

The current status of fish biodiversity around the DMZ and CCL area

Cho, Ga-ik · Min-Ho Jang · Chan-Woo Lee · Gea-Jae Joo
Dept. of Biololgy, Pusan National University

INTRODUCTION

The demilitarized zone (DMZ) covered about 1,528 km² (length, 248 km; width, about 4 km), and the civilian control line (CCL) was established around the DMZ after the Korean War. The international organizations (UNESCO and IUCN) showed a continued interests on the biodiversity of the DMZ area, because of relatively well preserved environment and lack of anthropogenic disturbances other than agricultural practice (KFRI, 2000). During the Korean War, large area in the DMZ and CCL area was disturbed. However, the natural succession of the ecosystem have been preceeded during the last half century. Streams located in this area have higher level of value as the 'reference stream' than other streams in S. Korea.

The DMZ and CCL area were divided as three major parts for successive investigation of fish fauna (Eastern, Middle and Western part). The investigations around the DMZ were begun in the last 1960's. Since then several surveys for the fish fauna have been conducted by government and academic sectors. However, comprehensive survey on the fish fauna was rather limited. Therefore, we investigated to the fish fauna around the CCL area, and characterized the streams in term of fish fauna.

MATERIALS and METHODS

From Oct. 2001 to Apr. 2002, the 1st-year survey was conducted 4 times in the eastern part (23 sites) of the DMZ and CCL area, and the 2nd-year survey was conducted 3 times in the mid-western part (17 sites) from Aug. 2002 to Mar. 2003. Physico-chemical properties of the water samples were analyzed in the field and laboratory. Air and water temperature, DO, % saturation, pH, conductivity, alkalinity, and turbidity were measured. In each sites, substrate composition were measured, and the method of Cho (1997) was used

implementation for the stream naturalness. Fishes were collected with cast nets (mesh size, 7×7 mm; dimension, about 4.5 m²=π×1.2m²) and scoop nets (mesh size, 5×5 mm). The cast nets were used 10 times, and scoop nets were used for 15 min at each site.

RESULTS

A total of 9,703 individuals of freshwater fish were collected and classified into 86 species including to 23 families. The dominant family was Cyprinidae (39 species; 6,788 ind.). *Zacco platypus* was dominant species, and relative abundance (RA) of this species was 20.3%. And frequency of this species (collected in 26 sites) was highest among the collected species. Subdominant species were *Rhynchocypris steindachneri* (RA 18.1%), *Pungitius sinensis* (RA 14.1%), and *Zacco temmincki* (RA 10.2%). *Rhynchocypris steindachneri* was dominated in the streams flowing into the East Sea (site 1 to 12). *Zacco temmincki* was dominant species in the Bukhan River system (site 13 to 24). *Zacco platypus* was dominated in the Imjin River system (site 25 to 40). Twenty four species including to 7 families were identified into the Korean endemic species, and the endemism of surveyed area was 27.9%. One of the natural monument species (*Hemibarbus mylodon*) was collected in two sites, and three endangered species which were designated by the ministry of environment (*Lampetra reissneri*, *Acheilognathus signifer*, and *Saurogobio dabryi*) were collected. The current status of streams and fish fauna around the demilitarized zone (DMZ) and civilian control line (CCL) have maintained as high level of natural condition. However, the anthropogenic disturbances (water pollution, weir, etc) gradually have been increased since the 1970's. Therefore, the management plan for the conservation of the streams of this area should be addressed.

REFERENCES

- Cho, Y. H. 1997. Development of the method of the small stream naturalness for the ecological restoration. *Ph.D Thesis*. Seoul National University.
- KFRI. 2000. *Final report of the forest ecosystem in the DMZ and adjacent area*. Korean office of forest.