

Boundary Bay, FREMP Habitat Verification Report (July-August 2004)



**Prepared for:
Friends of Semiahmoo Bay Society**

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1.0 INTRODUCTION

The Fraser River Estuary Management Program (FREMP) 2002-2003, Habitat Inventory Mapping Project, was completed by Precision Identifications and this Consultant in December 2003.

The services of Marcel Pepin Mapping & Photography (MP) were retained by Friends of Semiahmoo Bay Society to ground truth the FREMP 2002-2003, Habitat Inventory information applicable to Boundary Bay, and Semiahmoo Bay. The information was gathered in accordance with the Coastal Sensitive Habitat Inventory and Mapping (CSHIM).

The information gathering was achieved using a Trimble Pro-XL GPS, Trimble TDCE Data-logger, and the CSHIM data dictionary. This system was selected, partly due to Trimble's Terrasync mapping software and the integration of the CSHIM Data dictionary to assess and improve the CSHIM product.

2.0 CONSIDERATIONS

CSHIM versus FREMP Data Structure

Coastal Sensitive Habitat Inventory and Mapping (CSHIM) data dictionary does not comply with the FREMP 2002-2003, Habitat Inventory database structure. CSHIM was created to speed up and ease the process of recording accurate on site information, while the FREMP database was used in conjunction with airphoto interpretation. The discrepancies of attributes noted between CSHIM data dictionary and FREMP database are numerous.

The information recorded had to be modified in order to show similarities or attributes in common. Additional fields within the already existing CSHIM data dictionary were created to relate the information from one database to the other in order to confirm the validity of the FREMP data.

In other cases, the CSHIM data dictionary was over detailed, and carried information not relating to FREMP database. Information such as invertebrates was not classified under the FREMP guidelines.

Features such as Anthropogenic, Birds, Erosion, Fauna, Invasive, and many others of the CSHIM data dictionary not related to the FREMP study, but were utilized to supplement additional data to the habitat classification of Boundary Bay.

3.0 AREA OF INTEREST

Due to the size of Boundary Bay and Semiahmoo Bay length of shoreline (approx. 35km) to be accessed, a focal point on the Backshore Habitat was agreed upon, as being a valuable habitat to be accessed and confirmed. The range of this salt marsh habitat was determined to extend from the upper limits of sand/mud flats to top of dykes (wet side). In areas where the salt marsh extended beyond the crest protection or riparian wetlands were sighted, additional surveys were completed.

4.0 TYPE OF FEATURES RECORDED

For the purpose of this study, all information was recorded to a specific location using a Trimble GPS. Where the information was related to a transect, the point files were recorded in sequential fashion reflecting the different segments of the transect.

4.1 Point Specific Data Gathering

Features such as Anthropogenic, Birds, Erosion, Fauna, Flora, Invasive, Photo, Physical, Point General, Reference, Streams, Wildlife trees, Wildlife sightings, were used in a random manner where these feature applied. During this period, a total of approximately one thousand GPS points were recorded.

4.2 Transects

Description

A line, physical or imaginary crossing habitats. A pre-study, on site inspection of valuable habitats along the shoreline was helpful in determining the location of a series of perpendicular transects to the shoreline, which was classified in following days. The sites were selected according to the biodiversity, accessibility, and habitat modification due to human impact.

A total of 34 transects (Intertidal/Riparian) were completed over the course of 17 days. Some shoreline segments were not accessed due to lack of habitat, accessibility restrictions, or where an area could be suitable for volunteer training.

5.0 CSHIM DATA DICTIONARY FEATURES USED

5.1 Anthropogenic: Man made feature.

- Point_no: Unique identification number,
- Anth_featu: type of feature being recorded,
- Material: what is the feature made up of,
- Tidalzone: what part of the tidal zone is the feature located in,
- Photonum: the frame number,
- Comment: additional comment to help describe the feature,
- Date: date the feature was recorded.

5.2 Birds: Bird habitat, and bird sightings.

- Point_no: Unique identification number,
- Type_evide: how was this observed,
- Comt_other: Additional comments,
- Conc_type: what part of the tidal zone is the feature located in,
- Bird_speci: the frame number,
- Other_spec: additional comment to help describe the species,
- Bird_numbe: bird count at the time of the sighting.
- Comment: additional comments,
- Photonum: the frame number,
- Date: date the feature was recorded,

5.3 Erosion: Unstable sites due to ocean waves, wind, slides, collapses.

- Point_no: Unique identification number,
- Cause: what is the dominant factor for the erosion,
- Type: what is the type of erosion,
- Severity: how critical is the erosion,
- Materials: substrates of the eroding site,
- Length: how long is the eroding feature,
- Width: how wide is the eroding feature,
- Height: how high is the eroding feature,
- Slope: angle/slope of the eroding site,
- Comment: additional comments,
- Photonum: the frame number,
- Date: date the feature was recorded,

5.4 Fauna:

- Point_no: Unique identification number,
- Tidalzone: what part of the tidal zone is the feature located in, ,
- Urchins: Not applicable for FREMP Study,
- Clams: Not applicable for FREMP Study,
- Oysters: some surveyed on the Nicomekl River,
- Littleneck: Not applicable for FREMP Study,
- Clam_manil: Not applicable for FREMP Study,
- Clam_butt: Not applicable for FREMP Study,
- Clam_horse: Not applicable for FREMP Study,
- Geoduck_cl: Not applicable for FREMP Study,
- Mussels: Not applicable for FREMP Study,
- Sanddollar: Not applicable for FREMP Study,
- Fshspawnin: Not applicable for FREMP Study,
- Other_spec: some Sand Lance surveyed,
- Other_spe2: Not applicable for FREMP Study,
- Comt_fauna: Applicable Photo Number,
- Date: date the feature was recorded,

5.5 Flora:

- Point_no: Unique identification number,
- Tidalzone: what part of the tidal zone is the feature located in,
- Flora: habitat type, (Riparian, Salt Marsh, Tall Shrubs...)
- Floracover: Percentage of the area cover by vegetation type,
- Comt_flora: Comments applicable to this site,
- Date: date the feature was recorded,
- Photonum: the frame number,

5.6 Intertidal:

- Trans_nu: Unique identification per segment of the transect number,
- Shoreunit: a numeric value used by the Government to identify which area of the intertidal zone this point is located. (Not applicable for FREMP Study),
- Subunit: a numeric value used by the Government to identify which area of the intertidal zone this point is located. (Not applicable for FREMP Study),
- Date: date the feature was recorded,
- Starttime: start time of the survey, (Not applicable for FREMP Study),
- Endtime: end time of the survey, (Not applicable for FREMP Study),
- Crew: Information gathered by, (Not applicable for FREMP Study),
- Bearing: direction of the transect, (Not applicable for FREMP Study),
- Tr_slope: angle /slope of the transect, (Not applicable for FREMP Study),
- Tr_width: width of the transect, (Not applicable for FREMP Study),
- Comt_tr: transect comments, (Not applicable for FREMP Study),
- Photonum: applicable photo number,
- Band_no: numeric value identifying habitat type, where in the transect segment/Band, (Not applicable for FREMP Study),
- Ba_width: numeric value identifying the width of the transect segment/Band, (Not applicable for FREMP Study),
- Ba_slopes: numeric value identifying the slope of the transect segment/Band, (Not applicable for FREMP Study),
- Tidalzone: what part of the tidal zone is the feature located in,
- Substrate: what type of substrates at this location, (Not applicable for FREMP Study),
- Comt_sub: additional substrates comments, (Not applicable for FREMP Study),
- Flora: habitat type, (Riparian, Salt Marsh, Tall Shrubs...),
- Flora cover: Percentage of the area cover by vegetation type,
- Comt_flora: additional substrates comments,

In many cases, attributes did not reflect the FREMP data. The following list of attributes, were not recorded due to the location of the study. Urchins, Clams, Oysters, Littleneck clams, Clam_manil, Clam_butt, Clam_horse, Geoduck_cl, Mussels, Sanddollar, Fshspawnin, Other_sp, and Comt_fau.

5.7 Invasive: Invasive species is defined as a species that is non-native (or alien) to the ecosystem under consideration whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

- Point_no: Unique identification number,
- Tidalzone: what part of the tidal zone is the feature located in,
- Species: invasive plant type, (*Spartina anglica*,...),
- Abundance: how much of a spread, (patchy,...),
- Other_spec: other invasive species,
- Comt_invas: additional invasive comments,
- Date: date the feature was recorded,
- Photonum: applicable photo number,

5.8 Photos: Photo location points with 917 pictures submitted to DFO

- Point_no: Unique identification number,
- Ph_roll_fr: roll and frame number,
- Ph_direction: facing alongshore, facing backshore, facing offshore,
- Ph_bearing: the bearing which the center of the camera points,
- Comments: other invasive species,
- Photo_path: attribute created by the author, to link photo files to GIS software,

5.9 Physical:

- Point_no: Unique identification number,
- Tidalzone: what part of the tidal zone is the feature located in,
- Materiel: substrates,
- Beach: (Not applicable for FREMP Study),
- Cliff: (Not applicable for FREMP Study),
- Delta: (Not applicable for FREMP Study),
- Dune: (Not applicable for FREMP Study),
- Reef: (Not applicable for FREMP Study),
- Lagoon: (Not applicable for FREMP Study),
- Marsh: (Not applicable for FREMP Study),
- Offsh_isl: (Not applicable for FREMP Study),
- Platform: (Not applicable for FREMP Study),
- Tid_flat: (Not applicable for FREMP Study),
- Oth_form: (Not applicable for FREMP Study),
- Photonum: applicable photo number,
- Comments: additional comments.

5.10 Point General: General information

- Point_no: Unique identification number,
- Comments: additional comments,
- Date: date the feature was recorded.

5.11 References:

- Point_no: Unique identification number,
- Point_type: start or end of transect,
- Distance: length of the segment surveyed, (Not applicable for FREMP Study),
- Endtime: end time of the survey, (Not applicable for FREMP Study),
- Bearing: direction of the transect, (Not applicable for FREMP Study),
- Gradient: angle /slope of the transect, (Not applicable for FREMP Study),
- Comt_pnt: segment comments, (Not applicable for FREMP Study),
- Photonum: applicable photo number,
- Date: date the feature was recorded.

5.12 Riparian:

- Trans_nu: Unique identification per segment of the transect number,
- Shoreunit: a numeric value used by the Government to identify which area of the intertidal zone this point is located. (Not applicable for FREMP Study),
- Subunit: a numeric value used by the Government to identify which area of the intertidal zone this point is located. (Not applicable for FREMP Study),
- Date: date the feature was recorded,
- Starttime: start time of the survey, (Not applicable for FREMP Study),
- Endtime: end time of the survey, (Not applicable for FREMP Study),
- Crew: Information gathered by, (Not applicable for FREMP Study),
- Bearing: direction of the transect, (Not applicable for FREMP Study),
- Tr_slope: angle /slope of the transect, (Not applicable for FREMP Study),
- Tr_width: width of the transect, (Not applicable for FREMP Study),
- Comt_tr: additional comment about transect,
- Photonum: applicable photo number,
- Bankstbility: how stable is the bank,
- Top_bank: yes or no,
- Comt_bank: bank comments,
- Substrates: type of sediment,
- Comt_sub: additional comments about substrates,
- Land_cover: type of vegetation,
- Land_use: how is the particular land used, (Parks, Agricultural, Disturbed)
- Stage: maturity level,
- Shrubs: percent covers,
- Snags: dead trees use as wildlife habitat,
- Veterans: percentage of old/mature trees in the polygon,
- Comt_land: additional comments about land habitat.

5.13 Streams:

- Stream_name: Gazetted, or local name,
- Form: type of streams, (single channel, multiple channels...), (Not applicable for FREMP Study),
- Fw_influen: flow influence (tidal, freshet, normal flow), (Not applicable for FREMP Study),
- Bankfulwid: width of channel at the top of the bank, (Not applicable for FREMP Study),
- Bankfuldep: dept of channel measured at the height of the bank, (Not applicable for FREMP Study),
- Flow: how much volume of water measured, (Not applicable for FREMP Study),
- Comments: additional flow information, (Not applicable for FREMP Study),
- Bearing: direction of the transect, (Not applicable for FREMP Study),
- Photonum: applicable photo number,
- Photopath: created by the author of this report to link pictures to specific GPS points,
- Date: date the feature was recorded,

5.14 Wildlife Trees:

- Point_no: Unique identification number,
- Wildlife_sp: type of wildlife (species), (Not applicable for FREMP Study),
- Comt_sp: additional comments relating to species, (Not applicable for FREMP Study),
- Tree_type: species of tree,
- Vet_tree: mature or not, (Yes/No),
- DBH: height of tree, (Not applicable for FREMP Study),
- Mast_tree: (Not applicable for FREMP Study),
- Nest: yes/no,
- State: Live or dead
- Denning: (Not applicable for FREMP Study),
- Perches: (Not applicable for FREMP Study),
- Cavities: (Not applicable for FREMP Study),
- Comments: additional information, (Not applicable for FREMP Study),
- Photonum: applicable photo number,
- Date: date the feature was recorded.

5.15 Wildlife sightings:

- Point_no: Unique identification number,
- Type_evid: what is the evidence, (Not applicable for FREMP Study),
- Wildlife_sp: type of wildlife observed, (Not applicable for FREMP Study),
- Other_sp: additional species, (Not applicable for FREMP Study),
- Conc_typ: (Not applicable for FREMP Study),
- Num_indiv: how many observed, (Not applicable for FREMP Study),
- Comments: (Not applicable for FREMP Study),
- Photonum: applicable photo number,
- Date: date the feature was recorded.

6.0 CONCLUSION

The data recorded requires modifications in order to reflect the information shown on the FREMP database. This process will not be reviewed until a meeting with all agencies involved takes place. Not until the meeting takes place will a detailed report on how to use the information be possible.