Hydrobiological monitoring

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Danube Monitoring Scientific Conference Publication, Slovak Section, chapter:

V.2.1. Danube and the Danube surrounding biota in the course of time.
Compiled by Iľja Krno & Mikuláš J. Lisický

V.2.3. Long-term changes in the community of planktonic crustaceans, cladocerans and copepods in monitored localities in the Danube within-dike zone. Marta Illyová

V.2.4. Benthic fauna in monitoring of biota in the area of the Gabčíkovo hydraulic structures Ferdinand Šporka

V.2.6. Mollusc fauna (Mollusca) of the Old Danube riverbed (1997-2005) and its perspectives Vladimír Košel

2.13. Monitoring of aquatic insects in the area of the Gabčíkovo hydraulic structures
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Hungarian-Slovak Environmental Monitoring on the Danube
25-26 May 2006, Mosonmagyaróvár, Hungary

Monitored taxa groups

During all time Cladocera, Copepoda, Ephemeroptera, Odonata, Plecoptera, Trichoptera and just in main channel Mollusca

till 1996 in addition
Oligochaeta, Polychaeta, Mysidacea, Amphipoda, Isopoda, Chironomidae, Simuliidae

Sampling sites – sampling profiles

Danube main channel - since 1992 the former Danube main channel, old riverbed

- Dunajské kriviny (r. km 1840,5) [6]
- Gabčíkovo (r. km 1819,5) [14] (Ephemeroptera, Plecoptera, Trichoptera)
- Istragov r.km 1815,5 [14]

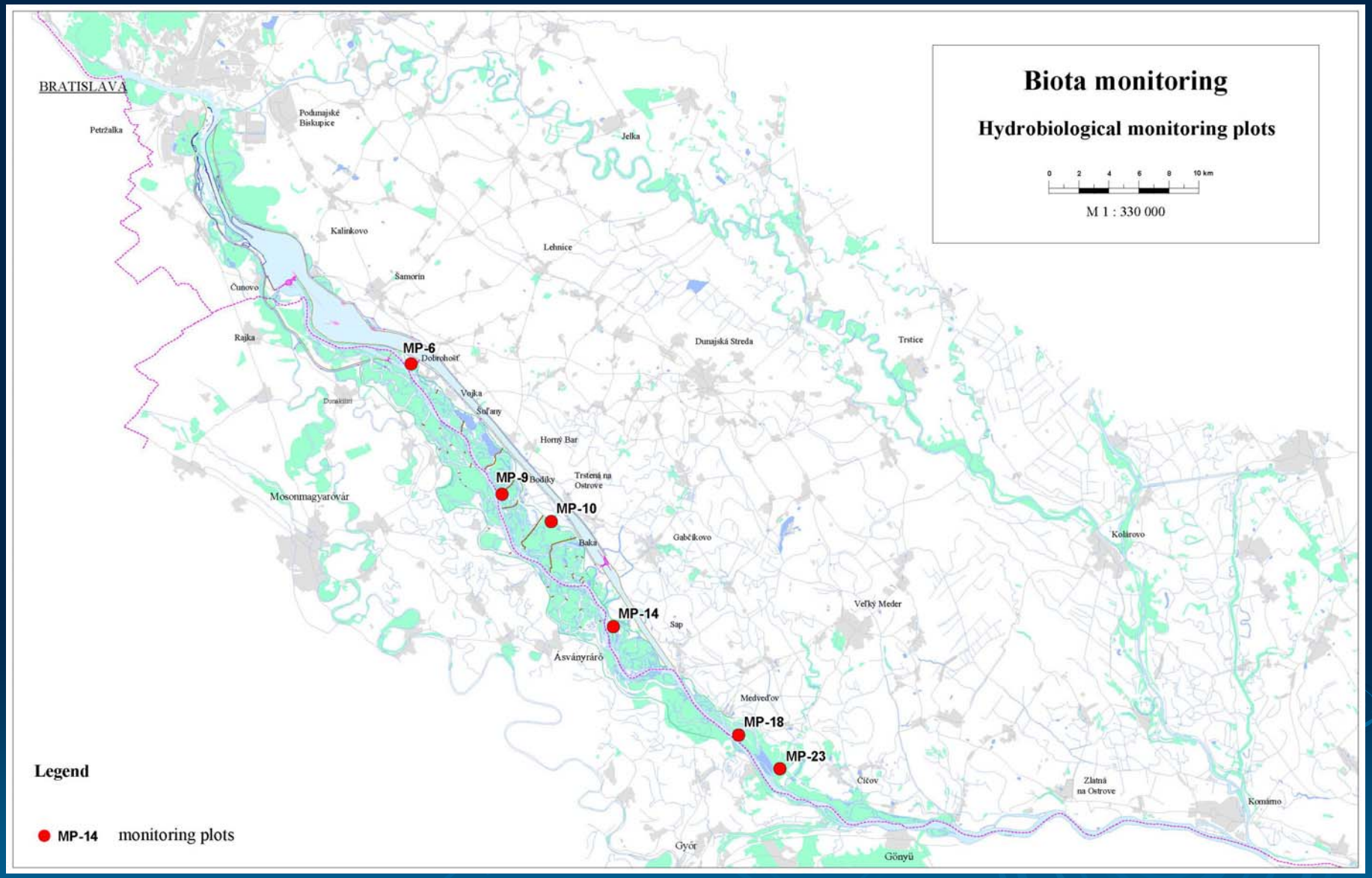
The former parapotamal type arms at present 1992 permanently discharging

- Bodícke rameno (r. km 1830) [9]
- Istragovské rameno (r. km 1815,5) [14]
- Opátske rameno (r. km 1804) [18] (Ephemeroptera, Odonata, Plecoptera, Trichoptera)

The former plesiopotamal types, temporarily through flowing arms

- Rameno na Kráľovskej lúke pri Trstenej na Ostrove (r. km 1825) [10]
- Rameno na Spornej sihoti pri Kľúčovci (only Cladocera, Copepoda, [18]
- Rameno Horný les pri Čičove (r. km 1806) [23]

Hydrobiological monitoring



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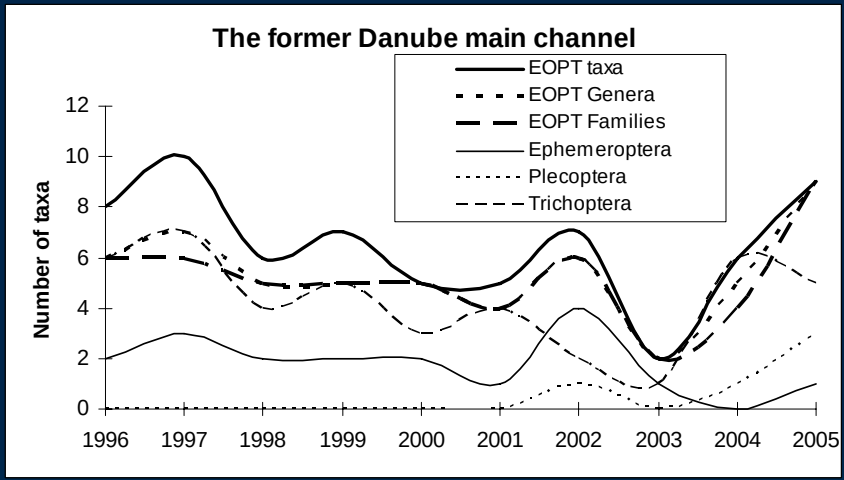
Danube main channel - since 1992 the former Danube main channel, old riverbed

In the Old Danube the decreased discharge resulted in a decline of stream velocity and in the stabilization of gravel sediments, during usual discharges

- In the upper stretch the shallow ripal has widened and shifted towards the mid of the channel
- In the lower stretch upstream of the mouth of the tailrace canal, in the area of Istragov, a backwater stretch has arisen and the stream velocity was further reduced. Sedimentation of silt particles increased, especially at the time of increased discharges in the Old Danube. The originally gravely bottom was covered by a layer of clayish-sandy sediment, which caused a change of the original benthic community

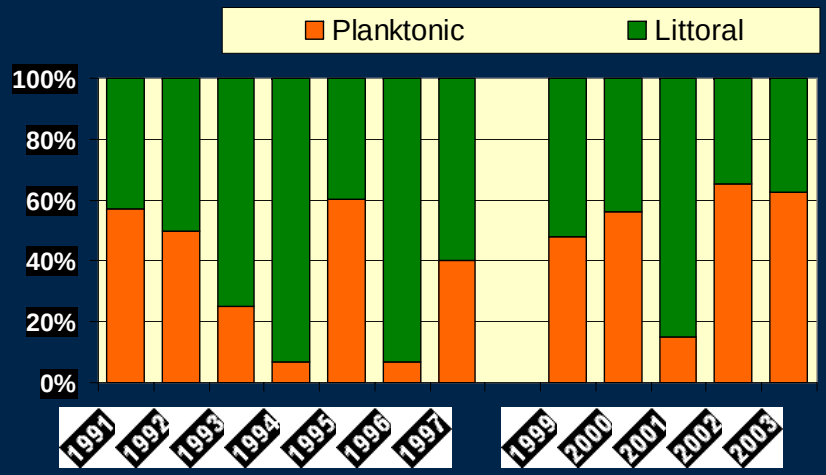
The former Danube main channel, old riverbed

Selected benthic groups

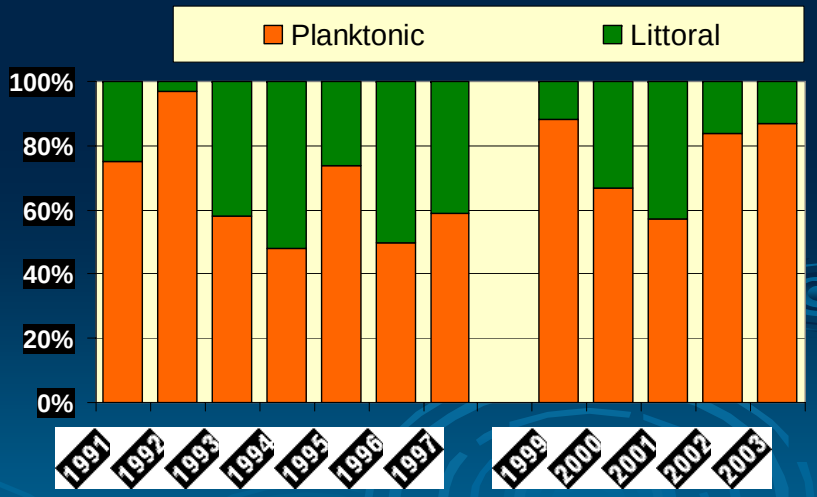


Cladocera

Upper stretch

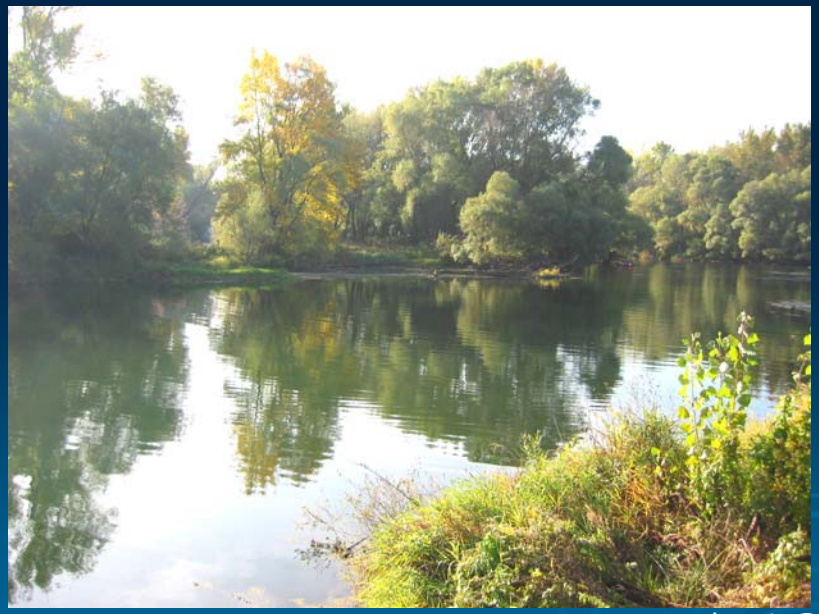


Lower stretch



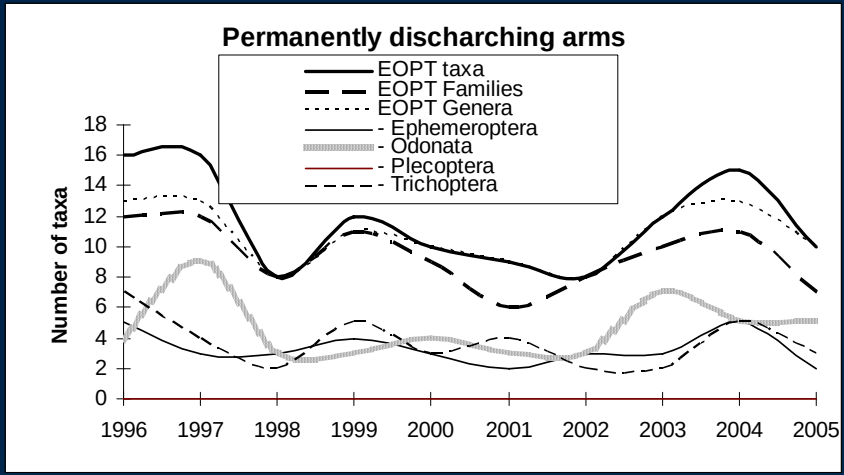
The former parapotamal type arms at present 1992 permanently discharging

- The essential change in the discharging arm was their approximation to the benthic fauna of the Danube mainstream, hence colonization by the rheophilous species (e. g. Bodícke rameno)
- The concept of a new eupotamal, i.e. the creation of a new stream by interconnecting the main arms of individual arm systems, would be optimal for both these arms. This would ensure the preservation of various water bodies in the original within-dike zone (Lisický 2003, Šporka 2003).



Permanently discharging arms

Selected benthic groups



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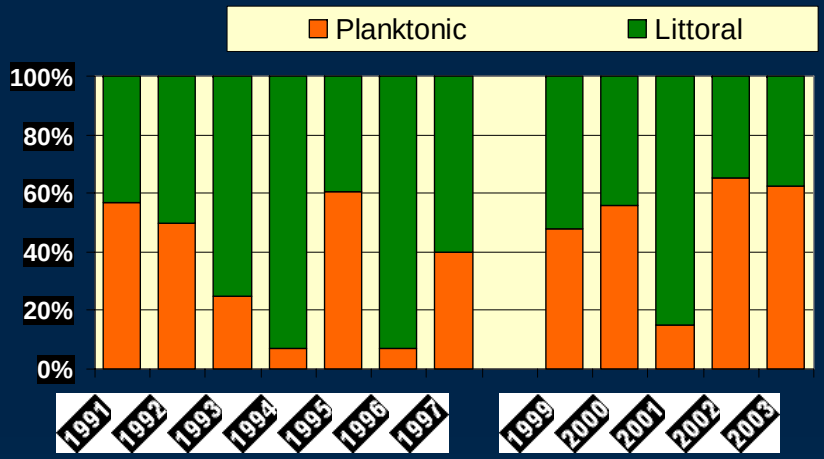
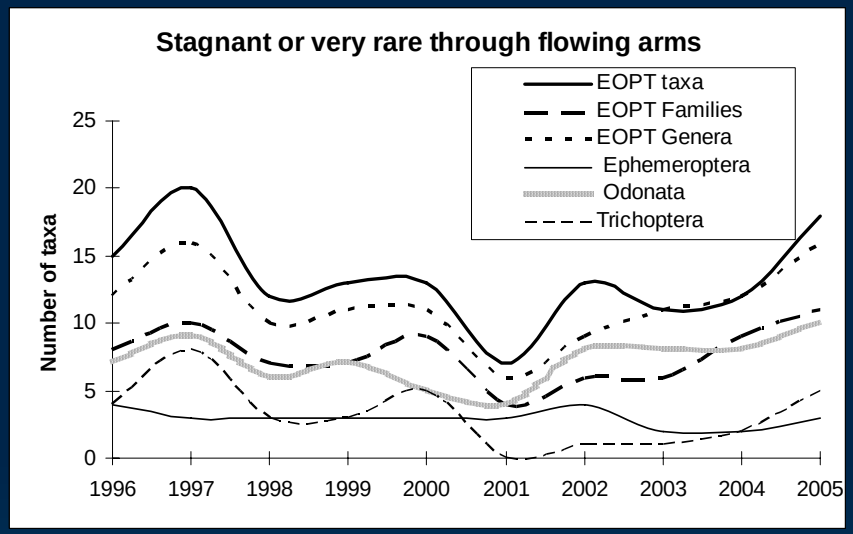


The former plesiopotamal types, stagnant or very rare through flowing arms

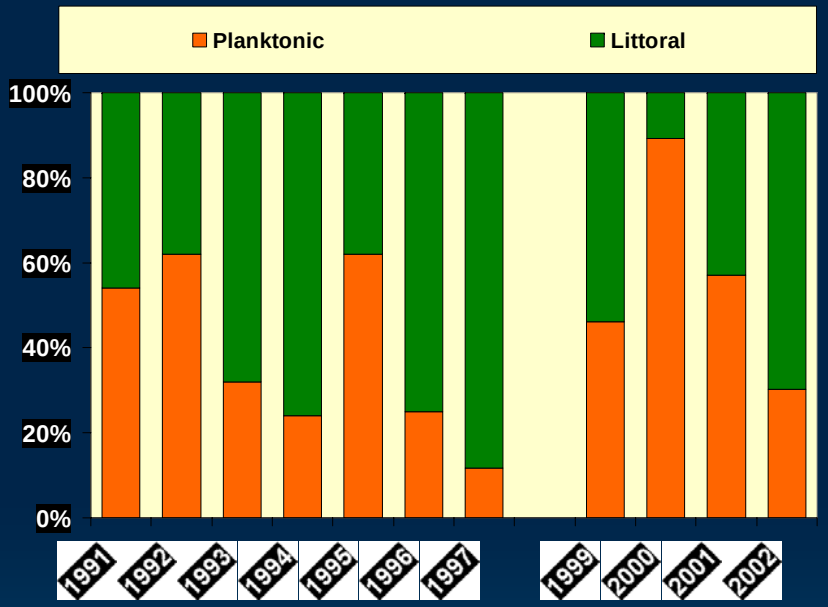
- The former occasionally discharging arms of the plesiopotamal type (Kráľovská lúka) are not washed by water to a degree sufficient to inhibit overgrowing by macrovegetation. In pre-dam conditions the water velocity in the arm approximated, under flood states, the water flow velocity in the main stream and effectively inhibited the development of water macrovegetation
- For this reason it is necessary to ensure regular communication of these water bodies with other water bodies in the within-dike zone, at least during the flood water levels, in order to enrich them by nutrients, to wash out sediments and to slow down process of overgrowing, shallowing and terrestrialisation

Stagnant or very rare through flowing arms

Selected benthic groups



Cladocera



Thank you for your attention!