Only three constrains of 8 initially considered environmental parameters were included in the optimal CCA model constructed with forward selection protocol (Table +++). Two of three canonical axes were statistically significant (Table +++), explaining 46.1% of total inertia. The most informative CCA1 was in high positive correlation with “Distance” (the measure of distance from the Tuva river mouth). This canonical axis can be interpreted as complex environmental gradient associated with conditions changing from mouth of Tuva river to mouth of the bay. The second canonical axis (CCA2) was associated with “Depth” and “Slope”. However the influence of the later was not statistically significant (Table ++). Thus CCA2 can be explained as axis of “Depth”: the highest values of CCA2 correspond to littoral zone whereas the minimal one to sublittoral area.

Two demographic parameters (N and N2\_3) were in positive association with CCA1. This correlation shows that the most numerically abundant settlements dominated by juveniles were represented in the entrance of the inlet. When moving to the inner part of the inlet (“Distance” decreasing) the total biomass and abundance of older age groups increase.

The taxonomic structure (Ptros) demonstrated the highest positive correlation with CCA2: this parameter decreased when moving from littoral to sublittoral zone. Parameters assessing the mussel growth (OGP, max\_L, Size\_5) are associated with CCA2 analogously. However it should be noted these parameters are associated with negative values of CCA1 as well. It means the settlements of old large mussels with high proportion of MT were represented on the littoral zone of inner part of the inlet.

More detailed analysis of association between Ptros and environmental predictors by GLMM (Table +++) revealed only two variables significantly influencing taxonomic structure. The negative coefficient for “Depth” indicates that Ptros decreased when moving from littoral to sublittoral zone. The negative coefficient for the second valuable predictor (“Exposition”) indicate the lesser Ptros for South shore in comparison with North one.

Summarizing the visual inspection (Fig. ++) and results of formal statistical analysis (Fig. +++ and Table +++) we can describe the traits of mussel’s habitats as follows.

1. Littoral sandbanks. The settlements represented at this habitat in the inner part of the inlet are the most heterogeneous (remarkable dispersion of points on the CCA ordination, Fig. ++). This settlements are dominated by large adult (4-9 years old) mussels, juveniles are few in number. Ptros increases gradually from +1 to +2 m level. MT dominates in all settlements of this type.
2. Mussel bed. In the littoral part of the habitat the settlements are homogeneous in structure (the points are located close to each other on the CCA ordination, Fig. ++), in the sublittoral part, they are more diverse in their structure. In general, settlements at this habitat are dense assemblages with high biomass and abundance of old mussels. ME is an absolute dominant.
3. Rocky littoral. Settlements with high abundance and low biomass dominated by juveniles situated close to inlet mouth. The oldest mussels (N9+) are rare. Mussels of all ages are small in size. The ratio of ME to MT is close to 1:1.
4. Kelp forests. Mussel settlements are located in the central part and near the mouth of inlet. They are highly heterogeneous (broadly scattered points in CCA ordination). Some of the mussel settlements in this habitat are dominated by juveniles but other by old one. Mussels of all ages are rather large. ME dominate.