

Program Schedule



**PACIFIC ESTUARINE
RESEARCH SOCIETY**

46th ANNUAL MEETING

Vancouver Island University, Nanaimo, BC

April 18-20, 2024

Meeting Sponsors



**DAVID EVANS
AND ASSOCIATES INC.**

46th Annual PERS Meeting

April 18-20, 2024

Nanaimo, BC

Welcome from PERS!

This meeting marks the 46th annual meeting for PERS. This also marks our first return to British Columbia since the 2016 meeting, which is long overdue. We are fortunate to meet in Nanaimo on Vancouver Island which has historical ties to coastal and estuarine ecosystems dating back to its founding in 1849. Nanaimo is the ancestral homelands of the Coast Salish Peoples, specifically the Snuneymuxw First Nation. The name “Nanaimo” is derived from the anglicized name of the First Nation, which roughly means “the great people”. They have lived on the coastline of Vancouver Island for time immemorial. Join me in expressing our deepest respect and gratitude to the Snuneymuxw First Nation for their enduring care and protection of this area’s lands and waterways.

Our theme this year is *From Local to Transboundary: Approaches to Estuarine Research Stewardship*. We continue to see the advancing effects of a changing world on our coasts and estuaries and the people and communities that depend on them. For this meeting we are emphasizing interactions among participants and focus on scientific and management issues that encompass the entire Pacific Northwest with a particular emphasis on examining the issues from an ecosystem perspective ignoring geo/political lines. Our program highlights our collective efforts in the region to research on climate change, restoration, aquaculture, invasive species, water quality, and human dimensions.

The conference this year is small and intimate with plenty of time to engage and interact. Take this time to reconnect with colleagues and friends and foster new relationships with others from undergraduates to veteran PERSians. PERS aims to support people at all career stages and sectors and strives to provide a welcoming and inclusive environment. If you have ideas for improving the experience for future meetings, talk to me or another PERS board member.

Enjoy the conference!

Regards,

Jason Stutes, PERS President

Liz Perotti, Past President

Keynote Speakers

Tom Reid, West Coast Conservation Land Management Program



Tom is the Program Manager for the West Coast Conservation Land Management Program (WCCLMP). This program is an innovative partnership focused on conservation, stewardship and management of sensitive ecosystems along the coast of British Columbia and includes the Nature Trust of BC, Ducks Unlimited Canada, Province of BC, Environment Canada, Fisheries and Oceans Canada, the Habitat Conservation Trust Foundation and several Coastal First Nations. Tom has been leading the delivery of this program for the past 17 years (management of over 110 sites and 11,000 ha) including managing several large restoration projects (e.g. Kw'a'luxw [Englishman], Snuneymuxw [Nanaimo], Xwésam [Salmon], Gwa'dzi [Quatse] estuaries) and has led the implementation of the BC Salmon Restoration and Innovation Fund "Enhancing Estuary Resilience" project focused on monitoring and restoring 15 estuaries throughout the coast of BC in partnership with 12 First Nations. Tom has led the development of several partnership projects/programs with Coastal First Nations throughout the West Coast Region and supports all partners of the WCCLMP in meeting their strategic goals.

Steven Henstra, West Coast Conservation Land Management Program



Steven is the Restoration Biologist with the West Coast Conservation Land Management Program (WCCLMP). He works to design and implement ecological restoration projects, develop and implement long-term monitoring and inventory projects, and facilitate community outreach.

Banquet Speaker



Nam was a PERS Student Grant (PERS Annual Meeting Travel Grant) recipient and a student presenter at the 2011 and 2012 Annual PERS meetings as well as an industry professional presenter at the 2015 meeting. It is an absolute honor and coming full circle moment for Nam to be back as the 2024 keynote speaker more than a decade after PERS helped jump start his academic and professional careers. Since his last PERS meeting, Nam has worked as a habitat biologist with the Washington Department of Fish and Wildlife to protect and restore fish habitats, and more recently he's moved into a shellfish biosecurity role where he applies his regulatory experience to help protect Washington's shellfish from diseases and pests.

Venue Location and Parking

The Thursday evening Social will be held at the Old City Station Pub located at 150 Skinner St, Nanaimo, BC V9R 7A6.

The remainder of the meeting will be held at Vancouver Island University at 900 Fifth St, Nanaimo, BC V9R 5S5. Parking information is as follows (also see map at end of program):

- Pay parking is in effect 12 months of the year, 8 am - 8 pm, Monday through Saturday, including all parking lots on Campus.
- Parking costs \$2.50/2 hours to a maximum of \$8 for 12 hours
- Drivers MUST read the signs that designate parking lots to ensure they have parked in a valid lot for their permit.
- The Parking/Security Office is located in Building 315, Room 110 and is staffed from Monday to Friday, 8:30 am to 3:00 pm (except statutory holidays).
- Pay Stations in the General parking lots will take MasterCard, VISA.
- VIU has a license plate recognition system for parking. You no longer need to return to your vehicle to display a paper ticket – tickets will be purchased via a pay station or mobile phone using your plate number.
- Employee only lots are open to general parking after 5 pm and on weekends.
- Drivers with a valid handicap parking pass can park for free in any stall as long as the stall is not restricted or reserved. Restricted or reserved spaces will be indicated.

WiFi and Internet Access

We are pleased to offer complimentary Wi-Fi access via our viu-guest wireless network. Please follow the link to setup a temporary guest account or provide it to your attendees: <https://technology.viu.ca/help/niu-guest>

Meals

Thursday evening - appetizers at the Social

Friday – Coffee/snacks and lunch are included

Friday Evening - Banquet with Speaker

Saturday – Coffee/snacks and bagged lunch are included

Suggestion: Bring a travel mug, there will be coffee and water available during all meals and sessions.



Conference Schedule



Pacific Estuarine Research Society
April 18-20, 2024
Vancouver Island University, Nanaimo, BC
900 Fifth Street, Nanaimo, BC V9R 5S5
Sponsored by David Evans and Associates, Inc.

DAVID EVANS
AND ASSOCIATES INC.

Thursday 4/18

6:00pm – 9:00pm	Opening social and mixer	Old City Station Pub, 150 Skinner St, Nanaimo, BC V9R 7A6
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Friday 4/19

7:30-8:00	Registration and Check-in	VIU Building 356, Room R109
8:00 – 9:00	Welcome <i>Jason Stutes, PERS President</i>	
9:00 – 10:00	Keynote Talk: Working with Indigenous Communities to Assess Estuary Resilience to Sea-Level Rise - Providing Canadian context to North American Estuaries Presenters: Tom Reid and Steven Henstra	
10:00 – 10:45	Session #1: Invertebrate Invasions: Good, bad, and Ugly Presenters: Sylvia Yamada, Kaitlin Macaranas, Emma Back	
10:45 – 11:20	Poster Session #1 Presenters: Jessie Bell, Joyce Block, Sean Grealish, Heather Earle, Erin Maher, Nicole Burnett	
11:20 – 11:30	Morning Announcements	
11:30 – 12:00	Session #2: Estuarine Resources, Planning, and Communication Presenters: Sarah Cook, Cindy Elliser	
12:00 - 1:00	Lunch in the cafeteria area	VIU Building 300, Cafeteria
1:00 – 2:00	Session #3: Eelgrass Resilience and Restoration Presenters: Olivia Graham, Mitchel McCloskey, Ian McBride, Angela Spooner	
2:00 – 3:10	Special Session #1: Eelgrass and Aquaculture Presenters: Katie Houle, Bob Oxborrow, Jennifer Ruesink, Maria Garcia	
3:10 – 3:45	Poster Session #2 Presenters: Thomas Armitage, Krystal Bachen, Alexis Jordan, Gabriel McInnis-Hernandez, Benjamin Molenhouse, Annabelle Quinlisk, Alex Zinck	

- 3:45 – 4:50 **Special Session #2: PSF Marine Science’s Nearshore and Estuary Program:
Developing tools and guidance for salmon habitat restoration and resilience**
Presenters: Nicole Christiansen, Jerlyn Brutas, Sarina Clay-Smith,
Benjamin Skinner, Isobel Pearsall
- 4:50 - 5:50 **PERS Business Meeting**
- 6:00 – 9:00 **PERS Banquet** **VIU Building 300 (Cafeteria)**
Social Hour with Refreshments
Guest Speaker: Nam Siu, Washington State Department of Fish and Wildlife
BYSSUS... Threads and Connections Social, Recreational, and Professional

Saturday 4/20

- 8:30-9:00 **Registration and Coffee/Snacks**
- 9:00 – 9:15 **Opening and Announcements**
- 9:15 – 10:25 **Session #4: Estuarine Wetland/Marsh Resilience and Restoration**
Presenters: John Rybczyk, Jenni Schmidt, Christopher Janousek, Jenna Schroeder,
Katrina Poppe
- 10:25 – 11:45 **Special Session #3: Fraser River Delta Restoration**
Presenters: Erik Balke, Daniel Stewart, Eric Morris
- 11:45 – 12:15 **Awards**
Carolyn Prentice, Student Awards
- 12:15 – 12:30 **Closing Remarks**
Jason Stutes, PERS President

Thanks for joining us in Nanaimo!

List of Presenters and Titles
(*indicates student presenter)

Friday Sessions

Session #1: Invertebrate Invasions: Good, bad, and Ugly

- Sylvia Yamada *Status of the European Green Crab in Oregon Estuaries*
- Kaitlin Macaranas* *Destructive Foraging by the Invasive Green Crab (*Carcinus maenas*) Influences Eelgrass Survival and Benthic Assemblages*
- Emma Beck* *Wild populations of Pacific oysters (*Magallana gigas*) emerge during the blob heatwave in south Puget Sound, Washington USA*

Poster Session #1

- Jessie Bell* *A Time-Series Study on the Bloom Dynamics of *Halosphaera* sp. (Pyramimonadales, Chlorophyta), A Marine Phytoplankton, in Bellingham Bay, Washington*
- Joyce Block* *Effects of Temperature on Larval Development and Survival of the Invasive European Green Crab *Carcinus Maenas**
- Heather Earle *Community-based Science: Monitoring Larval Dungeness Crab with Light Traps Across the Salish Sea*
- Sean Grealish* *Sampling Invertebrate Energy Density in the Snohomish Estuary, Washington State, USA*
- Erin Maher *Investigating the Efficacy of Oyster Bags for the Recruitment of Invasive European Green Crab (*Carcinus maenas*) Megalopae*
- Nicole Burnett *Spatial and Temporal Variability of Brachyuran Crab Larvae in Padilla Bay, WA*

Session #2: Estuarine Resources, Planning, and Communication

- Sarah Cook *Accessing the Shorezone Coastal Imaging and Habitat Mapping Dataset for Estuary Research and Management Planning*
- Cindy Elliser *Emerging Issues: Reaching a Wider Audience*

Session #3: Eelgrass

- Olivia Graham *Health Surveys as Indicators for Eelgrass Meadow Resiliency*
- Mitchel McCloskey *Eelgrass Restoration Through Large Scale Seeding*
- Ian McBride* *Comparing Seed Production and Seed Bank of Annual and Perennial Forms of *Zostera marina* from Padilla Bay, Washington (USA)*
- Angela Spooner *West Coast Eelgrass Seeding Pilot: Enhancing Resilience to Climate Change Related Pressures*

Special Topic Session #1: Eelgrass and Aquaculture

- Katie Houle *Nekton Response to Flip Bag Culture Co-located with Eelgrass*
- Bob Oxborrow *Fish Diet Response to Eelgrass and Oyster Aquaculture*
- Jennifer Ruesink *Resilience Traits of Eelgrass Change Across Intertidal Gradients and Oyster Aquaculture*

*Maria Garcia** *Trophic Level Responses to Different Longline Densities and Clustering*

Poster Session #2

*Thomas Armitage** *Mapping the Habitat Mosaics of Saanich Peninsula Estuaries Helps Determine Their Resiliency.*

Krystal Bachen *Long-term Eelgrass Monitoring on BC's Central Coast: Drivers of Change, Key Parameters, and Data Mobilization*

*Alexis Jordan** *Influence of the Joe Leary Slough Tide Gate and Precipitation on Salinity in Padilla Bay, WA (USA)*

Gabriel McInnis-Hernandez *Habitat Suitability for Olympia Oysters, *Ostrea lurida*, Varies in Padilla Bay, Washington, USA*

*Benjamin Molenhouse** *Site-Specific Development and Yield of *Zostera* marine Seeds in Padilla Bay, Washington (USA)*

*Annabelle Quinlisk** *Prevalence and Severity of Wasting Disease Varies in Annual and Perennial Eelgrass Meadows (*Zostera marina* L.) in Padilla Bay, WA, USA*

Alex *Nisqually River Education Project: Teaching the Wonders of the Nisqually Watershed*

Special Topic Session #2: PSF Marine Science's Nearshore and Estuary Program: Developing tools and guidance for salmon habitat restoration and resilience

Nicole Christiansen *PSF Marine Science Program's Nearshore Projects Context Overview*

Alejandra Mora-Soto *Understanding: Research on Key Salmon Habitats, Kelp*

*Jerlyn Brutas** *Solution: Resilient Coasts for Salmon: Promoting awareness and action for healthier nearshore habitats that are resilient to climate change*

Kyla Sheehan *Solution: Resilient Coasts for Salmon: Promoting awareness and action for healthier nearshore habitats that are resilient to climate change*

Sarina Clay-Smith *Solution: Creating a hub of restoration information for Greening the Salish Sea*

*Benjamin Skinner** *Bringing it all together with the Strait of Georgia Data Centre*

Isobel Pearsall *PSF Marine Science Program's Nearshore Projects Context Overview; Solution: Creating a hub of restoration information for Greening the Salish Sea*

Saturday Sessions

Session #4: Estuarine Wetland/Marsh Resilience and Restoration

John Rybczyk *Vulnerability to Sea Level Rise Varies Among Estuaries and Habitat Types: A Case for a Network of Surface Elevation Tables Across the Salish Sea*

Jenni Schmidt *Using National Estuarine Research Reserves to Understand How Climate Change is Impacting Tidal Marshes in Oregon and Across the Nation*

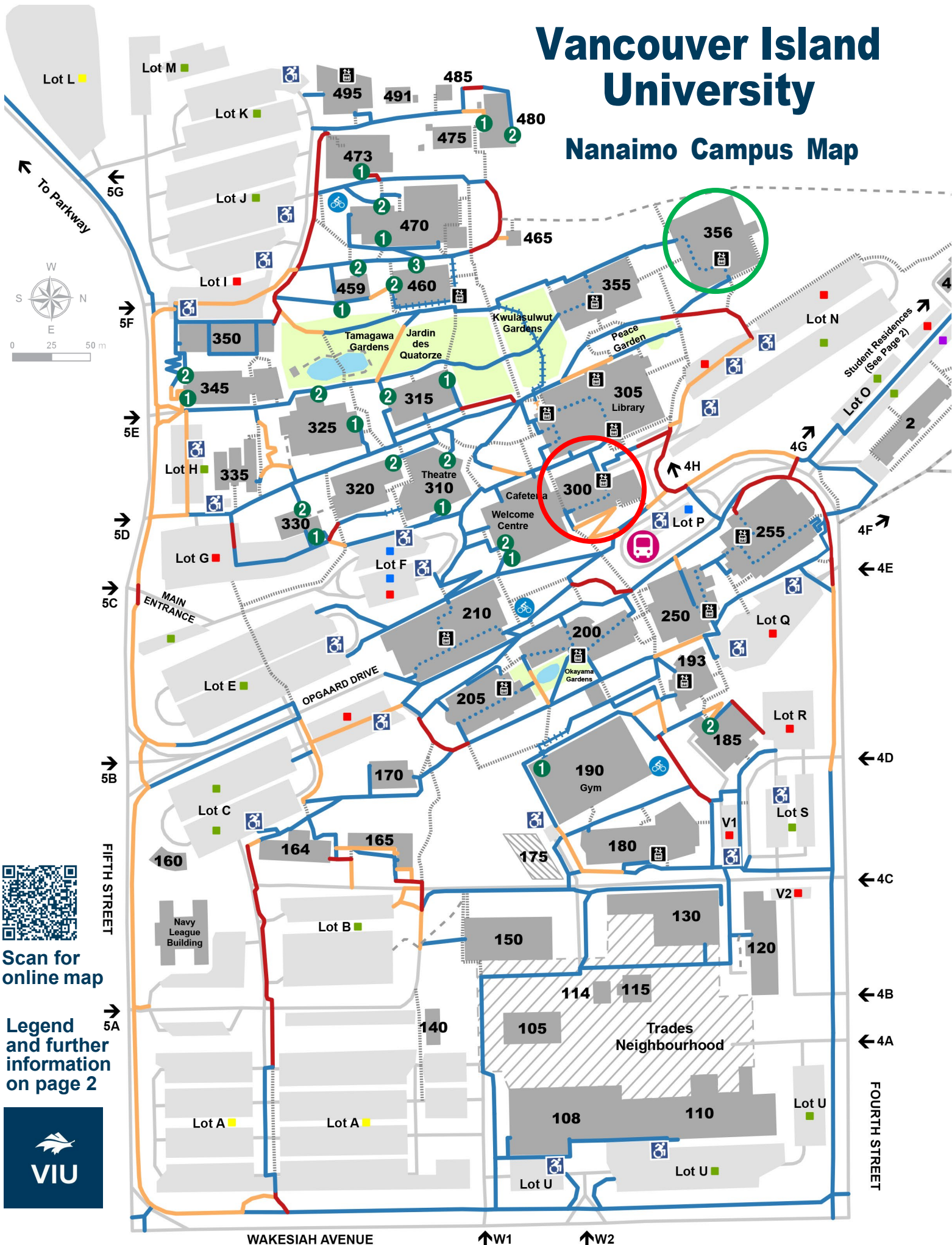
Christopher Janousek *Recovery of Elevation and Vegetation in Legacy West Coast Tidal Wetland Restoration Projects*

*Jenna Schroeder** *Estuarine Wetland Restoration Impacts on Carbon Sequestration in the Oldest Projects Along the West Coast*

*Katrina Poppe** *Drivers of Soil and Carbon Accumulation Rates Across Reference, Restored, and Disturbed Tidal Wetlands in the Pacific Northwest*

Vancouver Island University

Nanaimo Campus Map



Scan for online map

Legend and further information on page 2



Legend*

-  Gentle slope, no stairs
-  Steep slope, no stairs
-  Very steep slope, no stairs
-  Overhead walkway, no stairs
-  Indoor paths, no stairs
-  Path with stairs
-  Unpaved path
-  Entrance Level
-  Elevator
-  Bike Park
-  Bus Loop

Parking



Free with accessible parking permit.

Park in designated stalls first, otherwise use any unassigned stall.

Display permits prominently on rear view mirror or vehicle may be ticketed and/or towed.

PARKING INFORMATION:

GENERAL	■
SHORT TERM	■
EMPLOYEE	■
ECONOMY	■
STUDENT HOUSING	■

- *Gentle slope:**
0 to 4.7 degrees/0 to 8.3%
- Steep slope:**
4.8 to 6 degrees/8.4 to 10.5%
- Very steep slope:**
6.1 to 15 degrees/10.6 to 26.8%

Campus Buildings

- 105 Equipment Storage
- 108 Windsor Plywood Trades Discovery Centre
- 110 Heavy Mechanical & Marine Shop
- 114 Electrical Technologies Annex
- 115 Electrical Technologies Complex
- 120 Facilities Services & Campus Development
- 130 Welding Shop
- 140 Storage
- 150 Automotive Shop
- 160 GeoExchange Pump House & Viewing Station
- 164 Hairdressing, Barbering
- 165 Classrooms
- 170 Shq'aphthut/The Gathering Place
- 175 VIU Daycare Centre (Future Site)
- 180 ASTEC
- 185 Lower Cafeteria, Bakery
- 190 Gymnasium
- 193 Students' Union, Students' Union Pub
- 200 Student Affairs
- 205 Academic & Career Preparation
- 210 Dr. Ralph Nilson Centre for Health and Science
- 250 Faculty of Management Centre
- 255 Richard W. Johnston Centre for International Studies
- 300 Main Cafeteria, Welcome Centre, Administration
- 305 Library, Campus Store, IT Help Desk
- 310 Upper level: Drama, Malaspina Theatre
Lower level: Administration
- 315 Physics, Security & Parking
- 320 Music
- 325 Visual & Applied Arts
- 330 VIEW Gallery & Exhibition Centre
- 335 Childcare, Offices
- 345 Arts & Humanities
- 350 The High School at VIU
- 355 Arts and Sciences
- 356 Education, Social Sciences
- 459 Offices
- 460 Math, Chemistry
- 465 Log Cabin
- 470 Environmental Sciences
- 473 Centre for Shellfish Research
- 475 Hatchery, Tank Farm
- 476 Aeration Tower
- 480 Fisheries and Aquaculture
- 485 Soils Lab (AERL)
- 491 Aquaculture Greenhouse
- 495 International Centre for Sturgeon Studies

