Revisions were made according to Reviewer 2 & 3 comments; we thank these reviewers for their insightful and constructive critiques. We have explained these revisions by each section of the manuscript, and indicated which reviewer we addressed for each revision.

# Introduction

Reviewer 2, Line 57 (revised ms line 55): revised to include daily & monthly changes due to tide cycles, and distinguished these from processes which occur on longer timescales, such as sediment accretion or marsh subsidence.

Reviewer 2, Line 71 (revised ms line 70): changed wording from “…these habitats to resist change or recover from disturbance” to “…these habitats to adapt to disturbance.”

Reviewer 3, Line 92 & Reviewer 2, Line 93: Both reviewers had concerns the hypothesis as originally phrased required substantial supporting data to link abiotic changes (e.g., altered river hydrology, sedimentation, etc.) to answer the question. We agree that these processes are important for understanding floristic responses, however it wasn’t the original intent of the study nor presently possible to include these data. We revised the question (see revised ms lines 91-93) to ask “How have the tidal freshwater marsh assemblages in Ladner Marsh changed over the past 40 years? We would expect substantial changes in composition and abundance of species dominating assemblages to offer clues of processes driving change.” We also advise in the Discussion on potential ways to include abiotic data in future studies to understand mechanisms driving floristic change.

# Methods

To address Reviewer 2’s consideration of reed canary grass as a native species, we include a brief acknowledgement of the native/non-native taxonomic debate of reed canary grass in Methods subsection Vegetation identification. We include reference to local regulatory classification, and pollen analysis to support our position treating this species as non-native in wetland communities around the Salish Sea. See revised ms lines 179-186

Reviewer 2, Fig. 1: added a scale bar & north arrow to all maps

Reviewer 2, Fig. 2D: delineation of dominant vegetation patches was confused with elevational zonation; we clarified this distinction in the figure caption.

Reviewers 2 & 3 suggested some kind of explanation of elevation and relationship to vegetation zonation along elevation gradients. In Methods subsection ‘Site history & context’ we clarified that the elevation gradients observed along these transects are not so great as to affect species zonation. See revised ms lines 108-119.

Reviewers 2 & 3 wanted elaboration on how/why certain transects or plots were omitted, as we described environmental changes such as channel migration and shrub encroachment as the main reasons for omitting plots. We addressed this by clarifying how Transect Q was impacted by riparian thicket encroachment, likely from immediately adjacent municipal infrastructure (revised ms lines 189-195). We also provided more detail about how inaccuracy of transect relocation may have resulted in differences in overall transect length (with speculation on some minor bank erosion also contributing to different transect length) (revised ms lines 201-210). We also provided clarification for how plot placement in 2019 would have resulted in different numbers of plots per transect, and describe how the most spatially comparable plots between all three sampling years were selected in order to make fair comparisons at the plot and transect scales (revised ms lines 201-210). This should help resolve some of the concern for not explaining broad abiotic changes: our original phrasing in the first ms submitted may have caused reviewers to infer that abiotic changes were more significant than we believe them to be. While we address these concerns (as noted elsewhere), we do not feel that abiotic changes in the marsh were the primary or secondary causes for differences in plot and transect placement over time.

Reviewer 3 specifically requested elaboration on exact methodologies to assess plant cover. We added substantial text in four new subsections to clarify the sampling design & harmonization between observations, plot-scale sampling details, and clarify differences between the datasets. (revised Methods, subsections ‘Sampling design & harmonization between observations,’ ‘Plot-scale sampling,’ ‘Vegetation identification,’ and ‘Differences between datasets.’)

In the section on analytical approach, we clarified that we elected to identify three main clusters (forgoing a common distance level break point, as suggested by Reviewer 3) to facilitate comparison of species composition & abundance between three assemblages common to all datasets (revised ms line 219-220). Because each of the three clusters identified in each dataset had consistently common indicator species (Sedge, Bogbean, Fescue), we suggest maintaining these three groupings between datasets affords the most intuitive way to discuss how composition & abundance is shifting within the marsh, especially with reference to observations made in Bradfield & Porter (1982). We also address this in the Results, as explained next.

# Results

We acknowledge that analysis of the clusters at a common distance level (e.g., Euclidean distance = 35 as per Reviewer 3) would result in changing the number of groups compared, and this approach would also support our conclusion that the plant community is becoming homogenized throughout this marsh. However, indicator analysis under this approach removes Carex lyngbyei, a key marsh species, as an assemblage/indicator species only in 2019, and combines the Bogbean & Fescue groups in 1999 (but not in the 1979 or 2019 data). We feel the cumbersome explanation of these shifts in the groupings would detract from the overall interpretation of homogenization, and would not provide any further clarity on potential mechanisms for the changes. We also acknowledge that exploration of finer groupings at a lower distance level (as per Reviewer 3; e.g., Euclidean distance = 10) would allow for more discussion on finer shifts in plant composition and abundance, however, thoroughly explaining these shifts would similarly detract from the main message of homogenization without contributing benefit of identifying mechanisms.

Pursuant to this, Reviewer 3 questioned whether the ‘Fescue’ group should be renamed, as the namesake indicator species (Fescue, *Schedonorus arundinaceus*) shifts in its level of importance in the indicator species analysis. We propose that it is useful to have a common species to identify with each assemblage for sake of clear communication, and *Schedonorus arundinaceus* is the only common species for each observation period. Additionally, if we were alter the assemblage name for the Fescue group to reflect its shifting importance in the indicator species analysis, we would also need to do this for the Bogbean group, which further contributes to the challenge of renaming the assemblages and potentially leading to awkward communication of results. To alert readers to this convention, we include a brief statement in the Results in the explanation of indicator species analysis (revised ms line 279-282). We also amended Table 1 (indicator species results, revised ms line 328) to include the Indicator Value index as suggested by Reviewer 3, however, this creates a very wide table that requires landscape page orientation – we defer layout formatting to the editorial staff, and are happy to revise table dimensions to fit journal requirements.

We agree that an explanation of spatial relationships of the changes observed would be valuable to identify which areas of the marsh may be changing (per Reviewer 3). To this end, we included a bar chart figure of percentage of plots per transect in each cluster assemblage (Fig. S3). In the Results we explain how proportion of plots belonging to the same assemblage cluster appear quite stable along some transects (e.g., transects W and X). This allows us to speculate that some spatial trends in assemblage occurrence may be due to differences in transect placement between observation time points (e.g., transects U and V), or may be due to plant community turnover. (Revised ms lines 295-301, additional supplemental figure Fig. S2).

We agree with Reviewer 3 that the frequency with which we refer to Table S5 indicates the table is important to the Results. However, because the table is four pages long we defer to the journal’s decision about whether to format it for inclusion in the Results section or as a supplemental.

# Discussion

Reviewer 2 indicated hydrogeomorphological processes would need to be discussed to support the elimination of some plots from the survey due to inaccessibility and potential altered channel morphology, and Reviewer 3 wanted to see robust discussion of changes to the physical environment over time. While altered hydrogeomorphological changes are suspected drivers of change across the marsh, we feel it is beyond the scope of this study to pursue an analysis of hydrologic changes and sufficiently link these to observed plant community changes. Similarly, data on sediment transport rates in this river system would be incomplete for making a strong case directly linked to observed changes. For example, we could obtain data from sediment dredging operations, but this would not address total sediment loads. We could attempt to calculate sediment loss due to increased impervious cover on the landscape, but this would be a proxy (at best) for understanding altered sediment loading into the estuary. Instead, we have emphasized that the majority of plots eliminated from Transect Q (as reported in the original 1982 publication by Bradfield & Porter) were due to overgrowth of Himalayan blackberry, rather than channel migration. Other plots that were omitted from this analysis were clarified as likely being due to transect relocation challenges between timepoints. We acknowledge the potential for some of this relocation challenge could be due to some bank erosion, but emphasize that this would be minor (as assessed by inspection of aerial photography), and emphasize the discrepancies in transect placement as due to different observers without permanent reference markers; please also refer to revised Methods comments.

Reviewer 2, Line 339 (revised ms line 413): we indicated loss of root biomass would alter sedimentation rates; Reviewer 2 questioned whether it was only the roots or also above-ground biomass that traps sediment. We amended the language to indicate sediment trapping may be affected by altered vegetation structural complexity to indicate inclusion of any above and below-ground structures that serve to trap sediment.

Reviewer 2, Line 353: we indicated biodiversity loss can have trophic consequences, and included a reference to 'top-down trophic interactions.’ Reviewer 2 pointed out this phrase was included without further explanation, so we elected to remove it as any further elaboration becomes tangential to our intended scope.

Reviewer 2, Line 361 (revised ms line 434): we focused on altered sedimentation rates as a potential mechanistic driver of change; Reviewer 2 suggested relative sea level rise as a factor, which has been added to the statement of potential mechanisms that could result in areas with greater saturation.

Reviewer 2, Line 366 (revised ms lines 439-440): ‘scouring tidal surge’ wasn’t a clear way to exemplify natural disturbance. We elected to remove reference to ‘natural disturbance,’ as the examples we could identify are confounded by anthropogenic influence over the course of our observations. For example, a ‘scouring tidal surge’ would be an extreme storm event with sufficient power to thrust large logs across the marsh, ripping out vegetation. However, current abundance of such logs within the estuary are mostly due to logging industry (rather than due to natural senescence and introduction to the estuary system). Our main point here was to indicate press stressors from anthropogenic sources are likely having an effect, despite not seeing dramatic changes commonly associated with human impacts (e.g., industrial development, agriculture, etc.); inclusion of natural disturbance in this sentence is tangential.