Fish distribution and habitat environment

in drainage canal, western Lake Biwa

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1. INTRODUCTION

Ecosystem with high biodiversity is supported by networks of ponds, paddy field, water cannels and spring around rural area. Part of fishes live in Biwa Lake or river spawned in temporary flood plain. Because most part of flood plain land ware converted to paddy fields, shallow water around paddy fields is important for these fishes. Some researches about fishes living in canal are reported, but there are few case describes about large-scale research of fish in canal. It is thought that to clarify habitat of canal is useful for fish conservation around agricultural area.

In this study, we configured the purpose to reveal the relationship between fish community and environmental factor.

2. METHODS

The study sites are 13 drainage canals in Takashima City, Shiga Prefecture. Sampling points are 27 that contain 13 upstream, 13 downstream and 1 headstream.

We surveyed once at each month from September to November. We scooped the range from 5 to 10m of the waterway for 20 minutes with the hand net. And we surveyed water quality (water temperature, pH, DO, turbidity and EC), depth, velocity, vegetation coverage and bottom sediment to analyze Environmental factor. Fish species composition data was analyzed by Twinspan to reveal similar composition. After that, to clarify what factor concern to the group classified by Twinspan, classification tree analysis was done.

3. RESULTS AND DISCUSSION

26 species, 1642 fishes ware collected in this study.

27 sites ware grouped into 5 groups of fish community (named A to E) by Twinspan analysis. And fish species are divided 4 groups. *Rhinogobius* sp. OR. , *Cottus reinii* and *Cobitis biwae* are dominant in group A. These species prefer sand gravel. In group B, *Lampetra reissneri* that prefer sand and cray is dominant species.Feature of group C is absence of *Misgurnus anguillicaudatus*. Species of group D usually lives in pond or weak stream area.

These groups ware classified depend on depth and bottom sediment using Classification tree. At first, A was distinguished from other groups by the bottom without cry. Then group B was distinguished by the bottom with both of sand and cry.

In conclusion, it gives suggest that bottom sediment is important for fishes that live in drainage canal.

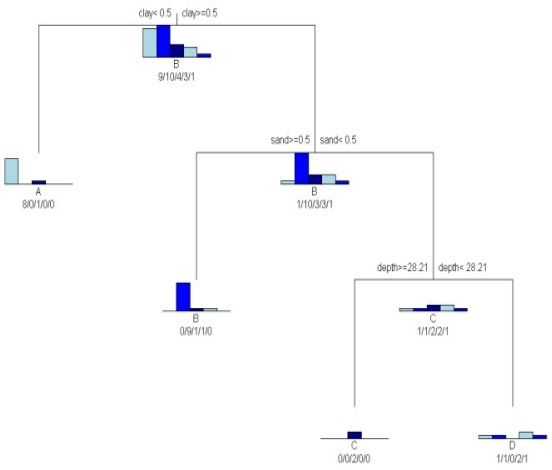

Fig1.Result of classification tree