A New Fish Biological Health Index for Assessing River Health Environment in the Muromi River Japan

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ABSTRACT

This research was carried out to develop and apply a new fish-based biological health index (FBHI) to assess the river health and to diagnose the current state of the Muromi River basin in Japan. The research system was the Muromi River (33°34’ 46.38”N, 130° 20’ 8.7” E) class B river which flows past the city of Fukuoka prefecture, Japan and confluence destination the Hakata Bay. Data on fish assemblages collected via fishing net. We used the scientific literature and expertise from regional fish researcher to provide a comprehensive functional description of the FBHI, than we screened 14 candidate metrics from inter-regional variation in metric utility which has five main sources, all of which are illustrated in this research: the origin fish community, life history type, swimming layer, suitable flowing type and spawning ecology type. We can quickly calculate the assessment result of an FBHI score using fish data collected from a river section. Hashimoto Bridge was in much better condition than the other four locations, as the area around it exhibited a diversity of habitat types. Hamaide Weir, Hanadate Weir and Tochigawara Weir were all in poor condition, meanwhile Otoide Weir were in moderate condition. According to these results, we suggest some detail design planning to the each site referring to the lacking habitat: to construct floodplain, to make a variety of flow velocity using, and to install some spawning vegetation.

Keywords: Fish Biological Health Index, Muromi River