

Galiano Island Local Trust Committee

Regular Meeting Agenda

Date: February 3, 2014
Time: 12:30 pm
Location: Galiano South Community Hall
 141 Sturdies Bay Road
 Galiano Island, BC
 V0N 1P0

Pages

1.	Call to Order	12:30 PM - 12:45 PM	
2.	Approval of the Agenda		
2.1	Questions on Agenda Items		
2.2	Town Hall Session		
3.	Community Information Meeting	12:45 PM - 1:15 PM	
3.1	Galiano Island Local Trust Committee Bylaw No. 241		
4.	Public Hearing		
4.1	Galiano Island Local Trust Committee Bylaw No. 241		
5.	Previous Meetings	1:15 PM - 1:40 PM	
5.1	Local Trust Committee Minutes for Adoption		
5.1.1	Galiano Island Local Trust Committee Meeting Minutes of Dec. 9, 2013 (attached)		5 - 17
5.2	Public Hearing Record and Community Information Meeting		
	none		
5.3	Section 26 Resolutions without Meeting (attached)		18 - 18
	RWM Report dated January 2014		
5.4	Advisory Planning Commission		
5.4.1	Galiano APC Adopted Meeting Minutes of October 3, 2013 and January 14, 2014 (attached)		19 - 24

For Information

- 5.4.2 **Galiano APC Draft Minutes of January 21, 2014 Meeting (attached)** 25 - 27

For Information

6. Business Arising from the Report

- 6.1 **Follow-up Action Report (attached)** 28 - 30

FUAL Report dated January 2014

7. Delegations

none

8. Correspondence

none

9. Applications, Permits, Bylaws and Referrals

1:40 PM - 2:00 PM

- 9.1 **Salt Spring Island Local Trust Committee Bylaw Referrals re Bylaws 472, 474 (OCP) & 475 (LUB) (attached)** 31 - 36

- 9.2 **Mayne Island Local Trust Committee Bylaw Referral re Bylaws 159 (OCP) & 160 (LUB) (attached)** 37 - 40

- 9.3 **Galiano Island Local Trust Committee Bylaw No. 241 - Post Public Hearing Memo (attached)** 41 - 44

- 9.4 **GL-DVP-2013.3 (Williams) - Memo (attached)** 45 - 83

.....BREAK..... 2:00 PM - 2:15 PM

10. Local Trust Committee Projects

2:15 PM - 3:15 PM

- 10.1 **Groundwater Report (Attached)** 84 - 125

- 10.2 **Short Term Vacation Rental (STVR) - Memo (attached)** 126 - 146

- 10.3 **Eelgrass Mapping - Memo (attached)** 147 - 209

Presented by Trust Fund Board staff member, Kate Emmings

11. Reports

3:15 PM - 4:00 PM

- 11.1 **Work Program Reports (attached)** 210 - 211

Work Program Reports dated January 2014

- 11.2 **Applications Reports (attached)** 212 - 216

Applications Reports dated January 2014

- 11.3 **Expense/Budget Reports (attached)** 217 - 217

11.4 Bylaw Enforcement

none

11.5 Policies and Standing Resolutions Report

11.5.1 Policies and Standing Resolutions Report (attached) 218 - 219

11.5.2 Bylaw Enforcement and Planning Applications - memo (attached) 220 - 223

11.6 Galiano Island LTC Web Page for Review

Galiano Island Local Trust Committee Web Site
can be found at:

www.islandstrust.bc.ca/islands/local-trust-areas/galiano

11.7 Chair's Report

11.8 Trustee Report

12. Other Business

4:00 PM - 4:45 PM

12.1 Upcoming Meetings

- The next Galiano Island Local Trust Committee meeting will be held on March 3, 2014, at 12:30 pm, at the South Community Hall on Galiano Island.

- Special Galiano Island Local Trust Committee Meeting to hold a Community Information Meeting re: Short Term Vacation Rentals (STVRs) on Saturday, March 8, 2014, at 1:00 pm, at the Lion's Park Hall on Galiano Island.

12.2 Community Benefit re Rezoning of Forestry Property

For Discussion

12.3 Islands Trust News Release re Dewinitz Proposal (attached) 224 - 227

13. Town Hall Meeting

14. Motion to Close Meeting

4:45 PM - 5:00 PM

THAT, pursuant to Section 90(a) and (f) of the Community Charter, the Galiano Island Local Trust Committee resolves to close the meeting to the public for the purpose of consideration to adopt November 18, 2013, Galiano LTC In Camera Minutes and to received updated information regarding a Bylaw

Enforcement issue; and further that staff and Recording Secretary remain present.(distributed under separate cover)

15. Recall to order

Rise and Report from the Closed Meeting

16. Adjournment

5:00 PM - 5:00 PM

**MINUTES OF THE GALIANO ISLAND
LOCAL TRUST COMMITTEE BUSINESS MEETING
HELD ON MONDAY, DECEMBER 9, 2013, AT 12:30 PM
AT THE SOUTH ISLAND COMMUNITY HALL,
GALIANO ISLAND, B.C.**

<u>PRESENT:</u>	Ken Hancock	Chair
	Louise Decario	Local Trustee
	Sandy Pottle	Local Trustee
	Kris Nichols	Island Planner
	Kim Farris	Planner 1
	David Millership	Recording Secretary

There were approximately thirteen (13) members of the public present.

1. CALL TO ORDER

Chair Hancock called the meeting to order at 12:35 p.m. Introductions were made and the meeting introduced.

Chair Hancock welcomed Planner Kim Farris as a new member of the Islands Trust Planning Team.

Chair Hancock stated appreciation and acknowledgment that today's meeting is taking place on the traditional territories of the Coast Salish people.

2. APPROVAL OF THE AGENDA

Chair Hancock asked for any additions or changes to the agenda. Amendments were as follows:

- Added item 12.4 – Bus Route 620 Tsawwassen/Bridgeport Schedule Changes

The agenda was re-numbered accordingly.

The agenda, as amended, by consent was approved.

2.1 Questions on Agenda Items

Gary Coward asked if item 12.2 (Community Benefit Regarding Rezoning of Forestry Property) would involve discussion regarding applications already in progress.

Chair Hancock responded that item 12.2 would involve a more general discussion.

There was some discussion regarding future policy and applications as well as Galiano Land and Community Housing Trust (GLCHT).

2.2 Town Hall Session

Chair Hancock invited the public to make comment.

Dave Ages stated concern regarding bus route 620 Tsawwassen/Bridgeport schedule changes and requested that the Local Trust Committee (LTC) express opposition to the changes via a letter to TransLink BC and BC Ferries.

Andrew Loveridge stated that he, on behalf of the Galiano Island Chamber of Commerce, would write a letter to TransLink BC and BC Ferries expressing concern regarding bus route 620 Tsawwassen/Bridgeport schedule changes.

Tom Hennessy stated concern regarding bus route 620 Tsawwassen/Bridgeport schedule changes.

There was some discussion regarding the potential impact(s) on businesses, livelihoods, and individuals.

Rose Longini stated concern regarding the implementation of BC Hydro smart meters and the \$35.00 per month fee being charged to customers who prefer to keep an analog meter instead. She requested that Islands Trust Council and the LTC take action against added costs to consumers and commented that a class action lawsuit against BC Hydro is underway.

Resolution GL-LTC-149-13

It was Moved and Seconded that the Galiano Island Local Trust Committee requests the Executive Committee to follow-up regarding BC Hydro smart meters and referral to the BC Utilities Commission.

CARRIED

Tom Hennessy stated concern regarding BC Hydro smart meters.

Doug Latta stated concern regarding BC Hydro smart meters.

There was some discussion regarding the following: health concerns; forced implementation; and the \$35.00 per month fee being nonsensical because BC Hydro could do a reading once per year.

Gary Coward stated support for affordable housing and the LTC deciding community benefit(s) without applicant(s) influence. He encouraged the LTC to develop a community benefit policy that is fair, applies to current as well as future applications, and considers many groups as potential benefactors.

Tom Hennessy stated support for comments made by Gary Coward regarding community benefit.

There was some discussion regarding GLCHT economics.

Andrew Loveridge stated support for GLCHT. He congratulated the Page Drive Society on their community benefit good fortune and praised applicants such as Richard Dewinetz for their generosity.

Doug Latta provided an update regarding GLCHT and stated support for swift process.

There being no further comments from the public, Chair Hancock closed the Town Hall meeting.

3. COMMUNITY INFORMATION MEETING

None

4. PUBLIC HEARING

None

5. PREVIOUS MEETINGS

5.1 Local Trust Committee Minutes for Adoption

5.1.1 Galiano Island Local Trust Committee Special Meeting Minutes of November 16, 2013

The Minutes of November 16, 2013 Local Trust Committee Special Meeting by consent, were adopted.

5.1.2 Galiano Island Local Trust Committee Meeting Minutes of November 18, 2013

The Minutes of November 18, 2013 Local Trust Committee Meeting by consent, were adopted.

5.2 Public Hearing Record and Community Information Meeting

5.2.1 Galiano Island Local Trust Committee Community Information Meeting Notes of November 16, 2013

Amendments:

- Global edit – replace “Mr. Rolston” with “Mr. Ralston”.
- Page 3, item 4.3, eighth paragraph – replace “Kohurt” with “Kohut”.
- Page 3, item 4.3, eighth paragraph – add “some” after “appraise”.
- Page 3, item 4.3, eleventh paragraph – replace “funding” with “targets”.
- Page 3, item 4.3, eleventh paragraph – add “and lots are not fully leased from the beginning.” after “met.”
- Page 4, twelfth paragraph – replace “Clive” with “Ron”.
- Page 5, third paragraph – replace “homeowners” with “community members”.

The Notes of November 16, 2013, Local Trust Committee Community Information Meeting as amended, by consent were received.

5.3 Section 26 Resolutions without Meeting

One resolution regarding a variance considered/approved via resolution without meeting (RWM) and relating to the new North Galiano Fire Hall was mentioned.

5.4 Advisory Planning Commission

None

6. BUSINESS ARISING FROM THE REPORT

6.1 Follow-up Action Report

6.1.1 FUAL Report dated December 2013

Planner Nichols provided information and items were discussed with regards to status and action.

Specific to “Done” items – Planner Nichols will remove them.

Specific to item 2 – Trustee Decario stated that she met with Local Area Manager Rachelle Ray from the Ministry of Transportation and Infrastructure (MoTI) regarding Galiano’s parking issues and commented that they toured and discussed areas of concern that specifically relate to Sturdies Bay, Montague and Spanish Hills. Trustee Decario stated that MoTI does not have funds for major projects but may be able to assist with funds for smaller projects such as brush clearing and signage. Trustee Decario also mentioned that the Royal Canadian Mounted Police (RCMP) is now enforcing parallel versus angled parking at Sturdies Bay.

Chair Hancock asked Trustee Decario to follow-up with Local Area Manager Rachelle Ray of MoTI regarding their meeting, and to please copy the Local Trust Committee (LTC) on any correspondence(s).

Specific to items 10 and 11 – Planner Nichols will add the applicant’s name(s) to the application identifier.

7. DELEGATIONS

None

8. CORRESPONDENCE

None

9. APPLICATIONS, PERMITS, BYLAWS AND REFERRALS

9.1 GL-DP-2013.2 (Ghai) Memo

Planner Nichols provided information from the Memorandum dated November 25, 2013 (File No.: GL-DP-2013.2 (Ghai)) Re: GL-DP-2013.2 New Reports for Consideration in Evaluating the Development Permit Application.

Stephen Carter attended and spoke on behalf of David McKerrell and the application.

There was some discussion regarding the following: Island Marine Construction Services Ltd. taking care in what they do; habitat loss; intertidal zone; sea life attaching to structures; altering and adding to habitat; changes to the permit relating to 2(g) and 2(d); area surveyed not including the whole bay; eel grass protection; best placement versus proposed placement of dock; rock pinnacle(s) being a hazard at low tide; riparian rights and regulations; Department of Fisheries and Oceans (DFO) regulations; jurisdiction; development permits guiding but not restricting development; LTC desire to find amicable solution(s); wind as a hazard; construction materials that permit light to shine through them in order to reduce impact on eel grass and sea life; the bay being a critical habitat where fish lay eggs; construction having been done prior to permit approval; anchors, chains, shore pins, and eye bolts; prevention of sea bed scouring; Schedule "A" and Schedule "B" diagrams needing to be exact; bathymetric surveying; construction compliance and enforcement via diver checks; dock floating up and down but not side to side; options regarding the development permit (DP) and the development variance permit (DVP); dock landing options; setbacks; Forest Lands Natural Resource Operations (FLNRO); and next steps.

Resolution GL-LTC-150-13

It was Moved and Seconded that the Galiano Island Local Trust Committee defers consideration of GL-DP-2013.2 (Ghai) until staff determines whether a Development Variance Permit is required with the landing upland of the setback.

CARRIED

There was some discussion regarding other possible locations for the dock and rationale for such, and the need for a more detailed report.

Resolution GL-LTC-151-13

It was Moved and Seconded that the Galiano Island Local Trust Committee finds that the Precision Identification report dated November 12, 2013 does not adequately address the resolution of October 7, 2013 and requests a more thorough evaluation of site potential for an alternative dock location.

CARRIED

Note: there was a break at 3:10 p.m. and the meeting reconvened at 3:20 p.m.

9.2 GL-DVP-2013.3 (Williams) Memo

Planner Nichols provided information from the Memorandum dated November 25, 2013, (File No.: GL-DVP-2013.3 (Williams)) Re: Requested Qualified Professional Report to Address Retaining Wall.

David Williams attended and spoke on behalf of the application.

There was some discussion regarding: Bylaw Enforcement Officer (BEO) reports; process; application history; definition of natural boundary; high water mark; plant growth; erosion; applicant being opposed to seawall removal; environmental concerns; jurisdiction; natural versus unnatural boundary; bylaw complaint from 2005; Shoreline Site Assessment report; surveys; character of bay; *Land Act*; construction having been done prior to permit approval; precedent; need for clarification regarding the natural boundary of the sea; biologist report; LTC options; and next steps.

Resolution GL-LTC-152-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to obtain a second survey to determine natural boundary of the sea pertaining to GL-DVP-2013.3 (Williams).

CARRIED

The LTC requested that Planner Nichols provide the surveyor with the Memorandum dated November 25, 2013 (File No.: GL-DVP-2013.3 (Williams)) Re: Requested Qualified Professional Report to Address Retaining Wall.

A member of the public stated that uniform solutions relating to the determination of the natural boundary of the sea are needed.

Chair Hancock responded that such is better determined at the time of application and that this particular application has been a challenge due to process not being followed (construction having been done prior to permit approval).

There was some discussion regarding the applicants schedule and availability.

Resolution GL-LTC-153-13

It was Moved and Seconded that the Galiano Island Local Trust Committee defers further consideration of GL-DVP-2013.3 (Williams) to May 2014.

CARRIED

10. LOCAL TRUST COMMITTEE PROJECTS

10.1 STVR – Staff Report

Planner Farris provided information from the Staff Report dated November 28, 2013, (File No.: GL 6500-20 STVR) Re: STVR Fact Sheet and Survey Information.

There was some discussion regarding the following: short-term vacation rentals (STVR); rezoning; home occupation permits; Temporary Use Permits (TUP); dwellings and cottages being permitted in most zones; questions and parameters to be included in a survey; available rental stock; affordable housing; allowance of STVR's maybe not resulting in an increased stock of full-time rentals; need for reliable landlords; business licenses not being Local Trust Committee (LTC) jurisdiction; rental terms exceeding one month being long-term and therefore already subject to a tenancy agreement; visitor accommodation; bed and breakfast (B&B) accommodation; possible STVR effects on hotels, inns and other businesses; possible STVR effects on renters; possible restriction of STVR rentals to seven day stay minimums; possible designation of STVR zones; B&B's that might want to use their cottage as an STVR; Draft Project Charter timeline and meeting dates; the need to gather fs and inform the public; Hornby Island STVR approach; and next steps.

Planner Farris and Planner Nichols, based on today's discussions, will update possible questions to be asked of survey responders.

Resolution GL-LTC-154-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to send a mail out and provide a web link that includes a survey and fact sheet to Galiano Island residents and landowners.

CARRIED

Resolution GL-LTC-155-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to amend the Draft Project Charter timeline by adding item number identifiers one through nine, deleting items No. 2 and No. 4, updating item No. 5 Deliverable/Milestone to “Summarize findings from the survey to date” and updating item No. 6 Deliverable/Milestone to “Summarize completed survey and have a Community Information Meeting”.

CARRIED

Resolution GL-LTC-156-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to schedule a Community Information Meeting for March 2014.

CARRIED

11. REPORTS

11.1 Work Program Reports

11.1.1 Work Program Report dated December 2013

Work Program items were discussed with regards to status and action and Planner Nichols will update the Top Priorities and Projects lists according to LTC recommended amendments.

Resolution GL-LTC-157-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to provide a report on potential amendments to the Ground Water Protection Development Permit Area resulting from findings in the Waterline Report.

CARRIED

Specific to Top Priority Item No. 3 (Dock Review) – there was some discussion regarding a possible Draft Project Charter, zoning and eel grass mapping.

Resolution GL-LTC-158-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to present the Galiano Island eel grass mapping at the February 2014 business meeting.

CARRIED

11.2 Applications Reports

11.2.1 Applications Report dated December 2013

Provided for information.

11.3 Expense/Budget Reports

11.3.1 LTC Expense Report dated November 2013

Provided for information.

11.4 Bylaw Enforcement

None

11.5 Policies and Standing Resolutions Report

Provided for information.

Resolution GL-LTC-159-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to bring a Draft Policies and Standing Resolutions Report regarding open bylaw enforcement files and pending applications to the LTC for consideration.

CARRIED

11.6 Galiano Island LTC Web Page for Review

Chair Hancock asked for any additions or changes to the LTC web page; Planner Nichols will update routine items as necessary.

The Galiano Island LTC web page can be found at:

www.islandstrust.bc.ca/islands/local-trust-areas/galiano

11.7 Chair's Report

Chair Hancock stated that he attended Trust Council in Victoria on December 3rd - 5th, 2013, and that one of the key findings of an economic sustainability workshop was that ferry service cuts are the number one challenge.

11.8 Trustee Report

Trustee Pottle stated that she attended Trust Council in Victoria on December 3rd - 5th, 2013 and that many pressing issues relating to the Salish Sea were raised (i.e.: regarding oil tanker traffic, coal transportation, and new shellfish tenures).

Trustee Decario stated that she attended Trust Council in Victoria on December 3rd - 5th, 2013, and that there is a lot of advocacy that is, and needs to be done (i.e.: regarding ferries, pipelines, Howe Sound protection and geoducks). She stated that discussions on how to address advocacy would continue at the next Trust Council meeting and that the Galiano LTC is a particularly busy LTC.

12. OTHER BUSINESS

12.1 Upcoming Meetings

The next meeting of the Galiano Local Trust Committee will be held on February 3, 2014 at 12:30 p.m., at the South Community Hall, Galiano Island.

Chair Hancock stated that a Community Information Meeting (CIM) regarding STVR's is due to be scheduled for March 2014.

12.2 Community Benefit Regarding Rezoning of Forestry Property

Deferred

12.3 Galiano Land Community Housing Trust (GLCHT) – Community Information Follow-up

Planner Nichols provided information and stated that he would report back to the LTC once a final feasibility study has been done.

12.4 Bus Route 620 Tsawwassen/Bridgeport Schedule Changes

Resolution GL-LTC-160-13

It was Moved and Seconded that the Galiano Island Local Trust Committee requests Trustee Decario to write on behalf of the Local Trust Committee to TransLink BC, the Premier, and the Provincial Minister responsible to object to route 620 Tsawwassen/Bridgeport schedule changes.

CARRIED

Chair Hancock commented that TransLink BC offers a complaints feedback form via their website:

<http://feedback.translink.ca/hiwire?.a=cCustomerComplaint>

12.5 Motion to Close Meeting

Deferred

12.6 Recall to Order

12.6.1 Rise and Report from Closed Meeting

Deferred

13. TOWN HALL MEETING

Chair Hancock invited the public to make comment.

Doug Latta stated that all GLCHT is requesting is to rezone the property. He commented that he was frustrated with process.

Tom Hennessy stated concern regarding the November 16, 2013, LTC CIM Notes and asked how he can submit additional information. He requested that the LTC allow more time for a Town Hall session at the beginning of LTC meetings. He stated concern regarding length of process relating to GLCHT.

Chair Hancock responded that Mr. Hennessy could submit additional comments regarding the CIM Notes directly to the LTC and that such comments would be on record but that the CIM Notes themselves would not be further amended as they have already been received by the LTC.

There being no further comments from the public, Chair Hancock closed the Town Hall meeting.

14. ADJOURNMENT

Resolution GL-LTC-161-13

It was Moved and Seconded that the Galiano Island Local Trust
Committee meeting be adjourned at approximately 5:40 p.m.

CARRIED

RECORDER

CHAIR



Islands Trust

Print Date: Jan-24-2014

RWM From: November 14, 2013 To: January 24, 2014

Galiano Island

Resolution #	Action	Resolution Description	Resolution Date
2013-03	In Favour	THAT Galiano Island Local Trust Committee Development Permit GL-DP-2013.4 (CRD) be approved.	Nov 14, 2013

**MINUTES OF THE GALIANO ISLAND
ADVISORY PLANNING COMMISSION MEETING
HELD ON THURSDAY, OCTOBER 3, 2013 AT 12 NOON
AT THE GALIANO LOCAL TRUST OFFICE
23 MADRONA ROAD, GALIANO ISLAND, B.C.**



PRESENT:	Sheila Anderson	Chairperson
	Karen Harris	Member
	Barry New	Member
	Elizabeth Olsen	Member
	Jeffrey Patterson	Vice Chairperson
	Tahirih Rockafella	Member
	Ursula Deshield	Member

REGRETS: None

There were no members of the public in attendance.

1. CALL TO ORDER

Chairperson Anderson called the meeting to order at 12 noon. She reported that as no Secretary was yet available for the APC and that she would take minutes for the meeting.

2. APPROVAL OF AGENDA

The agenda was presented as approval of previous minutes, and continued review and discussion of the referred Bylaw No. 241 with a goal of finalizing the APC's response to the LTC. The proposed agenda was agreed to by consensus.

3. PREVIOUS MINUTES

MOTION:

It was Moved and Seconded that the Minutes of September 24, 2013 be approved.

**CARRIED
(Unanimous)**

4. REVIEW AND PRELIMINARY DISCUSSION OF BYLAW NO. 241

4.1 Sawmilling

After some discussion about the answers the Planner had given to the questions asked from the last meeting, members revisited points of concern recorded in previous meeting minutes and considered what response they wished to communicate to the LTC regarding the sawmilling aspects of Proposed Bylaw 241.

MOTION

It was Moved and Seconded that GIAPC recommend approval of the portion of proposed bylaw 241 pertaining to sawmilling (1. a), b), and c)) subject to further consideration by the Galiano Island Trust Committee of the GIAPC's discussion (Minutes Sept.24/13) of problems stemming from multiple "lot" ownership, the exchange of cut lumber for milling service, and the donation of cut lumber from temporary sawmilling to local community non-profit projects.

**CARRIED
(Unanimous)**

4.2 Contractors Yards

Members discussed what they had learned from reviewing home occupation approaches in other island communities of North Pender, Mayne Island and Gabriola Island, and compared these approaches to that which the Local Trust Committee propose in Bylaw 241.

There was general consensus that Proposed Bylaw 241 opened the door to too large a scale of industrial use on all residential zoned lands and provides little in the way of protection for the residential character of neighbourhoods or for the environment.

The Galiano OCP policies, particularly relating home occupations and residential uses, were looked at in comparison to the Staff report referenced SECTION I, Community Objectives 2.Principles f). Members did not generally consider that Principle f) was a clear policy direction for what Bylaw 241 is proposing.

After further discussion revisiting issues and concerns expressed in previous meeting of September 24, the APC members unanimously approved the following Motion.

MOTION:

It was Moved and Seconded that the APC recommend that Galiano Island Local Trust Committee NOT proceed with the Contractor's Yard portion of Proposed Bylaw 241 (1. d) e) and f)).

**CARRIED
(Unanimous)**

The members then considered the most important reasons for their decision, and how they wished to communicate to the Local Trust Committee in a referral report recommending against the contractor yard portion of 241.

MOTION:

It was Moved and Seconded that the GIAPC response to referred bylaw 241 be submitted as a separate report which should include the reasons for our response as discussed, and that text of report be subject to agreement by members prior to submission.

**CARRIED
(Unanimous)**

5. NEXT MEETING

No further meetings scheduled

6. ADJOURNMENT

At 1:25 PM it was agreed by consensus that the meeting should be adjourned.

CHAIR

DATE

**MINUTES OF THE GALIANO ISLAND
ADVISORY PLANNING COMMISSION MEETING
HELD ON Tuesday January 14 2014 AT 1PM
AT THE GALIANO LOCAL TRUST OFFICE
23 MADRONA ROAD, GALIANO ISLAND, B.C.**



PRESENT:	Sheila Anderson	Chairperson
	Barry New	Member
	Elizabeth Olson	Member
	Jeffrey Patterson	Vice Chairperson
	Tahirih Rockafella	Member
	Ursula Deshield	Member

REGRETS: Karen Harris Member

Applicant: Kelly Gesner, Landworks Consultants Inc. was in attendance.

There were no other members of the public in attendance.

1. CALL TO ORDER

Chairperson Anderson called the meeting to order at 1 PM.

2. APPROVAL OF AGENDA

The agenda was proposed as approval of previous minutes, and discussion and consideration of referral response to the referred proposed Bylaws No. 244 and 245.

The Agenda was agreed to as proposed by consensus.

3. PREVIOUS MINUTES

MOTION:

It was Moved and Seconded that the Minutes of October 3, 2013 be approved subject to correction of date of meeting in the footer.

**CARRIED
(Unanimous)**

4. Proposed BYLAWS NO 244 (OCP) and 245 (LUB)

4.1 The initial discussion of the referral included identifying a few issues that were noted by members during reading of referral materials.

The first was a question about how the decision of which beneficiary was named in regard to the community benefit in this proposal was arrived at, and whether we have clear enough guidance in OCP policy, if more proposals like this are in our

community's future. Members discussed how the GILTC might wish to open that discussion with the community.

Another issue noted for further information was the mapped private easement road passing through the NP zone leading from Bodega Beach Drive proposed dedication up into DL 80. Members agreed it would be good to verify whether that easement served any other lots beyond DL 80, a lot known to have road frontage on Porlier Pass Road but divided by challenging topography from the rest of the DL. The concern was similar to that expressed in a previous referral which spoke to minimizing impact of roads in NP zoned lands.

A third issue was about the Staff Report section titled "New Covenant Requirement", the page 3, listing possible covenant provisions for the LTC to consider. It was agreed that we should request further explanation of the meaning of the second bullet, to know what routes could be dedicated differently than proposed. But otherwise it was felt important to urge the LTC to follow through with these covenant provisions as listed.

4.2 Applicant Kelly Gesner presented a brief overview of how the proposal had evolved, and shared some of the issues involved for the multiple owners. She answered a number of questions including information regarding the private easement road to 80, issues that had arisen in discussions with MoTI around the proposed road access layout.

4.3 Discussion continued covering proposed road dedications to RR lots, panhandle to Lot 4, and the beach access dedication that had been requested by the LTC that goes through NP. There was a general consensus that it would be beneficial to the community to have a shore access managed and maintained by the local Parks and Recreation Commission than by the larger and more distant agency of BC Parks.

In a round table members described their overall impression of the proposal. All members expressed support for the layout of the proposal. Several members noted how positive it was to see a creative and workable solution for this property get to this stage. Some members felt strongly that the whole issue of the choice and direction of a community benefit in terms of proceeds from the sale of an extra lot needed fuller community discussion, more variety of community benefit, and clarity about the process of the decision if it is to serve the community well. . Other members supported the proposal, subject to the additional covenant requirements listed on page 3 of the Staff Report being implemented. Some members wanted assurance that the private easement through the NP area would remain limited in its future use, and not become a through road to lots beyond.

While there seemed to be general consensus that the GIAPC should recommend the LTC move forward with this proposal, the Chair proposed that a subsequent meeting be scheduled in order to receive answers to questions, and together prepare the wording of peripheral related recommendations and proposal specific measures the commission have identified as important.

It was agreed by consensus that the acting secretary (Chair) would prepare and circulate draft minutes of this meeting's discussion; request Staff to clarify their meaning in the second bullet under "covenants," on page three: ask staff to verify the grantee for the private easement; and confirm what could be done to ensure this easement remain minimal in impact on the NP zoned area.

5. NEXT MEETING

Next meeting date set for Tuesday January 21, 2014 at the same location. The time was suggested for 10 AM but was subject to confirmation.

6. OTHER BUSINESS

Vice Chair Jeff Paterson informed the GIAPC that his term was expiring at the end of January and due to his main residence moving off island he would not be continuing.

6. ADJOURNMENT

The meeting was adjourned at approximately 3:45

CHAIR

DATE

**MINUTES OF THE GALIANO ISLAND
ADVISORY PLANNING COMMISSION MEETING
HELD ON Tuesday January 21 2014 AT 12 NOON
AT THE GALIANO LOCAL TRUST OFFICE
23 MADRONA ROAD, GALIANO ISLAND, B.C.**

PRESENT:	Sheila Anderson	Chairperson
	Barry New	Member
	Elizabeth Olson	Member
	Tahirih Rockafella	Member
 REGRETS:	 Karen Harris	 Member
	Jeffrey Patterson	Vice Chairperson
	Ursula Deshield	Member

There were no members of the public in attendance.

1. CALL TO ORDER

Chairperson Anderson called the meeting to order at 12 noon.

2. APPROVAL OF AGENDA

The agenda was proposed as approval of previous minutes, and consideration of approval of referral response to proposed Bylaws No. 244 and 245.

The Agenda was agreed to as proposed by consensus.

3. PREVIOUS MINUTES

Elizabeth Olson noted an incomplete sentence or typo in second from last paragraph on page 2 and this was corrected.

MOTION:

It was Moved and Seconded that the Minutes of January 14, 2014 be approved as corrected.

**CARRIED
(Unanimous)**

4. Proposed BYLAWS NO 244 (OCP) and 245 (LUB)

4.1 Information report

The Chair reported to members the answers to the questions she had been directed to ask Planner Kris Nichols.

a) Regarding the second bullet under New Covenant Requirements heading of Staff report page 3 and its meaning the Planner emailed that "...This will not be required for this application. I had discussed various options for access to some of the proposed properties and it appears that now they will all have access from a dedicated road. This was also mentioned at one of the LTC meetings and it was felt that it is not required as a covenant."

b) Regarding the private easement in favour of DL 80, in phone conversation the Planner reported that as far as he knew it was only for DL.80. He also indicated that easements can be amended.

4.2 Referral response

After further discussion and reflection on the previous meetings discussion the following two motions were brought forward and considered.

MOTION: It was Moved and Seconded that the Galiano Island Advisory Planning Commission recommends approval of the proposed Bylaws No. 244 and 245 subject to:

- 1) Achieving covenants as described in the first, third and fourth bullets under heading New Covenant Requirements on Page 3 of the Staff Report for this proposal.
- 2) Ensuring that the private easement road over the Nature Protection portion is absolutely necessary given that DL 80 has public road frontage on Bodega Beach Drive. If there is clear evidence that the public road frontage of DL 80 cannot support physical access to the property, then we recommend the easement be limited to DL 80 only and kept to a minimal driveway standard. This is recommended in order to minimize wherever possible the impact of roads within Nature Protection zoned lands.

**CARRIED
(unanimous)**

MOTION: It was Moved and Seconded that the Galiano Island Advisory Planning Commission advise that the Local Trust Committee consider engaging the community in discussion of the OCP policies pertaining to possible beneficiaries of community benefits arising from future development proposals and ensuring that information about possible beneficiary community organizations is accurate, up to date and made available to the applicant prior to a decision.

**CARRIED
(unanimous)**

5. OTHER BUSINESS

It was reported that Jeff Patterson, Tahirih Rockafella, and Barry New have all received emails informing them that their current terms of appointment end January 31, and are being asked to indicate their wish to continue or not by tomorrow.

6. NEXT MEETING DATE

No meeting planned

7. ADJOURNMENT

The meeting was adjourned at 1PM.

CHAIR

DATE



Follow Up Action Report w/ Target Date

Galiano Island Dec-03-2012

No.	Activity	Responsibility	Target Date	Status
3	Retreat Cove Farm (Covenant Amendment) Staff working with Province to resolve issue.	Kris Nichols	Feb-03-2014	On Going

Oct-07-2013

No.	Activity	Responsibility	Target Date	Status
4	9.1 Gaylor Covenant Discharge covenant from Rem. D.L. 48, Amend covenant on Lot 1 to state that sawmilling and planing to occur within an enclosed building for sound mitigation New owners deciding on next steps.	Kris Nichols	Mar-03-2014	On Going

5	11. 3 Dewinetz - Staff to prepare a news release for LTC review and approval.	Kris Nichols	Dec-09-2013	Done
---	---	--------------	-------------	------

Nov-18-2013

No.	Activity	Responsibility	Target Date	Status
9	Bylaw No. 241 given second reading as amended. Staff to schedule CIM and PH for February 2014 meeting.	Lori Foster Sharon Lloyd-deRosario Kris Nichols	Feb-03-2014	Done

10	GL-RZ-2013.1 (Landworks) Bylaws No. 244 and 245 were given first reading. Agency Referrals required CIM and PH to be scheduled once a subdivision PLA has been received. Staff to initiate a cost recovery agreement as required and to work with applicant on F3	Sharon Lloyd-deRosario Kris Nichols	Feb-03-2014	On Going
----	---	--	-------------	----------

sustainability covenant.

Staff to obtain a Letter of Understanding from BC Parks

Dec-09-2013

No.	Activity	Responsibility	Target Date	Status
6	Resolution passed that Executive Committee follow up regarding smart meters and referral to the BC Utilities Commission.	David Marlor	Feb-03-2014	On Going
7	RMW Minutes from the Nov RMW dealing with the North Fire Hall be attached to the next agenda	Sharon Lloyd-deRosario	Feb-03-2014	Done
8	9.1 GL-DP-2013.2 (Ghai) Application deferred until: 1. Staff research whether a DVP is required if the concrete landing is not within the setback, but the dock structure leading to it is (but above ground). 2. Applicant return with a detailed report that has evaluated all the area in front of the property to determine the best location for the proposed dock.	Kris Nichols	Feb-03-2014	On Going
11	9.2 GL-DP-2013.3 (Williams) Application deferred until May 2014. In the interim staff will obtain a second survey to determine the natural boundary of the sea.	Kris Nichols	Feb-03-2014	On Going
12	11.1 Work Program: 1. Bylaw 241 - ensure report is prepared to give 3rd reading and send to Executive. 2. Provide a report on the existing DP (Groundwater) and proposed amendments based on research (Waterline report, etc.) 3. Present the eelgrass mapping at the Feb meeting.	Kris Nichols	Feb-03-2014	Done
13	11.5 Policies & Standing Resolutions Staff to draft a standing policy regarding bylaw enforcement files with pending applications.	Kris Nichols	Feb-03-2014	On Going
14	12.4 Route 620 Tswassen Transit Cancellation - Trustee Decario to draft letter to be sent to Translink regarding cancellation of important bus connection for Islanders.	Louise Decario	Feb-03-2014	Done

15	12.2 Community Benefit Regarding Rezoning of Forestry Property discussion is deferred till February. 12.4 In-Camera is deferred until February.	Sharon Lloyd-deRosario	Feb-03-2014	Done
16	10.1 STVR Staff to amend project charter as stated in meeting. Staff to prepare survey for release on the website in Dec. Letters and fact sheet to be sent out in January.	Kim Farris Kris Nichols	Feb-03-2014	Done



Islands Trust

BYLAW REFERRAL FORM

1-500 Lower Ganges Road
Salt Spring Island, BC BC V8K 2N8
Ph: (250) 537-9144
Fax: (250) 537-9116
ssiinfo@islandstrust.bc.ca
www.islandstrust.bc.ca

Island: Salt Spring Island Trust Area Bylaw No.: 472 Date: January 7, 2013

You are requested to comment on the attached Bylaw for potential effect on your agency's interests. We would appreciate your response within 30 days. If no response is received within that time, it will be assumed that your agency's interests are unaffected. For your information a Public Hearing to consider the Bylaw will be held in the near future.

APPLICANTS NAME / ADDRESS:

Ian MacAlpine

PURPOSE OF BYLAW:

To amend Land Use Bylaw No. 355 to rezone a portion of the waters fronting Lot 5, Sections 33 And 37, South Salt Spring Island, Cowichan District, Plan 1812 from Shoreline 6 – S6 to Shoreline 6(b) – S6(b) to permit a floating breakwater and dock with an oversize float associated with upland residential use.

GENERAL LOCATION:

1351 Mountain Road, South Salt Spring Island

LEGAL DESCRIPTION:

Lot 5, Sections 33 And 37, South Salt Spring Island, Cowichan District, Plan 1812

SIZE OF PROPERTY AFFECTED:

27.176 ha

ALR STATUS:

No

OFFICIAL COMMUNITY PLAN DESIGNATION:

Marine Other

OTHER INFORMATION:

See attached staff report and biologist assessment report.

Please fill out the Response Summary on the back of this form. If your agency's interests are "Unaffected", no further information is necessary. In all other cases, we would appreciate receiving additional information to substantiate your position and, if necessary, outline any conditions related to your position. Please note any legislation or official government policy which would affect our consideration of this Bylaw.

(Signature)

Name: Leah Hartley

Title: Regional Planning Manager

This referral has been sent to the following agencies:

Agencies

Fisheries and Oceans Canada
Coast Guard
Ministry of Environment
Ministry of Forests, Lands and Natural Resource Operations

First Nations

Hul'qumi'num Treaty Group
Malahat First Nation
Tseycum First Nation
Pauquachin First Nation
Tsartlip First Nation
Tsawout First Nation
Tsawwassen First Nation
Stzuminus First Nation
Lyackson First Nation
Lake Cowichan First Nation
Penelakut Tribe
Halalt First Nation
Cowichan Tribes

Regional Agencies

CRD Building Inspection
CRD Parks and Recreation Commission
SSI Fire-Rescue

Adjacent Local Trust Committees and Municipalities

Galiano Island Local Trust Committee
Mayne Island Local Trust Committee
North Pender Island Local Trust Committee
Thetis Island Local Trust Committee

BYLAW REFERRAL FORM RESPONSE SUMMARY

☐

Approval Recommended for Reasons Outlined Below

☐

Approval Recommended Subject to Conditions Outlined Below

☐

Interests Unaffected by Bylaw

☐

Approval Not Recommended Due to Reason Outlined Below

Salt Spring Island Local Trust Area

(Island)

472

(Bylaw Number)

(Signature)

(Title)

(Date)

(Agency)



Islands Trust

1-500 Lower Ganges Road
Salt Spring Island, BC BC V8K 2N8
Ph: (250) 537-9144
Fax: (250) 537-9116
ssiinfo@islandstrust.bc.ca
www.islandstrust.bc.ca

BYLAW REFERRAL FORM

Island: Salt Spring Island Local Trust Area **Bylaw:** 474 **Date:** January 9, 2014

You are requested to comment on the attached Bylaw for potential effect on your agency's interests. We would appreciate your response within 30 days. If no response is received within that time, it will be assumed that your agency's interests are unaffected. For your information a Public Hearing to consider the Bylaw will be held in early Spring.

APPLICANTS NAME / ADDRESS:

Dave McKerrell for Island Marine Construction Services Ltd.

PURPOSE OF BYLAW:

To amend Official Community Plan Bylaw No. 434 – Maps 1 and 16 - by changing the designation of the subject area from Marine Other (MO) to Shoreline Development (SD), and to add the subject area to Development Permit Area 1.

GENERAL LOCATION:

2850 Fulford-Ganges Road, Salt Spring Island.

LEGAL DESCRIPTION:

Lot 1, Section 15, Ranges 1 and 2, South Salt Spring Island, Cowichan District, Plan 12248.

SIZE OF PROPERTY AFFECTED:

0.897 hectares

ALR STATUS:

N/A

OFFICIAL COMMUNITY PLAN DESIGNATION:

Shoreline Development (SD) and Marine Other (MO)

OTHER INFORMATION:

Please see accompanying Staff Report, together with the registered plan and plan of existing water lots.

Please fill out the Response Summary on the back of this form. If your agency's interests are "*Unaffected*", no further information is necessary. In all other cases, we would appreciate receiving additional information to substantiate your position and, if necessary, outline any conditions related to your position. Please note any legislation or official government policy which would affect our consideration of this Bylaw.

(Signature)

Name: Justine Starke

Title: Island Planner

This referral has been sent to the following agencies:

Federal Agencies

Transport Canada

Regional Agencies

Vancouver Island Health Authority

Provincial Agencies

Ministry of Forests, Lands & Natural Resource Operations (Crown Lands Branch)

Local Trust Committees

Mayne Island
Galiano Island
North Pender Island
Thetis Island

Non-Agency Referrals

Fulford Water System (CRD)
SSI Harbour Authority
SSI PARC (CRD)
SSI Transportation Commission (CRD)

BYLAW REFERRAL FORM

RESPONSE SUMMARY

- ☐ Approval Recommended for Reasons Outlined Below
- ☐ Approval Recommended Subject to Conditions Outlined Below
- ☐ Interests Unaffected by Bylaw
- ☐ Approval Not Recommended Due to Reason Outlined Below

Salt Spring Island Local Trust Area

(Island)

(Signature)

(Date)

474

(Bylaw Number)

(Title)

(Agency)



Islands Trust

1-500 Lower Ganges Road
Salt Spring Island, BC BC V8K 2N8
Ph: (250) 537-9144
Fax: (250) 537-9116
ssiinfo@islandstrust.bc.ca
www.islandstrust.bc.ca

BYLAW REFERRAL FORM

Island: Salt Spring Island Local Trust Area **Bylaw:** 475 **Date:** January 9, 2014

You are requested to comment on the attached Bylaw for potential effect on your agency's interests. We would appreciate your response within 30 days. If no response is received within that time, it will be assumed that your agency's interests are unaffected. For your information a Public Hearing to consider the Bylaw will be held in early Spring.

APPLICANTS NAME / ADDRESS:

Dave McKerrell for Island Marine Construction Services Ltd.

PURPOSE OF BYLAW:

To amend Land Use Bylaw No. 355 by adding a new Zone Variation Shoreline 2(a) – S2(a) – and by rezoning the water area to the south of District Lot 426, adjacent to the subject property, from Shoreline 3 and Shoreline 6 to Shoreline S2(a) to permit temporary wharfage for transient boats.

GENERAL LOCATION:

2850 Fulford-Ganges Road, Salt Spring Island.

LEGAL DESCRIPTION:

Lot 1, Section 15, Ranges 1 and 2, South Salt Spring Island, Cowichan District, Plan 12248.

SIZE OF PROPERTY AFFECTED:

0.897 hectares

ALR STATUS:

N/A

OFFICIAL COMMUNITY PLAN DESIGNATION:

Shoreline Development (SD) and Marine Other (MO)

OTHER INFORMATION:

Please see accompanying Staff Report, together with the registered plan and plan of existing water lots.

Please fill out the Response Summary on the back of this form. If your agency's interests are "*Unaffected*", no further information is necessary. In all other cases, we would appreciate receiving additional information to substantiate your position and, if necessary, outline any conditions related to your position. Please note any legislation or official government policy which would affect our consideration of this Bylaw.

(Signature)

Name: Justine Starke

Title: Island Planner

This referral has been sent to the following agencies:

Federal Agencies

Transport Canada

Regional Agencies

Vancouver Island Health Authority

Provincial Agencies

Ministry of Forests, Lands & Natural Resource Operations (Crown Lands Branch)

Local Trust Committees

Mayne Island
Galiano Island
North Pender Island
Thetis Island

Non-Agency Referrals

Fulford Water System (CRD)
SSI Harbour Authority
SSI PARC (CRD)
SSI Transportation Commission (CRD)

BYLAW REFERRAL FORM

RESPONSE SUMMARY

- ☐ Approval Recommended for Reasons Outlined Below
- ☐ Approval Recommended Subject to Conditions Outlined Below
- ☐ Interests Unaffected by Bylaw
- ☐ Approval Not Recommended Due to Reason Outlined Below

Salt Spring Island Local Trust Area

(Island)

(Signature)

(Date)

475

(Bylaw Number)

(Title)

(Agency)



Islands Trust

BYLAW REFERRAL FORM

Island: Mayne Island

Bylaw No.: 159 (OCP) and 160
(LUB)

Date: December 4, 2013

You are requested to comment on the attached Bylaw for potential effect on your agency's interests. We would appreciate your response within 30 days. If no response is received within that time, it will be assumed that your agency's interests are unaffected.

APPLICANTS NAME / ADDRESS:

Mayne Island Local Trust Committee

PURPOSE OF BYLAW:

The purpose of Proposed Bylaw 159 is to amend the Mayne Island Official Community Plan in order to establish policy that would permit secondary suites within the Mayne Island Local Trust area.
The purpose of Proposed Bylaw 160 is to amend the Mayne Island Land Use Bylaw to allow secondary suites, having a floor area of 60 square metres or less to be permitted in the Settlement Residential, Rural, Upland and Agricultural zones. All subdivisions on community water systems have been excluded.

GENERAL LOCATION:

Mayne Island Local Trust Area

LEGAL DESCRIPTION:

NA

SIZE OF PROPERTY AFFECTED:

NA

ALR STATUS:

Yes

OFFICIAL COMMUNITY PLAN DESIGNATION:

OTHER INFORMATION:

Please fill out the Response Summary on the back of this form. If your agency's interests are "Unaffected", no further information is necessary. In all other cases, we would appreciate receiving additional information to substantiate your position and, if necessary, outline any conditions related to your position. Please note any legislation or official government policy which would affect our consideration of this Bylaw.

(Signature)

Name: Gary Richardson

Title: Island Planner

This referral has been sent to the following agencies:

Federal Agencies

Provincial Agencies

Ministry of Transportation and Infrastructure
Agricultural Land Commission

Non-Agency Referrals

Mayne Island Fire Department
Mayne Island Improvement District
Mayne Island Integrated Water System Society
Baker View Holdings Ltd
Bennet Bay Waterworks District
Dinner Point Water Systems
Georgina Waterworks & sewage District
Laura Point Water Society
Lighthouse Point Waterworks District

Regional Agencies

Capital Regional District- Planning & Protective Services (Robert Gutierrez)
Capital Regional District - Environmental Services (Tim Tanton)
Vancouver Island Health Authority (Rory Beise)

Adjacent Local Trust Committees and Municipalities

Galiano Island Local Trust Committee
North Pender Island Local Trust Committee
Saturna Island Local Trust Committee
Salt Spring Island Local Trust Committee

First Nations

Cowichan Tribes
Halalt First Nation
Lake Cowichan First Nation
Lyackson First Nation
Pauquachin First Nation
Penelakut Tribe
Semiahmoo First Nation
Stz'umimnus First Nation
Tsartlip First Nation

PLEASE TURN OVER →

Non-Agency Referrals Cont'

Mount Parks Waterworks District
Skana Water Services Area
Village Point Waterworks & Sewage District
Campbell-Bennett Bay Waterworks District

First Nations Cont'

Tsawout First Nation
Tsawwassen First Nation
Tseycum First Nation

BYLAW REFERRAL FORM RESPONSE SUMMARY

- ☐ Approval Recommended for Reasons Outlined Below
- ☐ Approval Recommended Subject to Conditions Outlined Below
- ☐ Interests Unaffected by Bylaw
- ☐ Approval Not Recommended Due to Reason Outlined Below

(DO NOT FILL OUT BEYOND THIS SECTION – REFERRAL AGENCY WILL COMPLETE SECTION)

Mayne Island
(Island)

No. 159 (OCP)
(Bylaw Number)

(Signature)

(Name and Title) Please Print

(Date)

(Agency)

BYLAW REFERRAL FORM RESPONSE SUMMARY

☐

Approval Recommended for Reasons Outlined Below

☐

Approval Recommended Subject to Conditions Outlined Below

☐

Interests Unaffected by Bylaw

☐

Approval Not Recommended Due to Reason Outlined Below

(DO NOT FILL OUT BEYOND THIS SECTION – REFERRAL AGENCY WILL COMPLETE SECTION)

Mayne Island

(Island)

No. 160 (LUB)

(Bylaw Number)

(Signature)

(Name and Title) Please Print

(Date)

(Agency)

Date January 7, 2013

File Number GL-6500-20 (LUB Review)

To Galiano Island Local Trust Committee
For the meeting of February 3, 2013

From Kris Nichols
Island Planner

Re **Proposed Bylaw No. 241 (LUB) – Post Public Hearing, and 3rd Reading**

At the November 18, 2013 LTC meeting, Bylaw 241 was amended and given Second Reading. A resolution was passed to schedule a Public Hearing for February 3, 2014. Please see Attachment 1 for Bylaw No. 241 at Second Reading.

It should be noted that following the close of the public hearing, the LTC may not hear further submissions without holding a new hearing. The principle is that if new information is considered by the LTC, all other interested parties also need to have the opportunity to consider any new relevant material and to make further representations to the LTC. The courts have clarified that this does not open the door to endless public hearings: a local government body can legitimately decide that after a hearing it wishes to hear further from staff on issues raised at the hearing.

Consideration of any amendments to the proposed bylaw based on information or comments received at the Public Hearing can be discussed amongst the Trustees, but new submissions are not permitted to be heard nor discussed.

RECOMMENDATIONS:

1. THAT Galiano Island Local Trust Committee proposed Bylaw No. 241, cited as "Galiano Island Land Use Bylaw No. 127, 1999, Amendment No. 1, 2013" be read a Third time.
2. THAT the Galiano Island Local Trust Committee proposed Bylaw No. 241 cited as "Galiano Island Land Use Bylaw No. 127, 1999, Amendment No. 1, 2013" be forwarded to the Secretary of the Islands Trust for Executive Committee approval.

Attachment 1 – Proposed Bylaw 241 at Second Reading

pc Robert Kojima, Regional Planning Manager

PROPOSED

GALIANO ISLAND LOCAL TRUST COMMITTEE
BYLAW NO. 241

A BYLAW TO AMEND GALIANO ISLAND LAND USE BYLAW NO. 127, 1999

The Galiano Island Local Trust Committee, being the Trust Committee having jurisdiction in respect of the Galiano Island Trust Committee Area under the *Islands Trust Act*, enacts as follows:

- 1. Bylaw No. 127, cited as “Galiano Island Land Use Bylaw No. 127, 1999” is amended as follows:
 - a) By amending Section 2.14 by adding the word “temporary” in front of the word sawmilling.
 - b) By deleting in its entirety Subsection 17.1.35a.
 - c) By amending Section 17.1 (Definition) by adding the following definition in alphabetical order and subsequently changing all definition numbering:
“Temporary sawmilling - means the process of milling timber by mechanical means (i.e. portable sawmill) to produce dimensional lumber for the use of the lot owner and on the lot on which the portable sawmilling takes place. The timber, harvested from the same lot, must be used for construction of structures, fences, decks and accessory buildings as permitted under this bylaw on the same lot. Sawmilling operations are permitted between the hours of 0800 and 1700 (excluding weekends and statutory holidays) on a lot where the sawmill is authorized by subsection 2.1.4 of this bylaw and includes the processing of the forest resource where the sawmill is a permitted use on a lot by any section of this bylaw other than subsection 2.1.4. A temporary sawmill must be located a minimum distance of 10.0 m from any property line.”
- 2. This bylaw may be cited for all purposes as the “Galiano Island Land Use Bylaw No. 127, 1999, Amendment No. 1, 2013”.

READ A FIRST TIME THIS	15 th	DAY OF	JULY	2013
PUBLIC HEARING HELD THIS		DAY OF		201x
READ A SECOND TIME THIS	18 th	DAY OF	NOVEMBER	2013
READ A THIRD TIME THIS			DAY OF	201x
APPROVED BY THE EXECUTIVE COMMITTEE OF THE ISLANDS TRUST THIS				
			DAY OF	201x

ADOPTED THIS

DAY OF

201x

DEPUTY SECRETARY

CHAIR

U:\LOCAL TRUST COMMITTEES\Galiano\Projects\2012 LUB Review\Bylaw No. 241_LUB Amendment.docx



Memorandum

Date January 24, 2014 File Number GL-DVP-2013.3
(Williams)

To Galiano Local Trust Committee
For the February 3, 2014 Meeting

From Kris Nichols, Island Planner

Re Requirement of Second Survey to Determine Natural Boundary of the Sea

Background

At the December 9, 2013 Local Trust Committee (LTC) Meeting, two resolutions were passed. The first one was based on determining the natural boundary of the sea given that the Trustees had two documents, a survey and a consultant's report, that differed in their interpretation of the natural boundary of the sea. The following resolution was passed:

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to obtain a second survey to determine natural boundary of the sea pertaining to GL-DVP-2013.3 (Williams).

The second motion was in consideration of when the application would be dealt with at an LTC meeting given that the applicants would be out of the country for a number of months and the fact that a second survey would take time to accomplish. The LTC passed the following motion:

It was Moved and Seconded that the Galiano Island Local Trust Committee defers further consideration of GL-DVP-2013.3 (Williams) to May 2014.

Survey Request Update:

The cost of the second survey was to be paid for through the Local Trust Committee's budget. In December staff contacted another surveying company to provide a cost estimate for a second survey. As requested by the LTC staff provided the surveyor with a copy of the Memorandum reviewed at the December 9, 2013 meeting as context.

In speaking with a second surveyor who reviewed all the information submitted as well as original pictures during the 2002 construction he states that it appears that the sea wall was built on or landward of the natural boundary of the day for the east half of it to the bend. He states that it from then onward it becomes very difficult to determine, and this is where he would have little confidence of a current survey being more accurate than what has already provided in the original survey. He agreed that based on the photos provided thus far,

the sea wall on the southeasterly half of the property appears to be landward of the natural boundary at the time of construction and so in the proper location.

Staff discussed what was to be achieved through a second survey. In the end it was determined a second survey would be inconclusive in determining the exact location of the natural boundary of the sea.

Staff spoke again with the original surveyor who described his survey that was used in the application. In the surveyor's opinion, the natural boundary shown is the present natural boundary as found by him on the date of the survey. The original surveyor stated that he had compared his recent survey to the original 1957 survey, which was the date of the creation of the parcel. In one spot, the interpretation of the natural boundary of the sea is over one metre seaward of the 1957 version while in another spot his interpretation is more than one half metre towards the upland. In any event, the surveyor states that the retaining wall is entirely upland of both the 1957 boundary and his survey.

Next Steps:

Based on the fact that a second survey would not provide any conclusive new evidence as to the location of the natural boundary of the sea, staff are of the opinion that the LTC should rescind its motion to require a second survey passed on December 9, 2013 and to reconsider the timeline for further consideration of the application.

Staff have attached the original application report as Attachment 1 and the December 9, 2013 Memo as Attachment 2 should the LTC wish to discuss the application further at this meeting.

Recommendations:

1. THAT the Galiano Local Trust Committee rescinds their December 9, 2013 resolution recommending that staff obtain a second survey to determine the natural boundary of the sea as it pertains to GL-DVP-2013.3 (Williams).
2. THAT the Galiano Local Trust Committee reconsiders its resolution of December 9, 2013 on the timing of when the application, GL-DVP-2013.3, should be reconsidered and look to an earlier date.

pc Robert Kojima, RPM

Attachments:

1. Application Report dated August 28, 2013.
2. Memo dated November 25, 2013.



STAFF REPORT

August 28, 2013

File No.: GL-DVP-2013.3
(Williams)

To: Galiano Island Local Trust Committee

From: Kim Farris, Planner 1

CC: Robert Kojima, Regional Planning Manager
Kris Nichols, Island Planner

Re: Development Variance Permit

Owner: David and Nora Williams
Applicant: Same
Location: Lot 1, of Lot 6, Galiano Island, Cowichan District, Plan 11928
260 Cayzer Road

THE PROPOSAL:

This application seeks to vary the Galiano Island Land Use Bylaw 127, 1999 to legalize the existing building (dwelling) and structures (retaining wall, shed, stairs and deck) on the subject property by varying:

- a) Section 2.14 is varied to reduce the setback to the natural boundary of the sea from 7.5 metres to:
 - i. 0.96 metres for an existing retaining wall,
 - ii. 0.0 metres for an existing deck, and
 - iii. 0.39 metres for existing stairs.
- b) Article 5.3.8.2 is varied to reduce the setback from the interior side lot line from 6.0 metres to:
 - i. 5.69 metres for an existing single family dwelling unit,
 - ii. 0.82 metres for an existing shed,
 - iii. 0.65 metres for an existing retaining wall, and
 - iv. 4.13 metres for an existing deck.

In 2002, the property owner outlined a proposal for a retaining wall to a Galiano trustee to discuss the viability of the project. Unfortunately, the property owner was unaware that the proposal did not meet the regulations in the Galiano Island Land Use Bylaw and that variances and a development permit were required. The property owner started the retaining wall construction in July 2002 which included backfilling the property along the retaining wall to level out the rear yard. Later that year, after construction had started, the Islands Trust Bylaw enforcement received a complaint that a retaining wall was being built within the setback from the natural boundary of the sea. Bylaw enforcement notified the property owner that a

Development Variance Permit (DVP) was required for retaining wall; furthermore, if the variance was not granted that the retaining wall must be removed.

In August 2002 the property owner applied for a DVP but the application was deemed incomplete as the applicant did not pay the application fee nor provided a site survey. Bylaw enforcement revisited the property in 2005 at which time they noticed that a deck and accompanying stairs accessing the foreshore were built and were attached to the retaining wall (Picture 3).

Bylaw enforcement recently revisited their file in order to gain compliance for the retaining wall. The applicants reapplied for a DVP and are now requesting setbacks for the retaining wall, stairs, and deck. After reviewing the site survey, staff noted that a portion of the existing house and garden shed were located within the side yard setback (Picture 5). In order to bring the property into compliance, the DVP application includes requested setback variances for the house and a shed.

SITE CONTEXT:

The north-facing waterfront property is located at the southeastern end of Galiano Island facing Whaler Bay. The subject property is 0.18 ha (0.45 acre) in area and subject property is and is zoned Small Lot Residential (SLR). Small Lot Residential zoned parcels surround the subject property and the foreshore borders north property lot line.

There are multiple buildings and structures located on the subject property – a dwelling unit, two sheds, a wood shed, a pumphouse, and a retaining wall with deck and accompanying stairs to access the foreshore. One of the accessory buildings, a wood shed, is not located on the site survey (see Figure 2 and Picture 6).

Figure 1 indicates the location of the subject property and Figure 3 and 4 show the locations of the existing buildings and structures.

Figure 1: Subject Property Map

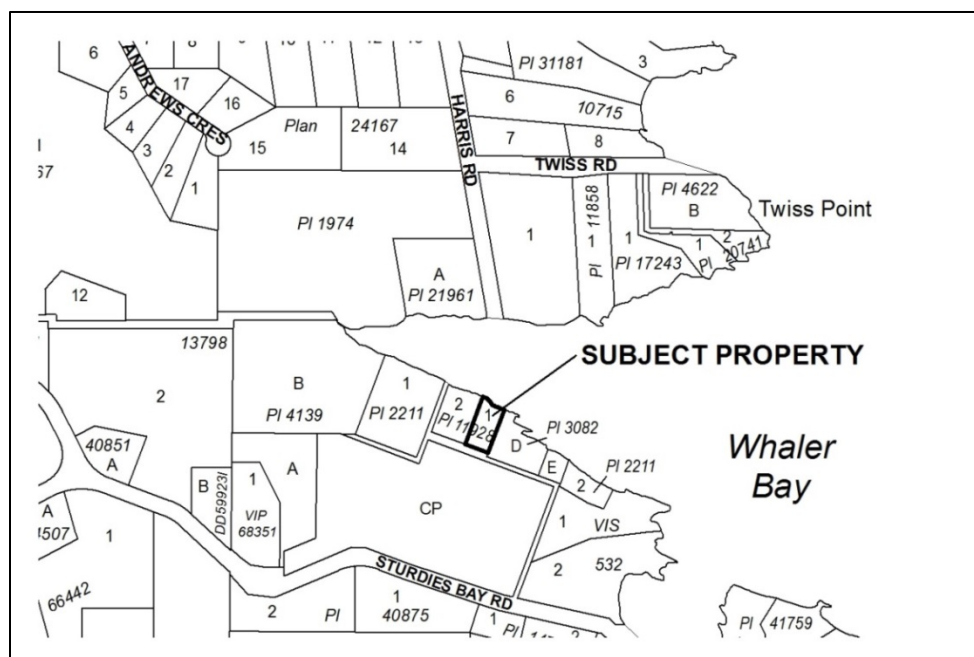


Figure 2: Orthophoto and 2 metre contour lines



Picture 1: View of retaining wall from foreshore



Picture 2: Retaining wall and stairs included in requested variance



Picture 3: Deck and stairs on retaining wall



Picture 4: Rear yard looking west (retaining wall along the right)



Picture 5: Portion of dwelling unit and garden shed included in variance



Picture 6: Woodshed not include on site survey



Picture 7: Shoreline of neighbouring property to the north



Figure 3: Survey Site Plan – Subject Property

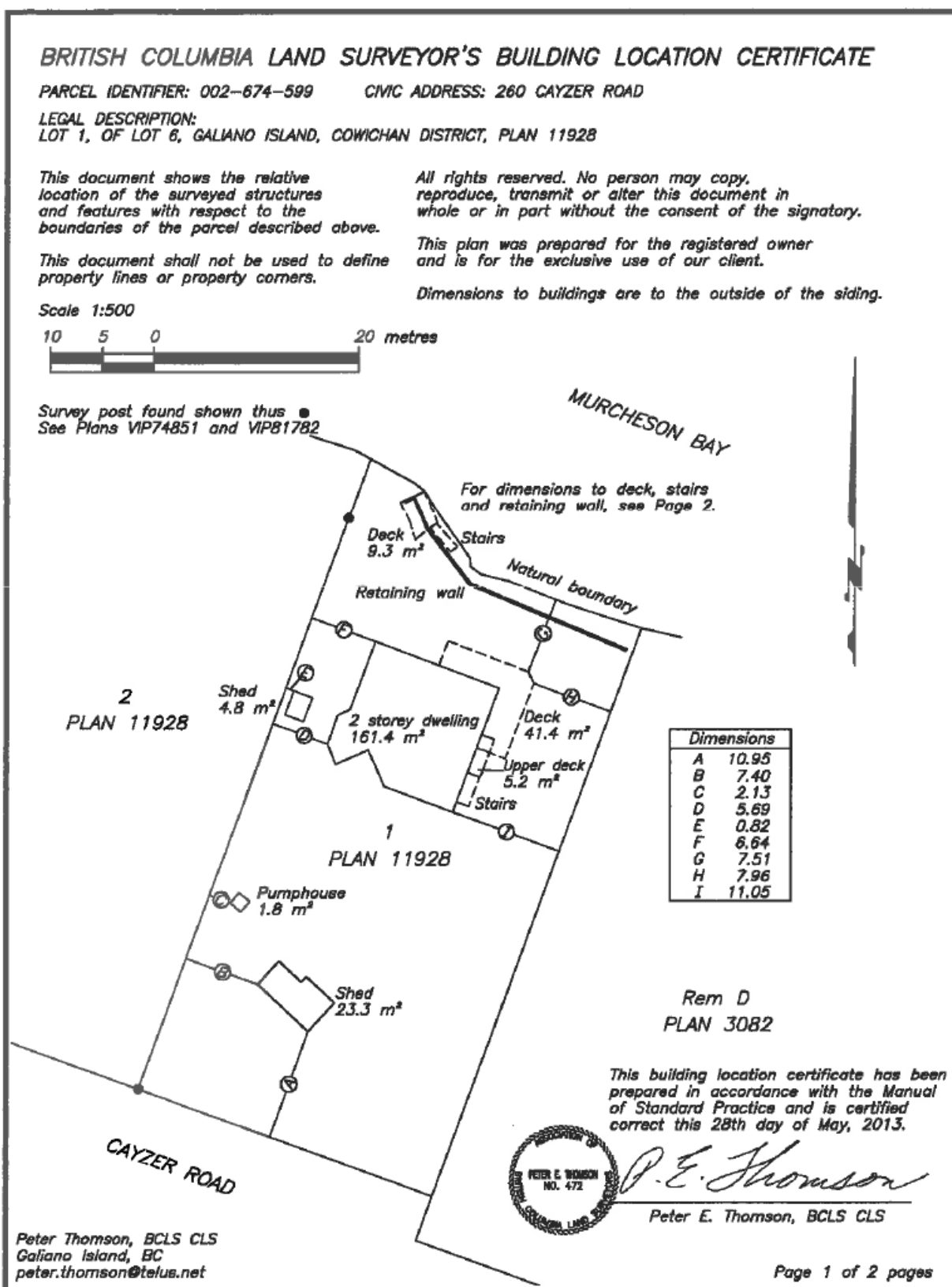
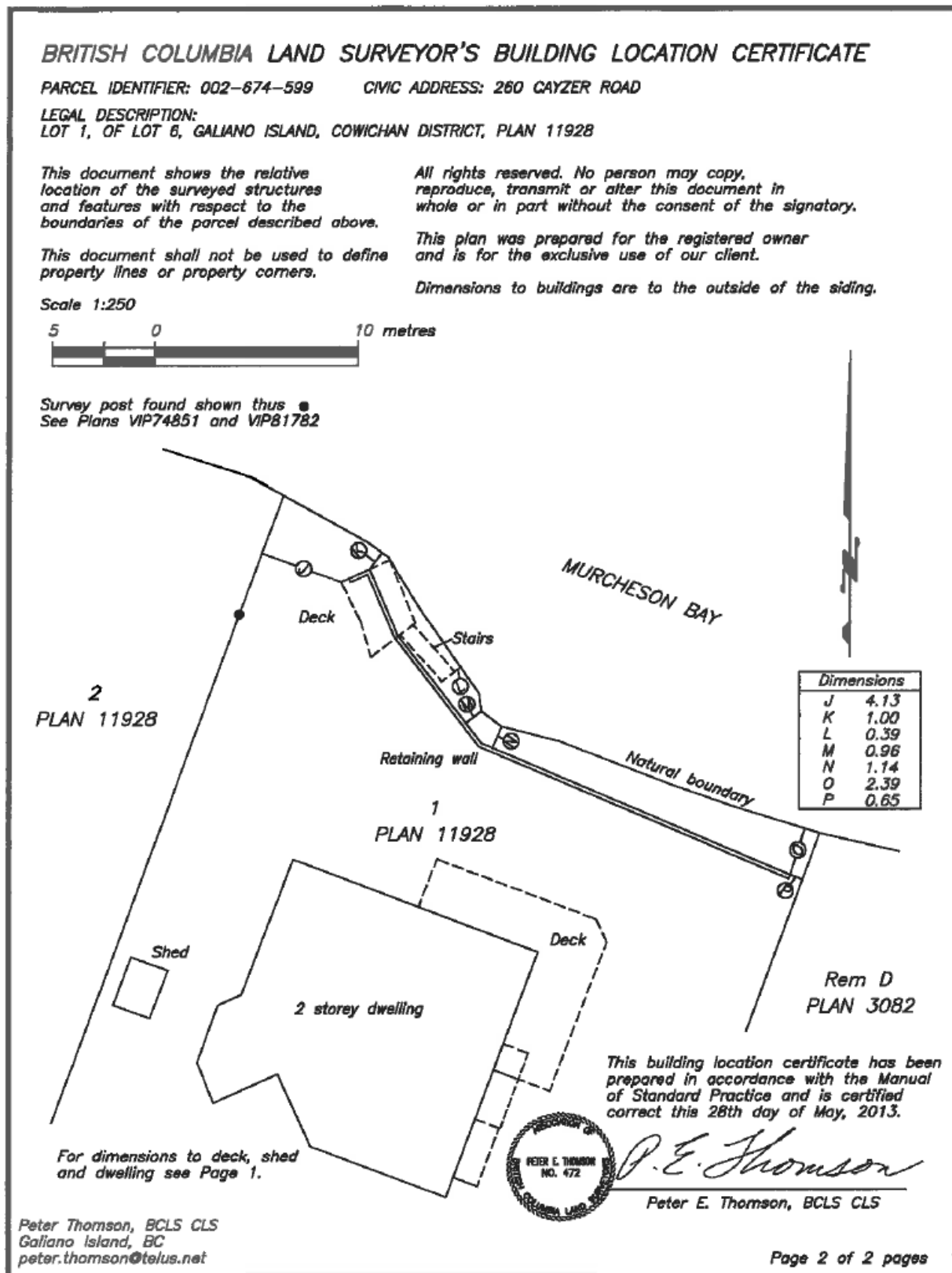


Figure 4: Survey Site Plan – Retaining Wall, Stairs, & Deck



CURRENT PLANNING STATUS OF SUBJECT LANDS:

Trust Policy Statement:

Directive policies relevant to this application include:

Local trust committees and island municipalities shall, in their official community plans and regulatory bylaws,

- 3.4.4 ...address the protection of sensitive coastal areas.
- 3.4.5 ...address the planning for and regulation of development in coastal regions to protect natural coastal processes.
- 4.5.10 ...address the location of buildings and structures so as to protect public access to, from and along the marine shoreline and minimize impacts on sensitive coastal environments.
- 5.1.3...address the protection of views, scenic areas and distinctive features contributing to the overall visual quality and scenic value of the Trust Area.

Official Community Plan:

The subject property is designated Small Lot Residential in the Official Community Plan (OCP); relevant Residential policies include:

- B) - Single dwelling units shall be the principal permitted use.
- I) - Appropriate setbacks of buildings and structures from water bodies shall be included in zoning.

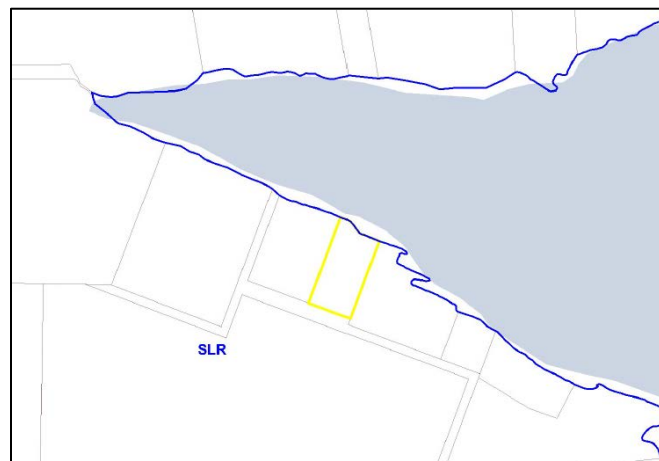
The property is located within the Shoreline & Marine Development Permit Area (DPA) and the Steep Slopes DPA. The Shoreline & Marine DPA was established in the OCP in 2000 prior to the construction of the retaining wall, stairs, and deck therefore a Development Permit was required for these structures at that time.

Land Use Bylaw:

The subject property is zoned Small Lot Residential (SLR) in the Galiano Island Land Use Bylaw 127, 1999. The specific bylaw regulations relevant to this application include:

- Section 2.14 - Buildings and structures must be sited at least 7.5 metres from the natural boundary of the sea, and at least 15 metres from any lake, a swamp and any other natural watercourse.
- Article 5.3.8.2 – Buildings and structures must be sited at least 6.0 metres from each interior side lot line.

Figure 5: Zoning Map



Islands Trust Fund:

This application has no considerations for the Island Trust Fund.

Sensitive Ecosystems and Hazard Areas:

The steep slope hazard mapping indicates low and medium hazards on a small portion of the subject property. The steep slope is located along the retaining wall and extends towards the foreshore (see Figure 6). There are no sensitive ecosystems identified on or near the property.

Figure 6: Steep Slopes



Archaeological Sites:

There is a record of an archaeological site along the foreshore to the east of the retaining wall. Had the residents contacted the Archaeology Branch prior to the construction, they would have been advised that if any suspected archaeological materials were encountered during the construction, they would need to stop construction and contact the Archaeology Branch for direction. If the variance for the retaining wall, stairs, and/or deck is not granted and they must be dismantled, and if any materials suspected to be archaeological in nature are encountered during the dismantling, the work must be halted and the Archaeology Branch contacted for direction.

Covenants:

There are no covenants registered on the property.

Bylaw Enforcement:

Bylaw enforcement received a bylaw complaint concerning the construction of the retaining wall within the setback to the sea in 2002. The bylaw enforcement file is still open and will not be closed until the conforming structures are either removed or variances are granted.

There is an existing woodshed that is within the setbacks and is not included in this application. The applicant has stated that they will move the structure. Bylaw Enforcement will be notified to follow up to ensure the structure is moved.

Climate Change Mitigation and Adaption

Increased storm activity along British Columbia's coast associated with climate change has facilitated an increase in wave action and contributes to shoreline erosion. Shore protection measures are modifications to the shoreline, or adjacent seaward or landward areas, for the purpose of protection against erosion. Structural protection measures are often referred to as 'hard' and 'soft'. Although the retaining wall (hard structure) may help to stabilize the eroding bank, the Galiano Island OCP states that shore protection measures should apply the 'softest' possible shore protection measure that will still provide satisfactory protection. In general, the harder the construction measure, the greater the impact on shoreline processes, including sediment transport, geomorphology, and biological functions.

Shoreline

The TAPIS shoreline data classifies the subject property's shoreline as a Sand/Cobble Shoreline. Pictures 1 and 2 in the staff report show the shoreline as a low rock and boulder shoreline.

CRD Building Inspection:

The CRD Building Inspection completed a site inspection in 2002 after the retaining wall was constructed. The building inspector determined a Building Permit was not required. The referral was recently sent to the CRD to collect comments on the current DVP application. To date, a response from the CRD has not been received. Any relevant comments from the CRD will be forwarded to the LTC and presented at the Galiano Island Local Trust Committee meeting on September 9, 2013.

RESULTS OF CIRCULATION:

Notices were circulated to surrounding property owners and residents. The notification period will end at 4:30 p.m on September 8, 2013. At the writing of this report, no public submissions have been received. Any additional public submissions will be forwarded to the LTC and presented at the Galiano Island Local Trust Committee meeting on September 9, 2013.

ISSUES SUMMARY:

Applicant's stated rationale for the proposed variance. In 2002, the applicant proposed to construct a retaining wall in order to protect the property from erosion to prevent silting in Whaler Bay to protect an oyster bed. The applicant had a conversation with a local trustee at that time, in which the applicant thought he had enough information to move forward with the retaining wall. During this time, the applicant noticed a large section of his property along the foreshore was sliding down into the shoreline area. As his son was planning to be in town, the applicant went forward with building the retaining wall in late July 2002. Soon after the applicant was notified by the CRD and Islands Trust that the retaining wall was in non-compliance but the applicant continued with the construction as they felt it would create more problems to stop then to continue on. In order to bring the retaining wall into compliance, the applicant has now submitted a complete DVP application.

The overall intent of the regulation being varied. The overall purpose of setback requirements is to ensure a safe separation between uses, reduce impacts on neighbouring uses and to the sea, maintain a consistent pattern of development and the maintenance of green space.

Potential impacts of granting a variance. Granting a variance can potentially create an expectation in the community with regard to future applications. As variances consider the unique circumstances pertaining to a particular situation that may warrant the relaxation of a specific zoning regulation, it is unlikely to generate expectations for other landowners. Each application is evaluated on its own merits.

STAFF COMMENTS:

This variance application is to legalize the siting of existing buildings and structures located on the subject property. The applicant originally requested a variance for the retaining wall, deck, and accompanying stairs. After reviewing the site survey, staff noted that a portion of the existing house and shed were located within the side yard setback and suggested to the applicant to include them in the DVP application as well.

Dwelling Unit & Garden Shed:

The existing non-conforming portion of the dwelling unit and garden shed does not appear to negatively impact the adjacent property owners. If the variance for the house was denied, the removal of the non-conforming portion of the dwelling unit would bestow a considerable cost to the applicant. Staff is of the opinion that the requested variances to reduce the interior side yard setback from 6.0 metres to 5.69 metres for the existing single family dwelling unit and from 6.0 metres to 0.82 metres for an existing shed should be permitted to bring the existing structures into compliance with the Galiano Island Land Use Bylaw.

Woodshed:

The wood shed was noted missing from the site survey after a site visit was completed by Island Trust staff. As the wood shed is a small accessory structure and is minor in nature, it was not asked to be resurveyed onto the site plan. It is the property owners' responsibility to either apply for a variance for the wood shed to legalize its siting or relocate or remove the accessory structure so it conforms to the SLR zone setbacks. The property owner has indicated that he will relocate the woodshed to meet the required setbacks.

Retaining Wall:

The retaining wall is a large concrete structure located approximately 1.0 metre from the natural boundary of the sea. If the retaining wall was proposed today, the property owner would be required to obtain a Development Permit to address the Shoreline & Marine and Steep Slope DPA guidelines and associated variances. The Shoreline & Marine DPA requires a report from a Qualified Environmental Professional to address all the DPA guidelines and to ensure the development has no negative impacts to the shoreline area. Furthermore, the Shoreline & Marine DPA requires applications to apply the 'softest' possible shore protection measure that will still provide satisfactory protection. A variation of the current Shoreline DPA was in place at the time the retaining wall was constructed and should have been applied for at that time due to the sensitive nature of the shoreline.

If the variance for the retaining wall is denied, the applicant will be required to apply for a Shoreline & Marine DPA for the dismantling of the structure. Removal of the structure may have

a more detrimental effect on the shoreline area and would be a significant cost to the property owner.

When the retaining wall was built, it would have required a DVP and a DP for approval. Even though the property owners were aware of the requirement for a variance by Islands Trust staff, they continued with the construction. They were also notified by Islands Trust Bylaw Enforcement staff in 2002 that if the variance was denied, the retaining wall would have to be removed. Given the above, staff is of the opinion that the retaining wall should be permitted if the property owner provides a report, prepared by Environmental Professional with shoreline and marine assessment experience, stating the retaining wall, had and will not have any associated negative impacts to the shoreline and marine sensitive ecosystem.

Deck & Accompanying Stairs:

The deck and accompanying stairs were not built during the initial bylaw complaint in 2002. After a site visit in 2005 by Islands Trust staff, it was documented that a deck and stairs were built attached to the retaining wall. The property owners use the stairs to gain access to the foreshore. As the structures were built after the original bylaw complaint, and at that time the property owners were aware of the required setback to the sea for structures, staff does not support the variance for the deck and accompanying stairs.

Options:

Staff recommends issuing the permit for the dwelling unit and shed but deny the variance for the retaining wall, deck, and accompanying stairs.

If the Local Trust Committee (LTC) is open to approving the variance for the retaining wall, staff then recommends gathering more information from the applicant in the form of a report from an Environmental Professional with shoreline and marine assessment experience. If the report states that the retaining wall had and will not have any associated negative impacts to the shoreline and marine sensitive ecosystem, the LTC may consider approving the variance for the retaining wall. It should be noted that if the applicant provides the said report, it does not guarantee approval of the variance but rather provides scientific data for the rationale of the retaining wall and any associated impacts.

The Galiano Island LTC has the following options with regard to this variance permit:

1. Issue the permit as presented (Attachment 1); or
2. Table the application subject to the applicant providing a report, prepared by an Environmental Professional with shoreline and marine assessment experience, stating the retaining wall had and will not have any associated negative impacts to the shoreline and marine sensitive ecosystem. The application will be considered at a subsequent LTC meeting no later than December 9, 2013. Staff will still be recommending that the variance for the deck, and accompanying stairs not be included; or
3. Issue the permit for the dwelling unit, shed, and retaining wall but deny the variance for the deck, and accompanying stairs; or
4. Issue the permit for the dwelling unit and shed but deny the variance for the retaining wall, deck, and accompanying stairs; or
5. Deny the permit and all presented variances.

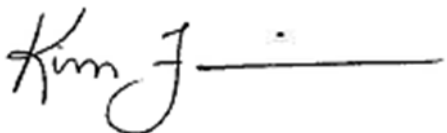
RECOMMENDATIONS:

1. THAT GL-DVP-2013.3 (Williams) be amended by deleting variances for the retaining wall (Part 2c), the variances for the deck (Part 2d), and variance for the stairs (Part 2e); and,
2. THAT the amended GL-DVP-2013.3 (Williams) be APPROVED.

Alternate Resolution:

1. THAT GL-DVP-2013.3 (Williams) be amended by deleting variances for the deck (Part 2d), and variance for the stairs (Part e); and,
2. THAT amended GL-DVP-2013.3 (Williams) be tabled until the Local Trust Committee meeting on December 9, 2013 pending additional information by the applicant.

Prepared and Submitted by:

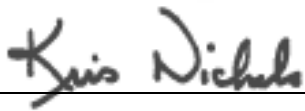


Kim Farris, Planner 1

August 28, 2013

Date

Concurred in by:



August 28, 2013

Date



PROPOSED

GALIANO ISLAND LOCAL TRUST COMMITTEE

DEVELOPMENT VARIANCE PERMIT

GL-DVP-2013.3

TO: David and Nora Williams

1. This Development Variance Permit applies to the land described below:

Lot 1, of Lot 6, Galiano Island, Cowichan District, Plan 11928
2. "Galiano Island Land Use Bylaw 127, 1999" is varied as follows:
 - a) *For the existing single family dwelling unit (Shown on Schedule A):*
 - i) Article 5.3.8.2 is varied to reduce the setback from an interior side lot line from 6.0 metres to 5.69 metres.
 - b) *For the existing accessory building – shed (Shown on Schedule A):*
 - i) Article 5.3.8.2 is varied to reduce the setback from an interior side lot line from 6.0 metres to 0.82 metres.
 - c) *For the existing retaining wall (Shown on Schedule B):*
 - i) Section 2.14 is varied to reduce the setback from the natural boundary of the sea from 7.5 metres to 0.96 metres.
 - ii) Article 5.3.8.2 is varied to reduce the setback from an interior side lot line from 6.0 metres to 0.65 metres.
 - d) *For the existing deck (Shown on Schedule B):*
 - i) Section 2.14 is varied to reduce the setback from the natural boundary of the sea from 7.5 metres to 0.0 metres.
 - ii) Article 5.3.8.2 is varied to reduce the setback from an interior side lot line from 6.0 metres to 4.13 metres.
 - e) *For the existing stairs (Shown on Schedule B):*
 - i) Section 2.14 is varied to reduce the setback from the natural boundary of the sea from 7.5 metres to 0.39 metres.
3. All work must be consistent with that shown on Schedule 'A' and Schedule 'B' attached to and forming part of this permit.
4. This permit is not a building permit and does not remove any obligation on the part of the permittee to comply with all other requirements of "Galiano Island Land Use Bylaw 127, 1999" and to obtain other approvals necessary for completion of the proposed development, including approval of Capital Regional District, Vancouver Island Health Authority and the Ministry of Transportation and Infrastructure.

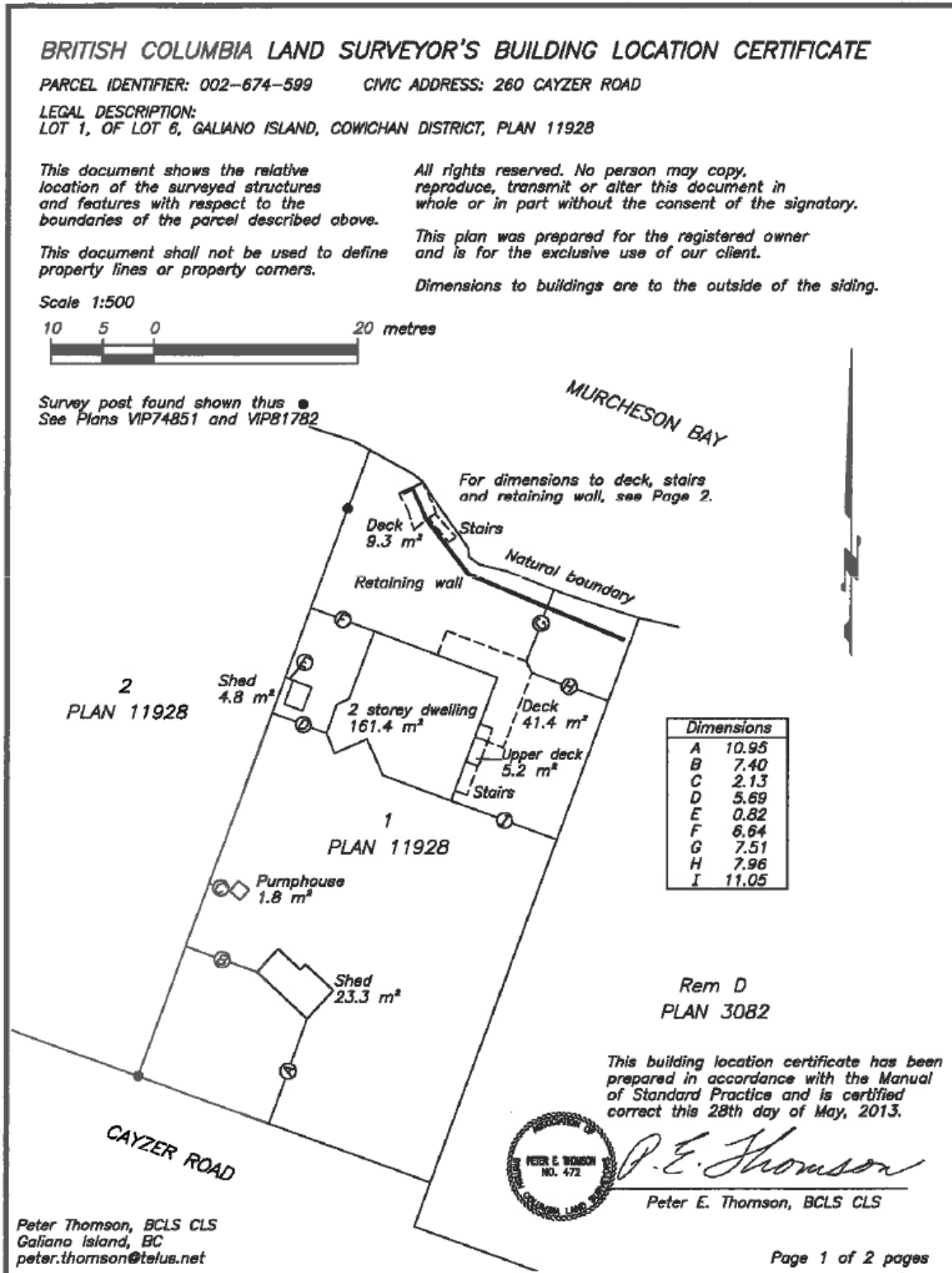
**AUTHORIZING RESOLUTION PASSED BY THE GALIANO ISLAND LOCAL TRUST COMMITTEE
THIS ____ DAY OF ____, 201_ .**

Deputy Secretary, Islands Trust

Date of Issuance

**IF THE DEVELOPMENT DESCRIBED HEREIN IS NOT COMMENCED BY THE ____ DAY OF ____,
201_, THIS PERMIT AUTOMATICALLY LAPSES.**

**GALIANO ISLAND LOCAL TRUST COMMITTEE
GL-DVP-2013.3
SCHEDULE 'A'**



**GALIANO ISLAND LOCAL TRUST COMMITTEE
GL-DVP-2013.3
SCHEDULE 'B'**

BRITISH COLUMBIA LAND SURVEYOR'S BUILDING LOCATION CERTIFICATE

PARCEL IDENTIFIER: 002-674-599

CIVIC ADDRESS: 260 CAYZER ROAD

LEGAL DESCRIPTION:

LOT 1, OF LOT 6, GALIANO ISLAND, COWICHAN DISTRICT, PLAN 11928

This document shows the relative location of the surveyed structures and features with respect to the boundaries of the parcel described above.

This document shall not be used to define property lines or property corners.

All rights reserved. No person may copy, reproduce, transmit or alter this document in whole or in part without the consent of the signatory.

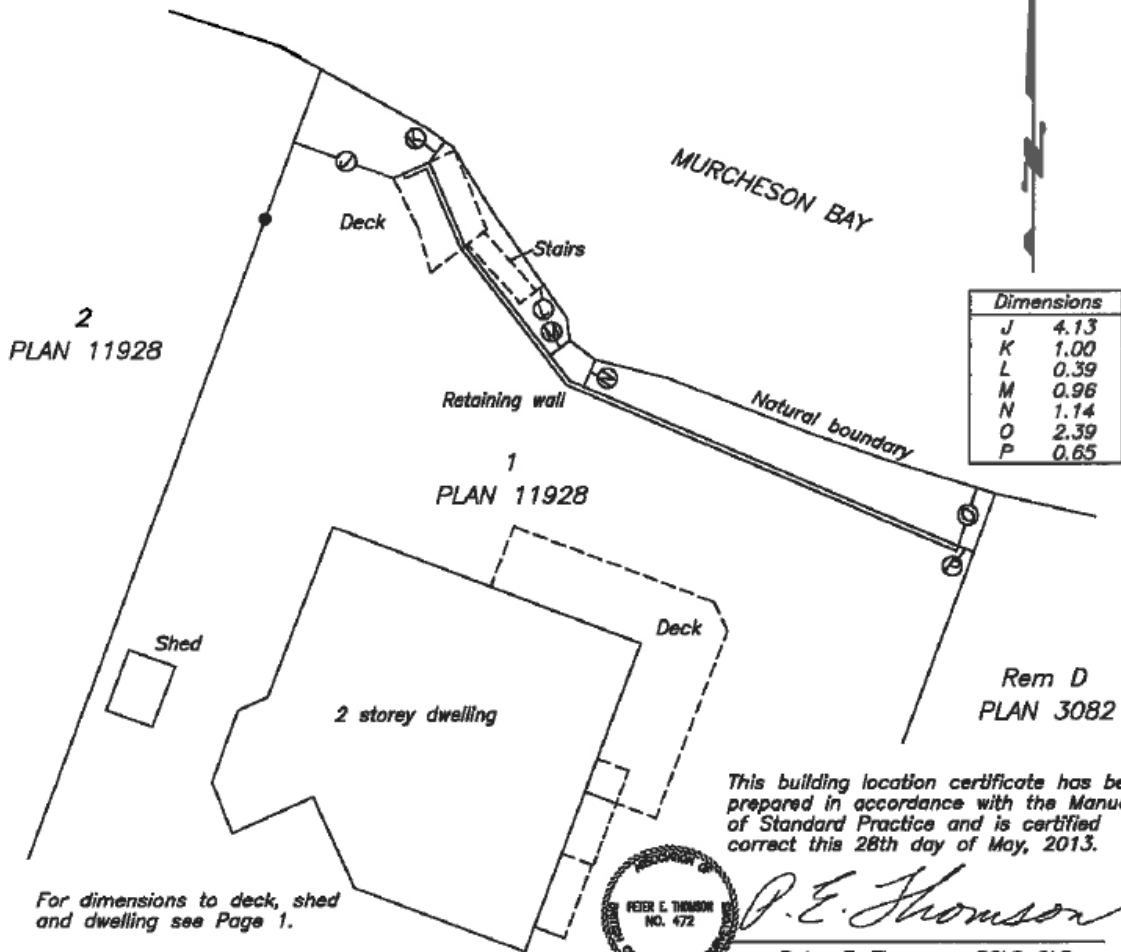
This plan was prepared for the registered owner and is for the exclusive use of our client.

Dimensions to buildings are to the outside of the siding.

Scale 1:250



Survey post found shown thus ●
See Plans VIP74851 and VIP81782



This building location certificate has been prepared in accordance with the Manual of Standard Practice and is certified correct this 28th day of May, 2013.



Peter E. Thomson, BCLS CLS

Peter Thomson, BCLS CLS
Galiano Island, BC
peter.thomson@telus.net

Page 2 of 2 pages



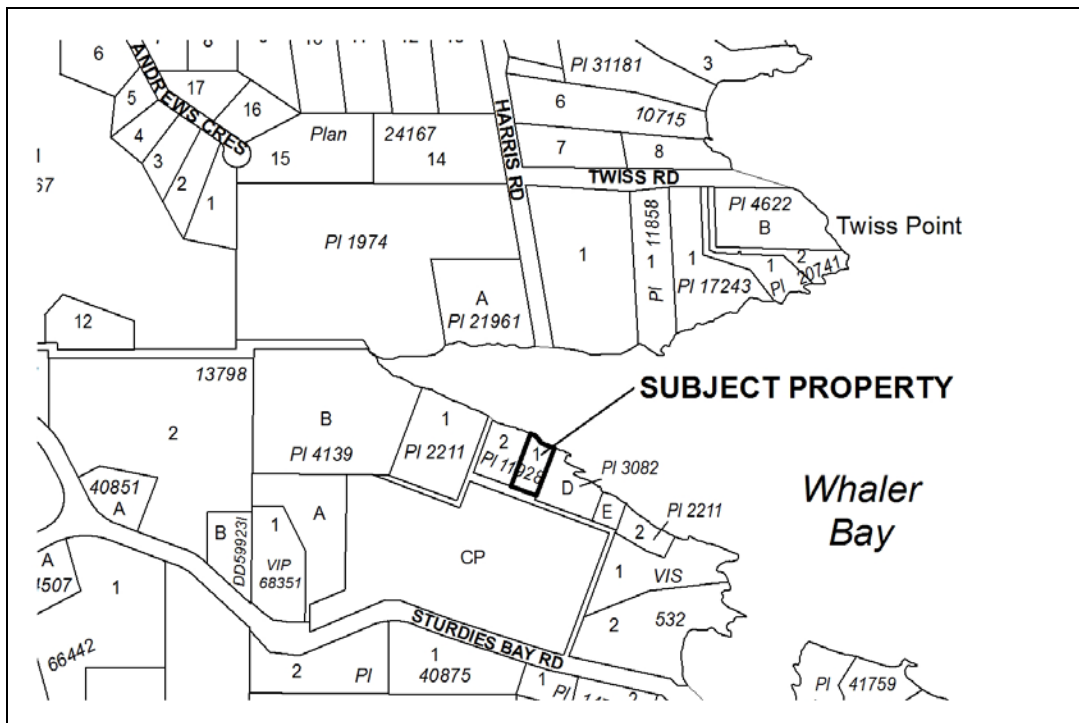
**NOTICE
GL-DVP-2013.3**

NOTICE is hereby given that the Galiano Island Local Trust Committee will be considering a resolution allowing for the issuance of a Development Variance Permit, pursuant to Section 922 of the *Local Government Act*. The proposed permit would vary the Galiano Island Land Use Bylaw 127, 1999 to legalize the existing building and structures on the subject property by varying:

- a) Section 2.14 is varied to reduce the setback to the natural boundary of the sea from 7.5 metres to:
 - i. 0.96 metres for an existing retaining wall,
 - ii. 0.0 metres for an existing deck, and
 - iii. 0.39 metres for existing stairs.
- b) Article 5.3.8.2 is varied to reduce the setback from the interior side lot line from 6.0 metres to:
 - i. 5.69 metres for an existing single family dwelling unit,
 - ii. 0.82 metres for an existing shed,
 - iii. 0.65 metres for an existing retaining wall, and
 - iv. 4.13 metres for an existing deck.

The property is located at 260 Cayzer Road. The property is legally described as Lot 1, of Lot 6, Galiano Island, Cowichan District, Plan 11928.

The general location of the subject property is shown on the following sketch.



A copy of the proposed permit may be inspected at the Islands Trust Office, 200 - 1627 Fort Street, Victoria, B.C. V8R 1H8 between the hours of 8:30 a.m. to 4:30 p.m. Monday to Friday inclusive, excluding statutory holidays, commencing **August 27, 2013** and continuing up to and including **September 8, 2013**.

For the convenience of the public only, and not to satisfy Section 922(5) (c) of the *Local Government Act*, additional copies of the Proposed Permit may be inspected at various Notice Boards on Galiano Island, B.C., commencing **August 27, 2013**. Also, attached for your convenience is a copy of the proposed permit.

If you have any questions or comments please contact the Planner 1, Kim Farris at (250) 405-5194; for Toll Free Access, request a transfer via Enquiry BC: In Vancouver 660-2421 and elsewhere in BC 1-800-663-7867 before 4:30 p.m., **September 8, 2013**.

Written comments may be mailed to Islands Trust, 200 – 1627 Fort Street, Victoria BC V8R 1H8; faxed to (250) 405-5155; or emailed to information@islandstrust.bc.ca before 4:30 p.m., **September 8, 2013**.

The Galiano Island Local Trust Committee may give consideration to the proposed permit during their regular business meeting starting at 12:30 p.m., **September 9, 2013** at the South Community Hall, 141 Sturdies Bay Road, Galiano Island, BC.

All applications are available for review by the public. Written comments made in response to this notice will also be available for public review.

Sharon Lloyd-deRosario
Deputy Secretary



Memorandum

Date November 25, 2013

File Number GL-DVP-2013.3
(Williams)

To Galiano Local Trust Committee
For the Meeting of December 9, 2013

From Kris Nichols
Island Planner

Re Requested Qualified Professional Report to Address Retaining Wall

PURPOSE

To review a professional report submitted by the applicant pertaining to an existing retaining wall and to evaluate the requested variances as part of a development variance permit application that was deferred at the September 9, 2013 meeting.

BACKGROUND

At the September 9, 2013 Local Trust Committee meeting a Development Variance Permit (DVP) application (GL-DVP-2013.3) was considered regarding a number of requested variances. The application is to vary the Galiano Island Land Use Bylaw 127, 1999 to legalize the existing building (dwelling) and structures (retaining wall, shed, stairs and deck) on the subject property by varying:

- a) Section 2.14 to reduce the setback to the natural boundary of the sea from 7.5 metres to:
 - i. 0.96 metres for an existing retaining wall,
 - ii. 0.0 metres for an existing deck, and
 - iii. 0.39 metres for existing stairs.
- b) Article 5.3.8.2 to reduce the setback from the interior side lot line from 6.0 metres to:
 - i. 5.69 metres for an existing single family dwelling unit,
 - ii. 0.82 metres for an existing shed,
 - iii. 0.65 metres for an existing retaining wall, and
 - iv. 4.13 metres for an existing deck.

The previous staff report included an overview of the site and provided a history of the retaining wall constructed within the setback to the sea. There is also a bylaw enforcement file initiated in 2002. In the report, staff recommended issuing the permit for the dwelling unit and shed but to deny the variances for the retaining wall, deck, and accompanying stairs

The majority of the discussion regarding the variances centered on the retaining wall that was constructed without the benefit of a permit within the setback to the sea and the subsequently built stairs and deck. As a result of the discussion, the following resolution was passed:

GL-DVP-2013.3 (Williams)

It was Moved and Seconded that the Galiano Island Local Trust Committee defer consideration of GL-DVP-2013.3 (Williams) until such time as the applicant supplies a report from a qualified environmental professional with shoreline and marine assessment experience explaining the impact of the wall's construction and potential deconstruction.

Professional Report:

The applicant hired John Harper, P. Geo, PhD., to conduct a site assessment to evaluate the presence of seawall constructed along the waterfront of the property. The site assessment consisted of a four-hour visit to the property to make dimensional measurements of the seawall, to assess the walls effect on sediment transport processes and to evaluate its potential effects of the wall on coastal ecology.

The report (see Attachment 1) addresses such issues as coastal stability, coastal sediment transport and coastal ecology. It outlined that the retaining wall is in some places below the natural boundary of the sea and that the seawall has had no effect on nearby coastal stability, sediment transport or the sediment budget of the system. The seawall has not had any observable effect on the intertidal in the area. The most significant effect of the seawall construction is in compromising of riparian ecological function along the walled portion of the property. The report does call into question the original need for the retaining wall given the lack of erosion shown on adjacent properties. The report also provides a summary and suggested mitigative measures based on whether the retaining wall is to be removed or kept and riparian ecological enhancement done.

Next Steps:

The Galiano Island LTC has the following options with regard to this variance permit:

1. Issue the permit as presented at the September 9, 2013 meeting (Attachment 2); or
2. Issue an amended permit for the dwelling unit, shed, and retaining wall but deny the variance for the deck, and accompanying stairs; or
3. Issue an amended permit for the dwelling unit and shed but deny the variance for the retaining wall, deck, and accompanying stairs as previously recommended by staff; or
4. Deny the issuance of the permit and all presented variances.

Should the variances be denied for retaining wall, deck and stairs as stated in option 3 the following would apply:

- The remaining variances would be addressed in the development variance permit.
- The wall, stairs and deck would have to be removed and a development permit applied for to ensure proper removal and environmental monitoring is done.

pc Robert Kojima, RPM

Attachments:

1. Site Assessment Report by John Harper
2. Development Variance Permit

Shoreline Site Assessment, 260 Cayzer Place, Whaler Bay, Galiano Island

By John Harper, P.Geo., Ph.D., 12 November 2013

Introduction

This report provides a summary of a site assessment at 260 Cayzer Road on Galiano Island. The purpose of the site assessment was to evaluate the presence of seawall constructed along the waterfront of the property. The site assessment consisted of a four-hour visit to the property to make dimensional measurements of the seawall, to assess the wall's effect on sediment transport processes and to evaluate its potential effects of the wall on coastal ecology. In addition to the site visit, aerial photos provided additional background on the site. The Galiano Official Community Plan (version dated 25 November 2011) was also consulted as part of the assessment.

Conversations with the owner indicate the wall was owner-built in 2002 to stop shoreline erosion on the property.

Site

The property of interest is a northeast-facing arm of Whaler Bay (Fig. 1). While this arm of the Bay does not receive direct waves from the Strait of Georgia, it is likely to receive refracted swell from the Strait of Georgia. The site would be considered a *semi-protected* wave exposure. The upper intertidal zone is comprised of sandstone in the form of a bedrock ramp (this bedrock extends landward to the foundation of the house). The lower portion of the intertidal zone dries at low tides and is reportedly muddy sand (Fig. 2). During a 2005 ShoreZone survey of the island, the low-tide flat and associated eelgrass beds were visible (Fig. 2). The supratidal zone on neighboring properties supports a riparian vegetation band of bushes but this riparian buffer was not present on the property according to the present owner.

Site Measurements

The seawall extends almost the entire length of the property from the eastern boundary to about 4.3 m from the western property boundary. The seawall is 28.4 m in length with a slight jog in the western third (Fig. 3). A number of measurements were made of the sea wall elevation relative to tidal datum (Fig. 4). The measurements were corrected to predicted-tidal heights (not actual *recorded tidal heights*) so the measurements are approximate. The top of the wall is approximately 6.5 m above tidal datum and appears to be level. The base of the wall varies in height to the bedrock surface – the base of the wall ranges from 4.3 m to 5.1 m above tidal datum (Canadian Hydrographic Service list Higher High Water of Large Tides as 3.6 m at Whaler Bay).

The wall is reinforced concrete and is in good condition with no obvious cracking or failures. Drain rock and drain tiles appear to have been installed on the landward side of the wall (Fig. 3). A cantilevered deck extends over the intertidal zone near the western end and the deck leads to the stairway (Fig. 3).

The seawall is approximately 6.0 m seaward of the house decking and 8 m seaward of the house foundation.

The natural boundary, taken as the distinctive change between marine and terrestrial vegetation was measured on the adjacent property (to the west), which do not have seawalls and where there is a riparian vegetation band. The lowest elevations of terrestrial roots (see note in inset) at the lot to the west showed the natural boundary to be +5.02 m above tidal datum.

The measurements and sighting observations (Fig. 5) show that the base of the wall extends below the natural boundary in a few locations.

Natural Boundary as defined in BC

“natural boundary” is defined as “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 water a character distinct from that of its banks, in vegetation as well as in the nature of the soil itself.”

I have interpreted this definition as the distinct break in vegetation types between the terrestrial and marine vegetation. This *natural boundary* is most clearly defined by the base of terrestrial vascular, vegetation. While moss is terrestrial vegetation, I consider moss as ephemeral and *not* meeting the criteria of ‘so long continued’.

Coastal Stability

The intertidal zone is primarily bedrock and is stable. There is a thin soil horizon above the bedrock and this supports the vegetation cover near the shore. There is a well-developed shrub thicket on both of the adjoining properties and no evidence of erosion occurring on either of those properties. Obviously, the seawall shoreline is also stable.

It is unlikely that any of the adjacent properties contributed a significant amount of sediment to the shoreline sediment budget. It is unlikely that the 260 Cayzer Rd property contributed any significant amount of sediment prior to the construction of the seawall. It is highly unlikely that the construction of the seawall altered the coastal sediment budget for this section of shoreline.

Coastal Sediment Transport

There are no obvious indicators of sediment transport at the site, and the bedrock nature of the upper intertidal zone means sediment transport would be minimal. The sand flat in the lower intertidal was not visible during the site visit but from aerial photos (Fig. 2), it appears to be a deposition flat with sediment contributed by a small stream at the west end of the arm (Fig. 1) and by shell fragments from barnacles predated from the surrounding bedrock. There are no indications that the seawall has affected coastal sediment transport.

Coastal Ecology

The coastal ecology is described in terms of supratidal and intertidal ecology.

Supratidal Ecology

The area was formerly farmland (David Williams, property owner, pers com, October 2013) and so was likely logged in the early 1900s. The farm and subsequent housing developments have further altered

the upland vegetation. The supratidal area of adjacent properties consists of low shrubs (broadleaf maple, snowberry and other native shrubs). On the seawall portion of the property, the lawn extends to top of the seawall (except for 4.3 m at the western-most portion of the property where a natural riparian area is present (broad leaf maple, snow berry and other native shrubs) and eastern-most portion, where a thin band of ornamental, California Lilac is present above the seawall (~4m). It is estimated that the total property is 32.7 m in alongshore length, of which the section with no wall and natural riparian is 4.3 m (13%) and the portion with a wall and the non-native vegetation is ~4 m (12%).

Intertidal Ecology

The upper intertidal of the property is sandstone bedrock, a signature bedrock type on the Gulf Islands. This is colonized by a rocky, *semi-protected* intertidal community dominated by barnacles, rockweed (*Fucus sp*) and sea lettuce (*Ulva sp*); the community appears to be similar on adjacent properties and the 260 Cayzer Rd. property. That is, the sea wall does not appear to have had any effect on the upper intertidal, bedrock community.

The lower intertidal tidal flat could not be observed during the site visit because of the tidal stage (+2.5 m and higher). Observations of the exposed tidal flat during the 2005 ShoreZone aerial survey show a normal tidal flat community with eelgrass visible in the subtidal. There is no indication of any effect of the seawall and it is highly unlikely that the construction of the seawall would cause any effect on the lower intertidal zone.

Summary

The seawall at 260 Cayzer Rd. on Whaler Bay is approximately 28.4 m in length and extends along 87% of the property. The base of the seawall is below the interpreted natural boundary in places. The seawall has had no effect on nearby coastal stability, sediment transport or the sediment budget of the system. The seawall has not had any observable effect on the intertidal in the area.

The most significant effect of the seawall construction is in compromising of riparian ecological function along the walled portion of the property. The vertical face of the wall prevents most animals from effectively using a riparian buffer, which did not exist on this property according to the owner. There are no riparian vegetation (shrubs, trees) on 75% of the property and 12% of that is the non-native California Lilac. The ornamental California Lilac provides some riparian value on the eastern end of the property (Fig. 5).

Table 1 provides a summary checklist of some of the issues identified in the official community plan as concerns to Islands Trust and to the Galiano community.

Mitigation

There are probably only two mitigation alternatives for restoring the ecological function of the coastal riparian: (a) removal of the wall and restoration to pre-construction conditions or (b) implementation of a planting program that would help restore *some* of the riparian ecological function along the wall.

Table 1. 260 Cayzer Road Seawall Assessment – Checklist of Issues

1. The seawall and stairs do not impede access along the shoreline
2. The seawall does not impede water access
3. The seawall is not a hazard to navigation
4. The wall is mostly built above the natural boundary. An estimated 10 m (~20% of lot frontage) is built below the natural boundary (estimated to be 0.6 to 0.7 m below natural boundary in a few places).
5. Riparian vegetation overhang occurs along ~25% of the lot frontage
6. The wall does not impede sediment transport
7. The wall has had no effect on sediment budget to the bay
8. There is no impact on intertidal biota
9. The wall has not altered intertidal substrates
10. No intertidal sediment was used in the wall construction
11. No debris was placed in the intertidal zone as a result of construction
12. No wetlands were impacted
13. The wall was constructed to “stop erosion” (comment by present owner), although there is no noticeable erosion on adjacent properties.

Wall Removal

Removal of the wall would probably require heavy or specialized equipment to break up and excavate the concrete. Backfill behind the wall would have to be graded to a natural slope; with the distance to the existing deck of 6 m (8 m to house foundation) and the height of the wall of approximately 2 m, this would result in an average slope of 18°. Topsoil would need to be added to assist in re-vegetation. A planting program would be required to first stabilize the re-graded surface and then to re-establish a natural riparian vegetation band (native shrubs and trees). This restoration would require approximately five years before the ecological function of the riparian was restored. A monitoring program might be required to ensure the restoration was implemented as intended.

This restoration alternative would be invasive and costly.

Riparian Enhancement

Some of the riparian function could be re-established by an enhanced planting program. The wall will still prevent transient animal use between the terrestrial and marine zones but some “softening” of the wall effects could be achieved. By developing a planting program of native shrubs and a few larger trees some restored ecological value could be achieved for shore bird perches and cover, wildlife corridors and a foliage canopy (shading and insect habitat). Native vegetation that hangs down along the wall would be beneficial. While there might be some short-term impact on the property view-scape, judicious pruning would allow this to be preserved. Monitoring might be required to ensure the planting project was implemented as planned.

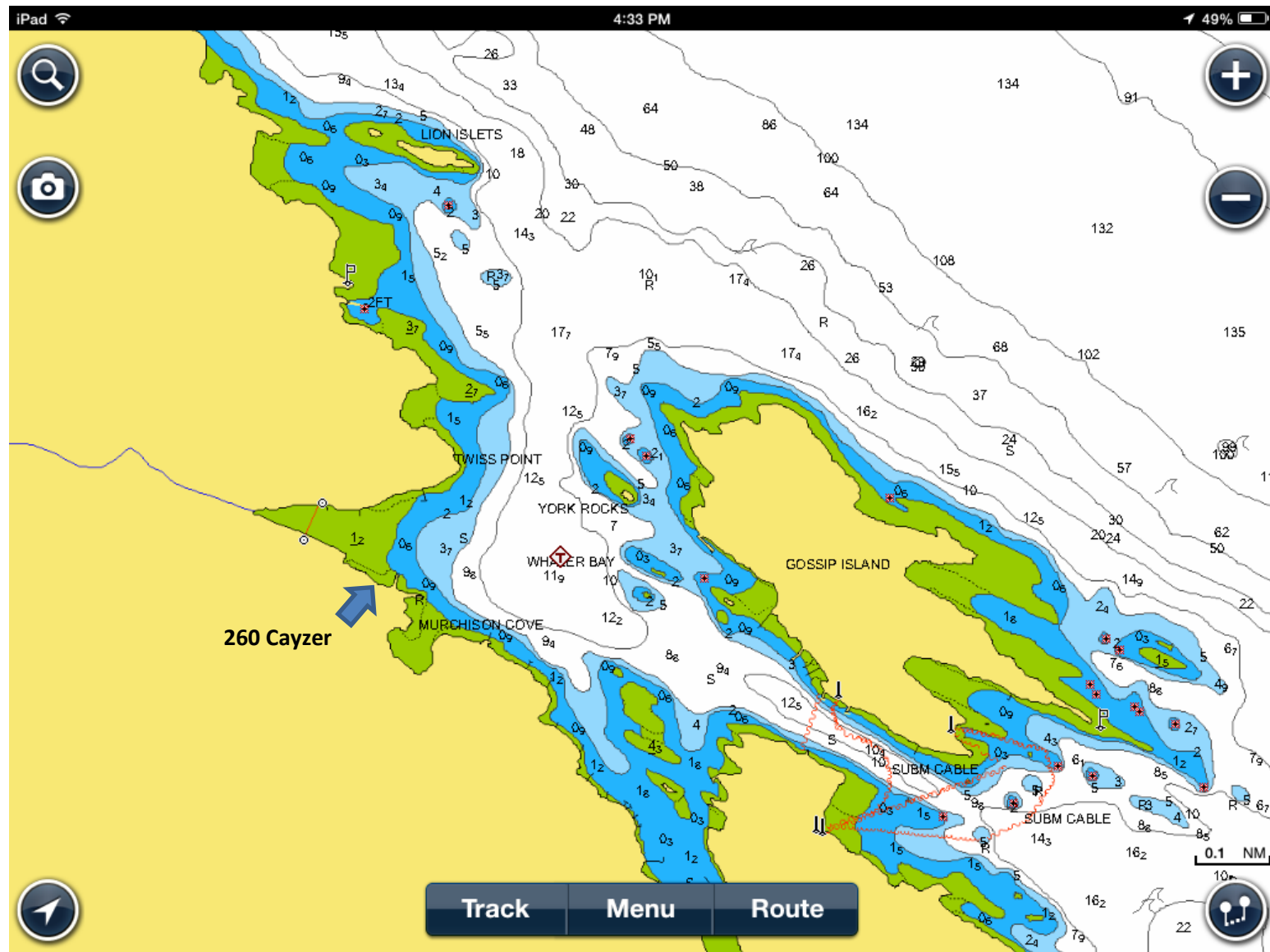


Figure 1. Chart showing the location of 260 Cayzer Road property relative to the general features of southeast of portion of Galiano Island and Whaler Bay.



Figure 2. Aerial photo from the July 2005 ShoreZone survey showing 260 Cayzer Road property and the associated seawall. The photo was shot at a near “zero” tide.



Figure 3. Photo along the top of the seawall. Note the absence of riparian vegetation.



Figure 4. Measured elevations along the seawall. Elevations are referenced to tidal datum.



Figure 5. The natural boundary was estimated to be 5.0 m above tidal datum, as measured to the base of the roots on the property just to the west of 260 Cayzer Rd. The dashed line indicates the approximate extension of the elevation across the property.



Figure 6. Photo of upper intertidal zone showing the seawall, rock ramp morphology of the upper intertidal and the upper intertidal community of barnacles-rockweed-sea lettuce. Note the overhanging riparian vegetation in the foreground. This is considered a typical vegetation of many Gulf Island waterfront properties and provides riparian ecological function.



PROPOSED

GALIANO ISLAND LOCAL TRUST COMMITTEE

DEVELOPMENT VARIANCE PERMIT

GL-DVP-2013.3

TO: David and Nora Williams

1. This Development Variance Permit applies to the land described below:
 Lot 1, of Lot 6, Galiano Island, Cowichan District, Plan 11928
2. "Galiano Island Land Use Bylaw 127, 1999" is varied as follows:
 - a) *For the existing single family dwelling unit (Shown on Schedule A):*
 - i) Article 5.3.8.2 to reduce the setback from an interior side lot line from 6.0 metres to 5.69 metres.
 - b) *For the existing accessory building – shed (Shown on Schedule A):*
 - i) Article 5.3.8.2 to reduce the setback from an interior side lot line from 6.0 metres to 0.82 metres.
 - c) *For the existing retaining wall (Shown on Schedule B):*
 - i) Section 2.14 to reduce the setback from the natural boundary of the sea from 7.5 metres to 0.96 metres.
 - ii) Article 5.3.8.2 to reduce the setback from an interior side lot line from 6.0 metres to 0.65 metres.
 - d) *For the existing deck (Shown on Schedule B):*
 - i) Section 2.14 to reduce the setback from the natural boundary of the sea from 7.5 metres to 0.0 metres.
 - ii) Article 5.3.8.2 to reduce the setback from an interior side lot line from 6.0 metres to 4.13 metres.
 - e) *For the existing stairs (Shown on Schedule B):*
 - i) Section 2.14 to reduce the setback from the natural boundary of the sea from 7.5 metres to 0.39 metres.
3. All work must be consistent with that shown on Schedule 'A' and Schedule 'B' attached to and forming part of this permit.
4. This permit is not a building permit and does not remove any obligation on the part of the permittee to comply with all other requirements of "Galiano Island Land Use Bylaw 127, 1999" and to obtain other approvals necessary for completion of the proposed development, including approval of Capital Regional District, Vancouver Island Health Authority and the Ministry of Transportation and Infrastructure.

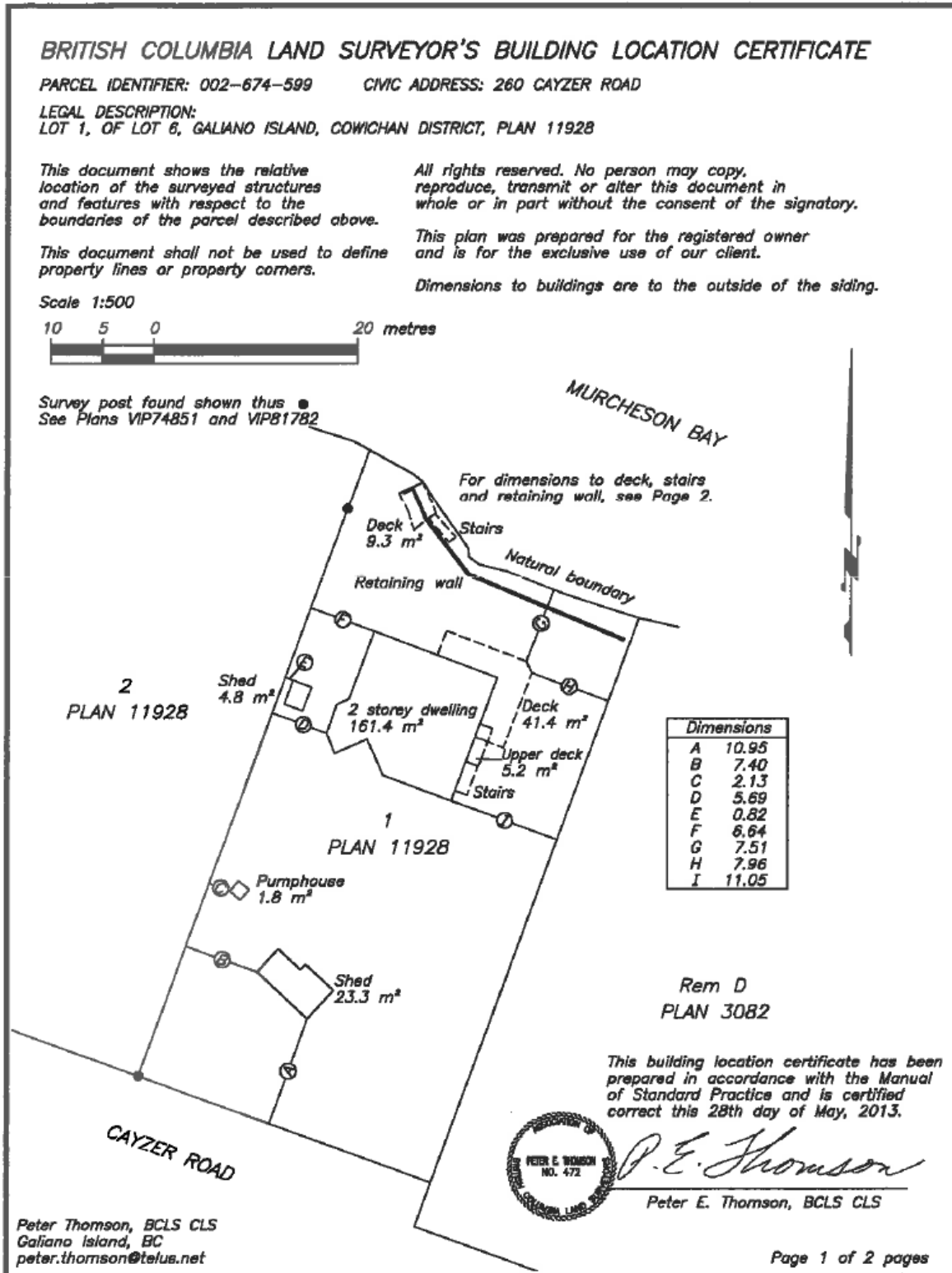
**AUTHORIZING RESOLUTION PASSED BY THE GALIANO ISLAND LOCAL TRUST COMMITTEE
THIS ____ DAY OF ____, 201_ .**

Deputy Secretary, Islands Trust

Date of Issuance

**IF THE DEVELOPMENT DESCRIBED HEREIN IS NOT COMMENCED BY THE ____ DAY OF ____,
201_, THIS PERMIT AUTOMATICALLY LAPSES.**

GALIANO ISLAND LOCAL TRUST COMMITTEE
GL-DVP-2013.3
SCHEDULE 'A'



GALIANO ISLAND LOCAL TRUST COMMITTEE
GL-DVP-2013.3
SCHEDULE 'B'

BRITISH COLUMBIA LAND SURVEYOR'S BUILDING LOCATION CERTIFICATE

PARCEL IDENTIFIER: 002-674-599

CIVIC ADDRESS: 260 CAYZER ROAD

LEGAL DESCRIPTION:

LOT 1, OF LOT 6, GALIANO ISLAND, COWICHAN DISTRICT, PLAN 11928

This document shows the relative location of the surveyed structures and features with respect to the boundaries of the parcel described above.

This document shall not be used to define property lines or property corners.

Scale 1:250

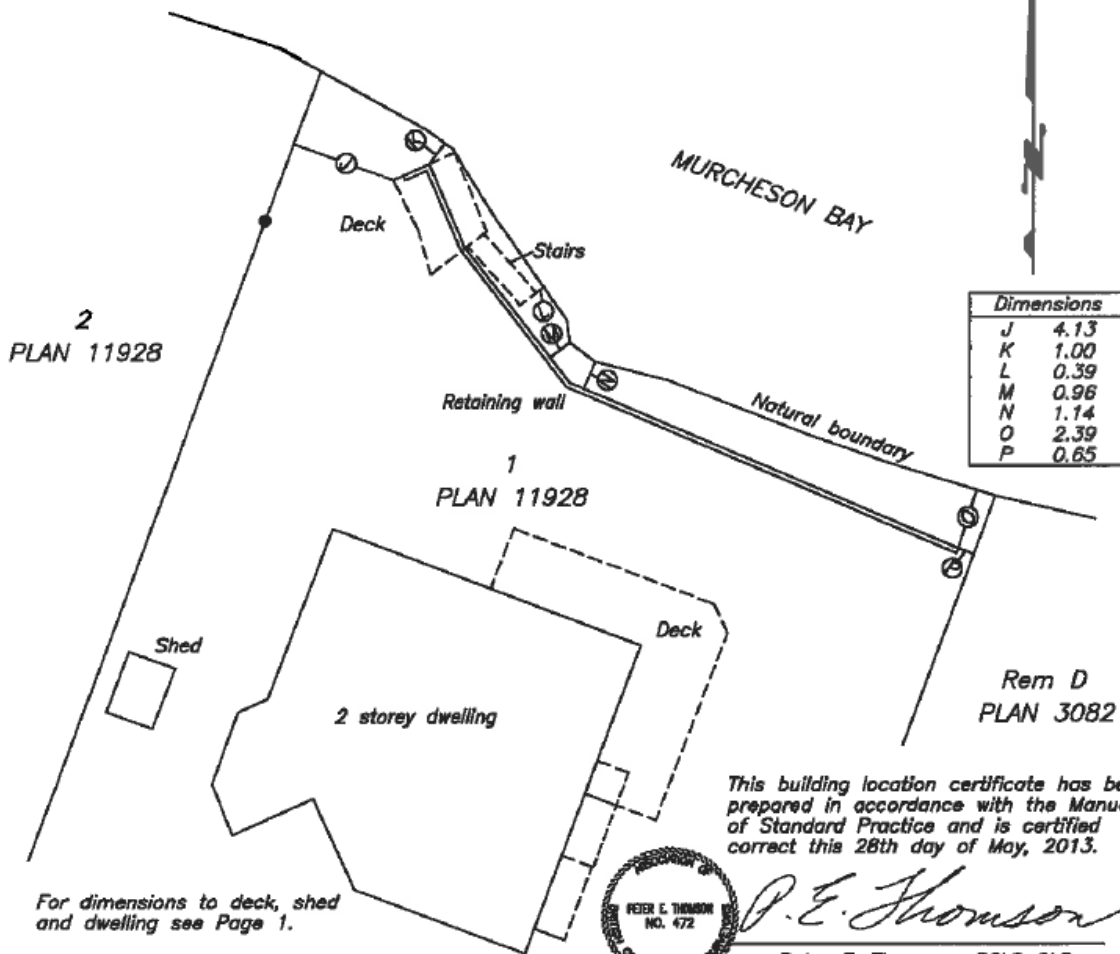


Survey post found shown thus ●
See Plans VIP74851 and VIP81782

All rights reserved. No person may copy, reproduce, transmit or alter this document in whole or in part without the consent of the signatory.

This plan was prepared for the registered owner and is for the exclusive use of our client.

Dimensions to buildings are to the outside of the siding.



This building location certificate has been prepared in accordance with the Manual of Standard Practice and is certified correct this 28th day of May, 2013.



Peter E. Thomson, BCLS CLS

Peter Thomson, BCLS CLS
Galiano Island, BC
peter.thomson@telus.net

Page 2 of 2 pages

Date: January 21, 2014

File No.: 6500-20-
Groundwater
Protection DPA
Policy Review

To: Galiano Island Local Trust Committee
For the meeting of February 3, 2014

From: Kris Nichols
Island Planner

CC: Robert Kojima
RPM

Re: Groundwater Protection DPA Policy Review

Preliminary Report

The intent of this report is to outline potential amendments to Development Permit Area 4 – Elevated Groundwater Catchment Areas based on findings from the May 10, 2012 report produced by Waterline Resources Inc. The May 10, 2012 report was a follow up to their March 31, 2011 Galiano Groundwater Study which provided recommendations on which the 2012 report is based.

Project Objectives

The overall objective of this project is to evaluate the existing Galiano DPA, Development Permit Area 4 – Elevated Groundwater Catchment Areas, to see what if any amendments could be made to improve its ability to protect ground water on Galiano Island. This will be accomplished by reviewing the Waterline Resources Inc. report (May 10, 2012) and providing potential amendments to DPA 4.

Project Background

Ground Water Protection DPA Policy Review is the number 2 priority in the LTC Work Program. At the December 3rd, 2013 LTC Meeting the following resolution was passed:

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to provide a report on potential amendments to the Ground Water Protection Development Permit Area resulting from findings in the Waterline Report.

One of the main opinions expressed in Waterline's Galiano Groundwater Study (2011) (See Attachment 1) was that the DPA 4 Elevated Groundwater Catchment Areas, defined as those lands 140 m above sea level, cover only a portion of the probable recharge areas on Galiano and therefore may not adequately protect recharge areas/groundwater. The report stated that the elevation of 140m used to define the current DPA should have been 50m based on a 1998 study (Kohut and Johanson). This would mean that the recharge areas to be protected would include most of the island. See Attachment 2 for a comparison of what exists currently (> 140 m elevation) versus what Waterline believes to be the correct interpretation (> 50 m elevation). Waterline stated that the existing DPA 4 should either be eliminated or amended.

Phase Two of the Galiano Island Groundwater Regulation Review was completed by Waterline Resources Inc. in May 2012. At that time, planning staff reviewed the report and provided a brief overview and presented options and recommendations regarding future work and how the LTC may wish to proceed within the context of the Land Use Bylaw (LUB) review (See June 11, 2012 Staff Report titled "Galiano Groundwater Regulation Review (Phase Two)"). A new DAI bylaw was adopted in 2012 which included impact assessment information requirements for DPA 4 which implemented some of the recommendations of the consultants' report.

The Waterline report also provided recommendations for amendments to the standards for potable water supply within the subdivision and development requirements of the Land Use Bylaw (LUB). In addition, it recommended a new "Critical Groundwater Protection" Development Permit Area (DPA) and amendments to the existing Elevated Groundwater Catchment Areas – DPA 4. The focus of this staff report is to review the existing DPA 4 and possible amendments suggested by Waterline Inc.

Waterline provided suggested revisions to the DPA 4 text and additional guidelines to increase the protective capacity of the DPA. In addition to comments on the DPA, they have provided a list of other areas that Galiano Island Local Trust Committee should focus on:

1. Establishment of a Groundwater Monitoring Program
2. Community Outreach Program – sustainable practices to conserve and protect fresh groundwater source.
3. Revised Subdivision Servicing Requirements
4. Aquifer Protection Planning

Background – Groundwater on the Gulf Islands

In British Columbia, water is owned by the Crown and not by individual land owners. Surface water is regulated by the *Water Act*. British Columbia is the last jurisdiction in Canada without groundwater legislation or licensing (i.e. protection). The intent of the Province in the near future is to integrate groundwater and surface water allocation. The Province is working to finalize the new Water Sustainability Act (see: <http://www.livingwatersmart.ca/water-act/>) which would require all existing and new large groundwater users to apply for and obtain a water licence (e.g. waterworks, community wells, industrial and agricultural users). This proposed legislation will replace the *Water Act*. The proposed legislation would not include individual residential well users, but it would in high risk areas (priority areas) where for instance aquifers are under stress due to over use. The province has indicated that the Trust Area may be identified as a priority area given the uniqueness of the islands and the strong reliance on groundwater.

Development pressures will continue to raise concerns over adequate quantity and quality of water on the Islands. The drinking water on Galiano Island comes from a variety of sources – CRD water systems, community water systems, individual wells, and surface water, all of which rely on a safe supply of groundwater from aquifers. There are specialized systems that do not rely on groundwater such as rainwater catchment and desalinization. A few residents rely on bottled/trucked water.

Sustainable practices are required to conserve and protect fresh groundwater sources. There is currently no system to understand the cumulative impacts of individual wells drilled. There are a number of issues that impact the quality and quantity of groundwater such as saline intrusion, land use impacts (i.e. types and amount of uses), well interference, surface contamination, topography, recharge rates, soils, vegetation cover, geology, proximity to the sea, liquid waste (i.e. septic system) and seasonal water shortage. Climate change may also have an impact on groundwater supplies. Groundwater also plays an important role in maintaining base flows in rivers and streams, which are critical in providing wildlife habitat and maintaining fish spawning areas and wetlands.

The protection of existing groundwater supplies is significantly easier than finding alternative water sources on the islands.

Local Trust Committee's Role:

The Local Trust Committee has an important role to play in groundwater protection. It controls long-range development (Official Community Plans) and land use planning, zoning, development permit areas, bylaw enforcement, subdivision servicing bylaws. The Capital Regional District (CRD) and the Ministry of Transportation and Infrastructure (MoTI) have jurisdiction for water utilities and subdivision approvals, respectively. Island Health (formerly VIHA) has jurisdiction, through registered installers, for the approval of septic fields.

In addition to land use controls, there are several water conservation practices (e.g. low flow toilets, showers, rainwater collection, etc.) for residential home owners that should be encouraged to promote the sustainable use of water. There are also alternatives to landscaping and making land more permeable rather than hard surfaces to increase the amount of water infiltration. Much of what will make the difference in conserving water will not necessarily come from regulations, but from the community and its water use practices. The Islands Trust has developed an excellent resource for island residents to conserve water:

<http://www.islandstrust.bc.ca/trust-council/projects/water-resource-information-for-islanders.aspx>

Relevant Policy and Land Use Considerations

Trust Council Strategic Plan 2011-2014

Within one of the 4 main focus areas of the Strategic Plan, Goal B, is focused on water:

Using land use planning tools and decisions to protect the quality and quantity of water resources.

It also contains two strategies to protect water quantity and quality which are:

3.2 Advocate for provincial *Water Act* reform.

3.3 Use land use planning tools and decisions to protect water quality and quantity.

Islands Trust Policy Statement

The protection of fresh and ground water sources is mentioned throughout the Policy Statement as follows:

Commitments of Trust Council:

3.1 Ecosystems

3.1.1 - planning must account for the cumulative effects of existing and proposed development to avoid detrimental effects on watersheds, groundwater supplies and Trust Area species and habitats.

3.3 Freshwater and Wetland Ecosystems and Riparian Zones

3.3.1 - the freshwater wetlands, bodies of surface water, natural drainage patterns, water courses, fish-bearing streams, watershed and groundwater recharge areas of the Trust Area should be identified, protected and, where possible, restored or rehabilitated,

4.4 Freshwater Resources

Commitment of Trust Council

4.4.1 It is Trust Council's policy that islands in the Trust Area should be self-sufficient in regard to their supply of freshwater.

Directive Policies

4.4.2 Local trust committees and island municipalities shall, in their official community plans and regulatory bylaws, address measures that ensure:

- neither the density nor intensity of land use is increased in areas which are known to have a problem with the quality or quantity of the supply of freshwater,
- water quality is maintained, and
- existing, anticipated and seasonal demands for water are considered and allowed for.

4.4.3 Local trust committees and island municipalities shall, in their official community plans and regulatory bylaws, address measures that ensure water use is not to the detriment of in-stream uses.

Recommendations

- 4.44 Trust Council encourages island property owners, residents and visitors to adopt conservation practices in their use of freshwater.
- 4.4.5 Trust Council encourages the Provincial government to implement property tax incentives for the retention of groundwater and watershed recharge areas and freshwater wetlands.

- 4.4.6 Trust Council encourages the Provincial government to adopt legislation that protects the sustainability and quality of the groundwater of the Trust Area.
- 4.4.7 Trust Council encourages government agencies, corporations, property owners and residents to use innovative technologies that promote efficient use of freshwater resources, including cisterns, alternative sewage disposal systems, reuse of water, the treatment and use of grey water, and the use of water saving devices.

Official Community Plan

In addition to DPA4 there are a number of areas where ground water is mentioned as a resource to be protected. Primarily in Section III - Services 2, Water Supply which speaks to the importance of protecting lands above 140m, and makes suggestions for changes to the zoning, states that the LTC should increase awareness of groundwater issues and promote best practices as well as it contains water supply advocacy policies (See Attachment 4). Under Water Supply Policies Policy b) v specifically provides direction on amending DPA4. In Section IV Conservation and the Environment under General Environmental Policies there is a Section on Fresh Water with objectives, policies and advocacy policies. DPA 1 – Riparian Areas protects identified surface water which helps to protect water sources and water environments.

Land Use Bylaw

The protection of fresh water and groundwater is mentioned in various areas throughout the zoning bylaw. For instance, in home occupation guidelines there is a requirement around the use of groundwater, in the subdivision standards there is guidelines around community water systems and the proven protection of groundwater and the various standards for potable water and in the roadway standards guidelines around construction that does not impact groundwater. The Nature Protection (NP) zone has one of its principle uses being for groundwater retention and recharge.

There are also a number of water management areas identified in the zoning bylaw (Schedule C) which requires that a building permit not be issued unless there is additional water capacity provided in the form of a 16,000 litre cistern.

Climate Change Mitigation and Adaptation

It is anticipated that climate change could have an impact on the future of groundwater on Galiano Island. Impacts could be felt as a result of seasonal droughts, higher tide events (salt water intrusion), and heavier short duration rainfalls which will cause more runoff than infiltration.

Other

In-house, staff have access to mapping (TAPIS) which indicates intrinsic vulnerability mapping for aquifers and various ecosystem mapping for Galiano Island. The aquifer mapping relates specifically to how vulnerable the aquifer may be to contaminants primarily and therefore is useful for identifying land uses (industrial vs. residential). In general, the island is rural in nature with primarily large lots (> 1 acre) and therefore the vulnerability mapping has limited applicability. This is valuable in determining areas where some groundwater issues may occur.

The Local Planning Committee (LPC) has developed a draft document entitled, *“Gulf Islands Groundwater Protection – Water Quality and Quantity Toolkit, Model Development Permit Area Bylaw and Development Approval Information Area Provisions”*. This document is being reviewed by the LPC to be released later in February to the LTCs and planners. The document contains a sample development permit area bylaw which the LTC may wish to consider as an option at a subsequent meeting.

Analysis

Staff have reviewed the Waterline Inc. reports addressing concerns with the existing DPA 4 – Elevated Groundwater Catchment Areas. The protection of a safe adequate water source is a priority for Galiano Island and will become increasingly important as the island continues to develop. Reaching the full potential of water conservation requires comprehensive and long-term strategic planning. There is an ever increasing need to balance the water supply requirements for area growth against future sustainability and environmental needs. The issue of water quality and quantity has been a long standing issue on the Gulf Islands. To ensure that land can be developed sustainably from a groundwater resource perspective is of particular importance in an island environment.

Waterline’s Recommended Amendments:

Staff have provided a marked up version of DPA 4 with the amendments proposed by Waterline Inc. (See Attachment 3.) Waterline has recommended amendments to the existing DPA 4 as well as recommended a new DPA to deal with a Critical Groundwater Protection Area that would apply to most of the island. Staff are not in agreement with the proposed changes as the key issue is that the DPA amendments proposed by Waterline are not consistent with best practices, case law, current legislation, etc. and there as drafted would be unenforceable. However, portions of the amendments would be feasible in a revised DPA4.

Although critical of how the current DPA is designated at only above the 140 m elevation mark and that not being sufficient to protect the groundwater recharge areas, Waterline did not recommend that the elevation be changed in the current DPA to coincide with the 50 m elevation they believe it should be. See Attachment 2 for a comparison map of the two elevations.

Staff Comments on the Waterline Resources Inc. Amendments:

Staff have reviewed the comments and proposed amendments. Staff are in agreement that amendments are required to the existing DPA to ensure improved protection of groundwater. However, they are not in support of two DPAs to protect groundwater, rather a single amended DPA would be sufficient and practical. The issue is developing a DPA that provides sufficient protection where needed, which is the majority of the island according to studies, while focusing on regulations on those activities that could impact groundwater. The DPA must also be easy to interpret, implement and enforce. Staff believe that while the suggested Waterline amendments are an improvement (i.e. exemptions, guidelines, etc.) the amendments do not address a larger area of coverage which they have stated is required, and as drafted they would not be enforceable, and not always consistent with legislative authority nor with best practices. The second proposed Waterline DPA in its current form would also be difficult to implement, administer and enforce.

If the LTC decides that a DPA amendment is required in order to adequately protect groundwater on Galiano Island, staff would recommend drafting a new DPA, incorporating relevant elements of the Waterline recommendations, potentially designating the wider area, but also ensuring that the guidelines are clearly focused on requiring assessments only for significant activities that could impact groundwater. It might be possible through reviewing past studies to identify specific areas where DPA guidelines would be required to be more stringent due to existing conditions (e.g. community wells, water management areas, soil type, etc.). The intent would be to have guidelines that apply differently to different areas such as with the Steep Slope Hazard Areas DPA currently where there are different slope categories. In the Steep Slopes DPA where a high percentage of the island is within the DPA, only a small portion (high hazard) have to deal with the majority of the guidelines. There are also a number of exemptions which would eliminate the need for many landowners to address the guidelines except if they were within the high hazard areas.

Project Scope and Timeline

The project scope is to focus on the development of a revised DPA 4 combining information from the Waterline Resources recommendations along with other current research and develop a draft DPA bylaw amendment for consideration at a future meeting based on parameters decided upon by the LTC. The main parameter that the LTC should focus on at this stage is the proper elevation to use for the designation. The existing DPA refers to the 140 m elevation and consultants recommend 50 m elevation which significantly increases the area to which the DPA applies.

Briefly, the timeline would be as follows based on the development of a revised DPA:

February LTC – introduction report on the idea of developing a revised DPA
March LTC – present a project charter outlining the DPA considerations, participants, timeframes and research methodology
April/May LTC – development of a draft DPA for consideration of first reading and send out to referral agencies.
May/June – development of a DPA Fact Sheet and Community Information Meeting
July – Possible 2nd reading and Public Hearing
August – bylaw sent to Executive Committee and the Minister
September/October – adoption of the revised DPA bylaw.

As with all public processes it is uncertain at this stage the amount of public interest so additional time may be required in the timeline.

Resources and Roles

Resources will be required for this project to continue, it will require some funding to hold a community information meeting, a public hearing along with the associated advertising. There is \$2500 in the proposed 2014-15 budget to address this project. There may also be a need for a mail out to residents. The majority of the work will be completed in the next fiscal. Given that this is the number 2 priority staff are aware that a portion of their time will be dedicated to drafting a revised or new DPA and conducting community input and awareness.

Communications

Given the importance of groundwater to Galiano Island residents and the options available to address groundwater protection, it will be important to provide opportunities for public discussion. At this preliminary stage, no opportunities have been presented. Should this project proceed, opportunities for public input will be part of the process. In addition, information about what is being proposed and the impact that it may have on landowners will have to be made explicitly clear as part of this process. At a minimum, staff would recommend a community information meeting and the production of a background information sheet.

The type and extent of communications will be determined should this proceed. Everyone on the island relies on a fresh source of water and therefore would likely be interested in this process.

Project Charter

Should the LTC wish to proceed with the development of an amended or new DPA-4, a project charter should be developed. Although, it would be advisable to have a Community Information Meeting in order to gain comments on the proposals.

In brief the project charter would contain the following:

- Project Objectives: To develop a revised/new Groundwater DPA for Galiano Island.
- Project Scope: The research will involve using past reports on Galiano's groundwater, available mapping, LPC ground water report, and will not involve any additional research on Galiano's groundwater.
- Project Deliverables: The main project deliverables will be a background information sheet, a community information meeting and a revised or new DPA 4 bylaw.
- Stakeholders: Residents and business owners, LTC, other agencies..
- Project Budget: A budget will be required for a community information meeting, advertisements (newspaper, active page and/or mail out), and a public hearing.
- Project Timeline (Deliverable/Milestone and Target Date): It is anticipated that new DPA bylaw could be approved by late-summer/early fall.

Next Steps

The next steps based on the staff recommendation that a revised or new DPA be drafted would be:

1. Develop a project charter and a draft Groundwater Protection DPA bylaw for consideration.

2. Give first reading to the draft bylaw and send out to referral agencies for comment.
3. Prepare a fact sheet on how the DPA would work.
4. Hold a community information meeting (CIM) to discuss the draft DPA with residents
5. Agency referrals.
6. Incorporate any amendments to the proposed DPA bylaw and schedule a public hearing.

Summary of Planning Recommendations

Staff were directed to review the recommendations of Waterline Resources Inc.'s report on DPA 4- Elevated Groundwater Catchment Areas and to provide recommendations based on the proposed amendments.

The protection of groundwater is important not only for all residents of Galiano Island but for the various environments that exist on the island that depend on surface water and/or groundwater. Waterline Resources Inc. had completed some initial review of the existing Galiano regulations and made recommendations in two reports. The May 2012 report addressed possible changes to the existing DPA 4 and the creation of a new DPA; while the recommendations provide a basis for developing new DPA provisions, in its current state they need changes to be enforceable as a DPA.

Staff are recommending that a revised DPA be drafted that includes elements of the proposed amendments by Waterline Resources Inc. and elements of a draft bylaw that was submitted to the Local Planning Committee as a resource for planners and LTCs. The revised DPA would address the elevation that the DPA designation would be based on. the existing 140 m elevation designation and the consultant proposed 50 m elevation designation would need to be evaluated.

The option staff is recommending is:

That the LTC direct staff to proceed to revise existing DPA 4 based on a combination of the recommendations of Waterline Resources Inc. and work conducted in the LPC's draft document on groundwater protection with the overall intent to widen the area of groundwater protection on Galiano Island by utilizing the 50m elevation.

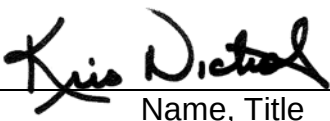
Alternative Options:

1. To develop two different DPAs to address groundwater protection based on the existing DPA and an additional one for other areas.
2. To direct staff to proceed to revise existing DPA 4 based on a combination of the recommendations of Waterline Resources Inc. and work conducted in the LPC's draft document on groundwater protection with the overall intent to widen the area of groundwater protection on Galiano Island by utilizing the 140m elevation.
3. To proceed no further with the groundwater project.

RECOMMENDATIONS:

1. THAT the Galiano Local Trust Committee directs staff to draft a project charter based on developing a new development permit area to address groundwater protection on Galiano Island at the 50m elevation contour.
2. THAT the Galiano Local Trust Committee direct staff to draft a new development permit area for the protection of groundwater.

Prepared and Submitted by:


Name, Title

January 21, 2014
Date

Concurred in by:


Robert Kojima, RPM

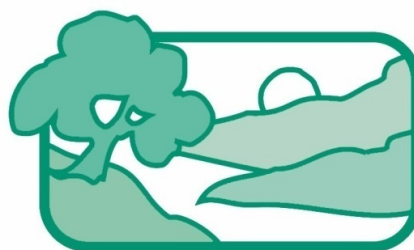
January 21, 2014
Date

Attachments:

1. Galiano Groundwater Regulation Review - Waterline Resources Inc. (May 2012)
2. Elevation Comparison Map
3. Waterline Resources Inc. Proposed Amendments (Marked Version of DPA)
4. Excerpt from Galiano OCP: Section III - Services 2, Water Supply

GALIANO GROUNDWATER REGULATION REVIEW

Submitted To:



Islands Trust

C/O Ms. Kaitlin Kazmierowski
Suite 200 – 1627 Fort Street
Victoria, BC V8R 1H8

Submitted By:

Waterline Resources Inc.
Nanaimo, BC

May 10, 2012

1755-12-001



TABLE OF CONTENTS

	PAGE
1.0 INTRODUCTION.....	1
1.1 Scope of Work.....	1
2.0 SUBDIVISION SERVICING REGULATIONS – ASSESSMENT STRATEGIES	1
3.0 DEVELOPMENT PERMIT AREA 4 – ELEVATED GROUNDWATER CATCHMENT AREAS.....	6
4.0 PROPOSED CRITICAL GROUNDWATER PROTECTION DEVELOPMENT PERMIT AREA	9
4.1 Justification.....	9
4.2 Objectives.....	9
4.3 Designated Area.....	9
4.3.1 Guidelines.....	10
5.0 ADDITIONAL GROUNDWATER MANAGEMENT RECOMMENDATIONS	10
5.1 Commercial/Industrial Activities with Elevated Environmental Risk	11
5.2 Monitoring Database and GIS Management	11
6.0 CLOSURE.....	12
7.0 REFERENCES.....	13

LIST OF TABLES

Table 1: Potable Water Supply Requirements	2
--	---

LIST OF APPENDICES:

Appendix A: Potable Water Supply Testing and Reporting Guidance

1.0 INTRODUCTION

In 2011, the Galiano Local Trust Committee (LTC) completed a review and update of its Official Community Plan (OCP) for Galiano Island. The Islands Trust commissioned Waterline Resources Inc. (Waterline) to review the Galiano Island regulations in relation to groundwater resource information, assessment and protection requirements.

1.1 Scope of Work

Waterline's scope of work included the following tasks:

- To review existing potable water supply servicing regulations developed by Islands Trust within the context of assessment strategies as discussed in Part 6.3 and Appendix C of Waterline's March 31, 2011 report.
- To review the Development Permit Area 4 (Elevated Groundwater Catchment Areas) as recommended in subsection 5.3.3 of the March 31, 2011 Waterline report.
- To provide specific recommendations to amend the Galiano Island Land Use Bylaw and the Development Permit Area provisions based on current best practices as outlined in the example attached in Appendix C of the 2011 Waterline report.
- To expand on recommendations provided in Table 3 of the 2011 Waterline report including:
 - Requiring landowners to supply water level and water use data for monitoring wells on their properties;
 - Requiring groundwater reporting from these private monitoring wells with expanded parameters; and,
 - Requiring no net increase in run-off for new construction.

The report enclosed herein is intended to provide specific guidance and recommendations for the LTC with regard to developing protective groundwater regulations for Galiano Island.

2.0 SUBDIVISION SERVICING REGULATIONS – ASSESSMENT STRATEGIES

The Islands Trust requested that the Galiano Island LTC Land Use Bylaw 127, 1999 (Consolidated: June 15, 2011) standards for potable water supply be reviewed by Waterline and that subdivision servicing and assessment strategies be developed. Based on Waterline's review of Bylaw 127, available groundwater reports submitted previously in support of subdivision applications and other groundwater references, a well testing and reporting guideline has been developed to support the hydrogeological assessment requested (Appendix A).

The recommended rewording of Bylaw 127, specifically Sections 13.23 through 13.28 which related to groundwater, is presented below along with the current text for comparison purposes. Where technical aspects of the hydrogeological assessment were outlined in the original bylaw wording, Waterline has recommended that the text be struck out and reference has been made to the well testing and reporting guideline presented in Appendix A.

Current Wording of Bylaw 127:

Clause 13.23 (Page 45): currently reads as follows:

“If a well is proposed as a source of potable water for a proposed subdivision, the applicant for subdivision must provide the written certification under seal of an Engineer or Professional Hydrologist with experience in groundwater hydrology that there is in respect of each building, structure, or use of land permitted by this bylaw on each proposed lot an available supply of potable water in the amounts set out in Table 1 and meeting or exceeding the Guidelines for Canadian Drinking Water Quality, and that the extraction from the groundwater table of that amount of water in respect of each permitted building, structure or use will not adversely affect the quantity or quality of water obtainable from any existing well or surface water then used as a source of potable water.”

TABLE 1: Potable Water Supply Standards

USE	VOLUME (litres per day)
<i>Residential including cottage</i>	2275
<i>Agriculture</i>	2275
<i>Forest</i>	2275
<i>Commercial</i>	3640
<i>Visitor Accommodation</i>	3185
<i>Industry</i>	3640
<i>All other uses</i>	2275

Recommended Revision:

If an individual or community well is proposed as a source of potable water for a proposed subdivision, the subdivision or development applicant shall retain a professional hydrogeologist who is registered as a Professional Geoscientist (P.Geo.) or Professional Engineer (P.Eng.) with the Association of Professional Engineers and Geoscientists of British Columbia. The professional hydrogeologist shall investigate the site specific hydrogeological conditions for the proposed subdivision or development. The hydrogeological assessment shall follow the testing and reporting guidelines attached in Appendix A and any other applicable municipal, provincial, or federal government legislation or guideline (e.g: BCGWPR, etc.).

The hydrogeological assessment report shall be submitted as a condition for subdivision approval. It shall include an unqualified statement from the professional hydrogeologist that:

- (a) The aquifer or aquifers beneath site can sustainably provide a sufficient quantity and quality of potable water to meet the water supply demand of the permitted development; and,
- (b) That the water supply for the permitted development will not adversely impact the aquifer(s), existing wells, or surface water bodies in terms of quality and quantity.

Where these statements cannot be categorically made, specific recommendations, which would result in the requirements being met, shall be attached to the report. The recommendations may include specifics related to groundwater monitoring, any future aquifer and well performance evaluations needed to confirm that the aquifer is performing in accordance with the initial assessment, water treatment specifications, and/or measures required to protect the aquifer from contamination and over use, as appropriate.

Waterline Comments regarding Table 1:

Although the volumes indicated in Table 1 may be reasonable in certain situations, Waterline recommends that a more quantitative approach be taken to assess the water supply demand on a site specific basis (lot by lot and/or subdivision by subdivision). In this manner, more realistic water demand volumes are considered at the subdivision application stage. For instance, agricultural uses such as irrigation and stock watering can vary with plant type, animal type, land area irrigated, numbers of animals, or lot size. These variables shall be considered when estimating the water demand on a per lot basis, and on a subdivision basis.

Commercial developments, visitor accommodation, industrial land uses will also require varying volumes of water supply depending on the nature of the proposed development. For instance, commercial office space housing 10 people for 8 hours per day, versus commercial office space housing 100 people for 12 hours each day will require varying amounts of water for drinking, washroom use, showers and for other common office uses. Other light industrial uses may require different volumes of water depending on the nature of the business being operated.

As part of the subdivision application, the applicant shall attempt to assess actual water supply demand based on reasonable estimates given the proposed subdivision plan. If the developer is uncertain on exactly what will be developed on the land, some attempt must be made to estimate water demand on a per lot basis based on the best available information at the time of application. The specified limits shall then be assigned to each lot based on acceptable water use. Once the water supply demand has been estimated, a restrictive covenant could be placed on the land title of individual lots identifying the groundwater volume limit which has been assigned and restricting any change of use or increase in use (otherwise permitted by zoning) without new assessment. In this manner, the buyers of the land will have an opportunity to assess if the water supply requirements of their planned development can likely be met by the land about to be purchased.

Once individual lots are sold, the purchaser would then make application for a development/building permit. At that time the approval authority shall verify that the

development/building plans are in agreement with the restrictive covenant placed on the land title restricting groundwater use on the lot. A level of assurance is developed whereby the groundwater use and actual land use are integrated. If the purchaser requires more water than is identified on the land covenant, then a complete hydrogeological assessment shall be required to allow for a change of the restrictive covenant, or the purchaser could consider another lot to accommodate their proposed development.

It shall be noted that the restrictive covenant would only apply to groundwater supply. Other means of water supply development such as rainwater capture can be developed and integrated into the water supply plan for the site in order to supplement additional supply requirements.

Clause 13.24 (Page 45): currently reads as follows:

"If the certification referred to in section 13.23 cannot be made, the approving officer may nonetheless approve the subdivision in the following circumstances:

13.24.1 where the applicant provides a community water system complying with the requirements of this bylaw; or

13.24.2 where the applicant grants a covenant restricting the development of the subdivision to the buildings, structures and uses in respect of which a certification can be made under section 13.23."

Recommended Revision:

Groundwater supply at proposed subdivisions can be accomplished by individually serviced lots (one well per lot) or by one or more communal wells and distribution system forming a community water system which will service the entire proposed subdivision. If, in the opinion of the professional hydrogeologist, individual lots cannot be supported by single wells, the approving officer may nonetheless approve the subdivision in the following circumstances:

13.24.1 where the applicant provides a community water system as defined above complying with the requirements of this bylaw; or,

13.24.2 where the applicant grants a covenant restricting the development of the subdivision to the buildings, structures and uses in respect of which a certification can be made under section 13.23.

Clause 13.25 (Page 45-46): currently reads as follows:

"For the purposes of the certification referred to in section 13.23, the Engineer or Professional Hydrologist must supply supporting pump test documentation indicating that the test was of sufficient duration to establish in accordance with generally accepted hydrological engineering practice the long term reliability of the water supply, and the pump test must be conducted so as not to adversely affect the quantity or quality of water obtainable from any existing well used as a source of potable water."

Recommended Revision:

Waterline recommends that 13.25 be struck out as it is covered in Section 13.23 and the well testing and reporting guideline attached in Appendix A.

Clause 13.26 (Page 46): currently reads as follows:

“If an Engineer or Professional Hydrologist provides a certification under section 13.23 as to the quality of a proposed source of potable water, the certification must include a plan of the proposed subdivision indicating the location where each pump test was conducted and each water sample was taken, and a statement that the water samples upon which the water quality analysis was performed were unadulterated samples taken from the locations indicated on the plan.”

Recommended Revision:

Waterline recommends that 13.26 be struck out as it is covered in the well testing and reporting guideline attached in Appendix A.

Clause 13.27 (Page 46): currently reads as follows:

“If a community water system is proposed, the water system must comply in all respects with applicable provincial enactments and the applicant must provide the written certification of an Engineer with experience in groundwater hydrology that the proposed community water system will not adversely affect the quantity or quality of water obtainable from any existing well or surface water supply then used as a source of potable water.....

Recommended Revisions:

Waterline recommends that the following wording from 13.27 be struck out as it is covered in the well testing and reporting guideline attached in Appendix A.

The only sentence that should remain is the following:

“....No community water system may be supplied with water other than that which is obtained on the island on which the system is located.”

Proposed Clause 13.28:

Waterline recommends that an additional clause be added to the Subdivision Servicing Bylaw to address groundwater monitoring:

“Groundwater monitoring and reporting shall be established for all community water supply systems, subdivisions where three or more lots are planned, or subdivisions that occur in

recognized critical groundwater areas. Proponents without community water supply systems may apply for variance for this requirement if one or more monitoring wells already exists within a 250 m radius of the on-site water well(s) and is completed in the same hydrostratigraphic system.

Proponents shall install a groundwater level monitoring device (datalogger) and a flow meter device (flow totalizer) be in each community supply well(s), or in at least one designated individual water supply well within the proposed subdivision. The groundwater level (in meters below top of casing) measurement interval shall be every six hours and flow totalizer readings in cubic metres shall be recorded monthly and include an instantaneous flow reading (m³/day). At least one water quality sample will be collected annually by the owner and submitted for general potability analysis (major anions, cations, physical water quality parameters and microbiology) at an accredited analytical laboratory.

The groundwater level, water use and water quality data must be provided in digital format on an annual basis to the LTC, or at the request of regulatory officials.

3.0 DEVELOPMENT PERMIT AREA 4 – ELEVATED GROUNDWATER CATCHMENT AREAS

The Islands Trust requested that the Development Permit Area (DPA) 4 (Elevated Groundwater Catchment Areas) in the Galiano OCP Bylaw No. 108, 1995 (Consolidated: November 25, 2011) be reviewed based on recommendations provided in subsection 5.3.3 of Waterline's Galiano Island Groundwater Study (Waterline, 2011). The main opinion expressed in Waterline's Galiano Groundwater Study report subsection 5.3.3 (Waterline, 2011) was that the DPA 4 elevated groundwater catchment areas, defined as those land areas above 140 m above sea level, cover only a portion of the probable recharge area defined by the 1998 Assessment of Groundwater Quality and Quantity (Kohut, Johansson, 1988). As such, DPA 4 may not be adequately protective of recharge areas on Galiano Island. Notwithstanding that this section only applies to DPA 4, consideration should be given to other possible sensitive recharge areas at lower elevations.

Waterline has provided some revisions to the DPA 4 text and added in additional guidelines to increase the protective capacity of the DPA. Italicized text represents the original text; highlighted text has been identified for change followed by Waterline's revision.

Section 4.1 of the DPA 4 reads as follows:

Development Permit Area 4 includes groundwater catchment areas above 140 metres (m) elevation contour identified and mapped in a 1998 B.C. Environment Study, Assessment of Groundwater Availability and Quality, Galiano Island, British Columbia

Recommended Revisions:

Note: Waterline recommends that the highlighted text be struck out as it implies that the 140 m elevation contour areas were identified as the groundwater recharge areas in the 1998 groundwater assessment report (Kohut and Johanson, 1998). This is not an accurate statement. Kohut and Johansson (1998) actually identified the majority of Galiano Island as probable recharge area.

Section 4.2 of the DPA 4 read as follows:

Wetlands at intermediate elevations were identified in the 1998 Groundwater Study as warranting special management consideration in view of their function as recharge areas for downslope groundwater regions. The 1998 Groundwater Study concluded that judicious management of groundwater recharge areas will be critical to sustaining groundwater availability and quality in all of the groundwater regions of Galiano Island. Only those portions of the catchment areas having shallow soils and being particularly sensitive to development for that reason are included in the development permit area.

Recommended Revisions:

Waterline recommends that the text, “*Only those portions of the catchment areas having shallow soils and being particularly sensitive to development for that reason are included in the development permit area.*” be struck because the areas haven’t been mapped for the presence of fractures, suitable slope conditions or other features that could enhance recharge conditions.

Section 4.3 of the DPA 4 read as follows:

The Elevated Groundwater Catchment Area DPA is designated as an area for which development approval information may be required as authorized by Section 920.01 of the Local Government Act. Development approval information in the form of a report from a qualified professional may be required due to the special conditions and objectives described above.

Recommended Revisions: Waterline has no recommended revisions.

Proposed New Section after 4.3 of the DPA 4 - Development Permit Exemptions

Waterline considers that the following represents examples of activities that likely have minimal influence on potential groundwater recharge conditions and therefore should be recommended for exemption from the DPA 4. Waterline assumes that the proponent will provide sufficient information to the LTC to demonstrate the intended activities conform.

- a) Construction or alteration of an existing building or structure that does not result in an increase in impervious area across the property;

- b) Subdivision not involving land alteration;
- c) Activities that reasonably will not alter the natural ground surface (vegetation or landscaping coverage, soil cover, etc.) and does not alter the general contours of the land and reduce potential recharge;
- d) The removal of trees that have been examined by an arborist and certified to pose an immediate threat to life or property; (adapted from DPA#7 – Steep Slope Hazard Areas)
- e) The construction of a trail or fence that does not alter contours of the land, drainage patterns or adversely impact identified recharge areas; and,
- f) Repairs and maintenance of existing roads, driveways, utility lines, infrastructure, paths or trails, provided there is no expansion of the width or length, activities which alter natural drainage or increase impervious coverage in a manner than reduces potential recharge;
- g) Activities in areas that have been previously assessed and identified to be not significant recharge areas (i.e. massive (unfractured) rock, excessively sloped areas).

Section 4.4 of the DPA 4, entitled “Guidelines”, reads as follows:

The Local Government Act prohibits construction of buildings and structures and the alteration of land and subdivision in Development Permit Area 4 unless the owner first obtains a development permit. Development permits will be issued in accordance with the following guidelines; guidelines in section 3.5 may also be applicable.

_ Buildings and structures may be sited only where development approval information provided by the permit applicant indicates that such structures can be accommodated without impairing the quantity or quality of groundwater in the local groundwater region.

_ The construction of roads and utility corridors an other activities involving the disturbance of the soil, must be conducted in such a manner that the productivity of the local groundwater recharge area is not impaired through soil compaction, altered surface drainage patterns, siltation, erosion, or salt water intrusion.

_ The layout of subdivision must ensure that building sites are located and are of sufficient area that development permitted by the Land Use Bylaw may fully comply with these guidelines.

Recommended Revisions:

Waterline recommends that the following text replace the first guideline in Section 4.4 of the DPA 4:

_ Buildings and structures shall be sited only where site specific assessment findings confirm that such structures can be accommodated without impairing the quantity or quality of groundwater in the local groundwater region. Site specific ground and hydrogeological conditions shall be assessed by a registered professional engineer or geoscientist with appropriate education, training, certification and experience in hydrogeology to evaluate potentially sensitive areas having little soil cover, highly permeable soil cover, or intense fracturing or fault zones (recharge areas) present within the property.

Proposed Additional Guideline for Section 4.4:

_Where a proponent proposes site development activities with potential to alter the natural infiltration characteristics of the ground surface (i.e. increase impermeable area, decrease vegetative cover, changes to land contours, etc.), a qualified professional shall be retained to complete a rainwater management plan. The plan must demonstrate that the site development activities shall occur in such a manner that do not adversely modify site conditions relating to natural runoff and infiltration characteristics from pre-development conditions or introduce potentially deleterious substances into the environment. The plan shall include measures that shall be used to mitigate post-development changes to maintain natural infiltration rates.

Subdivision or development applicants shall apply water conservation measures, low impact development techniques and source control and/or infiltration approaches that align with the [BC Stormwater Planning: A Guidebook for British Columbia](#) (MoE, 2002) or more recent updates.

4.0 PROPOSED CRITICAL GROUNDWATER PROTECTION DEVELOPMENT PERMIT AREA

This section provides recommendations and example text that could be implemented to improve groundwater/aquifer protection in critical groundwater areas through the designation of a critical groundwater protection development permit area (DPA).

4.1 Justification

The LTC acknowledges that Galiano Island poses unique challenges in terms of sustainable development of freshwater resources, groundwater and aquifer protection and land development. The fractured bedrock aquifer has limited ability to store and produce water and is dependent on seasonal climate for recharge. Adverse impacts to groundwater recharge, over-extraction and water quality management issues have the potential to rapidly compromise the natural groundwater environment.

4.2 Objectives

The objective for the Galiano Island critical groundwater protection DPA is to promote measures that support groundwater recharge, reduce water demands, protect the subsurface against possible pollution from land use and development activities and to support ecosystems that rely on the groundwater resource.

4.3 Designated Area

Critical groundwater areas where adverse impacts to groundwater quantity and quality issues have been mapped by Kohut and Johanson (1998) and were confirmed by Waterline (2011).

4.3.1 Guidelines

_ Rainwater Management: Rainwater management is an important aspect in terms of how it relates to infiltration and recharge to groundwater systems. Rainwater shall be managed on-site in such a manner that does not adversely modify site conditions relating to natural runoff and infiltration characteristics from pre-development conditions.

In terms of supporting sustainable groundwater practices, new proposed developments shall adopt low impact development practices that apply water conservation measures. Water conservation can be accomplished through the use of low water use fixtures, composting toilets, rainwater harvesting and low water use irrigation systems, to name a few. Rainwater management shall ensure that groundwater and surface water resources are protected from the release of potential deleterious substances into the environment.

The development approval information submitted by the applicant shall include a rainwater management plan prepared by a qualified professional that at minimum addresses the points set out above.

_ Well Operations: Once the well has been tested and approved by the subdivision authority, the landowner shall manage water use and groundwater extraction in order not to exceed the sustainable well rating identified by the professional hydrogeologist.

The landowner is responsible to ensure that no system leaks (leaky toilets, irrigations systems, unattended watering, etc.) have the potential to result in uncontrolled groundwater pumping over an extended period of time. To limit the risk from over-pumping (water wells running dry, enhanced sea water intrusion, etc.) the landowner shall:

- Incorporate storage to eliminate 'on-demand' pumping;
- Install a low-level pump shut-off device to limit maximum drawdown in well to above sea level;
- Install a flow restrictor valves (e.g: dole valve) to limit groundwater extraction to the well capacity rating identified by the professional hydrogeologist; and,

_ Groundwater Quality Protection: The handling, storage or disposal of substances or contaminants that may be harmful to groundwater is discouraged and may be prohibited. Proposed developments that may reasonably pose a detrimental impact to either groundwater quality or quantity shall not be supported.

5.0 ADDITIONAL GROUNDWATER MANAGEMENT RECOMMENDATIONS

The following section documents additional recommendations that seemed to be outside the context of the Subdivision Servicing Bylaw or DPA guidance, but generally still applicable to groundwater management on Galiano Island.

5.1 Commercial/Industrial Activities with Elevated Environmental Risk

This section provides general wording around potential contaminated sites issues:

Development or redevelopment applications submitted involving site activities listed in Schedule 2 of the Contaminated Sites Regulation (BC Reg. 375/96) (MoE, 1996) shall be accompanied by a report from a professional hydrogeologist, who is registered as a Professional Geoscientist (P.Geo.) or Professional Engineer (P.Eng.) with the Association of Professional Engineers and Geoscientists of British Columbia. The report shall include, but not be limited to:

- Hazardous materials storage, handling and disposal on-site (Chemical Management Plan);
- An assessment of risks relating to potential groundwater contamination and risk management plan to address potential adverse impacts to the surface and subsurface environment;;
- Site specific monitoring plan in order to develop and early warning groundwater monitoring system (more details below);and ,
- Spill response plan.

The handling, storage or disposal of substances or contaminants that may be harmful to groundwater is discouraged and may be prohibited. Proposed developments that may reasonably pose a detrimental impact to either groundwater quality or quantity shall not be supported.

5.2 Monitoring Database and GIS Management

Aquifer and well information should be made readily accessible to all stakeholders, decision makers, and consulting professionals. Any information gathered should feed back into a useful data management system. With this approach, the local knowledge base on aquifers improves over time so that critical water management decisions are based on the best and most complete datasets. This could be achieved by importing all the well monitoring information and data into a structured database.

This process can either be managed in-house, or published to the web. An example of a web-based prototype is the Well Water Level Database (wells.viu.ca/vicgmn) developed by faculty and students at Vancouver Island University. This online reporting and data discovery tool, uses open source, i.e. freely available, technology, and allows registered users to upload well water levels and view their data on a map.

Waterline is currently developing a water reference database for the RDN that brings structure to the large amount of water quantity, water quality and other related source material. This reference database will be searchable, among other things, by data type, source and year, and will give District managers and planners a window into their information. Waterline is concurrently developing a water budget and hydrological/hydrogeological model for the RDN, that will link GIS analysis to this reference database.

It is recommended that the LTC consider adopting a similar system to manage the information gathered through their subdivision approval process and through existing and future monitoring programs.

6.0 CLOSURE

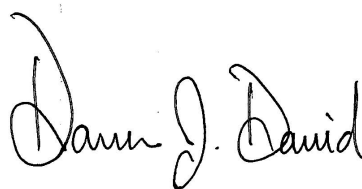
This enclosed report and information have been compiled exclusively for the Islands Trust and presents results of the Galiano groundwater regulation review. This work was carried out in accordance with the scope of work for this project and accepted hydrogeological practices. No other warranty, expressed or implied, is made as to the professional services provided to the client. Any use which a third party makes of this report, or any reliance on or decisions to be made based upon it, are the responsibility of such third parties. Waterline accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Respectfully submitted,

Waterline Resources Inc.

The block contains a handwritten signature in cursive that reads "Shelley Bayne". To the right of the signature is a circular purple ink stamp. The stamp contains the text "PROFESSIONAL GEOLOGIST" around the top edge, "J. BAYNE" in the center, and "229361" and "BRITISH COLUMBIA" at the bottom. There is also a handwritten "95" and "10/10/12" next to the stamp.

Shelley Bayne, M.Sc., P.Geo.
Senior Hydrogeologist

The block contains a handwritten signature in cursive that reads "Darren J. David".

Darren David, M.Sc., P.Geo.
Principal Hydrogeologist

7.0 REFERENCES

Alberta Environment and Water. 2011. Alberta Environment Guide to Groundwater Authorization.

Galiano Island LTC Land Use Bylaw 127, 1999 (consolidated June 15, 2010) as amended by the Galiano Island Local Trust Committee regarding bylaws: 130, 132, 136, 139, 143, 147, 149, 150, 157, 170, 172, 178, 182, 184, 185, 190, 192, 205, and 209.

Galiano Island LTC Official Community Plan Bylaw No. 108, 1995 (consolidated November 25, 2011).

Kohut, AP and Johanson, D.A. 1998. Assessment of Groundwater Availability and Quality, Galiano Island, British Columbia.

Maathuis, H. and van der Kamp, G., 2006, The Q_{20} concept: Sustainable well and yield and sustainable aquifer yield, Saskatchewan Research Council Publication No. 10417-4E06.

MoE. 1996. BC Contaminated Sites Regulation – BC Reg. 375/96, includes amendments up to B.C. Reg. 97/2011, May 31, 2011

MoE. 2002 (Last modified on June 21, 2010). BC Stormwater Planning Guidebook. <http://www.env.gov.bc.ca/epd/mun-waste/waste-liquid/stormwater/index.htm>

MoE. 2004. BC Groundwater Protection Regulation – BC 299/2004, includes amendments up to B.C. Reg. 91/2009, March 6, 2009

MoE. 2007. Water Utilities – Guide to Applying for a Certificate of Public Convenience and Necessity.

MoE. 2010. Guide to Conducting Well Pumping Tests. Water Stewardship Information Series.

Okanagan Basin Water Board (OBWB). 2009. Groundwater Bylaws Toolkit, 118 pp.

Waterline Resources Inc. 2011. Galiano Groundwater Study. Prepared for the Islands Trust.

APPENDIX A

POTABLE WATER SUPPLY TESTING AND REPORTING GUIDANCE

Appendix A - Well Testing and Reporting Guidelines

Introduction and Background

In British Columbia, water is owned by the Crown and not by individual landowners as is commonly believed. Surface water is regulated by BC Ministry of Environment under the *Water Act*. Unlike surface water, groundwater extraction is not regulated in BC. However, there is recognition by regulatory officials that as the population increases, so to will the demand for groundwater resources and therefore regulation of groundwater is desperately needed. The Water Act Modernization process underway in BC and is intended to address groundwater development sustainability and licensing. For more information on the process the reader is directed to the Living Water Smart Website at <http://www.livingwatersmart.ca/water-act/>.

The well testing and reporting guidance presented below is intended to support the Galiano Island subdivision servicing bylaws that protect groundwater resources. They have been based on various sources including the Groundwater Bylaws Toolkit (OBWB, 2009), the Certificate for Public Convenience and Necessity (CPCN) (MoE, 2007), the Guide to Conducting Well Pumping Tests (MoE, 2010) and the Alberta Environment Guide to Groundwater Authorization (2011).

All well testing for subdivision or development approval purposes should be conducted during the summer or fall to facilitate a better understanding of the aquifer response under stressed conditions (driest season and higher groundwater demand due to increased visitor population, irrigation and other uses). The well testing shall be carried out by a qualified well driller (QWD), a qualified pump installer (QPI) or a person working under the direct supervision of a professional hydrogeologist (P.Geo. or P.Eng.).

The professional hydrogeologist shall be involved before testing begins to allow the hydrogeologist to review available information pertaining to:

- Well completion details,
- Preliminary driller's well yield estimate;
- Planning for field verification survey;
- Local geology, hydrogeology, topography and surface water bodies;
- Water quantity or quality information previously identified in the area; and,
- Existing water demand in the area and any identified concerns, if available.

The hydrogeologist shall identify to the well tester what the test objectives are, data collection methods, observation wells, pumping rate and test duration, water sample collection, discharge location and whether salt water intrusion is a risk.

Field Verification Survey

The radius of the field-verified survey shall be 1.0 km or more depending on the geological and hydrogeological conditions, the quantity of groundwater required by the proposed project, and the number of water users in the area. Details of efforts to contact landowners must be documented in the report supporting the study efforts. If it is not possible to contact landowner(s) in person during the survey, it is recommended that an explanatory letter be left for those who were not contacted in person. At a minimum, the field-verified survey shall consist of the following:

1. A map(s) showing the ownership and locations of all currently used water wells, springs, and/or surface water features within a minimum radius of 1.0 km from the project site; and,
2. A summary table containing:
 - a. Landowners'/lessees' names;
 - b. Legal land location of the groundwater source (well, spring, other);
 - c. Surface elevation and GPS coordinates of the water source;
 - d. Type of water source (e.g., wells, springs, surface water, etc.);
 - e. Well status (e.g., producing, standby, observation, abandoned, etc.);
 - f. Well depth;
 - g. Original non-pumping water level including date and current non-pumping water level;
 - h. Completion details including completion interval (open hole, perforated, or screened);
 - i. Depth and elevation to the top of the water-producing zone and the amount of available head;
 - j. Maximum pumping rate and current usage;
 - k. Purpose of use (e.g., household, agricultural, industrial, commercial, etc.) and current water daily/annual requirements;
 - l. Distance of well(s) from the proposed groundwater use site; and
 - m. Summary of historical groundwater quality analyses, if available.

The field survey provides the opportunity for the applicant to inform his or her neighbours and take note of any concerns that may be addressed in the report supporting the application. When the potential for conflict exists, the applicant and potentially affected neighbours may reach an agreement at this stage.

Aquifer Testing Requirements

An aquifer test(s) must be conducted on the proposed production well(s) to determine the following:

- Hydraulic properties of the aquifer,
- Potential groundwater boundary conditions,
- The long-term sustainable yield of the aquifer in the vicinity of the well; and,
- Potential impacts to existing wells and the environment.

The selection of the aquifer test method shall be based on the hydrogeology of the proposed test site.

The majority of water wells completed on Galiano Island are completed in fractured sedimentary rocks of the late Cretaceous Nanaimo Group (Waterline, 2011). Fractured bedrock aquifers can be complex and flows rely predominantly on fracture or faulted pathways rather than through the primary matrix. For this reason, bedrock wells can be difficult to assess and merit a longer test to confirm the long-term sustainable yield, the potential water quantity and quality impacts to neighbours and the risk for saltwater intrusion.

The well test length in a fractured bedrock aquifer shall be 48-72 hours unless the driller-reported well yield exceeds 23,000 L/day, in which case the test requirement may be reduced by a professional hydrogeologist. The flow rate shall be maintained at a constant rate for the well test. The flow rate shall be monitored throughout the test and any adjustments to the flow rate shall be recorded. The professional hydrogeologist may need to specify longer durations in locations if negative aquifer boundary conditions are detected. Negative boundaries strongly affect the long-term well capacity and sustainable yield of the aquifer and therefore must be factored into the analysis.

Observation Well(s) and Well Interference

The connection between two wells depends on the local fractures in a bedrock aquifer. Because of this, the degree of response in an observation well may be variable and difficult to anticipate. A suitable observation well is typically located between 15 m and 150 m from the proposed test well. If possible, it is recommended that more than one observation well be monitored during an aquifer test.

Nearby wells owners may also provide permission to monitor their wells and this shall be determined prior to the start of the pumping test as part of the field verification survey described above. All relevant well logs shall be reviewed to determine if the observation well(s) are completed within the same aquifer (fracture) zone.

If five or more lots are planned for a subdivision, or if a community well will service the subdivision, at least one dedicated observation well shall be installed by the proponent for testing and monitoring purposes, including follow up monitoring purposes. This requirement will also in critical groundwater areas where water quantity or quality issues have been identified.

Data Collection

The well tester shall monitor and record the following information:

- Weather conditions during the testing period;
- Measure and record non-pumping, static water level in the test and observation wells before the test is initiated. If any wells are in use, then water level monitoring must be completed over a period of time sufficient to determine the static water level in the well. Set the test rate to not less than the anticipated maximum production rate required and limit variation in pump rate to $\pm 5\%$ of the desired test rate;
- Measure water levels at regular intervals (typically higher frequency at the start of pumping and start of recovery, which may decrease over time based on the well response) in accordance with standard professional practice. If dataloggers are used then the interval shall be set to one minute. Water level recovery measurements shall be collected for as long as the production well(s) is pumped, or until the water level has recovered at least within 90% of the pre-test non-pumping water level, whichever comes first;
- During the test, the following field water quality parameters shall be measured and recorded: pH, electrical conductivity, temperature, colour, and odour.
- Flow rate measurements must also be recorded at regular intervals to confirm the constant flow rate.

Discharge of Diverted Groundwater

The pumped water shall be discharged in a manner that does not erode land, flood neighbours or deposit sediment into streams. It may require storage. The discharge location shall be at sufficient distance downgradient or cross-gradient to prevent re-circulation into the aquifer which can affect the results of the test. Discharge shall not be directed directly to a surface water body without appropriate regulatory approval.

Prevention of Saline Intrusion

Wells completed close to the coast or in areas where salt water intrusion has been previously identified shall be pump tested with caution. Field testing of water quality parameters such as electrical conductivity, total dissolved solids and/or chloride shall be monitored at regular intervals during the test to determine if salinity is increasing as a result of pumping activities. If there is an indication that salinity is increasing, the pumping shall be terminated.

Drawdown also must not exceed the mean sea level to prevent sea water intrusion.

Water Quality Sampling

To demonstrate and assess potability, an unadulterated water quality sample shall be collected just before the pumping is terminated. The sample shall be analyzed at minimum for bacteriological parameters, physical parameters, major anions and cations including fluoride and total metals including arsenic. The water sample shall be preserved in accordance to standard environmental protocol and shipped to an analytical laboratory accredited through the Canadian Association Laboratory Accreditation (CALA) for testing.

Reporting

The report framework recommended in these guidelines generally follows that outlined in the Groundwater Bylaw Guidebook for consistency purposes. The content of the report may vary depending on the completed testing program and findings. The professional hydrogeologist is responsible to prepare a groundwater assessment report with relevant supporting data. The report framework may include, but not be limited to:

- Purpose of investigation
- Background
 - Description of the project and water supply requirements
 - Description of the hydrogeological system and setting including the type of aquifer (and aquifer boundaries), surficial and bedrock geology, physical hydrogeology, local surface water features, estimated recharge area and conditions and climate
 - Conceptual model of groundwater occurrence and groundwater-surface water interaction
 - Description of existing users within 1.0 km of test well
 - Preliminary or pre-development water budget
 - Well design and construction methods
 - Long-term well capacity and how it was calculated
 - Water quality, including characterization of natural groundwater quality, potability, as well as possibility of contamination
- Methodology and Results
 - Field verification Survey
 - Well location criteria, well drilling, and well design
 - Pumping test and drawdown data collection and analysis
 - Water quality sampling/monitoring
 - Numerical model documentation and application, if applicable
 - Uncertainties and limitations of the report
- Impact Assessment
 - Cumulative effects analysis

- Impact to existing groundwater users (water users and existing wells), identification of the potential groundwater protection issues in the area) and risk of sea water intrusion
 - Impact to surface water (if applicable)
 - Other potential impact implications
- Conclusions and Recommendations
 - Summary of results and impact assessment
 - Recommendations on well operation and maintenance
 - Recommended monitoring program
 - Recommendations on well and aquifer protection, with a well protection plan to address any identified issues
- References and data sources
- Figures/Appendices
 - Site plan showing well locations for all wells tested, including neighbouring wells, locations of roads, lakes and streams, and sources of potential contamination such as landfills and septic fields
 - Legal description of the site, elevations
 - Detailed well logs, detailed test pumping information, subsurface cross-sections

Details are provided on the level of assessment recommended:

Aquifer Test Data Interpretation – The most appropriate analytical approach shall be selected based on the available data and conceptual hydrogeological model. Aquifer parameters such as transmissivity and storage coefficient shall be reported.

Boundary Conditions – The test data shall be reviewed to identify and locate suspected aquifer boundaries, leakage, changes in aquifer thickness, changes in aquifer permeability, pumping in additional wells, changes in discharge rate during the well test, delayed yield, barometric and tidal effects.

Theoretical Long-term Yield – The bedrock aquifers on the Gulf Islands typically recharge rapidly once the rainy season starts each year. Under these circumstances, it is appropriate to estimate the long-term yield based on the BC 100-day well capacity analysis as documented in the CPCN guidance document (MoE, 2007). Drawdown in the well shall be limited to 70% of the total available drawdown where the total available drawdown is calculated as the distance between the uppermost major producing fracture and the non-pumping water level in a fractured bedrock aquifer or the bottom of a confining layer in a confined overburden aquifer. If the bedrock does not exhibit evidence of recent recharge, it may be more appropriate to utilize a long-term yield analysis model that is based on a development-life time scale of 20 to 30 years. The Modified Moell Method (Maathius and van der Kamp, 2006) is the preferred analytical model for this analysis in Alberta.

If the professional hydrogeologist suspects that the aquifer does not respond in a typical rapidly recharged manner (i.e. if the water chemistry is heavily mineralized which suggests a longer

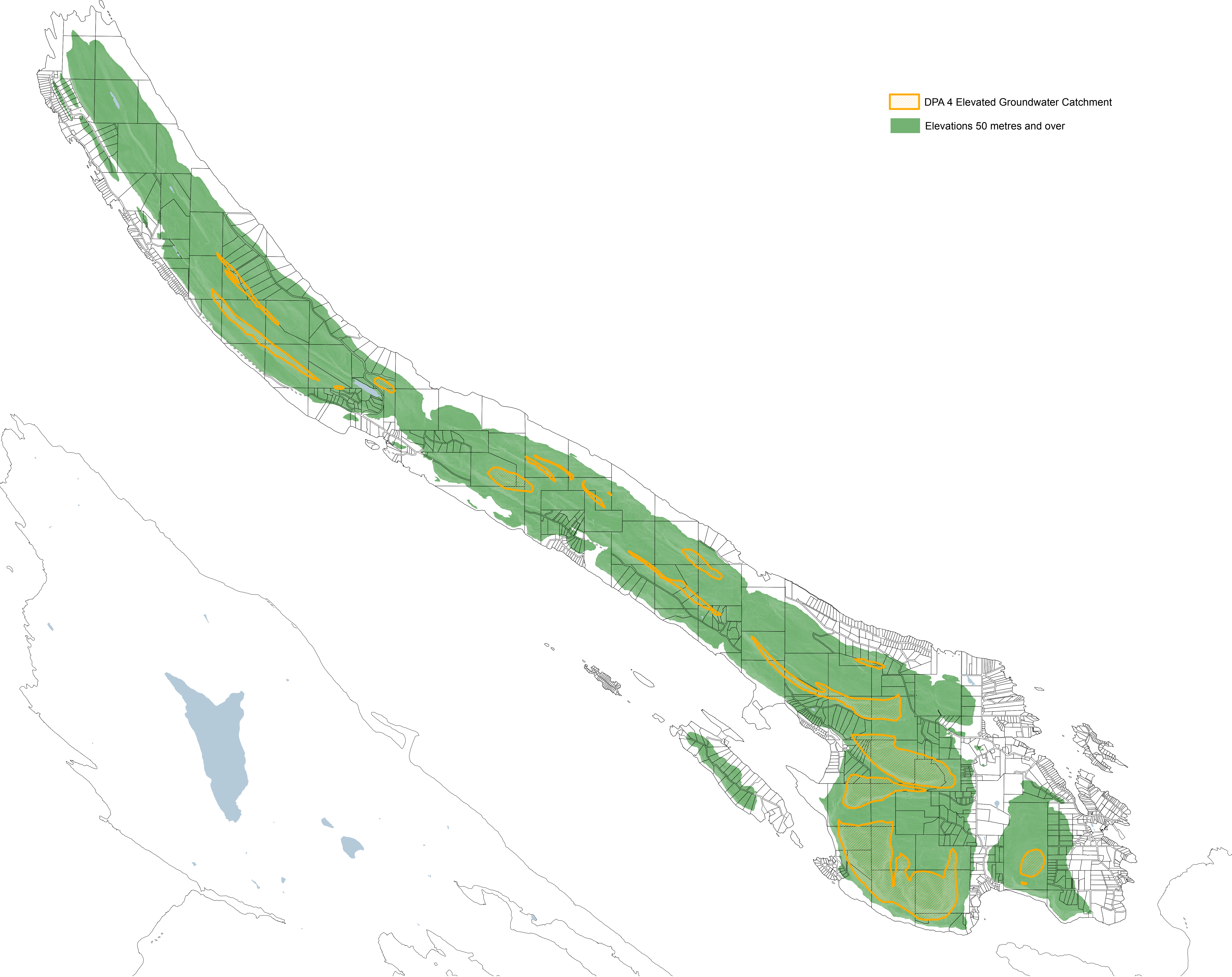
residence time), it may be appropriate to estimate the long-term yield based on a longer time frame using another method such as the Modified Moell Method (Maathuis and van der Kamp, 2006).

Cumulative Effects Analysis- Cumulative effects of groundwater extraction activities shall be estimated using standard hydrogeological techniques that are available in analytical models used to evaluate the same pumping test data which is already being collected as part of a subdivision application on Galiano. The cumulative analysis shall take into consideration wells operating within 1 km of a single domestic well, wells proposed for a multi-lot subdivision, or a community well or wells.

Water Potability Evaluation – Compare the reported analytical water chemistry with the Guidelines for Canadian Drinking Water Quality (Health Canada – currently 2010, but regularly updated). The professional hydrogeologist shall confirm through a figure that shows each water sample location and the professional hydrogeologist shall state that the collected samples are unadulterated and representative of the aquifer conditions.

Impact Analysis - The predicted drawdown in the aquifer, while considering active pumping in all other wells considered for the analysis, shall not exceed the mean sea water level. It shall also be restricted to less than 50% of the available head as measured in an observation well located 150 m away from the pumping well to ensure that over-pumping does not occur.

The impact analysis shall also show that the proposed well will not adversely affect the quantity or quality of water obtainable from any existing wells or surface water supplies.



Amendments recommended by Waterline Resources Inc. and staff comments.

Suggested DPA Amendments

BL220

4. Development Permit Area 4 - Elevated Groundwater Catchment Areas

4.1 Description of Area

Development Permit Area 4 includes groundwater catchment areas above 140 meter elevation contours, ~~identified and mapped in a 1998 B.C. Environment Study, Assessment of Groundwater Availability and Quality, Galiano Island, British Columbia.~~

Comment [KN1]: Recommended to be deleted as it implies that the 140m elevation was the identified as the groundwater recharge areas in the 1998 groundwater assessment report whereas the report identified the majority of Galiano Island as a probable recharge area (> 50m elevation).

4.2 Special Conditions

Wetlands at intermediate elevations were identified in the 1998 Groundwater Study as warranting special management consideration in view of their function as recharge areas for downslope groundwater regions. The 1998 Groundwater Study concluded that judicious management of groundwater recharge areas will be critical to sustaining groundwater availability and quality in all of the groundwater regions of Galiano Island. ~~Only those portions of the catchment areas having shallow soils and being particularly sensitive to development for that reason are included in the development permit area.~~

Comment [KN2]: Recommended to be deleted because the areas haven't been mapped for the presence of fractures, suitable slope conditions or other features that would enhance recharge conditions.

BL220

4.3 Development approval Information

The Elevated Groundwater Catchment Area DPA is designated as an area for which development approval information may be required as authorized by Section 920.01 of the *Local Government Act*. Development approval information in the form of a report from a qualified professional may be required due to the special conditions and objectives described above.

4.4 Development Permit Exemptions

- a) Construction or alteration of an existing building or structure that does not result in an increase in impervious area across the property;
- b) Subdivision not involving land alteration;
- c) Activities that reasonably will not alter the natural ground surface (vegetation or landscaping coverage, soil cover, etc.) and does not alter the general contours of the land and reduce potential recharge;
- d) The removal of trees that have been examined by an arborist and certified to pose an immediate threat to life or property; (adapted from DPA#7 – Steep Slope Hazard Areas)
- e) The construction of a trail or fence that does not alter contours of the land, drainage patterns or adversely impact identified recharge areas; and,
- f) Repairs and maintenance of existing roads, driveways, utility lines, infrastructure, paths or trails, provided there is no expansion of the width or length, activities which alter natural drainage or increase impervious coverage in a manner than reduces potential recharge;

Comment [KN3]: This is a suggested new section with examples of activities that likely have minimal influence on potential groundwater recharge conditions and therefore could be exempt from the DPA. Of course sufficient information would be provided to the LTC to show that the activities conform.

Comment [KN4]: Too vague and uncertain to be an exemption – either need specific criteria (like hazard DPA exemption (r)) or an exemption letter from a qualified professional certifying this (see hazard DPA exemption (b))

g) Activities in areas that have been previously assessed and identified to be not significant recharge areas (i.e. massive (unfractured) rock, excessively sloped areas).

Comment [KN5]: By a qualified professional?

Comment [KN6]: Compare exemptions to hazard DPA: i.e. everything is exempt except the listed activities. Include standard exemptions from the other DPA, referencing activities exempted by provincial legislation (e.g. farming, managed forestry, mining, etc.

4.45 Guidelines

The *Local Government Act* prohibits construction of buildings and structures and the alteration of land and subdivision in Development Permit Area 4 unless the owner first obtains a development permit. Development permits will be issued in accordance with the following guidelines; guidelines in section 3.5 may also be applicable.

- Buildings and structures shall be sited only where site specific assessment findings confirm that such structures can be accommodated without impairing the quantity or quality of groundwater in the local groundwater region. Site specific ground and hydrogeological conditions shall be assessed by a registered professional engineer or geoscientist with appropriate education, training, certification and experience in hydrogeology to evaluate potentially sensitive areas having little soil cover, highly permeable soil cover, or intense fracturing or fault zones (recharge areas) present within the property. Buildings and structures may be sited only where development approval information provided by the permit applicant indicates that such structures can be accommodated without impairing the quantity or quality of groundwater in the local groundwater region.

Comment [KN7]: Replacement guideline

Comment [KN8]: This describes the impact assessment information, which should be in the DAI bylaw, and not as a guideline.

- The construction of roads and utility corridors and other activities involving the disturbance of the soil, must be conducted in such a manner that the productivity of the local groundwater recharge area is not impaired through soil compaction, altered surface drainage patterns, siltation, erosion, or salt water intrusion.

- The layout of subdivision must ensure that building sites are located and are of sufficient area that development permitted by the Land Use Bylaw may fully comply with these guidelines.

- Where a proponent proposes site development activities with potential to alter the natural infiltration characteristics of the ground surface (i.e. increase impermeable area, decrease vegetative cover, changes to land contours, etc.), a qualified professional shall be retained to complete a rainwater management plan. The plan must demonstrate that the site development activities shall occur in such a manner that do not adversely modify site conditions relating to natural runoff and infiltration characteristics from pre-development conditions or introduce potentially deleterious substances into the environment. The plan shall include measures that shall be used to mitigate post-development changes to maintain natural infiltration rates.

Comment [KN9]: Suggested additional guidelines.

- Subdivision or development applicants shall apply water conservation measures, low impact development techniques and source control and/or infiltration approaches that align with the BC Stormwater Planning: A Guidebook for British Columbia (MoE, 2002) or more recent updates.

Comment [KN10]: This describes the report, which is impact assessment information that should be in the DAI, not a guideline that authorizes conditions that can be included in a permit

Comment [KN11]: This guideline should spell out the specific measures from this BMP, not just reference another document

4.0 A) PROPOSED CRITICAL GROUNDWATER PROTECTION DEVELOPMENT PERMIT AREA

Comment [KN12]: Suggested new DPA to improve groundwater/aquifer protection in critical groundwater areas based on the mapping by Kohut and Johanson (1998) (> 50 m elevation).

4.1 Justification

The LTC acknowledges that Galiano Island poses unique challenges in terms of sustainable development of freshwater resources, groundwater and aquifer protection and land development. The fractured bedrock aquifer has limited ability to store and produce water and is dependent on seasonal climate for recharge. Adverse impacts to groundwater recharge, overextraction and water quality management issues have the potential to rapidly compromise the natural groundwater environment.

4.2 Objectives

The objective for the Galiano Island critical groundwater protection DPA is to promote measures that support groundwater recharge, reduce water demands, protect the subsurface against possible pollution from land use and development activities and to support ecosystems that rely on the groundwater resource.

4.3 Designated Area

Critical groundwater areas where adverse impacts to groundwater quantity and quality issues have been mapped by Kohut and Johanson (1998) and were confirmed by Waterline (2011).

Comment [KN13]: Needs an exemption section

Comment [KN14]: This needs to refer to a map schedule and should reference the elevation as well

4.3.1 Guidelines

- Rainwater Management: Rainwater management is an important aspect in terms of how it relates to infiltration and recharge to groundwater systems. Rainwater shall be managed on-site in such a manner that does not adversely modify site conditions relating to natural runoff and infiltration characteristics from pre-development conditions.

In terms of supporting sustainable groundwater practices, new proposed developments shall adopt low impact development practices that apply water conservation measures. Water conservation can be accomplished through the use of low water use fixtures, composting toilets, rainwater harvesting and low water use irrigation systems, to name a few. Rainwater management shall ensure that groundwater and surface water resources are protected from the release of potential deleterious substances into the environment.

The development approval information submitted by the applicant shall include a rainwater management plan prepared by a qualified professional that at minimum addresses the points set out above.

Comment [KN15]: Not a guideline

- Well Operations: Once the well has been tested and approved by the subdivision authority, the landowner shall manage water use and groundwater extraction in order not to exceed the sustainable well rating identified by the professional hydro geologist.

Comment [KN16]: Not enforceable as a long term condition

The landowner is responsible to ensure that no system leaks (leaky toilets, irrigations systems, unattended watering, etc.) have the potential to result in uncontrolled groundwater pumping over an extended period of time. To limit the risk from over-pumping (water wells running dry, enhanced sea water intrusion, etc.) the landowner shall:

- ☐ Incorporate storage to eliminate 'on-demand' pumping;

☐ Install a low-level pump shut-off device to limit maximum drawdown in well to above sea level;

☐ Install a flow restrictor valves (e.g.: dole valve) to limit groundwater extraction to the well capacity rating identified by the professional hydro geologist; and;

- Groundwater Quality Protection: The handling, storage or disposal of substances or contaminants that may be harmful to groundwater is discouraged and may be prohibited. Proposed developments that may reasonably pose a detrimental impact to either groundwater quality or quantity shall not be supported.

Comment [KN17]: Not an enforceable as permit condition

2. Water Supply

Water Supply Objectives

BL124

The objectives of this subsection are:

- 1) to ensure an adequate supply of water to all users,
- 2) to ensure water use does not pollute the resource,
- 3) to ensure that the local trust area develops only in a manner that utilizes the precautionary principle and the best information available regarding water resources, so that the resource will be preserved for current and future use.
- 4) to protect elevated groundwater recharge areas, and
- 5) to address the impacts of climate change on groundwater supply and quality.

Water Supply Policies

BL# 124, 141

- BL216 a) Areas above 140 metres in elevation shall be preserved and protected because of the importance of elevated water recharge areas for water supply at lower elevations, fresh water catchment, storage and recharge. No density of residential development greater than 1 dwelling per 20 hectares (49.4 acres) shall be permitted except where Development Approval Information indicates a higher density would not impair water quality or quantity at lower elevations.

Land above 140 metres with less than 30 cm (12 inches) of soil according to Agriculture Canada Research Branch, "Soil of the Gulf Islands, B.C. Soils Survey, 1988" shall be designated as a development permit area for the protection of the natural environment and for water conservation and the provisions of the development permit areas shall ensure that:

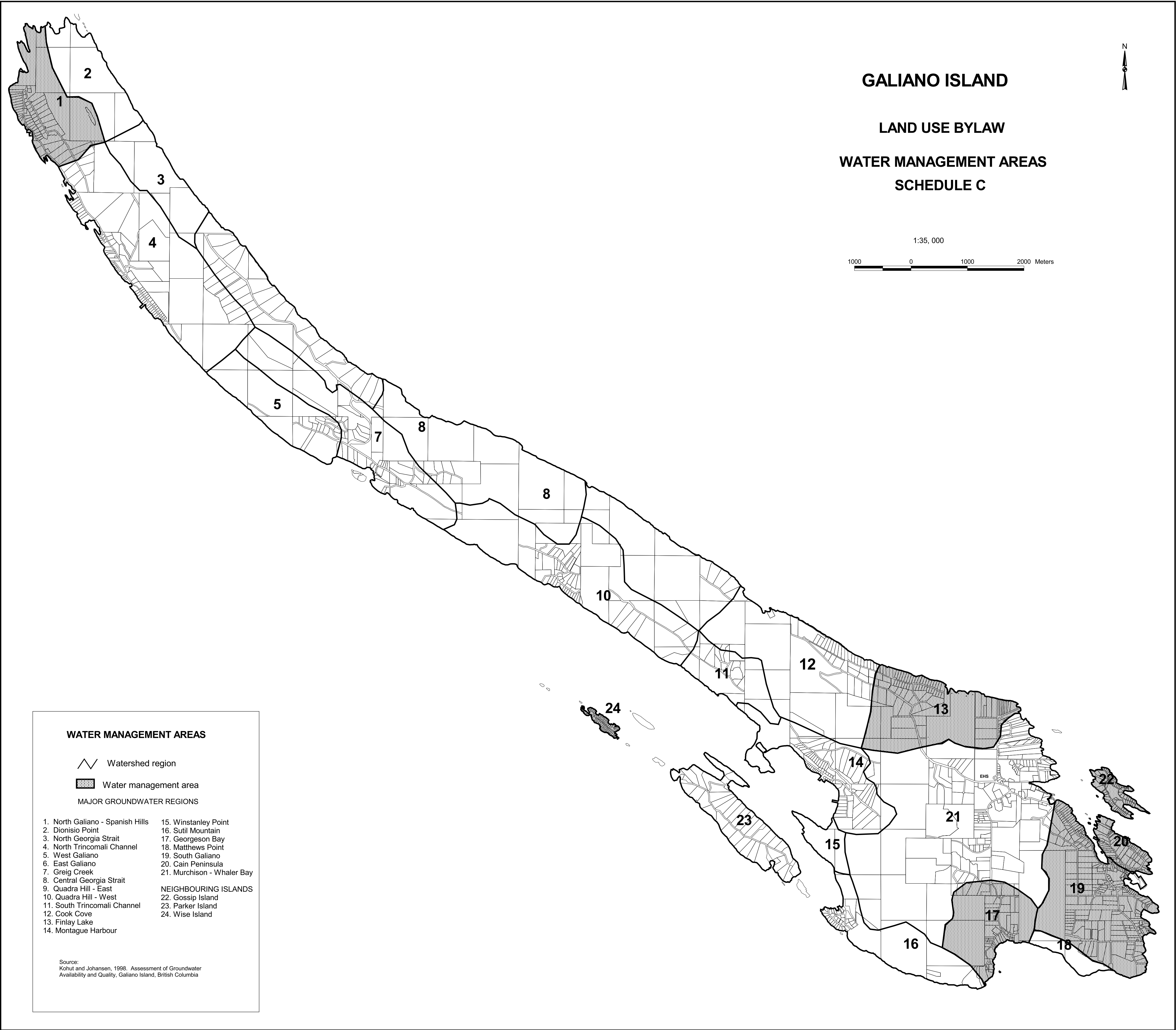
- i) the shallow soil area shall only be used for purposes of providing sufficient area for calculating the average lot size of lots that will be created by a proposed subdivision,
- ii) the buildings shall be constructed outside of the shallow soil area,
- iii) a restrictive covenant shall be registered to protect the shallow soil area, and
- iv) the area of shallow soil is to be determined by ground survey by a qualified consultant.

The Local Trust Committee does not consider it to be in the public interest for road building to conventional highway standards to occur above 140 metres in elevation because of the risk to the quality of groundwater supply at lower levels through run-off in the elevated water catchment.

- BL216 b) Aquifers and recharge areas should be identified and measures and standards recommended through professional analysis. Once the professional analysis is completed, policies and regulations should be amended to ensure that development minimizes impacts on the sustainability of the potable water resource. The following regulatory provisions may be considered:
- i) amending zoning to establish groundwater protection zones;
 - i) amending zoning to permit lot clustering;
 - ii) amending zoning to increase minimum lot sizes in critical areas;
 - iii) amending lot coverage requirements to limit impermeability;

	iv)	amending zoning to limit floor area;
	v)	review and replace the existing elevated groundwater catchment DPA by implementing relevant recommendations of professional studies and reports, including new or amended DPA designations for critical groundwater areas;
	vi)	new or amended subdivision and servicing regulations to ensure that appropriate and effective requirements are in place for new subdivisions, including improved data collection and assessment requirements, implementation of best management practices, green development requirements, infiltration and recharge assessment, on-going monitoring requirements, regulation of well-drilling in areas with saline intrusion;
	vii)	amendment to servicing regulations to extend water catchment requirements to additional areas;
	ix)	amendment to servicing regulations to require community water systems for significant new development in identified critical areas.
BL216	c)	Regulations shall require new developments to provide cisterns in critical groundwater areas.
BL216	d)	Retail sale or wholesaling of groundwater extracted on Galiano Island shall not be permitted.
BL216	e)	Any rezoning application involving an increase in density or intensity of use should be required to provide an assessment of the availability of sustainable, long-term groundwater. Any additional density or intensity of use that would negatively affect the quality or quantity of groundwater should not be permitted in critical groundwater areas.
BL216	f)	Desalination systems should be regulated and use may be limited.
BL216	g)	The Local Trust Committee should undertake efforts and initiatives to increase awareness of groundwater issues and promote best practices.
BL216		<u>Water Supply Advocacy Policies</u>
BL216	h)	The Local Trust Committee may request that the Ministry of Environment designate the Galiano Island Local Trust Area as a Water Management area and initiate the preparation of a Water Management Plan.
	i)	The Approving Officer shall be requested to ensure that the use of groundwater for new subdivisions does not adversely affect existing water users.
BL216	j)	The Ministry of Environment shall be requested to ensure all groundwater wells in which saltwater intrusion occurs are capped and not available for use.
	k)	Alternatives and supplements to the use of groundwater, such as collection of rainwater and use of cisterns, shall be encouraged.
BL216	l)	The Ministry of Environment shall be requested to ensure that inexpensive and accessible well water testing is available.
	m)	Residents are encouraged to conserve groundwater by using water catchment for irrigation and by landscaping with drought tolerant plants.
BL216	n)	The Local Trust Committee will undertake initiatives and supports efforts by appropriate bodies to:
	i)	undertake education concerning groundwater conservation;
	ii)	identify and re-activate existing observation wells;

- iii) establish new observation wells, including establishing a minimum of one well in each significant or critical groundwater region;
- iv) create and maintain a database of well observation records;
- v) establish a pilot project to produce and share information;
- vi) establish assistance for the installation of water saving devices and technology;
- vii) establish programs or undertake enforcement to protect groundwater from toxic or noxious leaching from industrial or other uses.





Memorandum

Date January 21, 2014 File Number GL 6500-20 Short
Term Vacation Rental
Review

To Galiano Island Local Trust Committee
For the meeting of February 3rd, 2014

From Kris Nichols
Island Planner

Re **Update Report on Short Term Vacation Rental (STVR) Project**

Purpose

The purpose of this memo is to update the LTC on the progress to date on the STVR project and to provide examples of the information provided to the residents and landowners via the web and notices.

Background

At the December 3, 2013 LTC meeting staff presented a report that provided information on the STVR fact sheet and community survey that will be used as part of the communication strategy for the Short Term Vacation Rental (STVR) review. The intent is to ensure that the community has a clear understanding of what is meant by STVRs on Galiano Island and how community input on the subject will be gathered.

At the meeting, the LTC passed the following resolutions:

Resolution GL-LTC-154-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to send a mail out and provide a web link that includes a survey and fact sheet to Galiano Island residents and landowners.

Resolution GL-LTC-155-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to amend the Draft Project Charter timeline by adding item number identifiers one through nine, deleting

items No. 2 and No. 4, updating item No. 5 Deliverable/Milestone to “Summarize findings from the survey to date” and updating item No. 6 Deliverable/Milestone to “Summarize completed survey and have a Community Information Meeting”.

Resolution GL-LTC-156-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to schedule a Community Information Meeting for March 2014.

Project Update

In December, staff were directed to amend the STVR project charter (See Attachment 1). Changes were made and the revised project charter posted on the website.

Staff were also directed to develop an STVR fact sheet and survey. The STVR factsheet (<http://www.islandstrust.bc.ca/media/248298/Fact%20Sheet.pdf>) (See Attachment 2) and the survey link (<https://www.surveymonkey.com/s/galianostvr>) (See Attachment 3) were posted on the Galiano website (<http://www.islandstrust.bc.ca/islands/local-trust-areas/galiano/projects-initiatives/short-term-vacation-rentals.aspx>). This was all placed on the website in December. The deadline for survey responses is February 14, 2014.

As a follow up, a mail out (See Attachment 4) was sent to 1165 Galiano Island landowners on January 17, 2014. The mail out included the fact sheet, link to the survey and a notice of the STVR Community Information Meeting (CIM) scheduled for Saturday, March 8, 2014 at the Lions Hall at 1 pm. A notice was also placed in the Active Page.

At the CIM, staff will present the findings of the STVR survey and hear from residents on the issue of STVRs. It is the intention of staff to develop recommendations for next steps in addressing STVRs at the April LTC meeting based on the survey results, the CIM and research.

At the time of drafting this memo there was 19 responses to the survey recorded. It should be noted that this was before any landowners would have received a copy of the mail out notice.

pc Robert Kojima, Regional Planning Manager

Attachments:

1. Revised Project Charter
2. STVR Fact Sheet
3. STVR Survey Questions
4. Notice to Residents
5. Active Page Notice

DRAFT Project Charter for Discussion

Project Name: Review of Short Term Vacation Rentals (STVRs) – Prospects and Policy

Creation Date: August 28, 2013

Last Updated: December 16, 2013

Version: 1.0

File # 6500-20 STVR

Purpose

The purpose of this project is to review the Short Term Vacation Rentals (STVRs) issue on Galiano Island through research and community input and to develop policy and regulatory options.

Background

This project has been initiated by the Local Trust Committee (LTC) as a work program priority. The intent of the project is: "To look at existing policy, research issues and possible solutions on Galiano" with the primary focus of Short Term Vacation Rentals (STVR). STVR is a term commonly used to describe the rental of dwellings to paying guests for a period of time generally less than a month. This use occurs in dwellings (residences or cottages) in residential zones, where the permitted form of occupancy is owner-occupancy or month-to-month rental by tenants.

The Galiano Land Use Bylaw (LUB) No. 127 does not permit STVRs. The only lawful visitor accommodation in the form of short-term accommodation for travelers is permitted in the various visitor accommodation zones (i.e. C3, C4, C5, C5A) or in a permitted bed and breakfast as a home occupation. STVRs are not new phenomena as home owners have occasionally 'lent' their homes to others for short periods and collected a fee. In the past decade their prevalence and impact has grown with the use of internet advertising, absentee ownership and property managers. STVRs operating in an overtly commercial manner are often distinguished from residential uses by their land use impacts, including noise, traffic, parking, water use, garbage, erosion of long term rental stock, competition for zoned accommodation uses, and undermining the sense of community.

The LTC has adopted the following STVR Enforcement Policy in conjunction with this policy review:

1. *THAT given finite resources available for enforcement activities and in order to ensure the most effective results for enforcement activities, Short Term Vacation Rentals that have one or more of the following characteristics will be subject to enforcement:*
 1. *There are issues related to health and safety;*
 2. *There is a written complaint by owners or residents of two properties about bona fide serious nuisance issues such as noise or parking congestion related to the STVR;*
 3. *The owner of the property uses more than one property on Galiano Island as a STVR.*
2. *THAT nothing in this enforcement policy should be interpreted as giving permission to violate the Land Use Bylaw and the Galiano Island Trust Committee may change this policy at any time and may give direction to expand enforcement activities at any time;*
3. *THAT the policy remains in effect until such time as the regulatory review is complete.*

This enforcement policy prioritizes enforcement activities upon overtly commercial STVRs that create health and safety or serious nuisances; however, the absence of current enforcement does not condone the establishment of STVRs.

For this project, staff will conduct background research on STVR policy and bylaws in other jurisdictions. The community and stakeholders will be consulted through community information meetings and Local Trust Committee meetings. A survey, communications and written submissions will assist in developing policy and regulatory options.

Project Objectives

- Address the long standing issue of whether to permit Short Term Vacation Rentals (STVR) on Galiano Island.
- Develop options to address STVRs for consideration of the Local Trust Committee (LTC) and the community.
- Recommend policies and/or regulatory amendments to address STVRs.
- Implement bylaw amendments if directed
- Develop communications so that all operators of STVRs are aware of any changes that may impact their operation. Communications will also be directed to inform the community.

Project Scope

In Scope	Out of Scope
▪ Review STVR policy and bylaws within Islands Trust and other jurisdictions. ▪ Development of communication and background materials ▪ Community information meeting ▪ Development of a qualitative survey (survey monkey) to obtain input from the community on STVRs ▪ Recommended options for addressing STVRs (if required) ▪ Policy and/or regulatory amendments to address STVRs ▪ Follow-up communication materials ▪ Number of all known STVRs on Galiano ▪ Number of all visitor accommodations being offered on Galiano.	▪ Assessment of economic impacts, either positive or negative, of STVRs on the Galiano economy and tourism industry. ▪ Consultant studies

Project Deliverables

- Communications (fact sheet) and background materials on STVR issue to inform the community.
- A qualitative survey (web access and mailout) to gain community input.
- A report on the results of the community information meeting and the survey and recommend next steps.
- A Community Information meeting to discuss the LTC report on results and next steps.
- Draft policy and/or regulatory options to implement changes to accommodate Short Term Vacation Rentals (STVRs).
- If directed: a report and draft amending bylaws implementing policy and/or regulatory amendments.
- Legislative process to amend bylaws.
- Communications (fact sheet) to update the community on outcome of project.

Stakeholders

Stakeholder	Represented by	Interests, expectations, concerns
<i>All property/business owner,s residents, and visitors</i>	<i>Individuals, businesses, community groups</i>	• To understand the impacts both positive and negative of STVRs in their community. • To be consulted on development of policy/bylaws to address this issue on Galiano.
<i>STVR owners/operators</i>	<i>Owners, property managers</i>	• To obtain certainty with respect to regulation of the use • To be consulted on development of policy/bylaws to address this issue on Galiano.
<i>Neighbourhoods</i>	<i>Individual residents and owners, neighbourhood associations</i>	• To have concerns about impacts of STVRs heard and considered
<i>Community Water Systems</i>	<i>Operators, trustees</i>	• To have potential impacts on water usage considered

Stakeholder	Represented by	Interests, expectations, concerns
<i>Chamber of Commerce/ Accommodation Business Owners</i>	<i>Chamber members, leadership and owners of tourist related business (accommodation based or otherwise)</i>	• To understand the impacts both positive and negative of STVRs as they relate to other commercial enterprises on the island (i.e. commercial accommodations and those with zoning) and to tourism for the island. To be consulted on development of policy/bylaws to address this issue on Galiano.
<i>Other regulatory bodies</i>	<i>CRD building inspection, Galiano Fire Departments, Islands Trust Bylaw enforcement, VIHA</i>	• To be consulted if bylaw amendments are considered

Project Team Resources

Name	Role	Responsibility
<i>Galiano Local Trust Committee</i>	<i>Project Sponsor</i>	Provides support through maintaining the project as a work program priority and provide input where appropriate in the process.
<i>Robert Kojima</i>	<i>Project Champion</i>	Ensures project aligns with strategic goals, provide adequate project resources
<i>Kris Nichols</i>	<i>Project Manager</i>	All project management of the project, lead/ direct all project work (reports, communications, surveys, meetings, etc.)
<i>Kim Farris</i>	<i>Planner</i>	Project support – research, report writing, and bylaw drafting
<i>Barb Dashwood</i>	<i>GIS/Mapping Support</i>	Provides mapping as required.
<i>Lori Foster/Sharon Lloyd-deRosario</i>	<i>Admin support</i>	Provides general administrative support, including advertising, booking meetings, preparing notices, updating website, etc.

Project Budget

The budget allocated for 2013/14 is \$4000 and for 2014/15 \$2500 has been requested.

Item	Details	Fiscal Yr 2013/14	Fiscal Yr 2014/15
Communications	(survey, advertisements, background materials)	\$1800	\$200
Meetings and Workshops	(One community meetings)	\$850	
Public Hearing	If a bylaw amendment be required at the end of the process		\$1500
Contingency	(may be used for additional hours for 0.6 FTE Planner 1)	\$1974	
Totals		\$4624	\$1700

Project Timeline

Deliverable / Milestone	Target Completion Date
Develop communications material and background information.	November 2013
Develop a survey to be distributed (web based and mail out) to residents on the island for completion end of February 2014. At same time send out background materials and invite to CIM.	December 2013 to February 2014
Summarize findings to date from the survey and consultation to date and present to LTC	February 2014
Community Information meeting to present survey results and gather further input	March 2014
Draft options and recommendations to address STVRs and possible other related issues as a result of the consultation/discussion on the issue. Submit recommendations to LTC for consideration	April 2014
Proceed with bylaw amendment process if directed	May 2014
Development of follow-up communications materials (e.g. factsheet, website)	June 2014

Endorsements

	Name	Endorsement Date
Project Champion	Robert Kojima	October 7, 2013
Project Manager	Kris Nichols	October 7, 2013
Project Sponsor	Galiano Local Trust Committee	October 7, 2013



GALIANO ISLAND LOCAL TRUST COMMITTEE

SHORT TERM VACATION RENTALS (STVRs) FACT SHEET

What is the purpose of this fact sheet?

As part of a review of its Work Program Priorities, the Galiano Island LTC is consulting with residents and property owners on STVRs. Part of this consultation includes a community survey. As the survey contains a number of terms or statements that may be not be familiar to everyone, this fact sheet provides some definitions and explanations of some of the terms used.

What is a STVR (Short Term Vacation Rental)?

Short Term Vacation Rentals (STVRs) is a term commonly used to describe the rental of dwellings to paying guests for a period of time generally less than on a month-to month basis. This use occurs in dwellings (residences or cottages) that are located in residential zones, where the common form of occupancy is owner-occupancy or month-to-month rental by tenants.

Are STVRs currently permitted on Galiano Island?

STVRs are not a permitted use in the Galiano Land Use Bylaw No. 127. The only lawful visitor accommodation for paying guests is found in the Visitor Accommodation zones C3, C4, C5 and C5A. Restricted guest accommodation uses are permitted in residences as a home occupation if it operates as a Bed and Breakfast. Bed and Breakfasts are defined and regulated in such a manner that they are a form of visitor accommodation, but are only permitted as a use accessory to residential use of the dwelling and the operator must reside permanently in the dwelling.

Are there STVRs in operation currently on Galiano Island? What about enforcement?

Yes. To date, Islands Trust staff are aware of at least 30 active STVRs on Galiano Island. The Galiano Island STVR Enforcement Policy which states conditions for enforcement was adopted and the Galiano LTC has agreed to leave the policy as standing until this STVR project was completed by staff. The enforcement policy ensures that enforcement activities are directed against overtly commercial STVRs operating in the wrong zone and those that create health and safety or serious nuisances. It would also direct that enforcement be undertaken on lots with more than one dwelling used as an STVR or where camping is occurring. It should be noted however, that any STVR that advertises on Galiano is potentially subject to immediate enforcement action as the use is in violation of the LUB.

Are there any issues with permitting STVRs?

There are a number of potential issues and impacts that may be felt by the community such as noise, traffic, parking, water use, garbage, loss of affordable rental stock, lower taxes to a comparable commercial use, competition with existing legal operations and undermining the sense of community that exists on the islands.

What are the benefits to permit STVRs on Galiano Island?

There are a number of potential benefits with permitting STVRs such as visitors supporting the local economy (restaurants, retail, and tourist attractions), additional income to property owners, and more accommodation options and prices for visitors.

Do other LTCs permit STVRs?

Currently, South Pender Island, Saturna Island, and Hornby Island are the only islands in the Trust Area where STVR use is legal. Hornby Island refers to them as Vacation Home Rental Uses and made amendments to their OCP and LUB to accommodate them. Saturna Island permits STVR of cottages as a home occupation. Some Islands such as Mayne Island have permitted STVRs to be established through a Temporary Use Permit (TUP). Saturna Island LTC is in the process of also considering permitting STVRs by use of a TUP process.

Helpful Definitions:

(Portion from the Galiano Island Land Use Bylaw no. 127)

"Bed and breakfast" means a home occupation comprising the provision of sleeping accommodation and a morning meal only, to paying guests.

"Cottage" means a building that is accessory to a dwelling and is used for human habitation by guests, household members or tenants, and having a floor area that does not exceed 60 square metres.

"Dwelling" means a building used as a residence for a single household and containing eating, sleeping and living facilities and a single set of facilities for food preparation.

"Home occupation" means an accessory commercial use conducted on residential premises, and includes daycare facilities licensed under the Community Care Facility Act that are permitted by the Act despite local bylaws, but for certainty does not include sawmilling. No more than three persons may be employed in any home occupation, at least one of whom must reside permanently on the premises on which the home occupation is conducted.

"Temporary Use Permit" are a mechanism by which a local government can permit a use that is not otherwise permitted in a zone by issuing a permit for up to three years, renewable for an additional three years [general definition - not defined in LUB]. More information on Temporary Use Permits can be found in the Galiano Island Official Community Plan (OCP) and the *Local Government Act*.

"Visitor accommodation cottage" means a building providing accommodation for travellers and having a floor area that does not exceed 46 square metres.

"Visitor accommodation room" means a room or suite of rooms providing only sleeping accommodation for travellers and having a floor area that does not exceed 30 square metres, and for this purpose the floor area must despite any other provision of this bylaw be measured to the interior surface of the walls of the room or suite of rooms.

More information on the Galiano Island review of STVRs and the online survey can be found on the Galiano Island LTC website – www.islandstrust.bc.ca

The survey will be open until February 14, 2014.

For further information please contact:

Kris Nichols, Island Planner
200-1627 Fort Street, Victoria, BC V8R 1H8
Phone: 250-405-5170 Toll Free: 1-800-663-7867
Fax: 250-405-5155
Email: knichols@islandstrust.bc.ca

www.islandstrust.bc.ca

Galiano Island LTC Short Term Vacation Rental (STVR) Survey

Welcome! The Galiano Island Local Trust Committee (LTC) is canvassing Galiano Island residents and property owners in order to obtain community input on Short Term Vacation Rentals (STVR). STVRs is a term commonly used to describe the rental of dwellings to paying guests for a period of time generally less than on a month-to month basis.

Prior to starting the survey, you may wish to review the fact sheet which accompanies this survey. As the survey contains a number of terms or statements that may be not be familiar to everyone, this fact sheet provides some definitions and explanations of some of the terms used. The fact sheet may be viewed on the Galiano Island LTC website under 'Projects & Initiatives' at www.islandstrust.bc.ca

The survey will take between 5 to 10 minutes to complete and responses will be anonymous. The survey will be open until February 14, 2014.

Galiano Island LTC Short Term Vacation Rental (STVR) Survey

Community Support

1. Should STVRs be a permitted use on Galiano Island?

- ☐ Yes
- ☐ No
- ☐ Not Sure

Comments (optional):

2. Would you support a STVR on a neighbouring property?

- ☐ Yes
- ☐ No
- ☐ Not Sure

Comments (optional):

3. If you do believe STVRs on Galiano Island should be a permitted use, are there any specific conditions/regulations you would want the STVRs to abide by?

Galiano Island LTC Short Term Vacation Rental (STVR) Survey

Community Support continued...

4. Have you been impacted by a STVR?

☐ Yes

☐ No

If Yes, please provide comments:

5. Do you believe owners/operators of a Visitor Accommodation business on Galiano Island would be negatively affected if STVRs were a permitted use?

☐ Yes

☐ Somewhat

☐ No

Comments (optional):

Galiano Island LTC Short Term Vacation Rental (STVR) Survey

Community Support continued...

6. Do you believe STVRs will affect the rental stock on Galiano Island?

- ☐ Yes
- ☐ No
- ☐ Not Sure

Comments (optional):

7. What do you believe are the benefits to permitting STVRs on Galiano Island?

8. What do you believe are the impacts to permitting STVRs on Galiano Island?

Galiano Island LTC Short Term Vacation Rental (STVR) Survey

Regulating Use

9. If the LTC does consider permitting STVRs, how should the STVRs be permitted?

- ☐ Property owner/applicant must rezone their land to permit a STVR on their property
- ☐ Property owner/applicant must apply for a Temporary Use Permit (TUP) to permit a STVR on their property
- ☐ STVRs should only be permitted in certain zones but must abide by the specific STVR regulations set out in the Galiano Land Use Bylaw
- ☐ STVRs should be permitted in all zones but must abide by the specific STVR regulations set out in the Galiano Land Use Bylaw
- ☐ STVRs should only be permitted in a designated areas on Galiano Island

Comments (optional):

Galiano Island LTC Short Term Vacation Rental (STVR) Survey

STVR Regulations

10. How many STVRs should be permitted per lot?

☐ 0

☐ 1

☐ The number of STVRs should be equivalent to the number of permitted dwelling units on the property

☐ Other (please specify):

11. Should STVRs be considered a 'home occupation' as defined in the Galiano Island Land Use Bylaw? This would mean that the operator of the STVR must live on the same property as the STVR. Please refer to the fact sheet for more information on 'home occupation'.

☐ Yes

☐ No

☐ Not Sure

Comments (optional):

Galiano Island LTC Short Term Vacation Rental (STVR) Survey

STVR Regulations continued...

12. If the property has two dwellings (house and/or cottage), should one of the following reside on the property to operate the STVR?

- ☐ The property owner should reside on the property to operate the STVR
- ☐ The resident (a long term renter not a STVR renter) should reside on the property to operate the STVR
- ☐ The property owner OR resident should reside on the property to operate the STVR
- ☐ The operator of the STVR does not need to live on the property

Comments (optional):

13. If a property is permitted to have both a dwelling unit and cottage, select one of the following options:

- ☐ The house should only be rented as a STVR
- ☐ The cottage should only be rented as a STVR
- ☐ The house and cottage could be both rented as a STVR at the same time
- ☐ Only one could be rented as a STVR at a time but it does not matter if it is the house or cottage

Comments (optional):

14. Should STVRs be permitted only on lots greater than 2 ha (4.94 acres)?

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neither Agree or Disagree
- ☐ Disagree
- ☐ Strongly Disagree

Comments (optional):

Galiano Island LTC Short Term Vacation Rental (STVR) Survey

STVR Regulations continued...

15. What do you believe should be the maximum amount of time a paying guest may rent a STVR?

- ☐ Less than a week
- ☐ 1 week
- ☐ 2 weeks
- ☐ 3 weeks
- ☐ 4 weeks
- ☐ Other (please specify):

16. What do you believe should be the minimum amount of time a paying guest must rent a STVR?

- ☐ 1 night
- ☐ 2 nights
- ☐ 3 nights
- ☐ 1 week
- ☐ No minimum
- ☐ Other (please specify):

Galiano Island LTC Short Term Vacation Rental (STVR) Survey

Additional Information

17. If STVRs are a permitted use on Galiano Island, would you rent out your home or cottage as a STVR?

- ☐ Very likely
- ☐ Most likely
- ☐ Not sure
- ☐ Not likely
- ☐ I already do

Comments (optional):

18. Do you live on Galiano Island?

- ☐ Full-time year resident
- ☐ Seasonal resident
- ☐ No, I do not live on Galiano Island

19. Do you own or rent the property you live on Galiano Island?

- ☐ Own
- ☐ Rent
- ☐ I don't have property on Galiano Island

20. Any additional comments you would like to add concerning STVRs?

Galiano Island LTC Short Term Vacation Rental (STVR) Survey

Thank you!

Thank you for contributing your comments. The survey will end on February 14, 2014. The results of this survey will be reported at the March 3, 2014 regular Galiano Island LTC meeting and at a Community Information Meeting in March 2014 (exact date to be determined).

More information on the STVR project can be found at www.islandstrust.bc.ca

If you have any questions regarding this survey or STVRs please contact:

Kris Nichols, Islands Trust Planner
200-1627 Fort Street, Victoria, BC V8R 1H8
Phone: (250) 405-5170 Toll Free: 1-800-663-7867
Email: knichols@islandstrust.bc.ca
www.islandstrust.bc.ca

Short Term Vacation Rentals (STVRs) Survey Information & Fact Sheet

Please take a moment to fill out the online survey at
www.surveymonkey.com/s/galianostvr

The survey will be open until February 14, 2014. A Community Information Meeting will be scheduled for March 2014 for community members to provide further comments on this project. Please see the Galiano LTC website for more updates and information on STVRs!

What is the purpose of this fact sheet?

As part of a review of its Work Program Priorities, the Galiano Island LTC is consulting with residents and property owners on STVRs. Part of this consultation includes a community survey which is available online on the Galiano Island LTC website. As the survey contains a number of terms or statements that may be not be familiar to everyone, this fact sheet provides some definitions and explanations of some of the terms used.

What is a STVR (Short Term Vacation Rental)?

Short Term Vacation Rentals (STVRs) is a term commonly used to describe the rental of dwellings to paying guests for a period of time generally less than on a month-to-month basis. This use occurs in dwellings (residences or cottages) that are located in residential zones, where the common form of occupancy is owner-occupancy or month-to-month rental by tenants.

Are STVRs currently permitted on Galiano Island?

STVRs are not a permitted use in the Galiano Land Use Bylaw No. 127. The only lawful visitor accommodation for paying guests is found in the Visitor Accommodation zones C3, C4, C5 and C5A. Restricted guest accommodation uses are permitted in residences as a home occupation if it operates as a Bed and Breakfast. Bed and Breakfasts are defined and regulated in such a manner that they are a form of visitor accommodation, but are only permitted as a use accessory to residential use of the dwelling and the operator must reside permanently in the dwelling.

Are there STVRs in operation currently on Galiano Island? What about enforcement?

Yes. To date, Islands Trust staff are aware of at least 30 active STVRs on Galiano Island. The Galiano Island STVR Enforcement Policy which states conditions for enforcement was adopted and the Galiano LTC has agreed to leave the policy as standing until this STVR project was completed by staff. The enforcement policy ensures that enforcement activities are directed against overtly commercial STVRs operating in the wrong zone and those that create health and safety or serious nuisances. It would also direct that enforcement be undertaken on lots with more than one dwelling used as an STVR or where camping is occurring. It should be noted however, that any STVR that advertises on Galiano is potentially subject to immediate enforcement action as the use is in violation of the LUB.

What are the benefits to permit STVRs on Galiano Island?

There are a number of potential benefits with permitting STVRs such as visitors supporting the local economy (restaurants, retail, and tourist attractions), additional income to property owners, and more accommodation options and prices for visitors.

Are there any issues with permitting STVRs?

There are a number of potential issues and impacts that may be felt by the community such as noise, traffic, parking, water use, garbage, loss of affordable rental stock, lower taxes to a comparable commercial use, competition with existing legal operations and undermining the sense of community that exists on the islands.

Do other LTCs permit STVRs?

Currently, South Pender Island, Saturna Island, and Hornby Island are the only islands in the Trust Area where STVR use is legal. Hornby Island refers to them as Vacation Home Rental Uses and made amendments to their OCP and LUB to accommodate them. Saturna Island permits STVR of cottages as a home occupation. Some Islands such as Mayne Island have permitted STVRs to be established through a Temporary Use Permit (TUP). Saturna Island LTC is in the process of also considering permitting STVRs by use of a TUP process.

Helpful Definitions:

(Portion from the Galiano Island Land Use Bylaw no. 127)

"Bed and breakfast" means a home occupation comprising the provision of sleeping accommodation and a morning meal only, to paying guests.

"Cottage" means a building that is accessory to a dwelling and is used for human habitation by guests, household members or tenants, and having a floor area that does not exceed 60 square metres.

"Dwelling" means a building used as a residence for a single household and containing eating, sleeping and living facilities and a single set of facilities for food preparation.

"Home occupation" means an accessory commercial use conducted on residential premises, and includes daycare facilities licensed under the Community Care Facility Act that are permitted by the Act despite local bylaws, but for certainty does not include sawmilling. No more than three persons may be employed in any home occupation, at least one of whom must reside permanently on the premises on which the home occupation is conducted.

"Temporary Use Permit" are a mechanism by which a local government can permit a use that is not otherwise permitted in a zone by issuing a permit for up to three years, renewable for an additional three years [general definition - not defined in LUB]. More information on Temporary Use Permits can be found in the Galiano Island Official Community Plan (OCP) and the *Local Government Act*.

"Visitor accommodation cottage" means a building providing accommodation for travellers and having a floor area that does not exceed 46 square metres.

"Visitor accommodation room" means a room or suite of rooms providing only sleeping accommodation for travellers and having a floor area that does not exceed 30 square metres, and for this purpose the floor area must despite any other provision of this bylaw be measured to the interior surface of the walls of the room or suite of rooms.

Galiano Island LTC website: www.islandstrust.bc.ca/islands/local-trust-areas/galiano

For further information please contact:

Kris Nichols, Island Planner

200-1627 Fort Street, Victoria, BC V8R 1H8

Phone: 250-405-5170 Toll Free: 1-800-663-7867

Fax: 250-405-5155

Email: knichols@islandstrust.bc.ca

www.islandstrust.bc.ca



**GALIANO ISLAND
LOCAL TRUST COMMITTEE**

NOTICE OF ONLINE SURVEY

As part of a review of its Work Program Priorities, the Galiano Island LTC is consulting with residents and property owners on Short Term Vacation Rentals (STVRs). Part of this consultation includes an online community survey which will be open until February 14, 2014. Please take a moment to fill out the survey at the following URL:

www.surveymonkey.com/s/galianostvr

NOTICE OF COMMUNITY INFORMATION MEETING

The Galiano Island Local Trust Committee will be holding a Community Information Meeting (CIM) regarding the STVR Project.

DATE: Saturday, March 8, 2014

TIME: 1:00 pm to 4:00 pm

LOCATION: Lion's Park Hall, 922 Burrill Road, Galiano Island

More information is available on the Galiano Island web page:

www.islandstrust.bc.ca/islands/local-trust-areas/galiano

ALL MEETINGS ARE OPEN TO THE PUBLIC



Memorandum

200 1627 Fort Street, BC V8R 1H8

Telephone 250. 405.5186 FAX: 250. 405.5151

Toll Free via Enquiry BC in Vancouver 604-660-2421.

Elsewhere in BC 1.800.663.7867

itfmail@islandstrust.bc.ca

www.islandstrust.bc.ca

www.islandstrustfund.bc.ca

Date: January 22, 2014

To: Galiano Island Local Trust Committee

From: Kate Emmings, Ecosystem Protection Specialist, Islands Trust Fund

Re: Islands Trust/Islands Trust Fund Eelgrass Mapping

Eelgrass Mapping in the Galiano Island Local Trust Area

Eelgrass Mapping for the Galiano Island Local Trust Area was completed in December, 2013 by SeaChange Marine Conservation Society under contract with the Islands Trust (see attached report). Findings for the Galiano Island Local Trust Area indicate that approximately 16.7% of the shoreline of Galiano Island has eelgrass presence and approximately 20.0% of the shorelines of Galiano's associated islands have eelgrass presence. Parker Island and Gossip Island were noted to have extensive beds in sections of their shorelines while no eelgrass was observed around Sphinx Island, the Ballingall Islets, Wise Island, Julia Island, Charles Island or Lion Islet.

About Eelgrass

Eelgrass is a critical nearshore habitat for birds, mammals, invertebrates and commercial and non commercial fish. Eelgrass beds are also an important carbon sink. Contaminants, shading from docks and overwater structures, increased sedimentation, marine traffic and development pressures from shoreline land use threaten eelgrass ecosystems and the species they support.

Report Recommendations

Most of Galiano's shoreline remains naturalized; however, there are some areas where boat use, docks and shoreline modifications may be having detrimental effects on eelgrass habitats. The 2012-2013 Nearshore Eelgrass Inventory Report contains several recommendations. Some of the relevant recommendations for local trust committees are:

- Create setbacks from the shoreline in regulatory bylaws.
- Prevent construction of docks in eelgrass beds. Where dock construction cannot be avoided, ensure that docks are built to allow light to pass through to eelgrass beds below and that they are constructed from materials that have a minimum impact on water quality.
- Require removal of illegal shoreline modifications and habitat restoration where appropriate.
- Support education of the boating community and shoreline landowners regarding the importance of eelgrass beds and natural shorelines.
- Encourage the boating community not to locate mooring buoys in eelgrass beds and not to anchor in eelgrass beds. Where mooring buoys are located in eelgrass beds, encourage the use of line floats to

keep chains and lines off of the sea floor where they can drag and scour the bottom, removing eelgrass habitat and killing species.

- Encourage dock owners to replace dock materials with light penetrable materials.

Next Steps

The Islands Trust Fund will place the eelgrass mapping and the associated report on its website at www.islandstrustfund.bc.ca and eelgrass mapping will be added to the MapIT public mapping site at <http://mapit.islandstrust.bc.ca> (links on Islands Trust and Islands Trust Fund websites). Local trust committees are encouraged to provide links to the mapping on their websites and consider actions within their local trust areas to include eelgrass protection in their official community plans and regulatory bylaws as per the Islands Trust Policy Statement, section 3.4.4 (see background below).

Attachment Report: 2012-2013 Nearshore Eelgrass Inventory
 Map 12a. Eelgrass Presence, Galiano Island
 Map 12b. Eelgrass Presence, Galiano Local Trust Area, Howe Sound Associated Islands

Background

The Islands Trust Policy Statement, section 3.4.4, states:

Local trust committees and island municipalities shall, in their official community plans and regulatory bylaws, address the protection of sensitive coastal areas.

The 2013 Audit of Biodiversity in B.C. (Office of the Auditor General of B.C., www.bcauditor.com/pubs/2013/report10/audit-biodiversity-bc-assessing-effectiveness-key-tools) highlighted the importance of collecting sufficient and reliable information on species distribution in order to make well-informed decisions about conserving biodiversity. With sensitive ecosystem mapping completed in the Islands Trust Area (2008-2010), the Bowen Island Municipality (BIM) and local trust committees have access to ecosystem data for terrestrial species. The Islands Trust and Islands Trust Fund are now working to acquire mapping of sensitive coastal areas to help island governments meet the requirements of the Islands Trust Policy Statement.

In 2012, the Islands Trust and Islands Trust Fund launched a project to map eelgrass as a partnership with the Seagrass Conservation Working Group and SeaChange Marine Conservation Society. The arrangement between the partners results in shared funding of the program between the Islands Trust, the Trust Fund Board and the Seagrass Conservation Working Group (through its member group, SeaChange Marine Conservation Society).

Eelgrass mapping is intended to assist BIM, local trust committees and the Trust Fund Board in making science-based decisions about land use and conservation to preserve coastal ecosystems in the Islands Trust Area. Eelgrass mapping will serve as a baseline inventory to monitor the effects of conservation activities, such as Marine Protected Areas, as well as human impacts, such as potential increased tanker traffic, marine industrial activities (e.g. log dumping and booms) and foreshore use (e.g. wharves and docks). It will also enable marine conservation groups to identify areas ideal for eelgrass restoration.

In 2012, the Islands Trust Fund and Seagrass Conservation Working Group, with financial assistance from some local trust committees and outside funders, mapped eelgrass in the following areas:

- Gambier;
- Lasqueti;
- Mayne;
- North and South Pender; and
- Thetis and associated islands (except Valdes).

In 2013, the partnership mapped eelgrass in the following areas, with funding from the Islands Trust, Islands Trust Fund, Metro Vancouver, Comox Valley Regional District, Capital Regional District, Victoria Foundation, Greater Victoria Savings and Credit Union Legacy Foundation and the Pacific Salmon Foundation:

- Bowen Island Municipality;
- Denman Island;
- Gabriola and associated islands;
- Galiano and associated islands;
- Gambier associated islands;
- Hornby Island; and
- Valdes Island.

Resources for local trust committees

The following are some resources for local trust committees. Please see references in the attached report for a more complete list.

Hutton, K. E. and S. C. Samis. 2000. Guidelines to protect fish and fish habitat from treated wood used in aquatic environments in the Pacific Region. Can. Tech. Rep. Fish. Aquat. Sci. 2314: vi + 34 p. Available at <http://www.dfo-mpo.gc.ca/Library/245973.pdf> .

Fisheries and Oceans Canada. Projects Near Water. Available at <http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html> .

Province of BC. 2011 (amended August 2013). Land Use Operational Policy: Private Moorage. Available at http://www.for.gov.bc.ca/Land_Tenures/documents/policies/private_moorage.pdf .

EnviroVision, Herrera Environmental, and Aquatic Habitat Guidelines Program. October 2007 (revised June 2010). Protecting Nearshore Habitats and Functions in Puget Sound. Available at <http://wdfw.wa.gov/publications/00047/>.

2012 - 2013

Final Report Nearshore Eelgrass Inventory



**Prepared for the Islands Trust and
Islands Trust Fund by:**

Nikki Wright, BA Executive Director
SeaChange Marine Conservation Society

Leanna Boyer, BSc. MA
Mayne Island Conservancy Society

Keith Erickson, R.P. Bio. Conservation
Coordinator
Galiano Conservancy Association

Table of Contents

1.0	Introduction	3
2.0	Importance of Eelgrass	4
2.1	Biodiversity	4
2.2	Blue Carbon	4
2.3	Ecosystem Services	5
3.0	Eelgrass Habitat Characteristics	5
3.1	Wildlife Corridors	6
4.0	Impacts from Human Activities	6
4.1	Removal and Burial	7
4.2	Pollution and Changes to Freshwater Input	7
4.3	Forestry Practices	8
4.4	Oil Spills	8
4.5	Shading by Overwater Structures	8
4.6	Effects of Boating	8
5.0	Eelgrass and Rising Sea Levels	9
6.0	Mapping Methodology	9
6.1	Distribution	10
6.2	Form	10
6.3	Sediment Types	10
6.4	Percent of Cover	11
6.5	Tidal Fluctuations	11
6.6	Presence of Other Vegetation	11
6.7	Visibility	11
7.0	Survey Limitations	12
8.0	2012 Inventory Findings	12
8.1	Gambier Island Local Trust Area	12
8.2	Lasqueti Island	15
8.3	North Pender Island	15
8.4	South Pender Island	16
8.5	Mayne Island	16
8.6	Thetis Island Local Trust Area	16
9.0	2013 Inventory Findings	19
9.1	Galiano Island Local Trust Area	20
9.2	Gabriola Island Local Trust Area	21
9.3	Denman Island Local Trust Area	23
9.4	Hornby Island Local Trust Area	23
9.5	Ballenas – Winchelsea (Executive Islands)	
	Local Trust Area	23
9.6	Bowen Island Municipality	24
10.0	Threats to Eelgrass Habitats	26
11.0	Opportunities for Eelgrass Restoration	26
11.1	History of Eelgrass Restoration	27

11.2	Criteria for Successful Restoration	27
12.0	Recommendations	27
12.1	Education	28
12.2	Regulatory and Enforcement	28
12.3	Opportunities to collaborate with other agencies	29
13.0	Conclusion	29
	References	30

Eelgrass Maps

- Map 1. Eelgrass Presence North Pender Island
- Map 2. Eelgrass Presence South Pender Island
- Map 3a. Eelgrass Presence Gambier Island Local Trust Area
- Map 3b. Eelgrass Presence Gambier Local Trust Area Associated Islands
- Map 4a. Eelgrass Presence Thetis Island Local Trust Area Excluding Valdes
- Map 4b. Eelgrass Presence Valdes Island
- Map 5a. Eelgrass Presence Lasqueti Island – East
- Map 5b. Eelgrass Presence Lasqueti Island – West
- Map 6. Eelgrass Presence Hornby Island Local Trust Area
- Map 7. Eelgrass Presence Mayne Island
- Map 8. Eelgrass Presence Ballenas – Winchelsea (Executive Islands) Local Trust Area
- Map 9a. Eelgrass Presence Bowen Island North and Bowyer Island
- Map 9b. Eelgrass Presence Bowen Island South and Passage Island
- Map 10. Eelgrass Presence Denman Island Local Trust Area
- Map 11a. Eelgrass Presence Gabriola Island Local Trust Area – Southeast
- Map 11b. Eelgrass Presence Gabriola Island Local Trust Area – Northwest
- Map 12a. Eelgrass Presence Galiano Island Local Trust Area – South
- Map 12b. Eelgrass Presence Galiano Island Local Trust Area – North

Appendix A	Mapping Methodology
Appendix B	Maps of Shoreline Units
Appendix C	Summary of Overwater Structures

SeaChange Marine Conservation Society acknowledges the Mayne Island Conservancy Society for the use of its software and computer for data management. Seachange would also like to acknowledge funding from the following sources, which has made this project possible: Islands Trust, Islands Trust Fund, the Capital Regional District, the Comox Valley Regional District, Metro Vancouver, the Greater Victoria Savings and Credit Union Legacy Foundation, Vancouver City Savings (Vancity), the Public Conservation Assistance Fund, Moonstone Enterprise, the Pacific Salmon Foundation and the Victoria Foundation.

Thank you.

1.0 Introduction

Land use developments within watersheds have led to a loss of natural estuarine and nearshore marine habitats in British Columbia - the receiving waters of land based activities. Agriculture, forestry, and dredging for commercial and residential development have all contributed to the loss (Durance, 2002). The pressure to modify natural marine features and habitat for the development of commercial facilities and residential units within coastal areas is intensifying. To prepare for the increase in populations on the BC coast and concurrent shoreline developments, it is necessary to identify and quantify nearshore habitats to protect and maintain these valuable nearshore environments.

This final report of the 2012 - 2013 nearshore inventory of native eelgrass, *Zostera marina* in selected islands is a summary of the rationale, methodology and findings conducted for the Islands Trust and Islands Trust Fund. The areas mapped during the summer and fall months of 2012 for eelgrass habitats were the Thetis Island Local Trust Area (excluding Valdes and the Cufra Inlet), Lasqueti Island, Gambier Island, North and South Pender Islands and Mayne Island.

The islands mapped in 2013 include the Bowen Island Municipality, Valdes Island and Cufra Inlet within the Thetis Island Local Trust Area, the Gambier Island Local Trust Area Associated Islands (excluding the islands off of the Sunshine Coast) and the local trust areas of: Denman, Hornby, Ballenas – Winchelsea (Executive Islands), Gabriola and Galiano.

The report serves also as background information for future eelgrass inventories and adds value to the Islands Trust Shoreline Mapping Project. The goal is to support sound decisions that will affect the natural ecological health of the marine nearshores within the Islands Trust Area. The Islands Trust and Islands Trust Fund have limited jurisdiction over marine areas; however, they can have an impact on long term development and protection of the shoreline. This report and the mapping information that forms its basis are designed to assist Islands Trust and Islands Trust Fund planners to make science-based decisions when planning for nearshore areas.

ShoreZone maps of coastal habitats within the Islands Trust Area were created over the past decade. ShoreZone is a mapping and classification system that produces an inventory of geomorphic and biological features of the intertidal and nearshore zones from low altitude aerial images of the coastal environment (Harper 2011). These maps provided the groundwork for identifying suitable physical components for eelgrass on the islands mapped during 2012-2013. The presence/absence of *Zostera marina* was determined according to the methodology of Cynthia Durance, R.P. Bio., Precision Identification (Appendix A). A more detailed description of the methods used can be found in Section 6.

2.0 Importance of Eelgrass

Seagrasses are rooted aquatic plants that grow in estuaries and along low wave energy shorelines throughout the world. They have important influences on biogeochemical cycling, sediment stability, and food web support (McGlathery et al. 2007; Orth et al., 2006). Seagrasses can form extensive meadows supporting high biodiversity. The global species diversity of seagrasses is low (~60 species). Across the globe, however, seagrass meadows cover about 177,000 square kilometers of coastal waters – larger than the combined area of the Maritime Provinces (Short et al, 2007). British Columbia has about 400 km² of saltmarsh and eelgrass habitats (Campbell 2010).

2.1 Biodiversity

The complex and intricate food webs of an eelgrass (*Zostera marina*) meadow provide food and shelter for numerous fish and invertebrates. Meadows also serve as a nursery habitat and as a refuge from predation for juvenile fishes (Orth et al., 1984; Bostrom and Bonsdorff 2000; Duarte 2000). The productivity of native seagrasses rivals the world's richest farmlands and tropical rainforests. From an unstructured muddy/sandy bottom grows a myriad pattern of leaves that supply nutrients to salmonids and other fish, shellfish, waterfowl and about 124 species of faunal invertebrates. The plants offer surface area for over 350 species of macroalgae and 91 species of epiphytic microalgae – the basis of the food web for juvenile salmon in marine waters (Phillips 1994). Often referred to as “salmon highways”, nearshore marine environments containing eelgrass beds (*Zostera marina*) are home to over 80% of commercially important fish and shellfish species, including all species of salmon, at some point in their life histories (Durance 2002).

2.2 Blue Carbon

Like terrestrial forests, eelgrass habitats capture and store large amounts of carbon but at much more efficient rates - up to ninety times the uptake provided by equivalent areas of forest. This “Blue Carbon” is stored in sediments where it is stable for thousands of years. In B.C., roughly 400 km² of salt marsh and seagrass meadows sequester as much carbon as B.C.'s portion of the boreal forest, and the equivalent of the emissions of some 200,000 passenger cars (Campbell 2010).

When eelgrass beds are restored, the rate of carbon sequestration appears to be rapid over the first few years and up to 40 years following restoration. The natural transport of eelgrass by currents and wave action to deeper waters in estuaries and the coastal ocean may further sequester more carbon (Thom 2011).

As ocean waters warm as a result of climate change (up to 5 C° during the spring), greater flowering as well as faster growth of eelgrass shoots has been observed. Both of these changes result in greater biomass. Like marshes, much of the eelgrass biomass is under the substrate, indicating that a warming environment may result in greater carbon accumulation rates (Thom 2011).

2.3 Ecosystem Services

Ecosystem services are the benefits provided by the land, air, water and subsurface materials of the earth (Molnar et al 2012). Eelgrass habitats within the lower reaches of the Salish Sea provide carbon sequestration and storage, habitat refugia and nursery and nutrient cycling benefits to an approximated natural capital cost of \$80,929 per hectare per year (Molnar et al., 2012). Within the Islands Trust Area, eelgrass habitats also provide revenue for commercial fisheries, recreational fishery, and revenue from tourism.

Protecting and conserving, and in some instances restoring these critical habitats is a recommendation of the Islands Trust Fund's Regional Conservation Plan. Mapping eelgrass is identified as a priority to meet the goal of conserving marine ecosystems and habitats. As well, accounting for these benefits in economic dollars and cents and factoring them into decision making policies would emphasize the economic, cultural and ecological values of nearshore habitats.

3.0 Eelgrass Habitat Characteristics

Eelgrass meadows are found in most of the world's coastal temperate regions except at extremely high latitudes. Physical and chemical factors affecting *Zostera marina* include temperature, light attenuation, elevation, substratum, wave action, salinity and pH. Worldwide, the plants survive under a wide range of water temperatures, from 0° to greater than 30°C. The optimum temperature for growth lies between 10° - 20° C in most areas (Phillips 1984). Eelgrass grows best within the Salish Sea in salinity ranges of 20 ppt - 32 ppt. Eelgrass can tolerate periods of freshwater inundation on a seasonal or daily basis (Durance 2002).

Of all the above factors, light availability and elevation may be the most crucial. Light availability seems to be the primary factor limiting depth distribution, density, and productivity of eelgrass meadows within their salinity and temperature ranges. When the Coal Port was expanded in 1982-1983 in Roberts Bank, both species of eelgrass (*Z. japonica* and *Z. marina*) expanded. The construction of causeways across a broad intertidal zone directed the turbid Fraser River water offshore, improving the light regime and initiating higher productivity in the eelgrass beds (Harrison and Dunn 1999).

3.1 Wildlife Corridors

Seagrasses are in decline throughout much of the world, with rates of loss accelerating from a median of 0.9% per year before 1940 to 7% per year since 1990 (Waycott et al., 2009). It has been estimated that 18% of coastal marine and nearshore wildlife habitat in the Salish Sea has been destroyed (British Columbia/Washington Marine Science Panel 1994). A large percentage of this decline is attributed to human impacts, including filling of shallow waters, dredging, and eutrophication (Short and Wyllie-Echeverria 1996).

Often referred to as “salmon highways”, nearshore marine environments containing *Z. marina* beds are home to more than 80% of commercially important fish and shellfish species, including all species of salmon, at some point in their life histories (Durance 2002). *Zostera marina* beds are highways for Chinook, Coho, Pink, Chum, and Sockeye salmonid stocks (Thompson 1994). Great Blue Herons have been observed to feed in eelgrass beds within 3 km of their nesting colonies. Other important bird species using these habitats include Brant geese, Rhinoceros Auklets, cormorants and Western Grebes.

E.O. Wilson proposed the importance of habitat corridors in the 1960s (MacArthur and Wilson 1967). Habitat reduction and fragmentation at a variety of spatial scales has been widely acknowledged as a primary cause of the decline of many species worldwide (Thompson 1994). Habitat fragmentation generally leads to smaller and more isolated animal populations. Smaller populations are more vulnerable to local extinction. To reduce the isolation of habitat fragments, many conservation biologists have recommended maintaining landscape "connectivity" - preserving habitat for movement of species between remaining fragments (BC/Washington Marine Science Panel 1994).

Many nearshore environments on the islands inventoried in 2012 and 2013 indicated continuous fringing eelgrass beds. These beds are the connectivity for salmon and other marine wildlife for shelter, food and refugia. Although they may be less biomass than continuous flat beds of eelgrass plants, they serve an important function and should be protected.

4.0 Impacts from Human Activities

The majority of the earth’s population now lives within 10% of land defined as “coastal”. One of the results of this increased pressure on coastal shorelines has been the destruction of approximately 215,000,000 acres of estuarine habitat worldwide (BC/Washington Marine Science Panel 1994). Seagrasses are in decline throughout much of the world, with rates of loss accelerating from a median of 0.9% per year before 1940 to 7% per year since 1990 (Waycott et al., 2009).

It has been estimated that 18% of coastal marine and nearshore wildlife habitat in the Salish Sea has been destroyed (British Columbia/Washington Marine Science Panel 1994). A large percentage of this decline is attributed to human impacts, including filling of shallow waters, dredging, and eutrophication (Short and Wyllie-Echeverria 1996). With the population of the Georgia Basin/Puget Sound forecasted to exceed nine million people by 2020, nearshore critical habitat loss is likely to increase.

The following is a description of some of the major impacts human coastal settlements have on eelgrass habitats and their functions.

4.1 Removal and Burial

Dredging and filling associated with the construction of harbors and ports have been the major cause of the decline in eelgrass beds (Levings and Thom 1994). The plants themselves are removed and then the physical, chemical and biological composition of the system is altered. Sediments raised by dredging can also bury plants growing nearby and alter eelgrass density by affecting water clarity. The reduction in plant density can further increase silt load because it reduces the capacity of eelgrass beds to trap sediments. It can also increase the erosion of bottom sediments because of the reduced root mass available to hold sediments together. The ultimate result is the reversal of the entire nutrient-flow mechanics of the ecosystem. Dredging activities include hydraulic clam harvesting, bay scallop raking, oyster harvesting and maintenance dredging of harbors. Filling in shallow wetland areas with the debris from wood processing (e.g. log dumps and log booms), sediment runoff from agricultural land and logging severely impact eelgrass habitats as well (Phillips 1984).

4.2 Pollution and Changes to Freshwater Input

Since estuaries are extremely vulnerable to changes in salinity and temperature, human activities affecting freshwater flows from streams heavily affect eelgrass meadows. Pristine watersheds surrounding estuaries provide steady supplies of fresh water and clean sediments to seagrass communities in the estuary. The opposite holds true as well: unhealthy watersheds increase the problems for seagrass distribution and productivity. Activities that cause increased nutrient loads in streams and rivers can result in overgrowth of algae that then die and deplete the oxygen from the bottom of poorly flushed bays. Chemical contaminants, such as fertilizers, pesticides and household hazardous wastes, runoff from streets and roads and runoff from industrial activities also add to the toxic composition of muddy bottoms of eelgrass meadows (BC /Washington Science Panel 1994).

Quiescent waters are more susceptible to chronic contamination than areas with high energy water flows (Harrison and Dunn 1999). In the Salish Sea, more than 540 sq. kilometers of intertidal gravel, sand and mud habitat are closed for shellfish harvesting because of bacterial

contamination. More than 730 sq. kilometers of shallow water habitat are unusable for crab and shrimp because of dioxin contamination from pulp mills. More than 32% of classified commercial shellfish growing areas in Puget Sound and Juan de Fuca Strait are either restricted or prohibited for harvesting due to water quality issues (Levings and Thom 1994). The same activities that impact shellfish, crab and shrimp harvesting also impact the health of eelgrass meadows.

Most toxic chemicals that accumulate in sediments in an inland sea such as the Salish Sea reside there for long periods of time unless they are physically removed. There is evidence that the roots of eelgrass take up a significant amount of heavy metals for long periods of time (e.g. lead, cadmium, zinc and chromium), thereby making up a large pool of heavy metals in coastal systems (Lyngby and Brix 1989). The consequences of toxic chemicals may have long term effects on eelgrass consumers, especially waterfowl and marine invertebrates.

4.3 Forestry Activities

Logging may cause scouring of stream channels and thereby increase sedimentation in estuaries, limiting the light available for photosynthesis. Bark chips from log booms smother eelgrass beds and form a blanket on the substrate, which leads to anaerobic sediment devoid of life (BC/Washington Marine Science Panel 1994).

4.4 Oil Spills

Oil spills pose serious threats to eelgrass communities growing in sheltered bays that are poorly flushed. These areas will tend to retain oil for long periods of time, becoming chronically contaminated. If spills happen in late summer or winter when leaf sloughing is at its peak, mats of drift blades will tend to catch and retain oil for later decomposition in the intertidal zone. Seed production and viability could be affected if a spill occurs in the spring (Beak Consultants 1975).

4.5 Shading by Overwater Structures

The apparent increase in demand for overwater structures in the Howe Sound Islands can have deleterious and cumulative impacts on the nearshore system. Shading, disruption of nearshore marine water movement, damage to the shore and subtidal habitat and operational pollution from boats can be some of the impacts (Van der Slagt et al., 2003).

4.6 Effects of Boating

Boat propeller cuts disturb eelgrass beds in shallow waters, both when boats are travelling through shallow areas and when they are approaching the shore to debark passengers, moor or anchor. The impacts from boating activities in eelgrass beds may be affecting waterfowl such as Black Brant, direct grazers on eelgrass. The Brant have been steadily decreasing in the Pacific Northwest since the 1940's (Phillips 1994).

Conserving eelgrass habitats enhances the amount of high quality rearing habitat as well as increases the ecological services for human communities, including erosion control, sediment settling and food production (shellfish and fish). With the population of the Georgia Basin/Puget Sound forecasted to exceed nine million people by 2020, nearshore critical habitat loss is likely to increase.

5.0 Eelgrass and Rising Sea Levels

Sea level rise and increased frequency and intensity of extreme weather are two expected and observed effects of climate change (IPCC, 2007, IPCC 2012). The Intergovernmental Panel on Climate Change warns that on small islands in particular, sea level rise is expected to exacerbate coastal hazards such as storm surges, floods and erosion (IPCC 2007).

Impacts of rising sea level on the coastline of the Salish Sea will be more complicated than the inundation of low-lying areas. The effects will differ significantly between different shoreline features. Inland movement of sea water (Titus and Strange 2008), as well as erosion and re-deposition of sediment will reshape the coastal landscape where there is room for the shoreline to shift and sufficient sediment is available (Mumford 2007). Increasing sea levels are expected to shift the zone in which sunlight is available to eelgrass beds. As a result, eelgrass beds are expected to shift inland unless barriers impede this shift (Titus and Strange 2008).

Eelgrass beds play a role in shoreline stability. Established eelgrass beds reduce currents, leading to increased sediment and organic detritus deposition (Durance 2002). Continuous dense eelgrass beds provide a buffer for incoming wave energy. The more the bed is fragmented by physical structures (e.g. boats, wharves, docks and overwater play structures), the less eelgrass beds function as an erosion buffer. Where shorelines are constrained by development or structures to prevent erosion (e.g. rip rap, sea walls), natural coastal features will be squeezed out and maintaining shoreline infrastructure and development will require increasingly expensive engineering measures (Mumford 2007). Pre-emptive planning for these changing conditions is necessary to protect settlement areas and shore features recognized for their natural and ecosystem services. This planning includes protection of natural buffers such as eelgrass beds. Preemptive planning for these changing conditions is necessary to protect settlement areas and shore features recognized for their natural and ecosystem services.

6.0 Mapping Methodology

Identifying and monitoring the distribution of native eelgrass habitats supplies much needed information for regional planning for conservation purposes. Maps and associated outreach activities also may lead to improvements in land use practices from increased knowledge and awareness about the habitat. Locating areas suitable for eelgrass restoration will lead to rehabilitation of eelgrass meadows as funding opportunities become available.

The eelgrass inventory for this project entailed determining the presence or absence of *Zostera marina* with an underwater towed camera and a boat, except in the Cufra Inlet (Thetis Island) where mapping was done by kayak without a towed camera due to shallow tides. GPS hand held units were used to record waypoints at approximately 10 m intervals in 2012. Accuracy of the GPS readings was on average +/- 2.4 metres. In 2013, a Trimble Pathfinder ProXR GPS was used, except in the Cufra Inlet where a handheld GPS unit was used. A detailed description of the methods used to map eelgrass habitats can be found in Appendix A.

The terms used to map eelgrass habitats are described below:

6.1 Distribution

The distribution of eelgrass within the bed is described for this inventory as either patchy or continuous. Patchy beds are those that contain isolated groups or patches of plants. Beds which are not patchy are classified as continuous; a bed that contains bare patches surrounded by eelgrass is classified as continuous. The boundary of a bed is determined by a shoot density of less than 1 shoot per square meter (Durance, 2002).

6.2 Form

There are two basic forms of eelgrass beds in the Pacific Northwest: fringing beds that occur as relatively narrow bands usually on gentle slopes, and more expansive beds that cover large areas such as tidal flats known as “flat” beds (Durance, 2002). Inter-annual variation within a bed is not well known, but appears to be less than ten percent (Dowty et al, 2005). Fringing beds are generally linear. Flat beds are areas of large eelgrass beds in embayments that extend deeper than fringing and more linear beds found along shorelines (Dowty et al. 2005). Distribution is often, but not solely, determined by aspect to dominant winds. Eelgrass distribution across a bathymetric gradient is limited at the upper boundary by the degree of exposure at low tide (desiccation) and by light limitations at the lower boundary.

6.3 Sediment Types

When possible, field observers rated the primary, secondary and tertiary occurrence of substrate types: sand, mud, pebble and cobble. A subtidal environment dominated by cobble might indicate a habitat more suitable for large kelps, which would shade any eelgrass shoots growing between the cobble during the summer months. A predominately sandy muddy bottom would support continuous eelgrass meadows in most cases, unless other factors are present, such as exposure to strong waves or the interruption of habitat by boat mooring buoys. In some cases substrate characteristics change with increasing depth (e.g. cobble to sandy or mud to cobble).

6.4 Percent of Cover

Percent cover was estimated in broad categories to increase accuracy of observation (<25%, 26-75%, >75%). The coverage of an eelgrass meadow reflects both the substrate and the flow of water through it. A calm environment with a sandy mud substrate generally supports a dense, continuous eelgrass bed with virtually 100% cover. The cover of eelgrass in areas subjected to strong currents is typically patchy. Areas with heterogeneous substrate (mixture of fine and coarse) also tend to be patchy (Durance 2002). The percent of cover data collected from this inventory is based on subjective approximations as observed through the lens of an underwater camera. The approximate percent of cover does give important information on the density and productivity of a bed.

6.5 Tidal Fluctuations

It was important to note whether the tide was running or slack at the time of the inventory. Eelgrass shoots will tend to bend towards the substrate during running tides; the accuracy of percent of cover is then very approximate.

6.6 Presence of Other Vegetation

Other types of algae were documented as broad or tuft. Broad algae, such as kelps, sea lettuce and *Sargassum muticum* can blanket the ocean floor and make it difficult to characterize substrate. They can also shade eelgrass in mixed substrates as they anchor to hard surfaces. Tuft algae, such as brown and red algae do not shade eelgrass but indicate presence of hard surfaces for attachment. The presence of kelps, predominately large brown kelps, was noted, as was the presence of other types of smaller algae and *Sargassum muticum*. *Sargassum* is an exotic species of algae that can overshadow eelgrass if the substrate is a mix of sand and cobble. The presence of *Sargassum* was noted especially off the shores of Thetis and North and South Pender Islands.

6.7 Visibility

Visibility was a subjective observation and was rated low, medium and high. The amount of visibility could impact in some instances the accuracy of the observations, namely characterization of substrate. For example, Gambier Island often had low visibility. This can be caused by winds, sediment flows from the lower reaches of watersheds, inputs from nearby streams and tidal/current movements. Low tide periods make for the best visibility.

7.0 Survey Limitations

The range of accuracy for all the islands surveyed in 2012 was within +/- 2.4 metres. Visibility at times was poor, due to tidal influences, sedimentation in the water column from stream outflows, summer plankton blooms and wind. During the last day of mapping Gambier Island in August,

2012 the wind was too high to continue the inventory. The survey team returned to complete the inventory in September 2012. During the 2013 survey of islands within Howe Sound, the winds were often a factor in scheduling the inventories. The average horizontal precision for the GPS unit used for the 2013 eelgrass inventory was 0.814 m.

Percent of cover of eelgrass shoots is difficult to assess accurately with an underwater camera but was deemed important to characterize. Areas of particular interest (e.g., impact of shoreline modifications, restoration potential) should be surveyed by SCUBA divers. Overall, this inventory is an indication of the presence or absence of eelgrass habitat and does not represent maps of the outer or shoreward edges of each bed, with the exception of Bowen, Passage and Bowyer Islands. Polygons were mapped for these islands where possible in 2013.

8.0 2012 Inventory Findings

Eelgrass inventories were conducted using ShoreZone inventory maps which include presence of eelgrass where available and the ShoreZone shoreline classification types (available for all islands) as a reference.

The Islands Trust eelgrass inventory is important, particularly on islands such as Gambier and Lasqueti, as the ShoreZone data was based on Orthophoto images alone. Valdes, Cufra Inlet (Thetis Island), Passage and Bowyer Islands were mapped in 2013, but are included here under the 2012 inventory, as they are within the Thetis Island and Gambier Island local trust areas which were surveyed in 2012.

8.1 Gambier Island Local Trust Area

Gambier Island was surveyed on August 21st-23rd and September 11th, 2012. This island has rugged shorelines, with steep slopes leading to the subtidal zone. Eelgrass habitat comprises approximately 8.3% of the island's linear subtidal shoreline. The majority of the eelgrass beds are fringing, the significance of which has been described earlier in this report as important to wildlife corridors.

Gambier Island has been highly impacted by historical log storage practices. Eight sites were identified as possible restoration areas starting with small eelgrass test plots (approximately 800 to 1000 shoots). Larger eelgrass restoration might occur if these test plots increase in shoot density and coverage and as funding opportunities arise. In some of these sites, backshore lands have been placed on the real estate market, which may impact future restoration efforts if docks and wharves are permitted as additions to upland development.

Boat mooring buoys and recreational equipment on the water over eelgrass beds as well as derelict log booming cables and booms were observed. There were numerous docks and wharves within eelgrass habitats. Several large shoreline modifications were also noted. These changes to

the shore can have long term impacts on nearshore environments, including wave scouring, shading and interruptions to sediment transport. With the presence of active and retired log leases, the island would greatly benefit from an eelgrass restoration strategy plan to increase value for both biological diversity and ecological services.

Bowyer Island was surveyed on October 11-12th, 2013 using the polygon mapping methodology. The west, north and east coasts of Bowyer Island are largely steep and rocky. The south shore is characterized by several coves, varying in substrate. Eelgrass was estimated to extend along 11.35% of the Bowyer Island shoreline, observed only in particular coves along the southern portion of the island. The area of polygons containing eelgrass was observed to total 3690 m² and the length of mapped line features was observed to total 70 m. In addition to continuous beds, 4 individual patches of eelgrass were recorded, noted on the map as points. Eelgrass around Bowyer Island was similar in appearance and percent cover to that surrounding Bowen Island, i.e. patchy and sparse. Percent cover within the polygons was less than 25%.

Docks were located in eelgrass depth in the bay on the central southern shore of Bowyer Island, within zone W2/W1a. Eelgrass beds in that bay were observed to extend as far as the docks. Several chains were located on the ocean floor in zone W2 on the southeast shore of the island, and a large dock is within or adjacent to the eelgrass bed.

Large schools of small fish were frequently observed while circumnavigating Bowyer Island, particularly on the west, north and east coasts. Also observed were large numbers of pile perch (*Rhacochilus vacca*) and rockfish. Harbour seals were observed in several locations.

Passage Island was surveyed on October 5th, 2103 using the polygon methodology. One of the most exposed islands of Howe Sound, this island is a good example of how people and eelgrass tend to occur within similar, sheltered environments. Most of the island is characterized by rocky cliffs, with a few beaches. Eelgrass was observed in sections of the east coast of the island, along 15.67% of the total shoreline of the island. The area of polygons containing eelgrass was observed to total 3718 m² and the length of mapped line features was observed to total 40 m. Percent cover within the polygons was less than 25%. Ropes were observed on the sea floor in eelgrass depth in an area of the southeast coast of the island in the presence of patchy eelgrass. In this area was also located a floating dock within eelgrass depth and approximately 12 moorings in the eastern part of the area, where the eelgrass was very sparse and patchy. A floating dock and mooring was located at the south end of the more northerly eelgrass polygon on the east coast of the island.

The islands west of Bowen Island were inventoried between August 4th - 6th, 2013. The linear shoreline extent of eelgrass habitat surrounding the associated islands within the Gambier Island Local Trust Area totals approximately 13.27%.

Most of **Keats Island** contains flat or fringing beds of continuous eelgrass habitat on sandy/mud substrates, especially on the north and west facing shores. Patchy eelgrass beds were observed on the southeast shores, most likely due to exposure to predominant winds.

A high preponderance of single eelgrass patches lie on the southern tip of Keats Island, which may be caused by exposure to southerly winds, but also to the multiple locations of docks, especially on the southwestern shore.

There is potential for eelgrass restoration on the northern end of the island at the eastern point of a log booming area if the log lease is retired in the future. This area has a rocky/cobble foreshore, forested backshore and water park with overwater floats. There are also many docks on the southwestern portion of the island, which may cause fragmentation of eelgrass beds. Where there were low rock/cobble substrates, no eelgrass was present.

Anthropogenic Impacts include the construction of docks, presence of moored boats in eelgrass beds, removal of native backshore vegetation and recreational use of the nearshore (water park overwater play structures).

Continuous flat eelgrass habitat was observed in the southeast and western shores of **Shelter Island** directly west of Keats Island. No eelgrass was found near **Home Island** south west of Keats Island. **Preston Island** south of Keats Island contains a small continuous eelgrass bed on the southeast shore. The backshore is forested. **Ragged Islets** contain mostly patchy eelgrass beds throughout most of the subtidal areas, except for the west facing side of the islets. Mooring buoys and docks were observed on the eastern shore and a float on the northern side of the islets. Most of the islets are forested and contain rocky substrate. The small islet to the northeast contains a fringing continuous eelgrass bed.

The majority of eelgrass surrounding **Pasley Island** south of Ragged Islets is flat and continuous in sandy/shell hash substrate. Vegetation along the foreshore has been cleared near many residences. Retaining walls, docks and mooring buoy chains interrupt eelgrass continuity along the south and southeastern facing shores. There is potential for eelgrass restoration on the southeastern facing shore almost at the midpoint of the island where there is a gap in an otherwise flat continuous eelgrass bed. On the northeastern shore of Pasley there is a dense eelgrass bed that could serve as a possible harvesting site for restoration of lost or damaged eelgrass habitat.

No eelgrass was noted off of **Worlcombe Island** southeast of Pasley Island.

Mickey Island northeast of Pasley Island is surrounded on its western, southern and northern shores by mostly fringing patchy beds of eelgrass in sandy/shell substrate. Eelgrass is mostly likely limited on the eastern shores by low rock/boulder substrates. The rocky shores are surrounded by natural forests. Minimal anthropogenic impacts were observed.

To the west lies **Hermit Island**. The majority of eelgrass habitat is flat and continuous in sandy/shell hash substrates. Most of the habitat is located on the east facing shoreline, though the foreshore is cobble or low rock. The majority of the backshore is forested. In some areas, dock construction interrupts eelgrass beds. Harlequin ducks were observed within an eelgrass area on the southwestern side of the island.

Little Popham Island south of Hermit Island has mostly continuous flat beds of eelgrass to the southwest and northeast next to rocky shores and forested backshores. It is very likely eelgrass is limited by the subtidal low rock/boulder substrate surrounding the remaining areas of the island. Most of the eelgrass around **Popham Island** lives on the northeastern portion of the island in sandy/shell substrate and consists mostly of continuous and flat beds along steep rocky shores.

Grace Island southwest of Gambier Island contains mostly fringing continuous eelgrass habitats in shell/sand substrates next to steep rocky foreshores and forested backshores. A large school of fish was observed. **Woolridge Island** to the northwest of Gambier Island contains mostly flat continuous beds of eelgrass on its north facing shores. The beds are very robust, with a possible harvesting site on the east shore if restoration is undertaken in this area. There is woody debris noted near a breakwater on the north western facing shore of the island.

The majority of eelgrass habitat surrounding **Anvil Island** northeast of Gambier Island lives on the southeastern shores and is characterized as fringing. Most of the island is classified as cliff or low rock/boulder which is limiting for eelgrass growth. The presence of numerous mooring buoys and retaining walls impact the habitat. One potential restoration site was identified on the eastern shore.

The islands near the Sunshine Coast within the Gambier Island Local Trust Area were not mapped in 2013 due to poor mapping conditions and scheduling limitations. There are plans to inventory them in 2014, subject to funding and capacity.

8.2 Lasqueti Island

Lasqueti was surveyed from July 17th to July 19th 2012. This island's shoreline is composed of substrate formed from shallow stony deposits over bedrock. Shallow sandy/muddy benches extend into the subtidal zones. Eelgrass comprises approximately 13.8% of the island's linear intertidal and subtidal shoreline. The majority of the eelgrass habitat is flat, dense and continuous. Most of the backshore lands were naturalized with little development.

Possible impacts that could be occurring would be from boat mooring buoys anchored within eelgrass habitats, grazing by Canada geese, historical damage from log booming practices, hardened shoreline modifications and site locations of some aquaculture enterprises. False Bay could benefit from more detailed eelgrass mapping, as the multiple mooring buoys might be impacting eelgrass habitats.

8.3 North Pender Island

North Pender was inventoried on July 3rd, 4th and 6th 2012. Eelgrass comprises approximately 11.6% of the island's linear intertidal and subtidal shoreline. The majority of the eelgrass beds are flat and continuous. The protected nature of North Pender results in a relatively high proportion of soft substrate in shallower areas.

Impacts include housing developments with accompanying tree and shrub clearings, rip rap and rock wall modifications, some of which were constructed below the high water line, direct raw sewage outfall at Port Washington which would directly affect the water quality for eelgrass productivity, the presence of Canada geese, direct grazers on eelgrass shoots during low tides, and mooring buoys within eelgrass beds. Port Browning might be an appropriate site for eelgrass restoration as the substrate is suitable and there is a small bed on the northeast side.

8.4 South Pender Island

South Pender was surveyed on July 6th 2012. Eelgrass comprises approximately 8.5% of the island's linear intertidal and subtidal shoreline. South Pender has more exposed shoreline therefore less eelgrass is to be expected. Roughly the same proportion of flat and fringing beds are present with slightly more than half of them being continuous.

8.5 Mayne Island

Mayne Island was surveyed from 2009-2012 using two methodologies on a variety of platforms including: 1) delineation and creation of polygons (with towed underwater camera, on foot, by kayak, by free diver), 2) linear presence/absence (by kayak). Data was converted to presence/absence line format for incorporation into the 2012 Islands Trust Eelgrass Inventory.

Mayne Island is mostly protected except on the Northeast side which is exposed to winds from the Strait of Georgia. Eelgrass comprises approximately 22% of the island's linear intertidal and subtidal shoreline. The Mayne Island associated islands, Georgeson Island and Curlew Island, contain 15.7% and 24.8% respectively.

Evidence from the Mayne Island Conservancy's eelgrass monitoring program and historical anecdotal evidence has shown loss in intertidal eelgrass in Miners Bay and two Southeast facing bays on the Southeast side of Mayne. Reasons for loss are unknown, but ongoing monitoring will indicate natural variability in these eelgrass beds. Potential impacts include grazing from Canada geese, anchoring, mooring buoys, trampling by kayakers and damage from boats and propellers. Winter heavy rain events could be introducing increased sediment loads into eelgrass beds, but this would need to be studied.

Gallagher Bay (on Navy Channel) and Conconi Reef Park are potential eelgrass restoration sites. They both have large bare areas adjacent to continuous eelgrass beds and have suitable substrate.

8.6 Thetis Island Local Trust Area

Thetis and its associated islands were surveyed July 31st through August 3rd, 2012, except for the inside of Cufra Inlet which was inaccessible because of low tides, and Valdes Island. The Cufra Inlet survey was completed in the summer of 2013. Valdes Island was surveyed July 29th, and 30th, 2013.

Approximately 26.6% of the linear subtidal shoreline on Thetis Island is composed of eelgrass habitat, 72% of which is continuous. Fringing continuous eelgrass beds were observed off the western shore of Thetis where the ShoreZone map indicates a preponderance of low rock and boulder (not a typical shoreline type for eelgrass). **North Cove** is also rich with an abundance of eelgrass, except where it is shaded by overwater structures.

Cufra Inlet contains dense (26-75% cover) flat continuous eelgrass beds. The inside of the inlet was surveyed during the summer of 2013 by local residents using kayaks and hand held GPS units but without the use of an underwater camera, as the water was shallow enough for eelgrass to be observed from the kayaks. Low tides in 2012 prevented an aluminum boat from approaching close to shore during the low tides occurring during the survey. The continuous bed begins on the western shore of Cufra Inlet as a narrow 1 m wide swath on the shoreward side and then widens out. An abundance of drifting sea lettuce (*Ulva* spp.) was observed within this area. Eelgrass became denser seaward in the muddy/shell hatch substrate. The substrate became sandier as the mappers traveled towards the mouth of the channel. Patches of sand dollars were noted as the inlet widens and the eelgrass extends towards the eastern shore. Diatoms were noted growing on the eelgrass blades. At the western edge of the mouth of the inlet eelgrass is patchy and sparse despite its ShoreZone classification of 'cliff'.

Clam Bay eelgrass was dense and continuous.

Telegraph Harbour on Thetis Island had a preponderance of algae (*Ulva* spp.), *Sargassum muticum* and filamentous algae growth. Visibility was poor. Upland and shoreline development (rip rap, retaining walls and cement ramps) with accompanying vegetation clearing most probably has led to higher sedimentation in the nearshore waters.

Understory kelps were observed at most sites, although no fish or crab species were present at the time of the survey in the majority of the survey area. Possible impacts from boat moorings within eelgrass beds (e.g. **Ruxton Island** had > 15 boats moored off shore in one small area), recreational overwater play structures, shoreline modifications and nutrient run-off could be impacting nearshore habitats. Where there was suitable substrate for eelgrass as indicated by the ShoreZone data, eelgrass was present, with the exception of the narrow channel between Thetis and Penelakut Islands. However a long-time resident remembers eelgrass presence there approximately 40-50 years ago. Islets and small islands are important refugia for wildlife and often are less impacted than the surrounding larger islands.

A short description of the smaller islands and islets associated with Thetis Island are described below.

Percentages of eelgrass for each associated islet are:

Island	Eelgrass % Cover
Ruxton	11.6%
Pylades	0%
Bute	50.3%
Dunsmuir Islands (2)	34.7%
Hudson	30.9%
Reid	3.9%
Dayman & Scott Islands	39.6%
Valdes	12.7%

Hudson Island west of Thetis is rich with continuous fringing beds of eelgrass (26-75% cover) on both its eastern and western subtidal areas. **Dayman Island** has just under approximately 25% coverage of patchy eelgrass habitat mostly on its eastern facing side. **Reid Island** to the east has dense patches of fringing eelgrass on its northeast facing shore.

Ruxton Island to the north of Thetis has flat, continuous (less than 25% cover) eelgrass beds within sheltered sites on the western facing area; an abundance of nudibranchs was observed on eelgrass blades. The eastern shore, with the exceptions of some sites with fringing patchy beds, is too deep for eelgrass growth.

Whaleboat Island to the east of Thetis had too steep a drop off to be suitable for shallow eelgrass habitats. **Tree Island** contained 100% cover of understory kelps, which is an indication of a dominance of cobble/pebble substrate. As well, the subtidal area is too deep for eelgrass production.

Bute Island off of Ladysmith Harbour contained dense continuous beds because it is surrounded by a shallow bay with sandy substrate. There is a potential eelgrass restoration site on the northeast side of **Dunsmuir Island**, as it is composed of clean sandy substrate in a protected site. The narrow channel between Dunsmuir Island and Ladysmith Harbour contains continuous dense flat eelgrass beds.

Valdes Island was surveyed between July 29th and 30th, 2013. Eelgrass covers 12.69 % of its linear subtidal shores. The majority of the habitat is flat and continuous, with most of the locations cited on the northeastern and southwestern shorelines. Although the majority of the shorelines

on the western portion of Valdes are ShoreZone classified as low rock/boulder or cliff, the presence of flat continuous beds with bare patches was noted on the north and south western shores. Three potential restoration sites were identified; one on the central western side of the island, the second site on the northern tip of the island containing a small degraded eelgrass bed adjacent to the BC Parks dock, and the third is located on the southwestern shore which might have been historically impacted by log storage. The substrate at this site is suitable for a transplant; however *Ulva* spp. is present, which might be an indication of a high level of nutrient inputs.

The location of mooring buoys in eelgrass habitats with fifty-one buoys observed within beds and the interruption of eelgrass continuity by the construction of docks are the major anthropogenic impacts affecting eelgrass habitats on Valdes. The majority of the shoreline is naturally vegetated.

9.0 2013 Inventory Findings

The islands mapped in 2013 for eelgrass (*Zostera marina*) within the Islands Trust Area Islands include:

- Denman Island Local Trust Area,
- Hornby Island Local Trust Area,
- Ballenas – Winchelsea (Executive Islands) Local Trust Area,
- Gabriola Island Local Trust Area,
- Galiano Island Local Trust Area,
- Valdes Island and Cufra Inlet in the Thetis Island Local Trust Area
- Bowen Island Municipality
- Gambier Island Local Trust Area Associated Islands in the Howe Sound
(i.e. excluding the islands off of the Sunshine Coast)

The characteristics and locations of eelgrass habitats for each island are described below in order of the beginning dates eelgrass inventories occurred. Note that Valdes and Cufra Inlet are described in Section 8 above as they are in the Thetis Island Local Trust Area. Similarly the Gambier Island Local Trust Area Associated islands are also described in Section 8 as they are in the Gambier Local Trust Area. Both Thetis and Gambier Islands were mapped in 2012.

9.1 Galiano Island Local Trust Area

Galiano and its associated islands were inventoried over seven days between June 26th and November 25th, 2013. Approximately 16.66 % of the linear subtidal shoreline of Galiano Island is eelgrass habitat.

ShoreZone maps indicate that most of the southwestern and northeastern shorelines of Galiano Island are not suitable substrates (coastal bluffs and low rock/boulder respectively), except where there are sheltered embayments. However there are notable exceptions over the north, south west, south and eastern areas of the entire island.

The eelgrass distribution on Galiano is 88% continuous; 12% patchy. The placement of mooring buoys (at least 14 were noted within eelgrass beds, especially on the southwestern shores of the island), private docks (at least 12) and log storage have damaging effects on the habitat's continuity and function as a wildlife corridor. The construction of retaining walls (rip rap, rock and wooden) and the removal of backshore vegetation (at least 10 sites were observed) are obstacles for eelgrass to flourish in certain sites.

Most of the backshore on Galiano Island remains naturalized, with notable exceptions where trees and understory vegetation surrounding residences are removed and where shores are modified with retaining walls. Exotic invasive plants include English ivy, St John's Wort and gorse. Heavy epiphytic algae growth on eelgrass blades were noted within **Montague Harbour**, a possible indication of a high level of non-point source pollution. Another site for pollution is the public dock in **Whaler Bay** where boats are worked upon. Best management practices are recommended for boat sewage disposal and using tarps for collection of boat paint chips at each location.

There is the potential for eelgrass restoration within Whaler Bay, as the channel in front of the public dock contains a narrow band of eelgrass that could be expanded shoreward if log leases were retired in the future. In November, bufflehead and Barrow's Goldeneye as well as schooling forage fish were observed. Patchy eelgrass beds were noted off the eastern shores of Galiano Island. This area is ShoreZone classified as low rock/boulder. Four mooring buoys were located with these beds.

The eelgrass habitats covering the associated islands of Galiano comprise approximately 19.98% of the islands' linear shorelines. **Parker Island** has extensive eelgrass on its northeastern shores (96% continuous). The construction of docks and the placement of mooring buoys within eelgrass beds, however, may be impacting the habitat. Most of the eelgrass surrounding **Gossip Island** lives on the island's east facing shores is continuous (95%); however docks (7 were noted within the eelgrass beds) interrupt their form and function. Mooring buoys (3 observed) are situated within the existing beds on the south-western facing shores also disrupt the connectivity of eelgrass habitats.

No eelgrass was observed on **Ballingall** and **Lion Islets**, **Wise**, **Charles**, **Sphinx** or **Julia Islands**.

9.2 Gabriola Island Local Trust Area

Gabriola Island and associated islands were surveyed between July 8th and 21st, 2013. Gabriola Island's linear shores are comprised of 24.8 % eelgrass, with 89% continuous distribution. Two potential eelgrass restoration sites were identified on this island. The first is on the southwestern shore facing **Mudge Island** near an active log booming site. When the log lease is retired at this site, a small eelgrass transplant (100-500 shoots) could indicate whether the area is suitable for a larger transplant. The second site is on the northeast tip of Gabriola Island where a small existing bed could be expanded.

Wildlife in some areas abound, including Canada geese, an abundance of fish species, Great Blue Herons (22 at the southern channel entrance between Gabriola and Mudge Islands), sand dollars and Bald Eagles. Beaches that have suitable substrate for sand lance and surf smelt spawning were also noted. Healthy eelgrass beds near the **Malaspina Galleries** in Gabriola Sands Provincial Park are not surrounded by mooring buoys and docks and are thriving in in 4-5 metres water depth, although the area also contains rocky substrates.

Possibly the biggest impacts to marine wildlife habitats on Gabriola and its associated islands are the locations of floats and mooring buoys (in one embayment on the northwestern shore of Gabriola, over 12 floats – moorings and/or crab traps – and 14 buoys were observed in a continuous eelgrass bed); construction of retaining walls (nine riprap or rock walls identified); and, the removal of native backshore vegetation (13 sites). Numerous moorings are located in an otherwise robust eelgrass bed in **Degnen Bay**.

The eelgrass coverage for the Gabriola associated islands' linear shorelines totals 19.98%. Near the eastern shore of **DeCourcey Island** south of a marine park there are many docks and boats. Poor water quality was noted, and there are no washroom facilities at this location. No marine life was observed growing on the seafloor. North of the marine park there is a potential restoration site facing a steep rock ramp foreshore and a steep grassy conifer backshore near a former log booming site.

Snake Island has the potential for eelgrass restoration on its southern tip where there is a protected area with suitable subtidal sandy mud substrate, although this location may be too close to active boating. Seal pups and oyster catchers were cited near a large mussel bed.

There was no eelgrass habitat observed on **Hudson Rocks**. Marine life there included seal pups hauled out, bird habitats, cormorants and oyster catchers. The shell hash substrate off of **Five Finger Island** was noted to be situated too deep for eelgrass growth.

Mudge Island also has a potential eelgrass restoration site on its southeastern shore. Kelps are mixed with sandy/muddy/shell substrate. Most of the backshores are naturally vegetated, with exceptions near residential developments where mooring buoys are situated within eelgrass

beds (4 observed). The eelgrass habitat observed on Mudge was a mix of patchy/ continuous and flat / fringing beds on the eastern shores of the island. One bed in particular, located mid- island on the eastern side extended 100 metres shoreward beyond the waypoint, but the water depth was too shallow to delineate the bed.

Eelgrass on Link Island is characterized as flat continuous beds on its eastern shores. On the south shore of Link Island there are multiple docks (4) and mooring buoys (6).

Continuous fringing beds lie next to the northwest shores of Breakwater Island. Near Saturnina Island there are fringing continuous beds of eelgrass habitat on the western and northern shores.

Bath Island has a wide rock ramp in front of a windblown forest with a patchy bed with two larger patches surrounded by kelp and *Sargassum muticum* on its northwestern shore, while on its western shore there was a flat continuous bed.

Eelgrass habitat on Tugboat Island is characterized as narrow beds tucked between shore and wharf floats on the eastern side of the island and between the Tugboat Island and Sear Island to the south, which has flat continuous beds on its western shores. Continuous flat beds lie at the entrance to a marina on Vance Island. A rock/boulder shoreline with a, private dwelling with floating dock and several moorings are near flat continuous eelgrass habitat on Acorn Island.

9.3 Denman Island Local Trust Area

Denman Island and its associated islands were inventoried on several boat expeditions between August 20th and September 15th, 2013. In the Denman Island Local Trust Area 33.24% of the linear shore contains eelgrass. In some areas, especially in eastern subtidal areas, patchy eelgrass was observed amongst broad leaf kelps and *Sargassum muticum*, where the substrate is classified as low rock/boulder. A potential restoration site is located on the southwest area of the island near Metcalf Bay and is close to a site that could be used for harvesting transplants. The substrate south of this site gradually changes to cobble and gravel. Most of the beds surrounding the island are fringing, most likely due to coarser substrate changes at depth.

Eelgrass habitat is situated on the north eastern shores, classified by ShoreZone as sand/cobble and where numerous overwater structures are located and associated with industrial aquaculture activities. The eelgrass here was predominately patchy; most likely there are more patchy beds both shoreward and seaward of the mapped area. This area is the second most patchy eelgrass habitat observed, second only to areas in Howe Sound.

The majority of the backshore is not heavily impacted by development; most of the residences had either forested or grassy areas between them, with a minimum of landscaping. Abundant species of birds including black legged kittiwakes, surf scoters, marbled murrelets, grebes, harlequin ducks, surf scoters, herring gulls, and other marine wildlife species such as hooded nudibranchs, sand dollars, sand lance juveniles and abundant schooling fish were observed.

Sandy Island north of Denman Island contains continuous (99%) eelgrass habitats although the southern shores are ShoreZone classified as sand/cobble and the northern areas are classified as altered. Sand dollars were observed on both eastern and western sides of the island. **Seal Islets** were surrounded by fringing continuous (81%) eelgrass habitats. Associated with these beds were observed marbled murrelets and rafts of harlequin ducks and surf scoters, kittiwakes, gulls and seals. The backshore consisted of flat shrub, herbaceous and grassy slopes. . No eelgrass habitat was observed near **Chrome Island** due to unsuitable rocky substrates.

9.4 Hornby Island Local Trust Area

Eelgrass beds on Hornby Island were mapped over several days between August 21st and September 12th, 2013. The linear shoreline of the Hornby Island Local Trust Area is composed 31.70 % of eelgrass habitat. Large areas on both the western and northeastern shores of Hornby have continuous (90%) flat beds, although the classification by ShoreZone of these shorelines is low rock/boulder. The small areas of eelgrass found in these otherwise rocky cobble areas are valuable as critical habitat and corridors for marine life.

Most of the backshore is naturalized, even where residential houses are situated. Suitable substrate for spawning sites for forage fish was identified on the north eastern shores. Three potential restoration sites were also noted; one near this area for potential forage fish spawning, the second within a sandy embayment on the eastern shore (if boat anchoring pressures were decreased), and the third near the Hornby Island ferry terminal on the western side of the island (eelgrass was noted just north of the terminal growing in pebbles). There is also an opportunity for a community clean-up of underwater debris near a breakwater and marina on the southern end of the island. On **Toby Island** dozens of seals were hauled out.

9.5 Ballenas – Winchelsea (Executive Islands) Local Trust Area

The islands within the Ballenas – Winchelsea Local Trust Area were surveyed for eelgrass habitat between November 21st and 23rd, 2013. The total linear shoreline coverage of the Local Trust Area is 1.4%.

Mistaken Island west of Parksville has two eelgrass sites, one fringing patchy bed and the second within a cove with a dock, both on the southwestern shore. A flat continuous bed lies between the channel separating the **Ballenas Islands**. A continuous bed also lives on the north shore of the south island, punctuated with rock substrate. A school of forage fish, possibly sand lance was observed at the time of the survey in the shallow subtidal zone.

A small flat continuous bed on the west facing shores of the **Ada Islands** also may serve as suitable habitat for forage fish, prey for ancient murrelets, of which one was cited by field staff (unconfirmed). A second eelgrass bed is situated on the western shore of the west Ada Islands. The substrate at this location is primarily sandy with a secondary substrate of bedrock with associated intermixing rockweed and detritus. A seal haul out with 61 seals was noted near this site.

A small flat continuous eelgrass bed is located on the northeastern side of **Southey Island**. No eelgrass habitats were observed on **Gerald, Yeo, Amelia, Ruth** or **Winchelsea Islands**.

9.6 Bowen Island Municipality

Bowen Island was surveyed between Aug 6th -11th and Oct 4th, 5th and 12th, 2013 using the polygon mapping methodology. The island is characterized by a mix of sandy bays and steep shorelines. Large homes are common, with docks constructed both in the bays and on the steep cliffs. Bays, which are areas in which eelgrass is expected to grow, were also the location of waterfront homes and associated docks (both land-based and floating), moorings and anchored boats.

Eelgrass was estimated to extend along 11.6% of the shoreline of Bowen Island. The area of mapped eelgrass polygons was observed to total 41,917 m² and the length of mapped line features was observed to total 958 meters. Percent cover was low, however, and in addition to continuous beds, 84 individual patches of eelgrass were recorded and noted on the map as points. Eelgrass was observed within bays and straight sections of coastline on the southwest, northwest, northeast tip, east (Mannion Bay and north) and southeast coasts.

Around much of the island eelgrass was characterized by frequent individual patches, with each patch often consisting of very few shoots. Patches on the west coast were observed in areas that, from the shoreline or ShoreZone analyses, would not have been predicted, as the plants occurred seemingly opportunistically in patches of soft substrate located amid boulders and other coarser substrate. Percent cover even in continuous beds was consistently far less than 25% and noticeably sparser than other islands within the Islands Trust areas also surveyed during the 2013 mapping season.

Docks in areas such as in **Tunstall Bay** were located in depths suitable for eelgrass growth. Distances between some points on the polygon mapped in Tunstall Bay are longer than 20 meters as the eelgrass field surveyors needed to navigate around swimmers, docks and moored boats. Large clusters of sunflower stars (*Pycnopodia helianthoides*) were observed in the bay on sandy bottoms that did not contain eelgrass. Docks and moorings were also located in eelgrass depth elsewhere on the west coast of Bowen Island (e.g. the relatively straight shoreline north of Bowen Bay, King Edward Bay, the shoreline north of King Edward Bay and Galbraith Bay).

In some sites such as **Galbraith Bay** and **Columbine Bay**, eelgrass was only observed on one side of the bay despite suitable sandy substrate on the other side. For example, the substrate on the north side of Galbraith Bay was bare sand. There were several moorings in that bay. Eelgrass in Columbine Bay was sparse and appeared unhealthy; individual clumps were surrounded by bare sand. One hypothesis for this is that eelgrass may be impacted by boat wakes in the area. Boats were moored throughout eelgrass depth in **Cates Bay**.

Multiple beds of continuous eelgrass were identified throughout **Mannion Bay** between zero and more than 5 meter depth relative to chart datum. These beds, however, were not as dense as would be predicted given the soft substrate and sheltered environment. In the northeast side of the bay bare sandy fringing beds are interrupted by the construction of docks.

Mannion Bay is heavily used for boat anchoring, mooring and docking within depths suitable for eelgrass growth. The construction of docks and floats and their associated chains are impediments for eelgrass productivity in this area. Multiple adjacent docks have been constructed within eelgrass depth. Ropes and chains from docks, moorings or anchors had dragged on the sea floor, apparent due to the patterns they had created in the sand. The motion of the chains due to waves and currents can damage or uproot eelgrass.

Eelgrass otherwise appeared healthy in Mannion Bay and there are opportunities to restore lost eelgrass habitat if boat anchoring were restricted to a defined area outside of the depth range for eelgrass growth, i.e. if they were limited to 6 m depth or deeper. Schools of fish were observed within the existing sparse eelgrass; therefore, restoring the eelgrass in the area would serve to enhance fish habitat. Although it was not included in the project deliverables, the research team had been requested to look for evidence of litter on the sea floor in this bay; however, only a few cans and the possible remnants of a shopping cart were observed. Some of the moorings and anchored boats appeared derelict. Many crabs were observed on the south side of the bay, but were not identified to species.

No eelgrass was observed in **Snug Cove** including the head of the cove, near Crippen Park beach. Possible reasons include dredging, ferry wakes, eutrophication and boat traffic associated with the marina, and pollution of the substrate due to chipped wood debris. No flora was observed on the sea floor except for encrusting algae. There are restoration opportunities for the nearshore environment by Crippen Park beach if the historical and present impacts from the marina and former log booming site are addressed.

The inner portion of the eastern cove of **Konishi Bay** on the south coast of the island appeared suitable for eelgrass due to the sandy substrate and sheltered cove with a sandy beach. The substrate was bare sand, however. Eelgrass was observed in deeper locations of that bay. Removal of native plants and retaining wall constructions were noted around residences. In another eelgrass location in the southern portion of Seymour Bay/Seymour Landing where an adjacent coastal lot was for sale, coastal vegetation had been cleared and there is already evidence of slope failure both at the top and foot of the slope, despite installation of riprap. Water flow had also been channeled in the area, which could intensify water and sediment flow into the nearshore environment. Slope failure is a possible threat to eelgrass through smothering by eroding sediments. Shoreline hardening also increases wave energy and wave deflection, which can scour shorelines (Lamont 2013).

The area around **Cape Roger Curtis** has been of concern to local residents due to the construction of large docks and potential for damage to submerged habitats. Eelgrass was not observed around the exposed cape, as the observed substrate was steep and rocky. Kelp was observed in the area, however. Chains from the new construction were observed on the ocean floor. Kelp beds are a major feature along the rocky parts of the Bowen Island shoreline. Several schools of small or juvenile fish were also observed around the island.

10.0 Threats to Eelgrass Habitats

The impacts from human activities have been described previously (Section 4.0). Other field observations are described below.

There seems to be an increase in the abundance and distribution range of the invasive seaweed, *Sargassum muticum* within the Islands Trust Area, although there is at present no research to substantiate this. Although the plant settles and grows on cobble, surrounding eelgrass in sandy/muddy sediment can be shaded out by its overarching canopy. The presence of *Zostera japonica* was noted on Lasqueti and Thetis Islands and other areas within the Islands Trust. This non-native species of eelgrass is not known to compete with *Z. marina*, though it can be found mixed with the native eelgrass in the lower reaches of the intertidal zone.

Though there is some disagreement about the causes of epiphytic algae growth on eelgrass blades, it was noted within Telegraph Harbour on Thetis Island and Montague Harbour on Galiano Island. This could be an indication of excessive nutrients, causing an abundance of algae growth on the blades and blocking light, nutrients and gas exchange (Mumford 2007).

Canada geese are infamous for their grazing on eelgrass shoots. They were noted in large numbers on Lasqueti, Gabriola, and North Pender and South Pender Islands. Overgrazing of shallow eelgrass beds might be a growing concern as the birds are increasing in range and numbers.

As winter storms intensify, there might be an increase in burial of eelgrass shoots by sand over wash. Monitoring eelgrass habitats over time in selected locations vulnerable to storm events might shed light on the effects of climate changes upon the nearshore environment.

Eelgrass Restoration

11.0 Opportunities for Eelgrass Restoration

Thirteen areas in 2012 and nineteen in 2013 were identified as potential sites for eelgrass restoration as indicated in the legends on the maps produced by this project. When funding is available, these sites can be further investigated. The history of eelgrass transplants and their success in British Columbia to date is described below.

11.1 History of Eelgrass Restoration

In the Pacific Northwest, the history of success for *Zostera marina* transplanting projects was dismal prior to 1985. Initially transplant techniques were developed and successful on the Atlantic coast. However, these techniques were not well suited to the Pacific north coast environment and eelgrass. Many of the early transplants were conducted without a thorough understanding of eelgrass physiology and ecology; the donor stock was not always well suited to the area where they were transplanted, and the biophysical conditions of the transplant site were not always appropriate for the species (Durance 2001).

Since 1985, knowledge and experience from adaptive management practices have resulted in a higher success rate for focused mitigation and enhancement projects along the Pacific coast (Thom, Borde, Williams, Southard, Blanto and Woodruff 2001). Factors that led to a higher success rate include the correct selection of physical attributes for the restoration area, including elevation, substrate composition and light and current regime. The selection of the most suitable ecotype or genotype increased the likelihood for success and rate of production. The criteria for success included shoot density and area re-vegetated (Durance 2001).

11.2 Criteria for Successful Restoration

In British Columbia, the criterion for transplant success is based upon the mean shoot density being equal or greater than the area of adjacent natural beds and the area coverage. Projects are thus considered successful if the habitat that was created provided habitat equal in eelgrass productivity (shoot density) to that which it was designed to replace (Durance 2001).

Site selection with the appropriate biophysical characteristics (salinity, sediment type, current velocity, light/depth, temperature, and pH), using suitable plant donor stock (ecotype), using an appropriate transplanting technique and handling the donor plants with care are necessary for successful transplants. Several restoration transplants have occurred in Squamish, the Sunshine Coast, Campbell River, Cowichan Bay and Saanich Inlet. Most of the locations have been impacted by historical log storage practices. The majority of these transplants are considered successful based on monitoring of shoot densities and area coverage post-transplant. They were completed under the supervision of a scientific advisor with community volunteer support and a Workers Compensation Board (WCB) certified team, with funds collected by environmental conservation groups.

12.0 Recommendations

Globally, eelgrass has been used as an indicator of water quality (Neckles 1994). Often, a bed will decrease or increase in width and length dependent on light availability. The lower depth distribution of eelgrass is related to overall water clarity. Water quality, including water clarity, is affected by land practices and water uses. If, for example, a large scale development occurs on shore near an eelgrass bed, the bed may decrease in size because the water quality in the nearshore is consistently compromised by the increased pollution load, known as non-point source pollution, frequently delivered by the storm water system. When the amount of light reaching the

plants is limited by shading from increased sediment or plankton blooms associated with increased nutrients from land, eelgrass meadows adapt to the poor light availability through dieback, decreases in density or width and migration to shallower depths.

The Islands Trust Area is home to more than 25,000 people and is located between the highly populated centres of Vancouver, Victoria and Nanaimo. However, only approximately 12.5 % of the marine environment has some type of protection. Most of this protection is in Rockfish Conservation Areas, with Provincial and Federal Marine Protected Areas accounting for only 1.53% (Islands Trust Fund Regional Conservation Plan 2011-2015). Sound decisions by local trustees and an educated public are necessary to protect the functions of the nearshore for all who benefit from their healthy ecology.

A set of recommendations is listed below to contribute to the conservation work of the Islands Trust and Islands Trust Fund.

12.1 Education

1. Educate boaters and coastal residents about the presence and importance of eelgrass beds.
2. Encourage shoreline landowners to replace light-impenetrable docks with materials that allow light penetration.
3. Encourage signage at boat ramps reminding boaters to avoid eelgrass beds in shallow water.
4. Build public awareness about the importance of reducing nutrient inputs in marine riparian areas; encourage protection and restoration of wetlands and the construction of retention ponds to filter land based pollutants; and encourage reduction in the use of fertilizers, pesticides and herbicides.
5. Develop a long term public outreach nearshore marine education strategy that includes new shoreline property owners.

12.2 Regulatory and Enforcement

1. Limit dock development, particularly in established and potential eelgrass areas (i.e. areas where substrate is suitable for eelgrass growth).
2. Encourage creation of “No anchoring/mooring” zones in suitable eelgrass areas (based on substrate, depth and observed presence of eelgrass); encourage movement of moorings to areas that are too deep for eelgrass.
3. Limit shoreline development; maintain a coastal riparian zone that will enable inland shift of eelgrass beds as sea levels rise.

4. Create and implement appropriate setbacks for built structures from the nearshore.
5. Limit or reduce overwater structures; increase shared community docks and wharves when possible.
6. Require removal of illegal shoreline modifications; require restoration or removal of aged derelict structures where possible.

12.3 Opportunities for collaboration with other agencies

1. Encourage and undertake as resources allow regularly scheduled monitoring of sensitive or vulnerable shorelines; make monitoring results readily accessible to all.
2. Where boat traffic must go through an eelgrass bed, encourage establishment of marked boat channels so that the least damage is done to the habitat.
3. Create protected marine zones and encourage planned siting for mooring buoys for recreational boats around eelgrass beds.
4. Promote management strategies to mitigate conflicting uses in eelgrass habitat, such as oyster and clam harvesting, boating and anchoring in meadows and near-shore development requiring dredging.
5. Promote restoration of natural hydrology when opportunities arise.
6. Promote restoration of eelgrass habitats where possible.

13.0 Conclusion

Changes from increased human population, more frequent and intense storms and changes in sea levels and pH of the oceans emphasize the need to monitor eelgrass habitat and protect it with sound science-based policies and regulations.

Eelgrass meadows function as natural marine sanctuaries, as indicators of nearshore ecological health, and as sequesters of atmospheric carbon. As well, these valuable habitats are important sources of nutrients for local and off-shore marine and nearshore systems. The conservation, protection, monitoring and restoration of native eelgrasses within the Islands Trust Area is and will continue to be a long term smart investment in the social, cultural and biological vitality of the islands.

References

- Beak Consultants. 1975. Biology oil impact literature review final report 1975. Baseline Study Program, North Puget Sound, Dept. of Ecology, Olympia Washington.
- Bostrom C., Bonsdorff E. 2000. Zoobenthic community establishment and habitat complexity – the importance of seagrass shoot density, morphology and physical disturbance for faunal recruitment. *Marine Ecology Progress Series* 205:123-138.
- British Columbia/Washington Marine Science Panel. 1994. The shared marine waters of British Columbia and Washington: A scientific assessment of current status and future trends in resource abundance and environmental quality in the Strait of Juan de Fuca, Strait of Georgia and Puget Sound of BC State of Washington. p 71.
- Campbell, Colin (2010). Blue Carbon Report. Sierra Club BC.p.1.
- Dowty, P.B. Reeves, H. Berry, S. Wyllie-Echeverria, T. Mumford, A. Sewell, P. and Wright R. 2005. Puget Sound submerged vegetation monitoring project: 2003-2004 monitoring report. Nearshore Habitat Program, Aquatic Resources Division, Washington State Department of Natural Resources, Olympia, Washington.
- Duarte, C.M. 2000. Marine biodiversity and ecosystem services; an elusive link. *Journal of Experimental Marine Biology and Ecology*. 250:117-131.
- Durance, C. 2001. A review and assessment of eelgrass transplant projects in British Columbia. Document prepared for Fisheries and Oceans, South Coast Area. 37.
- Durance, C. 2002. Methods for mapping and monitoring eelgrass habitats in British Columbia. Funded by the Canadian Wildlife Service, Environment Canada.
- Harper, J. 2011. Coastal habitat mapping program fact sheet. Coastal & Ocean Resources Inc.
- Harrison, P.G. and Dunn, M. 1999. The Fraser delta sea grass ecosystems: importance to migratory birds and changes in distribution. In: unpublished manuscript. p. 3-4.
- IPCC. 2007. Climate change 2007: synthesis report. An assessment of the Intergovernmental Panel on Climate Change. Adopted at IPCC Plenary XXVII, Valencia, Spain, 12-17 November 2007, 52pp.

IPCC. 2012. Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, UK, and New York, NY, USA, 582 pp.

Islands Trust Fund Regional Conservation Plan (2011-2015). Prepared for the Islands Trust Fund Board, November, 2010 and endorsed by Islands Trust Council December 8, 2010.

Lamont, G. SNC Lavalin. 2013. Presentation to Conference on Science and Stewardship – Addressing Rising Sea Level Impacts on Coastal Communities, Brackendale, BC, 30 November 2013.

Levings, Colin; Jamieson, Glen. 1995. Marine and estuarine riparian habitats and their role in coastal ecosystems. Pacific Region. Canadian Science Advisory Secretariat.).

Levings, C.D. and Thom, R.M. 1994. Habitat changes in Georgia basin: implications for resource management and restoration in: Proceedings of the BC/Washington Symposium on the Marine Environment. January 13th -14th, 1994. R.C.H. Wilson, R.J. Beamish, F. Aitkens, j. Bell, eds. Can. Tech. Rep. Fish. Aqua. Sci. 1948: 330-349.

Lyngby, J.E. & Brix, H. 1989. Heavy metals in eelgrass (*Zostera marina*) during growth and decomposition. In: Hydrobiologist 176/177:189-196. Belgium.

MacArthur, R.H. and E.O. Wilson. 1967. The theory of island biogeography. Princeton University Press: Princeton, NJ.

McGlathery, K.J., J. Sundback, and I.C. Anderson. 2007. Eutrophication in shallow marine bays and lagoons; the role of plants in the coastal filter. Marine Ecology Progress Series 348:1-18.

Molnar, M., Kocian, M and Batker, D. Nearshore natural capital valuation. 2012. David Suzuki Foundation. p. 12.

Mumford, T.F. Jr. 2007. Kelp and eelgrass in Puget Sound. Prepared in support of the Puget Sound Nearshore Partnership. Washington Department of Natural Resources Aquatic Resources Division. Technical Report 2007-05.

Neckles, H.A. (ed.) 1994. Indicator development. Seagrass monitoring and research in the Gulf of Mexico. U.S.E.P.A.

Orth, R. J., T. J. B. Carruthers, W. C. Dennison, C. M. Duarte, J. W. Fourqurean, K. L.

Heck, A. R. Hughes, G. A. Kendrick, W. J. Kenworthy, S. Olyarnik, F. T. Short, M. 14 Waycott and S. L. Williams. 2006. A global crisis for seagrass ecosystems. *BioScience* 56:987-996.

- Orth, R. J, Heck, Jr. K. L, and Monterans J. van. 1984. Faunal communities in sea grass beds: A review of the influence of plant structure and prey characteristics on predator-prey relationships. *Estuaries* 7:339-350.
- Phillips, R.C. 1984. The ecology of eelgrass meadows in the Pacific northwest: A community profile. SCH. Nat. and Mathematical Sciences, Seattle Pacific University. Fish and Wildlife Service, U.S. Dept. of the Interior.
- Short, F.T., and Wyllie-Echeverria, S. 1996. Natural and human induced disturbance of seagrasses. *Environmental Conservation* 23.
- Short, F., Carruthers T., Dennison W., Waycott M. 2007. Global seagrass distribution and diversity: A bioregional model CA Department of Natural Resources, University of New Hampshire, Jackson Estuarine Laboratory, Durham, NH 03824, USA
- Thom, R., Borde, A.B., Williams, G.D., Southard, J.A., Blanto, S.L. & Woodruff, D.L. 2001. Effects of multiple stressors on eelgrass restoration projects: Proceedings of Puget Sound/Georgia Strait Conference. p.5.
- Thom, R., Diefenderfer, M., Vavrinec, J., Borde, A. 2011. Restoring resiliency: Case studies for Pacific Northwest estuarine eelgrass (*Zostera marina* L.) ecosystems.
- Thompson, R.E. 1994. Physical oceanography of the Strait of Georgia-Puget Sound-Juan de Fuca system. Symposium on the Marine Environment, Institute of Ocean Sciences, Sidney, B.C. p.36.
- Titus, J.G. and E.M. Strange. (eds.), 2008. Background Documents Supporting Climate Change Science Program Synthesis and Assessment. Product 4.1: Coastal Elevations and Sensitivity to Sea Level Rise, EPA 430R07004. U.S. EPA, Washington, DC.
- Van der Slagt, G., Harlow, G., and Verge, M. (Coordinators) 2003. Coastal shore stewardship: A guide for planners, builders and developers on Canada's pacific coast. The Stewardship Series. Stewardship Centre for BC. www.stewardshipcentre.bc.ca
- Waycott, M., C. M. Duarte, T. J. B. Carruthers, R. J. Orth, W. C. Dennison, S. Olyarnik, A. Calladine, J. W. Fourqurean, K. L. Heck, A. R. Hughes, G. A. Kendrick, W. J. Kenworthy, F. T. Short, and S. L. Williams. 2009. Accelerating loss of seagrasses across the globe threatens coastal ecosystems. *Proceedings of the National Academy of Science* 106:19761- 19764.
- Waycott and S. L. Williams. 2006. A global crisis for seagrass ecosystems. *BioScience* 56:987-996.
- Wilson, E.O., and E.O. Willis. 1975. Applied biogeography in M.L. Cody and J.M. Diamond, editors. *Ecology and evolution of communities*. Harvard University Press, Cambridge, Massachusetts.

Appendix A

Mapping Methodology

2012 - 2013

2012 Methodology for *Zostera marina* Presence and Absence Mapping With a Towed Underwater Camera

The following methodology for eelgrass mapping (*Zostera marina*) was used to determine the location (presence/absence) of eelgrass habitats for Thetis, North and South Pender, Mayne, Lasqueti and Gambier Islands in 2012 under contract with the Islands Trust Fund.

The methodology reported here is an addendum to “Methods for Mapping and Monitoring Eelgrass Habitat in British Columbia” (“Methods”) authored by Precision Identification Biological Consultants and peer reviewed by experts in the field. This addendum was created by the Seagrass Conservation Working Group with input and review by Precision Identification.

The purpose of presence and absence mapping methodology is to determine the linear extent of eelgrass along the coastline. This is achieved by deploying an underwater camera that is towed by a boat and recording the geographic location of eelgrass beds using a hand held GPS. The resulting representation of eelgrass beds are lines.

General habitat characteristics outlined in Methods are also recorded: Form (flat/fringing), Distribution (continuous/patchy), Percent Cover (<25%, 26-75%, >75%), and Substrate type (sand/mud/pebble/cobble/boulder). The state of the tide was recorded as “slack” or “running” in order to indicate the level of confidence in the percent cover estimate. A slack tide yields a higher level of confidence than a running tide, which causes the eelgrass lay across the ocean floor.

Eelgrass ShoreZone bioband mapping and marine charts were used to determine potential locations of eelgrass beds. The majority of the eelgrass beds in the Southern Salish Sea include habitat between 1 and 3 m chart datum. This depth contour was followed and eelgrass presence within this depth range was recorded. If eelgrass was not found in this depth range where bathymetry and substrate characteristics were suitable for eelgrass growth, a perpendicular transect was followed ranging from +1m to -6m which is the typical range of eelgrass in the Salish Sea.

GPS waypoints and the following parameters were recorded at roughly 10m intervals: depth, eelgrass presence, form, distribution, substrate, percent cover, tide state, presence of broad or tuft algae, visibility.

Where marine charts indicated suitable conditions (a shallow bathymetric relief) for eelgrass but eelgrass was not present, waypoints and substrate type were recorded at 20m intervals. Where marine charts indicated unsuitable conditions for eelgrass (steep bathymetric relief), only waypoints were recorded to indicate mapping coverage.

2013 Methodology for *Zostera marina* Presence Mapping with a Towed Underwater Camera

For the 2013 contract, the following methodology for eelgrass mapping (*Zostera marina*) was used to determine the location (presence) of eelgrass habitats for the Gabriola Island Local Trust Area, the Galiano Island Local Trust Area, Valdes Island, Ballenas – Winchelsea (Executive Islands) Local Trust Area, Cufra Inlet (Thetis Island) and the Gambier Associated Islands found within Howe Sound (excluding the Thormanbys and other islands off of the Sunshine Coast).

The methodology reported here is an addendum to “Methods for Mapping and Monitoring Eelgrass Habitat in British Columbia” (“Methods”) authored by Precision Identification Biological Consultants and peer reviewed by experts in the field. This addendum was created by the Seagrass Conservation Working Group with input and review by Precision Identification. For 2013 mapping Islands Trust Global Positioning System Specifications (Schedule G to the Islands Trust contract) were adopted except for Cufra Inlet on Thetis Island where a hand held GPS was used to be consistent with 2012 mapping. Average accuracy was 0.814m and was the combined result of the built-in accuracy of the GPS unit, lag time between sighting eelgrass and the unit gathering enough satellite data to create a waypoint, in combination with boat drift.

Linear Mapping

With the exception of the islands in Metro Vancouver, the Islands Trust eelgrass mapping was done using a linear method to determine presence of eelgrass along the shoreline. This linear eelgrass mapping is achieved by towing an underwater camera using a boat, except for the mapping done in Cufra Inlet in 2013, where the water was shallow enough to observe eelgrass from kayaks, and by concurrently recording the geographic location of eelgrass beds using a GPS. The resulting representations of eelgrass beds are lines and points (where the eelgrass patch was less than 3m in length).

Polygon Mapping

With financial assistance from Metro Vancouver, eelgrass beds on Bowen, Bowyer and Passage Islands were mapped using polygons to show their full extent. In addition to the linear mapping described above, underwater camera transects were conducted perpendicular to shore to map shoreward and seaward edges. In some areas, fringing eelgrass and eelgrass patches were too small to map as polygons. In these locations lines and points were used respectively to show eelgrass presence. Fringing eelgrass bands $\leq 5\text{m}$ wide were mapped as lines and patches less than 10m^2 were mapped as points. Mapping of polygons according to standard methodology was limited due to safe boat operation in wind, current and tidal movements, as well as navigation around boats and swimmers.

For all the islands, general habitat characteristics outlined in Methods are also recorded: Form (flat/fringing), Distribution (continuous/patchy), Percent Cover (<25%, 26-75%, >75%), and Substrate type (sand/mud/pebble/cobble). The state of the tide was recorded as “slack” or “running” in order to indicate the level of confidence in the percent cover estimate. A slack tide

yields a higher level of confidence than a running tide, which causes the eelgrass to lie across the ocean floor.

ShoreZone eelgrass bioband mapping and marine charts were used to determine potential locations of eelgrass beds. The majority of the eelgrass beds in the Southern Salish Sea are found between 1 and 3m chart datum. This depth contour was followed and eelgrass presence within this depth range was recorded. If eelgrass was not found in this depth range where bathymetry and substrate characteristics were suitable for eelgrass growth, a perpendicular transect was followed ranging from +1m to -6m which is the typical range of eelgrass in the Salish Sea.

GPS waypoints and the following parameters were recorded at roughly 10m intervals with intervals no longer than 20m: depth, eelgrass presence, form, distribution, substrate, percent cover, tide state, presence of broad or tuft algae, visibility.

The following section was removed from the methodology for 2013:

Where marine charts indicated suitable conditions (a shallow bathymetric relief) for eelgrass but eelgrass was not present, waypoints and substrate type were recorded at 20 metre intervals. Where marine charts indicated unsuitable conditions for eelgrass (steep bathymetric relief), only waypoints were recorded to indicate mapping coverage.

Appendix B

Maps of Shoreline Units

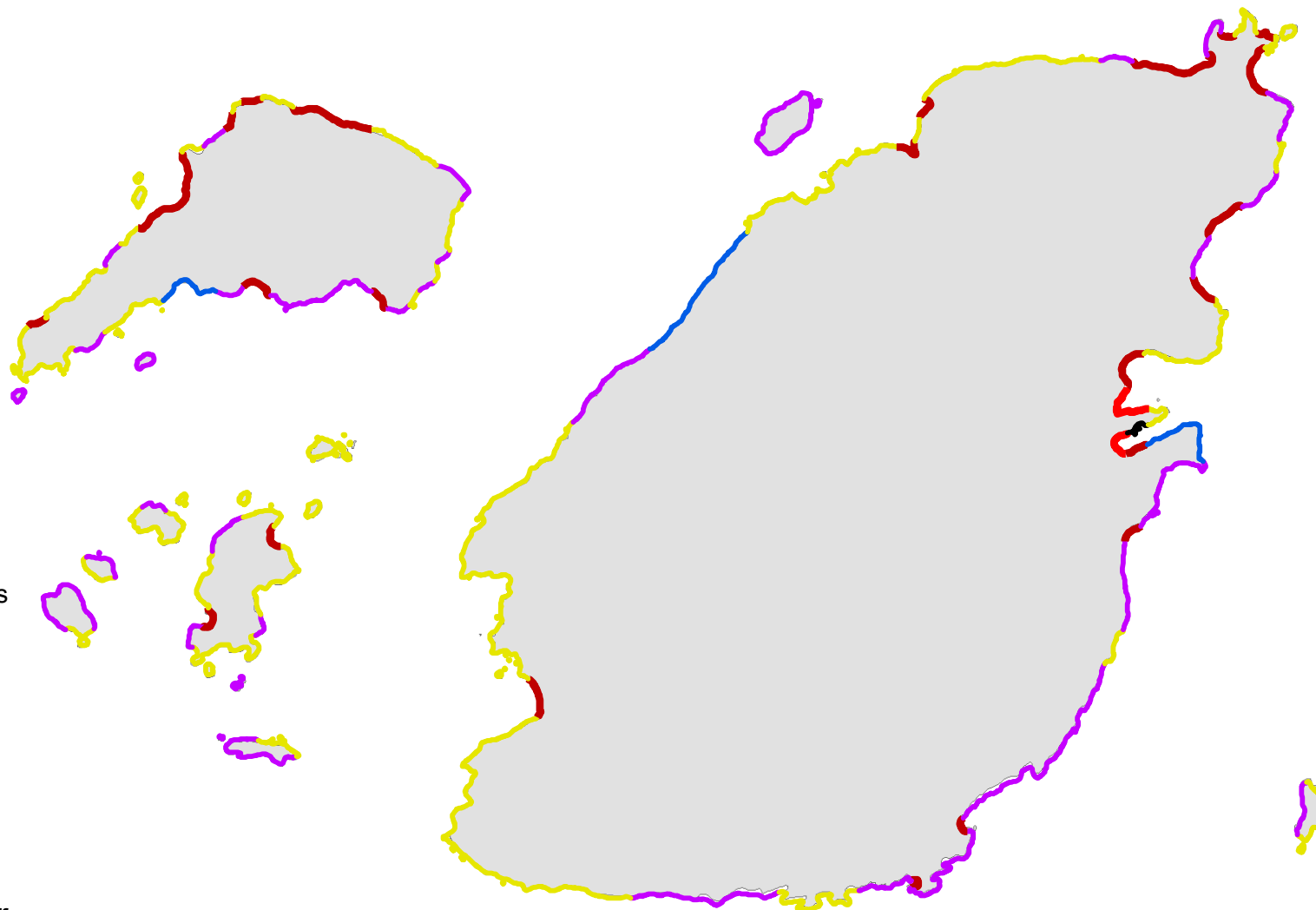
Shoreline Units & Zostera Bioband Units -- Bowen Island --

Produced By: Galiano Conservancy Association

Data Source: Provincial Shorezone Database

Map Date: June 2013

Projection: UTM Zone 10 NAD83



 Zostera Bioband Units

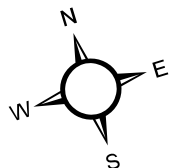
SHORELINE_UNITS

-  Estuary
-  Sand / Cobble
-  Low Rock / Boulder
-  Altered
-  Cliff
-  Coastal Banks or Bluffs

1:70,000

Shoreline Units & Zostera Bioband Units -- Denman Island --

Produced By: Galiano Conservancy Association
Data Source: Provincial Shorezone Database
Map Date: June 2013
Projection: UTM Zone 10 NAD83



 Zostera Bioband Units

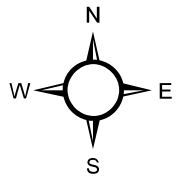
SHORELINE_UNITS

-  Estuary
-  Sand / Cobble
-  Low Rock / Boulder
-  Altered
-  Cliff
-  Coastal Banks or Bluffs

1:70,000

Shoreline Units & Zostera Bioband Units -- Executive Islands --

Produced By: Galiano Conservancy Association
Data Source: Provincial Shorezone Database
Map Date: June 2013
Projection: UTM Zone 10 NAD83



 Zostera Bioband Units

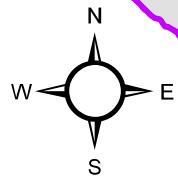
SHORELINE_UNITS

-  Estuary
-  Sand / Cobble
-  Low Rock / Boulder
-  Altered
-  Cliff
-  Coastal Banks or Bluffs

1:46,362

Shoreline Units & Zostera Bioband Units -- Gabriola Island --

Produced By: Galiano Conservancy Association
Data Source: Provincial Shorezone Database
Map Date: June 2012
Projection: UTM Zone 10 NAD83



 Zostera Bioband Units

SHORELINE_UNITS

-  Estuary
-  Sand / Cobble
-  Low Rock / Boulder
-  Altered
-  Cliff
-  Coastal Banks or Bluffs

1:57,500

191

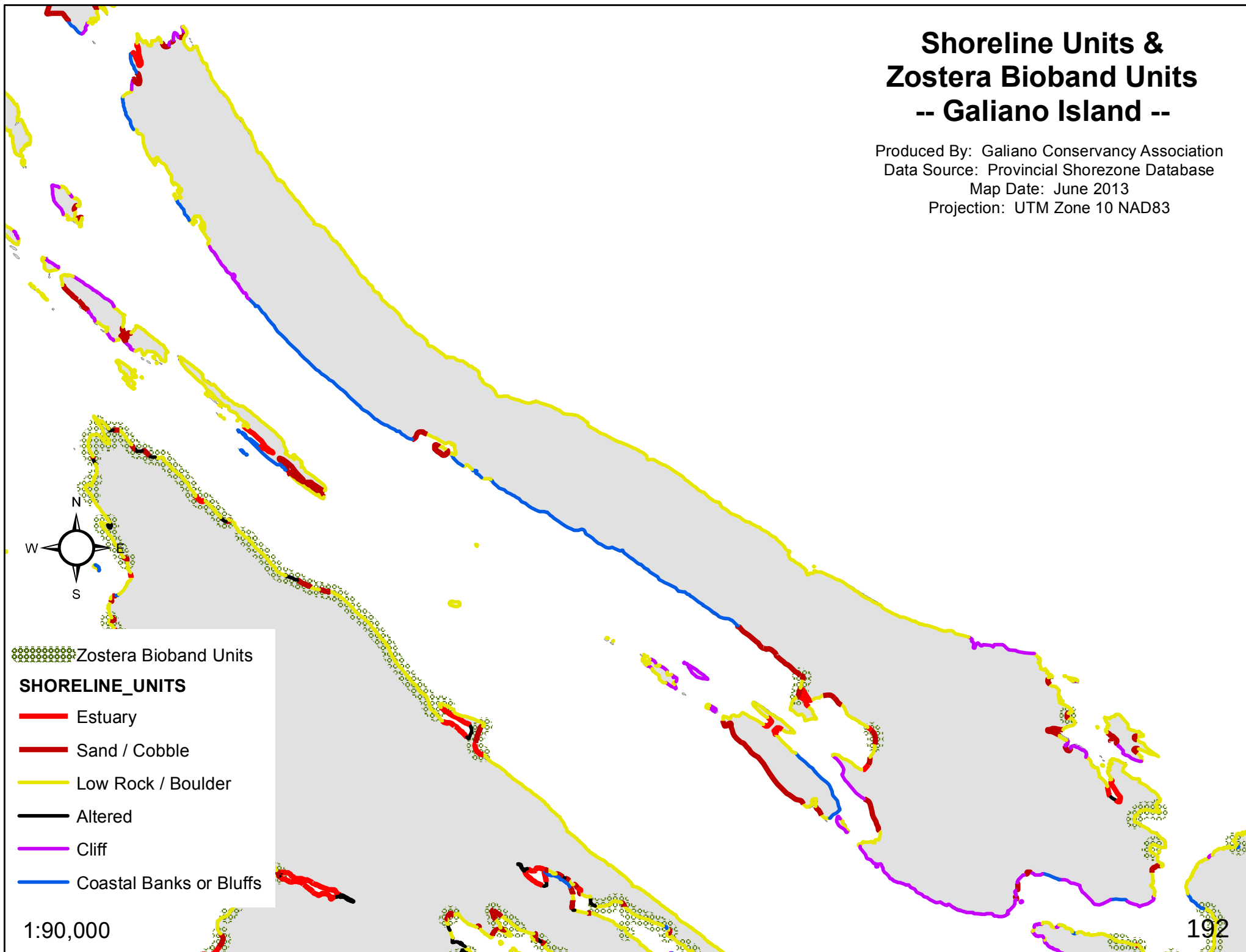
Shoreline Units & Zostera Bioband Units -- Galiano Island --

Produced By: Galiano Conservancy Association

Data Source: Provincial Shorezone Database

Map Date: June 2013

Projection: UTM Zone 10 NAD83



Shoreline Units

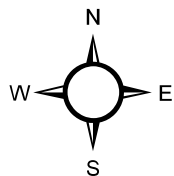
-- Gambier Island --

Produced By: Galiano Conservancy Association

Data Source: Provincial Shorezone Database

Map Date: June 2012

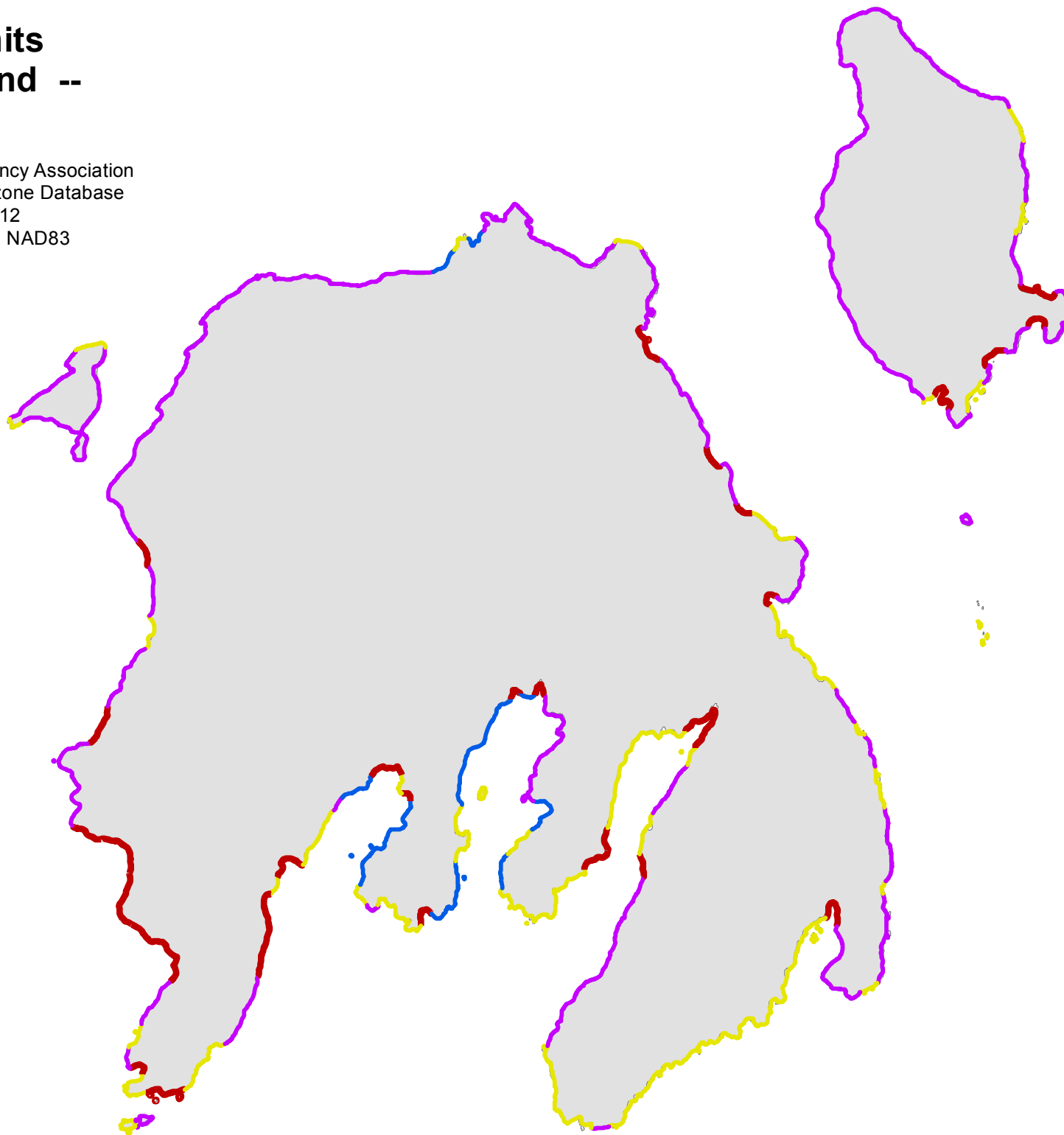
Projection: UTM Zone 10 NAD83



SHORELINE_UNITS

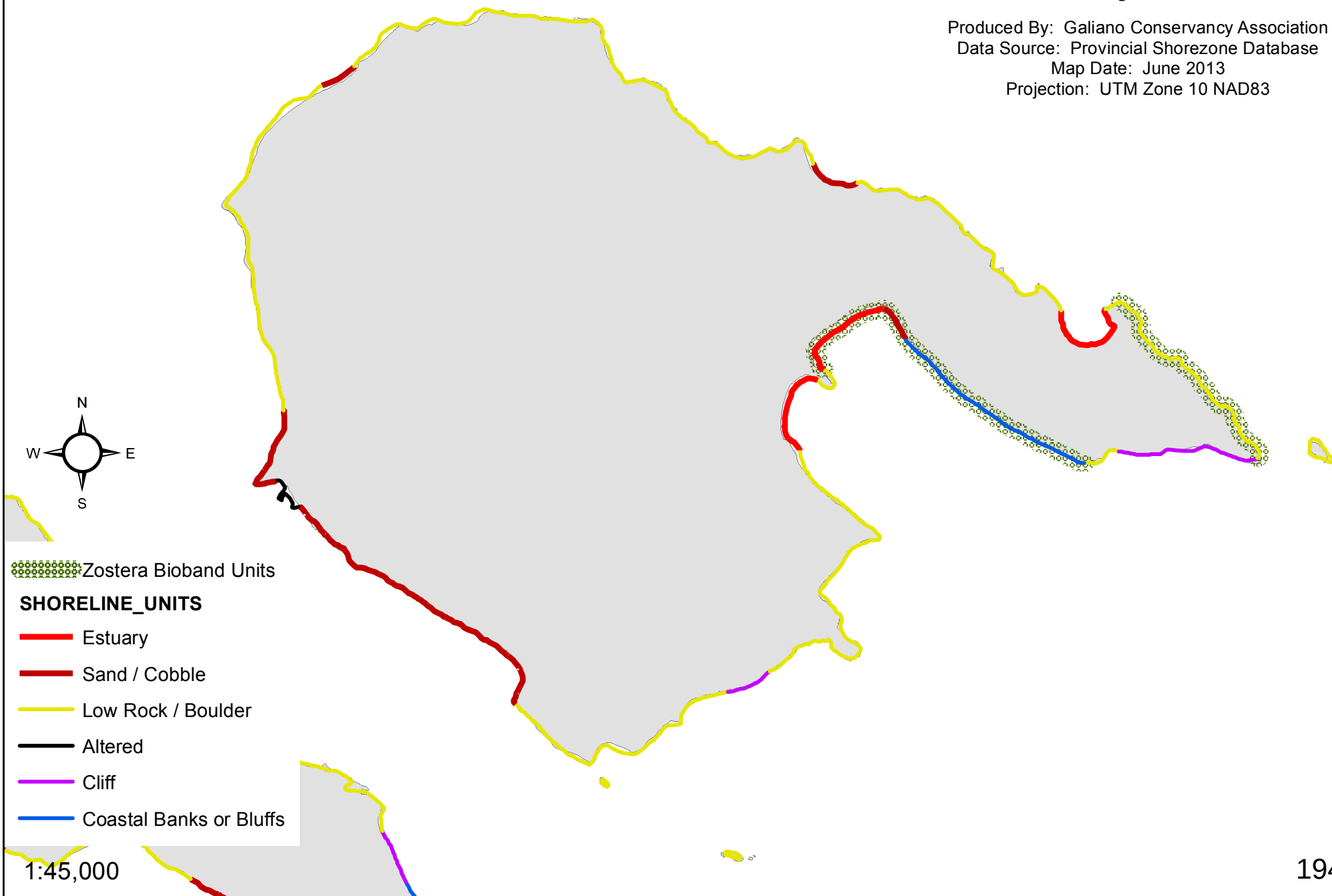
- Estuary
- Sand / Cobble
- Low Rock / Boulder
- Altered
- Cliff
- Coastal Banks or Bluffs

1:70,000



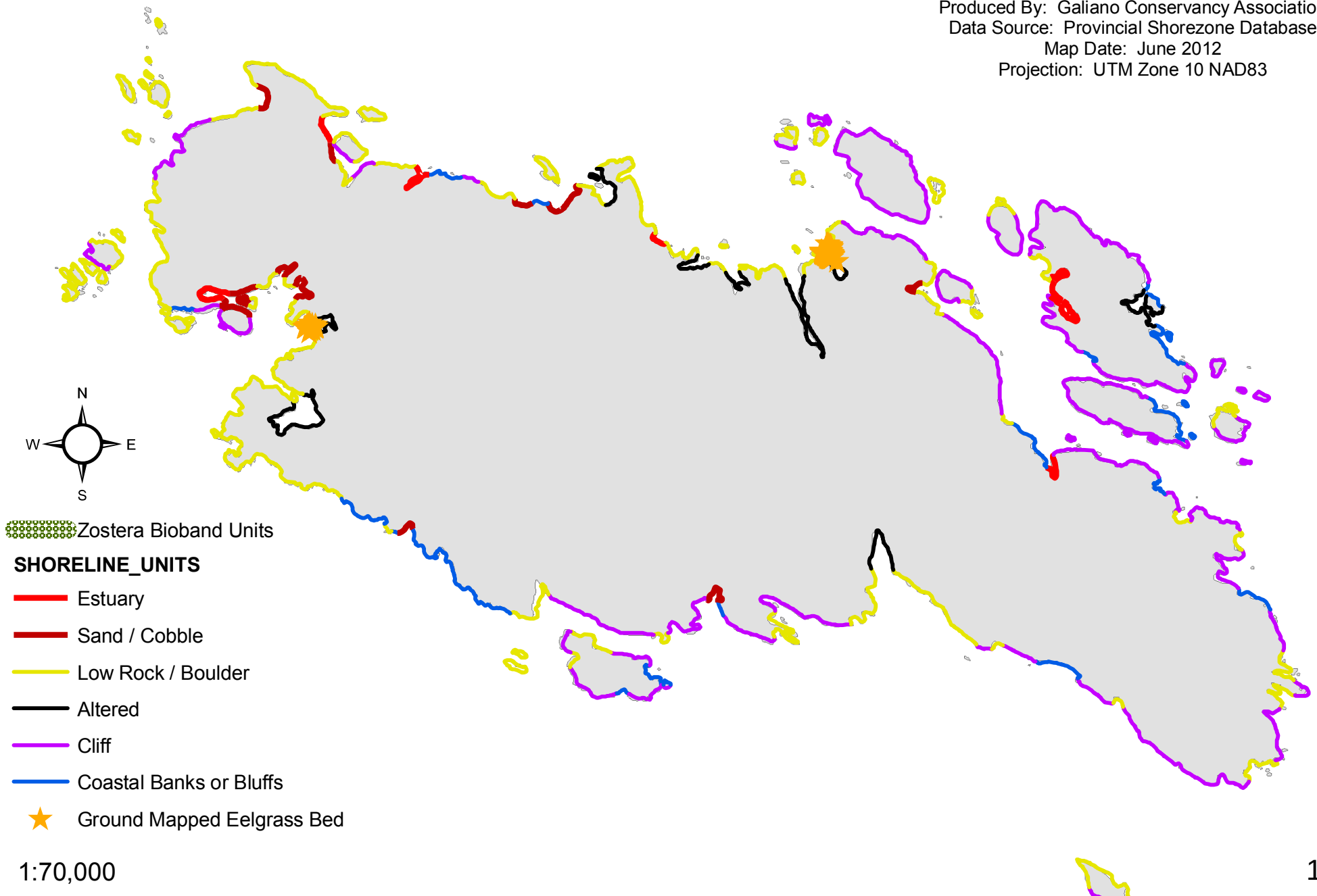
Shoreline Units & Zostera Bioband Units -- Hornby Island --

Produced By: Galiano Conservancy Association
Data Source: Provincial Shorezone Database
Map Date: June 2013
Projection: UTM Zone 10 NAD83



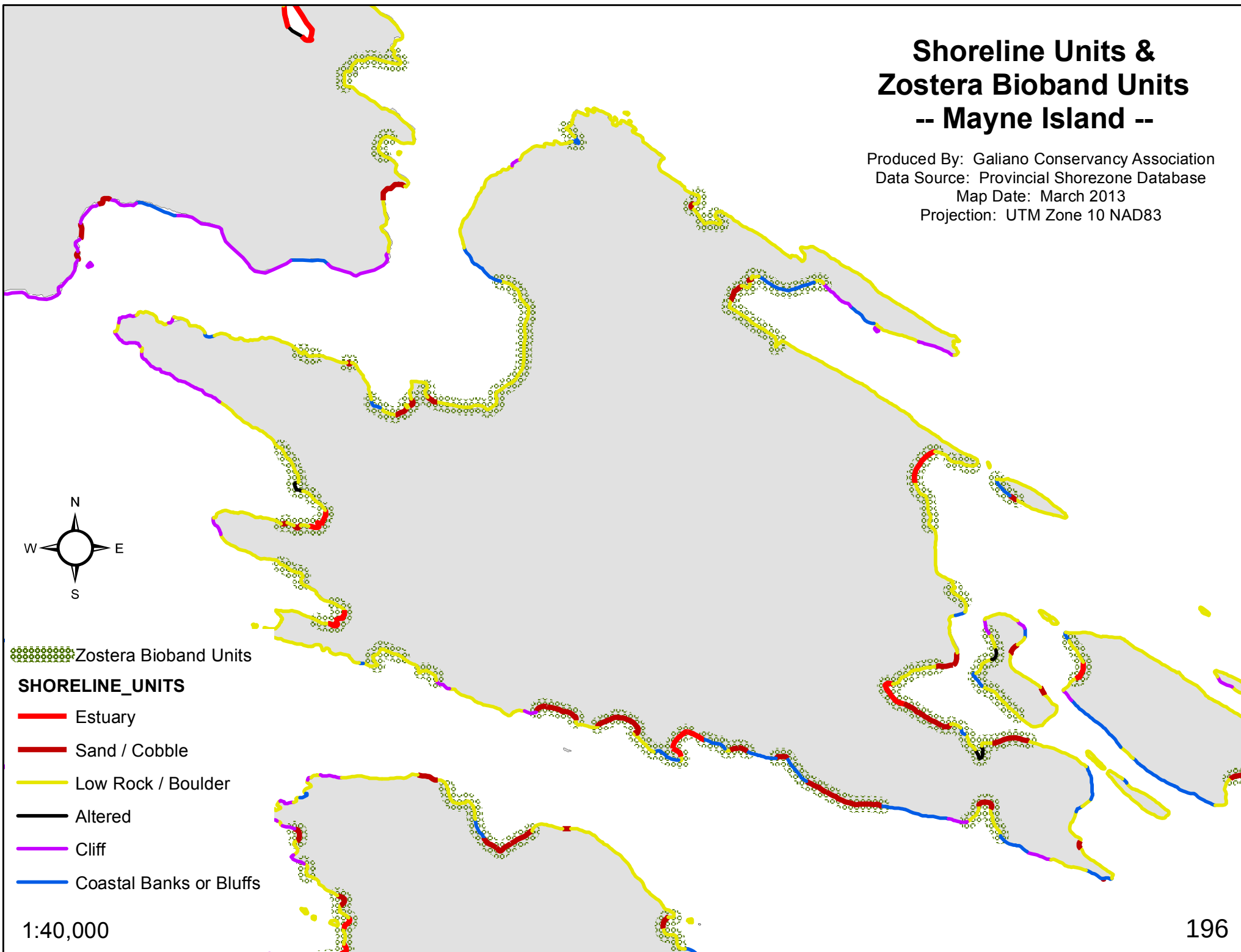
Shoreline Units & Zostera Bioband Units -- Lasqueti Island --

Produced By: Galiano Conservancy Association
Data Source: Provincial Shorezone Database
Map Date: June 2012
Projection: UTM Zone 10 NAD83



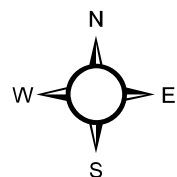
Shoreline Units & Zostera Bioband Units -- Mayne Island --

Produced By: Galiano Conservancy Association
Data Source: Provincial Shorezone Database
Map Date: March 2013
Projection: UTM Zone 10 NAD83



Shoreline Units & Zostera Bioband Units -- Pender Islands --

Produced By: Galiano Conservancy Association
Data Source: Provincial Shorezone Database
Map Date: June 2012
Projection: UTM Zone 10 NAD83



 Zostera Bioband Units

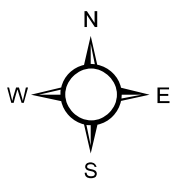
SHORELINE_UNITS

-  Estuary
-  Sand / Cobble
-  Low Rock / Boulder
-  Altered
-  Cliff
-  Coastal Banks or Bluffs

1:50,000

Shoreline Units & Zostera Bioband Units -- Thetis Island Trust Area --

Produced By: Galiano Conservancy Association
Data Source: Provincial Shorezone Database
Map Date: June 2012
Projection: UTM Zone 10 NAD83



 Zostera Bioband Units

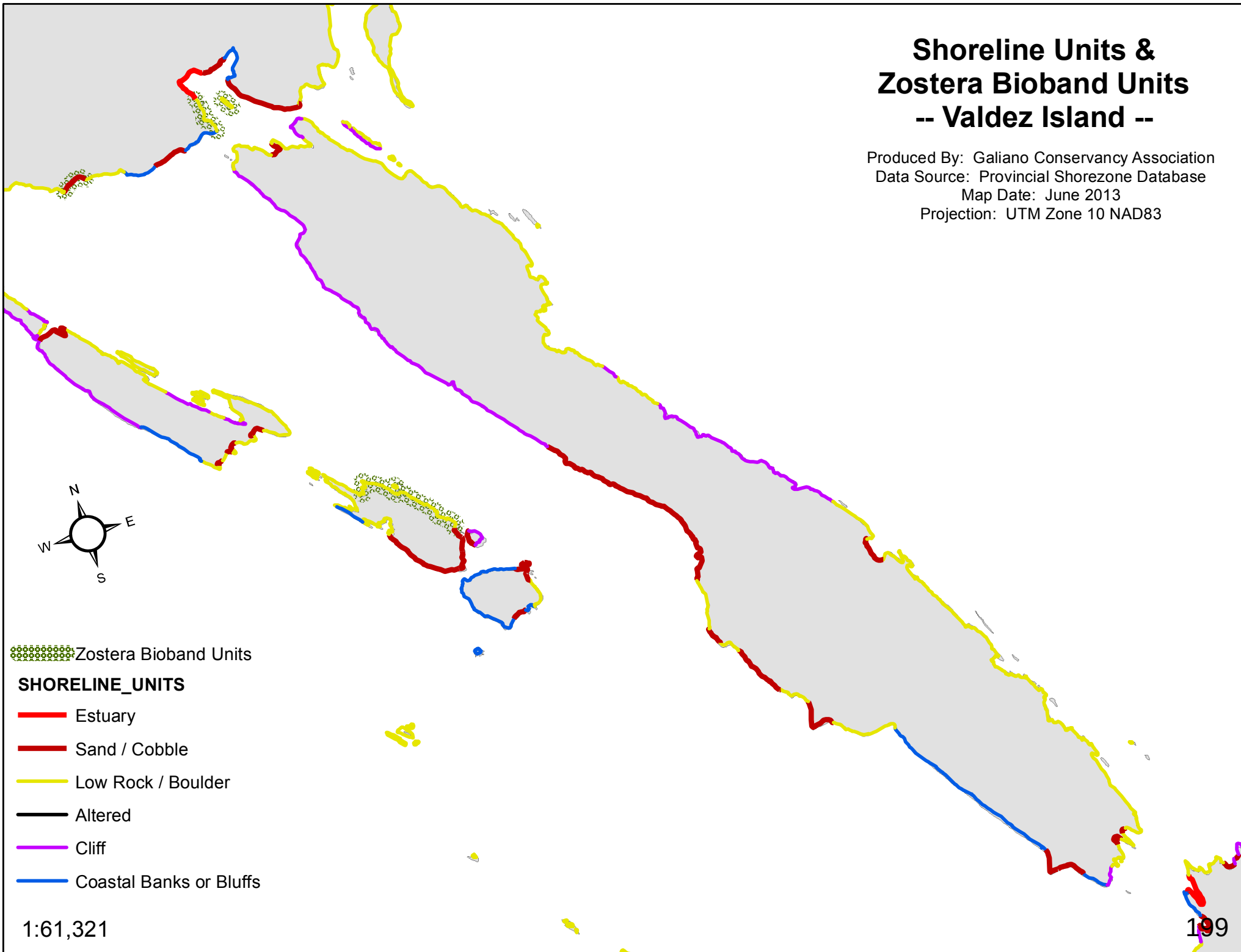
SHORELINE_UNITS

-  Estuary
-  Sand / Cobble
-  Low Rock / Boulder
-  Altered
-  Cliff
-  Coastal Banks or Bluffs

1:55,000

Shoreline Units & Zostera Bioband Units -- Valdez Island --

Produced By: Galiano Conservancy Association
Data Source: Provincial Shorezone Database
Map Date: June 2013
Projection: UTM Zone 10 NAD83



Appendix C

Summary of Overwater Structures

The Impacts of Overwater Structures on the Marine Nearshore Environment



The following information was taken from two sources. A Green Shores document summarizes possible effects of docks.¹ A White Paper published in 2001² for the Washington State Transportation Commission in Puget Sound is more detailed. The page numbers at the end of paragraphs indicate the page on which the information was found in the original document.

Information collated by Nikki Wright, Executive Director

SeaChange Marine Conservation Society

¹ Province of British Columbia. *Coastal Shore Stewardship: A Guide for Planners, Builders and Developers on Canada's Pacific Coast*. www.greenshores.ca

² Nightingale, B. & Simenstad, C.A. (2001) *Overwater Structures: Marine Issues White Paper Research Project T 1803, Task 35*. Prepared for Washington State Transportation Commission and in cooperation with U.S. Department of Transportation, Federal Highway Administration. 108 pages.

Summary of Possible Effects of Docks

Coastal Shore Stewardship: A Guide for Planners, Builders and Developers on Canada's Pacific Coast Province of British Columbia (Available on the Green Shores Web site: www.greenshores.ca)

What Can Happen (p. 65)

The installation of docks can affect the coastal biophysical environment in a variety of ways:

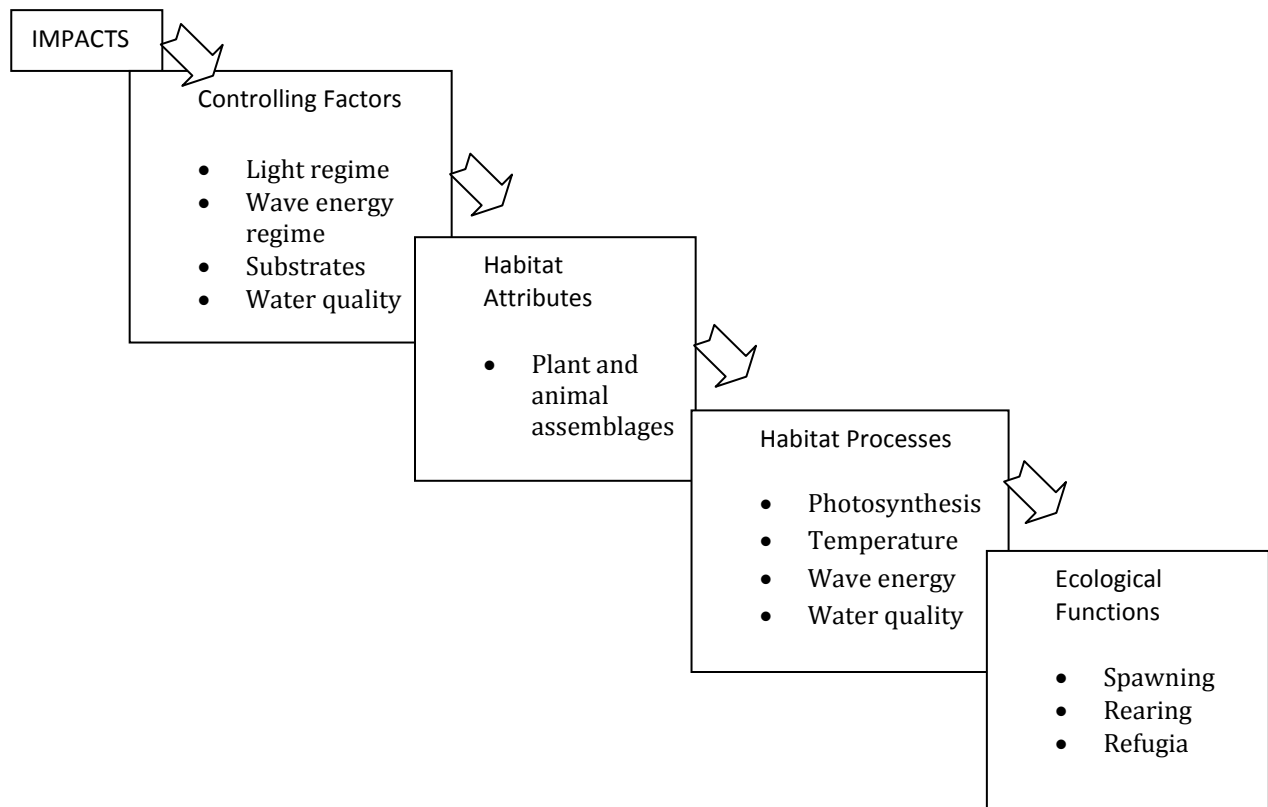
- Shading: Shading caused by the dock can affect the vigor of intertidal and subtidal plant communities, such as marsh plants, eelgrass and kelp beds. These impacts may be chronic (reduced productivity) or acute (wiping out plant communities, leaving the area barren).
 - Disruption of shore drift patterns: This can result in updrift beach formation and downdrift shoreline erosion.
 - Shore damage: Removal of shore plants and disturbance of soils where docks are attached to land can increase erosion and sedimentation of the intertidal and adjacent subtidal areas.
 - Bottom habitat: Installation of footings, pilings and other structures permanently alienates benthic habitat. Dredging to create sufficient depth next to the dock can also disrupt or destroy bottom habitat.
 - Operational pollution: poor refueling and dock maintenance practices, bilge releases and accidental spills from boats and docks can release contaminants into the nearby waters.
- (p. 65)

Overview of Ecological and Habitat Issues

From: Overwater Structures: Marine Issues White Paper Research Project T 1803, Task 35.

Estuarine and shallow marine nearshore habitats provide passage for fish and fish larvae, ocean water and human transportation, as well as areas for settlement of marine shellfish and other marine life. These sites are important sources of prey resource production, refugia, and spawning areas for Pacific salmon, groundfish, and forage fish, such as herring, sand lance and surf smelt. Overwater constructed structures can pose alterations to key factors that control prey production and spawning. Light, wave energy and substrate regimes determine the habitat characteristics that support these critical functions (p. 1).

Overwater structures are typically located in intertidal areas from above the area submerged by the mean higher high tides and out to 15 meters below the area exposed by the mean lower low tide. The primary physical processes controlling habitat attributes (i.e. plant and animal assemblages) and functions are depth (elevation) substrate type, wave energy, and light and water quality. These are the most important factors influencing the development and distribution of nearshore habitats (p. 33).



Conceptual model used by authors to define overwater structure impacts to nearshore habitat (p. 33).

Overwater structures and associated activities can impact the ecological functions of habitat through the alteration of habitat controlling factors (light regime, wave energy regime, and

substrate and water quality). These alterations can, in turn, interfere with habitat processes supporting the key ecological functions of spawning, rearing and refugia. Whether any of these impacts occur and to what degree they occur at any one site depend upon the nature of site-specific habitat controlling factors and the type, characteristic, and use patterns of a given overwater structure located at a specific site (p. 34).

In addition to impacts associated with overwater constructed structures, activities associated with docks can also pose risks to the quality and quantity of habitat through prop scour, groundings, contaminant introduction to the marine environment and structural interferences with shallow nearshore habitats with the placement of ramps and haul-outs in nearshore areas.

Habitat Impact Mechanisms (p. 34)

Habitat Controlling Factors	Overwater Structures & Activities	Habitat Impact Mechanisms	Habitat Impacts
Light Regime	• Docks • Floats • Pilings • Moored vessels	• Reduced light levels	• Limited plant growth & recruitment • Altered animal behavior and assemblages
Wave Energy Regime	• Floats • Breakwaters • Prop wash • Marina	• Altered wave patterns	• Altered plant and animal assemblages • Altered substrate type • Altered sediment transport & distribution
Substrate	• Prop & anchor scour • Pilings, breakwaters & floats	• Altered substrate characteristics	• Altered sediment transport & distribution • Altered substrate type • Altered plant & animal assemblages
Water Quality	• Discharges • Boat & upland run-off	• Increased exotics, toxics, nutrients and bacterial introductions	• Altered plant & animal assemblages • Limited growth & recruitment • Exotic species replacement of natives

Overwater Structure Effects on Light Regime

Effects on Underwater Vegetation

Without proper precautions, docks, piers, and pilings can cast shade upon the underwater water environment thereby limiting light availability for plant photosynthesis. Distributions of invertebrates, fishes, and plants have been found to be severely limited in under-dock environments when compared to adjacent vegetated habitat in the Pacific Northwest not shaded by overwater structures (p. 38).

Each dock defines a shade footprint specific to its structural specifications. Dock height, width, construction materials, and the dock's orientation to the arc of the sun are primary factors in determining the shade footprint that a given dock casts over the submerged substrates. Researchers found underwater light availability and eelgrass bed quality under docks to be primarily dependent upon dock height, followed in importance by dock width and dock orientation to the arc of the sun. Light is the most important variable affecting canopy structure (i.e. shoot density and height) and eelgrass bed quality. To the degree that a shade footprint limits plant photosynthesis, it decreases the extent and quality of habitat that support a wide variety of fish and shellfish populations. Construction of even partially shading types of structures, floating or on pilings, could be expected to largely eliminate existing eelgrass and other macroflora with little chance for replacement plant growth (p. 39).

Effects on Fish

Overwater structures can create sharp underwater light contrasts by casting shade in ambient daylight conditions. They can also produce sharp underwater light contrasts by casting artificial light in ambient nighttime conditions. Changes to ambient underwater light environments pose a risk of altering fish migration behavior and increasing mortality risks. Findings have demonstrated that fish responses to piers are ambiguous with some individuals passing under the dock, some pausing and going around the dock, schools breaking up upon encountering docks, and some pausing and eventually going under the dock (p. 43).

Light is considered to be the primary factor limiting the survival and distribution of eelgrass. Given the strong association of important fish prey resources with eelgrass, limitations in the extent of eelgrass pose a potential risk of reduced prey resources. Prey resource limitations likely impact migration patterns and the survival of many juvenile fish species. For smaller fish less than 50 mm in length, residence times along particular shorelines are thought to be a function of prey abundance. Research in the Hood Canal demonstrated that outmigrating juvenile chum fry (30-45 mm) feed extensively upon small, densely distributed harpacticoid copepods selecting for the largest copepods available. As the fish grew in size, their diet content became composed more of larger epibenthos and pelagic crustaceans. Consistent with other studies, the highest densities of harpacticoid copepods occurred in magnitudes 4-5 times higher in eelgrass stands than in sand

habitat without eelgrass. Similarly, the largest abundance of first post-larval stage crabs of 0+ age are found in eelgrass beds (p. 45).

Impacts on Wave Energy

Wave energy and water transport alterations imposed by docks, bulkheads, breakwaters, ramps and associated activities alter the size, distribution, and abundance of substrate and detrital materials required to maintain the nearshore detrital-based food web. Alteration of sediment transport patterns can present potential barriers to the natural processes that build spits and beaches and provide substrates required for plant propagation, fish and shellfish settlement and rearing, and forage fish spawning. Although the specific characteristics of the factors at play vary with the geology of each region or subsystem, changing the type and distribution of sediment will likely alter key plant and animal assemblages. Wave and current interactions in shallow water (i.e. depths <1.0m) are particularly important to intertidal flora and fauna (p. 48).

Dock pilings have also been found to alter adjacent substrates with increased shell hash deposition from piling communities and changes to substrate bathymetry. Similarly, dock uses and construction activities are known to limit underwater light and redistribute sediments through prop scouring, vessel shading, and pile driving. These changes in substrate type can change the nature of the flora and fauna native to a given site. In the case of pilings, native dominant communities typically associated with sand, gravel, mud, sand, and seagrass substrates are replaced by those communities associated with shell hash substrates (p. 49).

Cumulative Effects

Given the apparent increasing demand for overwater structures, structural design to allow maximum light transmission and to mitigate energy and substrate changes is required to protect the ecosystems marine fishes rely upon. Given what is known concerning overwater structure impacts in marine and estuarine ecosystems, we conclude that multiple placements of overwater structures in marine waters can pose substantive risks of significant changes to the immediate and surrounding marine and estuarine ecosystems. These risks require the assessment of existing cumulative light limitation effects and wave energy and substrate effects to the shoreline environment. These risks require assessment at the drift cell before considering the addition of new structures (p. 91).

MAP 12a: Eelgrass Presence Galiano Island Local Trust Area - South

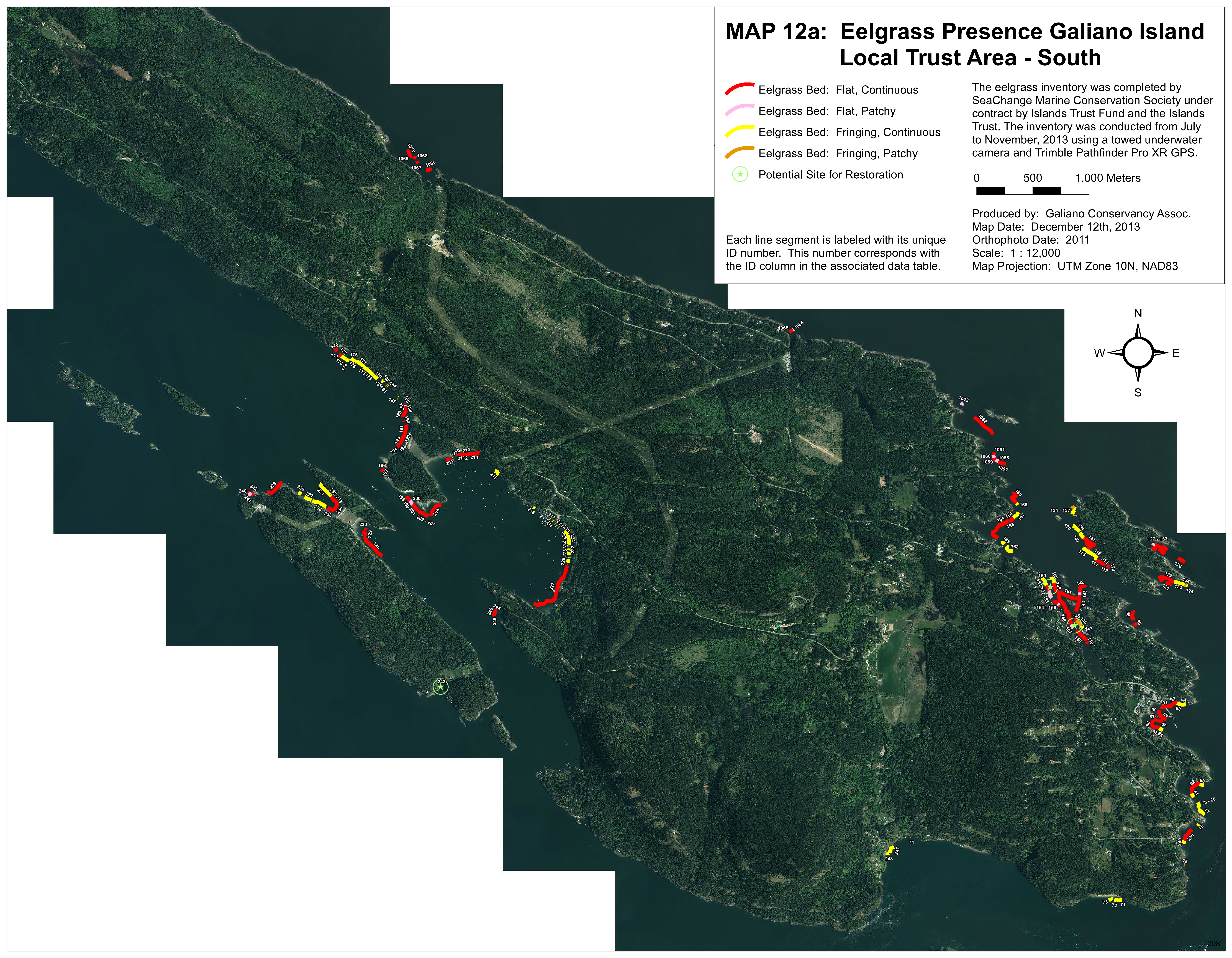
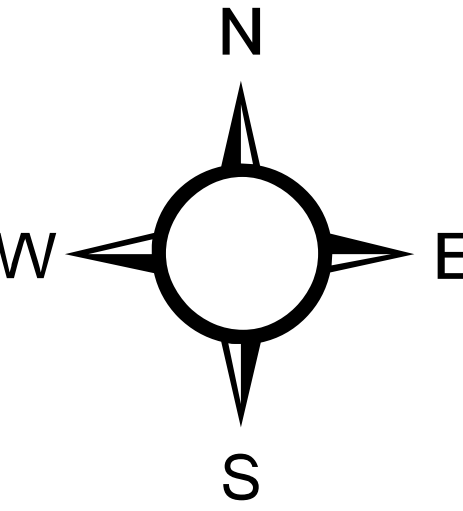
- Eelgrass Bed: Flat, Continuous
- Eelgrass Bed: Flat, Patchy
- Eelgrass Bed: Fringing, Continuous
- Eelgrass Bed: Fringing, Patchy
- Potential Site for Restoration

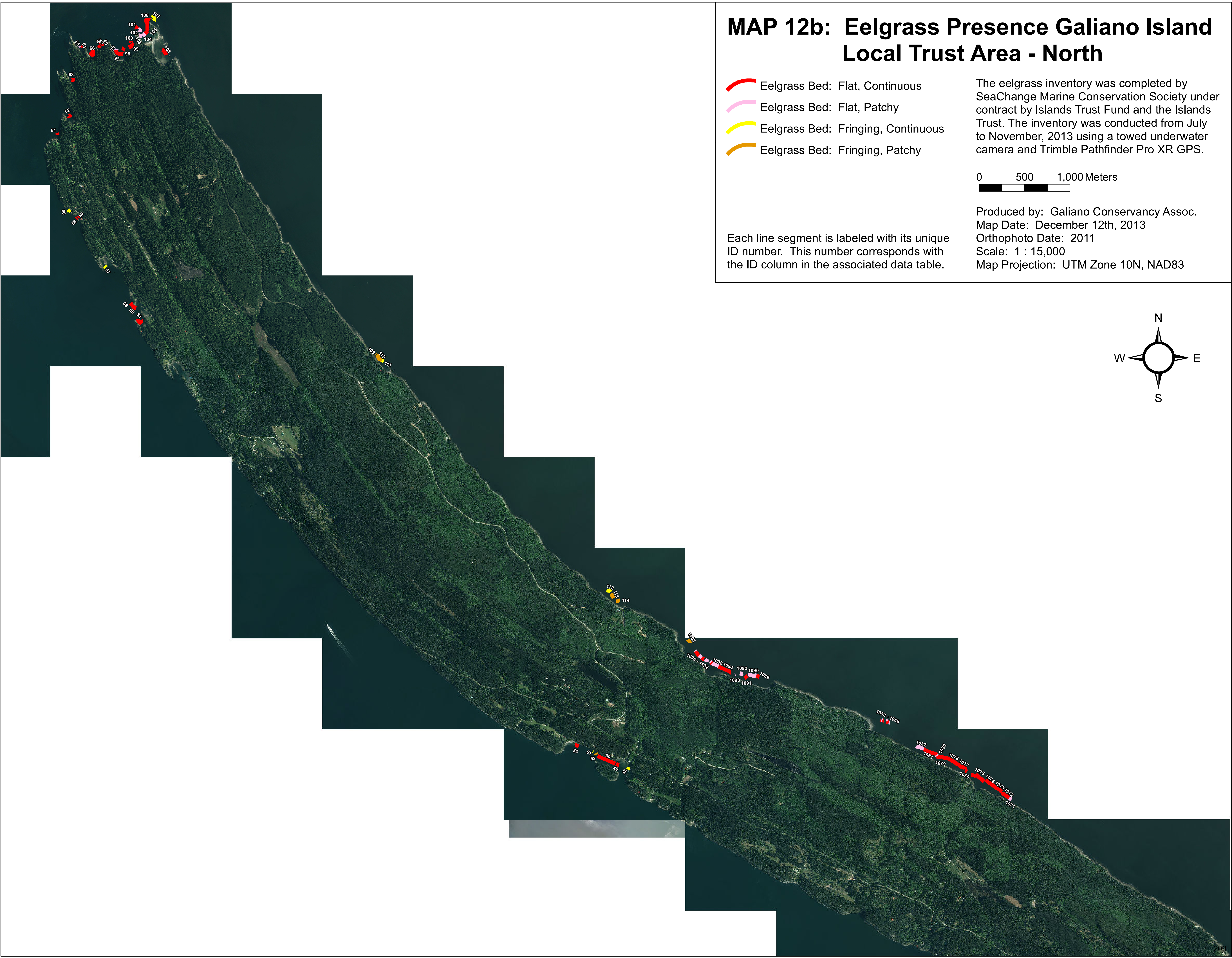
The eelgrass inventory was completed by SeaChange Marine Conservation Society under contract by Islands Trust Fund and the Islands Trust. The inventory was conducted from July to November, 2013 using a towed underwater camera and Trimble Pathfinder Pro XR GPS.

0 500 1,000 Meters

Produced by: Galiano Conservancy Assoc.
Map Date: December 12th, 2013
Orthophoto Date: 2011
Scale: 1 : 12,000
Map Projection: UTM Zone 10N, NAD83

Each line segment is labeled with its unique ID number. This number corresponds with the ID column in the associated data table.





MAP 12b: Eelgrass Presence Galiano Island Local Trust Area - North

Eelgrass Bed: Flat, Continuous

Eelgrass Bed: Flat, Patchy

Eelgrass Bed: Fringing, Continuous

Eelgrass Bed: Fringing, Patchy

The eelgrass inventory was completed by SeaChange Marine Conservation Society under contract by Islands Trust Fund and the Islands Trust. The inventory was conducted from July to November, 2013 using a towed underwater camera and Trimble Pathfinder Pro XR GPS.

0 500 1,000 Meters

Produced by: Galiano Conservancy Assoc.
Map Date: December 12th, 2013
Orthophoto Date: 2011
Scale: 1 : 15,000
Map Projection: UTM Zone 10N, NAD83

Each line segment is labeled with its unique ID number. This number corresponds with the ID column in the associated data table.

209



Islands Trust

Print Date: Jan-24-2014

Top Priorities

Galiano Island

No.	Description	Activity	Received/Initiated	Responsibility	Target Date	Status
1	Visitor Accommodation	To look at existing policy, research issues and possible solutions on Galiano.	May-06-2013	Kris Nichols	Jun-30-2014	On Going
2	Ground Water Protection DPA Policy Review	Review detailed recommendations of Waterline Report, review existing DPA and LUB provisions, prepare options for amendments.	Apr-16-2012	Kris Nichols	Jun-02-2014	On Going
3	Dock Review	Review issues regarding docks and new shoreline information and whether changes are required.	Nov-18-2013	Kris Nichols	Jul-07-2014	On Going



Islands Trust

Print Date: Dec-02-2013

Projects

Galiano Island

No.	Description	Activity	Received/Initiated	Status
1	Soil Removal and Deposit Bylaw	Review need and options for implementation of soil removal and deposit bylaw	Sep-12-2011	On Going
3	Amendments to Forest designation and F1 zone -	consider options for amendments to Forest Land Designation and policies and F1 zoning for lands without Managed Forest Status. Draft bylaws have been prepared, project deferred at meeting of April/12	Apr-16-2012	On Going
4	Parking Issues	Issue for discussion with MoTI and public parking issues generated from associated islands. (see correspondence from P. Midgely on agenda of Apr/12)	Jul-23-2012	On Going
5	Bike Trails and Camping	Letter dated July 8, 2013 received from Galiano Parks and Recreation Commission regarding bike safety on Galiano roads (See Transportation policy U of Section 1.1) and for the allowance of non-commercial camping on private lots.	Jul-15-2013	On Going
6	Ocean Based Geo-Exchange Systems	Review of regulations for geo-thermal exchange use.	Nov-18-2013	On Going
7	Information Note Addition	Add in Information Note on Archeological Sites under General Regulations	Nov-18-2013	On Going
8	Light Industrial Zoning	A review and inventory assessment of existing and potential light industrial zones.	Nov-18-2013	On Going



Islands Trust

Print Date: Jan-24-2014

Applications w/ Status - Galiano Island Status: Open

Applications

Development Permit

File Number	Applicant Name	Date Received	Purpose
GL-DP-2013.2	Ghai c/o David McKerrell	May-07-2013	22525 PORLIER PASSAGE DR Combination DP/DVP to construct a marine walkway to a dock - to vary required setback of the boundary to the sea to within 2 m.

Planner: Kris Nichols

Planning Status

Status Date: Jan-15-2014

Information should be provided for the March 3 LTC meeting

Status Date: Dec-09-2013

Applicant requested to provide additional information.

Status Date: Oct-23-2013

Applicant requested that further consideration be had at the Dec. 9 LTC meeting

File Number	Applicant Name	Date Received	Purpose
GL-DP-2013.6	Landworks Consultants Inc.	Dec-13-2013	4150 BODEGA BEACH DR

Planner: Kris Nichols

Planning Status

Status Date: Dec-20-2013

Awaiting processing until approved subdivision PLA.

Status Date: Dec-18-2013

Opened file and gave to Planner

Development Variance Permit

File Number	Applicant Name	Date Received	Purpose
-------------	----------------	---------------	---------

GL-DVP-2013.1

Michael Norgang Jan-22-2013

70 Bluff Rd To vary the front lot setback line to accomodate existing dwelling.

Planner: Kim Farris

Planning Status

Status Date: Dec-18-2013

Waiting for updated site plan as applicant must conform to maximum lot coverage. Site plan expected early 2014.

Status Date: Feb-26-2013

Waiting for site survey from applicant

Status Date: Jan-23-2013

Sent letter of acknowledgement of receipt of fees and application to applicant. Copied file to trustees and forwarded file to planner.

File Number	Applicant Name	Date Received	Purpose
GL-DVP-2013.3	David & Nora Williams	Jul-02-2013	260 CAYZER RD to vary LUB 127.2.12 to allow a structure less than the regulated setback from the boundary of the sea.

Planner: Kris Nichols

Planning Status

Status Date: Dec-18-2013

Staff to organize new survey as seawall may be located in the foreshore

Status Date: Dec-09-2013

Application will be considered at the May LTC meeting

Status Date: Nov-12-2013

Professional Report received. Will be considered by LTC on Dec. 9

File Number	Applicant Name	Date Received	Purpose
GL-DVP-2013.4	Joseph M. Haley	Oct-18-2013	165 WARBLER RD obtain DVP for current carport which exceeds height requirements

Planner: Kim Farris

Planning Status

Status Date: Jan-23-2014

Email sent to applicant asking for update on Building Permit application

Status Date: Nov-25-2013

Application on hold - requires Building Elevations

Status Date: Oct-25-2013

cheque arrived, processed, issued receipt, emailed LTC application information

File Number	Applicant Name	Date Received	Purpose
GL-DVP-2014.1	Simon Crawley	Jan-14-2014	677 GEORGESON BAY RD Allow construction of a second story with the existing agricultural building or alternative of another building for horticultural business.

Planner: Kris Nichols

Planning Status

Status Date: Jan-20-2014

opened file, processed application, sent receipt, forwarded to LTC

Status Date: Jan-14-2014

pending file, awaiting information

Rezoning

File Number	Applicant Name	Date Received	Purpose
GL-RZ-2004.6	Crystal Mountain Society	Jun-14-2004	OCP and LUB amendments to allow a Retreat Centre and Forest Retreat.

Planner: Kim Farris

Planning Status

Status Date: Jan-23-2014

Scheduling site visit for February 2014

Status Date: Jan-16-2014

Correspondence sent to applicant regarding moving forward with application.

Status Date: Dec-18-2013

Staff in the process of writing letter detailing additional information required to proceed with the application

File Number	Applicant Name	Date Received	Purpose
GL-RZ-2011.1	Galiano Land and Community Housing c/o Tom Hennessy	Oct-06-2011	Rezone Agriculture and Residential to Community Facility-Affordable housing.

Planner: Kris Nichols

Planning Status

Status Date: Dec-09-2013

Staff awaiting final feasibility study

Status Date: Nov-14-2013

CIM held on Nov 16, Draft Feasibility study submitted

Status Date: Oct-07-2013

CIM scheduled for November 16

File Number	Applicant Name	Date Received	Purpose
GL-RZ-2013.1	Landworks Consultants Planner: Kris Nichols	Apr-16-2013	DL 79 - To amend the OCP and LUB to permit a rezoning to F3, RR, NP from two F1 zoned lots.

Planning Status

Status Date: Nov-18-2013

Bylaws given first reading. Awaiting issuance of PLA prior to CIM and PH

Status Date: Sep-09-2013

Submission updated to use just DL 79. Submission recommended to proceed to bylaw development.

Status Date: Jun-14-2013

Preliminary Report written for July 15th LTC

Subdivision

File Number	Applicant Name	Date Received	Purpose
GL-SUB-2007.1	LPG Landplan Group Inc (Zizzy/Brown) Planner: Kris Nichols	Feb-12-2007	Creating 6 new lots. DL 72 and Lot 15, DL 71 and 77, Plan VIP61007. X-reference GL-RZ-2005.3

Planning Status

Status Date: Oct-24-2013

Application near completion awaiting word from applicant to complete.

Status Date: Sep-09-2013

Survey plans completed, awaiting executed covenants by applicant.

Status Date: Jun-27-2013

Survey being pinned, final touches by applicant on covenant

File Number	Applicant Name	Date Received	Purpose
GL-SUB-2012.1	Louis Gothier c/o Ron Taylor Planner: Kim Farris	May-01-2012	275 BLUFF RD & 351 BLUFF RD A boundary Adjustment

Planning Status

Status Date: Feb-26-2013

Waiting for S.219 covenant to be drafted by applicant

Status Date: Feb-13-2013

Status Date: May-17-2012

Sent letter of acknowledgment of receipt of application form and fees to applicant. Copied app to trustees and forwarded file to Planner.

File Number	Applicant Name	Date Received	Purpose
GL-SUB-2012.2	Winmark Capital Inc. c/o Peter Thomson BCLS Planner: Kris Nichols	Jul-04-2012	Creating 12 new lots

Planning Status

Status Date: Nov-28-2013

PLA conditions met and letter submitted to MoTI

Status Date: Oct-28-2013

DP application to be considered at Nov 18 LTC as a condition of PLA

Status Date: Sep-25-2013

Bylaws approving zoning not approved still waiting Ministry approval and registration of covenants

File Number	Applicant Name	Date Received	Purpose
GL-SUB-2013.1	Kelly Gesner, Landworks Consultants Planner: Kris Nichols	Nov-29-2013	4150 BODEGA BEACH DR To create a conventional subdivision of 7 lots including remainder.

Planning Status

Status Date: Dec-23-2013

Application submitted to planner to initiate review

Status Date: Dec-20-2013

received subdivision pkg from applicant along with fee and supporting documents, emailed app to LTC, sent receipt letter

Status Date: Dec-03-2013

Logged referral, sent applicant fee request letter. CC'd LTC, MoTI, and Planner, created electronic file.

Islands Trust
 LTC EXP SUMMARY REPORT F2014
 Invoices posted to Month ending January 2014

625 Galiano	Invoices posted to Month ending January 2014	Budget	Spent	Balance
65000-625	LTC "Trustee Expenses"	1,100.00	389.92	710.08
LTC Local				
65200-625	LTC - Local Exp - LTC Meeting Expenses	3,500.00	3,104.55	395.45
65210-625	LTC - Local Exp - APC Meeting Expenses	500.00	63.82	436.18
65220-625	LTC - Local Exp - Communications	500.00	710.12	-210.12
65230-625	LTC - Local Exp - Special Projects	2,000.00	1,000.00	1,000.00
65240-625	LTC - Local Exp - Miscellaneous	500.00	0.00	500.00
TOTAL LTC Local Expense		<u>7,000.00</u>	<u>4,878.49</u>	<u>2,121.51</u>
Projects				
73001-625-2002	Galiano OCP/LUB	4,000.00	1,314.90	2,685.10
73001-625-4019	Galiano Short Term Vacation Rental (STVR) Review	4,000.00	1,128.40	2,871.60
TOTAL Project Expenses		<u>8,000.00</u>	<u>2,443.30</u>	<u>5,556.70</u>

Galiano Island Local Trust Committee

POLICIES AND STANDING RESOLUTIONS

Updated: September 26, 2012

No	Meeting Date	Resolution No.	Issue	Policy
1.	May 18, 2004	GL-LTC-118-04	Road Network Plan	It was Moved and Seconded that the issue of access, including the proposals provided in the Road Network Plan, be applied to any existing and future rezoning applications brought before the LTC.
2.	June 14, 2004	GL-LTC-130-04	Forest 1 and Forest 3 lots	It was Moved and Seconded that staff be directed to draft a proposal to the Islands Trust Executive Committee requesting approval of a special Galiano Island Local Trust Committee initiative to accept, at reduced fee levels and for a limited time, applications to rezone eligible Forest 1 lots to Forest 3. In support of this request we offer that applications received under this initiative be batched in groups of two or more, each under a single bylaw. This approach, administered efficiently, will take less time to process and therefore cost less than if done singly, while still ensuring community input through full public process. The groupings we anticipate should be for properties of like nature and general location, though not necessarily contiguous.
3.	July 21, 2004	GL-LTC-137-04	F1 Zone	It was Moved and Seconded that Galiano LTC consider option 1, Cost Recovery Model, of the July 7, 2004, staff report Re: Batching/Initiating Offer, as an operating policy for the charging of fees as part of any rezoning application and in particular with reference to applications for rezoning of F1- zoned properties.
4.	February 16, 2005	n/a	F3 Covenant	Galiano LTC will hold be a covenant holder to all covenants granted as part of the F3 rezoning process The model F3 covenant will be referred to all prospective covenant holders for comment on the document and to seek confirmation that they are willing to be a covenant holder jointly with the local trust committee.

No	Meeting Date	Resolution No.	Issue	Policy
5.	June 29, 2005	n/a	Subdivision Applications	Staff are requested to prepare a report that provides wording for standing resolution to refer subdivision applications to the Galiano Fire Department and the Parks and Recreation Commission.
6.	May 11, 2009	GL-LTC-85-09	Parks Commission Referral	THAT the Galiano Island Local Trust Committee direct Staff to send rezoning applications to the Galiano Island Parks and Recreation Commission for referral.
7.	October 18, 2010	GL-LTC-115-10	Publishing Notices beyond legal requirements	THAT the Galiano Island Local Trust Committee will advertise Public Hearing Notices in either the Active Page Magazine or Islands Tides Newspaper in addition to the legally required advertising in the Driftwood Newspaper.
8.	October 17, 2011	GL-LTC-205-11	Special Occasion Liquor Licenses	THAT where a Liquor Control and Licensing Branch Special Occasion License referral relates to a property on which Galiano Island Land Use Bylaw No. 127, 1999 permits public assembly uses, such as restaurants or community halls, and where there have been no issues related to parking or past complaints for the preceding three years, staff may approve the Special Occasion License without referral to the Local Trust Committee. All other Special Occasion License referrals are to be referred to the Local Trust Committee for consideration.
9.	September 17, 2012	GL-LTC-100-12	Short Term Vacation Rentals	THAT given finite resources available for enforcement activities and in order to ensure the most effective results for enforcement activities, Short Term Vacation Rentals that have one or more of the following characteristics will be subject to enforcement: 1. There are issues related to health and safety; 2. There is a written complaint by owners or residents of two properties about bona fide serious nuisance issues such as noise or parking congestion related to the STVR; 3. The owner of the property uses more than one property on Galiano Island as a STVR. THAT nothing in this enforcement policy should be interpreted as giving permission to violate the Land Use Bylaw and the Galiano Island Trust Committee may change this policy at any time and may give direction to expand enforcement activities at any time; THAT the policy remains in effect until such time as the regulatory review is complete.

K:\LTC\Galiano\Standing Resolutions\Policies and standing resolutions.doc



Memorandum

Date January 20, 2014 File Number 3040-06

To Galiano Island Local Trust Committee

From Robert Kojima
Regional Planning Manager

Re Policies and Standing Resolutions – Bylaw enforcement and planning applications

At the meeting of December 9, 2013, the LTC passed the following resolution:

Resolution GL-LTC-159-13

It was Moved and Seconded that the Galiano Island Local Trust Committee directs staff to bring a Draft Policies and Standing Resolutions report regarding open bylaw enforcement files and pending applications to the LTC for consideration.

CARRIED

This memo will provide the LTC with background and a recommendation on the above resolution. It also provides an opportunity for the LTC to turn its mind to reviewing some of the older standing resolutions and considering deleting or updating those no longer relevant.

Bylaw Enforcement Policy

The issue, as I understand, is that the LTC wishes to ensure that prior to considering a decision on an application, it is aware of the enforcement history. While staff reports prepared by planners include a standard section on bylaw enforcement issues, the complexity or history of some files may require further comment or involvement from bylaw enforcement staff. The status quo has resulted in some applications being delayed while the LTC requests and receives a report from bylaw enforcement.

In order to avoid delays, uncertainty, and potential inconsistency related to addressing these situations on a case-by-case basis, the objective is to craft a policy that considers and addresses the following issues:

- Providing the LTC with the relevant information needed to assist in making decisions.
- Recognizing limited staff resources, specifically in terms of bylaw enforcement staff: bylaw enforcement staffing levels are premised on enforcement officers investigating complaints, determining if there is a violation, seeking voluntary compliance, undertaking further enforcement actions (such as issuing tickets) and recommending and managing litigation. The scope for preparing reports related to planning applications and attending LTC meetings is limited within current staff levels.
- Allowing for differences in approach between minor and routine enforcement files, such as where a survey provided as part of the building permitting process has resulted in a DVP application, versus

files involving a long history of enforcement, consideration of regulatory amendments and perhaps litigation.

- Ensuring consistency with the Islands Trust Bylaw Enforcement Policy and the Bylaw Enforcement Best Practices, and requirements for confidentiality and the potential for LTC to authorize litigation.

The range of circumstances in which there is an enforcement file on a property where there is also a planning application include the following:

1. Closed enforcement file on the property. In this instance there has been an enforcement file opened in the past, but it has subsequently been closed. The Planner would typically review the enforcement activity, possibly consult with an enforcement officer or administrative assistant, and would use his or her discretion on commenting in the staff report. For example, there may be a completely unrelated infraction that was resolved in the past which would not be relevant; on the other hand, it may be relevant that the processing of the application has been delayed due the landowner resolving the enforcement issue. This is current practice and no change is recommended.
2. Minor open file. This is a situation where the investigation has led directly and quickly to the owner making the application. An example would be where a survey obtained for an unrelated building permit has noted a long-standing encroachment into a setback, an enforcement file was opened, and as result the owner makes an application for a variance. Currently the planner would comment in the relevant section of the staff report on the fact that the application resulted from enforcement and that approval would result in closing the enforcement file. No change to current practice in this situation is recommended.
3. On-going or complex enforcement files. These are the types of files where additional and timely information may be required by the LTC from bylaw enforcement staff. There are a number of examples of circumstances where it may be appropriate to involve bylaw enforcement staff in providing direct advice on planning applications. These could form the basis of a policy that provides specific direction to planners. If the LTC does wish to adopt a policy, I recommend that it consider including the following:
 1. There have been significant delays or longer than typical timelines in the enforcement process
 2. The LTC is considering on-going, relevant policy or regulatory changes that could impact enforcement
 3. Litigation has been recommended
 4. Legal counsel has been involved (beyond providing a basic interpretation)
 5. There has been enforcement action beyond seeking voluntary compliance (e.g. a BEN warning or ticket, adjudication, a compliance agreement negotiated, etc.)
 6. There has been, or is an expectation of, joint enforcement with other jurisdictions
 7. There is potential for impact on other related enforcement files

Resolution wording that would establish a policy based on these conditions is included in the recommendations section at the end of this report.

The actual level of involvement by enforcement staff could vary, with the Bylaw Enforcement Manager:

- a. Providing information to the planner for inclusion in the staff report;
- b. Drafting wording for inclusion in the staff report;
- c. Providing a separate memo or report to the LTC;
- d. Being available by phone at an LTC meeting;
- e. Attending an LTC meeting.

Given that the range of responses would vary based on individual applications, this level of detail does not lend itself to being established in policy. Also, given limited resources, it would not be feasible to have bylaw enforcement staff involved in providing detailed comments or attending meetings for all applications where

there is an enforcement file. I would recommend that the specific level of bylaw enforcement staff involvement in each situation be left to the discretion of the Bylaw Enforcement Manager, in consultation with planning staff.

Other Standing resolutions

The review of this policy has also provided the opportunity to review the other standing resolutions and policies. Several of the policies are out-of-date or are not applicable in the sense they direct the LTC (as opposed to directing staff), another could be revised to reflect current concerns. In the following section, I refer to policies or standing resolutions as recorded on the Policies and Standing Resolutions Chart included in the agenda package.

1. Policy 1 (Road Network Plan) – this policy states that the “issue of access” be applied to rezoning applications. First, the wording of the policy is unclear with respect to what is meant by the issue of access. Second, as it relates to rezoning applications and decisions of the LTC, a policy cannot be binding on an LTC. Finally, OCP Land Transportation policies (c) and (o) provide that the Road Network Plan be implemented and that access be confirmed at time of rezoning, and are directive upon an LTC. Recommend rescinding.
2. Policy 2 (F1 and F3 lots) – this policy refers to a specific, time-limited request to EC to reduce fees for F3 rezonings. This is not really a standing resolution or policy, as it refers to a resolution pertaining to a specific request to EC; in addition it is ten years old. Recommend rescinding.
3. Policy 3 (F1 Zone) – this policy is related to #2 and supports an option in a staff report regarding batching of forest rezoning applications. This is unclear, ten years old, and has not been implemented by amendments to the fees bylaw. Recommend rescinding.
4. Policy 4 (F3 Covenant) – this policy states that the LTC hold covenants granted as part of an F3 rezoning and, second, that the model covenant be referred to prospective covenant holders for comment. First, policy cannot be binding on the LTC, also the first part of the policy is replicated by Forest policy (b)(ii) which also states that such covenants be granted to the LTC and as an OCP policy is directive. Any covenant would be referred to potential covenant holders in draft form. Recommend rescinding.
5. Policy 5 (Subdivision Applications) – this is a 2005 resolution that requests that a report be prepared for a standing resolution to refer subdivision applications to the Fire Department and Parks Commission. It's not clear if such a report was received by the LTC, however subdivision applications are referred by MoTI; in addition, the agreement between the LTC and Parks and Recreation Commission establishes a referral process for subdivisions involving park dedication. Referral of other applications to the Parks and Recreation Commission is addressed below. Recommend rescinding.
6. Policy 6 (Parks Commission Referral) – this policy concerns direction to staff to refer rezoning applications to the Parks and Recreation Commission. Typically any rezoning application affecting the commission would be referred as a matter of course. Of concern though, is ensuring that the Parks Commission is provided with an opportunity to comment on any application that could affect both parks and ocean accesses. I would recommend re-writing this policy to state that any application adjacent to a park or ocean access be referred to the Parks and Recreation Commission.

The remaining policies are current and relevant and no other changes are recommended.

Resolution wording for both a new enforcement policy, and for updating the standing resolutions and policies is provided on the following page.

Recommended Resolutions

THAT the Galiano Island Local Trust Committee adopt the following policy:

1. On properties where there is an open bylaw enforcement file, planning staff should refer planning applications to the Bylaw Enforcement Manager for comment where one or more of the following circumstances exist:
 1. There have been significant delays or longer than typical timelines in the enforcement process
 2. The LTC is considering on-going, relevant policy or regulatory changes that could impact enforcement
 3. Litigation has been recommended
 4. Legal counsel has been involved (beyond providing a basic interpretation)
 5. There has been enforcement action beyond seeking voluntary compliance (e.g. a BEN warning or ticket, adjudication, a compliance agreement negotiated, etc.)
 6. There has been, or is an expectation of, joint enforcement with other jurisdictions
 7. There is potential for impact on other related enforcement files.
2. THAT the Galiano Island Local Trust Committee rescind the following policies or standing resolutions:
 1. GL-LTC-118-04 (Policy 1 - Road Network Plan)
 2. GL-LTC-130-04 (Policy 2 - Forest 1 and 3 Lots)
 3. GL-LTC-137-04 (Policy 3 – F3 Covenant)
 4. Policy 4 (F3 Covenant)
 5. Policy 5 (Subdivision Applications)
3. THAT the the Galiano Island Local Trust Committee delete policy GL-LTC-85-09 (Policy 6 - Parks Commission referral) and replace it with the following:

“That staff refer all applications adjacent to a park or ocean access to the Galiano Island Parks and Recreation Commission for comment.”

pc Kris Nichols, Island Planner
 Miles Drew, Bylaw Enforcement Manager

January 14, 2014

2014-01-IT

GALIANO ISLAND LOCAL TRUST COMMITTEE APPROVES LAND TRANSFER TO EXPAND PARK

VICTORIA — Sixty-five hectares of forest land, as well as water and foreshore, will be protected on Galiano Island as a result of years of work by the Galiano Island Local Trust Committee, BC Parks and a private landowner. The land will be transferred to BC Parks, expanding Bodega Ridge Provincial Park by more than a quarter of the current area and establishing a protected area link between the east and west coasts of the island.

"We are extremely pleased to have been able to support this application which has received widespread support throughout the community," said Louise Decario, Galiano Island local trustee. "This rezoning and the resulting land transfer to BC Parks will advance an official community plan objective to preserve a forest land base on Galiano while at the same time permitting clustered residential use on a subdivided portion of the land."

"The adoption of this rezoning is the culmination of several years of work by the Local Trust Committee, Islands Trust planners, BC Parks staff and the owner," added Sandy Pottle, also a local trustee. "This could not have been achieved without the support of the community."

In 2011, Galiano Islander Richard Dewinetz, the owner of the property, applied to rezone six lots along Bodega Beach Drive from forest zoning to nature protection and rural residential zoning. The recently adopted rezoning has resulted in more than 70 per cent of 90 hectares being rezoned to nature protection and 24 hectares being rezoned rural residential for future subdivision into 12 lots of a minimum of two hectares. The 65 hectares rezoned to nature protection and to be transferred to BC Parks are a significant addition to Bodega Ridge Park and to protected areas on Galiano and within the Islands Trust Area as a whole.

Funds from the sale of one of the lots will also be transferred to the Galiano Island Housing Society to support community housing on Galiano Island.

This addition to Bodega Ridge Provincial Park contributes to the establishment of a network of protected areas across Galiano Island, linking Trincomali Channel to the Strait of Georgia. The lands include areas identified as sensitive ecosystems, riparian areas, important habitat, and sensitive shorelines, as well as providing opportunities for restoration of former working forest lands.

"A special thanks to the many members of the Galiano community who came out to offer their support for our project," said land owner Richard Dewinetz. "We want to thank the Islands Trust, the Local Trustees and the planning staff in Victoria for their cooperation in bringing this project to completion."

"Thanks to the collaborative efforts of Richard Dewinetz, the Islands Trust, BC Parks and the Galiano community, recreational and conservation opportunities in Bodega Ridge Provincial Park will be enhanced and more land will be protected for future generations to enjoy," said Mary Polak, BC Minister of Environment.

The transfer of lands is expected to occur within a year, following final approval of the subdivision. The lands will then require an act of the Legislature to be designated as part of Bodega Ridge Provincial Park.

- More -

Land transfer to expand park...2

The Islands Trust is a federation of local government bodies representing 25,000 people living within the Islands Trust Area. The Islands Trust is responsible for preserving and protecting the unique environment and amenities of the Islands Trust Area through planning and regulating land use, development management, education, cooperation with other agencies, and land conservation. The area covers the islands and waters between the British Columbia mainland and southern Vancouver Island. It includes 13 major and more than 450 smaller islands covering 5200 square kilometres.

- 30 -

Editors/News Directors: Please see photo with cutline and map.

CONTACT

Louise Decario
Galiano Island Local Trustee
250 539-5760

Sandy Pottle
Galiano Island Local Trustee
250 539-5637



On the foreshore of the newly protected land to be added to Bodega Ridge Provincial Park on Galiano Island. The 65-hectare addition will expand the park by more than 25% of its current area and establishes a protected area link between the east and west coasts of the island.

