional Green/Blue Spaces Strategy*). It proposes that the Capital Regional District and member municipalities work together to protect as much of these lands as possible from development. The *Regional Growth Strategy* also identifies marine areas along the shoreline as *Blue Space Core Policy Areas*, and proposes that all level of government work together to protect the integrity of these areas. All of nearshore waters along Metchosin's marine shoreline are within *Blue Space Core Policy Areas*.

- *Official Community Plan*

The Metchosin *Official Community Plan* (OCP) sets out the objectives and policies for environmental protection and management, parks, agricultural and forestry lands, institutional lands, transportation and residential and commercial development (including amenity provisions for development. The objectives and policies in the OCP are intended to shape the character and form of development in the municipality, while protecting the natural environment, heritage areas and sites, and agricultural and forestry lands. These objectives and policies will play a key role in the conservation of green and blue spaces in Metchosin.

- *Regional Context Statement*

The Regional Context Statement (RCS) demonstrates how the OCP is consistent with the Regional Growth Strategy (RGS) or identifies strategies to make it consistent with the RGS or explains elements of the OCP which are not applicable to the RGS. The RCS contains policies and objectives which aim to protect landscape character, ecological heritage and biodiversity throughout the District, including the “Green and Blue Space” lands identified by the RGS.

- *Parks and Recreation Master Plan*

The Parks and Recreation Master Plan was developed to provide direction for the management of Metchosin Parks and Trails, which are key elements of the green and blue space in the community. This Master Plan needs to be updated.

- *Land Use Bylaw*

The Land Use Bylaw sets out the requirements for different land use zones in Metchosin. The bylaw regulates the types of land uses permitted, the siting of buildings, and conditions for subdivision. Each of these factors can affect the retention of green space or blue space values on a property.

- *Tree Management Bylaw*

Regulates the cutting of trees, particularly significant trees (landmarks, or trees with heritage or wildlife value) and trees within 15 m of a watercourse and along shoreline slopes. The Tree Management Bylaw has been amended to provide protection to the following tree species: Cascara, Pacific Yew, Garry Oak, Western Flowering Dogwood, Arbutus and Manzanita

- *Rainwater Protection and Management Bylaw*

This bylaw seeks to minimize alterations to the hydrology of a property when it is developed. Specifically it seeks to retain the proper functioning condition of wetlands, streams and streamside vegetation, and maintain natural water quality and flows during and after the development of a property.

- *Soil Deposit and Removal Bylaw*

Regulates the deposit and removal of soil on properties in the municipality. Soil deposit and removal can affect green and blue space values on a property.

Additional documents to be considered in the conservation of green and blue space in Metchosin:

- Provincial legislation relating to the Agricultural Land Reserve
- Provincial legislation relating to the Private Managed Forest Lands (formerly known as Forest Land Reserve)
- Provincial regulations/guidelines relating to riparian areas
- Department of National Defence (DND) plans and reports relating to the management of the environmental values on DND lands

List of Protected Green and Blue Spaces in Metchosin District

- Municipal parks and trails
- Regional parks
- Provincial crown lands
- Federal lands
- Properties with covenants

Name	Location
Municipal-undeveloped linear trail dedications	
Branson/Duke Trail	Connects Branson and Duke Roads
Hibbert Trail	Between 3960 and 3975 Hibbert to the west, alongside the boundary of 1291 Boulderpath, ending at east boundary of 1285 Boulderpath
Himount/Saddleback/Hackamore	Follows the perimeter of the subdivision from Himount to Saddleback
Windover Terrace	Between 745 and 755 Windover, ending halfway along boundary between 880 Arden and 740 Windover Terrace
Municipal undeveloped rights of way	
Blaney Rd	Intersection of Duke Rd and Olympic View Dr, to coast
Boulderpath Trail	Road dedication ends at Victoria Motorcycle club-flagged for trail dedication if ever subdivided
Kasani	SWR through 4727 Kasani, restricted at present time
Farhill/Duke Rd/Latoria Creek crossing	
Park Dr to Delgada	
Winfall Rd	Winfall Rd to galloping Goose
Municipal undeveloped park dedications	
Carlton Cosh Park	Kangaroo at Wallaby
Graceland Drive	End of Graceland Dr
Kasani Park	At cul-de-sac, backing onto 1186 kangaroo
Lindholm Park	At Lindholm and Spellman
Metchosin Rd	Between 3740 and 3790 Metchosin Rd
Seaspray Rd	End of Seaspray
Municipal Parks and Trails	
Blinkhorn Nature Park	Off Kangaroo Rd or Lindholm
Buckbrush Swamp	Off Liberty and Eagle Tree Place
Eleanor Mann Park	Off Arden or Deer Park Trail
Albert Head Lagoon	Off Farhill
Bob Mountain Trail	Off Woodley Ghyll
Eales Rd Trail	Eales to Arden

Helgeson Trail	Off Lombard
Hillman Trail	From Hillman Rd to Pear's Rd
Joe Lodge Trail	Off Cook Rd to 100 Acre Woods
Horse trail	Labonne to Eagle Tree
Labonne Trail	Sweet Chestnut to Eagle Tree
Lisandra Trail	End of Lisandra to Tiswilde
Lusse Way Trail	Off Lisandra and Cardsview Terrace
Madill Trail	William Head Rd near Happy Valley Rd to Municipal grounds
Ron Weir Trail	Off William Head Rd to Pearson College Dr
Sea Bluff Trail	Off Wootton Rd, off Metchosin Rd
Wayne's Rock	Off Woodley Ghyll
Rocky Point Roadside Trail	From Happy Valley Rd to Winfall
CRD Parks	
Devonian	William Head Rd
Witty's Lagoon and Tower Point	Metchosin Rd at Pear's Rd
Matheson Lake	Off Rocky Point Rd near Pedder Bay
Galloping Goose Regional Trail	
Sooke Hills	
Provincial Crown Lands	
Section 25 or 100 acre woods	Off Cook St or off Clapham Dr
Section 28	
Section 95	
Section 66	
Section 62	
Three sections leased to YMCA	
Federal Properties	
Rocky Point	Off Rocky Point Rd, past Matheson Lake Park
Albert Head	Off Farhill Rd
Mary Hill	Off William Head Rd, near William Head Institute
Pearson College (Leased)	Off Pearson College Dr, off William Head Rd
William Head Institute	Off William Head Rd
Properties with Covenants	
Dirk van der Meer property	Camosun College covenant holder
Camas Hill	Sooke Rd at Kangaroo

Bullfrog Management Project Results for 2024 – District of Metchosin, B.C.

Prepared by Stan A. Orchard, Herpetologist, November 2024

The 2024 field season will be remembered for the prolonged spring interval of cool water temperatures that no doubt delayed the bullfrog spawning. For example, our first visit to Metchosin was in late June and the water temperature at Site #13 was still only 14.4° C. Temperatures rose rapidly by the end of June. Bullfrogs persist in Metchosin but in relatively low numbers in a few scattered locations. At the east and west perimeters of bullfrog distribution, new occurrences have turned up along Pears Road and individuals are still finding their way into Blinkhorn Lake.

RESULTS

In 2024 fieldwork in Metchosin was carried out on seven calendar nights at six different sites. Four of the sites have been visited in past years and two sites are new. Blinkhorn Lake was visited twice. Site #15 was reported to have had a bullfrog in it prior to our visit but we found no bullfrogs. Overall, 94 bullfrogs were collected from four sites including 43 adult males, 30 adult females, and 21 juveniles.

Table 1. Metchosin Capture Results Sorted by Size-class and Gender

Size-class by Body Length	Totals 2021	Totals 2022	Totals 2023	Totals 2024
Young males (80-120 mm)	34	9	13	17
Mature males (>120 mm)	4	8	4	26
Young females (80-120 mm)	96	10	10	18
Mature females (>120 mm)	11	9	5	13
Juveniles (<80 mm)	171	72	11	20
Total	316	108	43	94

Table 2. Chronological Capture Results by Site including surface water temperature

Site	Date	Young ♂♂	Mature ♂♂	Young ♀♀	Mature ♀♀	Juveniles	Totals	Surface Water Temp
Pond #13	June 18	1	5	0	3	0	9	14.4° C
Pond #12	July 8	2	2	0	0	0	4	24.8° C
Pond #12	July 9	0	0	1	0	0	1	24° C
Pond #1	Aug 7	0	2	2	2	0	6	24.9° C
Pond #4	Aug 8	8	15	9	7	14	53	22.4° C
Pond #15	Aug 25	0	0	0	0	0	0	16.3° C
Pond #3	Aug 29	6	2	6	1	6	21	20.6° C
	Totals	17	26	18	13	20	94	

INTERPRETATION OF RESULTS

Site #13 – This pond was visited for the first time in 2024. All but one of the bullfrogs in this catch lot were in the ‘mature’ category (> 120 mm body length). The three females were all large and bearing mature eggs, so had not yet spawned in 2024. The pond is so small that it is mostly impractical to work from a boat and thus

seven of the nine caught were approached on foot. The upland habitat is heavily forested and there are some obstructive downfallen cedars in the pond. The crew was told of a neighbour's pond that is larger and should be investigated in the future. No evidence of prior spawning, e.g. tadpoles or juveniles.

Site #12 – Mature bullfrogs continue to find their way into Blinkhorn Lake. This site was visited on two consecutive sites (July 8th & 9th) because we detected one bullfrog that we were ultimately unable to track down. On the first night we caught four bullfrogs, all of which were adult males. The following night we collected only one young adult female. There are extensive patches of emergent native waterlilies and cattails around the perimeter of this lake that provide effective concealment to bullfrogs. These impede our progress with the boat and can make a comprehensive search of the lake unusually time-consuming.

Site #1 – This water-retention pond remains relatively easy to work because there is little obstructive vegetation around the perimeter so bullfrogs can be spotted and then captured very efficiently. The numbers were again low (n = 6) but and were all adults. None of the four adult females had spawned in 2024 and no tadpoles from previous spawns were seen.

Site #4 – This site has historically been the most productive in Metchosin for bullfrogs though the overall numbers this year are relatively small by bullfrog standards (n = 53). In the past we have had catch lots from this site in the hundreds. I am particularly keen on targeting the adults and regrettably each year a few are found. Ideally, this site should be visited at least two or three times a year until the numbers of adults peters out entirely. The two largest bullfrogs caught this year in Metchosin, a mature male (182 mm body length) and a mature female (170 mm body length), were both caught at this pond (Graph 1).

Site #15 – This very small pond was visited for the first time in 2024. A bullfrog had been heard calling from the pond a few weeks prior to our visit but no bullfrogs were found during our survey. However, red-legged frogs were numerous.

Site #3 – There is a linkage between this site and **Site #4** because they are fairly close to one another with only a grass field between them. Native willows have formed thickets around the margins of this pond that each year extend a little further out from the margin and into deeper water. These obstructions sometimes create impenetrable recesses for bullfrogs to retreat into during our surveys. Consequently, some clearing of the pond margins would be helpful to us for both spotting and for approaching bullfrogs to capture them. Of the eight adult females caught this year none appear to have spawned in 2024.

SITE OMISSIONS

Matheson Lake Regional Park – I mentioned last year that there had been a report of a bullfrog seen jumping into Matheson Lake. I was contacted by CRD Parks and it was suggested that I would be contracted by them to survey the lake. The contract did not materialize and the sighting remains uninvestigated and unverified.

CONCLUSION

1. Bullfrogs have been spreading out a bit in the Pears Road area and they continue to arrive in very small numbers at Blinkhorn Lake. As far as I have been able to determine these are currently the eastern and western limits of bullfrog distribution in Metchosin.
2. Sites of special concern are #'s 3, 4 and 12 due to the difficulty of the habitat at these sites and the fact that no spawning has yet been recorded at Site #12.

RECOMMENDATION

1. The bullfrog program in Metchosin should continue and intensify in 2025. That is to say that permission for us to proceed should be made early enough in the year – by late April or early May – so that scheduling of fieldwork can be tailored to the whims of the weather and thus take advantage of every opportunity for optimal results. My intention is to get back to deploying three 2-person crews
[REDACTED]
[REDACTED] With multiple crews we will also return to being able to visit multiple Metchosin sites in a single evening which is a huge advantage given that only a smattering of nights may be workable for us in the late spring and early summer. It is helpful for me to know in advance how many nights of fieldwork have been budgeted for any given year.
2. Sites 3, 4, and 12 should be visited more than once each year.
3. Perhaps Metchosin could develop a network of property owners who make a point of listening for bullfrogs calling and report it to me via the Metchosin municipal office. The optimum listening period would begin in late May and extend until mid-August.
4. A comprehensive survey of Matheson Lake should be arranged with CRD Parks, or at least they should be encouraged to such a survey themselves. Below is an unabridged copy of an e-mail message sent to me from CRD Parks on November 12, 2024.

Hello Stan,

Thanks for the follow-up on this.

The sighting was never verified. The report was never officially investigated but we've had conservation technician staff on-lake intermittently throughout the spring/summer doing other work with no bullfrog observations made.

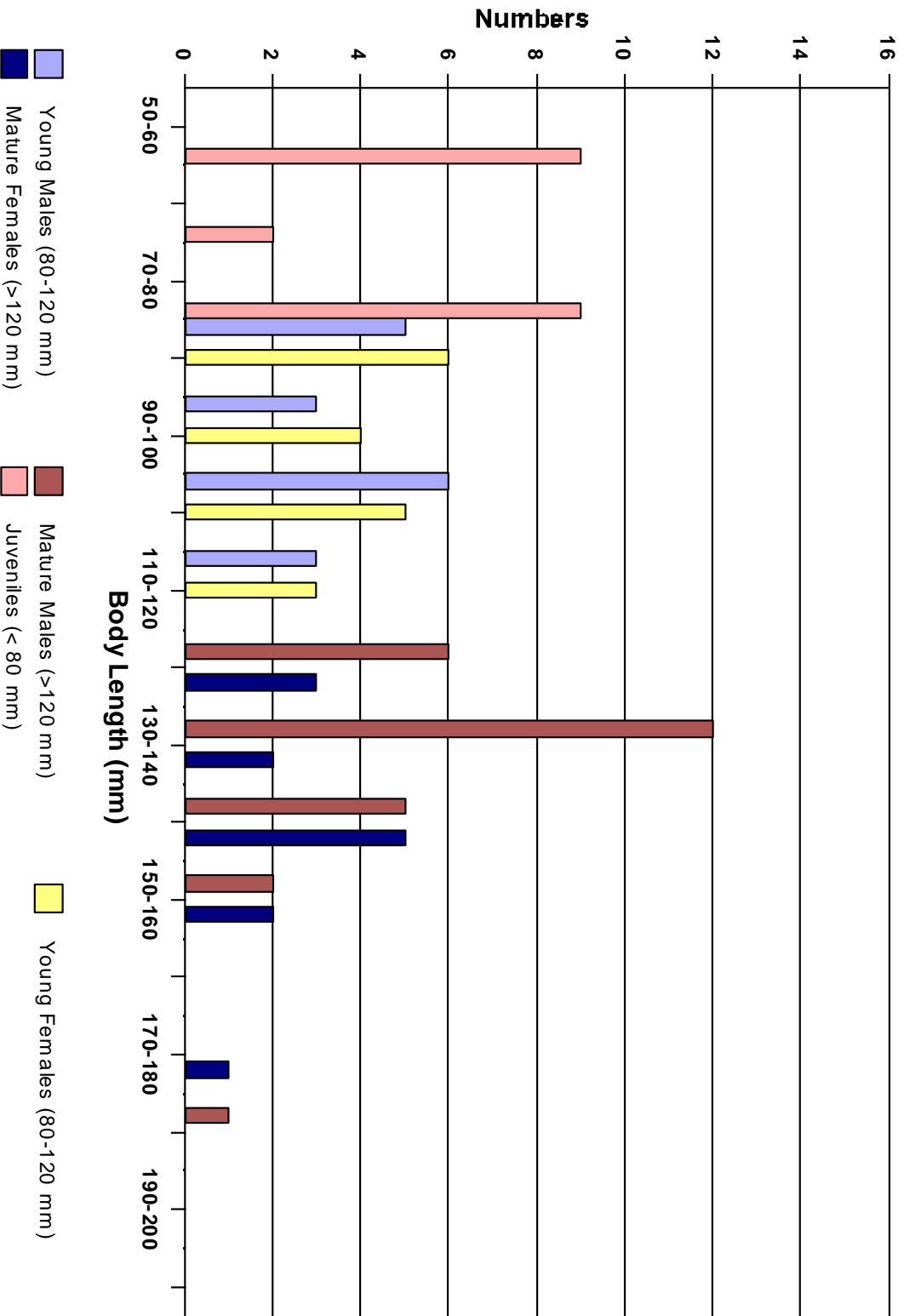
Take care, Morgan

Morgan Davies (she/her/hers)

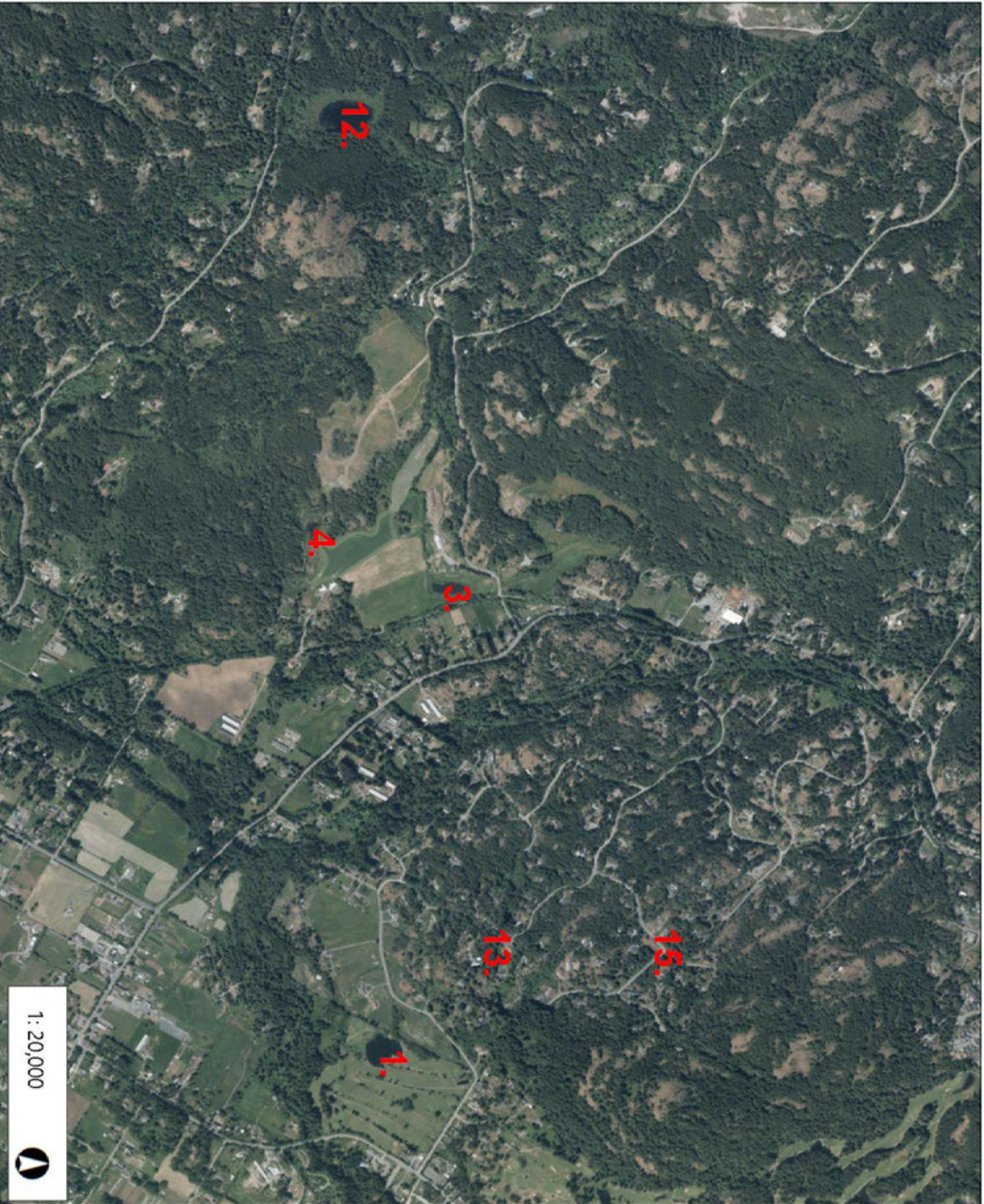
Conservation Biologist | Regional Parks

[REDACTED] [REDACTED]

Graph 1. Capture Results for Metchosin 2024



Bullfrog Control Sites 2024



Legend

Notes

1: 20,000



Important: This map is for general information purposes only. The Capital Regional District (CRD) makes no representations or warranties regarding the accuracy or completeness of the map or the suitability of the map for any purpose. This map is not for navigation. The CRD will not be liable for any damage, loss or injury resulting from the use of the map or information on the map and the map may be changed by the CRD at any time.

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NAD 1983 UTM Zone 10N
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Metchosin Bullfrog Contacts with Site Numbers and Locations – Current to 2024

1. [REDACTED] Metchosin Rd – contact is: [REDACTED] - single large pond that drains into Bilston Creek.
2. [REDACTED] Lindolm Rd [REDACTED] – single pond that drains into Lindholm Creek
3. [REDACTED], Lindholm Road – large farm pond
4. [REDACTED] Bennett Rd – heavily vegetated pond at end of long driveway at the terminus of Bennett Road. Likely point of first release of bullfrogs.
5. Pond where Bennett Road meets driveway at its terminus. A private forestry research lab.
6. [REDACTED] – contacted me earlier this year.
7. [REDACTED] – contacted me earlier this year.
8. [REDACTED] Rocky Point Road, [REDACTED] – reported a bullfrog in [REDACTED] pond in 2019 but when [REDACTED] sent me a photo it was a native red-legged frog
9. Report in 2019 from District of Metchosin of a bullfrog at Glenforest Way and Boulderpath Rd, just past the bridge.
10. [REDACTED] Kangaroo Rd – adjacent to Blinkhorn Lk, a report from District of Metchosin in 2019
11. [REDACTED] Kangaroo Rd – report from District of Metchosin in 2018
12. Blinkhorn Lake – surveyed twice quite a few years ago with no evidence of bullfrogs at that time
13. [REDACTED] Pears Road [REDACTED] Pears Road [REDACTED] – shared small pond.
14. [REDACTED] Pears Road [REDACTED] Has a [REDACTED] pond with bullfrogs. Decided to have the margins dredged and cleared of brush and brambles before I sent a crew out. Did not get back to me so no fieldwork was conducted in 2024.
15. [REDACTED] Saddleback Road [REDACTED]. One bullfrog heard calling here a few weeks before our visit. Very small pond with a clean perimeter. No bullfrogs found but many red-legged frogs.