

**Eelgrass Survey  
Seaward of 3707 Dollarton Highway, North Vancouver, February 2008**

Submitted to

Nick Ebrahim  
3707 Dollarton Highway  
North Vancouver, BC  
V7G 1A1



**Image 1) Eelgrass community -1.5 m relative to zero chart datum**

by

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With notes and recommendations on eelgrass by Cynthia Durance of Precision Identification

Submitted February 2008

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This is a confidential document intended for the use of the recipient listed on the title page. Use of images and content in this report requires the permission of the author. Depths are listed as elevations above (+) and below (-) zero chart datum. Tide Heights were determined by averaging the tide height predictions at Deep Cove, and the Alberta (Cascadia) Wheat Pool Elevator in Vancouver Harbour using tide height values obtained from [HTTP://tbone.biol.sc.edu/tide/sites\\_othersnorth.html](http://tbone.biol.sc.edu/tide/sites_othersnorth.html).

### **Acknowledgments**

I would like to acknowledge the invaluable assistance of Bruce Nidle, Cynthia Durance, Neil McDaniel and Geoff Grognet in the completion of the survey work described in this report. Some images were obtained from [HTTP://www-heb.pac.dfo-mpo.gc.ca/maps/maps-data\\_e.htm](http://www-heb.pac.dfo-mpo.gc.ca/maps/maps-data_e.htm).

### **Overview**

On Wednesday 06 February 2008 Seacology conducted a subtidal biophysical survey from the intertidal to -10 m elevation in front of a proposed subdivision development at 3707 Dollarton Highway in the District of North Vancouver. A major focus of the survey was to determine the presence or absence of eelgrass and brown macro algae plant communities. Presence of these communities can impose limitations on dock installations. A dock structure is proposed for the property.

### **Methods**

The survey method employs three transects T1, T2, and T3. See **Image 2** and **Table 1** for depictions of the transects and the location of transect endpoints. Two parallel transects, T1 and T2 were located 30 m apart. These transects were perpendicular to the shoreline. T1 is 120 m long, running between 3.3 m and -9.0 m of elevation relative to zero chart datum. T2 is 105 m long, running between 4.1 m and -9.9 m of elevation relative to zero chart datum. T3 is 110 m long, running parallel to the shoreline near the -1.4 m elevation contour relative to zero chart datum. Eelgrass is found near this elevation contour.

Transect lines were marked every 5 m to locate video and diver observations made during the transect swims. Transects were videotaped by a SCUBA diving biologist using a digital video camera, underwater housing and underwater video lights (below -3 m elevation). A second diving biologist recorded biota, depths and other observations on a divers data sheet.



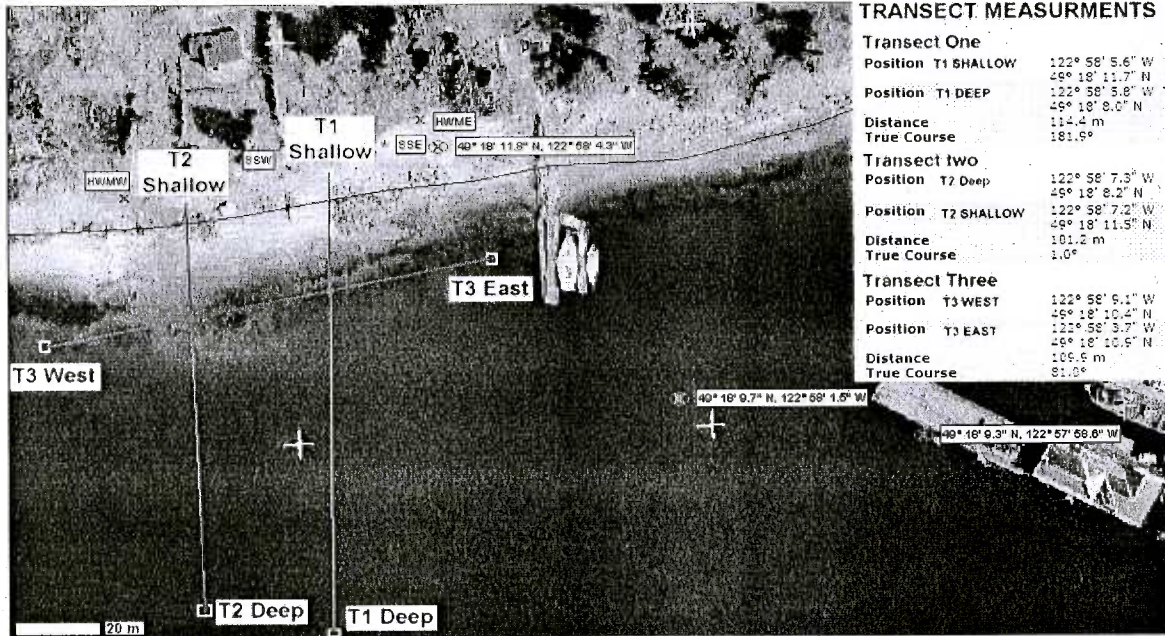


Image 2. Aerial Site View.

Image 2 provides horizontal measurements of the transects. Illustration 1 gives the depth profiles of each transect. Depths were obtained using a digital depth gauge or estimated from elevations above the tide height in the few cases where the transect marks were not submerged.

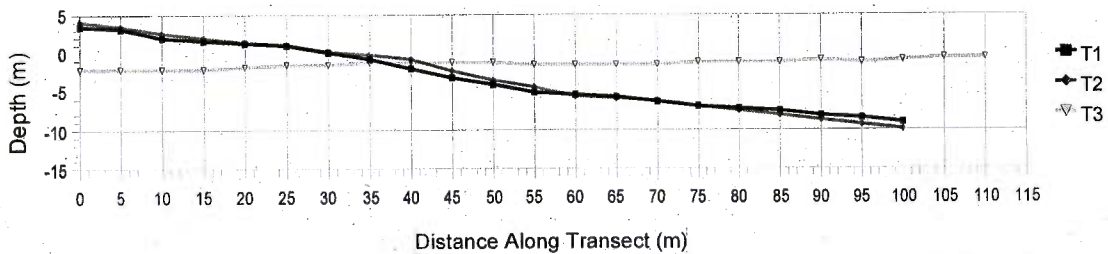


Illustration 1: Transect Depth Profiles Relative to Zero Chart Datum.

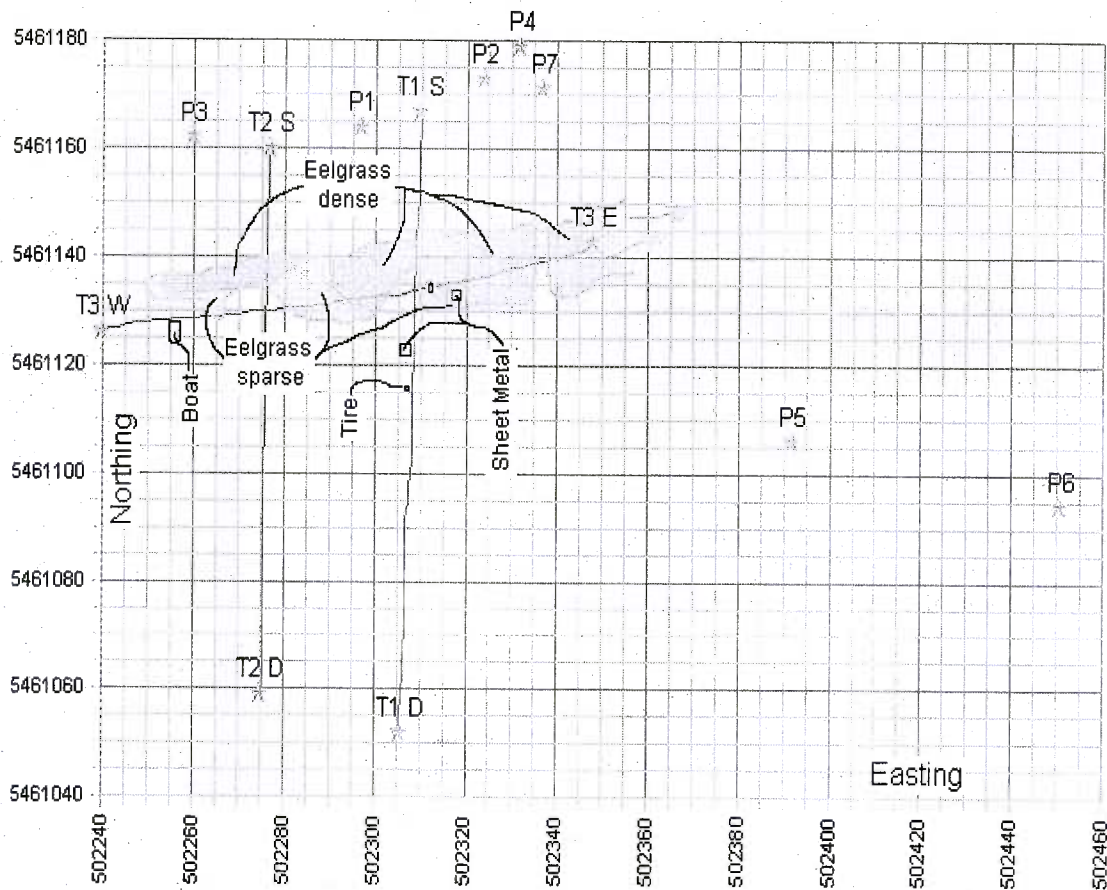
**Transect Locations**

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**Illustration 2** plots endpoints of the transects T1S, T1D, T2S, T2D, T3W, T3E. Seven additional waypoints are also plotted as possible known fixed reference points. They are P1 and P2, two flagging tape marked steel spikes in the intertidal Zone; P3 and P4, two plastic survey disks located on tree branches marking the High Water Mark (HWM); P5 and P6, the southwestern most Steel Dolphin at McKenzie Tug and Barge and a Steel pile at the southwestern corner of a newly placed dock on an adjacent water lot. These locations are also plotted on an aerial photograph, see **Image 2**.



*Illustration 2: UTM Grid With Way points Locations Plotted*



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Table 1 lists the transect way points obtained during the survey.

Waypoint Labels	UTM Zone 10		Notes
	Eastern	Northern	
T1 S	502310	5461167	T1 Transect One Shallow End
T1 D	502306	5461052	T1 Transect One Deep End
T2 S	502277	5461160	T2 Transect Two Shallow End
T2 D	502275	5461059	T2 Transect Two Deep End
T3 W	502240	5461126	Transect 3 West End
T3 E	502348	5461143	Transect 3 East End
P1	502297	5461164	Intertidal Steel Spike West
P2	502324	5461173	Intertidal Steel Spike East
P3	502260	5461162	Western High Water Survey Disk Marker
P4	502332	5461179	Eastern High Water Survey Disk Marker
P5	502392	5461106	SW Corner of New Pier Pile
P6	502451	5461094	McKenzie Tug and Barge South Western Dolphin
P7	502337	5461171	Intertidal Flagged Wooden Stake

Table 1: Transect Endpoints And Reference Way point Locations

## Notes And Recommendations On Eelgrass By Cynthia Durance of Precision Identification

All eelgrass was the ecotype phillipsi.

Each density, length, and width measurement is based on a sample of ten 0.25m<sup>2</sup> quadrats. With the exception of the area where the density was <1/0.25m<sup>2</sup>, a 1 m<sup>2</sup> area was sampled.

eastern bed (adjacent property)

Shallow density 36/0.25m<sup>2</sup>, length 76 cm x width 8mm, depth 11'

Deeper density 14/0.25m<sup>2</sup>, 92 cm x 8mm, depth 17'

Last 3 m of bed (deepest part) becomes patchy

gentle slope

good sediment, well oxygenated silty sand with diatom film in this area and all others supporting

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eelgrass.

Unvegetated corridor along eastern edge of property

gravel mixed into silty sand

Heading west past corridor

Bed is sparse to begin with, density ranging from 3/m<sup>2</sup> to 48/m<sup>2</sup>. Note: These densities are #/m<sup>2</sup>, not #/0.25m<sup>2</sup>.

Bed ranges in width from 5 – 7 m typically, although in some areas only 1 m.

Density increases continuing west, density 26/0.25m<sup>2</sup>, 84 cm x 8mm

Bed becomes sparse near shack transect, continues sparse after shack.

Density 4/0.25m<sup>2</sup>, 86 cm x 8mm

Several (>4) pieces of metal roof (1m x 3.5 m each) on substrate over and near eelgrass

Density increases to 24/0.25 m<sup>2</sup>, 86 cm x 8 mm

As slope increases heading west, and density steadily declines, distribution becomes patchy.

Eelgrass zone between 11' and 18'

Slope increase dramatically near freshwater outflow, eelgrass disappears. This is likely due to the steep slope and sediment movement in the vicinity.

### Recommendations

Any overwater structures should be located in the areas where eelgrass is very sparse or absent if possible.