

**Live Water Project
Toxics and Waste Programme
Arnika Association**



**PCBs, dioxins, and PAHs in sediments of
River Labe, River Bílina, and Klíšský
water stream in Ústí nad Labem
metropolitan area**

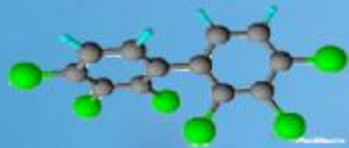
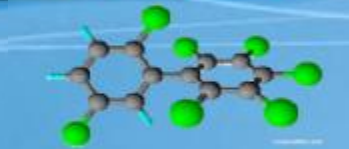
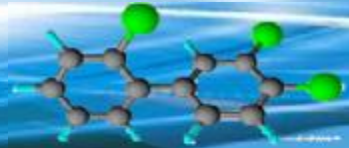
**RNDr. Jindřich Petrlík
Mgr. et Mgr. Václav Mach, Ph.D.**

Live Water Project Toxics and Waste Programme Arnika Association

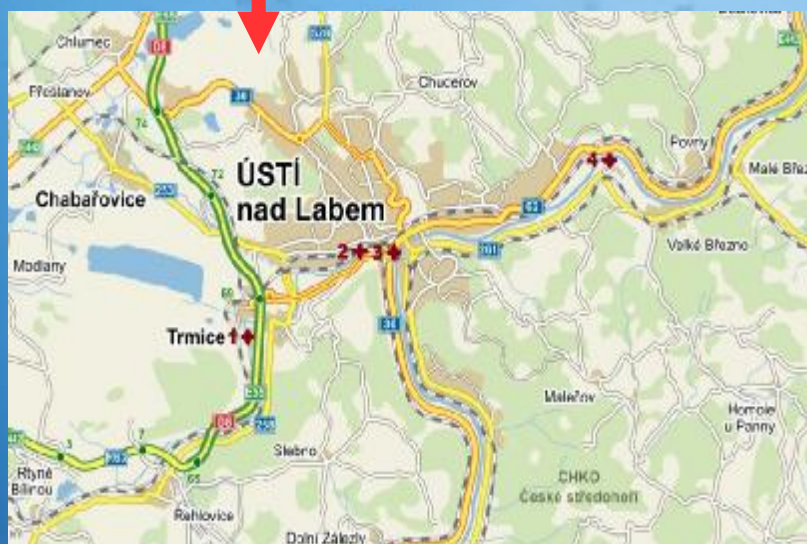
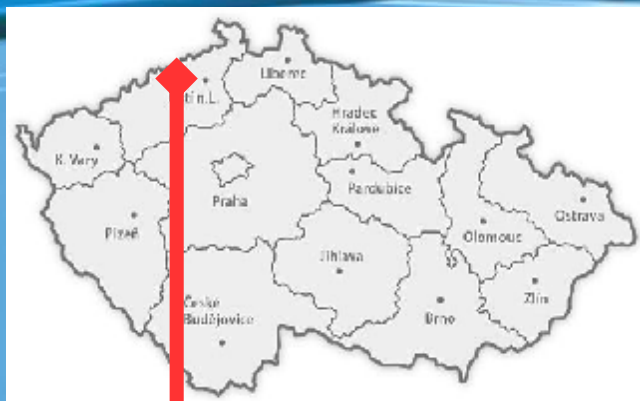


Introduction

- PCBs, PCDDs, PCDFs, and PAHs - POPs
- POPs: bioaccumulation, omnipresent around the world, persistence in nature, toxic, Stockholm Convention
- PCBs: 209 congeners, produced intentionally (coolants, transformer oil, plasticizers in paints, pesticide extenders, lubricating oil and more) former Czechoslovakia – Chemko in Střážské 20 000 t PCBs, production terminated in 1984
- PCDDs and PCDFs: together 210 congeners, produced only unintentionally – chlorine production, waste incineration
- PAHs: 150 homologues, natural and anthropogenic production, produced mostly unintentionally – combustion and heating of organic materials, from coal-tar and asphalt
- our aims: 1) monitoring of POPs in area, 2) help to detect of PCBs source in River Labe



Live Water Project Toxics and Waste Programme Arnika Association



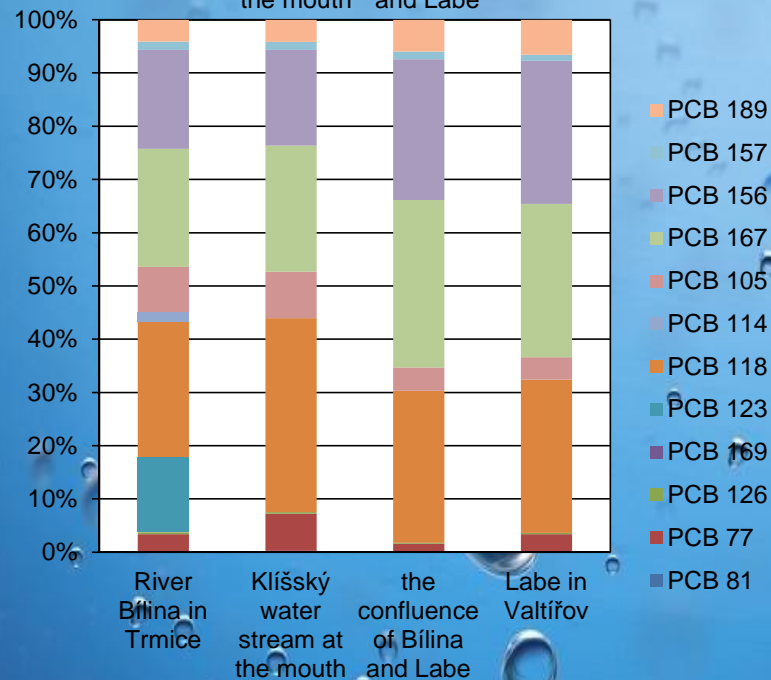
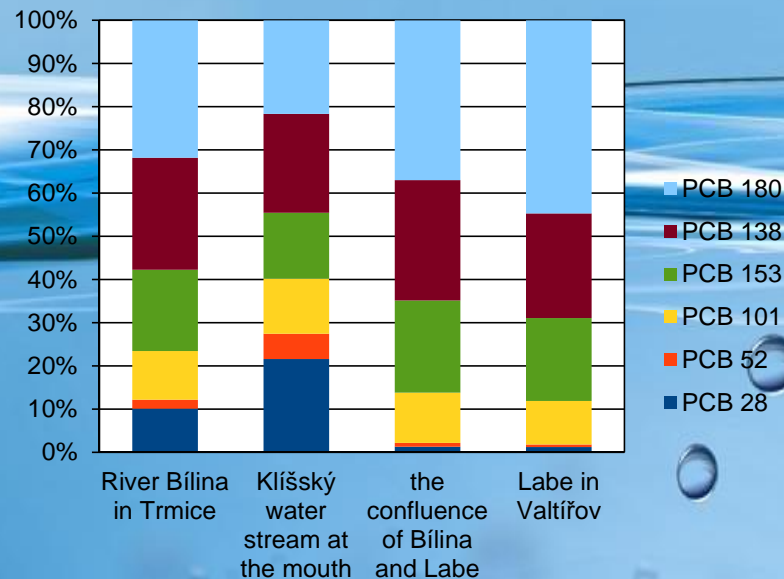
Sampling and analysis

- content in river sediments
- 4 sampling sites in Ústí nad Labem metropolitan area: River Bílina in Trmice, Klíšský water stream at the mouth, the confluence of River Bílina and River Labe, and River Labe in Valtířov
- on 28th of August 2015
- analysis in accredited laboratory using HR-GC-MS
- 6 PCB indicator congeners, 12 PCBs dioxin like congeners, 17 PCDDs/PCDFs congeners, and 16 PAHs homologues
- calculating I-TEQ and WHO-TEQ

Live Water Project Toxics and Waste Programme Arnika Association



Live Water Project Toxics and Waste Programme Arnika Association



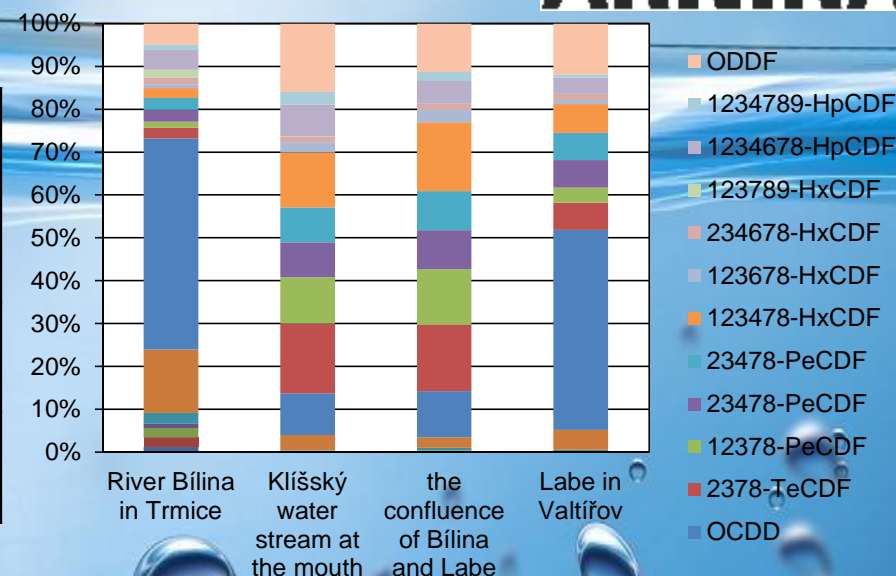
PCBs congeners

- difference between localities (Bílina River in Trmice and Klíšský water stream X the confluence of rivers and Labe River in Valtířov) – congener PCB 28
- different profiles of dioxin like PCBs at all
- corroborate - source of contamination is not located on River Bílina or Klíšský water stream
- the source of contamination is not Spolchemie (a chlorine production plant)
- we can not identify the source of PCBs
- Czech Environmental Inspection: the source is located upstream of River Labe – channel dredging and remobilisation of PCBs accumulated in sediments
- but is it the only source?

Live Water Project Toxics and Waste Programme Arnika Association



	River Bílina in Trmice	Klíšský water stream at the mouth	the confluence of River Bílina and River Labe	River Labe in Valtířov
PCB I-TEQ [ng/kg]	28,70	15,72	303,32	54,57
dioxin I-TEQ [ng/kg]	1,04	21,38	17,23	1,33
total I-TEQ [ng/kg]	29,74	37,40	320,55	55,90



Dioxins (PCDDs/PCDFs)

- the highest concentrations: Klíšský water stream and the second highest on the confluence of rivers
- River Bílina in Trmice and Labe in Valtířov: lower concentration similar to background
- the background concentration in Czech Republic (1 ng I-TEQ/kg DW)
- source of dioxins to River Bílina: Klíšský water stream
- potential source on the water stream: Spolchemie (chlorine production plant)

**Live Water Project
Toxics and Waste Programme
Arnika Association**



Conclusion

- the source of PCBs - not only channel dredging, but also paint from a bridge in Ústí nad Labem (we get to know surprisingly at a press conference)
- the source of dioxins and PAHs is located on Klíšský water stream (we are going to submit our results to Czech Environmental Inspection)
- the most probably source of dioxins and PAHs is Spolchemie



**fond
pro NNO**

NROS
Nadace rozvoje občanské společnosti



nadace
partnerství
| LIDÉ A PŘÍRODA

ICELAND
LIECHTENSTEIN
NORWAY
**eea
grants**

Sampling of sediments and fish from the Czech rivers is a part of the project „Living Water“ financiall supported by a grant from Iceland, Liechtenstein and Norway through the EEA Grants

www.eeagrants.org

It is cofinanced by IPEN, and Global Greengrants

<http://english.arnika.org>



Thank you for your attention
Jindřich Petrlík, Arnika – Toxics and Waste Programme

