

Genetic variation and local differences in Pacific cod *Gadus macrocephalus* around Japan

ABSTRACT

The population structure of the Pacific cod *Gadus macrocephalus* was examined using 15 microsatellite loci and mitochondrial DNA (ND2 region). In total, 274 individuals were sampled from 16 locations around Japan to estimate the level of genetic differentiation and effective population size (N_e). Pairwise F_{ST} , analysis of molecular variance and Bayesian clustering analysis suggested the presence of two genetically distinct groups in waters around Japan, with a higher N_e value in the eastern group than in the western group. A possible factor that restricts gene flow between groups may be related to the water temperature differences in the south-western part of the Sea of Japan, where the Tsushima Warm Current flows around the area inhabited by the western group, which may limit migration between the west and east.

Keyword: Microsatellite; Mitochondrial DNA; Population structure; Tsushima Warm Current