Lipid and Fatty Acids of Three Populations of Cultured Sweet Smelt *Plecoglossus altivelis*

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The lipid and fatty acid compositions of the total lipids of three populations of cultured sweet smelt *Plecoglossus altivelis*, which is a typical Japanese freshwater fish, were investigated to produce a good freshwater population and to improve condition of acquaculture for healthful freshwater fish rich in docosahexaenoic acid (DHA). The crude total lipids were separated into classes on silicic acid columns and the fatty acid composition was analyzed by gas-liquid chromatography. Triacylglycerols were the dominant depot lipids of all the three populations, and the lipid classes among three populations are similar to each other. The major fatty acids in the lipid of all the populations were 16:0, 16:1n-7, 18:0, 18:1n-9, 18:2n-6, and 22:6n-3 (DHA). DHA was the most abundant PUFA in the lipids of all the populations. The high DHA levels of the three populations may be due to its selective accumulation or biosynthesis. In particular, the mean DHA content in the lipid of the Setogawa river population is higher than those of the other two populations (the lake Biwa and the Seawater populations). From these results, we conclude that the difference among the DHA levels in the lipids of thee populations might be caused by their lipid characteristics, and, with respect to the DHA content, the Setogawa River population is the most healthful one among the three populations.