



018530 - SWITCH

Sustainable Water Management in the City of the Future

Integrated Project
Global Change and Ecosystems

Progress report task D5.3.4b

Lodz: WG VII: Ecohydrology and Urban Aquatic Ecosystems

Due date of deliverable: M23
Actual submission date: M23

Start date of project: 1 February 2006

Duration: 60 months

Organisation name of lead contractor for this deliverable: University of Lodz

draft

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	
PP	Restricted to other programme participants (including the Commission Services)	X
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

FINAL REPORT SWITCH-LODZ / RTD 2007 M: 13-24	
WG VII: Ecohydrology and Urban Aquatic Ecosystems	
Date:	05/02/2008
Prepared by:	Dr Zbigniew Kaczkowski Department of Applied Ecology, University of Lodz European Regional Centre for Ecohydrology under the auspices of UNESCO, Polish Academy of Sciences
Content:	Evaluation of fish resources in the Sokolowka River

Summary:

Sokolowka river, like many other small rivers in urbanized areas, has been affected by regulation, water pollution, impoundment and storm water management. Those human activities considerably change fish communities due to reduction of their hiding places, the factor altering fish assemblages especially during low and high flows. The investigation aims at describing the extent to which negative impacts related to regulation and the extent in change of the water flow can be buffered by small impoundments.

During the preliminary part of the study three sites located in the main river channel (S1, S2 sites located between Zgierska and Włókniarzy streets, S3 – located near the crossroads Liściasta / Brukowa) and three reservoirs were surveyed (ZZ – Zgierska reservoir, ZT – Teresa reservoir, ZP – Pabianka reservoir). The sites situated at the river channel were sampled by electrofishing, while reservoirs have been sampled by gillnetting.

Fish sampling in Sokolowka river has shown a presence of nine species, with the dominance of four: gudgeon *Gobio gobio*, roach *Rutilus rutilus*, perch *Perca fluviatilis* and sunbleak *Leucaspis delineatus*. The river channel was dominated by gudgeon (90,4 %) and perch (5,0 %), whereas roach (58,6 %) was the most common and abundant fish species in the reservoirs. The presence of roach, perch and pike in the fish community provides the basis for development of recreational coarse fisheries as one of the ecological services provided by the Sokolowka river in the Lodz city area.

Research goals:

1. Assessment of fish assemblages in the Sokolowka river system;
2. Evaluation of the fisheries related potential for ecological services provision to the local communities;
3. Development of conservation protocols for maintaining fish assemblages of high diversity.

Study area, materials and methods

During the first step of ichthyofauna research in the Sokolowka river three sites located in the main river channel (S1, S2, S3) and three reservoirs were sampled (ZZ, ZT, ZP) (Fig 1).

The sites situated at the river channel were sampled by a single electrofishing pass, wading upstream with a PDC backpack electrofisher (RADET IUP-12, 350 V, 3,5 A). The length of electrofished stretch was 100 m. Sampled fish were anaesthetized by means of immersion prior to the measurements (total length and body mass).

The reservoirs have been sampled by gillnetting with NORDIC - SURVEYNET (standardized according to the European Union - prEN 14757: 2004 (E)). Each fish was measured immediately after it was removed from the net (total length and body mass).

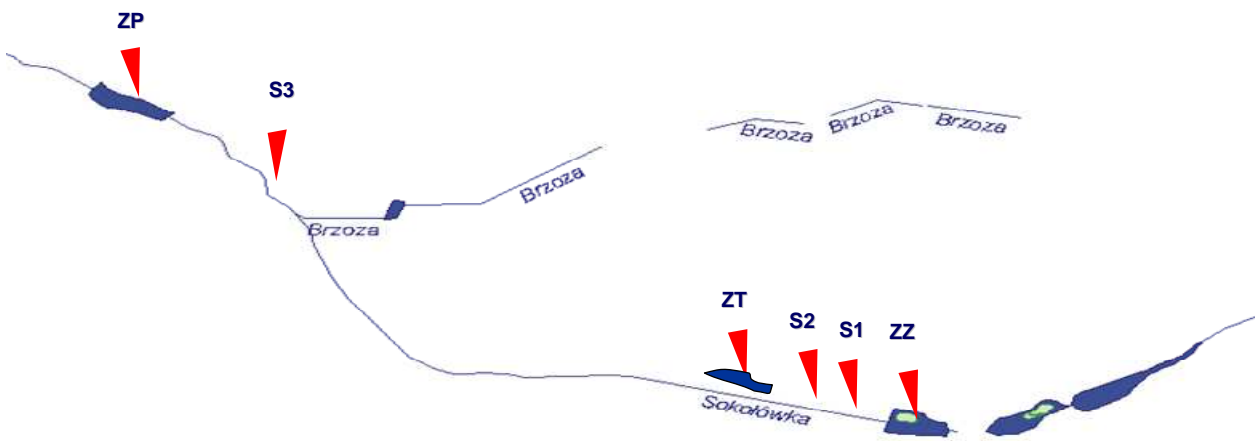


Fig. 2. Location of sampling sites in the Sokolowka river basin for fish resources evaluation.

Preliminary results

A total of 803 fish belonging to nine species were identified, with four species - gudgeon *Gobio gobio*, roach *Rutilus rutilus*, perch *Perca fluviatilis* and sunbleak *Leucaspis delineatus* - dominating in the sampled part of the Sokolowka river drainage (Fig. 2).

The river channel was dominated by gudgeon (90,4 %) and perch (5,0 %), whereas roach (58,6 %) was the most common and abundant fish species in the reservoirs.

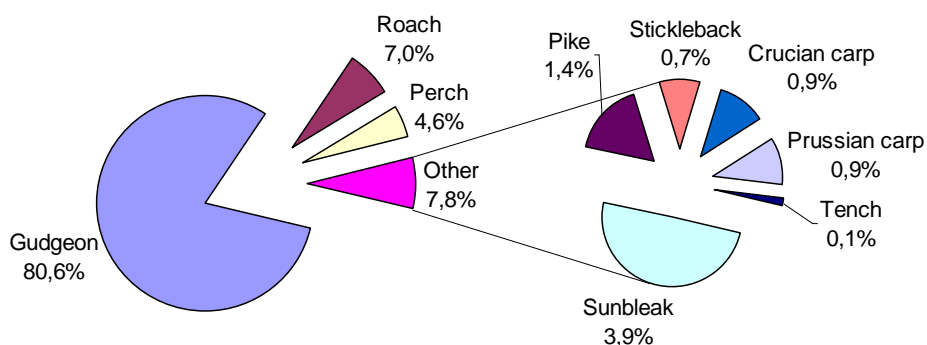


Fig. 2. The dominance of fish species in the sampled part of the Sokolowka river basin (nine species, total fish number - 803 specimens).

No fish were discovered in the Sokolowka river channel at site S2, which is considered for a restoration. The lack of fish was due to a very low water level (water depth – 5 – 10 cm) combined with a lack of hiding places because of channelization and embankment.

Remarks

The presence of roach, perch and pike in the fish community of the Sokolowka basin provides the basis for development of recreational coarse fisheries. At present there is no fisheries management in the reservoirs.