copulation frequency. At first, a mass marking experiment was carried out to test the consistency of the migration behavior. In winter, snails from the upper zone and the lower zone were marked in different color and released at their respective zones. In the next winter, statistically significant number of snails were recaptured from the same tide level where they were released. This result confirmed the consistency of the migration pattern ; ie, the same snails migrated downward in every winter, and the same snails stayed in the upper zone in every winter.

Second, a transplantation experiment was carried out to test whether *L. brevicula* had any tide level preference. In winter, snails were marked and transplanted reciprocally between the upper zone and the lower zone. Positions of the marked snails were recorded daily for one month period. Transplanted snails moved towards the original zones where they were caught. This result suggested that the snails actively selected their tide levels in winter.

Third, the schedule of the downward migration and the frequency of the copulation was observed. The frequency of the copulation reached at the maximum after dividing into two subpopulations. Therefore, the copulation of *L. brevicula* was assorted with respect to the migration dimorphism. In conclusion, the migration behavior of *L. brevicula* is determined by each individual and might be controlled genetically. This behavioral dimorphism may be maintained by the assortive mating of the snails.

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Genetic heterogeneity in populations of *Littorina brevicula* (Philippi) (Mollusca : Gastropoda) in the northern part of Peter the Great Bay (Sea of Japan).

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Genetic differentiation among eight samples of *Littorina brevicula* in Peter the Great Bay was surveyed using five highly polymorphic allozyme loci as genetic markers. Geographic distances between samples ranged between a few meters and more than a hundred kilometers. The coefficient of relative gene differentiation was quite low, G_{ST} = 1.6 % only. Such low level of differentiation was expected because *L. brevicula* has a planktonic larval stage lasting two weeks. Despite the low level of gene differentiation, there was significant heterogeneity in allele frequencies among samples at three loci. Most surprisingly, microgeographic differention (within a few dozen meters) among samples within continuous settlements was found to be significant in the loci *Pgi, Aladh* and *Fdh*. The differential natural selection was suggested as a possible cause for this.

Ultrastructure of the cephalic sensory organ in larvae of *Littorina littorea* (Mesogastropoda, Littorinidae)

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