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Phenogenetic analysis of crayfishes Astacus astacus population dynamics after introduction into natural lake

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Phenogenetic indication is check of environment state by detectable characters of population, such as morphological variability, sex relation and sex dimorphism. This characters dynamics was followed within crayfish population during process of adaptation for pond. Crayfishes are stenobionts needing clean water. The pattern of different crayfish species is criteria for pond dynamics. Mathematical model describing occupation of lake by Nobel crayfishes Astacus astacus is describing by two variants. The first is general universal model, the second is model appropriate for lake Berezno from Pskov region (North – West of Russia). This situation may be considered as representative for different lakes taking into account ecological specific of every lake. Crayfishes were introduced into the lake at 1995. At 1998 population was reorganized by switching on genetic program of migration for maximal using of assimilating capacity of lake. During 2000 – 2015 population was stable and its characters were oscillated according to ecological state and automatic genetics processes. Population is monomorphic, the one morphotype is dominant. Sizes within this morpotype are distributed according to Gauss law (making correction for methods of cathing). The square deviation increases in first generation and decreases in accordance to population adaptation. The Nobel crayfish is typical macrohydrobiont and may be used as biological indicator of ecological state of water. Such a method of monitoring is cheap and effective and may be used as adding to tradition monitoring manner. Parallel to monitoring of natural crayfish population the program of use of artificial test system for water quality was introduced in water-supply station of St. Petersburg.