Joint Danube Survey 2

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International Commission for the Protection of the Danube River

Internationale Kommission zum Schutz der Donau

Full Report on Cross Matrix Comparison of Semivolatile Organic Compounds (SOCs) in Water, Suspended Particulate Matter (SPM), Sediments and Biota – 23 JRC Sites

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1 Introduction

The target compounds of the cross matrix screening programme were PCDD/Fs, PCBs, PBDEs, Organochlorine Pesticides (OCPs) and PAHs, all of them semivolatile organic (SOC) compound classes with high octanol/water partition coefficients (Ko/w) and low vapour pressures. As a result of their lipophilicity, persistence and low volatility SOCs tend to accumulate in the sediments and biota. In the aqueous phase they distribute between dissolved phase and SPM, depending on their Ko/w and the amount and type of SPM available. The transport within the water column is mainly associated with the hydraulic remobilization of sediments and the subsequent transport and re-sedimentation of Suspended Particulate Matter (SPM).

The scope of the cross-matrix sampling was to obtain spatially overlapping data involving sediment, SPM, water and biota from corresponding sites that would allow an insight into the interactions between the relevant compartments. 25 “super sites” were initially selected for this purpose, at 23 of the supersites sampling was finally executed. The spatial distribution of the sampling sites covers the Danube River over a distance of 2600 km 2600 from Germany to the Black see.

Another objective of JDS 2 was to get a dataset for priority pollutants according to the daughter directive of the WFD concerning priority pollutants (COMMON POSITION adopted by the Council with view to the adoption of a Directive of the European Parliament and of the Council on environmental quality standards in the field of water policy and amending Directives 82/176/EEC, 83/513/EEC. 84/156/EEC, 84/491/EEC, 86/280//EEC and 2000/60/EEC. Brussels, 29.11.2007)

In ANNEX I environmental quality standards (EQS) are given for different types of waters as “annual averages” and “maximum allowable concentrations” (COMMON POSITION, ANNEX I, 2007):

The environmental quality standards for semivolatile organic compounds refer to analysis of whole water samples (dissolved phase and suspended particulate matter).

A geographical overview on the 23-JRC sampling stations is given in Fig 1.1.

Fig 1-2 indicates the position of the most important tributaries and in Table 1.1 site additional site specific information is given.

Additional information on part of the sites can be found in the JDS2 logbook under: http://www.icpdr.org/jds/diary_sites.

Figure 1.-1 Overview on the 23 sampling stations for cross-matrix screening of Semivolatile Organic Compounds (SOCs)

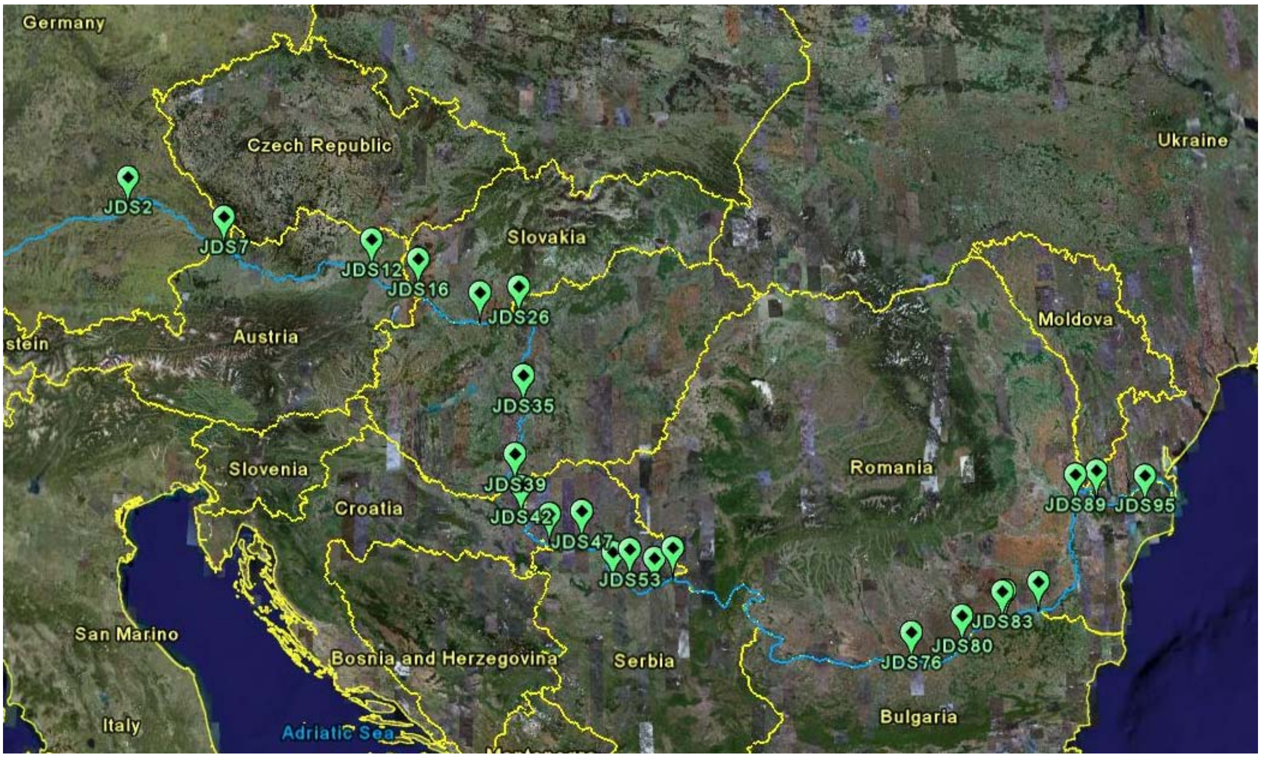


Figure 1.-2 Overview on the Danube tributaries

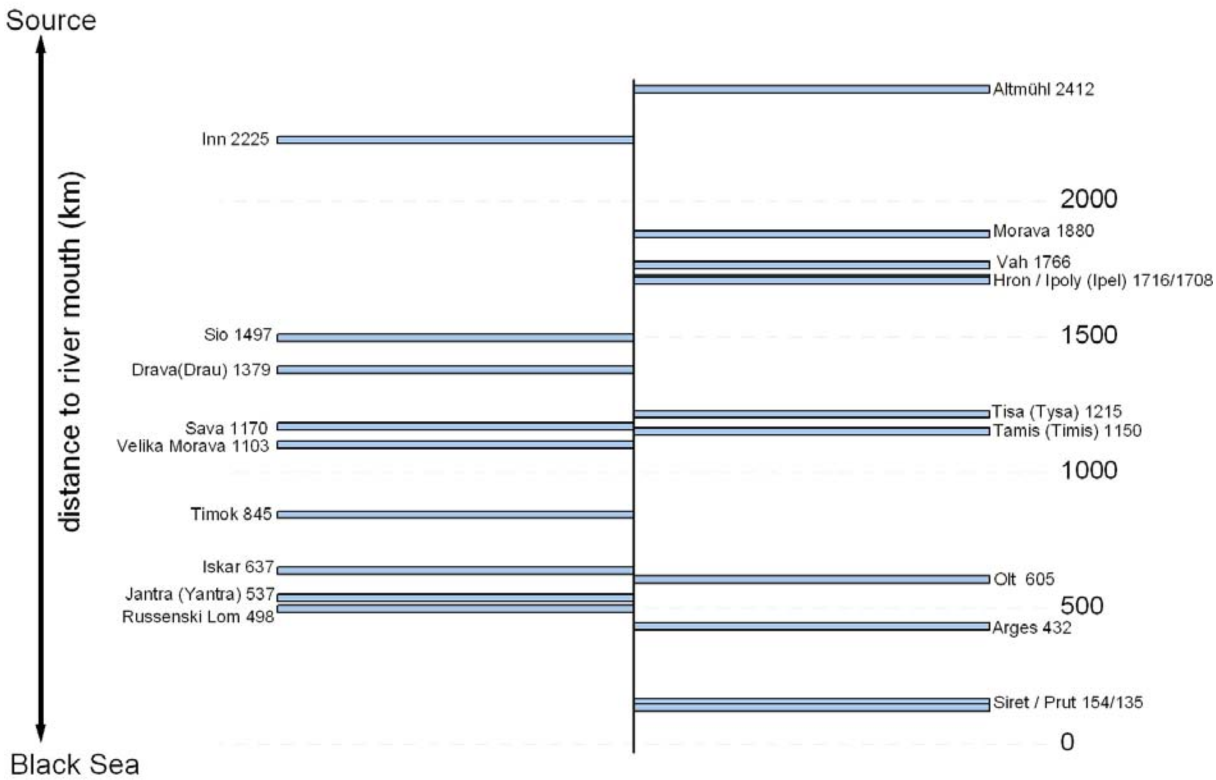


Table 1.-1 JRC sites: Sediment, SPM, and water sampling along the Danube and the inlets of some Tributaries

Sampling location / Tributary	Km to river mouth	Location	Comments	Corresponding SPM and Water sampling Trransects	Comments
SD2	2415	Kelheim – Gauging station (type: western alpine foothills, subsection 1)	High OP-result in JDS 1	2415	Stopped in Kehlheim (GER), **downstream** of the Tributary "**Altmuehl**"
	2225		**Inn**		
SD7	2204	Jochenstein (type eastern alpine foothills)	Important border station GER /AUT	2162.5 - 2120	42.5 km Transect **downstream** of the tributary "**Inn**"
SD12	1942	Klosterneubur g	Elevated concentrations in ADS	1942-1933	9 km transect
	1880		**Morava**		
SD16	1869	Bratislava	Important station after border	1870-1864	6 km transect **downstream** of the tributary "**Morava**"

	1766	**Vah**			
SD22	1761	Iza/Szony	Transboundary site	1724.5-1752	-27.5 km transect **downstream** the "**Vah**" tributary. Vessel sailed upstream
	1716	**Hron**			
	1708	**Ipoly**			
SD26	1707	Szob	Downstream Hron and Ipoly	1707-1693	14 km transect **downstream** the tributaries "**Hron** and **Ipoly**"
SD35	1560	Dunafoldvar		1577-1552	25 km transect
	1497	**Sio**			
SD39	1434	Hercegszanto	Important border station, highest pentachlorobenzene result in JDS 1	1477-1443	34 km transect
SD42/ Drava	1379	River Drava	Important tributary	1379	Vessel stopped **inside** the tributary "**Drava**"
SD45	1300	Ilok/Backa Palanka	Transboundary site	1326-1299	27 km transect
SD47	1252	Downstream Novi-Sad	Important site	1252	Vessel stopped **downstream Novisad**
	1215	**Tisa**			
SD51/ Sava	1170	Rivert Sava	Important tributary	1170	Vessel stopped **inside** the tributary "**Sava**"
	1150	**Tamis**			
SD53	1151	Downstream Pancevo	High lindane results in JDS 1	1151-1115	36 km transect **downstream** the tributary "**Tamis"**
SD56/ Velika Morava	1103	/Velika Morava	High NP and OP results in JDS1	1103	Vessel stopped **inside** the tributary "**Velika Morava**"
SD58	1077	Starapalanka – Ram	Entrance of Irongate reservoir (already high sedimentation)	1077-1060	17 km transect
	845	**Timok**			
	637	**Iskar**			
	605	**Olt**			
SD76	579	Downstream Turnu-Magurele/Nikopol		579-550	29 km transect **downstream** the tributary "**Olt**"
	537	**Jantra**			
SD80	500	Upstream Ruse		500	Vessel stopped **upstream** the tributary "**Russenski Lom**"
	498	**Russenski Lom**			

SD83	434	Upstream Arges		458-435	23 km transect
	432		**Arges**		
SD85	429	Downstream Arges, Oltenita	High DEHP result in JDS1	427-378	49 km transect **downstream** the tributary "**Arges**"
SD86	378	Chiciu/Silistra		375-322	53 km transect
SD89	167	Braila	Important oil refinery	231-170	61 km transect
	154		**Siret**		
	135		**Prut**		
SD 92	130	Reni	High pp'-DDT concentrations in SPM during JDS1	61-51	10 km transect
SD95	0	Sulina - Sulina arm	Danube Delta, influence to Black Sea	38-26	12 km transect in the Sulina arm of the Danube Delta

The following subchapters provide general information about the SOCs analysed.

1.1 Polycyclic Aeromatic Hydrocarbons (PAHs)

PAHs consist of fused aromatic rings and do not contain heteroatoms or substituents. PAHs occur in oil, coal and tar deposits, and are produced as unintentional byproducts of incomplete combustion processes. As a pollutant, they are of concern because some compounds have been identified as carcinogenic, mutagenic, and teratogenic.
PAHs are lipophilic, meaning they mix more easily with oil than water. As for all of the SOCs being part of this study, the higher the molecular weight PAHs are less water-soluble and less volatile. Because of these properties, PAHs are found primarily in soil and sediment.

In aquatic systems PAHs tend to associate with SPM and accumulate in sediments but – compared to other SOC compound classes - only to some extent in biota, since the can be more easily metabolized than the halogenated aromatic SOC classes discussed below. Their transport within rivers is mainly driven by the hydraulic dynamics between with sediments and SPM.

16 EPA priority PAH plus Benzo (e) pyrene and Benzo(j)fluoranthene were analysed in water, SPM and sediments.

1.2 Organochlorine Pesticides (OCPs)

OCPs are intentionally produced organic chemicals for pest control. DDT was the first that was used on a large scale. DDT and its metabolites, Aldrin, Dieldrin, Endrin, and Lindane have been widely used and therefore are found widely distributed in the environment.
OCPs have a low water solubilities and high log K_{ow}s. They tend to be persistent and absorb strongly to suspended solids and sediments. Due to their persistence and lipophilicity they tend to be highly bio accumulated in the fatty tissue of organisms and are classified as Persistent Organic Pollutants (POPs). Part of the OCPs presented in this study are listed among the 12 POPs of the Stockholm Convention (SC)

In aquatic systems OCPs tend to associate with SPM and accumulate in sediments and biota. Their transport within rivers is mainly driven by the hydraulic dynamics between with sediments and SPM. OCPs are highly toxic (including endocrine disruption) to aquatic organisms and mammals.

The following OCPs were analysed:

1.3 Indicator Polychlorinated Biphenyls (PCBs)

(PCBs) are a class of organic compounds with 1 to 10 chlorine atoms attached to biphenyl which is a molecule composed of two benzene rings each containing six carbon atoms.

PCBs are intentionally produced chemicals with a broad spectrum of industrial applications.

They were used as coolants and insulating fluids for transformers and capacitors, stabilizing additives in flexible PVC coatings of electrical wiring and electronic components, pesticide extenders, cutting oils, flame retardants, hydraulic fluids, sealants, adhesives, wood floor finishes, paints, de-dusting agents, and in carbonless copy paper.

PCB production was banned in the 1970s due to the high toxicity of most PCB congeners and mixtures. PCBs are semivolatile and lipophilic and are classified as POPs which bio-accumulate in animals. In aquatic systems PCBs tend to associate with SPM and accumulate in sediments and biota. Their transport within rivers is mainly driven by the hydraulic dynamics between with sediments and SPM.
Among the 209 isomers present in technical PCB mixtures 6 Indicator PCBs (EC6) have been selected for the characterization of the presence of PCBs. Their sum of their concentration is commonly reported as “Sum of Indicator PCBs”.

1.4 Polychlorinated dibenzo–p –dioxins and dibenzofurans (PCDD/Fs) and Dioxin-like Polychlorinated Biphenyls (DL-PCBs)

PCDD/Fs are unintentional by-products of poor combustion and a variety of chemical processes involving chlorine and organic compounds. The Cl4 – Cl8 substituted congeners having Cl at the 2,3,7,8 positions are considered being toxic.
PCBs are - in contrast to the PCDD/Fs - intentionally produced chemicals with a broad spectrum of industrial applications such as dielectric fluids, paints, hydraulic oils etc. However, some of the CL4 – Cl7 substituted PCBs have a structural similarity with PCDD/Fs (2 fused aromatic rings with a Cl substitution at the opposite end of the molecule). In particular the non-ortho Cl-substituted PCBs can display a co-planar geometry and show a structure and a toxicity comparable to the PCDD/Fs. Mono ortho Cl-substituted PCBs still show similar “dioxin-like” toxic effects but at a lower intensity.

The toxic responses of PCDD/Fs and DL-PCBs include dermal toxicity, immunotoxicity, carcinogenicity, and adverse effects on reproduction, development, and endocrine functions.

Due to their similar behaviour and toxicological endpoints, PCDD/Fs and DL-PCBs are often evaluated and reported together. Both compound classes are included in a toxicity evaluation scheme that sums up the toxicity of the individual congeners of both classes (17 PCDD/Fs and 12 DL-PCBs) expressed as toxicity equivalents (TEQs) of the 2,3,7,8 Tetrachloro dibenzo-p-dioxin (TCDD).
To this end the WHO agreed on 2,3,7,8-TCDD Toxicity Equivalency Factors (TEFs) for the 17 PCDD/Fs and 12 DL-PCBs (Van Den Berg et al., 1998, 2005).

Both, PCDD/Fs and DL-PCBs are classified as persistent environmental pollutants and are listed among the 12 POPs of the SC. Due to their hydrophobic nature and resistance towards metabolism they accumulate in fatty tissues of animals and humans.

In aquatic systems PCDD/Fs and DL-PCBs tend to associate with SPM and accumulate in sediments and biota. Their transport within rivers is mainly driven by the hydraulic dynamics between with sediments and SPM.

Due to the risk for wildlife and humans arising from PCDD/Fs in sediments quality objectives for PCDDs and PCDFs have been set. Out of eight approaches available (Iannuzzi et al., 1995), the tissue residue-based (TRB) method is the most commonly used. This method defines a safe chemical concentration in sediment, which results in an acceptable tissue concentration in biota. A no observed effect concentration (NOEC) of 200 pg of international toxicity equivalent (I-TEQ)/g dry weight (d.w.) in sediment was derived, but since only few chronic toxicity data were available a safety factor of 10 was applied, which resulted in the proposal of a “safe sediment value” of 20 pg I-TEQ/g d.w. (Evers et.al., 1996).

1.5 Polybrominated diphenylethers (PBDEs)

Polybrominated diphenylethers are used as flame retardants in plastic materials, especially in plastics for electrical and electronic products. Worldwide, only three types of polybrominated diphenylether mixtures are commercially used: decabromo-diphenylether (a mix of BDE-206, 207, 208, 209), octabromodiphenylether (a mix of BDE-183, 196, 197, 203), and pentabromodiphenylether (a mix of BDE 28, 47, 99, 100, 153 and 154)

The main polybrominated diphenylethers produced and used in Europe are Decabromodiphenylether followed by Octabromodiphenylether. Concerning risk assessment, PDBEs were identified to carry unacceptable risks from use in polyurethane foams. Under the proposed Directive on Waste Electrical and Electronic Equipment, it is suggested that PDBEs should be substituted by other substances by 2008.

Based on comprehensive risk assessments, the European Union (EU) decided to ban the c-Penta- and c-Octa-BDE products in August 2004 (Directive 2003/11/EC). According to the available risk assessment data on c-Deca-BDE, no risk reduction measures were considered necessary by the EU, but further research was suggested (European Commission Joint Research Centre, 2002, 2004).

Commercial Octabromodiphenylether (c-OctaBDE) has recently been proposed to be added to the list of POPs under the UNECE Convention on Long Range Trans-boundary Air Pollution (CTRTAP).

The Commercial Pentachlorodiphenylether (c-PentaBDE) mixture is included in the priority substance list of the WFD with an AA-EQS for inland waters of 0.5 ng/L for the $\sum$ of BDE 28, 47, 99, 100, 153 and 154

The fate and distribution dynamics of PBDEs in the environment is similar to that of PCBs, they have low water solubilities and tend to bio accumulate. In contrast to the 12 POPs subject to the SC, PBDEs show rising trends in the environment including human tissue. Although the toxicological endpoints of PBDEs are not entirely evaluated, their structural similarity to PCDD/Fs and PCBs suggests similar toxicological endpoints.

In aquatic systems PBDEs tend to associate with SPM and accumulate in sediments and biota. Their transport within rivers is mainly driven by the hydro dynamics between with sediments and SPM.

2 Methods

2.1 Sampling and sample preparation

2.1.1 Sediments

Sediments were obtained from 23 sites, among them 14 sites where both sides of the river were sampled.

Sediments were sampled by sampling net, taking upper layer (ca. 5-10 cm) of the sediment at the places of the Kick&Sweep macrozoobenthos and phytobenthos sampling. Ca. 10 kg sample was transported to the ship in PP bucket. This was followed by on-board grain size fractioning with wet sieving in order to separate the <63µm fraction for analyses. The samples were stored in dark at 4°C and then transported to the laboratory of Umweltbundesamt GmbH Vienna for freeze drying.

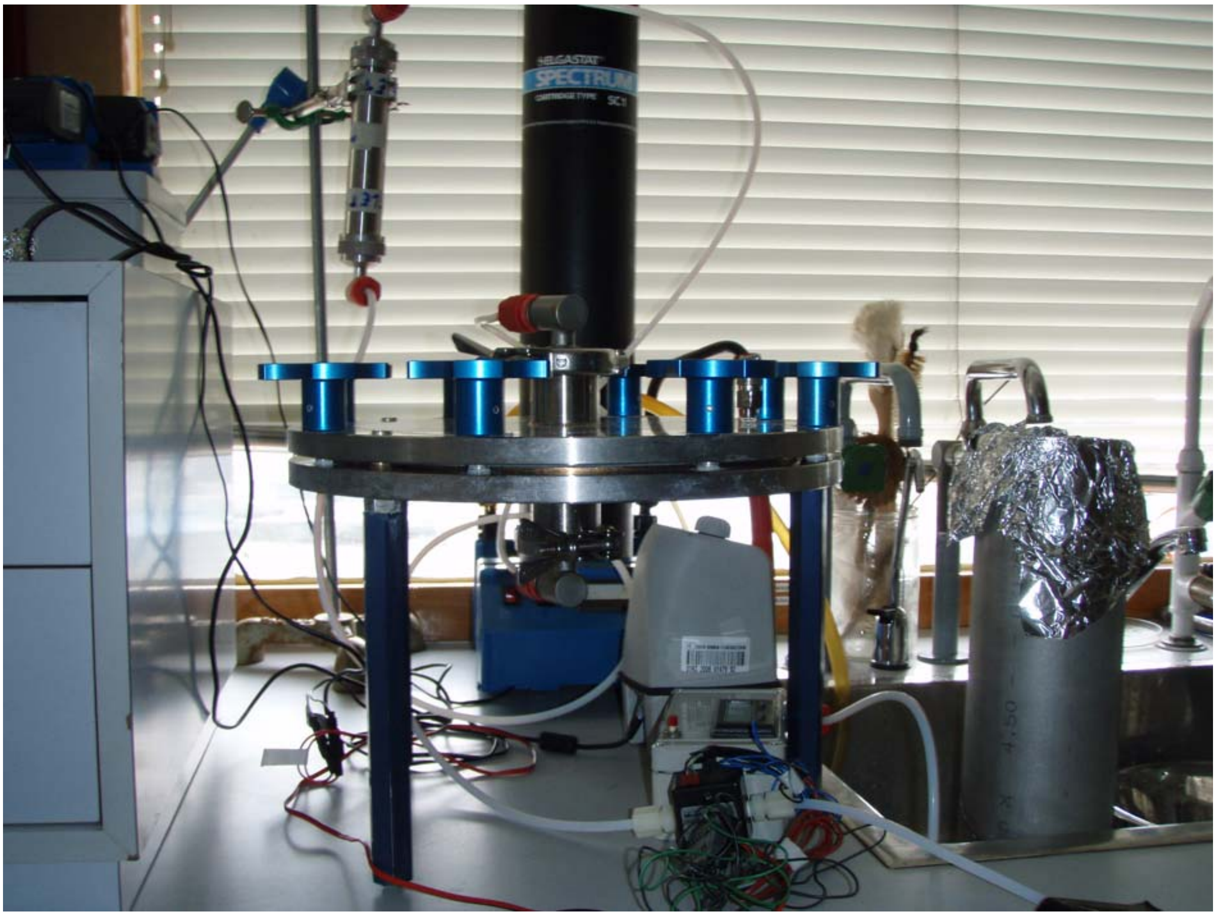
2.1.2 Dissolved phase

Dissolved phase water samples were collected on 50 g XAD-2 contained in modified extraction cartridges of the ASE extraction system (Olivella, 2006).

The water sample (between 10 and 49.5L) was pumped at a rate of 200mL/min with a LIQUIPORT ® KNF NF 1.100 FT.18 S PTFE-coated diaphragm pump (KNF FLODOS AG, Switzerland) through 8 mm i.d. Teflon tubing directly from the Danube River over a 293 mm (diameter) glass fibre filter (GFF)and the filtrate extracted online by a modified ASE cartridge containing 50g XAD 2. In some cases two cartridges were connected in series to check for eventual breakthrough. The GFF was transferred for transport and storage in a 500mL Schott Duran ® borosilicate bottle and frozen until further processing whereas the XAD containing cartridges were put in a fridge and transported back to the laboratory (arrived in blocks approx one week after sampling at the lab), stored again at 4°C and processed in February 2008 by pressurized liquid extraction using a Dionex accelerated solvent extractor (ASE® 300, Dionex Cooperation, USA).

2 breakthrough experiments were executed (JDS 22 and JDS 92). For most PAHs breakthrough on the 2nd cartridge was < 4% except for Fluorene and Phenanthrene which ranged up to 11 and 13% respectively in at the site JDS 22. The breakthrough for OCPs varied from a minimum of 2% for HCHs to the maximum of 15% for oxychlordane and from a minimum of 7% for PCB-28 to the maximum of 34% for PCB-189.

Figure 2.1.2-1 Large volume sampling device – Filter/XAD system



2.1.3 SPM

23 SPM samples were collected with a continuous-flow centrifuge mostly during cruising, while contemporarily the dissolved phase water samples were collected the Filter/XAD system described above. Centrifugation, preservation and storage were performed on board of Argus.

The centrifuge was a Z61H from Carl Padberg Zentrifugenbau GmbH,(Germany) operating at a cylinder speed of 17000 rpm.

Sampling typically took from 30 minutes to several hours, depending on the concentration of suspended solids in water.

Preservation was attained through keeping the samples in the dark and refrigerated (or on ice during transportation) at between 2^0C and 5^0C (ISO 5667-15).

After shipping to UBA Vienna, the SPM samples were and lyophilized and shipped to the JRC.

2.1.4 Mussels

Mussel samples were Anadonta anatina, Sinodonta waodina, Unio pictorum, Unio tumidus taken on 24 sites that were only partially identical with the 23 sites selected for the inter matrix comparison.

Preservation was attained through keeping the samples in the dark and refrigerated (or on ice during transportation) at between 2^0C and 5^0C (ISO 5667-15).

After shipping to UBA Vienna, the mussel samples were and lyophilized and shipped to the JRC.

2.2 Analyses

2.2.1 Overview

A sample preparation method for determination of PCDD/Fs, EC-6 PCBs and DL-PCBs was adopted to include PBDEs in the analysis (Covaci et al, 2003; Pirard et al., 2003; Thomsen et al., 2004).

The analysis of all compounds in was done using isotope dilution and GC/MS techniques, starting from one extract.

10 % of the extract was separated to analyze PAHs and OCPs (except for the dissolved phase where PCBs, PBDEs and PAH were analysed in the raw extract before splitting the sample).

In the remaining 90% of the extract PCDD/F, PCBs and PBDEs were analysed.

2.2.2 Standards & Chemicals

68-CVS and 68-LCS were native and ^{13}C-labelled internal standards for 12 congeners DL-PCBs (Wellington Laboratories Guelph, Ontario, Canada). EC-4058 was native for indicator-PCBs (CIL, Andover, Massachusetts, USA). ^{13}C-labelled PCB-111 and PCB-170 were used as recovery standards (Wellington Laboratories Guelph, Ontario, Canada).

EPA-1613CVS, EPA1613LCS and EPA-1613ISS were native, ^{13}C-labelled internal and recovery standards respectively for 17 PCDDs/Fs. The standards were obtained from Wellington Laboratories (Guelph, Ontario, Canada).

Ten 13C-labelled PBDE congeners were used as internal standards, (in accordance with IUPAC nomenclature: BDE-28, BDE-47, BDE-99, BDE-100, BDE-153, BDE-154, BDE-183; BDE-197, BDE-207 and BDE-209), Nine present in MBDE-MXE-STK solution (in accordance with IUPAC nomenclature: BDE-28, BDE-47, BDE-99, BDE-153, BDE-154, BDE-183; BDE-197, BDE-207 and BDE-209) and one BDE-100 was added from the solution MBDE-100. ^{13}C-labelled BDE-126 and BDE-206 were used as recovery standards. BDE-MXE was native solution. All PBDE standards were obtained from Wellington Laboratories (Guelph, Ontario, Canada).

10 deuterated PAH isomers Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(g,h,i)perylene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-c,d)pyrene were used as internal standards Deuterated Acenaphthene Benzo(e)pyrene, Benzo(k)fluoranthene, and Pyrene were used as recovery standards. All PAH standards were obtained from Dr. Ehrensdorfer.

OCPs internal standards were ^{13}C-labelled except of d8 p,p-DDD. Isotope labelled Aldrin, α - HCH, γ-HCH, cis-Nonachlor, Dieldrin, alpha-Endosulfan, beta-Endosulfan, Endrin, Heptachlor, Heptachlor-endo-epoxide (trans,isomer A), HCB, Mirex, o,p-DDD, o,p-DDT, Oxy-chlordane (gamma), p,p'-DDE, p,p'-DDT, trans-Chlordane (gamma), trans-Nonachlor were used as internal standards. ^{13}C-labelled β – HCH, o,p-DDE, and p,p'-DDD were used a s recovery standards. All OCP standards were obtained from Cambridge Isotope Laboratories.

All organic solvents used were Dioxin analysis grade (Sigma-Aldrich, Buchs SG, Switzerland). Sulphuric acid was 98% extra pure (VWR International s.r.l., Milan, Italy). Cleanup of PCDD/F, PCBs and PBDEs was conducted on ready to use multi-layer (acidic silica, basic alumina and carbon) columns (Fluid Management Systems (FMS) Inc., Watertown, MA, USA).

2.2.3 Solid samples

The freeze dried solid samples were extracted with a mixture of n-hexane/acetone (220/30) by Soxhlet for 48 h after spiking with isotope-labelled surrogate standards. For bottom sediments and SPM copper powder was added to the solvent during the extraction to remove Sulphur.

For the further analysis of SPM, Sediments and biota 10 % of the Soxhlet extract were separated to execute the combined clean-up of PAHs and OCPs.

The remaining 90% of the extract were subjected to an automated clean up for the purification and separation of the fractions containing PCDD/F, PCBs and PBDEs.

PCDD/F, PCBs and PBDEs:

After treatment of the raw extract with conc. H_2SO_4 extract purification was executed with an automated clean-up system (Power-Prep P6, Fluid Management Systems (FMS) Inc., Watertown, MA, USA). This system was previously described (Abad et al., 2000) and uses a multi-layer silica column (acid/neutral), basic alumina and carbon column combination. Two fractions were collected, one containing Mono-ortho PCBs, Indicator-PCBs and PBDEs and one for Non-ortho PCBs and PCDD/Fs.

OCPs and PAHs:

The n-hexane extracts from solid samples were submitted to a clean-up using 2g of deactivated (10 % H_2O) Alumina-B (Supelco) over a SPE cartridge containing 5g of Florisil (Waters, WAT043370). The samples were eluted with 40 ml of $CHCl_2$/n-Hexane (1:2) vol/vol. After evaporation of the extract to 100 µl the syringe standards for PAHs and OCPs were added. The sample was analysed in separate runs for OCPs and PAHs.

2.2.4 Dissolved phase samples

Dissolved phase water samples were collected on 50 g XAD-2 contained in modified extraction cartridges of the ASE extraction system (Olivella, 2006).

The cartridges were extracted using the Dionex ASE® 300 applying in a 1st extraction methanol (3 cycles each with a static time of 5 min at 75°C, heat-up time of 5 min, a flush volume of 100%, a purging time of 60s and a pressure of 1500 psi) and in a 2nd extraction n-hexane (same parameters as for methanol), respectively.

Surrogate standards were added to the hexane phase of the ASE after extraction. The methanol and hexane phases were combined in a separator funnel and ca 60-80mL (ca 1/3 of the volume of the methanol phase) MilliQ water added for improved phase separation.

After phase separation the methanol phase was collected in the ASE bottles and the hexane phase transferred into Zymak vials for concentration

The methanol phase was extracted three more times with ca 20 mL n-hexane and the hexane phases combined with the first extract

Concentration of the extract to 0.5 ml under purified N_2 using a TURBOVAP workstation (Zymak).

Transfer of the extract into a 2 ml conic vial

Labelled syringe standard were added before the final evaporation to 50 µl under a gentle stream of purified N_2.

PCBs, PBDEs and PAH were analysed in the raw extract before splitting the sample. Subsequently 10 % of the raw extract was separated for clean up for OCPs (as described above for solid matrices).

Extract purification of the remaining 90% was executed with an automated clean-up system (Power-Prep P6, Fluid Management Systems (FMS) Inc., Watertown, MA, USA) describe above to obtain the fraction containing PCDD/Fs and co-planar PCBs.

2.2.5 Instrumental

All instrumental analysis of PCDD/Fs, PCBs and PBDEs was based on isotope dilution using HRGC-HRMS (high resolution gas chromatography – high resolution mass spectrometry) for quantification on the basis of EPA1613, EPA 1668 and EPA 1614 methods. OCPs were analysed using isotope dilution with HRGC-HRMS for quantification on the basis of an in house method referring to the QA/QC criteria laid down in the methods above for PCDD/Fs, PCBs and PBDEs.

Non-ortho PCBs, PCDD/Fs, PBDEs, and OCPs were analyzed on double HRGC (Thermo Trace GC Ultra, Thermo Electron, Bremen, Germany), were coupled with a DFS high resolution mass spectrometer HRMS (Thermo Electron, Bremen, Germany) operating in the EI-mode at 45 eV with a resolution of >10000. For Non-ortho PCBs, PCDD/Fs the most two abundant ions of the isotopic molecular cluster were recorded for both native and labelled congeners.

For tri- to octa-brominated congeners two ions of the isotopic molecular cluster were recorded, for nona- and deca-brominated congeners two isotopic ions of the cluster M^+-2Br were recorded for both native and labeled congeners. The quantified isomers were identified through comparison of retention times of the corresponding standard and the isotopic ratio of the two ions recorded.

Non-ortho PCBs, PCDD/Fs and OCPs were separated on a BP-DXN 60 m long with 0.25 mm i.d. (inner diameter) and 0.25 µm films (SGE, Victoria, Australia). The following gas-chromatographic conditions were applied for non-ortho PCBs, PCDD/Fs: split/splitless injector at 280 °C, constant flow at 1.0 ml min^{-1} of He, GC-MS interface at 300 °C and a GC program rate: 160 °C with a 1 min. hold, then 2.5 °C min^{-1} to 300 °C and a final hold at 300 °C for 8 min.

Gas chromatographic conditions for OCPs were: Split/splitless injector at 250 °C, constant flow at 1.0 ml min^{-1} of He, GC-MS interface at 270 °C and a GC program rate: 100 °C with a 1 min. hold, then 10 °C min^{-1} to 300 °C and a final hold at 300 °C for 9 min.

PBDEs were analyzed on a Sol-Gel-1ms, 15 m with 0.25 mm i.d. and 0.1 µm film GC column (SGE, Victoria, Australia). The following gas-chromatographic conditions were applied: PTV injector with temperature program from 110 to 300 °C at 14.5 °C sec^{-1}, constant flow at 1.0 ml min^{-1} of He, GC-MS interface at 300 °C and a GC program rate: 110 °C with a 1 min. hold, then 20 °C min^{-1} to 300 °C and a final hold at 300 °C for 6 min. The selection of the chromatographic conditions was optimized following the literature indications (Sjödin et al., 1998; Covaci et al., 2003; Björklund et al., 2004; Korytár et al., 2005).

Mono-ortho PCBs and Indicator-PCBs were analyzed on a GC (HP-6890, Hewlett Packard, Waldbronn, Germany) coupled with a VG Autospec Ultima high resolution mass spectrometer (Micromass, Manchester, UK) operating in EI-mode at 34 eV with a resolution of >10000.

Mono-ortho PCBs were separated on HT-8 capillary columns, both columns types were 60 m long with 0.25 mm i.d.(inner diameter) and 0.25 µm film (SGE, Victoria, Australia).

Gas chromatographic conditions for Mono-ortho PCBs were: Split/splitless injector at 280 °C, constant flow at 1.5 ml min^{-1} of He, GC-MS interface at 280 °C and a GC program rate: Starting from 120 °C with 20 °C min^{-1} to 180 °C, 2 °C min^{-1} to 260 °C, and 5 °C min^{-1} to 300 °C isotherm for 4 min.

PAHs were analysed by GC/LRMS consisting of a GC (6890N Agilent technologies) coupled to a low resolution mass selective detector (5973 Agilent technologies), an autosampler and a PTV injector (CIS 4 Gerstel). The GC-MS was operated in Single Ion Mode (SIM) and quantification was performed by using 10 deuterated internal standards and 4 syringe standards. The GC separation is performed no a J&W DB-5MS capillary column (60mx0.25mmx0.25µm).

Gas chromatographic conditions for PAHs were: Split/splitless PTV injecton (temperature ramp 80-300 °C at 12 °C sec^{-1}, constant flow at 1 ml min^{-1} of He, GC-MS interface at 300 °C and a GC program rate: Starting from 100 °C for 1 min isotherm with 7°C min^{-1} to 280 for 12min isotherm , with 12 °C min-1 to 310 for 28 min isotherm.

2.2.6 QA/QC

The quantified isomers were identified through retention time comparison of the corresponding standard and the isotopic ratios between two ions was recorded for all halogenated compounds analyzed.

Reference materials were analyzed in parallel with sediments and SPM samples for PCDD/Fs, DL-PCBs and PBDEs. The concentrations detected were in accordance with the reference values.

Levels of analytical blanks obtained during the clean-up process were at least 5-10 times lower of the reported concentrations for all compounds studied. The blank level was not subtracted. The reported detection limits were calculated on the bases of a signal to noise ratio of 3/1. Several duplicate samples were performed in order to keep under control the QA/QC and the method reproducibility for the compounds where reference materials were not available. During the analysis of OCPs a p,p'-DDT standard was injected every 10th sample in order to check for DDT degradation inside the injector system. If degradation occurred the liner was replaced and the GC column cut or replaced.

3 Results

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In the following chapter an overview on the average abundance of the pollutants in sediments, SPM, dissolved phase and mussels will be given and EQS values will be discussed as far as applicable.

In addition Danube downstream concentration profiles will be discussed.

Sediment can be considered as long to mid-term memory of pollutant discharges into the Danube River. Changes in pollutant loads in sediments occur in the range of decades. Therefore the concentrations in the sediments at the different sampling stations can be compared even though not being collected contemporarily.

Looking at the concentration changes in sediments downstream the Danube it is possible to locate sources or the influence incoming "clean tributaries". The occurrence of a source is furthermore indicated through differences in concentrations between left and right-hand sediment samples, since inlets from one side of the river need many kilometres to mix homogeneously along the medial profile of the river.

The downstream concentration profile in SPM and water is more a snapshot and depends very much on the momentary hydraulic conditions (sedimentation/remobilization) in the watershed, as a significant fraction of SOCs is transported associated with SPM. Due to the "short memory" of the water column, the samples taken during JDS2 cannot be regarded as taken contemporarily. Therefore these data are less suitable for the indication of spatial patterns of contamination and should not be over-interpreted with that respect. To localize current sources of contamination annual concentration averages of the water column obtained with a considerably dense temporal resolution would be needed.

Mussels were analysed for PCBs and PCDD/Fs and cPenta BDE.

Note:
All concentration data reported for solids are given on a dry weight basis.

The results presented for all SPM-associated concentrations in the water column were calculated from the concentrations measured by the JRC in the SPM samples generated with a centrifuge along the transects (SPM and water samples as reported in TABLE 1- 1) and the suspended solids concentrations in water measured gravimetrically by the "Institute for Limnology" in Mondsee, Austria from filtration samples taken contemporaneously during JDS2.

3.1 Polycyclic Aeromatic Hydrocarbons (PAHs)

PAHs were determined in sediments, SPM and the dissolved phase.
The reported ∑ PAH data refer to the ∑16 EPA priority PAH plus Benzo(e)pyrene and Benzo(j)fluoranthene in water, SPM and sediments.
Among the ∑16 EPA PAH no explicit quantitative data could be obtained for Naphtalene, Acenaphtylene and Acenaphtene, since the extraction conditions, optimized for PCDD/Fs and PBDEs, lead to low recoveries for the volatile PAHs.
However, the semi-quantitative results obtained for the Naphtalene, AC and ACY in SPM and Sediments suggest a minor contribution to the ∑EPA PAH of 7 ± 4 % at average.
We assume therefore that the ∑ PAH data reported here can be compared with literature data referring to ∑EPA-PAH.

3.1.1 Overview on all compartments

Most Sediment and SPM samples display moderate ∑PAH concentrations in a range of 250-750 µg/kg with extreme values of up to 2600 µg/kg for SPM.

For comparison in the German stretch of the River Elbe typical values for ∑ 16 EPA PAHs in SPM and SPM derived sediments are one order of magnitude higher and maximum levels range up to 50 mg/kg (ARGE Elbe, 2006).

From the River Seine estuary PAH data from SPM are available. The ∑11 PAH determined there overlaps with the ∑PAH from the JDS2 except for Flourene, Anthracene and Dibenzo(a,h)anthracene, which play only a minor role in the sediment pattern. For sediments a median of 2.65 mg/kg is reported (Chailleaud et al., 2007), which corresponds to the extreme value in SPM measured during JDS2.

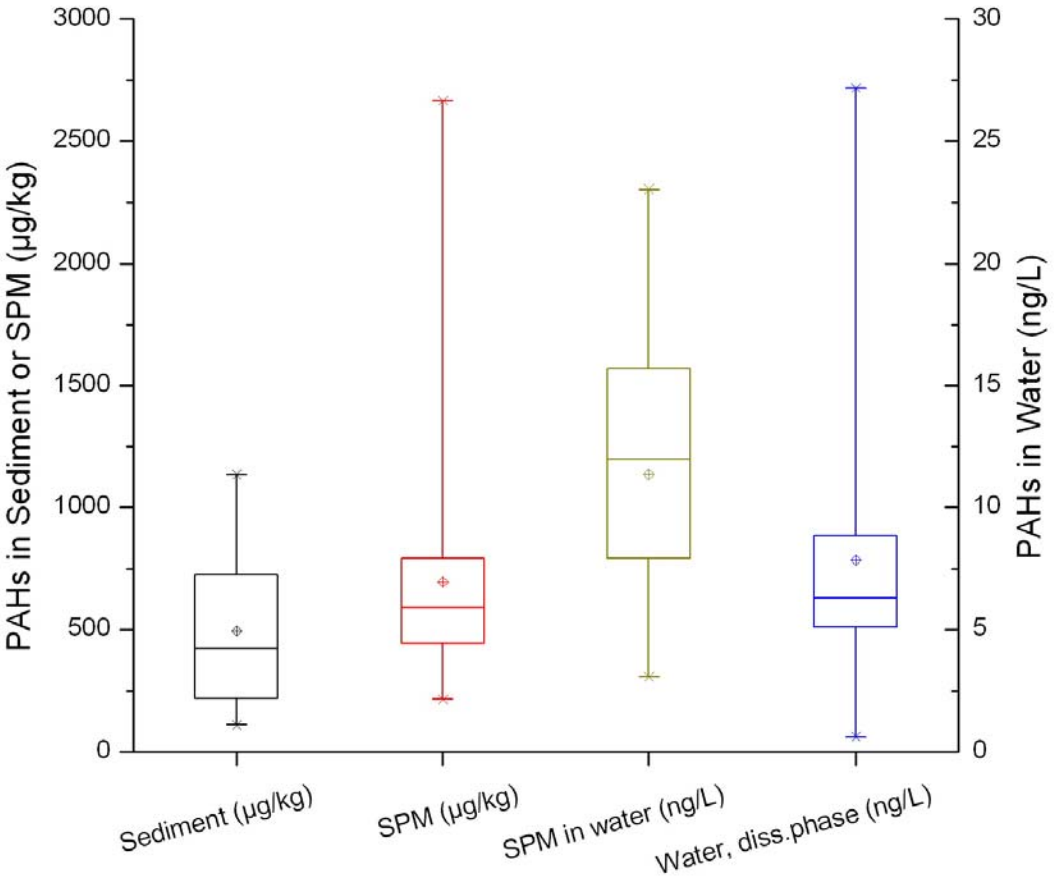
In 10 sediment samples taken in 2002 along the German stretch of the Danube ∑16 EPA PAH concentrations of 0.24 – 5.3 mg/kg were reported (Keiter et al., 2008)

Among all sediment sites sampled during JDS1 the ∑16 EPA PAH ranged between 2 and 16 mg/kg at 16 sites, which is considerably higher than the maximum level of 1.3 mg/kg detected during JDS2. This suggests a decrease in PAH content in the Danube sediments since 2001. However, before concluding, the techniques applied for the sediment sampling during both campaigns should be carefully evaluated for comparability.

Among the PAHs that were quantified in sediments and SPM, the most abundant compounds were Fluoranthene and Pyrene.

In the water column, significant amounts of PAHs are associated with SPM, in particular the higher boiling compounds. Average/median (dissolved and SPM) concentrations of ∑PAH around 17 ng/L and a maximum of 35 ng/L were detected in water, which is at the lower end of typical findings in the river Elbe (ARGE Elbe, 2006). The apparently low levels of PAHs in Danube water is underlined by data from the Seine estuary where a average/median concentration of 187/172 ng/L has been reported for the ∑11 PAH (Chailleaud et al., 2007).

Figure 3.1-2 PAH concentrations in all abiotic compartments, Box-whiskers diagram, boxes represent the 25/75 Percentiles with median and average (⊕), the whiskers represent minimum and maximum values.

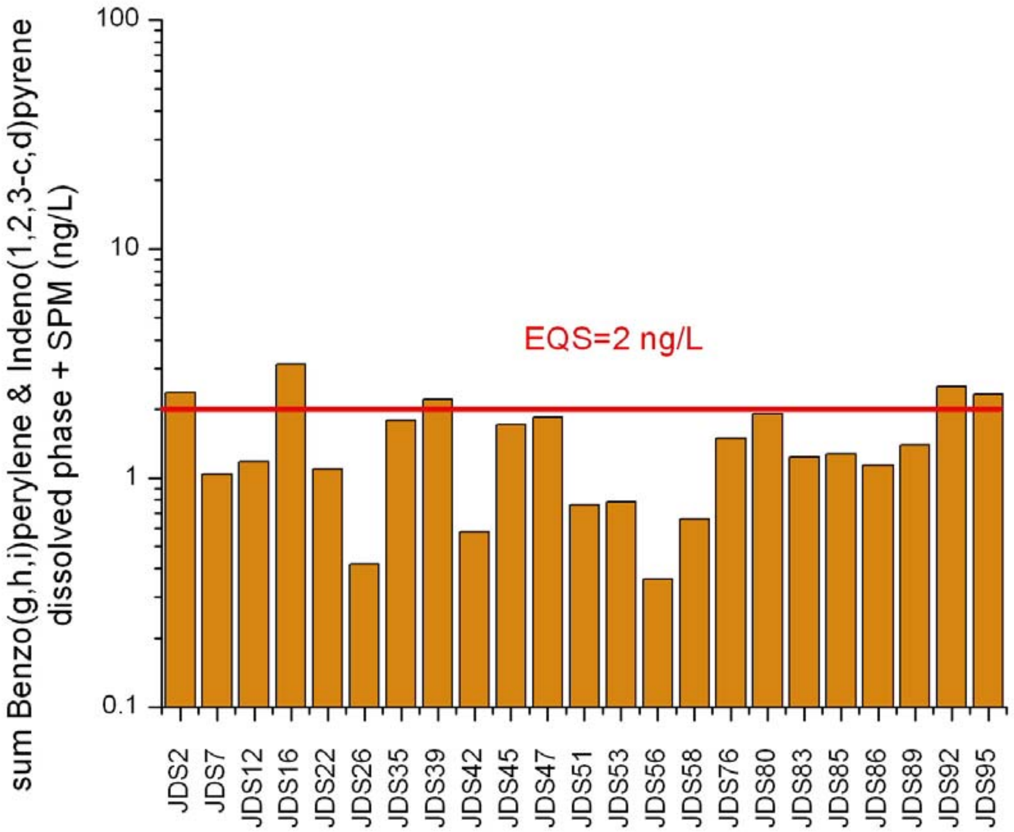


Sum of all PAHs				
	Sediment (µg/kg)	**SPM (µg/kg)**	**SPM in Water (ng/L)**	**Water, diss.phase (ng/L)**
Average	493	696	11	7.8
Median	407	590	12	6.3
Min	111	216	3.1	0.62
Max	1135	2665	23	27
25-Percentile	220	436	6.9	5.0
75-percentile	712	787	15	8.8

3.1.2 PAH concentrations in the water columns in relation to the WFD-AA-EQS values

Most of the PAH in water samples of all 23 sites were at least one order of magnitude below the WFD-AA-EQS values. The only exception was the ∑Benzo (g,h,i) perylene and Indeno (1,2,3-cd) pyrene, where concentrations at most of the 23 sites were close to the EQS of 2 ng/L, which was slightly exceeded at 5 sampling stations JDS 02 (2,4 ng/L), JDS 16 (3.1 ng/L), JDS 39 (2.2 ng/L), JDS 92 (2.5 ng/L) and JDS 95 (2.3 ng/L).

Figure 3.1.2-1 ∑Benzo (g,h,i) perylene and Indeno (1,2,3-cd) pyrene exceeding the EQS in water



3.1.3 Downstream concentration profile of PAHs

The sediments at site JDS 02_L displays comparably high PAH concentrations, which indicate an input from the tributary Altmuehl, supported by the comparably high PAH content of the SPM at this site.

Site JDS 07 after the inlet of the tributary Inn shows lower concentrations similar on both sides of the Danube, which indicates no significance of the River Inn regarding PAH fluxes into the Danube. Similar results left- and right hand side suggest PAH concentrations in the sediments of the incoming River Inn similar to those in the Danube.

Site JDS 16 shows an increase in concentration, in particular left-hand side downstream of the inlet of the tributary Morava, indicating an input from the Tributary Morava.

Site JDS 22 shows a similar asymmetry in concentrations with a higher concentration left-hand side downstream of the inlet of the tributary Vah, which indicates a moderate input from the tributary Vah.

Site JDS 26 shows a concentration drop on the right-hand side downstream the inlet of the tributaries Hron and Ipoly, which indicates a dilution due to low PAH levels of in the rivers Hron and Ipoly.

Site JDS 35 shows a strong asymmetry in the sediments with high concentrations left hand side. This might be still due to the dilution influence of the rivers Hron and Ipoly entering left hand side upstream. Another possibility is a unknown source (since no tributary enters in this section) right hand side (Industry?).

At site JDS 42 the sediment sample was taken inside the tributary Drava entering the Danube from the left hand side. The sediments in the River Drava contain considerably less PAH then the Danube itself and also the PAH content in the SPM is low, which indicates a dilution due to low PAH levels in the Tributary Drava.

The sediments at site JDS 51 was in the Tributary Sava displaying slightly lower PAH levels in the sediments.

Site JDS 56 inside the Tributary Velika-Morava displayed comparable low PAH concentrations in sediments and SPM, which indicates a dilution due to low PAH levels of in the river Velika Morava.

The sampling sites downstream the iron gate reservoir mostly displays comparable low PAH concentrations in the sediments and SPM, indicating for a sink of particle associated PAHs in the reservoir.

PAH inputs downstream the iron gate seem to be low, except at the inlet of the tributary Arges entering from the left-hand side between the sampling sites JDS 83 and JDS 85. A significant rise of PAHs in sediments after the inlet is visible in between sampling stations JDS 83 and JDS 85_L, indicating the tributary Arges being a source of PAHs into the lower stretch of the Danube. However, in this case there was no confirmation through the SPM data, which points to historic inputs rather than recent ones.

Site JDS 89, which according to the cruise protocol is suspected to be impacted by an oil refinery, shows no abnormalities regarding PAHs in sediments, SPM and water

In SPM the PAH concentrations are similar to those in the sediments, except of the JDS 2 site under the influence of the tributary Altmuehl, In General the downstream concentration profile in SPM follows that of the Sediments, except for the sites JDS 2 and JRS 85.

The downstream profile of ∑PAH in the water column shows an equilibrated situation with low concentrations in the tributaries Drava (JDS 42), Sava (JDS 51) Velika Morava (JDS 56) as observed for SPM and for the sediments above. The maximum Concentration of ∑PAH in the water was 42 ng/L found at JDS39 (border station HU/HR), with a comparably high contribution from the dissolved phase.

Figure 3.1.3-1 Downstream concentration profile of PAHs in sediments

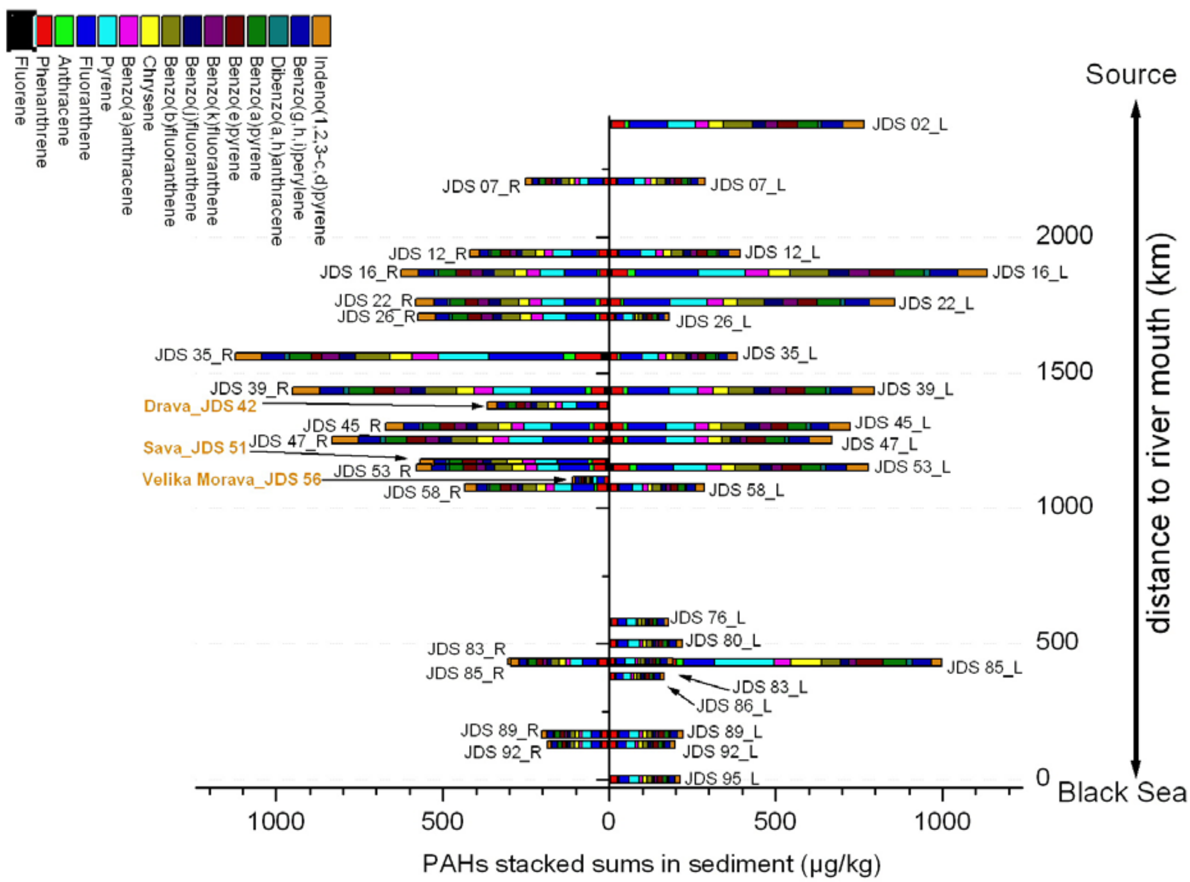


Figure 3.1.3-2 Downstream concentration profile of PAHs in SPM

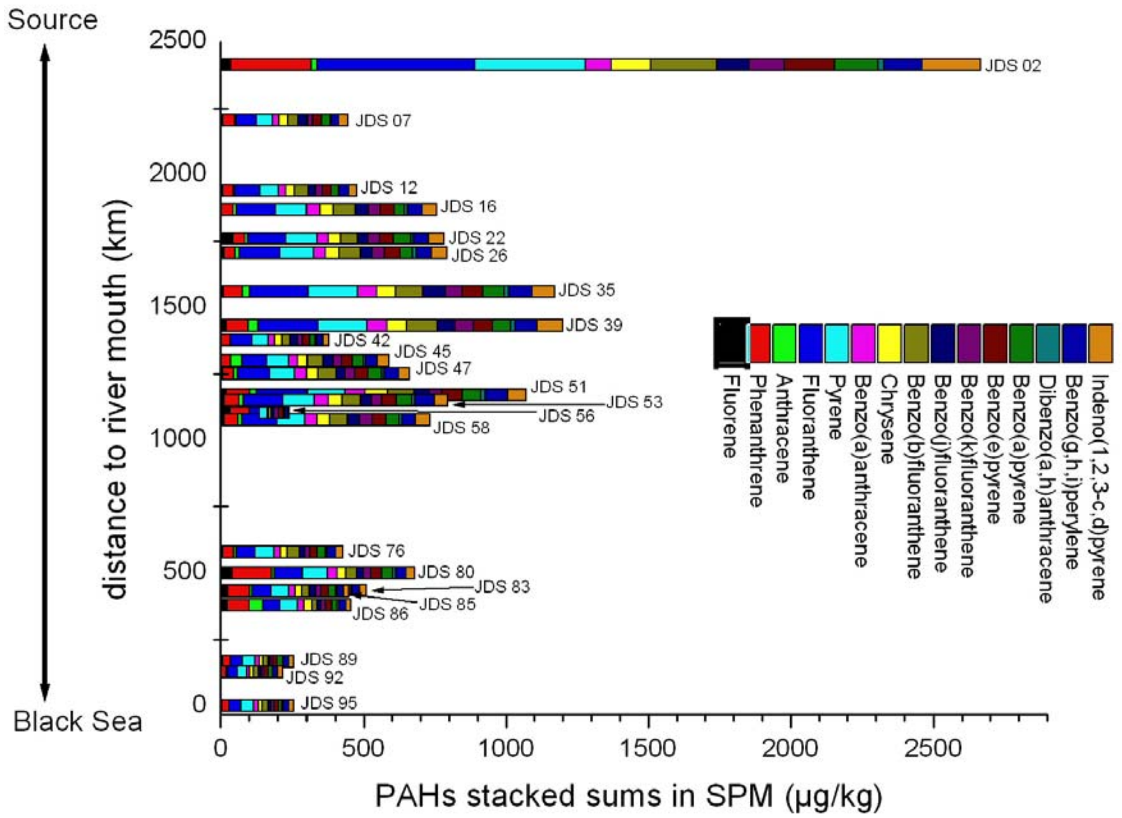


Figure 3.1.3-3 Downstream concentration profile of PAHs in the dissolved phase

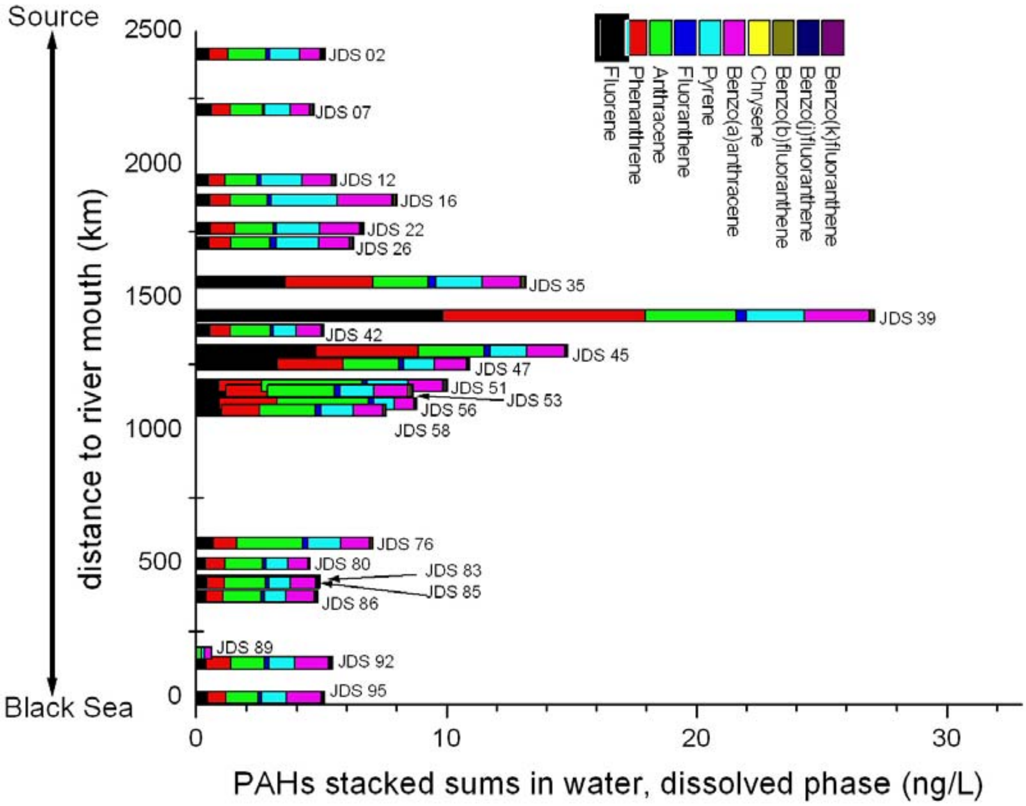
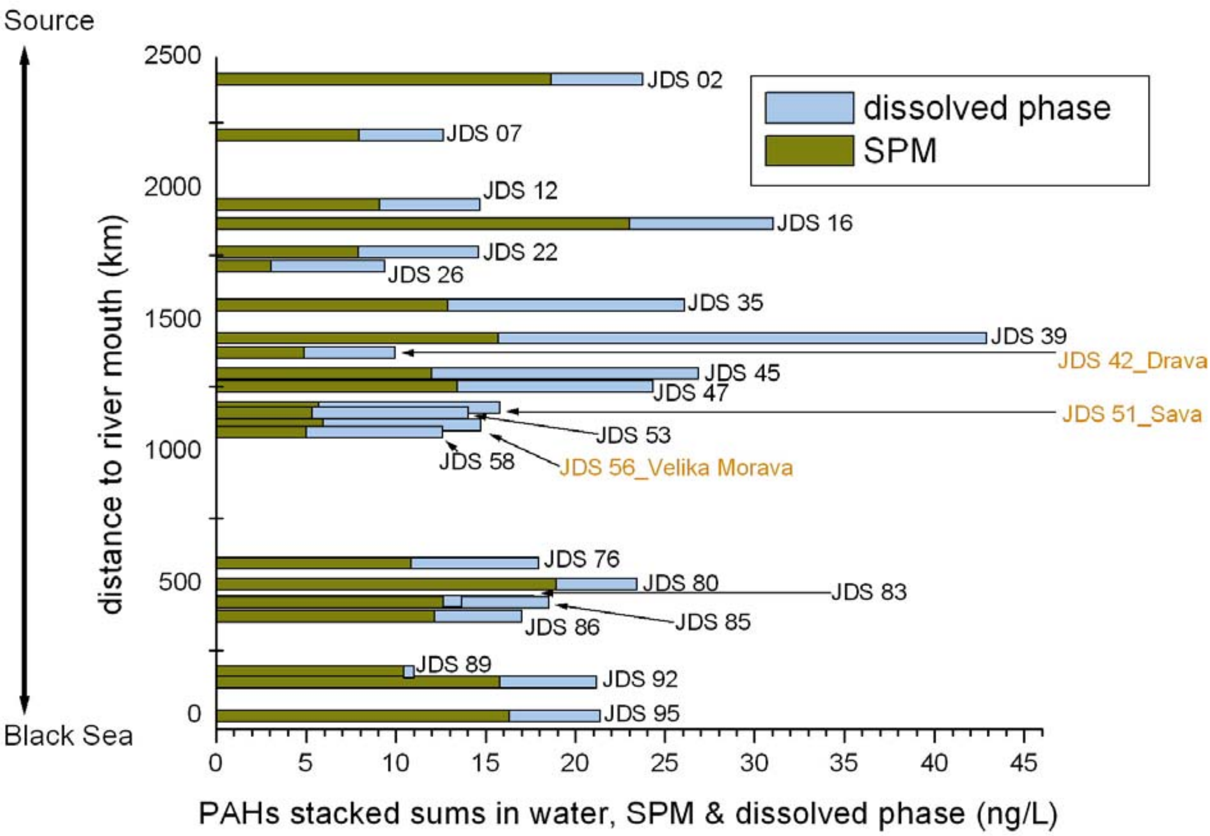


Figure 3.1.3-4 Downstream concentration profile of PAHs in water (SPM + dissolved phase)



3.1.4 PAH fingerprint

The PAH fingerprint in sediment and SPM is similar with less variation of the SPM pattern compared to that of the sediments. Among the PAHs that were quantified in sediments and SPM, the most abundant compounds were Fluoranthene and Pyrene, which is in accordance with typical findings in sediments of the River Elbe (ARGE Elbe 2006) and SPM from the River Seine (Chailleaud et al., 2007). These results are in contradiction to the JDS1 findings, where the pattern was dominated by Fluoranthene and Phenanthrene instead.

Lower boiling PAHs such as Fluorene, Phenanthrene, and Anthracene display higher water solubilities and are more abundant in the dissolved phase pattern, when compared to sediments and SPM.

Lower boiling PAHs such as Fluorene and Phenanthrene have higher water solubilities and are more abundant in the dissolved phase, which results in a higher relative contribution to the pattern in the water column (dissolved phase + SPM). Consequently, the PAH pattern in water is dominated by Fluorene, Phenanthrene, Fluoranthene and Pyrene.

3.2 Organochlorine Pesticides (OCPs)

OCPs were analysed in sediments, SPM and the dissolved phase.

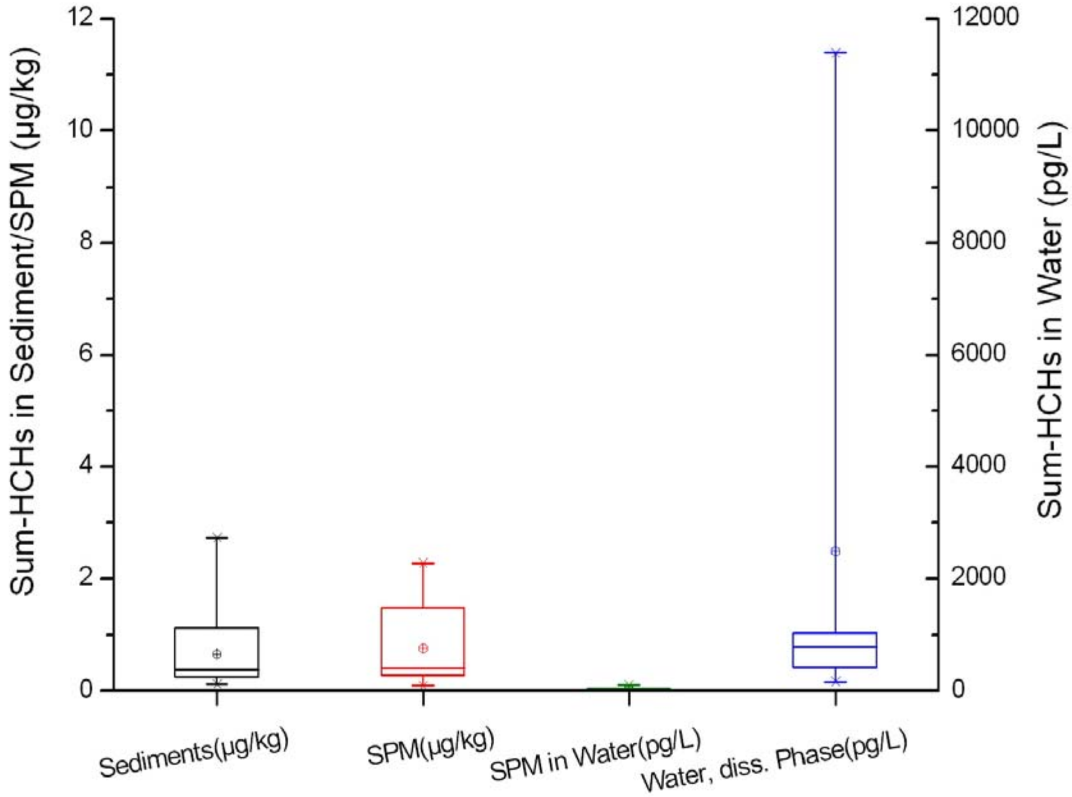
3.2.1 Overview on all compartments

3.2.1.1 HCHs (∑ α-, β-, γ-, δ-HCH*)

Sediments and SPM display similar concentrations with average values below 1 µg/kg.
In the water column HCHs were detected almost exclusively in the dissolved phase.
For HCHs in water the AA-EQS is 0.02 µg/L and the MAC-EQS is 0.04 µg/L, both of them were not exceeded. The maximum of ∑HCHs in the water column was 0.011 µg/L at site JDS-85 downstream tributary Arges (RO).

* The group of HCHs includes 8 isomers. The EQS for HCH refers to α-, β-, γ-, and δ-HCH the 4 major isomers present in the technical mixture. According to the Draft technical Guidance CMA the sum of α-, β-, γ-, and δ-HCH has to be reported.

Figure 3.2.1.1-1 ∑HCHs concentrations in all abiotic compartments



Sum-HCH				
	Sediment (µg/kg)	SPM (µg/kg)	SPM in Water (pg/L)	Water diss.phase (pg/L)
Average	0.66	0.77	23	2489
Median	0.35	0.42	5.1	752
Min	0.12	0.091	1.2	164
Max	2.7	2.3	105	11386
25-Percentile	0.25	0.26	2.4	414
75-percentile	1.1	1.5	42	2431

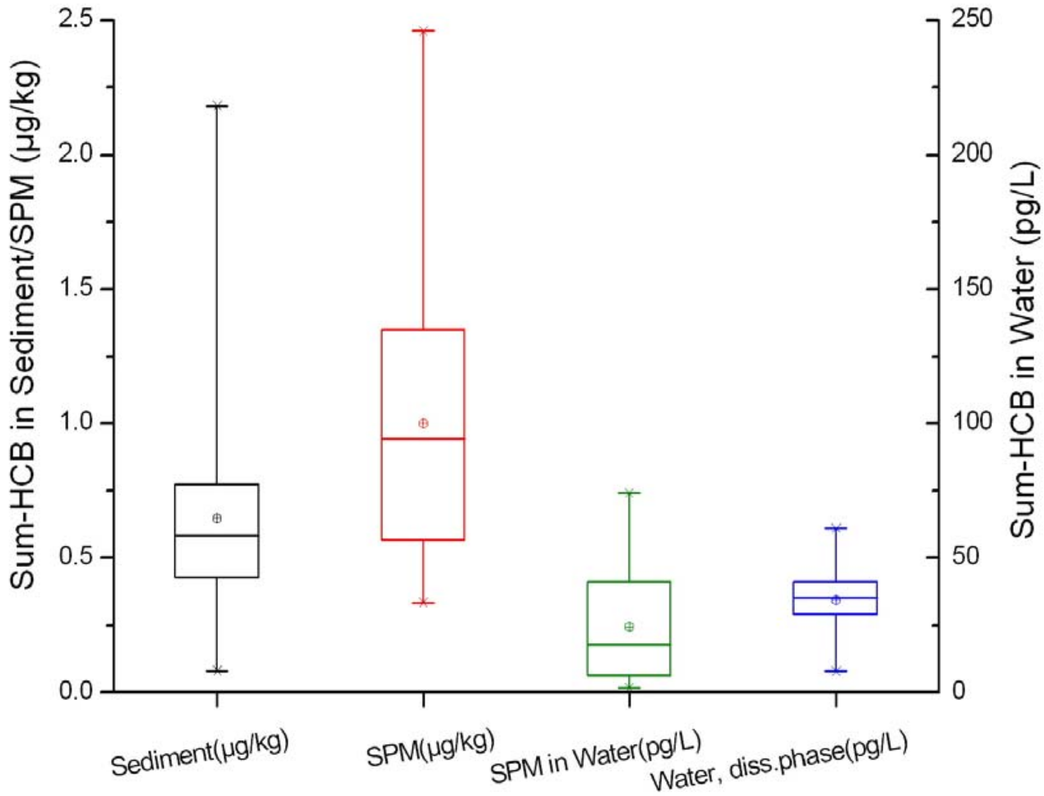
3.2.1.2 HCB

Average concentrations in Sediments and SPM were around 1 µg/kg and 0.65 µg/kg, respectively.

In the water column HCB was detected both in SPM and the dissolved phase, with a tendency towards the dissolved phase in the upper stretch and a stronger association with SPM in the lower stretch.

The maximum value in the water column for HCB, detected at site JDS 92 (RO) was 0.11 ng/L, which is around 2 orders of magnitude below the respective AA-EQS of 10 ng/l and the MAC-EQS of 50 ng/l.

Figure 3.2.1.2-1 HCB concentrations in all abiotic compartments



HCB				
	Sediment (µg/kg)	SPM (µg/kg)	SPM in Water (pg/L)	Water, diss.phase (pg/L)
Average	0.65	1.0	25	34
Median	0.58	0.94	18	35
Min	0.081	0.33	1.8	7.9
Max	2.2	2.5	74	61
25-Percentile	0.42	0.51	6.1	28
75-percentile	0.79	1.3	38	41

3.2.1.3 DDT and metabolites

∑p,p'-DDT, p,p'-DDE, p,p'-DDD, o,p-DDT

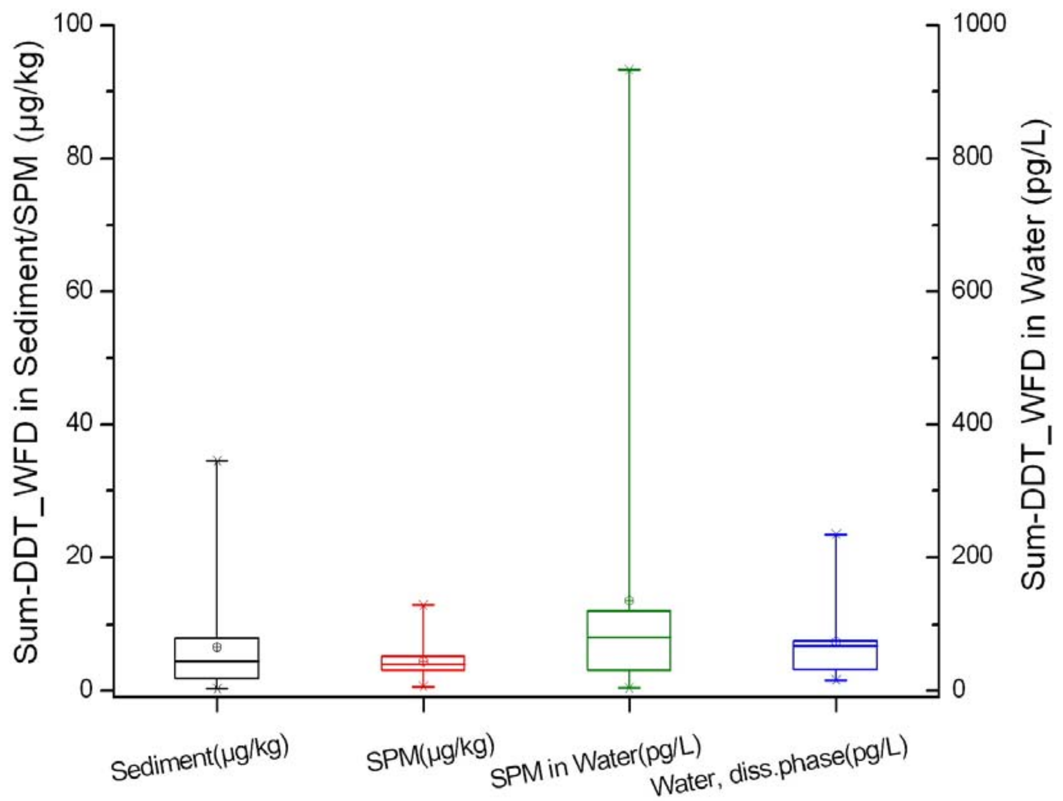
Average concentrations in sediments were 6.6 µg/kg and somewhat lower in SPM with 4.4 µg/kg

In the water column DDT and its metabolites were detected to a larger extent in SPM.

The maximum concentration of ∑p,p'-DDT, p,p'-DDE, p,p'-DDD, o,p-DDT in the water column was around 1.2 ng/L at sites JDS 92, 95 (RO), which is more than one order of magnitude below the AA-EQS of 25 ng/L. This maximum corresponds with high DDT concentrations in SPM detected during JDS1.

The downstream profile in water suggests a constant increase of DDT and its metabolites towards the Black Sea.

Figure 3.2.1.3-1 ∑DDT and metabolites concentrations in all abiotic compartments

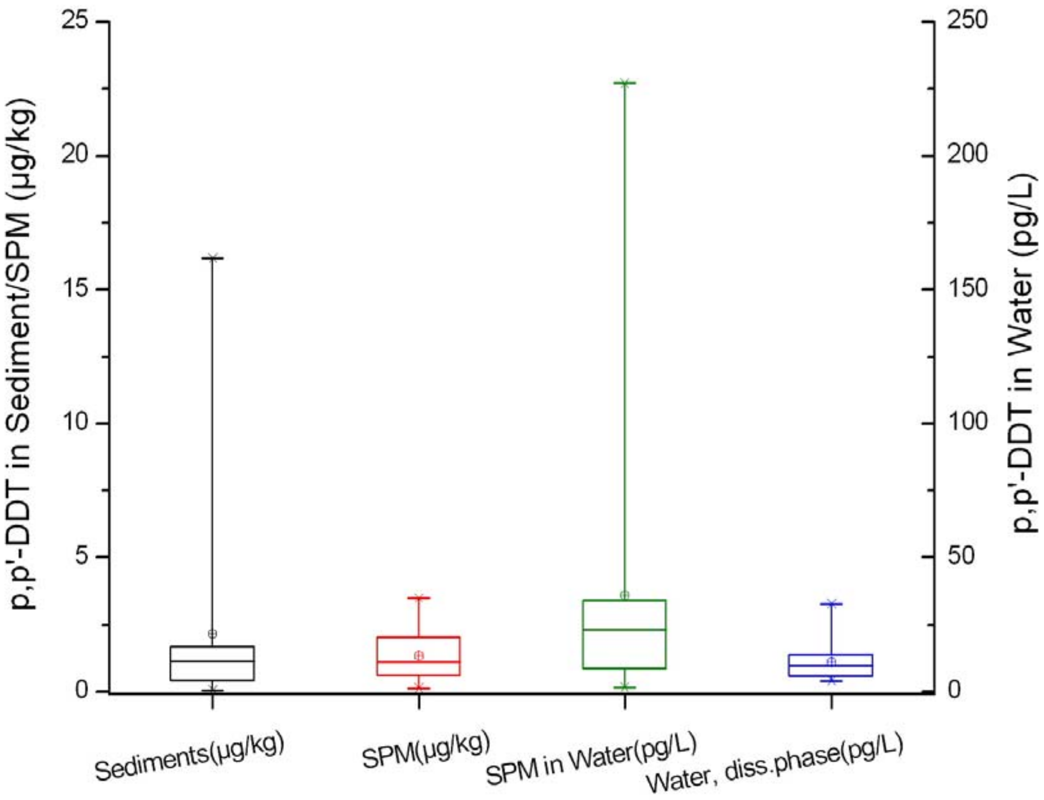


Sum-DDT_WFD

	Sediment (µg/kg)	SPM (µg/kg)	SPM in Water (pg/L)	Water, diss.phase (pg/L)
Average	6.6	4.4	135	74
Median	4.5	4.0	81	66
Min	0.36	0.63	4.6	16
Max	35	13	933	234
25-Percentile	1.9	3.0	27	37
75-percentile	7.8	5.0	111	75

For p,p'-DDT the maximum level in the water column of 0,26 ng/L was detected in the Danube Delta, again more than one order of magnitude lower than the respective AA-EQS of 10 ng/L.

Figure 3.2.1.3-1 p,p'-DDT concentrations in all abiotic compartments



p,p'-DDT				
	Sediment (µg/kg)	**SPM (µg/kg)**	**SPM in Water (pg/L)**	**Water, diss.phase (pg/L)**
Average	2.2	1.4	36	11
Median	1.1	1.1	23	9.5
Min	0.061	0.13	1.7	4.1
Max	16	3.5	227	33
25-Percentile	0.39	0.58	7.2	6.1
75-percentile	1.8	1.9	33	14

3.2.1.4 ∑ Aldrin, Dieldrin, Endrin, Isodrin

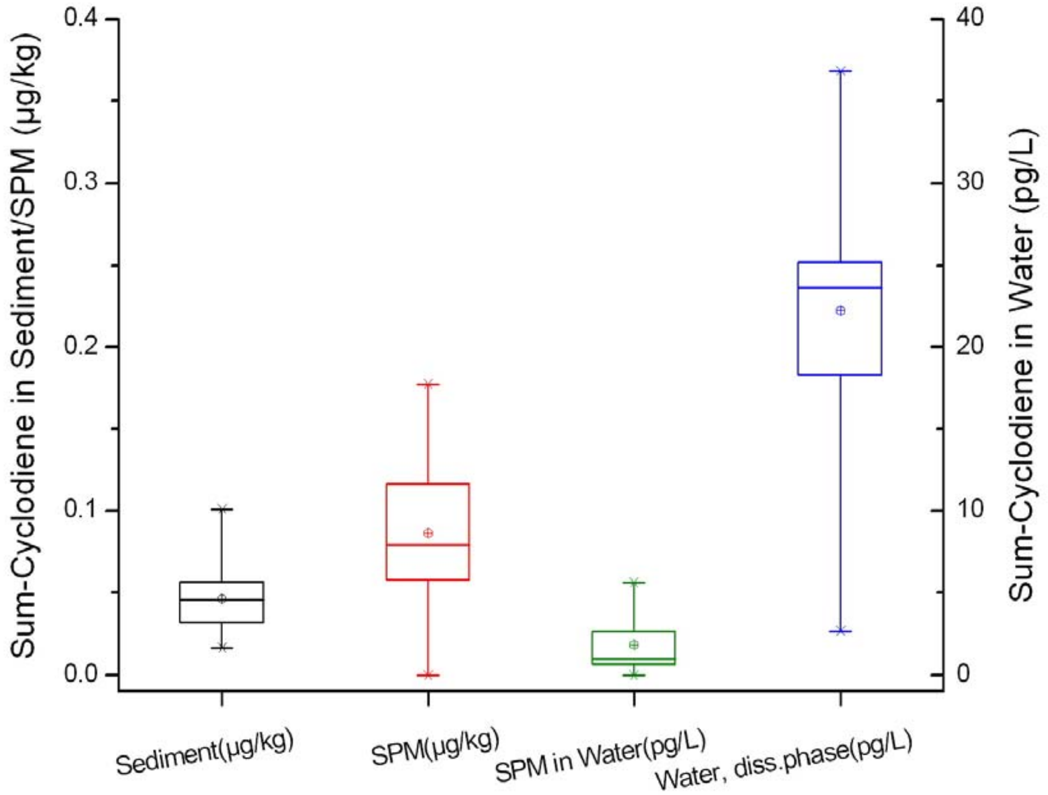
Average concentrations in sediments were 0.046 µg/kg, while SPM displayed higher average concentrations of 0.090 µg/kg. In sediments Isodrin and Endrin were <LOD in all samples. In SPM Isodrin was < LOD in all samples.

In the water column ∑ Aldrin, Dieldrin, Endrin, Isodrin were detected almost exclusively in the dissolved phase. Endrin could be quantified in all dissolved phase samples. For Aldrin 14 sites were below the dissolved-phase LOD of 1.1 pg/L. For Endrin 6 sites were below the LOD of 3.4 pg/L and Isodrin was detected in none of the sites (LOD of 6.1 pg/L). Within the sites with quantifiable amounts of the ∑Cyclodiene, Endrin concentrations were always dominant. In the statistics and the Figure below, only quantified concentration data are included.

Even when calculating upper bound concentrations in water, the ∑ Aldrin, Dieldrin, Endrin, Isodrin remain more than 2 orders of magnitude below the respective AA-EQS of 10 ng/L.

The downstream profile in water displays no particular trend.

Figure 3.2.1.4-1 ∑ Aldrin, Dieldrin, Endrin, Isodrin concentrations in all abiotic compartments

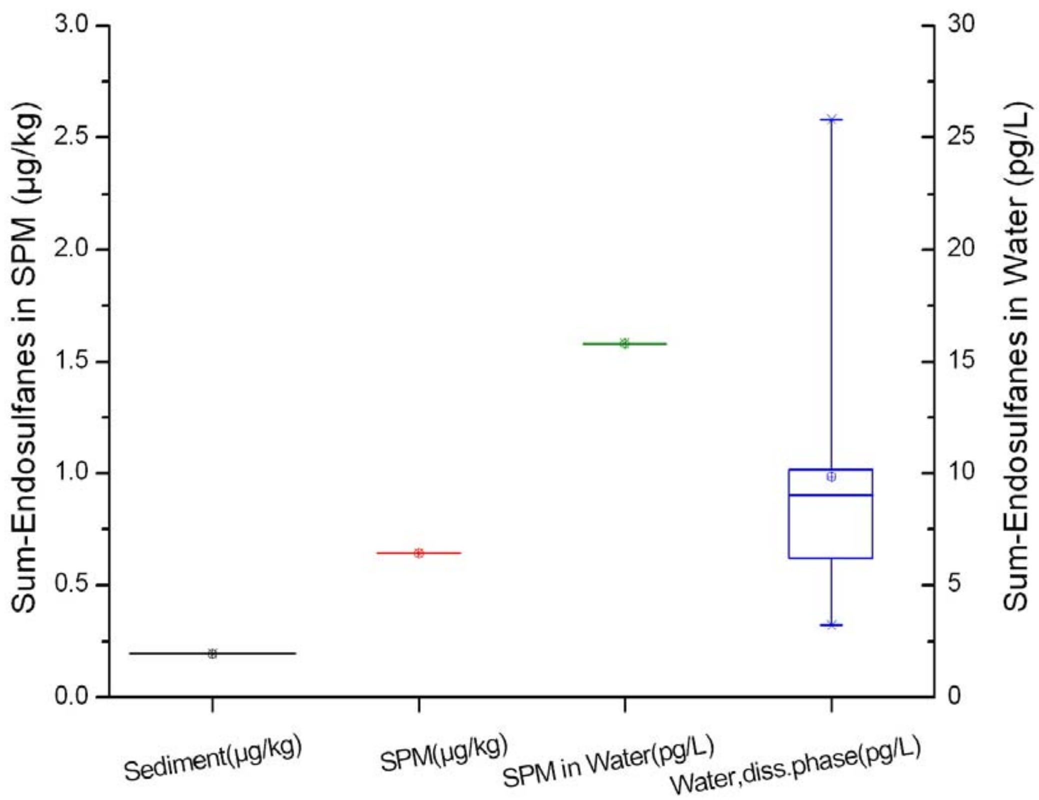


Sum-Cyclodiene					
	Sediment (µg/kg)	**SPM (µg/kg)**	**SPM in Water (pg/L)**	**Water, diss.phase (pg/L)**	*Water, diss.phase, incl.LOD (pg/L)*
Average	0.046	0.090	1.9	22	*29*
Median	0.046	0.080	0.98	24	*28*
Min	0.017	0	0	2.7	*15*
Max	0.10	0.18	5.6	37	*61*
25-Percentile	0.032	0.062	0.64	19	*22*
75-percentile	0.055	0.12	2.7	25	*33*

3.2.1.5 ∑ α,β-Endosulfan

Due to very low concentration levels, a series of sites displayed non detectable concentrations.
In sediments only at Site JDS 12_R one value above LOD was detected for α- Endosulfan, with 0.20 µg/kg.
In the water column ∑ α,β-Endosulfan were detected only in the dissolved phase except at site JDS 56 (Velika Morava Tributary, RS), where a level of 0.53 µg/kg for α- Endosulfan, and 0.11 µg/kg for β-Endosulfan was found in SPM. This results for site JDS 56, together with the determined concentration of β-Endosulfan of 0.0024 ng/L in the dissolved phase, in a concentration of 0.018 ng/L of ∑ α,β-Endosulfan in the water column, which represents the maximum concentration found in this study. However, this outlier is more than 2 orders of magnitude below the respective AA-EQS of 5 ng/L and the MAC-EQS of 10 ng/L.

Figure 3.2.1.5-1 α,β-Endosulfan concentrations in all abiotic compartments



Sum-Endosulfanes

	Sediment (µg/kg)	SPM (µg/kg)	SPM in Water (pg/L)	Water, diss.phase (pg/L)
Average	0.20	0.64	16	10
Median				8.1
Min				3.2
Max				39
25-Percentile				6.4
75-percentile				11

3.2.1.6 Mirex

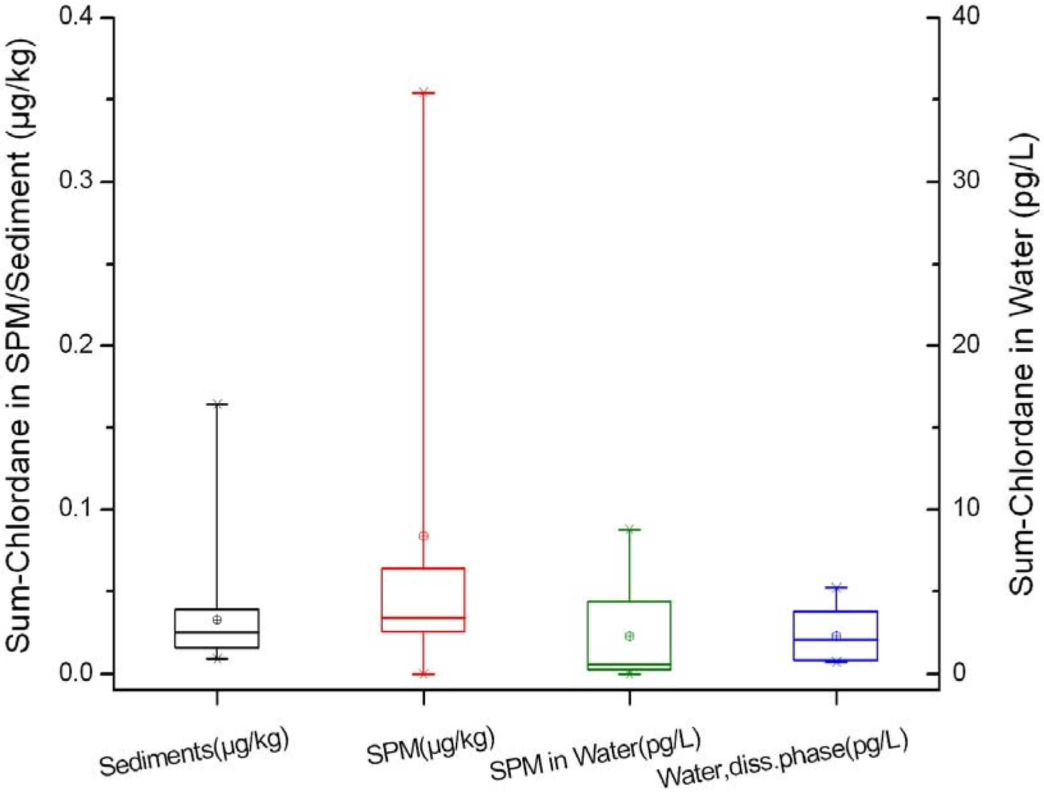
In sediment, SPM and the dissolved phase all samples were under the LOD, caused by an interference which led to a low signal to noise ratio.

3.2.1.7 Chlordanes

Sediments displayed average values around 0.033 µg/kg and higher in SPM, due to some isolated maxima, around 0.084 µg/kg, suggesting current releases.

In the water column the Chlordanes were detected both in the dissolved phase and associated with SPM with average level of around 2.3 pg/L in both phases.

Figure 3.2.1.7-1 Chlordane concentrations in all abiotic compartments



Sum of Chlordane				
	Sediment (µg/kg)	**SPM (µg/kg)**	**SPM in Water (ng/L)**	**Water, diss.phase (ng/L)**
Average	0.033	0.084	2.3	2.3
Median	0.026	0.035	0.58	1.9
Min	0	0	0	0.74
Max	0.16	0.35	8.8	5.2
25-Percentile	0.016	0.025	0.26	0.90
75-percentile	0.039	0.062	4.2	3.8

3.2.1.8 Heptachlor

In sediment, SPM and water all samples were < LOD.

3.2.2 OCPs concentration in water in relation to th EQS values

The concentrations of OCPs in the water phase were all below related EQS values, most of them more than one to two orders of magnitude. Only the HCHs reached in some isolated case the same order of magnitude of the EQS.

The total water concentrations for EQS relevant compounds or compound groups of the individual sites can be seen below from the downstream concentration profiles summing up SPM associated (if relevant) and dissolved phase concentrations.

3.2.3 Downstream concentration profile of OCPs

3.2.3.1 HCHs (∑ α-, β-, γ-, δ-HCH)

In the sediments HCH concentrations display a higher abundance in the samples taken left hand side. Samples taken in the tributaries Drava (JDS 42), Sava (JDS 51) and Velika Morava (JDS 56) display low concentration levels as found in the Danube sediments taken on the right hand side.

The sediments on the left-hand side display the following distinct maxima: At JDS 26 (HU), indicating an historic influence of the Hon and Ipoly Tributary entering only a few kilometers upstream left-hand side (In the Tributary Hron high Lindane concentrations where detected during JDS1). At JDS 53 (RS), downstream the Pancevo situated left-hand side of the Danube, where high Lindane concentrations where detected also during JDS1. At JDS 76 (RO) downstream the Tributary Olt entering as well from the left-hand side (in the Tributary Olt high Lindane concentrations were found during JDS1).

In SPM a strong HCH signal appeared in the Velika Morava Tributary (JDS 56, RS), in contrast to the dissolved phase concentrations of this site, which were only slightly enhanced. Continuously enhanced HCH concentrations in SPM were found from JDS 76 (RO) on until the Black Sea.

The downstream profile in the dissolved phase displays low HCH concentrations in the upper and middle stretch. A sharp increase was observed starting from site JDS 76 (RO) downstream the Olt Tributary that had shown high Lindane concentrations during JDS1. Most sites downstream the Olt Tributary remain at a high HCH level in the dissolved phase. The historic signals observed in the sediments at JDS 26 and JDS 53 are no longer visible in the dissolved phase

The samples from the tributaries Drava (JDS 42, HR) and Sava (JDS 51, RS) display slightly lower concentrations than the Danube itself. In contrast the Velika Morava Tributary (JDS 56, RS) shows, as for SPM, slightly higher concentrations in the dissolved phase as well.

The sharp increase in HCH concentrations in the dissolved phase downstream the Olt Tributary goes along with a significant change of the HCH concentration pattern: In the upper stretch of the Danube (JDS 02 to JDS 16) the sum of HCHs consists almost exclusively of γ-HCH, In the section between JDS 22 and JDS 58 the abundance of α-, β- HCH equals that of γ-HCH, and from site JDS 76 all sites showing high HCH concentrations in the dissolved phase are dominated by α- and β- HCH.
A similar tendency can be seen in the sediment and to a lower extent in SPM.

Figure 3.2.3.1-1 Downstream concentration profile of HCHs in sediments

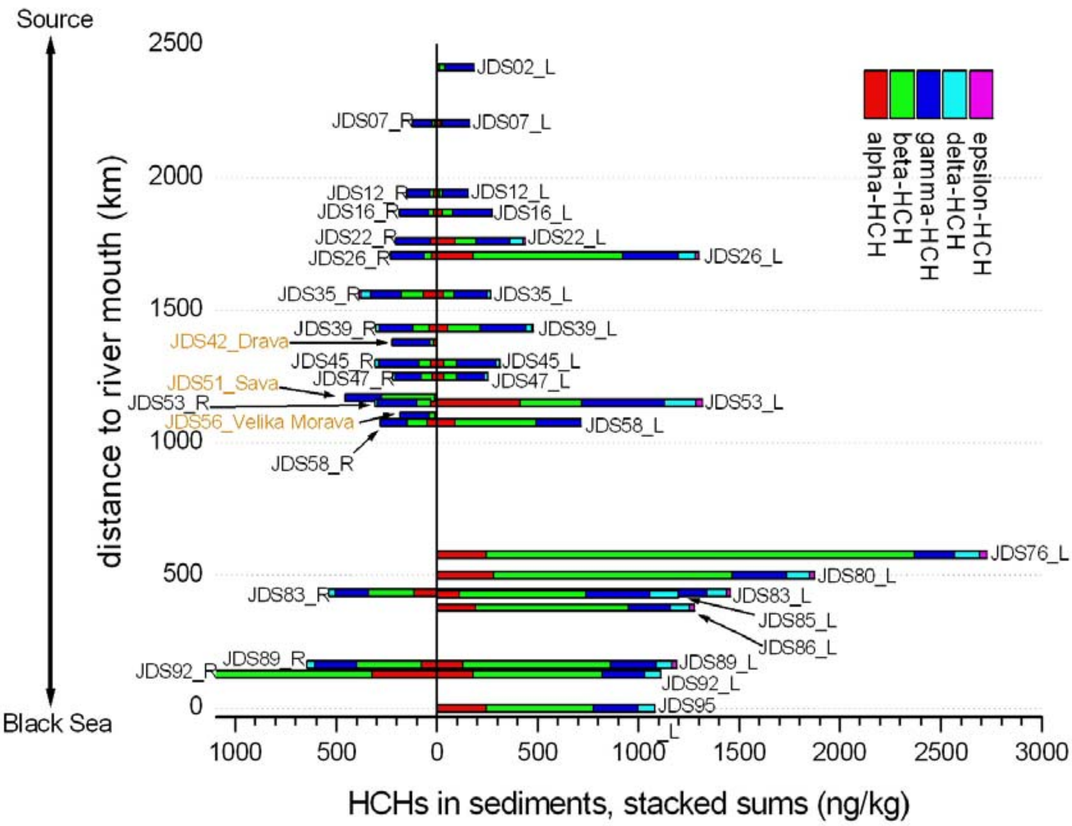


Figure 3.2.3.1-2 Downstream concentration profile of HCHs in SPM

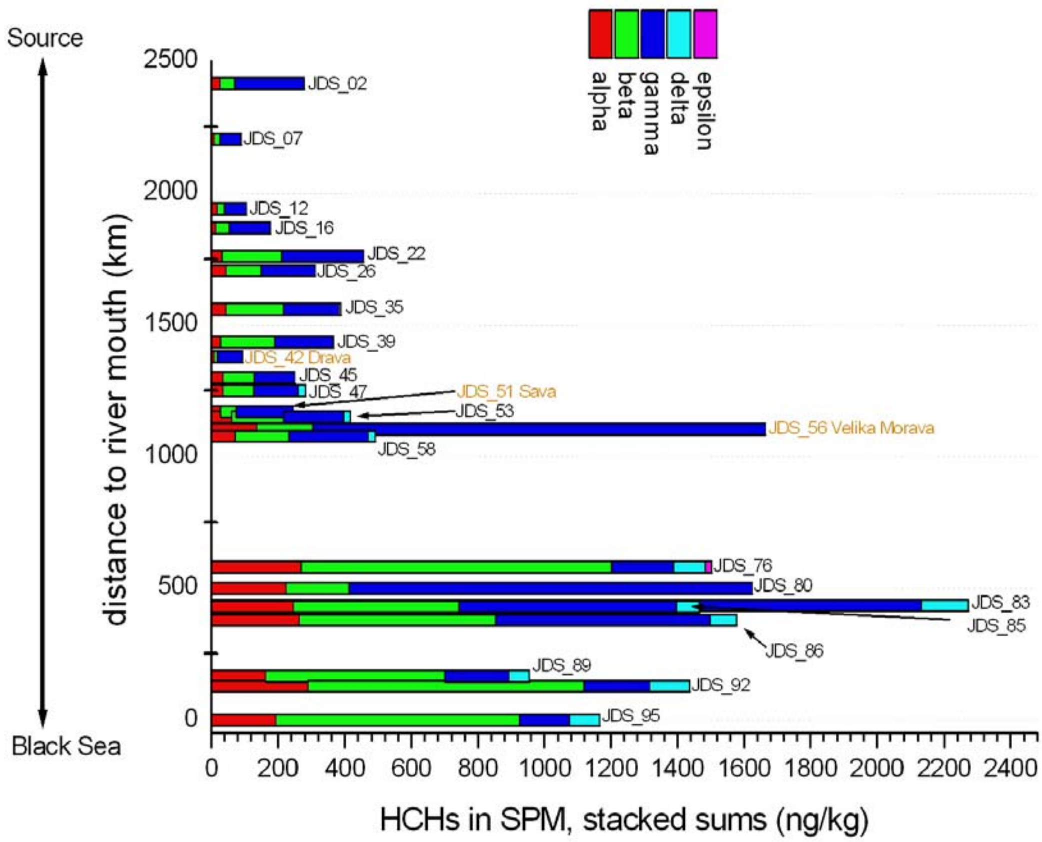
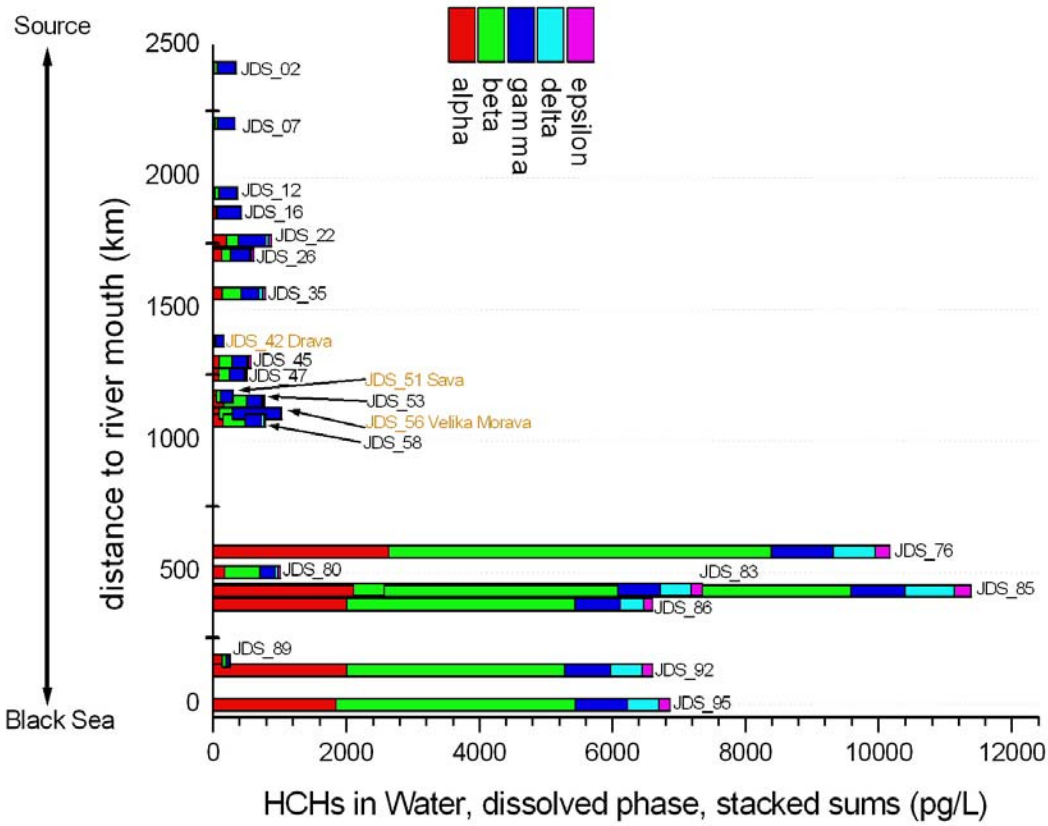


Figure 3.2.3.1-3 Downstream concentration profile of HCHs in water, dissolved phase



3.2.3.2 HCB

In the sediments a tendency of enhanced HCB concentrations in the samples take left-hand side can be seen, however, less pronounced as above for the HCHs. An influence of the Tributary Altmuehl appears in the sediments at JDS 2 (GER), and comparably high levels at JDS 85 (RO) suggest an historic impact from the Tributary Arges.

In the water column HCB does not show particular gradients in the downstream profile, except of slightly higher concentrations in the lower stretch, together with a higher abundance of SPM associated HCB.

The water samples from the tributaries Drava (JDS 42, HR) and the Velika Morava (JDS 56, RS) show comparable concentrations as in the Danube itself, whereas the sample from the Tributary Sava (JDS 51, RS) displays lower concentrations.

Figure 3.2.3.2-1 Downstream concentration profile of HCB in sediments

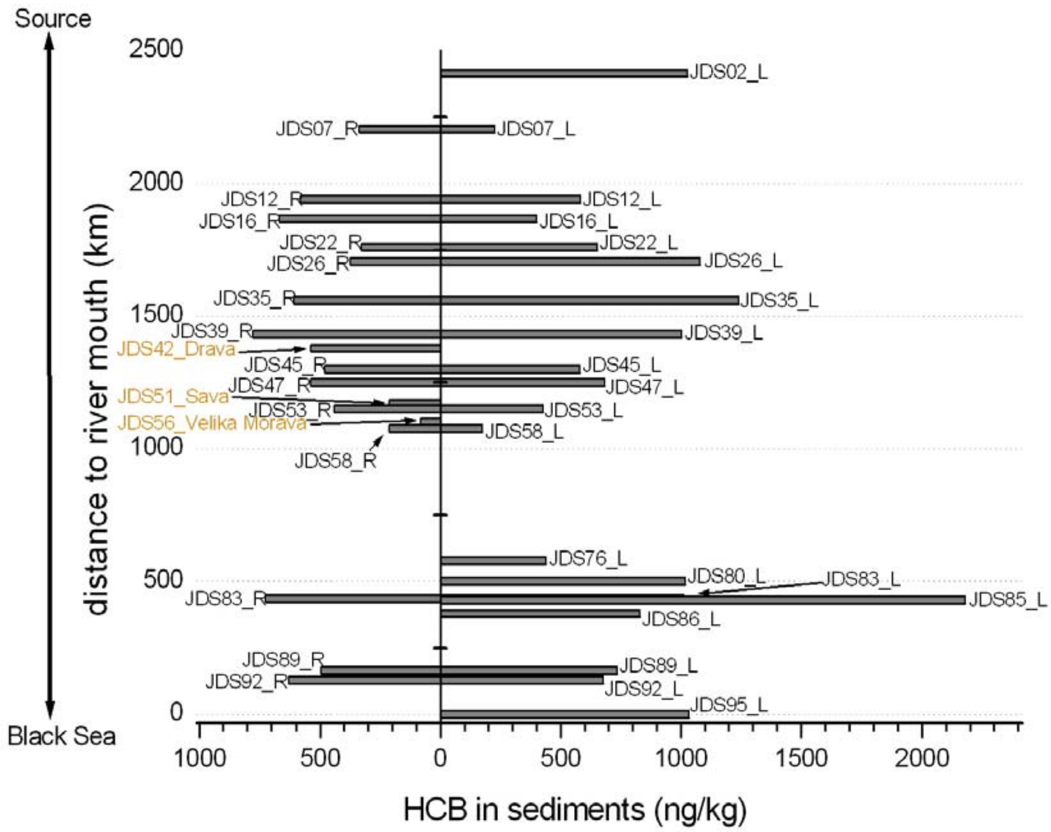


Figure 3.2.3.2-2 Downstream concentration profile of HCB in SPM

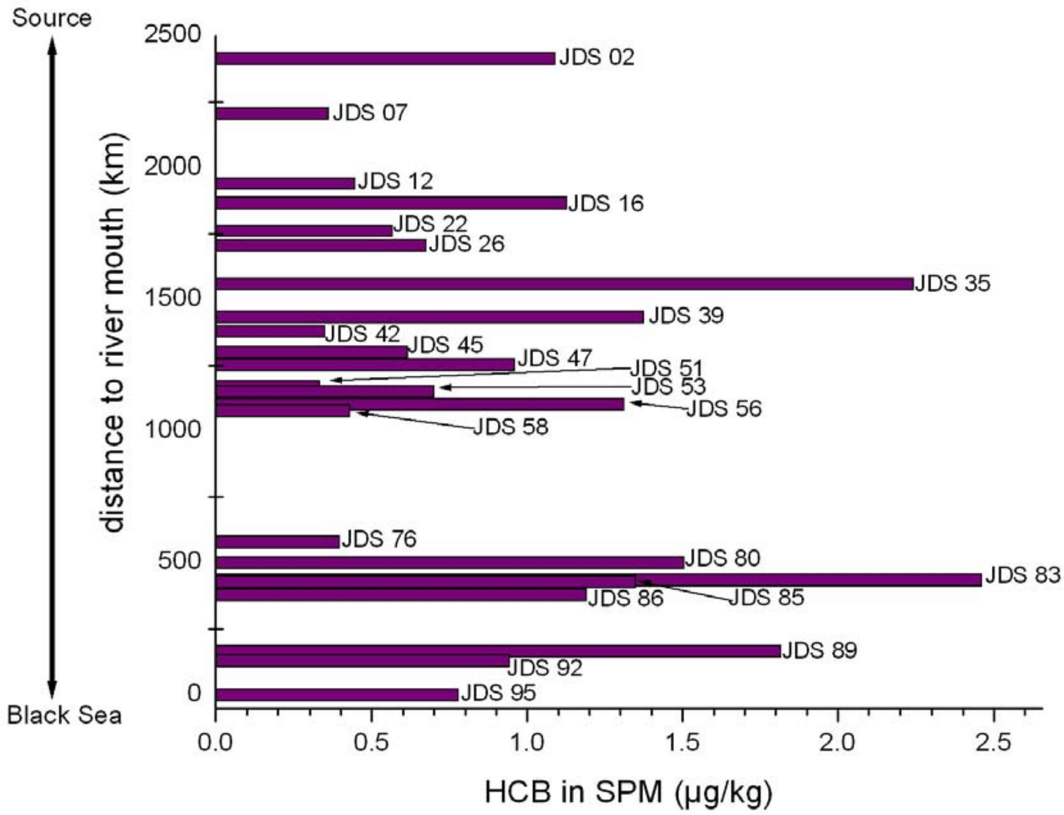
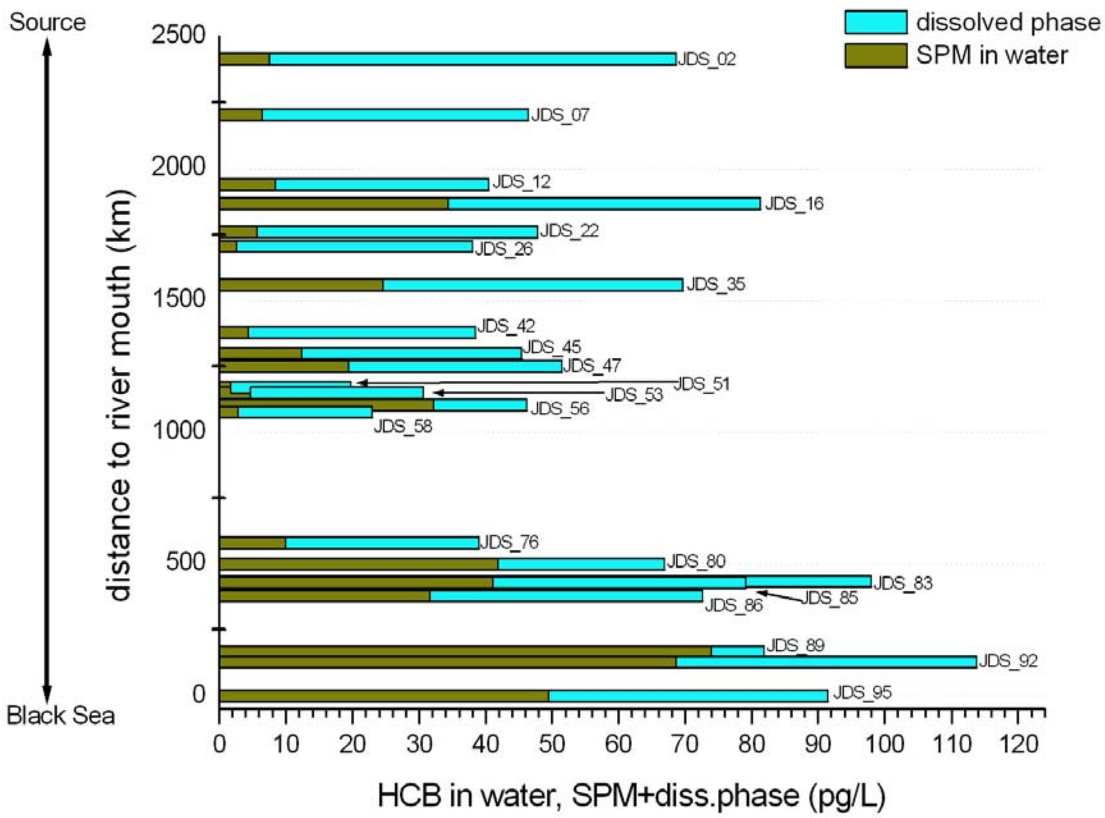


Figure 3.2.3.2-3 Downstream concentration profile of HCB in water (SPM + dissolved Phase)



3.2.3.3 DDT and metabolites

In sediments, DDT and metabolites show tendencially higher concentrations in the samples taken right-hand side, except at site JDS 92 (RO) after the inlet of the Tributaries Siret and Prut entering from the right hand side. This site displayed also the maximum abundance in SPM associated DDT and in the water column, thus confirming the high p,p'-DDT concentrations reported from this site in SPM during the JDS 1 cruise. In contrast, the other tributaries entering from the right hand side (Drava , Sava and Velika Morava) displayed low concentrations in their sediments. Historic (since not visible in the water column) intakes from the left-hand side are indicated at sites JDS 35, JDS 39, JDS 53 and JDS 85. However, none of these left-hand sites showed a significant signal in the water column, where only JDS 92 and JDS 95 appear as sites of (considerably) enhanced concentrations. This suggests that for DDT and metabolites the only significant current source is in between JDS 89 (upstream Tributary Siret and Prut) and JDS 92 (downstream Tributary Siret and Prut).

In the water column the share of SPM associated DDT and metabolites in general rises towards the Black Sea.

Figure 3.2.3.3-1 Downstream concentration profile of ∑p,p'-DDT, p,p'-DDE, p,p'-DDD, o,p-DDT in sediments

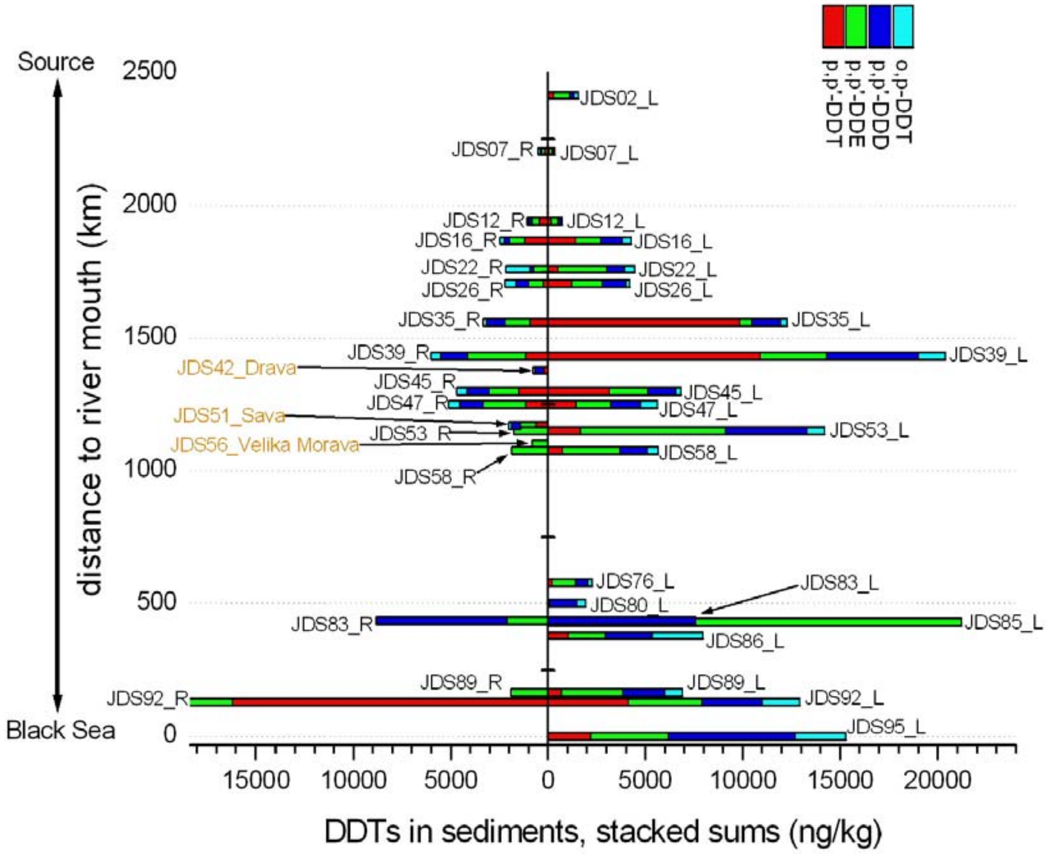


Figure 3.2.3.3-2 Downstream concentration profile of ∑p,p'-DDT, p,p'-DDE, p,p'-DDD, o,p-DDT in SPM

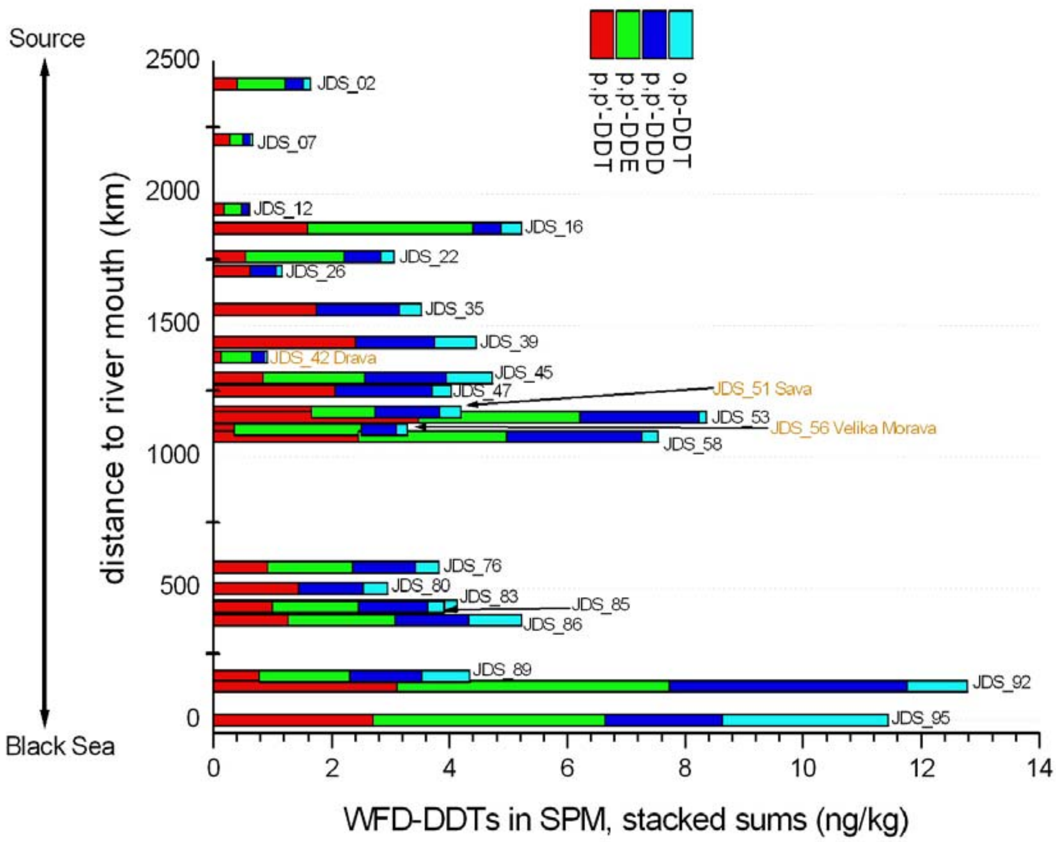


Figure 3.2.3.3-4 Downstream concentration profile of ∑p,p'-DDT, p,p'-DDE, p,p'-DDD, o,p-DDT in water, dissolved phase

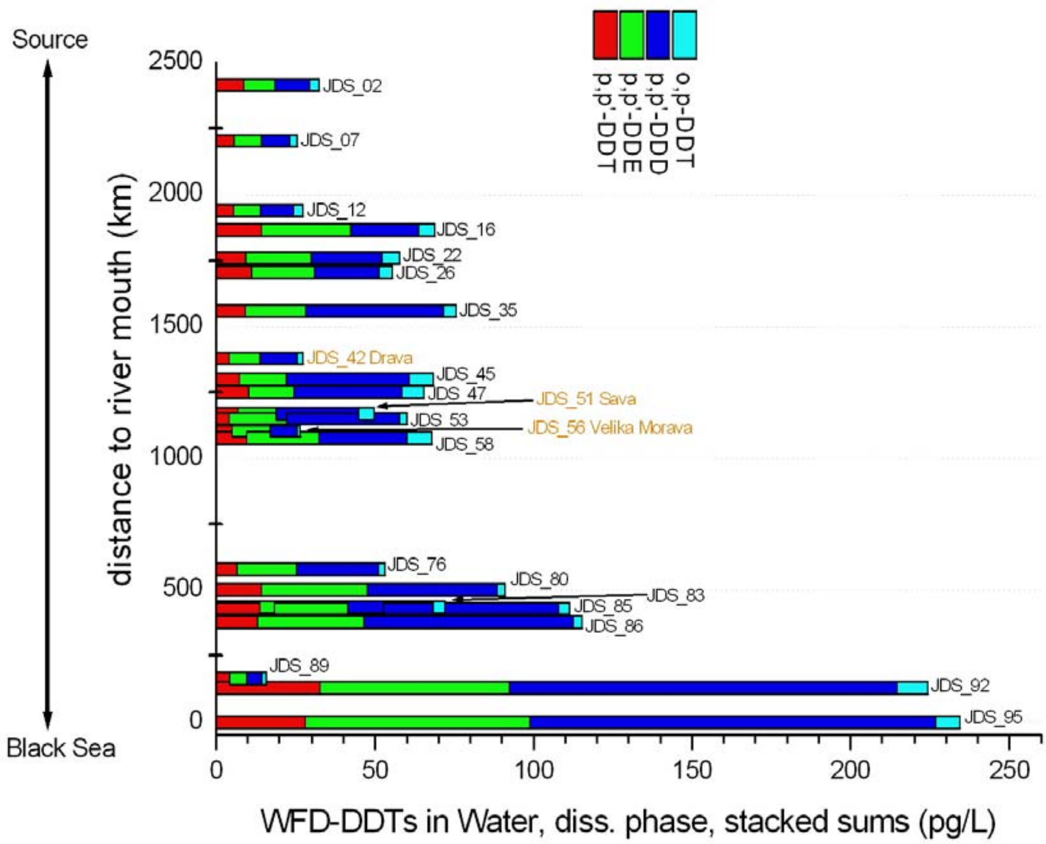
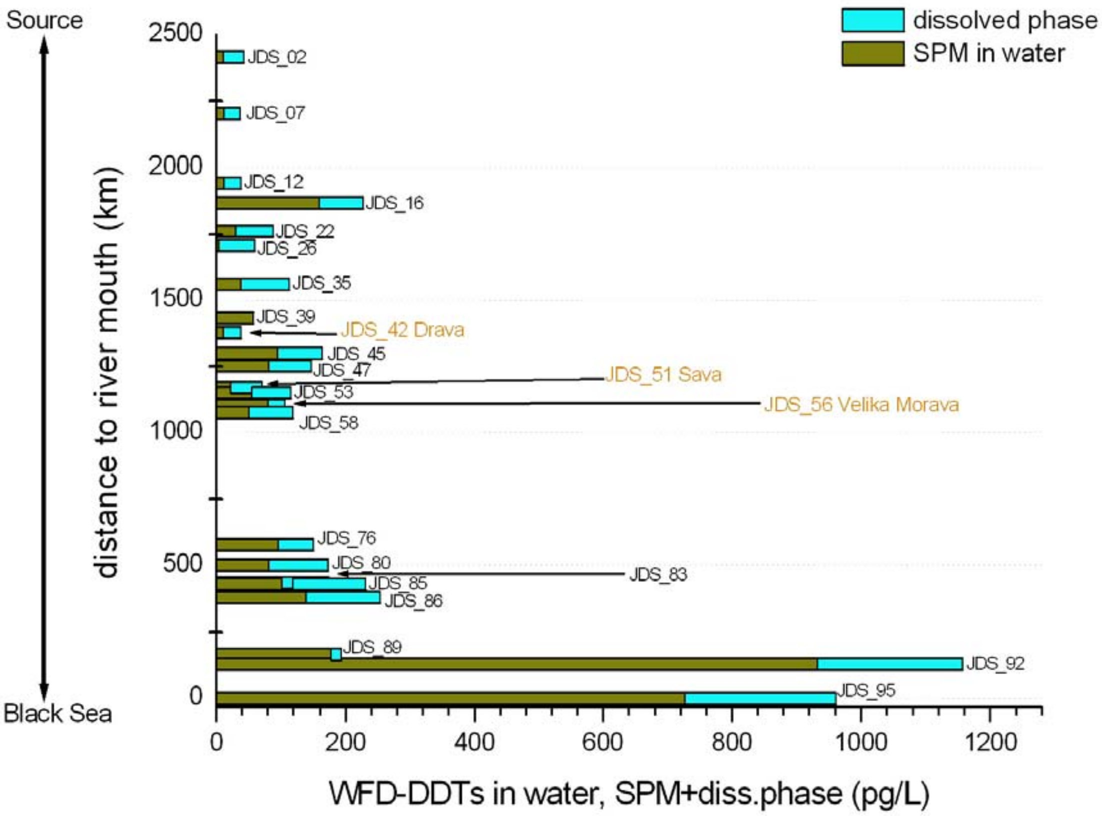


Figure 3.2.3.3-5 Downstream concentration profile of p,p'-DDT, p,p'-DDE, p,p'-DDD, o,p-DDT in water (SPM + dissolved Phase)



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3.2.3.4 ∑ Aldrin, Dieldrin, Endrin, Isodrin (Cyclodiene)

The downstream profile in sediments displays an influence of the Tributary Altmuehl visible in the sediments of site JDS02, (GER). Concentrations decrease then downstream JDS 02 and a slight gradient becomes visible toward the middle stretch of the Danube. After the Iron Gate concentrations are somewhat lower except at JDS 89 and JDS 92 in Romania.

In SPM the gradient is similar, however with concentration maxima more upstream around JDS 85 (RO).

The downstream profile in the dissolved phase water displays no particular trend.

The dissolved phase water samples from the tributaries Drava (JDS 42, HR), Sava (JDS 51, RS) Velika Morava Tributary (JDS 56, RS) display similar to slightly lower concentrations than the Danube itself.

Note: all samples < LOD are set to 0 in the figures.

Note: In all sediment samples, the values for Endrin and Isodrin were under the LOD.

Figure 3.2.3.4-1 Downstream concentration profile of ∑Cyclodiene in sediments

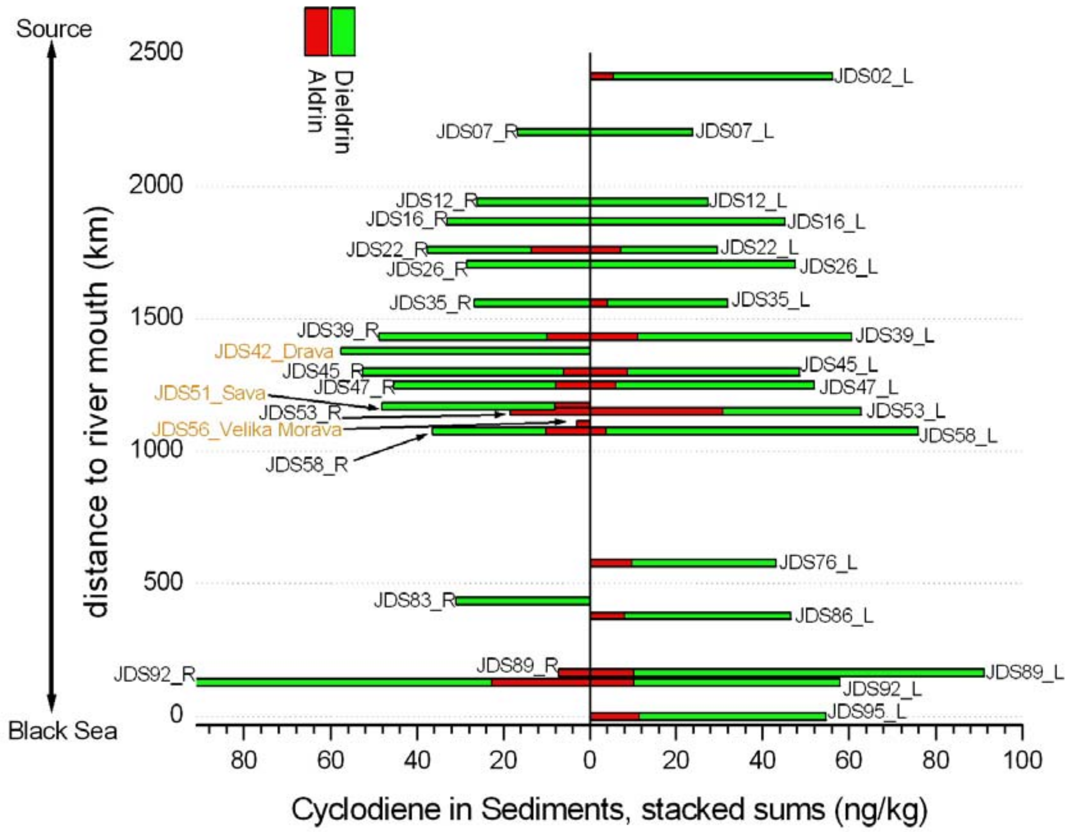


Figure 3.2.3.4-2 Downstream concentration profile of ∑Cyclodiene in SPM

Note: Site 56 (Velika Morava Tributary) was < LOD, therefore is not shown in this figure.

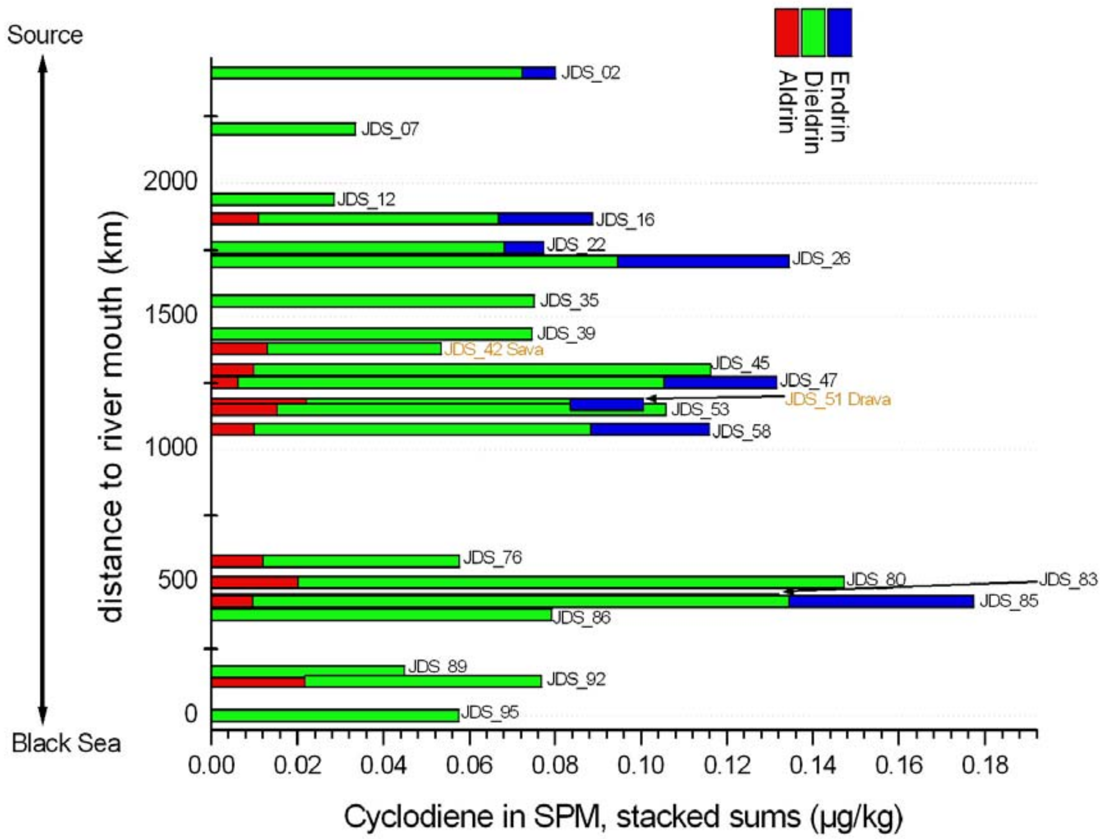


Figure 3.2.3.4-3 Downstream concentration profile of ∑Cyclodiene in water (SPM+diss.phase)

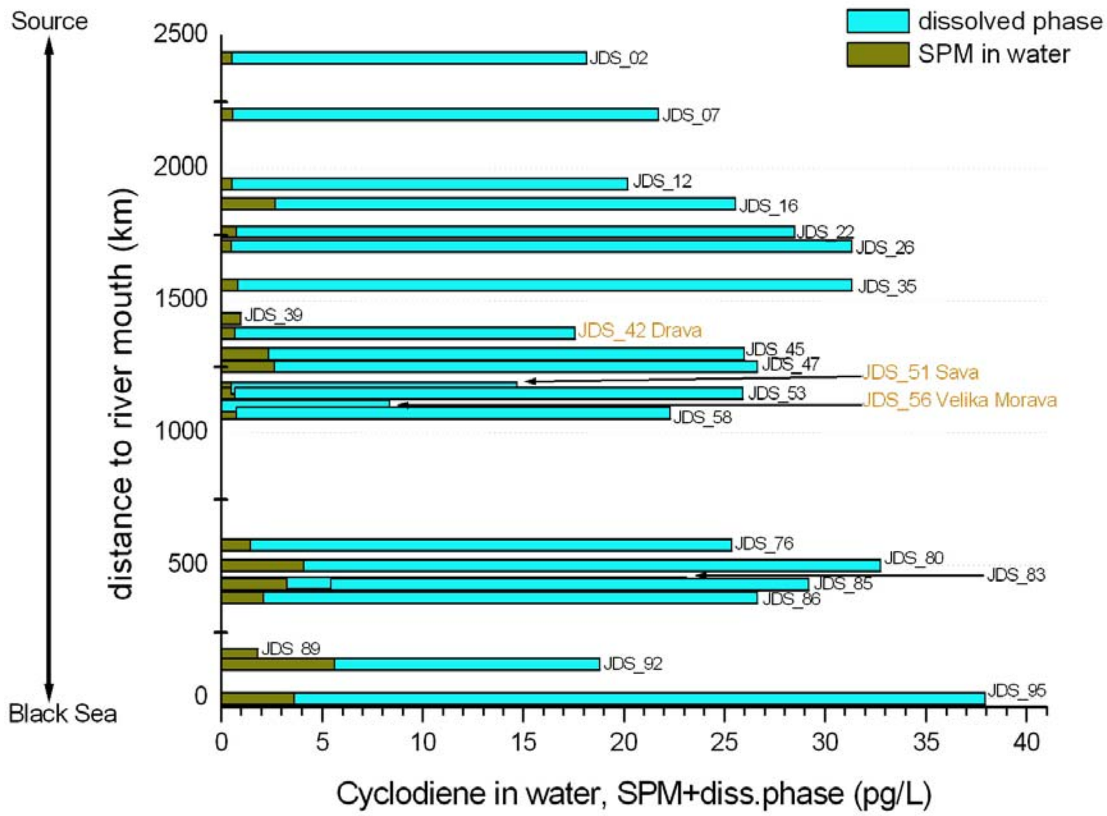
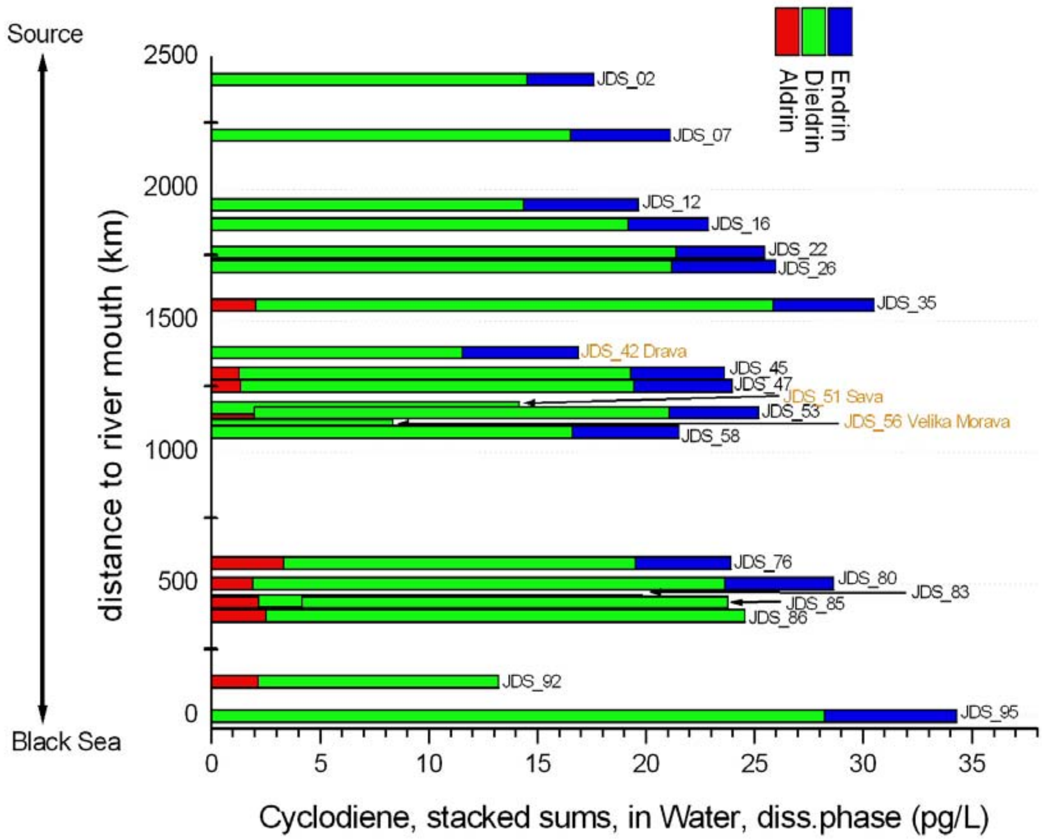


Figure 3.2.3.4-4 Downstream concentration profile of ∑Cyclodiene in water, dissolved phase

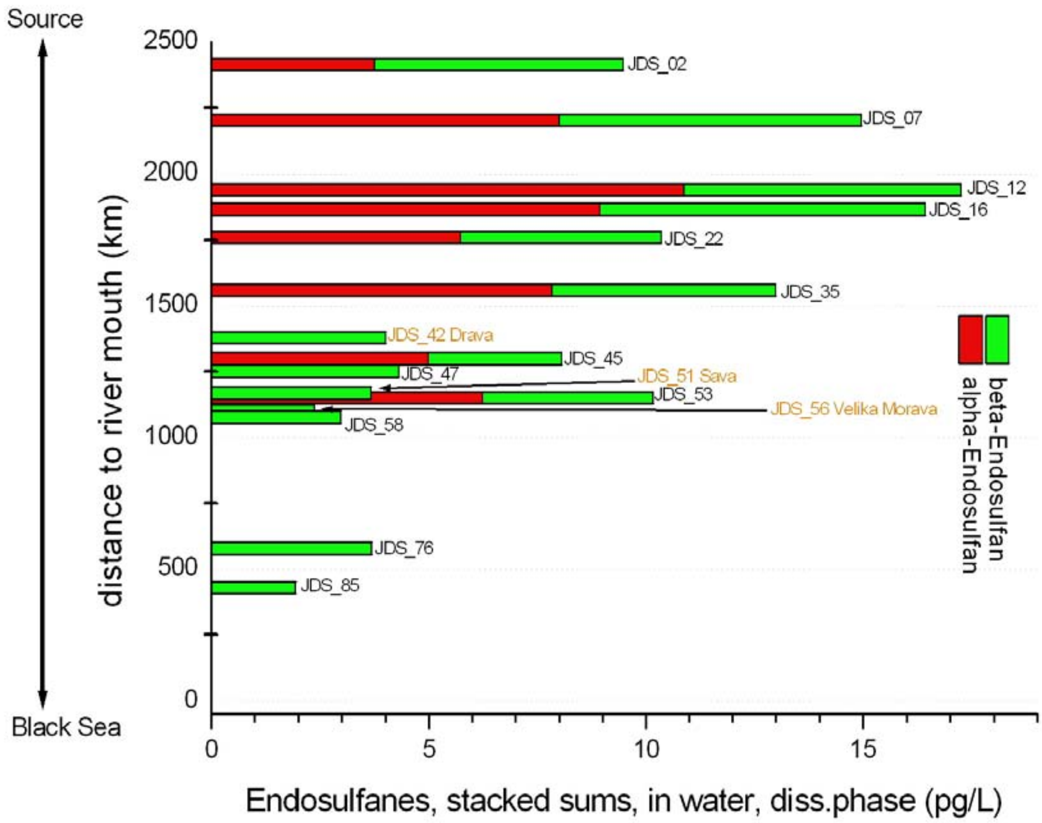


3.2.3.5 ∑ α,β-Endosulfan

∑ α,β-Endosulfan were not detected in sediments besides Site JDS 12_R were a value for α -Endosulfan was detected over LOD with 0.20 µg/kg and in SPM only site JDS 56 (Velika Morava Tributary, RS) was positive at a level of 0.53 µg/kg for α- Endosulfan, and 0.11 µg/kg for β-Endosulfan.

The downstream profile in the dissolved phase suggests a decreasing trend towards the Black Sea.

Figure 3.2.3.5-1 Downstream concentration profile of ∑ α,β-Endosulfan in water, dissolved phase



3.2.3.6 Chlordanes

In the sediments the downstream profile displays a marginal trend of rising concentrations toward the Black Sea with no clear differentiation between left- and right-hand side samples. One distinct higher level was found in the sediments around the site JDS 85 (RO), in particular on the left-hand side downstream the Arges Tributary entering from left. The share of Trans Chlordane in sediments rises slightly towards the Black Sea.

In SPM concentrations were again higher around JDS 85 but also in the sample JDS 56(RS) taken in the Tributary Velika Morava.

The water column displays higher concentrations in the Tributary Velika Morava ((RS) and downstream JDS 83, mainly caused by the presence of more SPM.

Figure 3.2.3.6-1 Downstream concentration profile of Chlordane in sediments

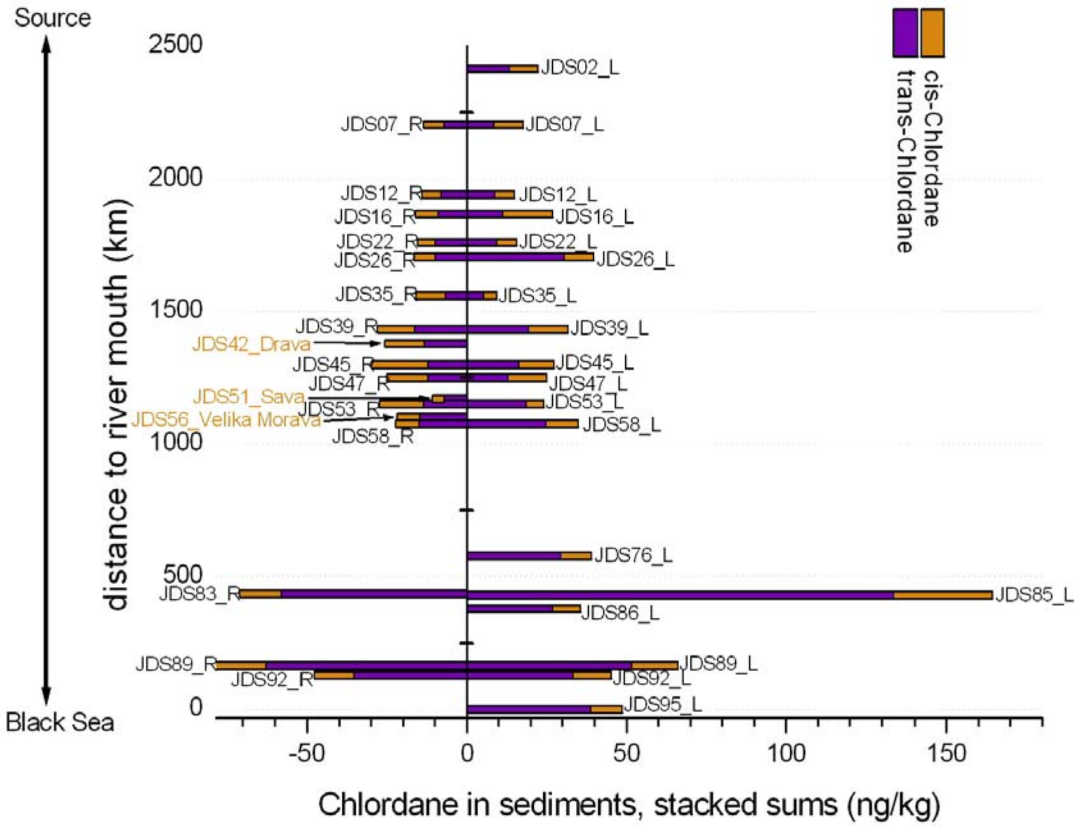


Figure 3.2.3.6-2 Downstream concentration profile of Chlordane in SPM

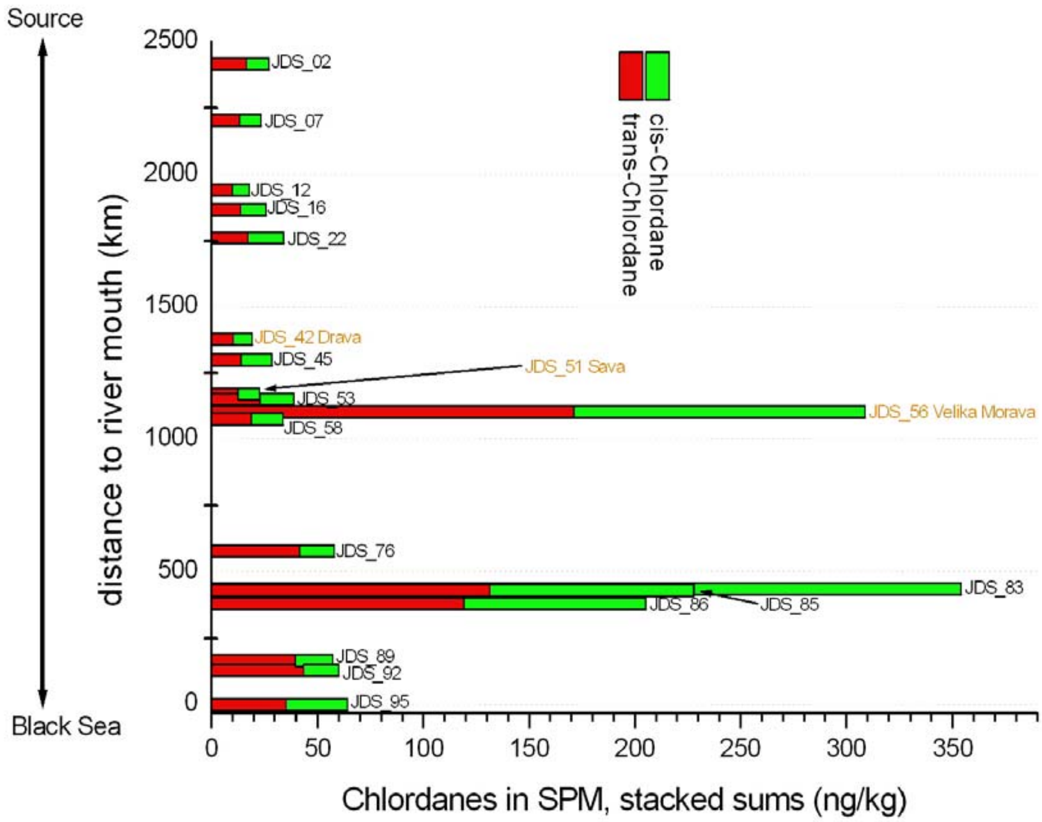
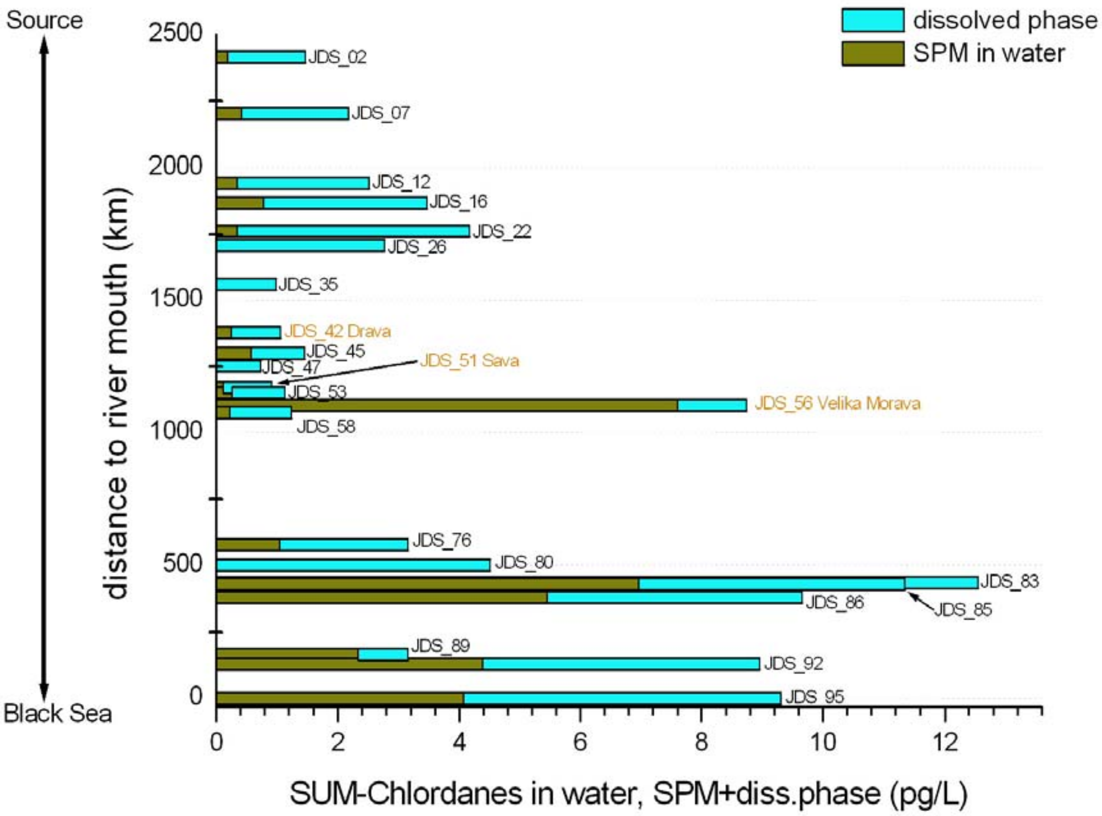


Figure 3.2.3.6-3 Downstream concentration profile of Chlordane in water (SPM + dissolved phase)



3.2.3.7 Heptachlor

Heptachlor in sediment samples were < LOD.

The downstream profile in SPM and in the water column displays some distinct signals at JDS 22, JDS 56 and between JDS 80 and JDS 86. However, the detected concentrations were close to the LOD and shall only be considered as an indication.

Figure 3.2.3.7-1 Downstream concentration profile of Heptachlor in SPM

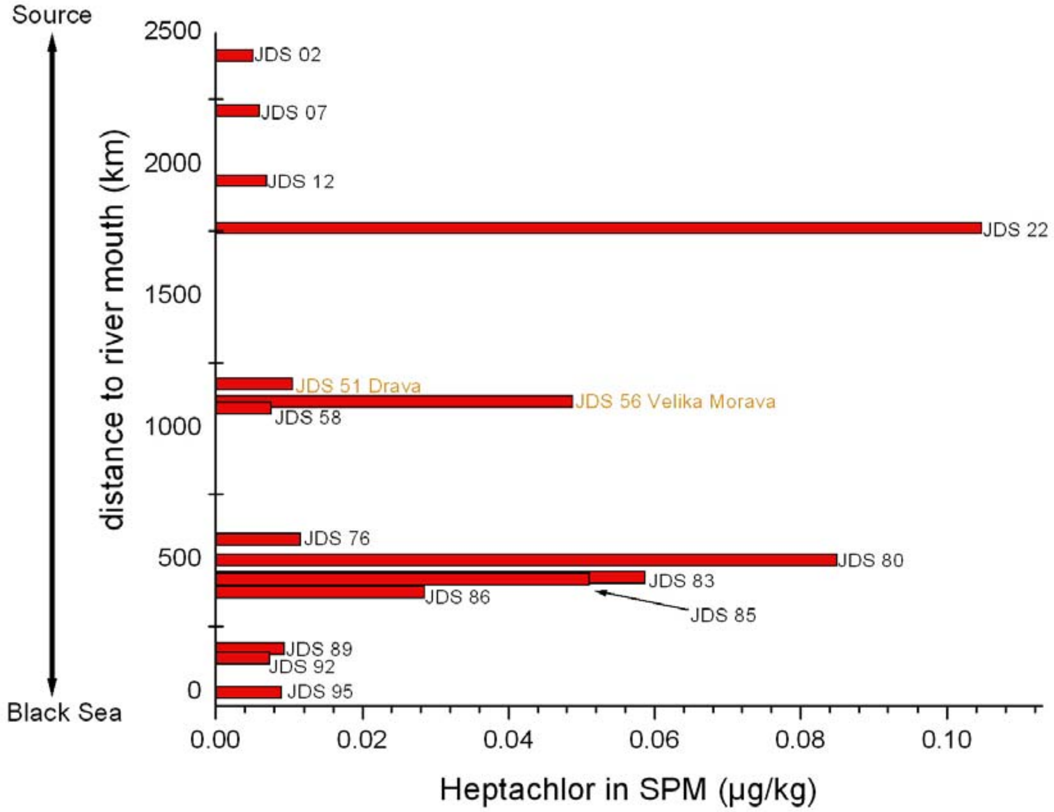
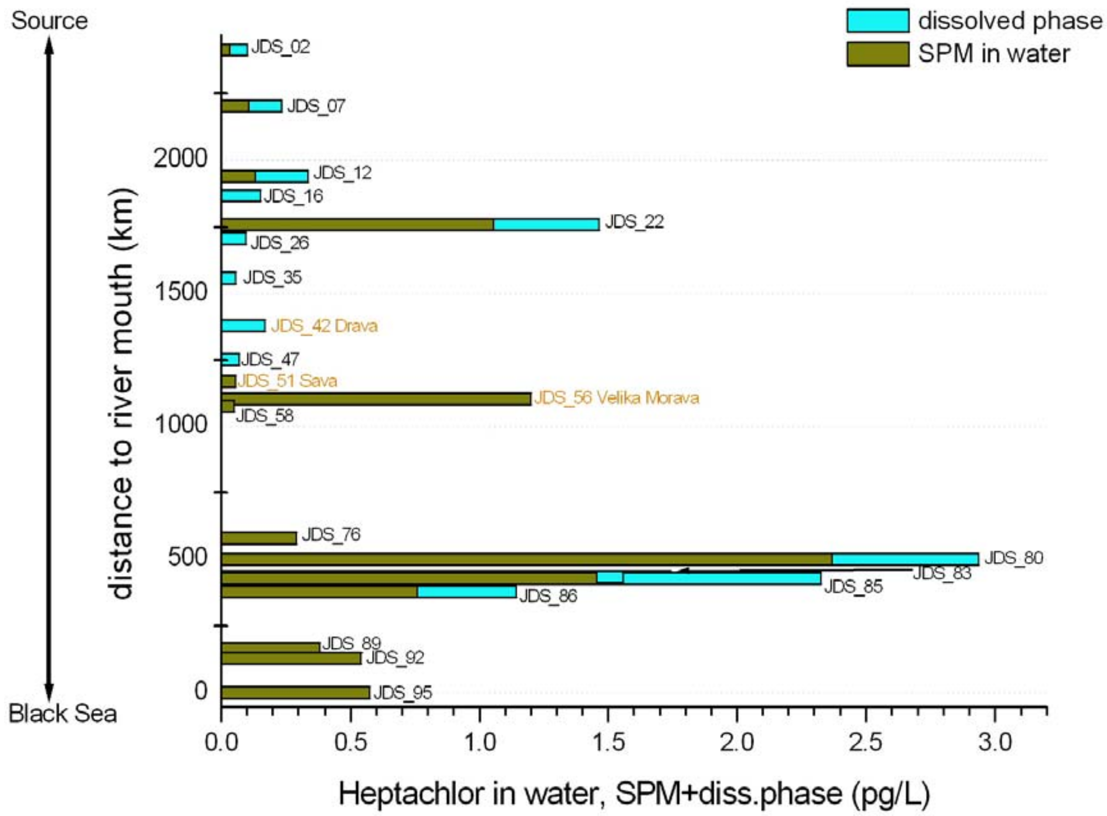


Figure 3.2.3.7-2 Downstream concentration profile of Heptachlor in water (SPM + dissolved phase)



3.3 Indicator Polychlorinated Biphenyls (EC_6 PCBs)

Indicator PCBs were analysed in sediment, SPM, dissolved phase and mussels.

3.3.1 Overview on all compartments

The sum of the EC-6 PCBs in sediments was at average 6.4 µg/kg with a maximum of 46 µg/kg at JDS 85 (RO).

None of the individual EC-6 PCBs exceeded the chemical quality standard of 20 µg/kg for the individual EC-6 PCBs in sediments applied in Germany (compare ARGE Elbe 2006). SPM samples display similar some what lower median/average concentrations of 4.6 µg/kg also with a lower maximum of 9.1 µg/kg at JDS 92 (GER).

The lower concentrations in SPM compared to those in the sediments suggests decreasing PCB emissions into the water shed.

The observed data range data fits into the lower end of the concentration ranges observed in fresh SPM from the River Elbe, where annual averages of SPM derived fresh sediments were 2,8 and 6.5 µg/kg in Hamburg and maximum averages of 120 µg/kg at Magdeburg during 2006 (ARGE Elbe 2006).

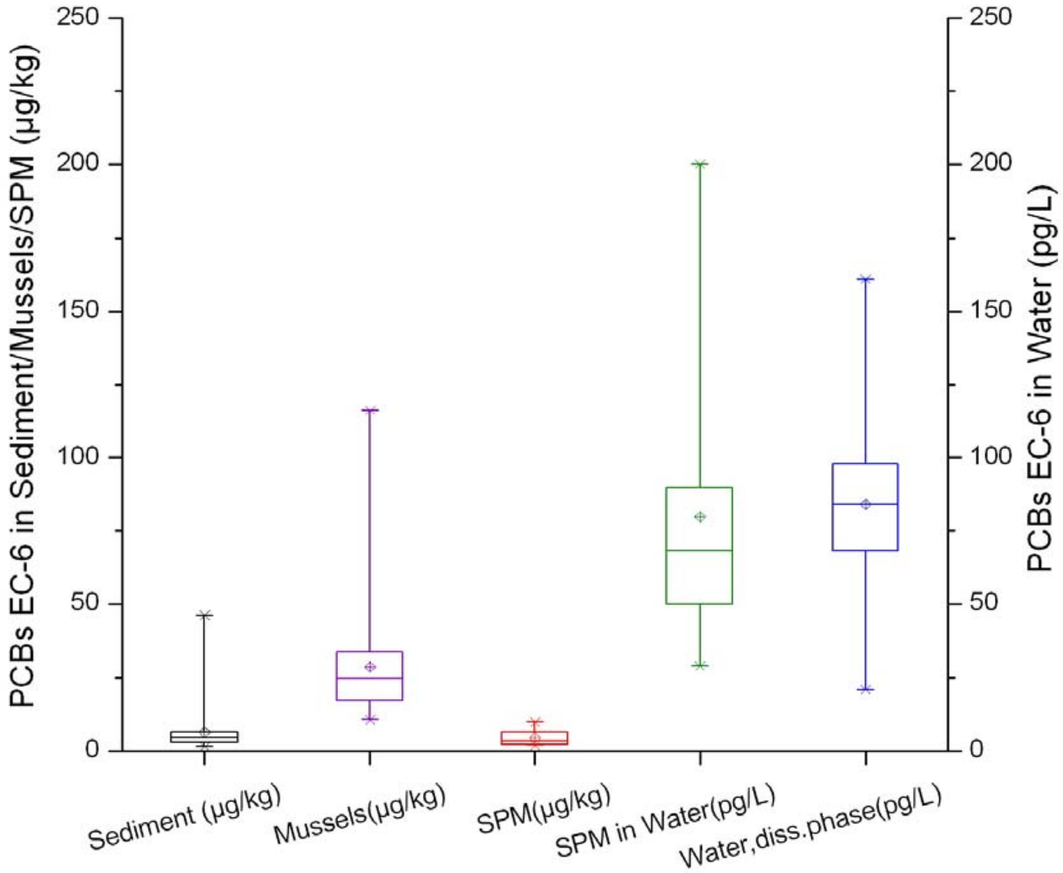
In the Seine estuary typical PCB contents in SPM are one order of magnitude higher; 12 SPM samples of EC6 PCBs without PCB 28 displayed an average of 183 µg/kg with a maximum of 380 µg/kg (Chailleaud et al., 2007).

In the water column the average concentrations were around 150 pg/L, which is low compared to typical annual averages of the River Elbe and individual samples from the River Seine (River Elbe: 1.6 ng/L at Zehren in the stretch after Dresden (ARGE Elbe, 2006); River Seine estuary: 12 water samples of EC6 PCBs without PCB 28 = 20 ng/L with a maximum of 47 ng/L (Chailleaud et al., 2007)).

In mussels the ∑EC6 PCB concentrations were about 10 times higher as in the SPM with an average of 29 µg/kg and a range of 11- 116 ug/kg dry weight. For comparison Covaci et al. (2004) report for freshwater mussel species from Flanders (BE) a range of 6.2-102 ug/kg wet weight, which corresponds approximately to 62 -1020 ug/kg dry weight.

The EC6 PCB fingerprint in mussels is similar to that of SPM except PCB 28, showing a lower abundance in the mussels.

Figure 3.3.1-1 EC-6 PCB concentrations in all compartments, Box-whiskers diagram, boxes represent the 25/75 Percentiles with median and average (⊕), the whiskers represent minimum and maximum values.



Sums of PCBs EC-6					
	Sediment (µg/kg)	Mussels (µg/kg)	SPM (µg/kg)	SPM in Water (pg/L)	Water, diss. phase (pg/L)
Average	6.4	29	4.6	80	84
Median	4.3	25	3.6	68	84
Min	1.5	11	1.9	29	21
Max	46	116	9.9	200	161
25-Percentile	3.0	17	2.2	50	68
75-percentile	6.3	34	6.4	90	98

3.3.2 Downstream concentration profile of EC-6 PCBs

The overall picture of the downstream concentration profile of EC-6 PCBs in sediments suggests some distinct historic (historic because the distinction is not visible in the SPM data) inputs form the left-hand side of the Danube.

This is visible at JDS 02 in the upper stretch after the inlet of the tributary Altmuehl (GER) from the left.

The important tributary Inn apparently has a diluting influence as indicated by the low concentration in the sediments right hand side at JDS 07 (AUS), 20 km downstream the inlet, and further on low concentrations downstream at JDS 12.

At JDS 16, downstream the tributary Morava (SK) from left, higher concentration with a high abundance of PCB 28 were observed left-hand side, pointing to an input from tributary Morava

The samples from the tributaries Drava, Sava and Velika-Morava (JDS 42, -51, and -56 respectively) show low concentrations compared to Danube sediments and indicate a diluting effect from those tributaries entering the Danube from the right-hand side.

At site JDS 53, downstream the City of Pancevo[†] (RS left-hand shore of the Danube), with tributary Tamis from entering from left, a significant concentration rise was observed (which corresponds to the site with the maximum concentration of PCDD/Fs in sediments).

The highest PCB concentrations in sediments were detected in the left-hand side sediments of site JDS 85 (RO), again with a strong abundance of PBC 28. This suggests a strong historic influence of the tributary Arges entering 2 km upstream of site JDS 85, which is supported by the comparable low concentrations detected in the sediments of site JDS83 taken 3 km upstream the inlet of the tributary Arges.

The downstream profile in SPM is more equilibrated when compared to the sediments above.

The high PCB levels found in the sediments downstream of the tributary Arges (JDS 53) and downstream Pancevo (JDS 85) are not is not visible in the SPM samples, which supports the historic character of the sediment contamination of these sites.

The higher PCB concentrations in SPM appear in the upper stretch of the Danube. After the Iron Gate constantly lower concentrations were observed, which suggests an efficient removal of PCB contaminated SPM in the through sedimentation.

Differences in congener distribution are less obvious than in the sediments.

Again the samples taken in the 3 tributaries Drava, Sava and Velika-Morava (JDS 42, -51, and -56 respectively) show low levels when compared to the Danube itself.

In the water columns the downstream concentration profile is much more equilibrated when compared to sediments and SPM. This suggests that the Danube is currently affected by diffuse impacts from environmental sinks rather from distinct PCB releases from urban activities. Historic impacts, still reflected in the sediments, are no longer visible in the water column.

[†]1999 the city of Pancevo (left-hand side of the Danube) was heavily bombed by NATO forces. Targets include an oil refinery, the airplane factory Lola-Utva and chemical plants.

Figure 3.3.2-1 Downstream concentration profile of EC-6 PCBs in sediment

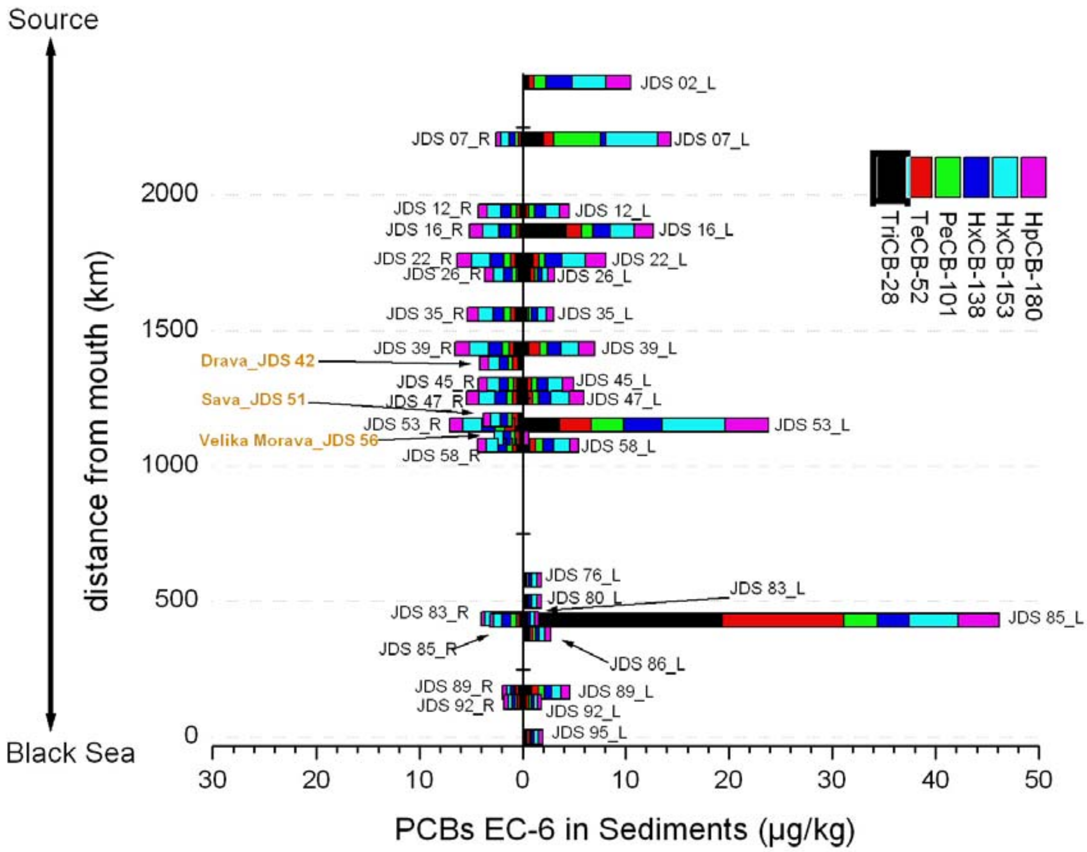


Figure 3.3.2-2 Downstream concentration profile of EC-6 PCBs in SPM

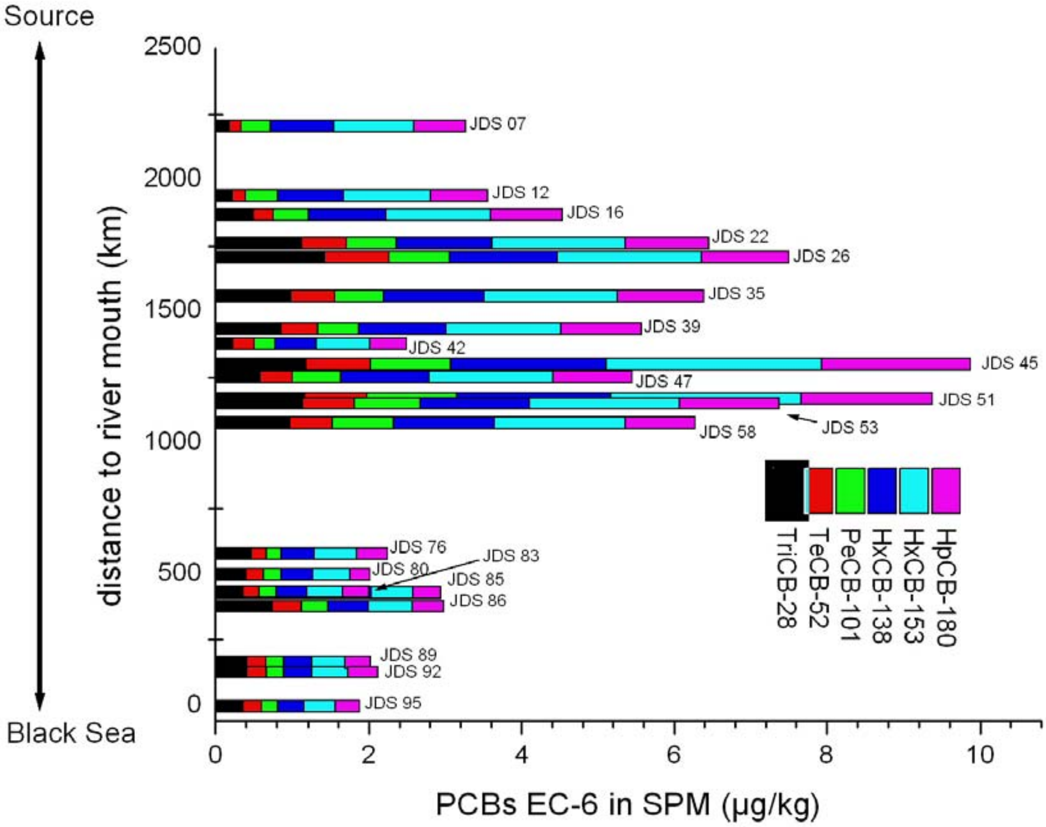


Figure 3.3.2-3 Downstream concentration profile of EC-6 PCBs in water (SPM + dissolved phase)

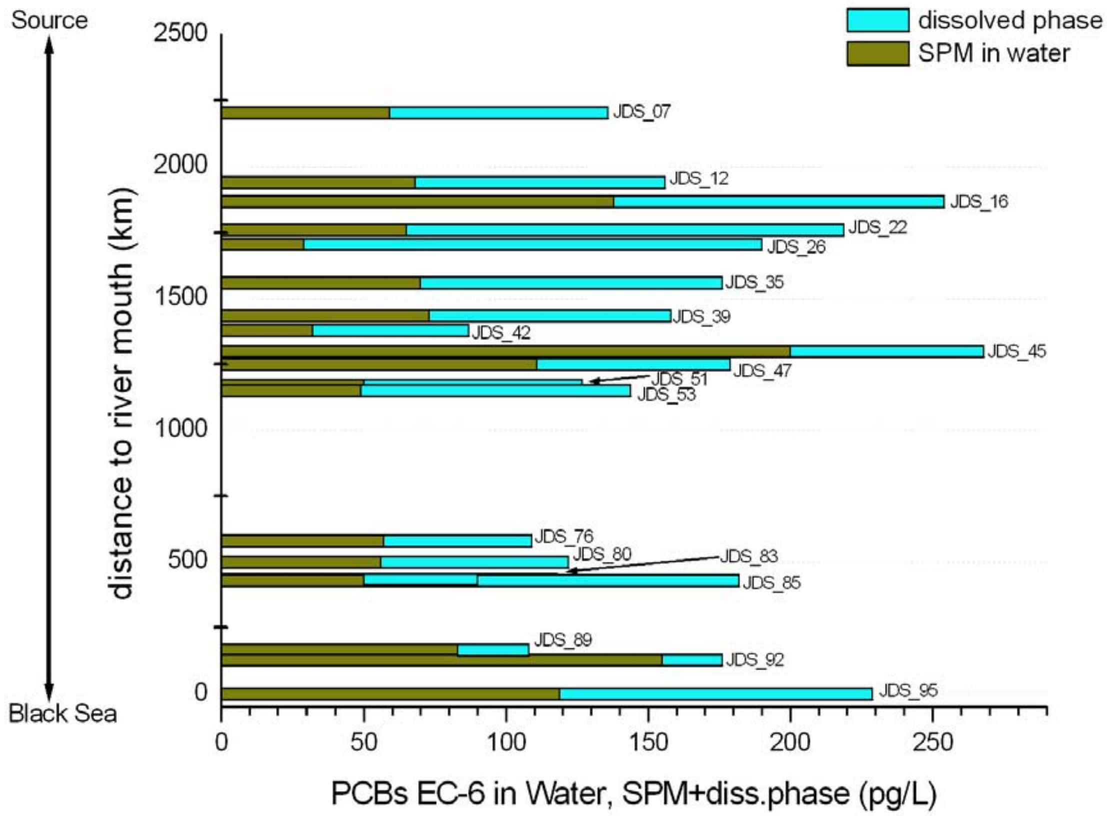
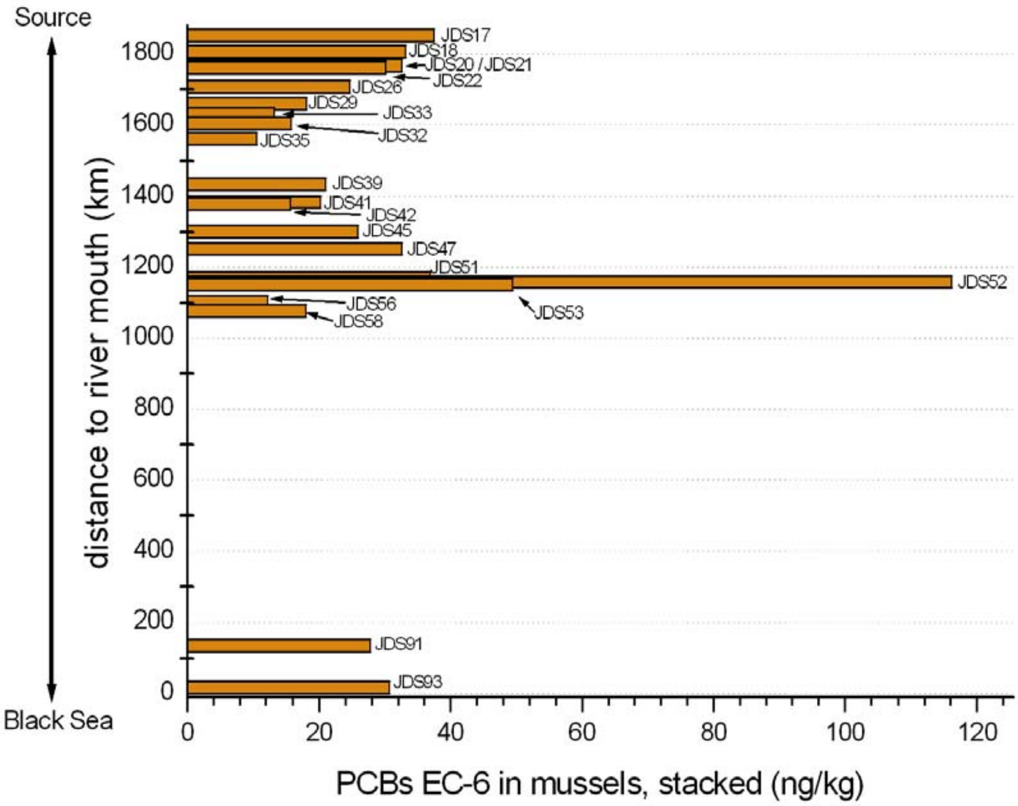


Figure 3.3.2-4 Downstream concentration profile of EC-6 PCBs in mussels (all species)



3.3.3 EC-6 PCB fingerprint

At average the PCB pattern in the sediments shows the typical "aged" environmental fingerprint with PCB 138, -153 and 180 being more and a dominance of PBB153. Sediments from the river Elbe (ARGE Elbe, 2006) and the River Seine (Chailleaud et al., 2007) show a similar distribution.

As discussed above the variability of the pattern in the sediments is much higher than in SPM. This suggests that the SPM reflects the current situation of diffuse, secondary PCB releases into the Danube, whereas the sediments reflect the historic primary inputs from different types of industrial effluents that displayed a high variability in PCB composition.

The fingerprint in mussels follows that of SPM, except of a lower abundance of PCB 28.

3.4 Polychlorinated dibenzo–p –dioxins and dibenzofurans (PCDD/Fs

3.4.1 Overview on all compartments

PCDD/Fs were quantified in all samples. Most Sediment samples display moderate TEQs with an average value of 2.8 ng/kg WHO TEQ, with an isolated maximum levels of 21 ng/kg WHO TEQ (21 ng/kg I-TEQ) at site JDS 53 left hand side downstream Pancevo (RS). This has been the only site where the safe sediment level of 20ng/kg I-TEQ was “exceeded”.

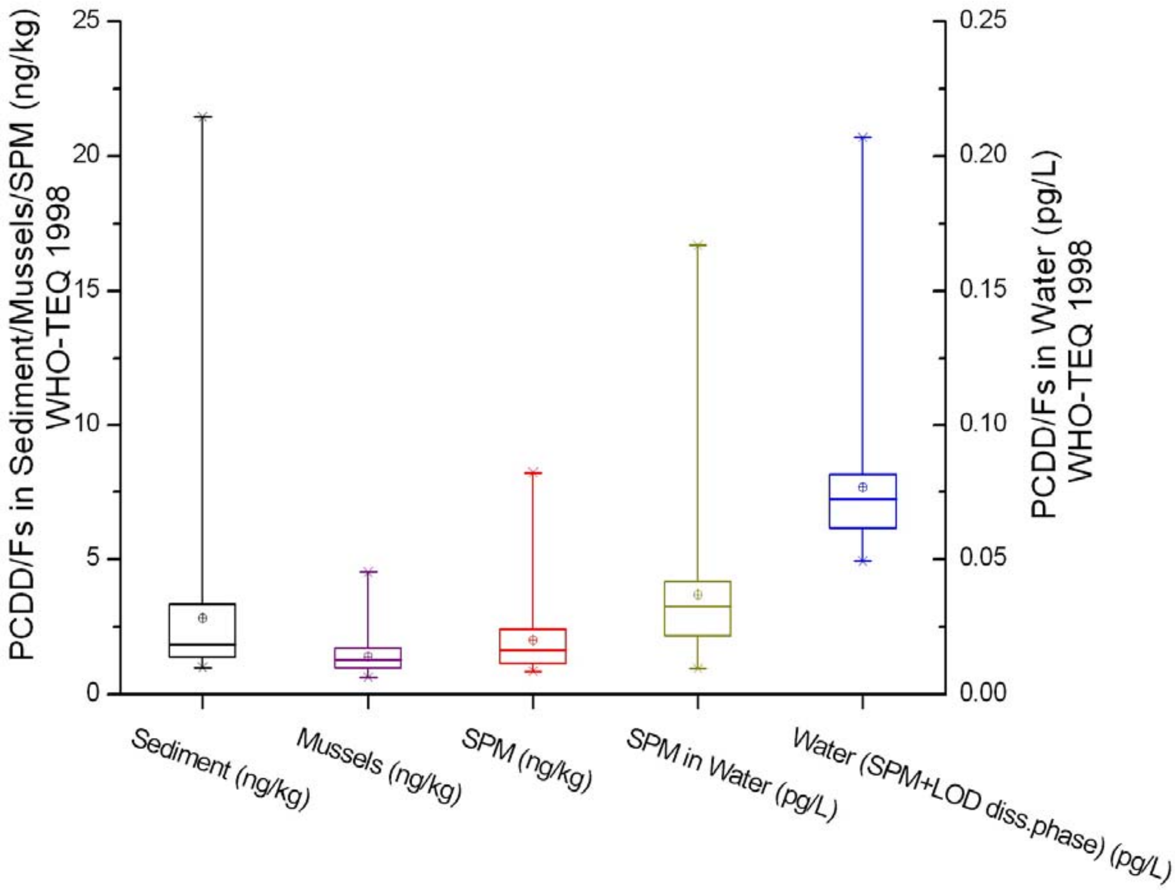
Similar levels in sediments were reported for the River Po showing PCDD/F concentrations between 1.3 and 13 ng/kg WHO TEQ (Fattore et al., 2002).

For comparison: Levels in sediments of the River Elbe are around 40-80 ng/kg WHO TEQ in the more industrialized stretches and around 5-10 ng/kg WHO TEQ along stretches with diffuse inputs. Compare (Stachel et al., 2005, Umlauf et al. 2004, 2005).

SPM concentrations were slightly lower than in sediments with an average of 2.0 ng/kg WHO TEQ and a maximum of 8.2 ng/kg WHO TEQ at site JDS 45 (HU). Lower concentrations in the SPM when compared to sediments suggest that the overall dioxin emissions into the catchment are decreasing and that the contents in sediments are a memory due to historic inputs rather than a recent signal.

In the water column no PCDD/Fs were detected in the dissolved phase. LOD for PCDD/Fs on a WHO TEQ base was 0.039 pg/l in the dissolved phase, which is at the range of the average concentration in water associated with SPM. In the water phase PCDD/Fs are predominantly associated with SPM (Dueri et al. 2008), which means that the average value 0.037 pg/L WHO TEQ derived from the quantification based on SPM should fairly reflect the total concentration in the water column However, a theoretical upper bound calculation fort the total PCDD/F TEQ concentration in Water taking in consideration the LODs in the dissolved phase is given in figure 3.4.1-1

Figure 3.4.1-1 PCDD/F concentrations in all compartments



PCDD/Fs in WHO-TEQ 1998					
	Sediment (ng/kg)	**Mussels (ng/kg)**	**SPM (ng/kg)**	**SPM in Water (pg/L)**	**Water (SPM+LOD of diss.phase) (pg/L)**
Average	2.8	1.4	2.0	0.037	0.077
Median	1.9	1.3	1.6	0.032	0.072
Min	0.97	0.61	0.83	0.0094	0.049
Max	21	4.5	8.2	0.17	0.21
25-Percentile	1.4	0.94	1.1	0.021	0.061
75-percentile	3.3	1.7	2.4	0.041	0.081

3.4.2 Downstream concentration profile of PCDD/Fs

The downstream concentration profile of PCDD/Fs in the sediments shows only few extremes, and in most cases no interpretable differences between left- and right-hand side samples, which suggest input mainly from diffuse sources.

Comparably high concentrations at Site JDS 02 point again to an input from the tributary Altmuehl as observed for PAHs above. Another site with somewhat higher PCDD/F concentrations on both sides of the Danube was at JDS 39 (HU), which had displayed highest PCP (containing impurities of PCDD/Fs) result during JDS1. Maximum TEQ concentrations in sediment of 21 ng/kg were detected at JDS 53 left-hand side downstream Pancevo (RS), a site, which has shown a high abundance of EC6 - and DL-PCBs as well.

Again the samples taken in the 3 tributaries Drava, Sava and Velika-Morava (JDS 42, -51, and -56 respectively) show low levels both in sediments and SPM when compared to the Danube itself.

The downstream concentration profile in SPM shows a tendency of higher concentrations in the upper stretch and lower concentrations at all sites after the Iron Gate, similar to what could be seen for PAHs and PCBs. The only exception is station JDS 45 (Bačka Palanka, SR) where the maximum TEQ concentration of 8.2 ng/kg WHO-TEQ was detected. An influence from the tributary Drave (site JDS 42) entering 79 km upstream that site can be excluded, also due to the low PCDD/F contents in SPM measured there.The NATO bombing in 1999 was limited to the *The Bridge of Yough,* therefore an impact from damaged industrial installation seems unlikely, especially since this should have left a signal in the sediment as well. Remains the question whether the local metallurgy, textiles, electronic and machine industry might release PCDD/Fs. Especially the metallurgic sector is known for diffuse PCDD/F emissions (Buekens et al. 2000; Zhu et al. 2008).

In the water column a slight tendency of rising concentrations towards the Black sea can be observed. However, a single maximum appears- as seen in SPM- at site JDS 45, which seems the only sampling station with current releases of (low quantities) of PCDD/Fs. Interestingly the mussels from this site do not show abnormalities in concentration.

Figure 3.4.2-1 Downstream TEQ profile of PCDD/Fs in sediments

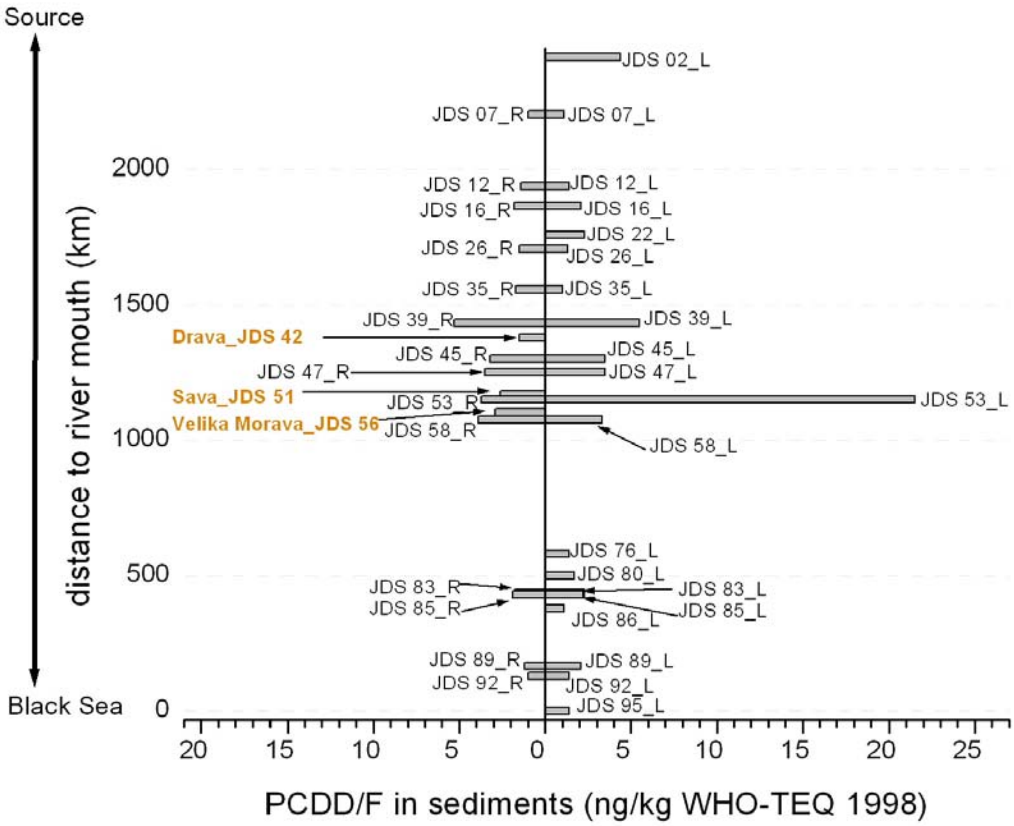


Figure 3.4.2-2 Downstream TEQ profile of PCDD/Fs in SPM

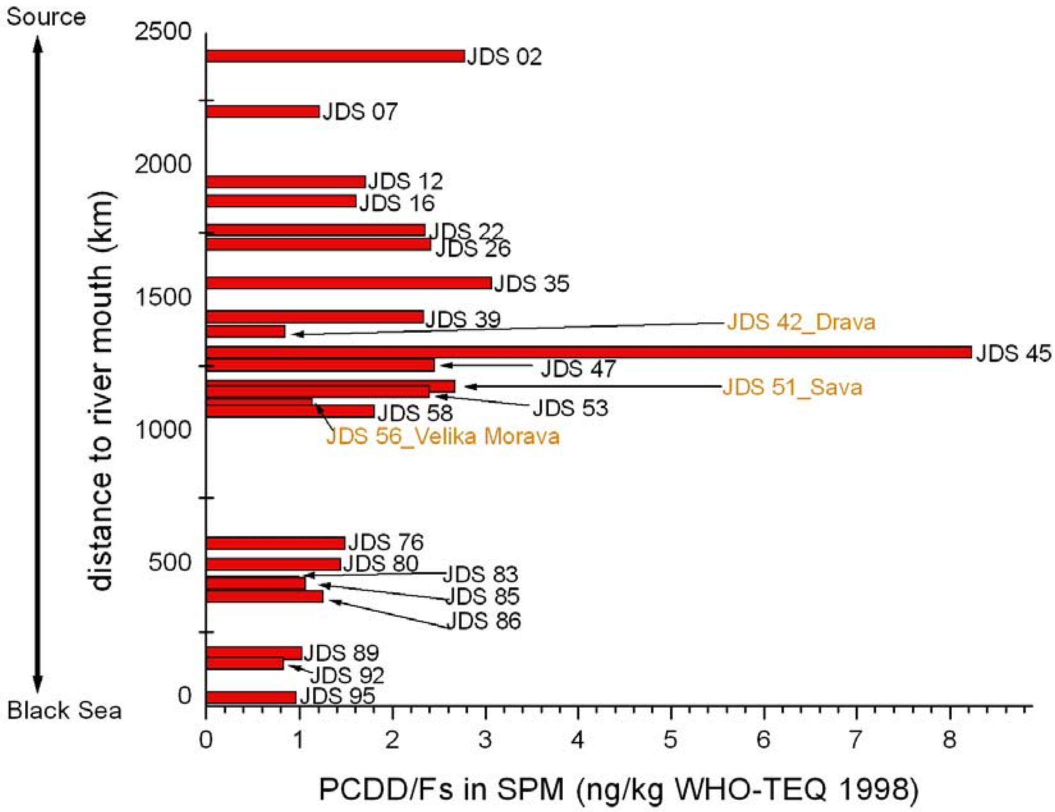
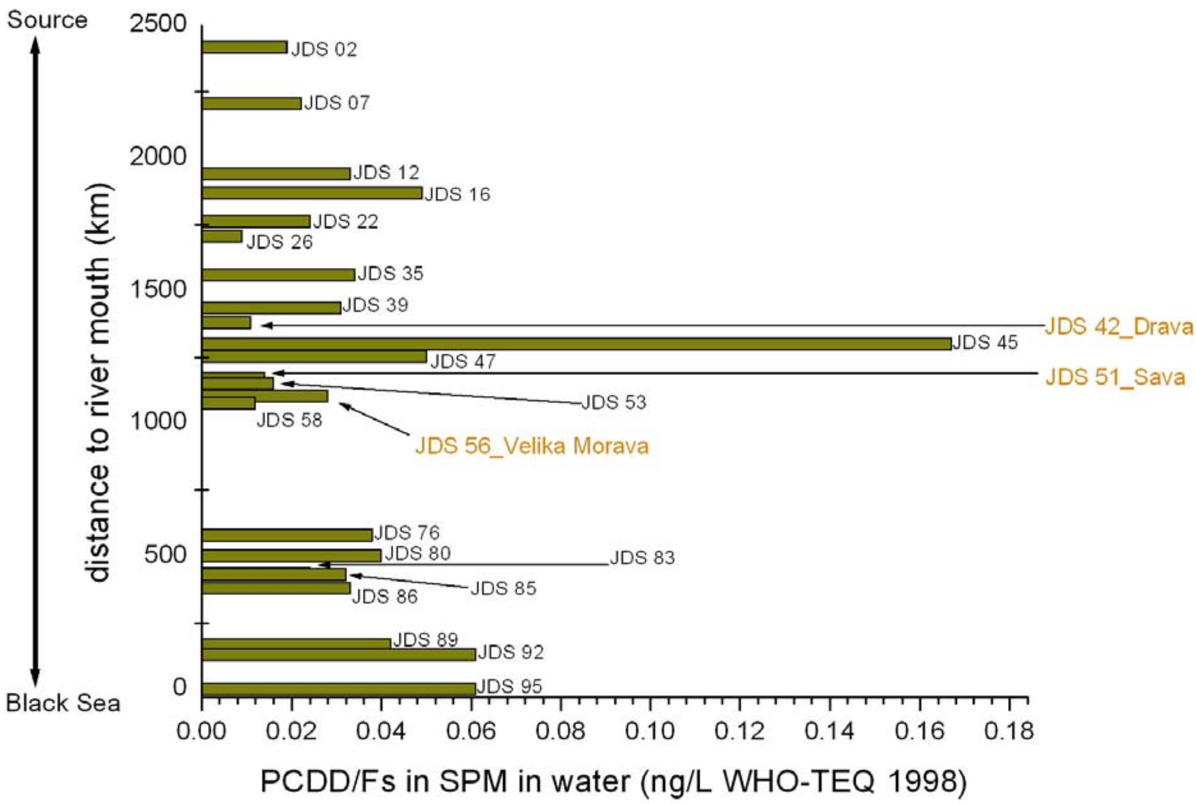
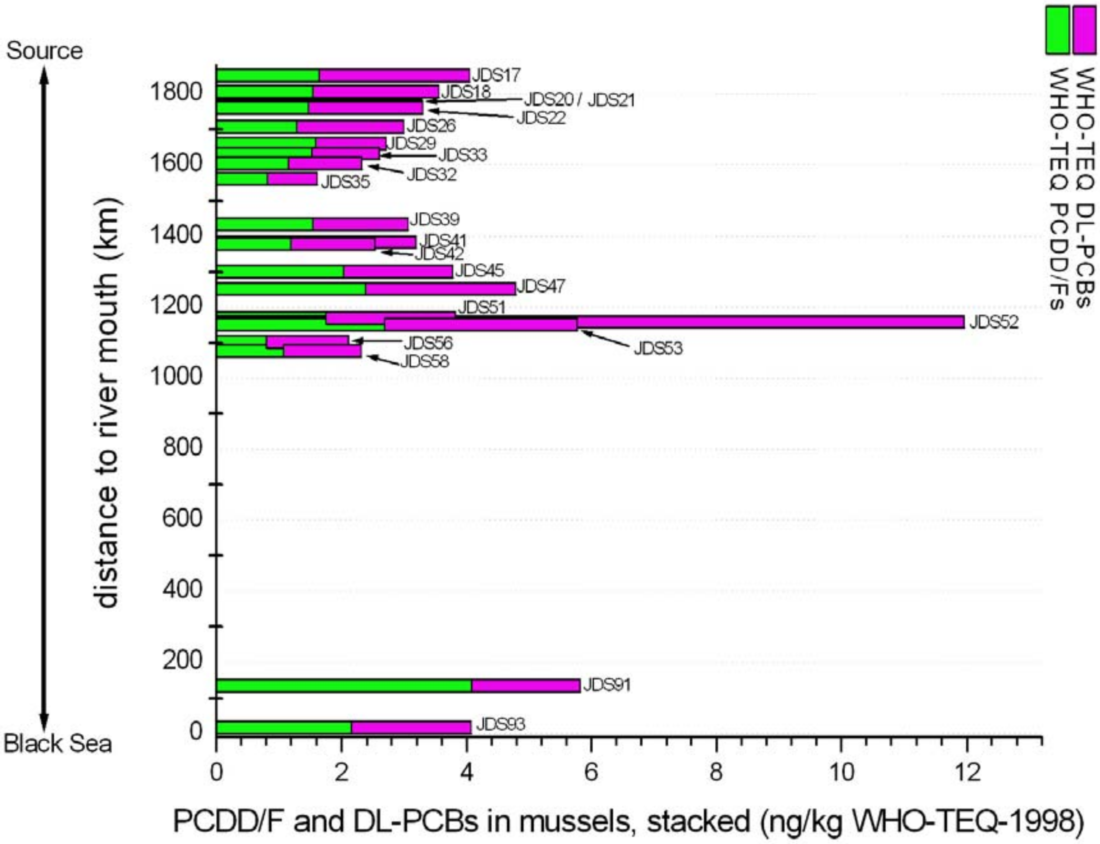


Figure 3.4.2-3 Downstream TEQ profile of PCDD/Fs in water (SPM only)



Note : PCDD/Fs in dissolved phase were all < LOD.

Figure 3.4.2-4 Downstream TEQ profile of PCDD/Fs in mussels (all species)



3.4.3 PCDD/F fingerprint

The average pattern of 2,3,7,8-PCDD/Fs in sediments and SPM, dominated by OCDD and some minor contribution from HpCDD and OCDF, is typical for a profile altered by long range atmospheric transport/deposition (Hagenmeier et al. 1994). It can be found world-wide in background soils and sediments at the absence of the influence of direct emissions. This observation is supported by the comparably low concentrations as discussed above.

Figure 3.4.3 -1 Average PCDD/F pattern in sediments

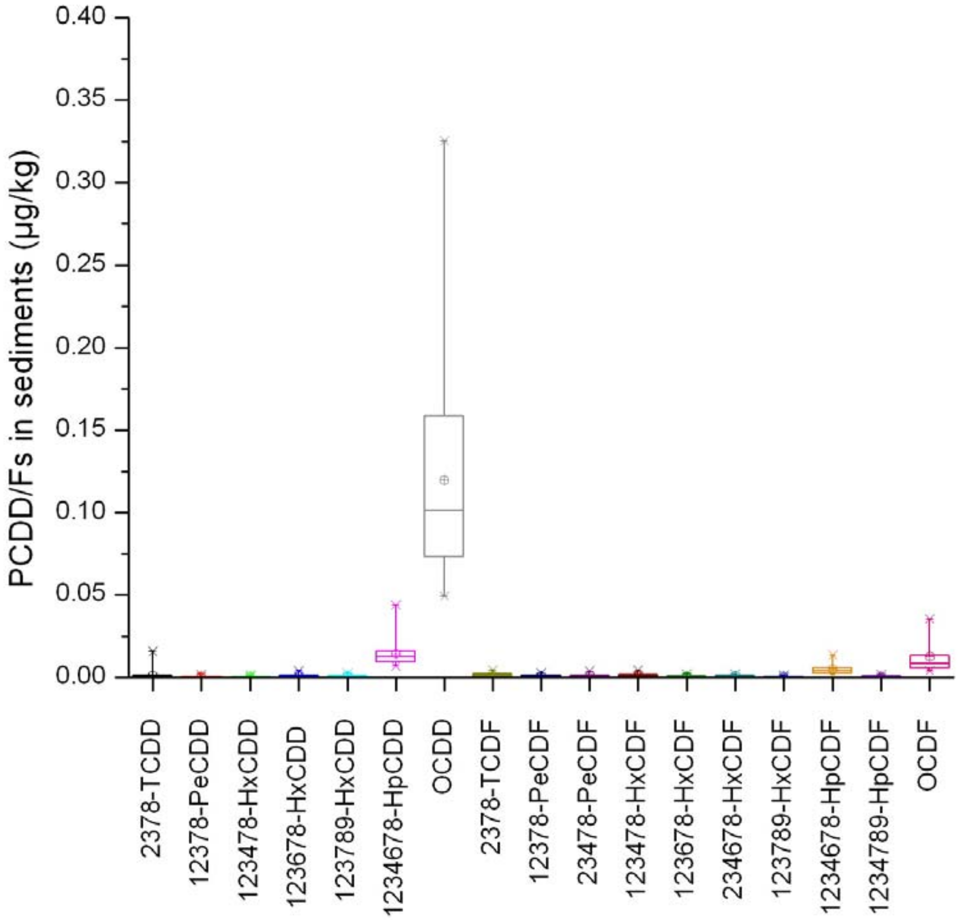
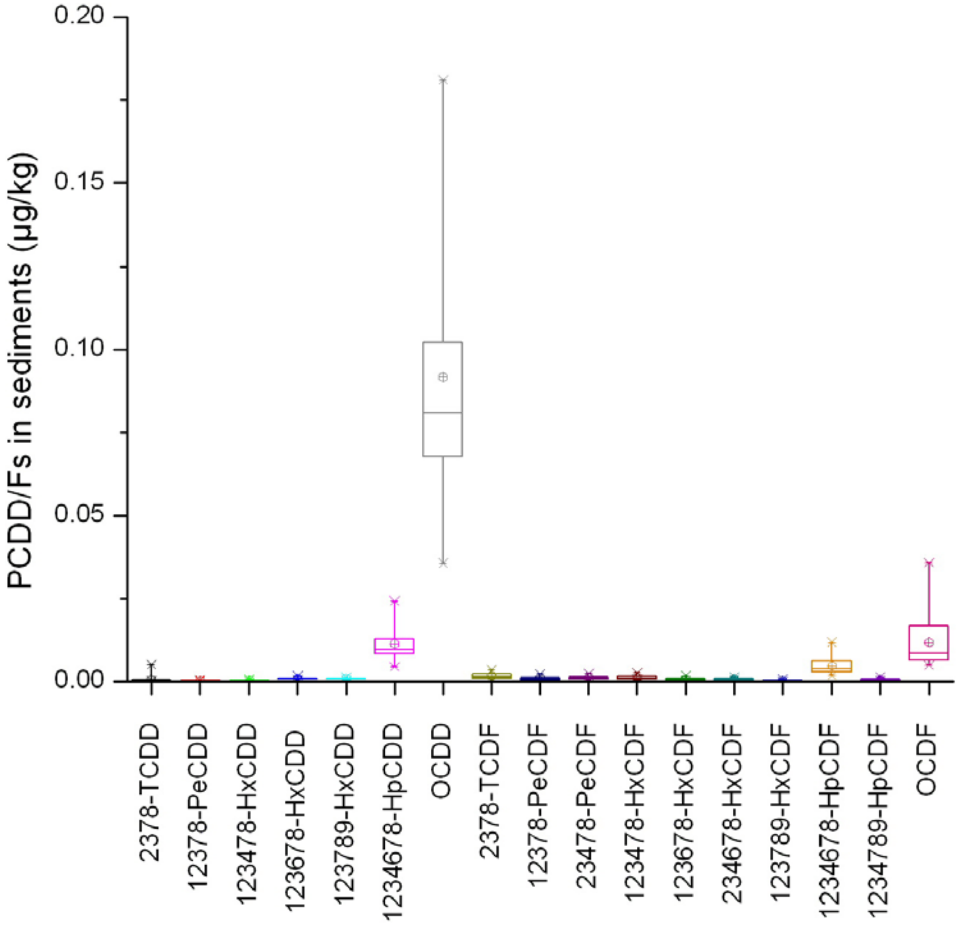


Figure 3.4.3 -2 Average PCDD/F pattern in SPM



3.5 Dioxin-like Polychlorinated Biphenyls (DL-PCBs)

3.5.1 Overview on all compartments

DL-PCBs were quantified in all samples. Most Sediment samples display low TEQs with an average value of 0.6 ng/kg WHO TEQ, with an maximum levels of 2.6 ng/kg at site JDS 85 left hand side (downstream tributary Arges, RO) and 2 more distinctive input spots at JDS 53 (downstream tributary Tamis, RS) and JDS 02 (downstream tributary Altmuehl, GER) , both left-hand side.

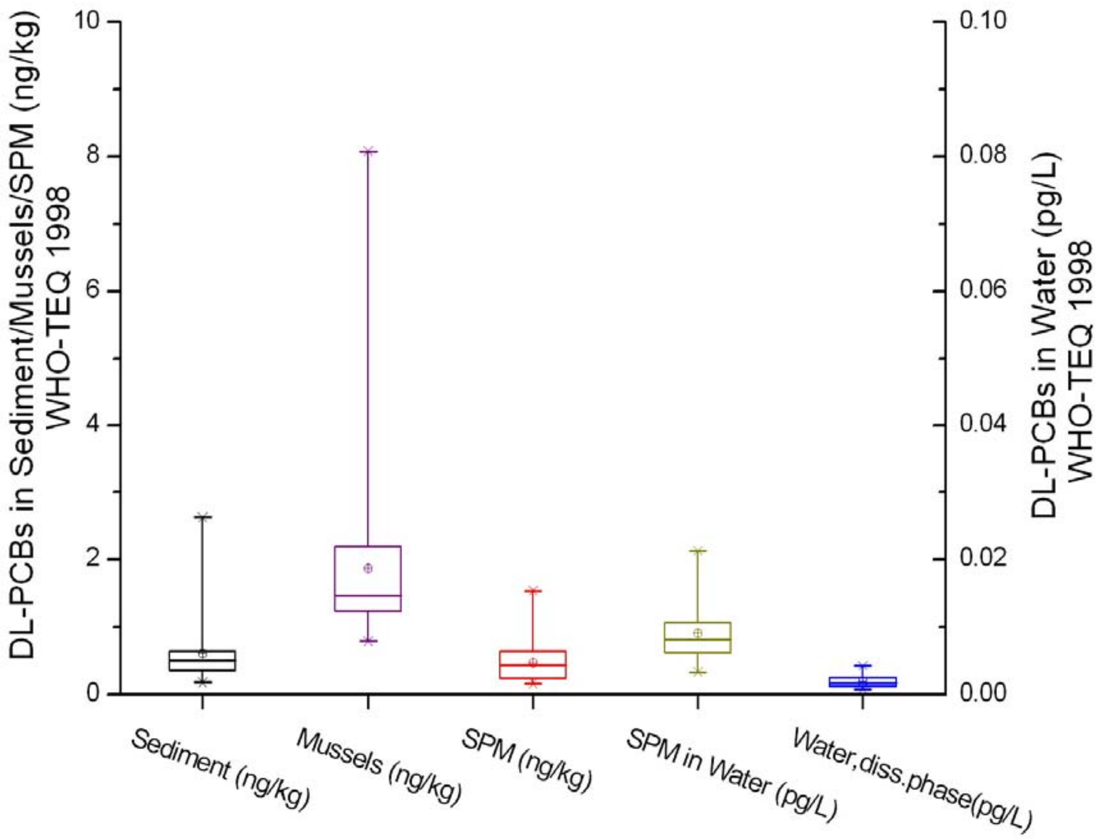
SPM samples displayed slightly lower values as seen before for PCDD/Fs, with highest concentration of 1.5 ng/kg WHO TEQ at site JDS 2 downstream tributary Altmuehl.

In the water column DL-PCBs were detected predominately associated with SPM in the dissolved phase at average WHO-TEQ levels around 10 fg/l.

The low overall contribution of DL-PCBs of less that 20% to the combined WHO TEQ in SPM and sediments of the Danube in the all is typical for surface waters without significant impact of industrial discharges and reflects more the situation in atmospheric deposition.

In mussels the average concentration of DL-PCBs was close to 2 ng/kg, and contributes a significantly higher share to the combined TEQ of PCDD/Fs and DL-PCBs. In some cases the TEQ contribution from the DL-PCBs was even higher (compare chapter on PCDD/Fs).

Figure 3.5.1-1 DL-PCB concentrations in all compartments



Sum of DL-PCBs in WHO-TEQ 1998					
	Sediment (ng/kg)	Mussels (ng/kg)	SPM (ng/kg)	SPM in Water (pg/L)	Water, diss.phase (pg/L)
Average	0.59	1.9	0.46	0.0091	0.0019
Median	0.49	1.5	0.42	0.0081	0.0016
Min	0.17	0.79	0.16	0.0033	0.00083
Max	2.63	8.1	1.53	0.021	0.0042
25-Percentile	0.29	1.2	0.22	0.0061	0.0012
75-percentile	0.64	2.2	0.60	0.011	0.0024

3.5.2 Downstream concentration profiles of DL-PCBs

The downstream concentration profiles of DL-PCBs (on a TEQ basis!) are very similar to those of the Indicator PCBs discussed above, except of a stronger signal at JDS 2 (GER) under the influence of the Tributary Altmuehl. On a concentration basis the maximum in sediments was found at site JDS07.

Figure 3.4.2.1-1 Downstream TEQ profile of DL-PCBs in sediments

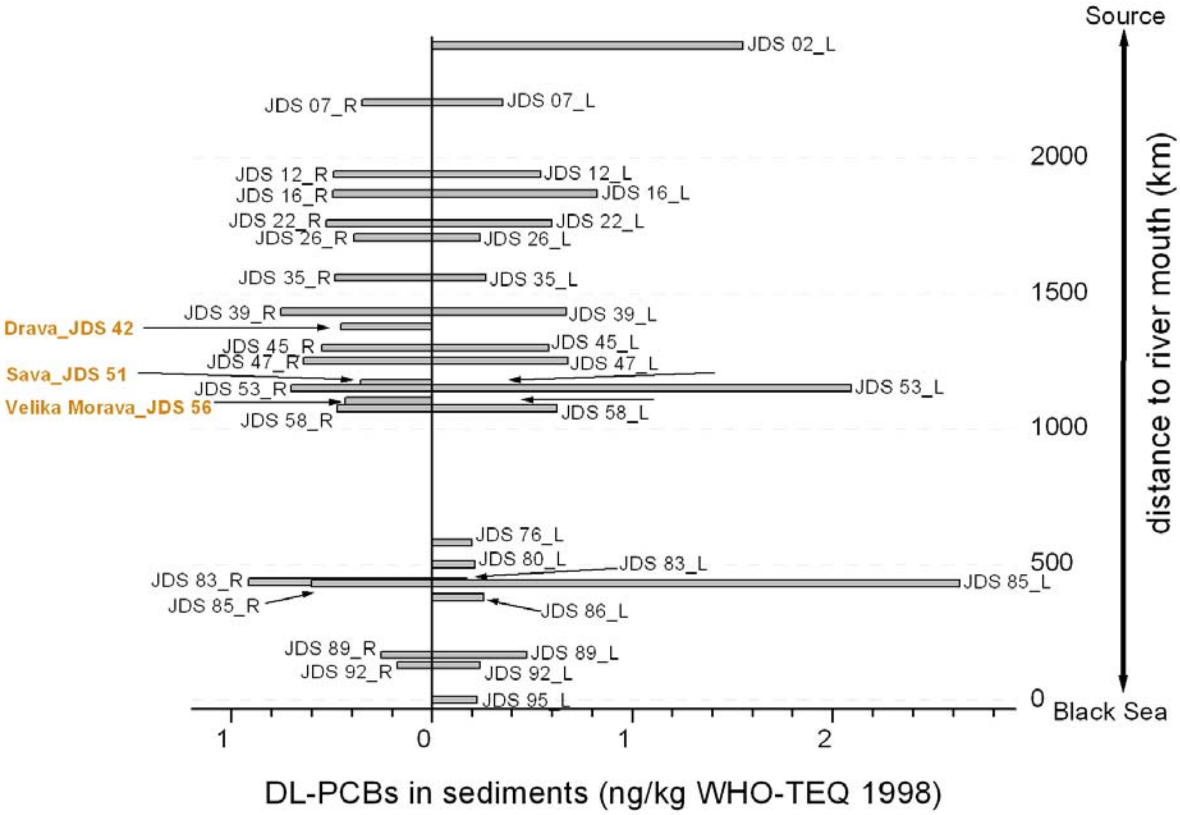


Figure 3.1-2 Downstream TEQ profile of DL-PCBs in SPM

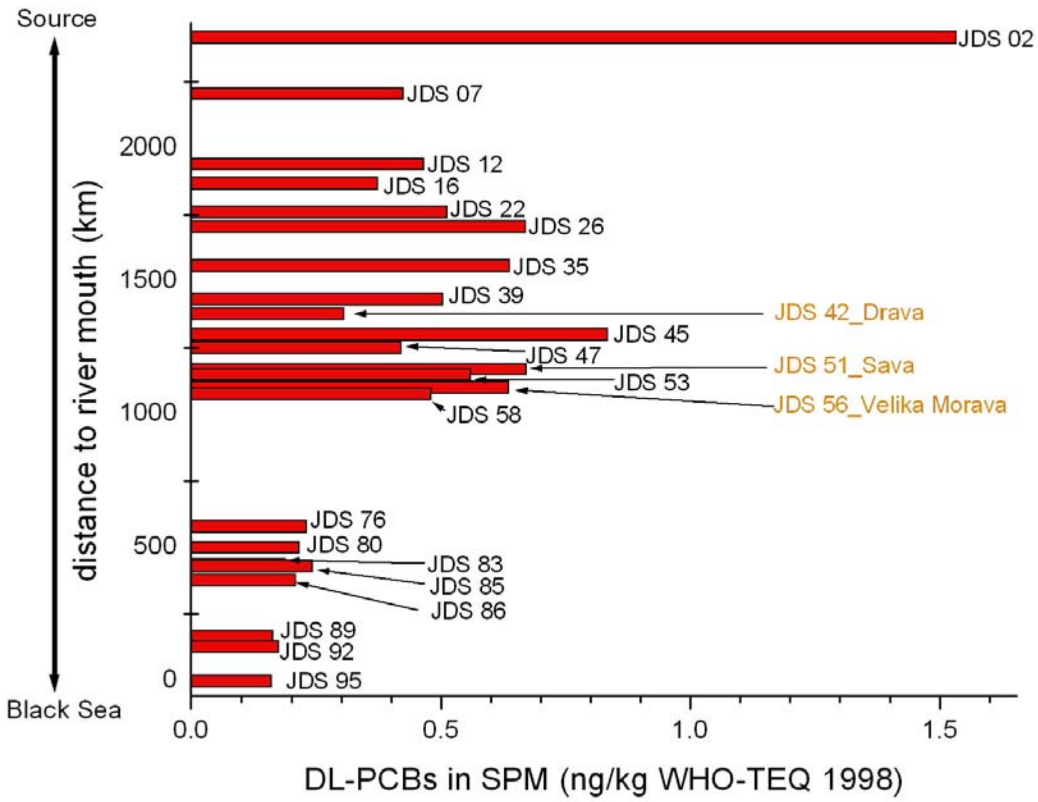


Figure 3.1-3 Downstream TEQ profile of DL-PCBs in Water (dissolved phase + SPM)

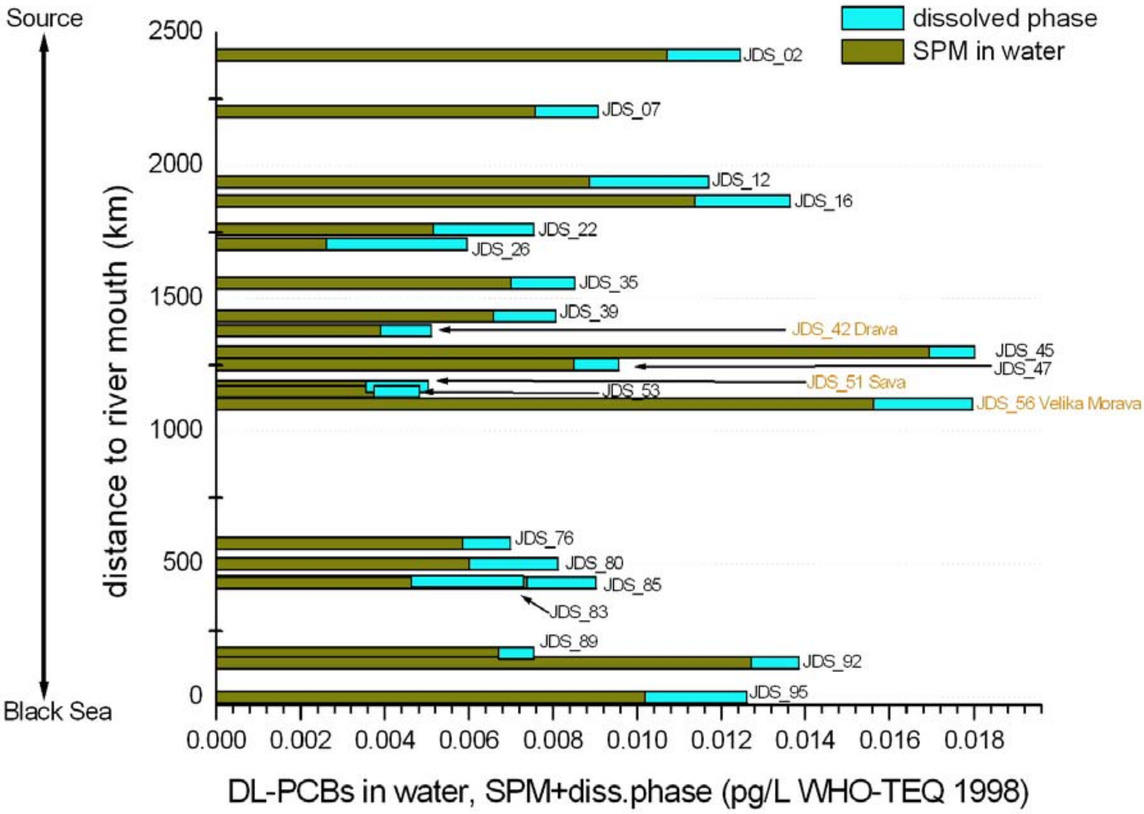
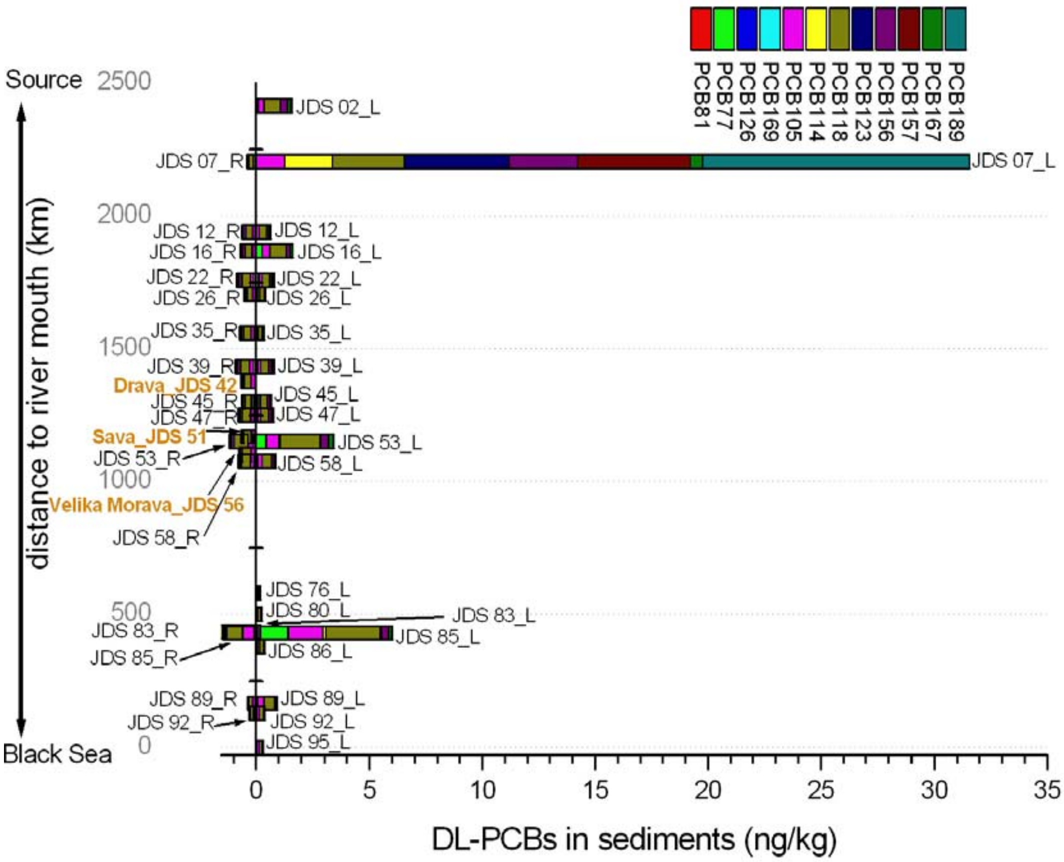


Figure 3.1-5 Downstream concentration profile of DL-PCBs in sediment



3.6 Polybrominated Diphenylethers (PBDEs)

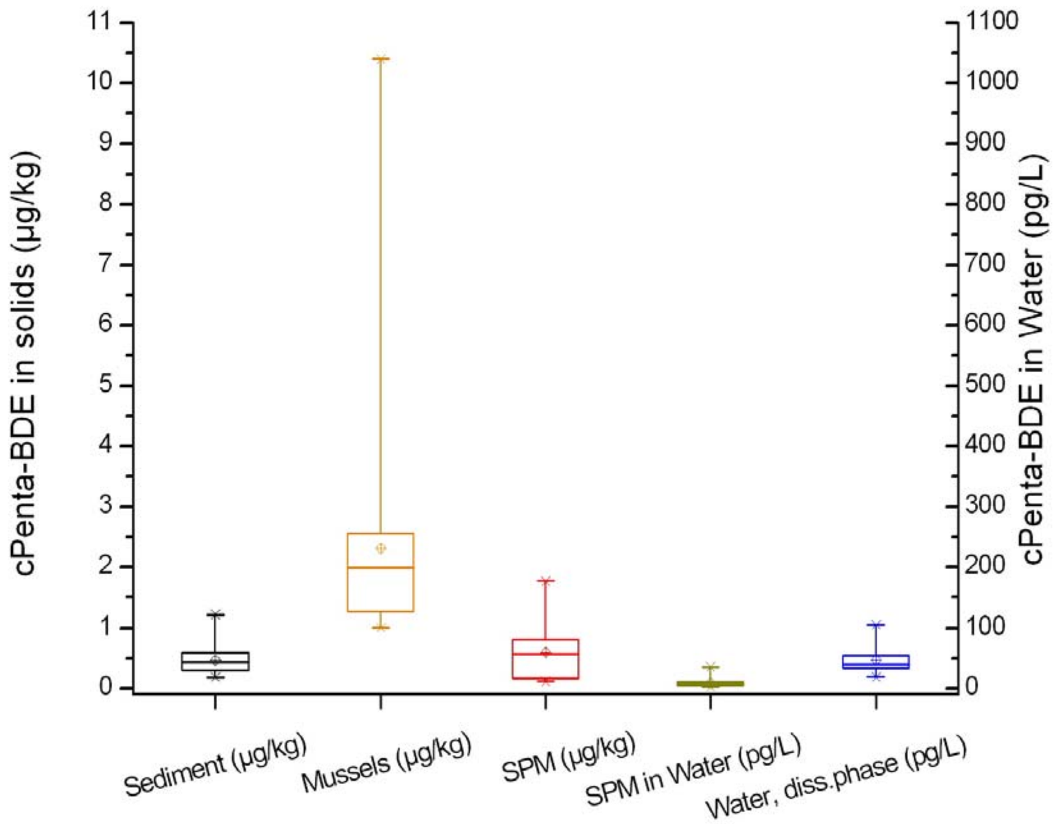
3.6.1 Overview on all compartments

PBDEs were quantified in all samples. Among the PBDEs measured in sediments, SPM and in the water samples Deca-BDE dominated the pattern by far.
In the downstream profile ∑PBDEs in general displayed bigger gradients than PAHs and PCDD/Fs, this suggests a more recent emission history for this compound class.

c-Penta BDE (∑ of BDE 28, 47, 99, 100, 153 and 154)
Average c-Penta BDE concentrations in SPM were at 0.60 µg/kg with a maximum level of 1.8 µg/kg. In the water column c-Penta BDE was mainly associated with the dissolved phase. Interestingly, c-Penta BDE was more associated with the dissolved phase when compared with PAHs and PCDD/Fs

having comparable Ko/w values, which suggests impact from products and process effluents rather then from atmospheric sources.

Figure 3.6.1-1 cPenta BDE concentrations in all compartments

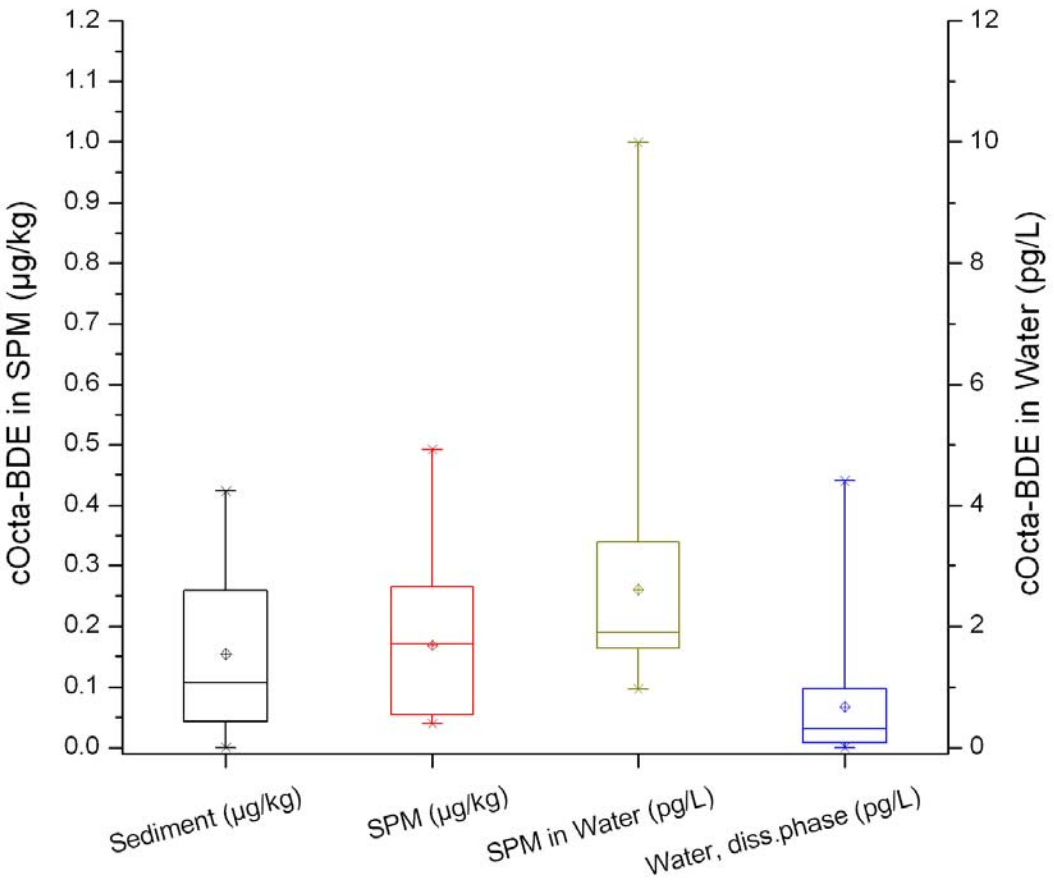


cPenta-BDE					
	Sediment (µg/kg)	Mussels (µg/kg)	SPM (µg/kg)	SPM in Water (pg/L)	Water, diss.phase (pg/L)
Average	0.47	2.3	0.60	9.0	47
Median	0.43	2.0	0.54	7.5	40
Min	0.19	1.0	0.12	2.8	19
Max	1.2	10	1.77	36	105
25-Percentile	0.30	1.3	0.17	5.1	31
75-percentile	0.59	2.5	0.80	10	54

c-Octa BDE:(∑of BDE 183, 196, 197, 203)

Average concentrations of c-Octa BDE in SPM were 0.17 µg/kg with maximum levels of 0.49 µg/kg at site JDS 45 (HR). Sediments displayed almost identical values. In the water column, c-Octa BDE SPM is strongly associated with SPM.

Figure 3.6.1-2 cOcta BDE concentrations in all abiotic compartments

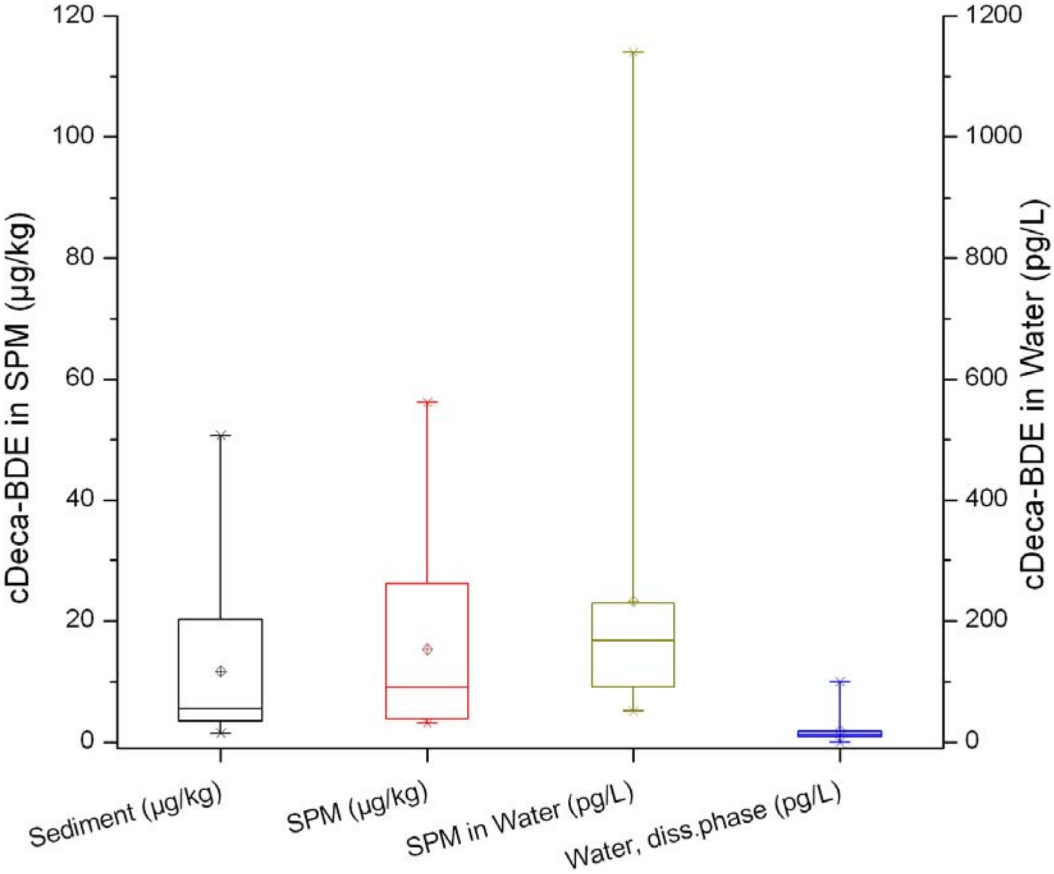


cOcta-BDE				
	Sediment (µg/kg)	SPM (µg/kg)	SPM in Water (pg/L)	Water, diss.phase (pg/L)
Average	0.15	0.17	2.6	0.68
Median	0.11	0.15	1.8	0.31
Min	0	0.04	0.97	0
Max	0.42	0.49	10	4.4
25-Percentile	0.042	0.06	1.6	0.04
75-percentile	0.26	0.26	3.2	0.84

c-Deca BDE (∑BDE 206, 207, 208, 209):

Average concentrations of c-Deca BDE in SPM were 15 µg/kg with maximum levels of 56 µg/kg at site JDS 45 (HR). In the sediment samples average and maximum concentrations were slightly lower as for SPM. These levels are one order of magnitude lower than in SPM collected in various rivers in the Netherlands, where De Boer et al., reported a median of 71 µg/kg and a range of 9-4600 µg/kg. In water the average concentration of c-Deca BDE was 251 pg/L, the maximum was 1163 pg/l at site JDS 45 (HR). In the water samples c-Deca BDE was almost exclusively associated with SPM.

Figure 3.6.1-3 cDeca BDE concentrations in all abiotic compartments



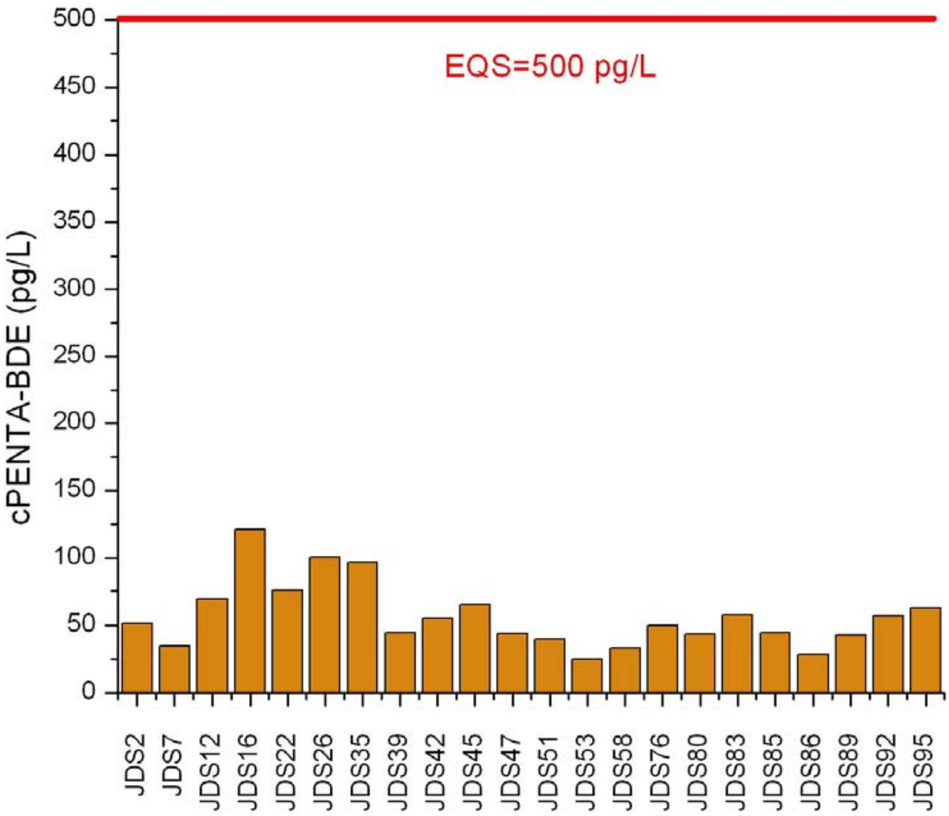
cDeca-BDE				
	Sediment (µg/kg)	SPM (µg/kg)	SPM in Water (pg/L)	Water, diss.phase (pg/L)
Average	12	15.3	232	19.1
Median	5.6	7.6	162	12.5
Min	1.5	3.1	51	0.0
Max	51	56.2	1140	100.2
25-Percentile	3.5	3.9	94	8.4
75-percentile	18	26.1	224	17.1

3.6.2 PBDE

concentrations in the water columns in relation to the WFD-AA-EQS value

Average c-Penta BDE concentrations in water (dissolved phase + SPM) were 57 pg/L with a maximum level of 121 pg/L, which is still fairly below the EQS of 500 pg/L .

Figure 3.6.2-1 cPenta BDE in water



3.6.3 Downstream concentration profiles of PBDEs

The zone of comparably high PBDE concentrations in water, sediment and SPM appeared in the stretch between km 1560 (JDS 35, HU) and km 1077 (JDS 58, RS). The highest concentrations of ∑PBDEs in SPM and water were found at site JDS 45 (HR), in sediments the maximum was slightly more upstream in the sediments of the tributary Drava JDS 42 (HR).

The downstream sediment data suggests that PBDEs are entering from the right-hand side of the catchment.

PBDEs in sediments and in the water column show a clear impact from the tributaries Drava, Sava and Velika-Morava all entering River Danube from the right-hand side, which, for PAHs, PCBs and PCDD/Fs displayed a diluting effect.

It is remarkable, that the zone of maximal PBDE concentration is highly agglomerated and shows stronger gradients in sediment, SPM and the water column. Moreover - in contrast to PCBs, PAHs and PCDD/Fs - the PBDES show a strong spatial coherence in sediments (historic signal) and the water column (current signal). This suggests an overall situation of current recent emissions for PBDEs.

Figure 3.6.3-1 Downstream concentration profile of PBDEs in sediments

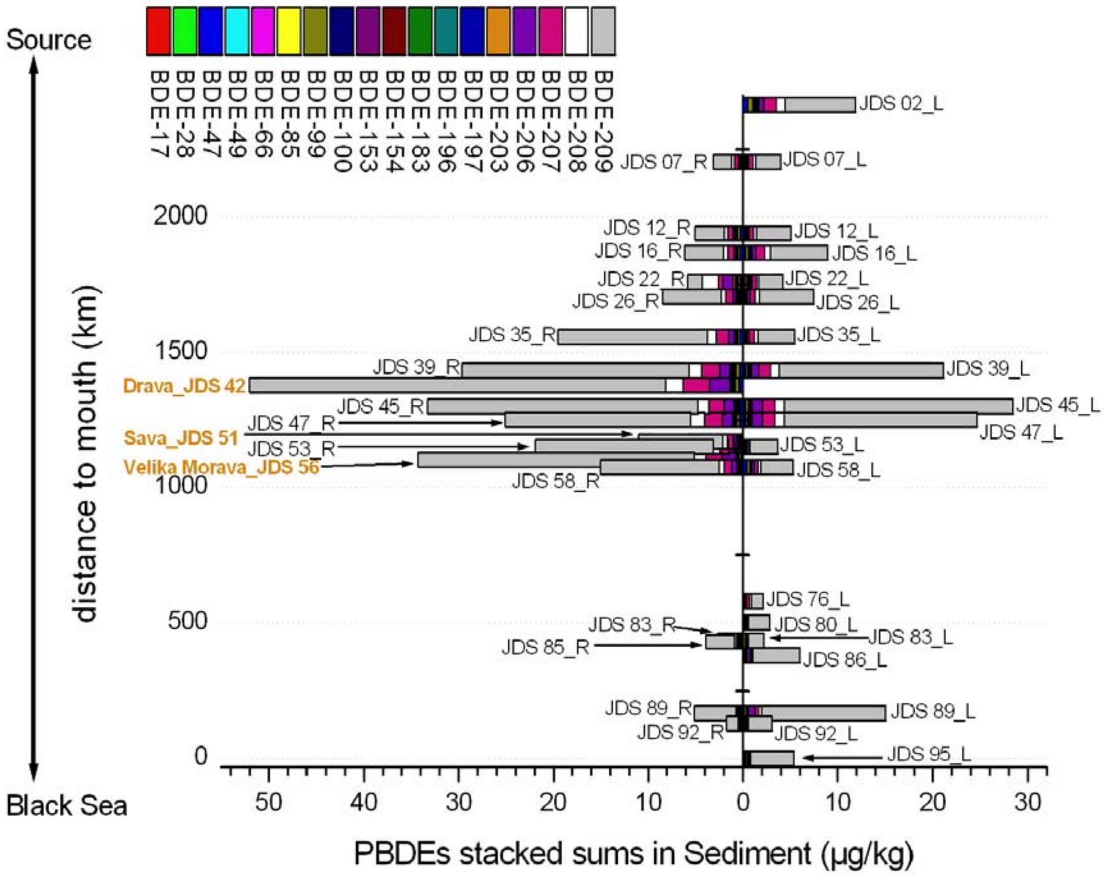


Figure 3.6.3-2 Downstream concentration profile of PBDEs in SPM

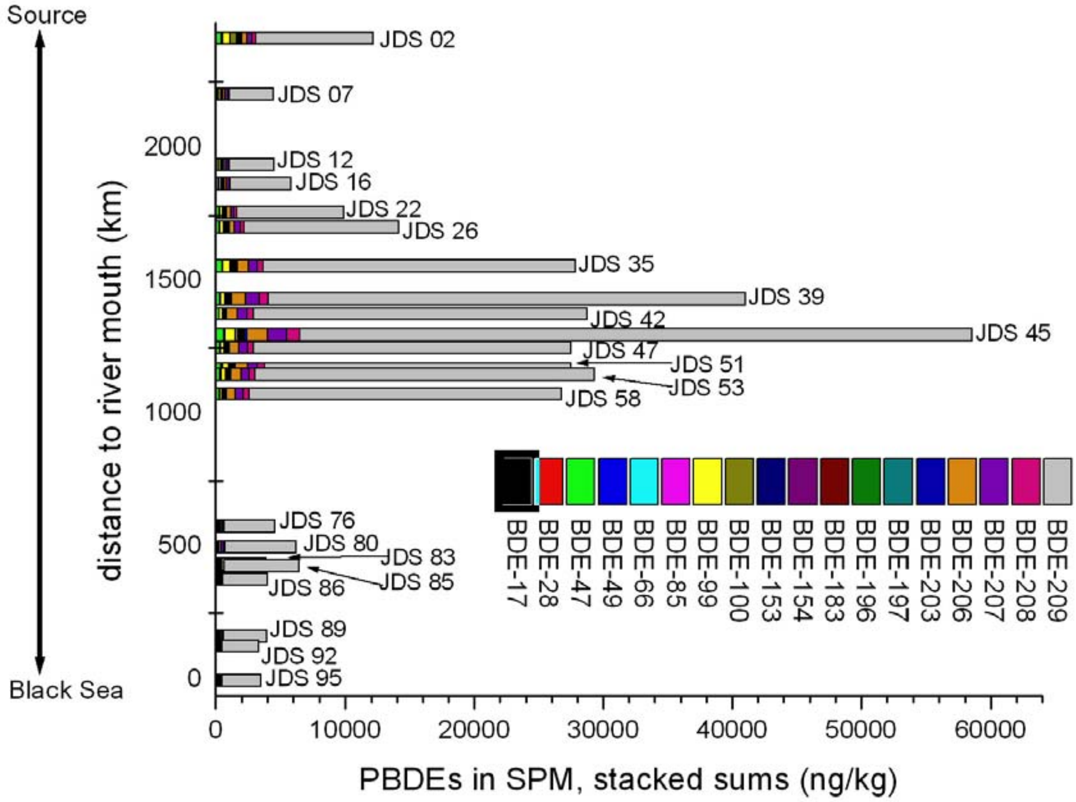


Figure 3.6.3-3 Downstream concentration profile of PBDEs in water (SPM)

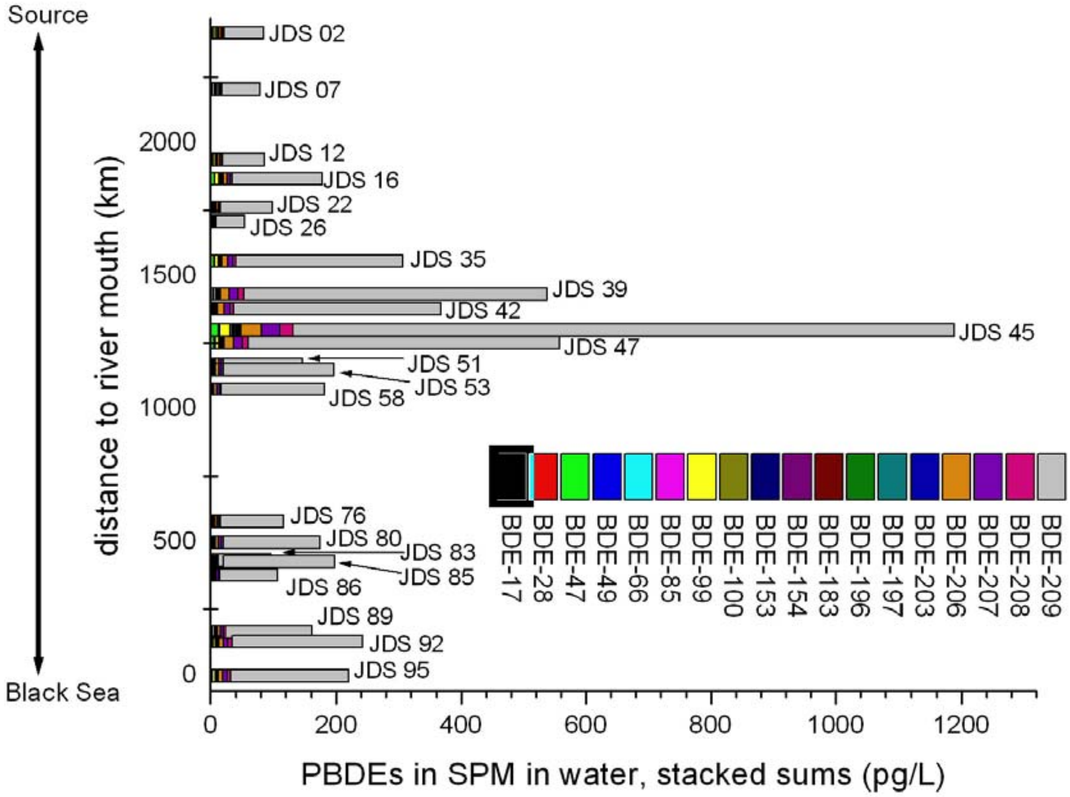


Figure 3.6.3-4 Downstream concentration profile of PBDEs in water (dissolved phase)

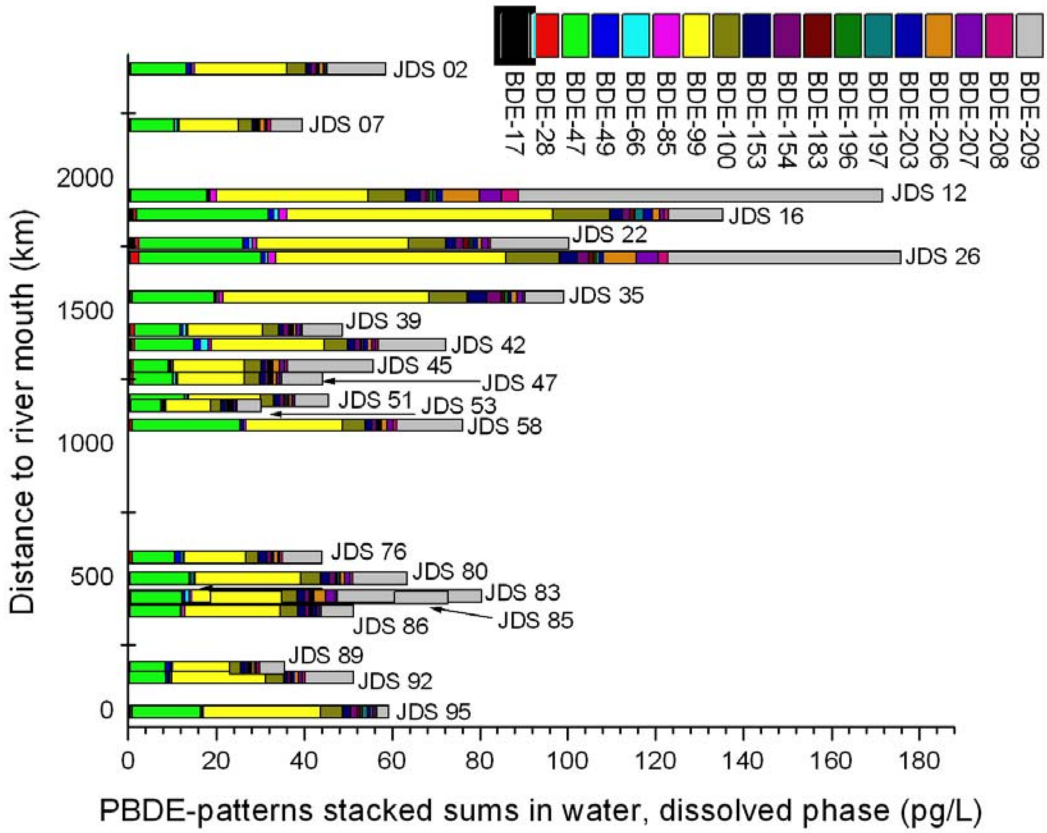


Figure 3.6.3-5 Downstream concentration profile of PBDEs in water (SPM + dissolved phase)

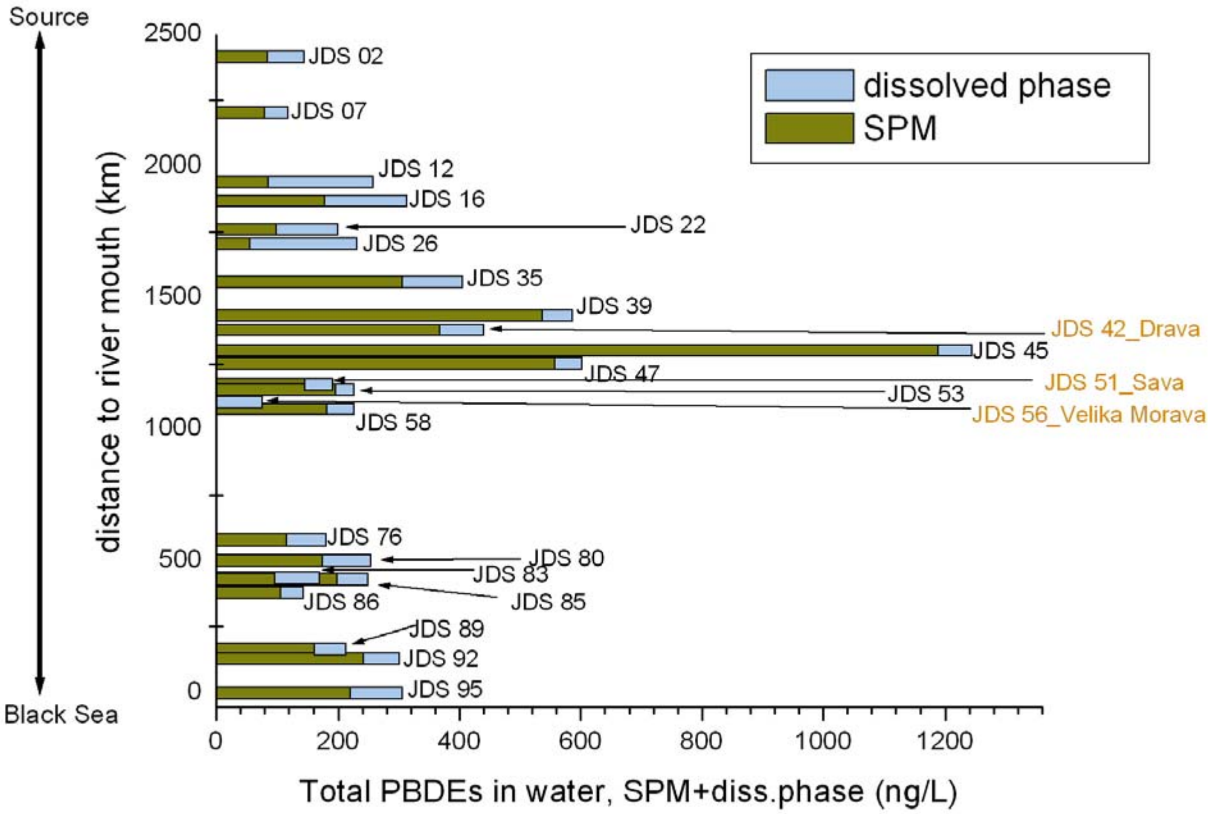
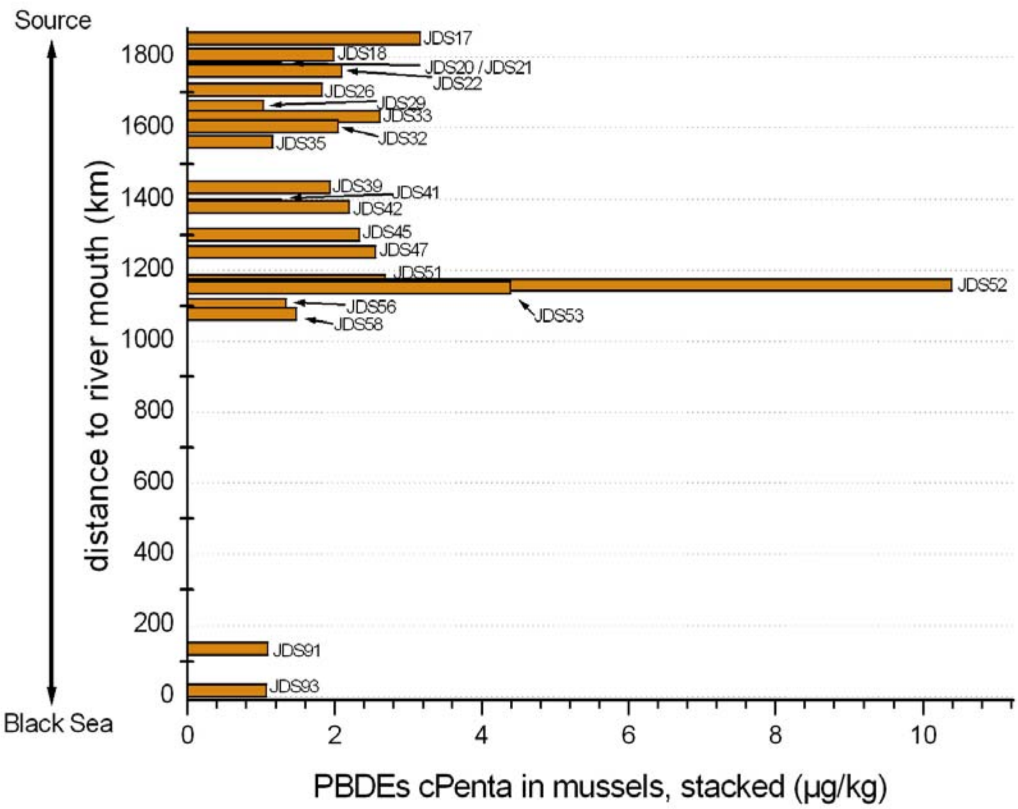


Figure 3.6.3-6 Downstream concentration profile of PBDEs in mussels (all species)

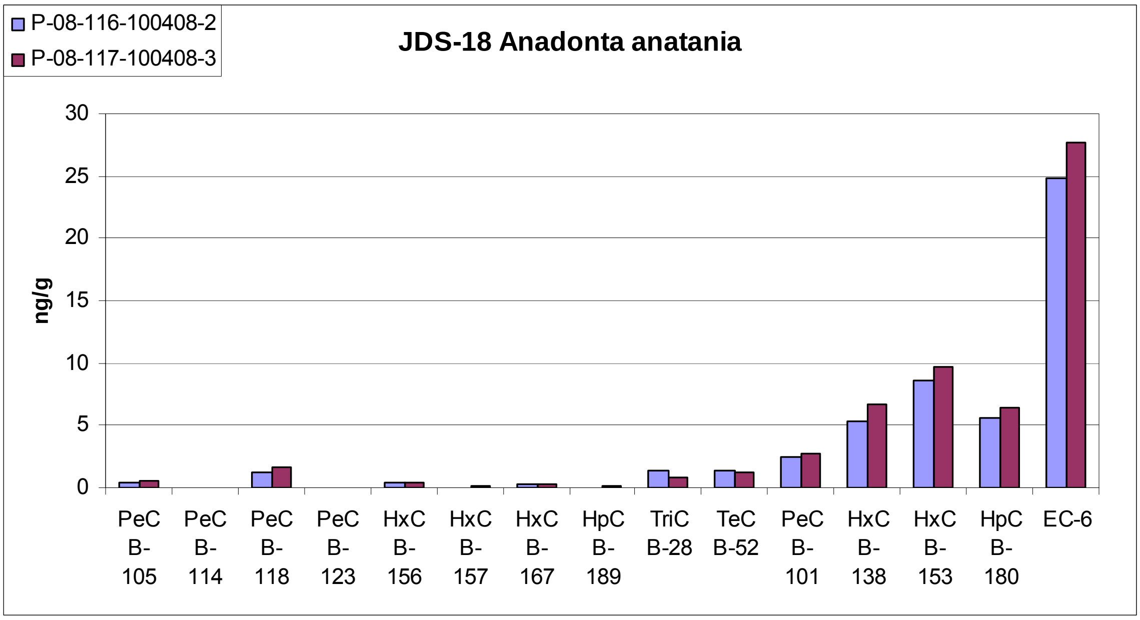


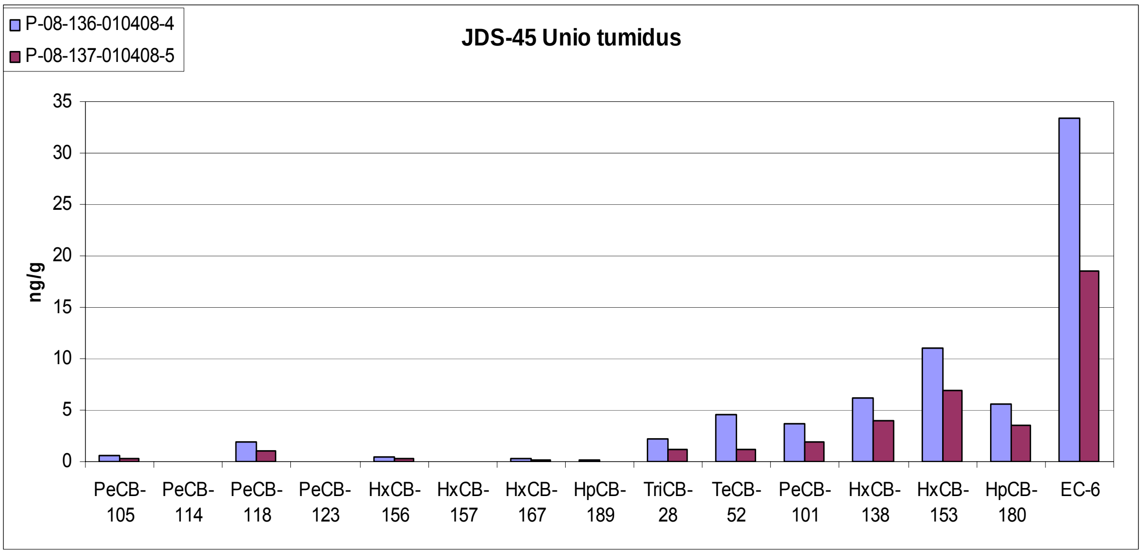
3.6.4 Mussels interspecies & parallel samples

From sampling sites JDS 18 and JDS 45 mussel samples were taken in parallel.

For PCBs deviations of up to a factor of 2 were observed between the individual samples

Figure 3.6.5-1 PCBs in mussels – parallel samples





The inter-species comparison for PCBs suggests maximum deviations that are in the range of inner species deviations from the same site.

Table 3.6.5-1 PCBs in mussels – interspecies comparison

Sample-Location	Mussel-Species	Compared to Anadonta anatine (%)
	Anadonta anatina	100
JDS-18	Sinodonta woodiana	94
	Unio pictorum	212
JDS-20	Unio tumidus	61
JDS-32	Unio tumidus	82
JDS-39	Unio tumidus	183
JDS-47	Unio tumidus	113
JDS-91	Unio tumidus	229

Sample-Location	Mussel-Species	Compared to Unio tumidus (%)
	Unio tumidus	100
JDS-20	Anadonta anatina	163
JDS-32	Anadonta anatina	123
JDS-35	Unio pictorum	164
JDS-39	Anadonta anatina	55
JDS-47	Anadonta anatina	88
JDS-91	Anadonta anatina	44

Preliminary conclusion regarding mussels: a factor of 2 of inner and inter species deviation should be taken into consideration when interpreting the spatial distribution pattern of PCBs

4 Conclusions

4.1 Chemical status of the water column during the JDS2 cruise

From the available data of the 23 sites analysed, it appears that the chemical status of the River Danube is good for most of the following compound classes:

PAHs, where most of the PAH in water samples of all 23 sites were far below the WFD-AA-EQS values and values in sediments were about one order of magnitude lower than typically found in the River Elbe. Only for the ∑Benzo (g,h,i) Perylene and Indeno (1,2,3-cd) Pyrene concentrations at most sites were close to the EQS of 2 ng/L. In 5 sites the EQS was exceeded, namely at sampling stations JDS 02, 16, 39, 92 and 95.

OCPs, where most compounds in the water column were orders of magnitude below the EQS and only HCH displayed some isolated maxima in the lower stretch, which however were still a factor of 4 below the MAC-EQS.

PCDD/Fs and Dioxin-like PCBs, which were more than one order of magnitude lower in all compartments compared to River Elbe and only one site exceeded slightly the “safe sediment value” for PCDD/Fs.

EC-6 PCBs, which were not exceeding the related German quality standards in sediment.

PBDEs, where concentrations in SPM were an order of magnitude lower than in Dutch rivers for c-Deca BDE and where c-Penta BDE was a around a factor of 5 below the EQS value in all water samples.

4.2 Spatial distribution -Downstream concentration profiles

The concentration profiles in the sediments downstream the Danube suggests that PAHs and PCDD/Fs arise from diffuse sources, whereas PBDEs (currently) and PCBs (historically) display distinct zones of contamination. This fits into the picture of PAHs and PCDD/Fs as combustion by-products being dispersed mainly into the atmosphere, whereas “intentionally produced industrial chemicals” such as PCBs and PBDEs arise from punctual emissions through industrial and urban effluents.

Among the OCPs in water, DDT and metabolites as well as HCHs displayed rising concentrations towards the Black Sea. HCB and the Cyclodiene pesticides displayed no expressed spatial trend and Endosulfan concentrations decreased downstream the Danube.

The comparison of left and right-hand side sediment data suggests a diffuse emission from both sides of the catchment for PAHs. PCDD/Fs and PCBs and OCPs (except DDT and metabolites) show some distinct signals from the left-hand side while the PBDEs are emitted from the right-hand side of the catchment. Only PBDEs show a clear impact from the tributaries Drava, Sava and Velika-Morava all entering River Danube from the right-hand side, whereas for the other compound classes reported here these tributaries displayed a diluting effect.

However, the memory contained in the sediments is scarcely reflected by the data in the water column, where (except for PBDEs, the most recent class of chemicals investigated in this study, and DDT and metabolites) the spatial gradients are less pronounced and maxima appear often at different sites than in the sediments. This underlines the historic character of many of the findings in the sediments.

In order to assess the current situation of pollutants releases into the River Danube, and to localize their current sources, temporarily resolved water column data from the whole watershed are inevitable.

4.3 Mussels

For EC 6 PCBs, Dioxins, DL-PCBs and c-Penta BDE the downstream concentration profiles in the mussels does not show particular gradients that would exceed the inner- and interspecies deviations. The only exception with higher levels that exceeds the inner- and interspecies variability was at JDS 52, where all compound classes displayed a distinct maximum. However, from this site no samples from the other compartments were available.

The lack of correlation between the concentration in mussels and the other compartments at the sites where all matrices were sampled suggests a poor suitability of mussels as an indicator for spatial trends of POPs in the Danube.

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6 Annex

6.1 Overview on compounds and LODs

Table 6.1-1 Overview on Polycyclic Aromatic Hydrocarbons (PAHs) reported for the 23 JRC sites

LOD	Water	SPM	Sediment
Compound	µg/l	µg/kg	µg/kg
Acenaphthene	3.3E-05	n.a.	n.a.
Acenaphthylene	4.0E-04	n.a.	n.a.
Anthracene	1.0E-05	9.0E-01	5.2E-01
Benzo(a)anthracene	3.3E-06	8.8E-02	4.4E-02
Benzo(a)pyrene	6.7E-06	9.0E-01	1.0E+00
Benzo(b)fluoranthene	3.3E-06	1.2E+00	5.8E-01
Benzo(e)pyrene	1.0E-05	1.1E+00	5.7E-01
Benzo(g,h,i)perylene	3.3E-06	9.4E-01	4.7E-01
Benzo(j)fluoranthene	3.3E-06	7.4E-01	3.3E-01
Benzo(k)fluoranthene	3.3E-06	7.4E-01	3.1E-01
Chrysene	3.3E-06	1.0E-01	5.1E-02
Dibenzo(a,h)anthracene	3.3E-06	4.9E-01	2.4E-01
Fluoranthene	1.0E-05	1.1E+00	5.3E-01

Fluorene	3.3E-05	6.7E-01	3.4E-01
Indeno(1,2,3-c,d)pyrene	3.3E-06	4.2E-01	2.1E-01
Phenanthrene	5.0E-05	2.0E+00	1.0E+00
Pyrene	3.3E-05	2.1E+00	7.5E-01

Table 6.1-2 Overview on Organochlorine Pesticides (OCPs) reported for the 23 JRC sites

LOD	**Water**	**SPM**	**Sediment**	**Biota**
Compound	µg/l	µg/kg	µg/kg	µg/kg
Aldrin	3.33E-07	1.33E-03	6.67E-04	Not determined (N.d)
alpha-Hexachlorocyclohexane (α - HCH)	6.67E-07	3.33E-04	3.33E-04	(N.d)
beta-Hexaxchlorocyclohexane (β - HCH)	6.67E-07	3.33E-04	3.33E-04	(N.d)
gamma-Hexachlorocyclohexane (γ-HCH, Lindane)	6.67E-07	3.33E-04	3.33E-04	(N.d)
delta-Hexaxchlorocyclohexane (δ - HCH)	3.33E-07	3.33E-04	3.33E-04	(N.d)
epsilon -Hexachlorocyclohexane (ε-HCH,)	3.33E-07	3.33E-04	3.33E-04	(N.d)
Cis-chlordane (alpha)	3.33E-08	3.33E-04	1.67E-04	(N.d)
Cis-nonachlor	1.67E-07	1.00E-02	6.67E-03	(N.d)
Dieldrin	3.33E-07	1.33E-03	6.67E-04	(N.d)

Endosulfan (alpha-Endosulfan)	3.33E-07	8.33E-03	3.33E-03	(N.d)
Endosulfan (beta-Endosulfan)	3.33E-07	6.67E-03	3.33E-02	(N.d)
Endosulfan sulfate	3.33E-08	6.67E-04	3.33E-03	(N.d)
Endrin	3.33E-07	1.33E-03	1.67E-02	(N.d)
Heptachlor	1.67E-08	6.67E-03	6.67E-04	(N.d)
Heptachlor-endo-epoxide (cis, isomer B)	6.67E-08	1.67E-02	8.33E-03	(N.d)
Heptachlor-exo-epoxide (trans, isomer B)	6.67E-08	3.33E-03	3.33E-04	(N.d)
Hexachlorobenzene	3.33E-07	6.67E-03	1.67E-03	(N.d)
Isodrin	1.67E-06	6.67E+00	3.33E-02	(N.d)
Mirex	3.33E-06	6.67E-03	1.67E-02	(N.d)
o,p-DDD	3.33E-08	1.67E-03	3.33E-04	(N.d)
o,p-DDE	3.33E-08	1.67E-03	3.33E-04	(N.d)
o,p-DDT	3.33E-08	1.67E-03	3.33E-04	(N.d)
Oxy-chlordane (gamma)	3.33E-08	3.33E-03	3.33E-03	(N.d)
p,p-DDD	3.33E-08	1.67E-03	3.33E-04	(N.d)
p,p-DDE	3.33E-08	1.67E-03	3.33E-04	(N.d)
p,p-DDT	3.33E-08	1.67E-03	3.33E-04	(N.d)
Trans-chlordane (gamma)	3.33E-08	3.33E-04	1.67E-04	(N.d)

Trans-nonachlor	3.33E-08	8.33E-04	3.33E-04	(N.d)

Table 6.1-3 Overview on Indicator PCBs reported for the 23 JRC sites

LOD	Water	SPM	Sediment	Biota
Compound	µg/l	µg/kg	µg/kg	µg/kg
PCB 28 (2,4,4'-Trichlorobiphenyl)	3.0303E-08	1.3E-05	3.3E-06	5.8E-05
PCB 52 (2,2',5,5'-Tetrachlorobiphenyl)	3.0303E-08	1.3E-05	3.3E-06	5.8E-05
PCB 101 (2,2',4,5,5'-Pentachlorobiphenyl)	6.0606E-09	1.3E-05	3.3E-06	1.2E-04
PCB 138 (2,2',3,4,4',5-Hexachlorobiphenyl)	9.0909E-09	2.6E-05	6.7E-06	2.3E-04
PCB 153 (2,2'4,4',5,5'-Hexachlorobiphenyl)	9.0909E-09	2.6E-05	6.7E-06	2.3E-04
PCB 180 (2,2',3,4,4',5,5'-Heptachlorobiphenyl)	9.0909E-09	2.6E-05	6.7E-06	2.3E-04

Table 6.1-4 Overview on Polychlorinated dibenzo-p-dioxins and Furans (PCDD/Fs) reported for the 23 JRC sites

LOD	Dissolved phase	SPM	Sediment	Biota
Compound	pg/L	µg/kg	µg/kg	µg/kg
2,3,7,8-TCDD	3.33E-03	3.3E-05	1.7E-05	1.00E-05

12378-PeCDD (1,2,3,7,8-Pentachlorodibenzo-p-dioxin)	3.33E-03	3.3E-05	1.7E-05	1.00E-05
123478-HxCDD (1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin)	6.67E-03	6.7E-05	3.3E-05	1.00E-05
123678-HxCDD (1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin)	6.67E-03	6.7E-05	3.3E-05	1.00E-05
123789-HxCDD (1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin)	6.67E-03	6.7E-05	3.3E-05	1.00E-05
1234678-HpCDD (1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin)	6.67E-03	6.7E-05	3.3E-05	1.00E-05
OCDD (Octachlorodibenzo-p-dioxins)	1.67E-01	2.0E-04	1.0E-04	3.00E-05
2378-TCDF (2,3,7,8-Tetrachlorodibenzofuran)	3.33E-03	3.3E-05	1.7E-05	1.00E-05
12378-PeCDF (1,2,3,7,8-Pentachlorodibenzofuran)	3.33E-03	3.3E-05	1.7E-05	1.00E-05
23478-PeCDF (2,3,4,7,8-Pentachlorodibenzofuran)	3.33E-03	3.3E-05	1.7E-05	1.00E-05
123478-HxCDF (1,2,3,4,7,8-Hexachlorodibenzofuran)	6.67E-03	6.7E-05	3.3E-05	1.00E-05
123678-HxCDF (1,2,3,6,7,8-Hexachlorodibenzofuran)	6.67E-03	6.7E-05	3.3E-05	1.00E-05
234678-HxCDF (2,3,4,6,7,8-Hexachlorodibenzofuran)	6.67E-03	6.7E-05	3.3E-05	1.00E-05
123789-HxCDF (1,2,3,7,8,9-Hexachlorodibenzofuran)	6.67E-03	6.7E-05	3.3E-05	1.00E-05
1234678-HpCDF (1,2,3,4,6,7,8-Heptachlorodibenzofuran)	6.67E-03	6.7E-05	3.3E-05	1.00E-05
1234789-HpCDF (1,2,3,4,7,8,9-Heptachlorodibenzofuran)	6.67E-03	6.7E-05	3.3E-05	1.00E-05
OCDF (Octachlorodibenzofuran)	1.67E-01	2.0E-04	1.0E-04	3.00E-05

Table 6.1-5 Overview on Dioxin-Like Polychlorinated Biphenyls (DL-PCBs) reported for the 23 JRC sites

LOD	Water	SPM	Sediment	Biota
Compound	µg/l	µg/kg	µg/kg	µg/kg
PCB 81 (1,1'-Biphenyl, 3,4,4',5-tetrachloro-)	3.03E-08	1.3E-05	3.3E-06	5.8E-05
PCB 77 (3,3',4,4'-Tetrachlorobiphenyl)	3.03E-08	1.3E-05	3.3E-06	5.8E-05
PCB 126 (3,3',4,4',5-Pentachlorobiphenyl)	6.06E-09	1.3E-05	3.3E-06	1.2E-04
PCB 169 (3,3'4,4',5,5'-Hexachlorobiphenyl)	9.09E-09	2.7E-05	6.7E-06	2.3E-04
PCB 105 (2,3,3',4,4'-Pentachlorobiphenyl)	6.06E-09	1.3E-05	3.3E-06	1.2E-04
PCB 114 (1,1'-Biphenyl, 2,3,4,4',5-pentachloro-)	6.06E-09	1.3E-05	3.3E-06	1.2E-04
PCB 118 (2,3'4,4',5-Pentachlorobiphenyl)	6.06E-09	1.3E-05	3.3E-06	1.2E-04
PCB 123 (1,1'-Biphenyl, 2',3,4,4',5-pentachloro-)	6.06E-09	1.3E-05	3.3E-06	1.2E-04
PCB 156 (2,3,3'4,4',5-Hexachlorobiphenyl)	9.09E-09	2.7E-05	6.7E-06	2.3E-04
PCB 157 (1,1'-Biphenyl, 2,3,3',4,4',5'-hexachloro-)	9.09E-09	2.7E-05	6.7E-06	2.3E-04
PCB 167 (1,1'-Biphenyl, 2,3',4,4',5,5'-hexachloro-)	9.09E-09	2.7E-05	6.7E-06	2.3E-04
PCB 189 (1,1'-Biphenyl, 2,3,3',4,4',5,5'-heptachloro-)	9.09E-09	2.7E-05	6.7E-06	2.3E-04

Table 6.1-6 Overview on Polybrominated diphenylethers (PBDEs) reported for the 23 JRC sites

LOD	Water	SPM	Sediment	Biota
Compound	µg/l	µg/kg	µg/kg	µg/kg
BDE-17 (2,2',4-Tribromodiphenylether)	3.3E-08	3.3E-04	1.67E-04	5.00E-04
BDE-28 (2,4,4'-Tribromodiphenylether)	3.3E-08	3.33E-04	1.67E-04	5.00E-04
BDE-47 (2,2',4,4'-Tetrabromodiphenylether)	3.3E-08	3.3E-04	1.67E-04	5.00E-04
BDE-49 (2,2',4,5'-Tetrabromodiphenylether	3.3E-08	3.3E-04	1.67E-04	5.00E-04
BDE-66 (2,3',4,4'-Tetrabromodiphenylether)	3.3E-08	3.3E-04		5.00E-04
BDE-85 (2,2',3,4,4'-Pentabromodiphenylether)	3.3E-08	3.3E-04	1.67E-04	5.00E-04
BDE-99 (2,2',4,4',5-Pentabromodiphenylether)	3.3E-08	3.3E-04	1.67E-04	5.00E-04
BDE-100 (2,2',4,4',6-Pentabromodiphenylether)	3.3E-08	3.3E-04	1.67E-04	5.00E-04
BDE-153 (2,2',4,4',5,5'-Hexabromodiphenylether)	3.3E-08	1.0E-03	5.00E-04	1.50E-03
BDE-154 (2,2',4,4',5,6'-Hexabromodiphenylether)	3.3E-08	1.0E-03	5.00E-04	1.50E-03
BDE-183 (2,2',3,4,4',5',6-Heptabromodiphenylether)	3.3E-08	1.0E-03	5.00E-04	Not determined
BDE-196 (2,2',3,3',4,4',5,6'-Octabromodiphenylether)	3.3E-08	1.0E-03	5.00E-04	Not determined
BDE-197 (2,2',3,3',4,4',6,6'-Octabromodiphenylether)	3.3E-08	1.0E-03	5.00E-04	Not determined
BDE-203 (2,2',3,4,4',5,5',6-Octabromodiphenylether)	6.6E-08	1.0E-03	1.67E-03	Not determined
BDE-206 (2,2',3,3',4,4',5,5',6-Nonabromodiphenylether)	6.6E-08	5.0E-03	1.67E-03	Not determined
BDE-207 (2,2',3,3',4,4',5,6,6'-	6.6E-08		1.67E-03	Not determined

Nonabromodiphenylether)		5.0E-03		
BDE-208 (2,2',3,3',4,5,5',6,6'-Nonabromodiphenylether)	6.7E-08	5.0E-03	1.67E-03	Not determined
BDE-209 (Decabromodiphenylether))	3.3E-07	1.3E-02	1.67E-03	Not determined

6.2 Internal standards for the quantification of SOCs

PAHs internal standards deuterated

	Internal standards	Syringe standards
Acenaphthene		x
Acenaphthylene	x	
Anthracene	x	
Benzo(a)anthracene	x	
Benzo(a)pyrene	x	
Benzo(e)pyrene		x
Benzo(g,h,i)perylene	x	
Benzo(b)fluoranthene	x	
Benzo(k)fluoranthene		x
Dibenzo(a,h)anthracene	x	
Fluoranthene	x	
Fluorene	x	
Indeno(1,2,3-c,d)pyrene	x	
Pyrene		x

OCPs, C-13- labelled internal standards (except d8 p,p-DDD)

	Internal standards	Syringe standards
Aldrin	x	
alpha-Hexachlorocyclohexane (α - HCH)	x	
beta-Hexaxchlorocyclohexane (β - HCH)		x
gamma-Hexachlorocyclohexane (γ-HCH, Lindane)	x	
Cis-nonachlor	x	
Dieldrin	x	
Endosulfan (alpha-Endosulfan)	x	
Endosulfan (beta-Endosulfan)	x	
Endrin	x	
Heptachlor	x	
Heptachlor-endo-epoxide (trans,isomerA)	x	
Hexachlorobenzene	x	
Mirex	x	
o,p-DDD	x	
o,p-DDE		x
o,p-DDT	x	
Oxy-chlordane (gamma)	x	
p,p-DDD		x
p,p-DDE	x	
p,p-DDT	x	
Trans-chlordane (gamma)	x	
Trans-nonachlor	x	

PCDD/Fs, Internal standards 13C-labeled

	Internal standards	Syringe standards
1,2,3,4-TCDD		x
2,3,7,8-TCDD	X	
12378-PeCDD (1,2,3,7,8-Pentachlorodibenzo-p-dioxin)	X	
123478-HxCDD (1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin)	X	
123678-HxCDD (1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin)	x	
123789-HxCDD (1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin)	x	x
1234678-HpCDD (1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin)	X	
OCDD (Octachlorodibenzo-p-dioxins)	X	
2378-TCDF (2,3,7,8-Tetrachlorodibenzofuran)	X	
12378-PeCDF (1,2,3,7,8-Pentachlorodibenzofuran)	X	
23478-PeCDF (2,3,4,7,8-Pentachlorodibenzofuran)	X	
123478-HxCDF (1,2,3,4,7,8-Hexachlorodibenzofuran)	X	
123678-HxCDF (1,2,3,6,7,8-Hexachlorodibenzofuran)	X	
234678-HxCDF (2,3,4,6,7,8-Hexachlorodibenzofuran)	X	
123789-HxCDF (1,2,3,7,8,9-Hexachlorodibenzofuran)	X	
1234678-HpCDF (1,2,3,4,6,7,8-Heptachlorodibenzofuran)	X	
1234789-HpCDF (1,2,3,4,7,8,9-Heptachlorodibenzofuran)	X	
OCDF (Octachlorodibenzofuran)	x	

Indicator PCBs and DL-PCBs, Internal standards 13C-labeled

	Internal standards	Syringe standards
PCB 28 (2,4,4'-Trichlorobiphenyl)	X	
PCB 52 (2,2',5,5'-Tetrachlorobiphenyl)	X	
PCB 101 (2,2',4,5,5'-Pentachlorobiphenyl)	X	
PCB 138 (2,2',3,4,4',5-Hexachlorobiphenyl)	X	
PCB 153 (2,2'4,4',5,5'-Hexachlorobiphenyl)	X	
PCB 180 (2,2',3,4,4',5,5'-Heptachlorobiphenyl)	X	

PCB 81 (1,1'-Biphenyl, 3,4,4',5-tetrachloro-)	X	
PCB 77 (3,3',4,4'-Tetrachlorobiphenyl)	X	
PCB 126 (3,3',4,4',5-Pentachlorobiphenyl)	X	
PCB 169 (3,3'4,4',5,5'-Hexachlorobiphenyl)	X	
PCB 105 (2,3,3',4,4'-Pentachlorobiphenyl)	X	
PCB 114 (1,1'-Biphenyl, 2,3,4,4',5-pentachloro-)	X	
PCB 118 (2,3'4,4',5-Pentachlorobiphenyl)	X	
PCB 123 (1,1'-Biphenyl, 2',3,4,4',5-pentachloro-)	X	
PCB 156 (2,3,3'4,4',5-Hexachlorobiphenyl)	X	
PCB 157 (1,1'-Biphenyl, 2,3,3',4,4',5'-hexachloro-)	X	
PCB 167 (1,1'-Biphenyl, 2,3',4,4',5,5'-hexachloro-)	X	
PCB 189 (1,1'-Biphenyl, 2,3,3',4,4',5,5'-heptachloro-)	X	
PCB 111 (2,3,3',5,5'-Pentachlorobiphenyl)		x
PCB 170 (1,1'-Biphenyl, 2,2',3,3',4,4',5-heptachloro-)		x

PBDEs, Internal standards 13C-labeled

LOD	Internal standards	Syringe standards
BDE-28 (2,4,4‘-Tribromodiphenylether)	X	
BDE-47 (2,2‘,4,4‘-Tetrabromodiphenylether)	X	
BDE-99 (2,2‘,4,4‘,5-Pentabromodiphenylether)	X	
BDE-100 (2,2‘,4,4‘,6-Pentabromodiphenylether)	X	
BDE-126 (3,3',4,4',5 ‘-Pentabromodiphenylether)		x
BDE-153 (2,2‘,4,4‘,5,5‘-Hexabromodiphenylether)	X	
BDE-154 (2,2‘,4,4‘,5,6‘-Hexabromodiphenylether)	X	
BDE-183 (2,2‘,3,4,4‘,5‘,6-Heptabromodiphenylether)	X	
BDE-197 (2,2',3,3',4,4',6,6'-Octabromodiphenylether)	X	
BDE-206 (2,2',3,3',4,4',5,5',6-Nonabromodiphenylether)		X
BDE-207 (2,2',3,3',4,4',5,6,6'-Nonabromodiphenylether)	X	
BDE-209 (Decabromodiphenylether))	X	

6.3 EQS values for inland surface waters proposed for priority pollutants subject to the WFD

PAHs

determinand	WFD AA-EQS (ng/l)	WFD MAC-EQS (ng/l)
Anthracene	100	400
Naphtalene	2400	n.a.
Fluoranthene	100	1000
Benzo(a)pyrene	50	100
∑Benzo(b)fluoranthene & Benzo(k)fluoranthene	30	n.a.
∑Benzo(g,h,i)perylene & Indeno(1,2,3-cd)pyrene	2	n.a.

OCPs

determinand	WFD AA-EQS (ng/l)	WFD MAC-EQS (ng/l)
Endosulfan" ∑ α-, β- Endosulfan	5	10
HCH (mixture[‡]): ∑ α-, β-, γ-, δ-HCH	20	40
Hexachlorobenzene	10	50
Cyclodiene pesticides: ∑ Aldrin, Dieldrin, Endrin, Isodrin	10	-
p,p'-DDT	10	-
DDT total (incl. metabolites) ∑ p,p'-DDT, p,p'-DDE, p,p'-DDD,	25	-
For HCB an EQS of 10 µg/kg wet weight was set for indicator biota such a s fish, mussels etc.		

[‡] The group of HCHs includes 8 isomers. The EQS for HCH refers to α-, β-, γ-, and δ-HCH the 4 major isomers present in the technical mixture. According to the Draft technical Guidance CMA the sum of α-, β-, γ-, and δ-HCH has to be reported.

6.4 Additional quality parameters: The German "Good Ecological Status" (Umweltqualitaetsnorm-UQN) levels for inland waters

determinand	**Sediment (µg/kg)**	**Water (ng/l)**
PCB 28	20	-
PCB 101	20	-
PCB 118	20	-
PCB 138	20	-
PCB 153	20	-
PCB 180	20	
∑ PCB 28, 101,118, 138, 153, 180	-	0,5

6.5 Concentration data

Table 1: PCBs in sediment [µg/kg],

		PCB 81	PCB 77	PCB 126	PCB 169	PCB 105	PCB 114	PCB 118	PCB 123	PCB 156	PCB 157	PCB 167	PCB 189
JDS2	L	2.30E-03	8.90E-02	1.25E-02	2.11E-03	2.41E-01	2.75E-02	7.19E-01	1.04E-02	2.65E-01	4.14E-02	1.45E-01	5.10E-02
JDS7	L	6.49E-04	2.11E-02	2.75E-03	3.78E-04	1.28E+00	2.06E+00	3.20E+00	4.63E+00	3.04E+00	4.98E+00	5.52E-01	1.18E+01
JDS7	R	5.91E-04	1.87E-02	2.73E-03	5.45E-04	6.56E-02	6.56E-03	1.91E-01	2.71E-03	6.34E-02	9.58E-03	3.22E-02	1.17E-02
JDS12	L	8.56E-04	3.12E-02	4.21E-03	5.35E-04	1.08E-01	1.11E-02	3.15E-01	4.86E-03	1.11E-01	1.64E-02	5.54E-02	1.89E-02
JDS12	R	8.77E-04	2.73E-02	3.76E-03	6.19E-04	1.01E-01	1.08E-02	2.98E-01	4.11E-03	1.00E-01	1.50E-02	5.27E-02	1.84E-02
JDS16	L	1.18E-02	2.59E-01	5.74E-03	7.75E-04	3.29E-01	3.03E-02	7.10E-01	1.51E-02	1.63E-01	2.26E-02	8.24E-02	3.18E-02
JDS16	R	1.18E-03	3.53E-02	3.64E-03	6.93E-04	1.14E-01	1.27E-02	3.04E-01	4.95E-03	1.19E-01	2.15E-02	6.66E-02	2.51E-02
JDS22	L	4.34E-03	1.27E-01	4.51E-03	9.68E-04	1.33E-01	1.52E-02	3.12E-01	6.19E-03	1.19E-01	1.65E-02	6.50E-02	4.52E-02
JDS22	R	2.49E-03	8.88E-02	3.79E-03	5.88E-04	1.33E-01	1.34E-02	3.71E-01	7.07E-03	1.25E-01	1.87E-02	6.60E-02	2.70E-02
JDS26	L	2.59E-03	7.30E-02	1.70E-03	4.52E-04	1.10E-01	8.33E-03	1.92E-01	5.81E-03	3.57E-02	6.51E-03	1.93E-02	8.04E-03
JDS26	R	1.47E-03	4.37E-02	2.89E-03	6.67E-04	9.04E-02	9.43E-03	2.38E-01	4.30E-03	7.91E-02	1.41E-02	4.36E-02	1.61E-02
JDS35	L	1.13E-03	3.61E-02	2.02E-03	3.52E-04	6.03E-02	6.41E-03	1.63E-01	3.23E-03	5.62E-02	9.16E-03	3.17E-02	1.28E-02
JDS35	R	2.17E-03	7.39E-02	3.54E-03	6.44E-04	1.22E-01	1.29E-02	3.37E-01	5.52E-03	1.04E-01	1.57E-02	5.11E-02	1.95E-02
JDS39	L	2.46E-03	8.25E-02	5.26E-03	1.06E-03	1.29E-01	1.29E-02	3.47E-01	6.89E-03	1.18E-01	2.26E-02	6.77E-02	2.93E-02
JDS39	R	2.86E-03	1.01E-01	5.93E-03	1.21E-03	1.48E-01	1.47E-02	3.99E-01	7.43E-03	1.25E-01	1.98E-02	6.78E-02	2.68E-02
JDS42	R	1.78E-03	4.65E-02	3.41E-03	6.11E-04	1.39E-01	1.21E-02	3.09E-01	5.82E-03	8.26E-02	1.54E-02	3.91E-02	1.33E-02
JDS45	L	1.95E-03	6.58E-02	4.61E-03	8.35E-04	1.18E-01	1.21E-02	3.09E-01	5.69E-03	9.59E-02	1.68E-02	5.32E-02	2.04E-02
JDS45	R	2.06E-03	6.35E-02	4.40E-03	7.67E-04	1.09E-01	1.09E-02	2.81E-01	4.75E-03	8.23E-02	1.42E-02	4.46E-02	1.64E-02
JDS47	L	2.22E-03	7.36E-02	5.30E-03	1.13E-03	1.34E-01	1.38E-02	3.47E-01	6.44E-03	1.18E-01	2.22E-02	6.49E-02	2.54E-02
JDS47	R	2.13E-03	7.41E-02	5.00E-03	9.75E-04	1.38E-01	1.38E-02	3.49E-01	6.82E-03	1.08E-01	1.85E-02	5.91E-02	2.17E-02
JDS51	L	1.66E-03	4.24E-02	2.51E-03	5.10E-04	1.33E-01	1.03E-02	3.25E-01	5.66E-03	7.23E-02	1.31E-02	3.23E-02	1.04E-02
JDS53	L	8.39E-03	4.39E-01	1.58E-02	2.06E-03	5.75E-01	5.34E-02	1.74E+00	3.13E-02	3.08E-01	5.01E-02	1.70E-01	6.11E-02
JDS53	R	2.83E-03	8.66E-02	5.11E-03	7.89E-04	2.38E-01	2.09E-02	5.93E-01	9.69E-03	1.32E-01	2.35E-02	6.00E-02	2.05E-02
JDS56	L	1.64E-03	3.99E-02	3.12E-03	6.23E-04	1.61E-01	1.23E-02	3.84E-01	6.45E-03	7.81E-02	1.57E-02	3.58E-02	1.02E-02
JDS58	L	3.21E-03	8.37E-02	4.84E-03	9.53E-04	1.75E-01	1.63E-02	4.25E-01	7.85E-03	8.54E-02	1.70E-02	4.71E-02	1.31E-02
JDS58	R	2.26E-03	6.74E-02	3.46E-03	7.09E-04	1.63E-01	1.26E-02	3.85E-01	7.04E-03	8.22E-02	1.57E-02	4.10E-02	1.36E-02
JDS76	L	1.01E-03	2.63E-02	1.60E-03	4.24E-04	4.30E-02	4.01E-03	9.26E-02	1.80E-03	2.94E-02	4.93E-03	1.59E-02	6.27E-03
JDS80	L	1.03E-03	2.80E-02	1.69E-03	4.15E-04	5.60E-02	4.99E-03	1.17E-01	2.45E-03	3.35E-02	6.44E-03	1.79E-02	6.31E-03
JDS83	L	9.24E-04	2.43E-02	1.35E-03	3.88E-04	4.78E-02	4.24E-03	9.30E-02	2.05E-03	2.53E-02	5.02E-03	1.35E-02	5.31E-03
JDS83	R	1.98E-03	6.13E-02	5.86E-03	4.56E-04	8.51E-01	4.16E-02	1.19E+00	2.71E-02	1.34E-01	4.07E-02	5.57E-02	7.80E-03
JDS85	L	6.20E-02	1.36E+00	1.85E-02	1.70E-03	1.51E+00	1.23E-01	2.39E+00	6.75E-02	2.82E-01	4.50E-02	1.22E-01	4.36E-02
JDS85	R	1.87E-03	5.40E-02	3.97E-03	5.02E-04	4.94E-01	2.46E-02	7.10E-01	1.53E-02	8.71E-02	2.54E-02	3.83E-02	6.28E-03
JDS86	L	2.73E-03	6.95E-02	1.95E-03	4.28E-04	1.01E-01	8.15E-03	1.73E-01	4.55E-03	3.48E-02	6.56E-03	1.76E-02	6.83E-03
JDS89	L	3.24E-03	8.95E-02	3.32E-03	4.74E-04	2.61E-01	1.79E-02	4.54E-01	1.05E-02	7.29E-02	1.62E-02	3.32E-02	1.04E-02
JDS89	R	1.89E-03	5.09E-02	1.99E-03	3.94E-04	9.55E-02	6.65E-03	1.52E-01	4.05E-03	2.96E-02	6.91E-03	1.58E-02	5.61E-03
JDS92	L	1.51E-03	4.09E-02	1.86E-03	1.81E-04	1.13E-01	6.70E-03	1.75E-01	4.32E-03	2.77E-02	6.92E-03	1.42E-02	4.92E-03
JDS92	R	1.05E-03	3.05E-02	1.26E-03	3.30E-04	7.58E-02	5.81E-03	1.27E-01	3.07E-03	2.62E-02	5.27E-03	1.29E-02	5.61E-03
JDS95	L	1.61E-03	4.36E-02	1.71E-03	4.88E-04	8.70E-02	6.00E-03	1.43E-01	3.66E-03	2.73E-02	6.09E-03	1.42E-02	5.05E-03

Table 1: PCBs in sediment [µg/kg],

		1998 WHO-TEQ for PCBs	2005 WHO-TEQ for PCBs	PCB 28	PCB 52	PCB 101	PCB 138	PCB 153	PCB 180	Indicator (EC-6)
JDS2	L	1.56E-03	1.37E-03	6.03E-01	5.17E-01	1.14E+00	2.51E+00	3.30E+00	2.38E+00	1.05E+01
JDS7	L	3.52E-04	3.01E-04	2.05E+00	9.28E-01	4.57E+00	4.95E-01	5.08E+00	1.23E+00	1.44E+01
JDS7	R	3.47E-04	3.02E-04	2.03E-01	2.12E-01	3.15E-01	6.11E-01	7.77E-01	5.13E-01	2.63E+00
JDS12	L	5.44E-04	4.60E-04	2.94E-01	3.15E-01	5.28E-01	1.08E+00	1.38E+00	9.41E-01	4.53E+00
JDS12	R	4.91E-04	4.16E-04	2.72E-01	3.26E-01	5.10E-01	1.00E+00	1.33E+00	8.98E-01	4.34E+00
JDS16	L	8.26E-04	6.68E-04	4.18E+00	1.55E+00	1.04E+00	1.71E+00	2.35E+00	1.82E+00	1.27E+01
JDS16	R	4.96E-04	4.09E-04	2.96E-01	3.28E-01	4.82E-01	1.24E+00	1.54E+00	1.26E+00	5.15E+00
JDS22	L	5.99E-04	5.15E-04	1.05E+00	5.41E-01	5.99E-01	1.60E+00	2.26E+00	2.00E+00	8.05E+00
JDS22	R	5.27E-04	4.30E-04	6.85E-01	4.82E-01	6.51E-01	1.35E+00	1.79E+00	1.42E+00	6.38E+00
JDS26	L	2.39E-04	2.03E-04	7.35E-01	4.37E-01	2.64E-01	4.04E-01	5.69E-01	6.64E-01	3.07E+00
JDS26	R	3.87E-04	3.29E-04	3.84E-01	2.60E-01	3.64E-01	8.03E-01	1.03E+00	8.44E-01	3.68E+00
JDS35	L	2.69E-04	2.26E-04	3.64E-01	2.24E-01	2.95E-01	6.06E-01	8.12E-01	6.80E-01	2.98E+00
JDS35	R	4.84E-04	4.02E-04	6.98E-01	5.00E-01	6.19E-01	1.05E+00	1.46E+00	1.05E+00	5.38E+00
JDS39	L	6.73E-04	5.88E-04	6.27E-01	1.06E+00	6.55E-01	1.35E+00	1.72E+00	1.59E+00	7.00E+00
JDS39	R	7.54E-04	6.64E-04	8.08E-01	4.86E-01	6.54E-01	1.37E+00	1.83E+00	1.42E+00	6.57E+00
JDS42	R	4.54E-04	3.83E-04	4.62E-01	4.92E-01	4.55E-01	8.15E-01	1.07E+00	8.41E-01	4.14E+00
JDS45	L	5.85E-04	5.13E-04	4.94E-01	3.70E-01	5.07E-01	1.05E+00	1.44E+00	1.07E+00	4.94E+00
JDS45	R	5.50E-04	4.87E-04	5.34E-01	3.90E-01	4.58E-01	8.73E-01	1.21E+00	8.75E-01	4.34E+00
JDS47	L	6.78E-04	5.94E-04	5.05E-01	4.39E-01	5.56E-01	1.24E+00	1.74E+00	1.46E+00	5.95E+00
JDS47	R	6.40E-04	5.59E-04	5.47E-01	4.04E-01	5.55E-01	1.15E+00	1.60E+00	1.21E+00	5.46E+00
JDS51	L	3.56E-04	2.89E-04	4.44E-01	5.84E-01	4.50E-01	7.05E-01	9.40E-01	6.98E-01	3.82E+00
JDS53	L	2.10E-03	1.78E-03	3.59E+00	3.08E+00	3.09E+00	3.77E+00	6.11E+00	4.17E+00	2.38E+01
JDS53	R	7.02E-04	5.77E-04	7.76E-01	9.72E-01	8.90E-01	1.33E+00	1.83E+00	1.26E+00	7.06E+00
JDS56	L	4.32E-04	3.56E-04	3.53E-01	3.63E-01	4.67E-01	7.10E-01	8.85E-01	5.97E-01	3.37E+00
JDS58	L	6.24E-04	5.45E-04	6.88E-01	5.66E-01	6.90E-01	1.07E+00	1.58E+00	7.94E-01	5.40E+00
JDS58	R	4.72E-04	3.96E-04	6.03E-01	3.92E-01	5.28E-01	8.58E-01	1.14E+00	8.26E-01	4.35E+00
JDS76	L	2.01E-04	1.82E-04	2.83E-01	1.28E-01	1.46E-01	3.22E-01	4.87E-01	4.59E-01	1.83E+00
JDS80	L	2.17E-04	1.92E-04	2.56E-01	1.31E-01	1.63E-01	3.57E-01	4.66E-01	4.35E-01	1.81E+00
JDS83	L	1.74E-04	1.55E-04	2.24E-01	1.17E-01	1.32E-01	2.77E-01	3.93E-01	3.51E-01	1.49E+00
JDS83	R	9.13E-04	6.77E-04	2.06E-01	4.51E-01	8.50E-01	1.24E+00	9.53E-01	3.62E-01	4.06E+00
JDS85	L	2.63E-03	2.19E-03	1.94E+01	1.17E+01	3.28E+00	3.03E+00	4.75E+00	3.98E+00	4.62E+01
JDS85	R	5.99E-04	4.60E-04	3.09E-01	3.46E-01	5.43E-01	8.44E-01	7.64E-01	3.41E-01	3.15E+00
JDS86	L	2.60E-04	2.26E-04	6.32E-01	3.59E-01	2.36E-01	3.90E-01	5.75E-01	5.61E-01	2.75E+00
JDS89	L	4.74E-04	3.83E-04	9.11E-01	6.37E-01	5.41E-01	7.15E-01	9.35E-01	8.44E-01	4.58E+00
JDS89	R	2.55E-04	2.26E-04	4.17E-01	2.41E-01	1.83E-01	3.14E-01	3.91E-01	3.76E-01	1.92E+00
JDS92	L	2.43E-04	2.06E-04	3.48E-01	2.33E-01	1.97E-01	3.16E-01	3.89E-01	3.46E-01	1.83E+00
JDS92	R	1.73E-04	1.47E-04	2.91E-01	2.75E-01	1.79E-01	2.83E-01	3.69E-01	4.12E-01	1.81E+00
JDS95	L	2.24E-04	1.99E-04	3.75E-01	2.58E-01	1.80E-01	3.08E-01	4.20E-01	4.11E-01	1.95E+00

Table 2: PAHs in sediment [µg/kg],

		Anthracene	Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)f-Luoranthene	Benzo(e)-pyrene	Benzo(g,h,i-) perylene	Benzo(j)-fLuoranthene	Benzo(k)-fluoranthene	Chrysene	Dibenzo(a,h) -anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)- pyrene	Phenanthrene	Pyrene
JDS2	L	1.30E+01	3.95E+01	6.21E+01	8.85E+01	5.93E+01	6.36E+01	3.66E+01	3.79E+01	4.48E+01	1.12E+01	1.18E+02	6.28E+00	6.50E+01	3.88E+01	8.25E+01
JDS7	L	4.65E+00	1.69E+01	2.13E+01	2.72E+01	2.16E+01	2.21E+01	1.30E+01	1.35E+01	1.71E+01	5.13E+00	4.81E+01	4.40E+00	2.19E+01	1.77E+01	3.32E+01
JDS7	R	3.59E+00	1.38E+01	1.77E+01	2.47E+01	1.93E+01	1.94E+01	1.47E+01	1.31E+01	1.61E+01	4.40E+00	4.17E+01	2.35E+00	1.93E+01	1.41E+01	2.80E+01
JDS12	L	4.91E+00	2.34E+01	2.91E+01	3.47E+01	2.93E+01	3.07E+01	2.29E+01	2.01E+01	2.32E+01	6.33E+00	6.62E+01	3.36E+00	3.44E+01	2.00E+01	4.58E+01
JDS12	R	7.34E+00	2.54E+01	2.98E+01	4.27E+01	2.93E+01	2.88E+01	1.45E+01	1.90E+01	2.53E+01	6.27E+00	7.55E+01	5.00E+00	2.93E+01	2.54E+01	5.65E+01
JDS16	L	2.23E+01	7.08E+01	8.87E+01	1.17E+02	7.44E+01	8.32E+01	6.06E+01	6.04E+01	6.33E+01	1.82E+01	1.92E+02	9.49E+00	8.94E+01	4.61E+01	1.39E+02
JDS16	R	7.82E+00	4.10E+01	5.27E+01	6.22E+01	4.47E+01	4.87E+01	3.36E+01	3.48E+01	3.77E+01	1.06E+01	9.72E+01	3.51E+00	5.25E+01	2.54E+01	7.28E+01
JDS22	L	1.00E+01	4.81E+01	7.10E+01	8.14E+01	5.88E+01	7.27E+01	5.50E+01	4.44E+01	4.14E+01	1.32E+01	1.39E+02	4.91E+00	7.42E+01	2.88E+01	1.13E+02
JDS22	R	1.56E+01	3.65E+01	4.63E+01	5.58E+01	3.80E+01	4.11E+01	3.45E+01	3.25E+01	3.25E+01	7.62E+00	9.14E+01	3.63E+00	5.51E+01	2.33E+01	6.87E+01
JDS26	L	3.31E+00	8.18E+00	1.48E+01	1.25E+01	1.42E+01	1.91E+01	6.75E+00	7.43E+00	9.38E+00	2.41E+00	2.39E+01	1.85E+00	1.33E+01	1.34E+01	2.86E+01
JDS26	R	9.31E+00	3.56E+01	4.79E+01	5.74E+01	4.14E+01	4.27E+01	2.63E+01	3.22E+01	3.31E+01	8.36E+00	9.04E+01	4.66E+00	5.12E+01	2.53E+01	6.94E+01
JDS35	L	7.82E+00	2.40E+01	3.03E+01	3.80E+01	2.47E+01	2.69E+01	1.67E+01	1.93E+01	2.16E+01	5.68E+00	6.61E+01	3.99E+00	3.12E+01	2.07E+01	4.80E+01
JDS35	R	3.55E+01	7.98E+01	6.58E+01	1.06E+02	3.05E+01	6.60E+01	4.72E+01	5.29E+01	6.53E+01	1.66E+01	2.24E+02	2.36E+01	8.00E+01	7.76E+01	1.52E+02
JDS39	L	1.45E+01	4.55E+01	6.38E+01	7.66E+01	5.62E+01	6.29E+01	5.03E+01	4.72E+01	4.52E+01	1.39E+01	1.23E+02	7.31E+00	6.77E+01	3.46E+01	8.78E+01
JDS39	R	1.88E+01	5.81E+01	7.32E+01	9.51E+01	6.30E+01	7.24E+01	4.48E+01	4.81E+01	5.12E+01	1.62E+01	1.63E+02	1.26E+01	8.12E+01	4.04E+01	1.14E+02
JDS42	R	6.30E+00	1.95E+01	2.45E+01	3.54E+01	2.54E+01	2.71E+01	1.86E+01	1.84E+01	2.18E+01	6.30E+00	6.09E+01	5.36E+00	2.82E+01	2.52E+01	4.37E+01
JDS45	L	1.26E+01	4.16E+01	5.61E+01	7.22E+01	4.99E+01	5.62E+01	4.26E+01	3.55E+01	3.80E+01	1.27E+01	1.17E+02	8.46E+00	6.29E+01	3.41E+01	8.53E+01
JDS45	R	1.31E+01	3.71E+01	5.06E+01	6.52E+01	4.26E+01	4.85E+01	3.25E+01	3.61E+01	3.88E+01	1.08E+01	1.14E+02	9.76E+00	5.31E+01	3.71E+01	8.20E+01
JDS47	L	1.33E+01	4.04E+01	5.75E+01	2.81E+01	5.54E+01	6.17E+01	2.78E+01	2.04E+01	4.07E+01	1.25E+01	1.12E+02	9.52E+00	6.89E+01	3.50E+01	8.68E+01
JDS47	R	1.33E+01	4.75E+01	6.45E+01	7.70E+01	5.78E+01	6.48E+01	3.72E+01	4.05E+01	4.80E+01	1.42E+01	1.38E+02	1.10E+01	8.07E+01	3.69E+01	1.02E+02
JDS51	L	1.30E+01	3.68E+01	4.06E+01	5.00E+01	4.05E+01	3.72E+01	2.28E+01	2.09E+01	4.59E+01	1.03E+01	9.18E+01	1.23E+01	4.01E+01	3.86E+01	6.75E+01
JDS53	L	2.15E+01	4.46E+01	5.91E+01	7.37E+01	5.82E+01	6.30E+01	3.60E+01	3.05E+01	4.30E+01	1.45E+01	1.10E+02	1.40E+01	6.44E+01	4.85E+01	9.80E+01
JDS53	R	1.21E+01	3.54E+01	4.11E+01	5.31E+01	4.05E+01	4.33E+01	2.83E+01	2.64E+01	3.87E+01	9.24E+00	9.01E+01	1.06E+01	4.76E+01	3.70E+01	6.72E+01
JDS56	L	1.69E+00	3.47E+00	5.22E+00	1.07E+01	8.13E+00	1.03E+01	3.98E+00	3.91E+00	5.08E+00	1.31E+00	1.82E+01	2.78E+00	9.05E+00	1.23E+01	1.46E+01
JDS58	L	4.76E+00	1.40E+01	2.19E+01	2.60E+01	2.24E+01	2.69E+01	1.45E+01	1.47E+01	1.42E+01	3.46E+00	4.30E+01	4.70E+00	2.65E+01	1.83E+01	3.13E+01
JDS58	R	8.44E+00	2.55E+01	3.24E+01	4.01E+01	3.05E+01	3.41E+01	1.54E+01	2.05E+01	2.90E+01	6.71E+00	6.85E+01	7.20E+00	3.42E+01	2.83E+01	5.27E+01
JDS76	L	3.78E+00	7.44E+00	1.10E+01	1.20E+01	1.03E+01	2.07E+01	7.06E+00	5.83E+00	8.16E+00	2.03E+00	2.52E+01	5.49E+00	1.25E+01	1.73E+01	2.92E+01
JDS80	L	4.39E+00	9.83E+00	1.50E+01	1.70E+01	1.50E+01	2.37E+01	9.50E+00	8.00E+00	1.06E+01	2.94E+00	3.01E+01	3.19E+00	1.64E+01	1.83E+01	3.52E+01
JDS83	L	3.33E+00	7.62E+00	1.20E+01	1.30E+01	1.18E+01	1.97E+01	1.33E+01	7.56E+00	7.57E+00	2.17E+00	2.58E+01	3.82E+00	1.78E+01	1.44E+01	3.26E+01
JDS83	R	8.96E+00	1.60E+01	2.20E+01	2.39E+01	1.79E+01	2.37E+01	1.20E+01	1.21E+01	1.81E+01	4.86E+00	4.31E+01	7.22E+00	3.24E+01	2.73E+01	3.52E+01
JDS85	L	1.89E+01	5.09E+01	6.74E+01	5.78E+01	8.29E+01	5.76E+01	2.46E+01	2.16E+01	9.14E+01	1.81E+01	9.49E+01	1.71E+01	3.06E+01	1.86E+02	1.79E+02
JDS85	R	6.04E+00	1.52E+01	2.23E+01	2.43E+01	2.01E+01	2.61E+01	1.33E+01	1.27E+01	1.83E+01	4.21E+00	4.29E+01	6.18E+00	2.30E+01	2.47E+01	3.62E+01
JDS86	L	2.67E+00	7.50E+00	1.23E+01	1.22E+01	1.20E+01	1.83E+01	7.90E+00	5.51E+00	8.66E+00	2.23E+00	2.13E+01	3.04E+00	1.25E+01	1.40E+01	2.56E+01
JDS89	L	4.85E+00	1.03E+01	1.64E+01	1.61E+01	1.69E+01	2.22E+01	9.52E+00	7.90E+00	1.25E+01	3.25E+00	2.98E+01	3.14E+00	1.59E+01	2.02E+01	3.25E+01
JDS89	R	3.32E+00	9.06E+00	1.57E+01	1.40E+01	1.34E+01	1.94E+01	9.58E+00	8.42E+00	1.14E+01	4.07E+00	2.72E+01	3.53E+00	1.57E+01	1.91E+01	2.89E+01
JDS92	L	3.99E+00	9.91E+00	1.38E+01	1.53E+01	1.51E+01	1.93E+01	8.44E+00	7.24E+00	1.22E+01	3.22E+00	2.66E+01	2.58E+00	1.45E+01	1.79E+01	2.76E+01
JDS92	R	4.66E+00	9.53E+00	1.27E+01	1.35E+01	1.10E+01	1.71E+01	7.23E+00	5.53E+00	1.26E+01	2.78E+00	2.47E+01	3.44E+00	1.15E+01	1.95E+01	3.01E+01
JDS95	L	4.76E+00	1.06E+01	1.42E+01	1.59E+01	1.60E+01	2.06E+01	7.36E+00	7.38E+00	1.25E+01	3.25E+00	2.98E+01	3.96E+00	1.46E+01	2.01E+01	3.16E+01

Table 3: PCDD/Fs in sediment [µg/kg],

		1234678-HpCDD	1234678-HpCDF	1234789-HpCDF	123478-HxCDD	123478-HxCDF	123678-HxCDD	123678-HxCDDin)	123789-HxCDD	123789-HxCDF	12378-PeCDD	12378-PeCDF	1998 WHO-TEQ for PCDD/Fs	2,3,7,8-TCDD	2005 WHO-TEQ for PCDD/Fs	234678-HxCDF
JDS2	L	2.95E-02	1.02E-02	1.37E-03	5.92E-04	3.72E-03	1.92E-03	1.85E-03	1.13E-03	1.09E-03	4.37E-04	2.71E-03	4.44E-03	0.00E+00	3.70E-03	1.83E-03
JDS7	L	7.57E-03	3.08E-03	3.52E-04	1.73E-04	7.76E-04	5.69E-04	3.75E-04	4.31E-04	2.03E-04	1.88E-04	4.80E-04	1.14E-03	< LOQ	9.95E-04	4.30E-04
JDS7	R	6.80E-03	2.65E-03	3.00E-04	1.78E-04	7.24E-04	4.18E-04	4.35E-04	4.24E-04	1.83E-04	1.54E-04	5.60E-04	9.87E-04	< LOQ	8.74E-04	4.95E-04
JDS12	L	8.50E-03	3.14E-03	4.02E-04	1.82E-04	8.92E-04	6.77E-04	4.94E-04	4.54E-04	2.26E-04	2.20E-04	7.35E-04	1.39E-03	< LOQ	1.20E-03	6.81E-04
JDS12	R	9.09E-03	3.80E-03	3.54E-04	2.53E-04	9.88E-04	6.68E-04	6.21E-04	5.23E-04	2.22E-04	2.25E-04	6.66E-04	1.38E-03	< LOQ	1.21E-03	6.31E-04
JDS16	L	1.45E-02	5.63E-03	6.85E-04	3.41E-04	1.35E-03	1.15E-03	8.45E-04	8.67E-04	3.41E-04	2.70E-04	9.33E-04	2.07E-03	< LOQ	1.80E-03	1.07E-03
JDS16	R	8.50E-03	5.04E-03	5.30E-04	1.55E-04	1.73E-03	7.58E-04	7.51E-04	4.99E-04	3.75E-04	1.63E-04	1.17E-03	1.76E-03	< LOQ	1.49E-03	8.87E-04
JDS22	L	1.23E-02	5.18E-03	5.29E-04	2.88E-04	1.67E-03	9.76E-04	8.86E-04	9.37E-04	2.62E-04	1.40E-04	1.25E-03	2.32E-03	< LOQ	1.92E-03	1.27E-03
JDS22	R															
JDS26	L	1.10E-02	2.09E-03	2.46E-04	2.63E-04	4.98E-04	4.28E-04	3.10E-04	8.07E-04	6.27E-05	3.68E-04	3.89E-04	1.33E-03	< LOQ	1.17E-03	3.05E-04
JDS26	R	8.84E-03	5.87E-03	3.86E-04	2.05E-04	9.92E-04	7.03E-04	6.28E-04	5.58E-04	2.74E-04	2.35E-04	6.69E-04	1.48E-03	< LOQ	1.29E-03	6.93E-04
JDS35	L	6.84E-03	2.81E-03	2.85E-04	1.36E-04	7.33E-04	4.73E-04	3.68E-04	3.07E-04	2.00E-04	1.33E-04	3.95E-04	9.69E-04	< LOQ	8.46E-04	4.34E-04
JDS35	R	1.23E-02	4.42E-03	4.13E-04	2.70E-04	1.05E-03	1.06E-03	7.04E-04	6.52E-04	2.25E-04	2.58E-04	6.92E-04	1.73E-03	< LOQ	1.49E-03	7.06E-04
JDS39	L	2.27E-02	1.05E-02	9.78E-04	4.68E-04	2.73E-03	1.51E-03	1.39E-03	1.22E-03	8.24E-04	5.78E-04	1.66E-03	5.50E-03	2.27E-03	5.12E-03	1.38E-03
JDS39	R	2.61E-02	1.19E-02	1.21E-03	5.34E-04	2.72E-03	2.04E-03	1.47E-03	1.36E-03	6.46E-04	5.05E-04	1.64E-03	5.25E-03	1.81E-03	4.81E-03	1.56E-03
JDS42	R	1.53E-02	4.61E-03	4.20E-04	2.72E-04	8.00E-04	1.01E-03	5.38E-04	7.69E-04	1.77E-04	2.64E-04	6.04E-04	1.51E-03	< LOQ	1.37E-03	7.12E-04
JDS45	L	1.72E-02	8.21E-03	6.30E-04	3.89E-04	1.75E-03	1.25E-03	9.04E-04	9.80E-04	4.84E-04	4.35E-04	1.13E-03	3.52E-03	9.72E-04	3.17E-03	1.09E-03
JDS45	R	1.84E-02	7.27E-03	7.29E-04	3.54E-04	1.63E-03	1.35E-03	9.16E-04	1.03E-03	4.90E-04	4.04E-04	1.07E-03	3.21E-03	8.68E-04	2.94E-03	1.07E-03
JDS47	L	2.14E-02	9.85E-03	9.77E-04	4.49E-04	2.19E-03	1.50E-03	1.15E-03	1.13E-03	5.49E-04	4.78E-04	1.36E-03	3.54E-03	7.14E-04	3.20E-03	1.33E-03
JDS47	R	2.12E-02	8.90E-03	7.46E-04	4.97E-04	1.88E-03	1.57E-03	1.16E-03	1.17E-03	4.43E-04	5.39E-04	1.33E-03	3.50E-03	7.93E-04	3.21E-03	1.36E-03
JDS51	L	9.64E-03	2.48E-03	3.20E-04	2.94E-04	7.12E-04	5.77E-04	4.64E-04	8.19E-04	1.61E-04	2.05E-04	5.83E-04	2.57E-03	1.48E-03	2.47E-03	5.20E-04
JDS53	L	4.40E-02	1.34E-02	1.54E-03	8.42E-04	4.00E-03	3.87E-03	2.12E-03	2.72E-03	9.56E-04	1.49E-03	2.52E-03	2.15E-02	1.57E-02	2.09E-02	1.83E-03
JDS53	R	2.18E-02	5.14E-03	5.14E-04	4.04E-04	1.36E-03	9.70E-04	7.80E-04	1.03E-03	2.91E-04	3.52E-04	9.77E-04	3.67E-03	1.69E-03	3.48E-03	9.48E-04
JDS56	L	8.43E-03	4.96E-03	3.20E-04	2.48E-04	8.03E-04	4.91E-04	6.63E-04	7.88E-04	1.93E-04	2.47E-04	4.63E-04	2.93E-03	1.79E-03	2.83E-03	7.22E-04
JDS58	L	8.49E-03	3.68E-03	4.04E-04	2.89E-04	8.84E-04	6.84E-04	7.12E-04	7.20E-04	2.47E-04	2.27E-04	6.77E-04	3.33E-03	1.91E-03	3.15E-03	8.35E-04
JDS58	R	1.33E-02	5.68E-03	5.12E-04	3.41E-04	1.21E-03	8.68E-04	7.63E-04	1.22E-03	2.87E-04	4.50E-04	7.69E-04	4.26E-03	2.17E-03	4.00E-03	9.29E-04
JDS76	L	1.65E-02	2.75E-03	2.53E-04	5.70E-04	5.66E-04	7.96E-04	3.72E-04	1.46E-03	9.83E-05	3.88E-04	3.02E-04	1.44E-03	1.52E-04	1.39E-03	3.63E-04
JDS80	L	1.55E-02	2.86E-03	2.76E-04	4.96E-04	6.61E-04	7.75E-04	4.19E-04	1.35E-03	1.84E-04	4.24E-04	4.34E-04	1.74E-03	3.68E-04	1.68E-03	4.62E-04
JDS83	L	1.45E-02	2.69E-03	2.30E-04	4.02E-04	5.83E-04	6.72E-04	4.11E-04	1.16E-03	1.16E-04	3.24E-04	3.55E-04	2.35E-03	1.05E-03	2.24E-03	3.91E-04
JDS83	R	1.02E-02	3.22E-03	3.31E-04	2.75E-04	1.37E-03	5.02E-04	5.73E-04	8.75E-04	3.60E-04	2.77E-04	8.33E-04	1.81E-03	2.27E-04	1.60E-03	6.15E-04
JDS85	L	1.50E-02	6.30E-03	6.25E-04	4.07E-04	1.18E-03	8.66E-04	8.84E-04	1.03E-03	2.74E-04	5.76E-04	7.15E-04	2.22E-03	2.06E-04	2.05E-03	9.70E-04
JDS85	R	1.08E-02	3.54E-03	3.76E-04	3.46E-04	1.01E-03	6.38E-04	5.90E-04	9.45E-04	2.93E-04	2.92E-04	6.07E-04	1.85E-03	4.75E-04	1.72E-03	6.37E-04
JDS86	L	1.21E-02	2.32E-03	2.02E-04	3.62E-04	5.61E-04	5.46E-04	2.97E-04	1.09E-03	9.73E-05	2.85E-04	2.99E-04	1.09E-03	< LOQ	1.03E-03	3.71E-04
JDS89	L	1.12E-02	3.02E-03	2.60E-04	3.85E-04	6.75E-04	6.17E-04	4.77E-04	1.08E-03	1.62E-04	3.06E-04	3.90E-04	2.11E-03	7.41E-04	1.96E-03	5.09E-04
JDS89	R	1.03E-02	2.70E-03	2.24E-04	3.71E-04	6.86E-04	6.11E-04	4.31E-04	1.04E-03	1.40E-04	2.82E-04	4.52E-04	1.23E-03	6.92E-05	1.14E-03	4.67E-04
JDS92	L	1.02E-02	2.33E-03	2.03E-04	3.37E-04	5.97E-04	5.50E-04	3.34E-04	1.06E-03	1.47E-04	2.91E-04	3.95E-04	1.38E-03	2.93E-04	1.30E-03	3.67E-04
JDS92	R	8.41E-03	1.88E-03	2.64E-04	2.55E-04	4.84E-04	5.16E-04	2.53E-04	8.91E-04	1.13E-04	3.13E-04	2.79E-04	9.74E-04	< LOQ	9.21E-04	2.85E-04
JDS95	L	9.81E-03	2.29E-03	2.55E-04	3.10E-04	5.97E-04	6.01E-04	3.24E-04	9.79E-04	1.44E-04	2.63E-04	3.35E-04	1.60E-03	5.68E-04	1.52E-03	3.94E-04

Table 3: PCDD/Fs in sediment [µg/kg],

		23478-PeCDF	2378-TCDF	HpCDD	HpCDF	HxCDD	HxCDF	I-TEQ	OCDD	OCDF	PeCDD	PeCDF	TCDD	TCDF	Total PCDD/Furans	Total PCDDs	Total PCDFs
JDS2	L	3.65E-03	3.43E-03	5.65E-02	2.10E-02	2.14E-02	2.30E-02	4.44E-03	2.25E-01	2.23E-02	6.95E-03	3.81E-02	4.68E-03	4.12E-02	4.61E-01	3.15E-01	1.46E-01
JDS7	L	7.62E-04	8.92E-04	1.54E-02	5.61E-03	6.69E-03	5.55E-03	1.11E-03	5.49E-02	1.14E-02	2.14E-03	8.88E-03	1.47E-03	1.02E-02	1.22E-01	8.06E-02	4.17E-02
JDS7	R	5.62E-04	8.47E-04	1.37E-02	4.88E-03	5.59E-03	5.14E-03	9.59E-04	4.92E-02	5.65E-03	1.83E-03	8.13E-03	1.22E-03	9.13E-03	1.04E-01	7.15E-02	3.29E-02
JDS12	L	9.72E-04	1.13E-03	1.68E-02	5.67E-03	8.93E-03	7.16E-03	1.34E-03	5.71E-02	6.24E-03	2.99E-03	1.26E-02	2.02E-03	1.70E-02	1.36E-01	8.79E-02	4.86E-02
JDS12	R	8.44E-04	1.17E-03	1.81E-02	6.57E-03	8.10E-03	6.75E-03	1.33E-03	6.10E-02	7.02E-03	2.74E-03	1.15E-02	2.13E-03	1.48E-02	1.39E-01	9.20E-02	4.67E-02
JDS16	L	1.36E-03	2.05E-03	3.00E-02	9.59E-03	1.22E-02	1.14E-02	2.03E-03	9.91E-02	1.14E-02	3.65E-03	1.93E-02	2.59E-03	3.36E-02	2.33E-01	1.48E-01	8.52E-02
JDS16	R	1.30E-03	1.79E-03	1.74E-02	8.86E-03	8.96E-03	9.76E-03	1.75E-03	5.87E-02	1.24E-02	3.00E-03	1.71E-02	2.10E-03	1.98E-02	1.58E-01	9.01E-02	6.79E-02
JDS22	L	1.99E-03	2.50E-03	2.71E-02	8.95E-03	1.38E-02	1.21E-02	2.35E-03	1.00E-01	7.62E-03	4.38E-03	2.41E-02	3.19E-03	2.82E-02	2.30E-01	1.49E-01	8.10E-02
JDS22	R																
JDS26	L	8.66E-04	4.47E-04	2.56E-02	3.71E-03	1.28E-02	4.06E-03	1.24E-03	1.08E-01	3.80E-03	1.10E-03	7.00E-03	1.59E-02	7.47E-03	1.89E-01	1.63E-01	2.60E-02
JDS26	R	9.52E-04	1.20E-03	1.79E-02	1.09E-02	8.87E-03	7.73E-03	1.44E-03	6.44E-02	2.72E-02	3.15E-03	1.30E-02	2.14E-03	1.50E-02	1.70E-01	9.65E-02	7.38E-02
JDS35	L	6.43E-04	7.36E-04	1.47E-02	5.19E-03	5.40E-03	5.34E-03	9.63E-04	5.87E-02	8.37E-03	2.08E-03	9.62E-03	2.83E-03	9.33E-03	1.22E-01	8.37E-02	3.78E-02
JDS35	R	1.20E-03	1.34E-03	2.59E-02	8.10E-03	1.06E-02	7.43E-03	1.70E-03	1.03E-01	1.20E-02	3.89E-03	1.51E-02	4.77E-03	1.93E-02	2.10E-01	1.48E-01	6.19E-02
JDS39	L	1.96E-03	2.72E-03	4.64E-02	1.88E-02	1.91E-02	1.73E-02	5.42E-03	1.97E-01	3.48E-02	5.94E-03	3.10E-02	8.22E-03	3.13E-02	4.10E-01	2.76E-01	1.33E-01
JDS39	R	2.28E-03	2.70E-03	5.27E-02	2.08E-02	1.59E-02	1.67E-02	5.20E-03	1.90E-01	3.35E-02	7.59E-03	3.67E-02	9.81E-03	3.42E-02	4.18E-01	2.76E-01	1.42E-01
JDS42	R	8.03E-04	1.15E-03	3.34E-02	7.62E-03	1.19E-02	9.99E-03	1.52E-03	1.45E-01	1.08E-02	3.52E-03	1.15E-02	4.08E-03	1.52E-02	2.53E-01	1.98E-01	5.50E-02
JDS45	L	1.80E-03	1.97E-03	3.43E-02	1.40E-02	1.48E-02	1.31E-02	3.45E-03	1.43E-01	2.25E-02	5.27E-03	2.09E-02	8.06E-03	2.45E-02	3.00E-01	2.05E-01	9.50E-02
JDS45	R	1.43E-03	2.07E-03	3.96E-02	1.29E-02	1.54E-02	1.25E-02	3.17E-03	1.61E-01	2.09E-02	5.25E-03	1.98E-02	7.78E-03	2.52E-02	3.20E-01	2.29E-01	9.13E-02
JDS47	L	1.74E-03	2.35E-03	4.36E-02	1.90E-02	1.73E-02	1.51E-02	3.48E-03	1.74E-01	2.83E-02	6.29E-03	2.41E-02	8.92E-03	2.90E-02	3.65E-01	2.50E-01	1.15E-01
JDS47	R	1.49E-03	2.23E-03	4.38E-02	1.50E-02	1.80E-02	1.54E-02	3.40E-03	1.59E-01	2.40E-02	6.76E-03	2.54E-02	9.28E-03	2.98E-02	3.46E-01	2.37E-01	1.10E-01
JDS51	L	5.64E-04	8.79E-04	2.20E-02	4.21E-03	9.87E-03	5.22E-03	2.56E-03	9.41E-02	4.56E-03	3.19E-03	9.09E-03	4.01E-03	1.32E-02	1.69E-01	1.33E-01	3.63E-02
JDS53	L	2.84E-03	4.24E-03	8.52E-02	2.47E-02	4.21E-02	2.39E-02	2.10E-02	3.25E-01	3.54E-02	1.22E-02	3.93E-02	7.72E-03	6.18E-02	6.58E-01	4.73E-01	1.85E-01
JDS53	R	1.07E-03	1.65E-03	4.12E-02	8.71E-03	1.44E-02	1.08E-02	3.68E-03	1.95E-01	1.32E-02	5.42E-03	1.74E-02	6.78E-03	2.12E-02	3.34E-01	2.63E-01	7.13E-02
JDS56	L	5.28E-04	7.22E-04	1.94E-02	6.90E-03	9.57E-03	7.30E-03	2.88E-03	7.22E-02	1.09E-02	4.79E-03	1.18E-02	5.16E-03	1.42E-02	1.62E-01	1.11E-01	5.11E-02
JDS58	L	8.81E-04	1.50E-03	1.88E-02	5.78E-03	9.66E-03	8.20E-03	3.27E-03	5.83E-02	5.86E-03	3.98E-03	1.52E-02	4.55E-03	1.99E-02	1.50E-01	9.53E-02	5.50E-02
JDS58	R	1.37E-03	1.49E-03	2.90E-02	9.35E-03	1.44E-02	9.32E-03	4.15E-03	1.12E-01	1.31E-02	5.49E-03	1.59E-02	5.87E-03	2.11E-02	2.35E-01	1.67E-01	6.88E-02
JDS76	L	4.05E-04	5.06E-04	4.00E-02	3.94E-03	1.71E-02	4.08E-03	1.41E-03	1.74E-01	5.20E-03	5.55E-03	6.54E-03	3.96E-03	7.45E-03	2.68E-01	2.40E-01	2.72E-02
JDS80	L	4.29E-04	7.17E-04	3.70E-02	4.53E-03	1.62E-02	4.90E-03	1.68E-03	1.70E-01	5.65E-03	5.29E-03	7.67E-03	3.86E-03	8.95E-03	2.64E-01	2.32E-01	3.17E-02
JDS83	L	6.75E-04	6.28E-04	3.49E-02	4.22E-03	1.46E-02	4.39E-03	2.32E-03	1.42E-01	5.78E-03	4.53E-03	6.76E-03	3.37E-03	7.90E-03	2.28E-01	1.99E-01	2.91E-02
JDS83	R	1.06E-03	1.31E-03	2.42E-02	5.15E-03	1.07E-02	6.94E-03	1.76E-03	9.55E-02	6.63E-03	3.40E-03	1.14E-02	3.21E-03	1.64E-02	1.84E-01	1.37E-01	4.66E-02
JDS85	L	9.60E-04	1.30E-03	3.35E-02	9.80E-03	1.58E-02	1.02E-02	2.07E-03	1.34E-01	1.05E-02	9.39E-03	1.95E-02	2.42E-03	2.59E-02	2.92E-01	2.16E-01	7.60E-02
JDS85	R	6.99E-04	1.03E-03	2.52E-02	5.46E-03	1.20E-02	7.02E-03	1.80E-03	9.30E-02	6.25E-03	4.14E-03	1.17E-02	4.38E-03	1.40E-02	1.83E-01	1.39E-01	4.44E-02
JDS86	L	3.85E-04	6.04E-04	2.86E-02	3.60E-03	1.25E-02	5.28E-03	1.06E-03	1.13E-01	5.19E-03	4.01E-03	6.38E-03	4.42E-03	7.89E-03	1.91E-01	1.62E-01	2.83E-02
JDS89	L	8.26E-04	8.34E-04	2.66E-02	4.54E-03	1.23E-02	5.15E-03	2.05E-03	1.01E-01	5.63E-03	3.95E-03	8.75E-03	4.59E-03	1.07E-02	1.83E-01	1.49E-01	3.47E-02
JDS89	R	5.32E-04	7.75E-04	2.51E-02	4.13E-03	1.15E-02	5.05E-03	1.18E-03	9.45E-02	4.75E-03	3.76E-03	8.65E-03	4.21E-03	9.92E-03	1.72E-01	1.39E-01	3.25E-02
JDS92	L	4.51E-04	7.10E-04	2.37E-02	3.59E-03	1.08E-02	5.69E-03	1.32E-03	8.91E-02	6.01E-03	3.38E-03	8.75E-03	4.29E-03	8.70E-03	1.64E-01	1.31E-01	3.27E-02
JDS92	R	3.15E-04	4.62E-04	1.91E-02	2.76E-03	8.98E-03	3.18E-03	8.89E-04	7.33E-02	5.79E-03	3.09E-03	4.85E-03	3.16E-03	6.34E-03	1.31E-01	1.08E-01	2.29E-02
JDS95	L	4.42E-04	6.08E-04	2.27E-02	3.56E-03	1.09E-02	4.29E-03	1.55E-03	8.72E-02	7.76E-03	3.49E-03	6.95E-03	4.11E-03	8.65E-03	1.60E-01	1.28E-01	3.12E-02

Table 4: Pesticides in sediment [µg/kg],

		α-HCH	Aldrin	β–HCH	cis-chlordane	cis-nonachlor	Dieldrin	Endosulfane-alpha	Endosulfane-beta	Endosulfane-sulphate	Endrin	γ-HCH	HCB	Heptachlor	Heptachlor-endo-epoxide	Heptachlor-exo-epoxide
JDS2	L	1.38E-02	5.55E-03	2.44E-02	8.89E-03	< LOD	5.07E-02	< LOD	< LOD	< LOD	< LOD	1.47E-01	1.03E+00	< LOD	< LOD	< LOD
JDS7	L	1.48E-02	< LOD	8.82E-03	9.33E-03	< LOD	2.38E-02	< LOD	< LOD	< LOD	< LOD	1.38E-01	2.27E-01	< LOD	< LOD	< LOD
JDS7	R	1.16E-02	< LOD	1.34E-02	6.44E-03	< LOD	1.68E-02	< LOD	< LOD	< LOD	< LOD	9.66E-02	3.37E-01	< LOD	< LOD	< LOD
JDS12	L	1.38E-02	< LOD	1.53E-02	6.19E-03	< LOD	2.73E-02	< LOD	< LOD	< LOD	< LOD	1.25E-01	5.83E-01	< LOD	< LOD	< LOD
JDS12	R	1.53E-02	< LOD	2.02E-02	6.07E-03	< LOD	2.62E-02	1.97E-01	< LOD	< LOD	< LOD	1.15E-01	5.81E-01	< LOD	< LOD	< LOD
JDS16	L	2.72E-02	< LOD	5.33E-02	1.57E-02	< LOD	4.52E-02	< LOD	< LOD	< LOD	< LOD	1.94E-01	4.00E-01	< LOD	< LOD	2.82E-03
JDS16	R	1.59E-02	< LOD	2.74E-02	7.16E-03	< LOD	3.31E-02	< LOD	< LOD	< LOD	< LOD	1.44E-01	6.66E-01	< LOD	< LOD	5.61E-03
JDS22	L	8.98E-02	7.17E-03	1.07E-01	6.22E-03	< LOD	2.24E-02	< LOD	< LOD	< LOD	< LOD	1.64E-01	6.52E-01	< LOD	< LOD	6.06E-03
JDS22	R	2.89E-02	1.34E-02	< LOQ	5.70E-03	< LOD	2.43E-02	< LOD	< LOD	< LOD	< LOD	1.79E-01	3.27E-01	< LOD	< LOD	< LOD
JDS26	L	1.82E-01	< LOD	7.41E-01	9.10E-03	< LOD	4.76E-02	< LOD	< LOD	< LOD	< LOD	2.77E-01	1.08E+00	< LOD	< LOD	< LOD
JDS26	R	2.59E-02	< LOD	3.78E-02	6.42E-03	< LOD	2.84E-02	< LOD	< LOD	< LOD	< LOD	1.66E-01	3.72E-01	< LOD	< LOD	< LOD
JDS35	L	3.01E-02	4.11E-03	5.57E-02	4.05E-03	< LOD	2.80E-02	< LOD	< LOD	< LOD	< LOD	1.65E-01	1.24E+00	< LOD	< LOD	9.41E-03
JDS35	R	6.85E-02	< LOD	1.08E-01	9.12E-03	< LOD	2.67E-02	< LOD	< LOD	< LOD	< LOD	1.54E-01	6.08E-01	< LOD	< LOD	< LOD
JDS39	L	5.23E-02	1.11E-02	1.60E-01	1.25E-02	< LOD	4.96E-02	< LOD	< LOD	7.17E-02	< LOD	2.29E-01	1.00E+00	< LOD	< LOD	< LOD
JDS39	R	3.85E-02	1.00E-02	8.14E-02	1.16E-02	< LOD	3.88E-02	< LOD	< LOD	4.73E-02	< LOD	1.65E-01	7.74E-01	< LOD	< LOD	< LOD
JDS42	R	1.61E-02	< LOD	1.71E-02	1.25E-02	< LOD	5.77E-02	< LOD	< LOD	5.12E-02	< LOD	1.90E-01	5.39E-01	< LOD	< LOD	< LOD
JDS45	L	3.42E-02	8.79E-03	6.10E-02	1.10E-02	< LOD	3.98E-02	< LOD	< LOD	7.08E-02	< LOD	1.98E-01	5.81E-01	< LOD	< LOD	< LOD
JDS45	R	3.02E-02	6.08E-03	5.70E-02	1.76E-02	< LOD	4.64E-02	< LOD	< LOD	< LOD	< LOD	2.04E-01	4.79E-01	< LOD	< LOD	< LOD
JDS47	L	3.55E-02	5.99E-03	6.12E-02	1.23E-02	< LOD	4.61E-02	< LOD	< LOD	2.77E-03	8.72E-02	1.40E-01	6.83E-01	2.10E-03	3.75E-03	3.66E-03
JDS47	R	2.50E-02	7.94E-03	5.28E-02	1.29E-02	< LOD	3.74E-02	< LOD	< LOD	< LOD	< LOD	1.27E-01	5.39E-01	< LOQ	< LOD	< LOD
JDS51	L	1.45E-02	8.12E-03	2.59E-01	3.55E-03	< LOD	4.00E-02	< LOD	< LOD	< LOD	< LOD	1.81E-01	2.13E-01	< LOD	< LOD	< LOD
JDS53	L	4.14E-01	3.07E-02	3.05E-01	5.49E-03	< LOD	3.21E-02	< LOD	< LOD	< LOD	< LOD	4.11E-01	4.27E-01	< LOD	< LOD	< LOD
JDS53	R	2.96E-02	1.85E-02	7.18E-02	1.39E-02	n. a.	n. a.	< LOD	< LOD	n. a.	n. a.	1.95E-01	4.40E-01	< LOD	< LOD	< LOD
JDS56	L	1.05E-02	3.06E-03	2.82E-02	7.21E-03	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	1.44E-01	8.15E-02	< LOD	< LOD	< LOD
JDS58	L	8.89E-02	3.84E-03	4.05E-01	1.01E-02	< LOD	7.20E-02	< LOD	< LOD	< LOD	< LOD	2.20E-01	1.73E-01	< LOD	< LOD	< LOD
JDS58	R	5.02E-02	1.00E-02	9.56E-02	7.39E-03	n. a.	2.65E-02	< LOD	< LOD	n. a.	n. a.	1.37E-01	2.11E-01	< LOD	< LOD	< LOD
JDS76	L	2.47E-01	9.67E-03	2.12E+00	9.49E-03	< LOD	3.35E-02	< LOD	< LOD	< LOD	< LOD	2.01E-01	4.41E-01	< LOD	< LOD	5.52E-03
JDS80	L	2.81E-01	7.41E-03	1.19E+00	n. a.	< LOD	4.59E-02	n. a.	n. a.	< LOD	< LOD	2.71E-01	1.02E+00	< LOD	n. a.	n. a.
JDS83	L	2.13E-01	9.52E-03	9.18E-01	n. a.	n. a.	3.14E-02	n. a.	n. a.	n. a.	n. a.	2.10E-01	1.01E+00	4.68E-03	n. a.	n. a.
JDS83	R	1.14E-01	< LOD	2.24E-01	1.32E-02	n. a.	3.11E-02	< LOD	< LOD	n. a.	n. a.	1.66E-01	7.24E-01	< LOD	< LOD	1.13E-02
JDS85	L	1.11E-01	< LOD	6.28E-01	3.06E-02	n. a.	n. a.	< LOD	< LOD	n. a.	n. a.	3.17E-01	2.18E+00	< LOD	< LOD	< LOD
JDS86	L	1.92E-01	8.02E-03	7.60E-01	8.83E-03	< LOD	3.85E-02	< LOD	< LOD	< LOD	< LOD	2.06E-01	8.30E-01	< LOD	< LOD	4.91E-03
JDS89	L	1.28E-01	1.02E-02	7.34E-01	1.43E-02	< LOD	8.10E-02	< LOD	< LOD	< LOD	< LOD	2.27E-01	7.35E-01	< LOD	< LOD	1.39E-02
JDS89	R	7.92E-02	7.25E-03	3.19E-01	1.67E-02	n. a.	n. a.	< LOD	< LOD	n. a.	n. a.	2.09E-01	4.94E-01	< LOD	< LOD	< LOD
JDS92	L	1.79E-01	1.02E-02	6.41E-01	1.19E-02	< LOQ	4.78E-02	< LOD	< LOD	< LOD	< LOD	2.13E-01	6.76E-01	< LOD	< LOD	< LOD
JDS92	R	3.23E-01	2.27E-02	8.56E-01	< LOQ	< LOD	7.82E-02	< LOD	< LOD	< LOD	< LOD	3.16E-01	6.31E-01	< LOD	< LOD	< LOD
JDS95	L	2.47E-01	1.15E-02	5.29E-01	9.92E-03	< LOD	4.32E-02	< LOD	< LOD	< LOD	< LOD	2.21E-01	1.03E+00	< LOD	< LOD	3.87E-03

Table 4: Pesticides in sediment [µg/kg],

		Mirex	op-DDD	op-DDE	op-DDT	Oxychlordane	pp-DDD	pp-DDE	pp-DDT	trans-chlor-dane	trans-nona-chlor	d-HCH	e-HCH	Isodrin	Methoxychlor
JDS2	L	< LOD	1.46E-01	1.98E-02	2.13E-01	< LOD	2.42E-01	8.02E-01	3.01E-01	1.35E-02	1.57E-02	< LOD	< LOD	< LOD	< LOD
JDS7	L	< LOD	5.99E-02	5.12E-03	5.28E-02	< LOD	8.04E-02	1.59E-01	6.57E-02	8.48E-03	6.53E-03	< LOD	< LOD	< LOD	< LOD
JDS7	R	< LOD	3.92E-02	6.10E-03	1.05E-01	< LOD	7.08E-02	1.65E-01	1.53E-01	7.13E-03	9.17E-03	< LOD	< LOD	< LOD	< LOD
JDS12	L	< LOD	6.87E-02	7.80E-03	5.39E-02	< LOD	1.56E-01	3.29E-01	1.77E-01	8.85E-03	7.16E-03	< LOD	< LOD	< LOD	< LOD
JDS12	R	n. a.	9.04E-02	8.17E-03	8.24E-02	< LOD	1.87E-01	3.72E-01	4.23E-01	7.94E-03	8.64E-03	< LOD	< LOD	< LOD	< LOD
JDS16	L	n. a.	4.24E-01	4.56E-02	4.54E-01	< LOD	1.10E+00	1.31E+00	1.43E+00	1.13E-02	1.02E-02	< LOD	< LOD	< LOD	< LOD
JDS16	R	n. a.	8.92E-02	1.23E-02	2.43E-01	< LOD	2.62E-01	7.86E-01	1.19E+00	8.95E-03	8.82E-03	< LOD	< LOD	< LOD	< LOD
JDS22	L	n. a.	2.92E-01	5.54E-02	5.27E-01	< LOD	9.09E-01	2.53E+00	5.15E-01	9.50E-03	7.83E-03	6.84E-02	< LOD	< LOD	< LOD
JDS22	R	n. a.	9.37E-02	1.93E-02	1.26E+00	< LOD	1.94E-01	7.16E-01	< LOD	9.76E-03	5.31E-03	< LOQ	< LOD	< LOD	< LOD
JDS26	L	n. a.	5.52E-01	5.32E-02	1.70E-01	< LOD	1.23E+00	1.58E+00	1.22E+00	3.07E-02	1.21E-02	8.31E-02	1.76E-02	< LOD	< LOD
JDS26	R	n. a.	2.67E-01	1.92E-02	5.77E-01	< LOD	6.19E-01	7.68E-01	2.32E-01	9.96E-03	4.25E-03	< LOD	< LOD	< LOD	< LOD
JDS35	L	< LOD	7.05E-01	3.55E-02	3.33E-01	< LOD	1.46E+00	6.51E-01	9.85E+00	5.32E-03	< LOD	1.82E-02	< LOD	< LOD	< LOD
JDS35	R	< LOD	3.64E-01	4.05E-02	1.82E-01	< LOD	9.50E-01	1.29E+00	9.10E-01	6.65E-03	1.03E-02	4.74E-02	1.11E-02	< LOD	< LOD
JDS39	L	< LOD	1.71E+00	1.01E-01	1.40E+00	< LOD	4.67E+00	3.42E+00	1.09E+01	1.93E-02	1.28E-02	3.00E-02	8.62E-03	< LOD	< LOD
JDS39	R	< LOD	5.71E-01	7.54E-02	4.95E-01	< LOD	1.39E+00	2.97E+00	1.14E+00	1.64E-02	9.15E-03	1.84E-02	< LOD	< LOD	< LOD
JDS42	R	< LOD	2.18E-01	n. a.	1.26E-01	< LOD	4.18E-01	n. a.	2.16E-01	1.32E-02	1.08E-02	< LOD	< LOD	< LOD	< LOD
JDS45	L	< LOD	5.07E-01	5.86E-02	2.73E-01	< LOD	1.41E+00	2.01E+00	3.15E+00	1.62E-02	1.07E-02	1.90E-02	3.22E-03	< LOD	< LOD
JDS45	R	n. a.	4.08E-01	5.37E-02	5.47E-01	< LOD	1.14E+00	1.51E+00	1.50E+00	1.21E-02	1.06E-02	1.63E-02	< LOD	< LOD	< LOD
JDS47	L	n. a.	5.71E-01	6.51E-02	8.86E-01	1.55E-03	1.51E+00	1.80E+00	1.44E+00	1.29E-02	9.03E-03	1.77E-02	< LOD	< LOD	< LOD
JDS47	R	n. a.	5.00E-01	5.08E-02	5.62E-01	< LOD	1.24E+00	2.16E+00	1.15E+00	1.20E-02	1.28E-02	1.44E-02	< LOD	< LOD	< LOD
JDS51	L	n. a.	2.62E-01	4.31E-02	1.40E-01	< LOD	4.74E-01	7.74E-01	6.22E-01	7.13E-03	3.42E-03	< LOQ	< LOD	< LOD	< LOD
JDS53	L	n. a.	1.56E+00	5.11E-01	8.80E-01	< LOD	4.17E+00	7.46E+00	1.70E+00	1.86E-02	< LOD	1.60E-01	2.96E-02	< LOD	< LOD
JDS53	R	n. a.	n. a.	8.05E-02	n. a.	< LOD	n. a.	1.75E+00	n. a.	1.35E-02	8.02E-03	9.72E-03	< LOD	< LOD	n. a.
JDS56	L	n. a.	n. a.	1.70E-02	n. a.	< LOD	n. a.	8.03E-01	n. a.	1.45E-02	5.38E-03	< LOD	< LOD	< LOD	n. a.
JDS58	L	n. a.	4.50E-01	6.22E-02	5.52E-01	< LOD	1.40E+00	2.96E+00	7.47E-01	2.49E-02	1.34E-02	< LOD	< LOD	< LOD	< LOD
JDS58	R	n. a.	n. a.	5.10E-02	n. a.	< LOD	n. a.	1.86E+00	n. a.	1.49E-02	5.77E-03	< LOD	< LOD	< LOD	n. a.
JDS76	L	< LOD	2.00E-01	3.44E-02	2.27E-01	< LOD	6.49E-01	1.22E+00	2.00E-01	2.95E-02	6.46E-03	1.26E-01	3.59E-02	< LOD	< LOD
JDS80	L	n. a.	4.11E-01	n. a.	4.62E-01	n. a.	1.43E+00	n. a.	6.05E-02	n. a.	n. a.	1.13E-01	2.57E-02	< LOD	n. a.
JDS83	L	n. a.	8.29E+00	n. a.	n. a.	n. a.	7.61E+00	n. a.	n. a.	n. a.	n. a.	9.65E-02	1.98E-02	< LOD	n. a.
JDS83	R	n. a.	1.10E+01	1.23E-01	n. a.	2.56E-03	6.73E+00	2.09E+00	n. a.	5.78E-02	1.28E-02	3.04E-02	< LOD	< LOD	n. a.
JDS85	L	n. a.	n. a.	1.05E+00	n. a.	< LOQ	n. a.	2.12E+01	n. a.	1.34E-01	3.62E-02	1.41E-01	< LOD	< LOD	n. a.
JDS86	L	n. a.	7.09E-01	7.19E-02	2.61E+00	< LOD	2.40E+00	1.91E+00	1.06E+00	2.69E-02	6.39E-03	9.42E-02	2.57E-02	< LOD	< LOD
JDS89	L	< LOD	6.38E-01	9.78E-02	8.86E-01	< LOD	2.14E+00	3.16E+00	7.15E-01	5.18E-02	1.66E-02	7.61E-02	2.57E-02	< LOD	< LOD
JDS89	R	< LOD	n. a.	5.46E-02	n. a.	< LOD	n. a.	1.92E+00	n. a.	6.26E-02	8.08E-03	3.93E-02	< LOD	< LOD	n. a.
JDS92	L	< LOD	1.24E+00	1.38E-01	1.92E+00	< LOD	3.08E+00	3.81E+00	4.14E+00	3.33E-02	8.00E-03	7.86E-02	< LOD	< LOD	< LOD
JDS92	R	Interferences	3.39E+00	2.09E-01	3.06E+00	< LOD	9.07E+00	6.19E+00	1.62E+01	< LOD	8.83E-03	1.48E-01	< LOD	< LOD	< LOD
JDS95	L	< LOD	2.15E+00	1.47E-01	2.59E+00	< LOD	6.53E+00	3.97E+00	2.22E+00	3.87E-02	7.37E-03	8.58E-02	< LOD	< LOD	< LOD

Table 5: PBDEs in sediment [µg/kg],

		BDE-17	BDE-28	BDE-47	BDE-49	BDE-66	BDE-85	BDE-99	BDE-100	BDE-153
JDS2	L	9.25E-03	2.65E-02	4.23E-01	6.49E-02	2.05E-02	1.59E-02	5.46E-01	1.11E-01	6.16E-02
JDS7	L	< LOD	< LOD	1.28E-01	2.53E-02	4.50E-03	< LOD	1.55E-01	3.35E-02	1.80E-02
JDS7	R	1.78E-03	3.18E-03	9.20E-02	5.14E-03	6.87E-03	< LOD	1.08E-01	2.81E-02	1.65E-02
JDS12	L	3.62E-03	5.17E-03	1.43E-01	2.09E-02	1.10E-02	3.51E-03	1.45E-01	3.59E-02	2.12E-02
JDS12	R	5.66E-03	5.73E-03	1.93E-01	3.50E-02	6.20E-03	1.10E-02	2.97E-01	5.99E-02	3.42E-02
JDS16	L	5.76E-03	5.66E-03	2.48E-01	2.33E-02	< LOD	1.12E-02	3.41E-01	8.46E-02	3.73E-02
JDS16	R	4.77E-03	3.79E-03	1.81E-01	1.73E-02	1.73E-02	7.27E-03	2.48E-01	5.86E-02	2.34E-02
JDS22	L	6.11E-03	5.74E-03	1.54E-01	3.56E-02	4.33E-03	5.58E-03	2.58E-01	8.34E-02	4.16E-02
JDS22	R	5.98E-03	7.41E-03	1.58E-01	3.93E-02	7.47E-03	< LOD	2.18E-01	5.25E-02	< LOD
JDS26	L	5.22E-04	2.40E-03	9.47E-02	< LOQ	< LOD	4.21E-03	1.82E-01	3.80E-02	2.27E-02
JDS26	R	2.66E-03	4.11E-03	1.15E-01	1.64E-02	1.50E-02	4.12E-03	1.83E-01	4.83E-02	3.45E-02
JDS35	L	2.81E-03	3.11E-03	1.04E-01	1.64E-02	4.02E-03	2.32E-03	1.75E-01	3.61E-02	2.13E-02
JDS35	R	5.30E-03	6.97E-03	1.79E-01	2.31E-02	1.86E-02	< LOD	2.56E-01	5.96E-02	2.93E-02
JDS39	L	5.51E-03	7.69E-03	2.10E-01	2.11E-02	1.88E-02	9.45E-03	2.40E-01	7.44E-02	3.08E-02
JDS39	R	9.80E-03	7.32E-03	2.29E-01	6.65E-02	1.98E-02	9.17E-03	3.63E-01	9.07E-02	6.33E-02
JDS42	R	6.72E-03	9.27E-03	3.12E-01	4.34E-02	1.75E-02	9.95E-03	3.47E-01	8.04E-02	5.42E-02
JDS45	L	< LOD	1.04E-02	2.26E-01	4.70E-02	2.12E-02	6.75E-03	2.80E-01	4.85E-02	4.04E-02
JDS45	R	< LOD	8.65E-03	1.95E-01	3.92E-02	1.65E-02	7.80E-03	2.00E-01	5.64E-02	2.94E-02
JDS47	L	< LOD	9.68E-03	2.05E-01	3.40E-02	1.36E-02	< LOD	3.00E-01	8.55E-02	5.05E-02
JDS47	R	< LOD	1.24E-02	2.19E-01	5.67E-02	< LOD	< LOD	2.73E-01	6.83E-02	4.07E-02
JDS51	L	8.37E-03	6.46E-03	1.38E-01	3.79E-02	< LOD	< LOD	1.81E-01	5.33E-02	2.87E-02
JDS53	L	6.89E-03	2.58E-03	7.46E-02	4.15E-02	1.01E-02	< LOD	8.36E-02	2.20E-02	1.34E-02
JDS53	R	8.29E-03	9.38E-03	2.21E-01	4.48E-02	1.78E-02	< LOD	2.61E-01	6.30E-02	3.61E-02
JDS56	L	2.12E-02	1.27E-02	1.14E-01	2.28E-02	< LOD	< LOD	2.24E-01	4.05E-02	2.46E-02
JDS58	L	7.56E-03	7.39E-03	3.85E-01	4.53E-02	3.61E-02	1.72E-02	2.62E-01	1.29E-01	3.51E-02
JDS58	R	8.18E-03	7.26E-03	1.25E-01	3.36E-02	1.28E-02	< LOD	1.78E-01	4.65E-02	2.57E-02
JDS76	L	< LOD	< LOD	6.24E-02	< LOD	6.47E-03	< LOD	1.28E-01	2.59E-02	< LOD
JDS80	L	< LOD	< LOD	7.63E-02	7.85E-03	< LOD	< LOD	1.40E-01	3.33E-02	1.20E-02
JDS83	L	< LOD	< LOD	7.96E-02	< LOD	7.36E-03	< LOD	1.71E-01	3.44E-02	1.22E-02
JDS83	R	< LOD	< LOD	7.31E-02	7.06E-03	< LOD	5.88E-03	1.44E-01	2.94E-02	1.56E-02
JDS85	L									
JDS85	R	2.42E-03	< LOD	8.39E-02	1.37E-02	1.18E-02	< LOQ	1.27E-01	3.39E-02	2.77E-02
JDS86	L	< LOD	< LOD	9.31E-02	< LOD	6.38E-03	6.68E-03	1.95E-01	4.09E-02	1.56E-02
JDS89	L	< LOD	< LOD	1.13E-01	< LOD	1.06E-02	7.26E-03	2.49E-01	4.72E-02	3.06E-02
JDS89	R	< LOD	< LOD	5.39E-02	< LOD	9.31E-03	< LOD	9.91E-02	2.20E-02	< LOD
JDS92	L	< LOD	< LOD	5.31E-02	< LOD	< LOD	< LOD	1.05E-01	2.40E-02	< LOD
JDS92	R	< LOD	< LOD	5.37E-02	< LOD	< LOD	< LOD	1.11E-01	2.46E-02	< LOD
JDS95	L	< LOD	< LOD	6.59E-02	< LOD	< LOD	< LOD	1.21E-01	2.59E-02	< LOD

Table 5: PBDEs in sediment [µg/kg],

		BDE-154	BDE-183	BDE-196	BDE-197	BDE-203	BDE-206	BDE-207	BDE-208	BDE-209
JDS2	L	5.05E-02	7.57E-02	9.28E-02	8.19E-02	1.30E-01	5.48E-01	1.30E+00	9.16E-01	7.41E+00
JDS7	L	1.70E-02	1.94E-02	1.96E-02	2.73E-02	1.51E-02	1.72E-01	4.50E-01	2.85E-01	2.62E+00
JDS7	R	1.16E-02	1.64E-02	3.02E-02	3.33E-02	1.70E-02	1.13E-01	3.93E-01	2.94E-01	1.91E+00
JDS12	L	1.99E-02	3.00E-02	3.15E-02	3.07E-02	3.14E-02	1.82E-01	4.59E-01	3.17E-01	3.59E+00
JDS12	R	2.80E-02	3.48E-02	2.64E-02	4.14E-02	4.15E-02	2.22E-01	5.49E-01	3.72E-01	3.05E+00
JDS16	L	4.02E-02	6.31E-02	4.35E-02	4.81E-02	5.42E-02	3.79E-01	9.20E-01	6.52E-01	5.98E+00
JDS16	R	1.81E-02	2.30E-02	< LOD	2.74E-02	2.34E-02	2.65E-01	6.10E-01	4.41E-01	4.09E+00
JDS22	L	4.44E-02	8.90E-02	4.13E-02	4.87E-02	7.00E-02	1.59E-01	4.13E-01	2.62E-01	2.54E+00
JDS22	R	3.20E-02	5.21E-02	6.03E-02	6.69E-02	2.44E-01	1.09E+00	4.73E-01	1.73E+00	1.51E+00
JDS26	L	1.70E-02	1.87E-02	< LOQ	3.33E-02	3.29E-02	2.50E-01	6.06E-01	4.35E-01	5.74E+00
JDS26	R	4.29E-02	9.85E-02	4.60E-02	4.60E-02	6.85E-02	3.19E-01	7.43E-01	4.78E-01	6.18E+00
JDS35	L	1.53E-02	2.29E-02	< LOD	2.54E-02	3.82E-02	2.02E-01	5.52E-01	3.88E-01	3.86E+00
JDS35	R	2.77E-02	3.87E-02	7.49E-02	4.15E-02	7.25E-02	6.12E-01	1.32E+00	9.03E-01	1.58E+01
JDS39	L	3.34E-02	4.91E-02	6.00E-02	4.99E-02	9.54E-02	7.81E-01	1.27E+00	8.90E-01	1.72E+01
JDS39	R	4.91E-02	7.22E-02	1.03E-01	7.27E-02	1.23E-01	1.14E+00	1.91E+00	1.30E+00	2.40E+01
JDS42	R	4.67E-02	6.56E-02	9.94E-02	7.26E-02	1.48E-01	2.14E+00	2.80E+00	1.88E+00	4.38E+01
JDS45	L	2.72E-02	3.50E-02	9.63E-02	4.79E-02	9.30E-02	1.06E+00	1.38E+00	9.89E-01	2.41E+01
JDS45	R	3.74E-02	4.88E-02	9.77E-02	7.70E-02	1.08E-01	1.01E+00	1.58E+00	1.18E+00	2.86E+01
JDS47	L	3.16E-02	4.12E-02	7.70E-02	6.41E-02	1.15E-01	1.03E+00	1.36E+00	9.70E-01	2.03E+01
JDS47	R	4.41E-02	7.03E-02	9.76E-02	7.40E-02	1.03E-01	1.06E+00	1.91E+00	1.41E+00	1.96E+01
JDS51	L	2.09E-02	2.30E-02	2.62E-02	1.77E-02	4.09E-02	4.30E-01	6.09E-01	4.15E-01	8.89E+00
JDS53	L	7.97E-03	5.37E-03	6.24E-03	6.46E-03	1.44E-02	1.43E-01	2.21E-01	1.27E-01	2.94E+00
JDS53	R	< LOD	2.44E-02	4.54E-02	2.13E-02	7.71E-02	5.91E-01	9.69E-01	6.70E-01	1.88E+01
JDS56	L	1.87E-02	2.17E-02	6.42E-02	4.68E-02	9.20E-02	1.42E+00	1.74E+00	1.27E+00	2.92E+01
JDS58	L	1.99E-02	2.01E-02	< LOD	< LOD	2.27E-02	1.90E-01	4.17E-01	3.05E-01	3.41E+00
JDS58	R	2.03E-02	2.78E-02	3.62E-02	< LOD	4.39E-02	5.34E-01	8.05E-01	5.59E-01	1.25E+01
JDS76	L	1.35E-02	< LOQ	1.72E-02	< LOD	1.65E-02	8.76E-02	3.05E-01	2.13E-01	1.26E+00
JDS80	L	1.06E-02	< LOQ	1.01E-02	6.22E-03	< LOQ	1.35E-01	8.26E-02	5.78E-02	2.27E+00
JDS83	L	1.03E-02	8.57E-03	1.13E-02	7.81E-03	1.36E-02	1.11E-01	7.13E-02	5.15E-02	1.63E+00
JDS83	R	1.03E-02	7.54E-03	8.63E-03	5.18E-03	9.84E-03	1.21E-01	8.92E-02	6.11E-02	2.05E+00
JDS85	L									
JDS85	R	2.32E-02	< LOD	< LOD	< LOD	< LOD	2.10E-01	1.33E-01	9.03E-02	3.03E+00
JDS86	L	1.70E-02	< LOD	1.47E-02	1.55E-02	1.91E-02	2.85E-01	1.94E-01	1.37E-01	4.94E+00
JDS89	L	2.31E-02	< LOD	3.36E-02	1.59E-02	4.74E-02	6.87E-01	4.07E-01	2.75E-01	1.31E+01
JDS89	R	1.30E-02	< LOD	< LOD	< LOD	2.47E-02	1.91E-01	1.42E-01	9.52E-02	4.39E+00
JDS92	L	1.06E-02	< LOD	< LOD	< LOD	< LOD	1.56E-01	< LOD	8.08E-02	2.45E+00
JDS92	R	< LOD	< LOD	< LOD	< LOD	< LOD	8.77E-02	7.04E-02	4.75E-02	1.26E+00
JDS95	L	< LOD	< LOD	< LOD	< LOD	< LOD	2.36E-01	1.73E-01	1.21E-01	4.58E+00

Table 6: PCBs in water [µg/L],

		PCB 81	PCB 77	PCB 126	PCB 169	PCB 105	PCB 114	PCB 118	PCB 123	PCB 156	PCB 157	PCB 167	PCB 189
JDS2	M	<LOD	2.45E-06	<LOD	<LOD	2.01E-06	1.42E-07	5.96E-06	1.01E-07	9.98E-07	2.21E-07	5.84E-07	8.88E-08
JDS7	M	<LOD	2.05E-06	<LOD	<LOD	1.96E-06	1.79E-07	5.78E-06	8.87E-08	7.10E-07	1.02E-07	4.02E-07	6.30E-08
JDS12	M	<LOD	1.15E-05	<LOD	<LOD	2.59E-06	2.14E-07	7.22E-06	1.15E-07	9.65E-07	1.79E-07	5.63E-07	3.43E-08
JDS16	M	<LOD	2.82E-06	<LOD	<LOD	2.92E-06	2.53E-07	9.05E-06	1.20E-07	1.09E-06	1.47E-07	5.62E-07	1.24E-07
JDS22	M	<LOD	1.30E-06	<LOD	<LOD	2.73E-06	1.83E-07	7.91E-06	1.51E-07	8.52E-07	1.49E-07	4.58E-07	6.41E-08
JDS26	M	<LOD	8.14E-06	<LOD	<LOD	4.17E-06	3.45E-07	1.15E-05	1.28E-07	1.27E-06	2.56E-07	6.19E-07	1.17E-07
JDS35	M	<LOD	<LOD	<LOD	<LOD	2.49E-06	1.55E-07	6.52E-06	1.31E-07	7.98E-07	2.28E-07	4.26E-07	7.78E-08
JDS39	M	<LOD	2.61E-06	<LOD	<LOD	1.89E-06	1.40E-07	5.50E-06	9.08E-08	6.07E-07	1.57E-07	3.62E-07	6.94E-08
JDS42	M	<LOD	<LOD	<LOD	<LOD	1.85E-06	1.07E-07	5.42E-06	1.11E-07	7.15E-07	1.21E-07	3.11E-07	3.39E-08
JDS45	M	<LOD	1.00E-06	<LOD	<LOD	1.55E-06	9.79E-08	4.44E-06	5.61E-08	5.64E-07	4.52E-08	3.26E-07	5.32E-08
JDS47	M	<LOD	1.15E-06	<LOD	<LOD	1.45E-06	1.12E-07	4.10E-06	5.98E-08	5.81E-07	7.09E-08	3.27E-07	5.83E-08
JDS51	M	<LOD	1.74E-06	<LOD	<LOD	2.14E-06	1.43E-07	6.01E-06	6.01E-08	6.53E-07	1.68E-07	3.23E-07	3.97E-08
JDS53	M	<LOD	<LOD	<LOD	<LOD	1.93E-06	1.14E-07	4.96E-06	8.02E-08	5.67E-07	9.51E-08	2.70E-07	3.50E-08
JDS56	M	<LOD	1.18E-06	<LOD	<LOD	3.95E-06	2.70E-07	1.09E-05	1.38E-07	9.53E-07	1.76E-07	4.28E-07	5.61E-08
JDS58	M	<LOD		<LOD									
JDS76	M	<LOD	6.25E-07	<LOD	<LOD	1.72E-06	1.50E-07	4.54E-06	6.18E-08	5.76E-07	1.37E-07	2.99E-07	4.80E-08
JDS80	M	<LOD	3.25E-06	<LOD	<LOD	3.13E-06	2.01E-07	8.19E-06	1.04E-07	8.60E-07	1.95E-07	4.33E-07	2.93E-08
JDS83	M	<LOD	6.50E-06	<LOD	<LOD	3.53E-06	2.20E-07	9.56E-06	1.96E-07	9.87E-07	1.56E-07	4.65E-07	5.22E-08
JDS85	M	<LOD	1.00E-06	<LOD	<LOD	2.88E-06	1.51E-07	7.57E-06	1.47E-07	6.83E-07	1.11E-07	3.48E-07	4.93E-08
JDS86	M	<LOD		<LOD	<LOD								
JDS89	M	<LOD	<LOD	<LOD	<LOD	1.54E-06	1.03E-07	3.88E-06	4.56E-08	3.70E-07	7.55E-08	1.93E-07	3.92E-08
JDS92	M	<LOD	<LOD	<LOD	<LOD	1.86E-06	1.49E-07	5.63E-06	7.07E-08	4.99E-07	9.15E-08	2.78E-07	1.76E-08
JDS95	M	<LOD	1.40E-06	<LOD	<LOD	4.62E-06	3.37E-07	1.09E-05	1.72E-07	9.32E-07	1.52E-07	4.22E-07	8.99E-08

Table 6: PCBs in water [µg/L],

		1998 WHO-TEQ for PCBs	2005 WHO-TEQ for PCBs	PCB 28	PCB 52	PCB 101	PCB 138	PCB 153	PCB 180	Indicator (EC-6)
JDS2	M	1.50E-09	3.03E-10	1.45E-05	1.58E-05	1.53E-05	1.35E-05	1.93E-05	6.13E-06	2.18E-09
JDS7	M	1.29E-09	2.78E-10	1.59E-05	1.73E-05	1.40E-05	1.08E-05	1.48E-05	4.03E-06	3.97E-09
JDS12	M	1.68E-09	3.57E-10	1.63E-05	1.76E-05	1.58E-05	1.36E-05	1.88E-05	6.01E-06	7.48E-09
JDS16	M	1.97E-09	4.28E-10	3.37E-05	2.29E-05	1.87E-05	1.47E-05	2.00E-05	6.03E-06	1.46E-08
JDS22	M	1.68E-09	3.75E-10	5.81E-05	2.65E-05	1.44E-05	1.21E-05	1.60E-05	4.61E-06	1.32E-04
JDS26	M	2.54E-09	5.53E-10	6.51E-05	3.14E-05	1.80E-05	1.70E-05	2.24E-05	7.12E-06	1.61E-04
JDS35	M	1.52E-09	3.25E-10	4.73E-05	2.03E-05	1.05E-05	1.04E-05	1.32E-05	3.97E-06	2.93E-04
JDS39	M	1.21E-09	2.65E-10	3.49E-05	1.74E-05	9.59E-06	8.97E-06	1.11E-05	3.27E-06	5.85E-04
JDS42	M	1.22E-09	2.60E-10	1.40E-05	1.22E-05	7.62E-06	8.01E-06	1.04E-05	3.03E-06	1.17E-03
JDS45	M	9.67E-10	2.14E-10	2.39E-05	1.45E-05	8.84E-06	7.51E-06	1.00E-05	3.04E-06	2.34E-03
JDS47	M	9.52E-10	2.03E-10	2.50E-05	1.42E-05	8.37E-06	7.40E-06	9.87E-06	3.46E-06	4.68E-03
JDS51	M	1.31E-09	2.86E-10	2.61E-05	1.66E-05	1.11E-05	8.79E-06	1.13E-05	3.63E-06	9.23E-03
JDS53	M	1.09E-09	2.42E-10	4.33E-05	2.07E-05	1.02E-05	7.72E-06	1.04E-05	3.10E-06	1.83E-02
JDS56	M	2.21E-09	5.07E-10	3.91E-05	1.73E-05	1.21E-05	1.18E-05	1.38E-05	3.65E-06	3.63E-02
JDS58	M									
JDS76	M	1.07E-09	2.26E-10	1.40E-05	1.10E-05	7.73E-06	7.37E-06	9.02E-06	2.93E-06	7.21E-02
JDS80	M	1.78E-09	3.94E-10	1.54E-05	1.34E-05	9.51E-06	1.10E-05	1.28E-05	3.83E-06	1.43E-01
JDS83	M	2.02E-09	4.55E-10	1.34E-05	1.32E-05	1.16E-05	1.17E-05	1.39E-05	4.18E-06	2.84E-01
JDS85	M	1.54E-09	3.58E-10	3.69E-05	2.05E-05	1.07E-05	9.04E-06	1.12E-05	3.41E-06	5.62E-01
JDS86	M									
JDS89	M	8.26E-10	1.87E-10	5.63E-06	4.02E-06	3.53E-06	4.17E-06	5.31E-06	1.86E-06	1.12E+00
JDS92	M	1.13E-09	2.58E-10	1.61E-06	1.36E-06	3.63E-06	5.70E-06	6.93E-06	2.03E-06	2.21E+00
JDS95	M	2.29E-09	5.28E-10	3.61E-05	2.84E-05	1.42E-05	1.20E-05	1.49E-05	4.62E-06	4.39E+00

Table 7: PAHs in water [µg/L],

		Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)-anthracene	Chrysene
JDS2	M	<LOQ	5.13E-04	7.48E-04	1.55E-03	1.39E-04	1.17E-03	8.20E-04	4.78E-05	7.63E-05
JDS7	M	<LOQ	5.91E-04	7.81E-04	1.28E-03	1.04E-04	9.84E-04	7.70E-04	5.58E-05	6.96E-05
JDS12	M	<LOQ	4.85E-04	6.67E-04	1.30E-03	1.27E-04	1.63E-03	1.17E-03	5.84E-05	8.33E-05
JDS16	M	<LOQ	5.36E-04	8.32E-04	1.49E-03	1.38E-04	2.62E-03	2.20E-03	6.60E-05	8.37E-05
JDS22	M	<LOQ	5.67E-04	9.61E-04	1.56E-03	1.24E-04	1.71E-03	1.59E-03	5.54E-05	7.21E-05
JDS26	M	<LOQ	5.01E-04	8.98E-04	1.54E-03	2.68E-04	1.66E-03	1.25E-03	4.10E-05	7.10E-05
JDS35	M	<LOQ	3.52E-03	3.54E-03	2.19E-03	3.20E-04	1.85E-03	1.51E-03	8.14E-05	1.00E-04
JDS39	M	<LOQ	9.82E-03	8.14E-03	3.62E-03	4.02E-04	2.34E-03	2.59E-03	6.78E-05	9.09E-05
JDS42	M	<LOQ	5.33E-04	8.45E-04	1.61E-03	1.03E-04	8.70E-04	1.01E-03	3.16E-05	5.01E-05
JDS45	M	<LOQ	4.77E-03	4.10E-03	2.63E-03	2.25E-04	1.47E-03	1.54E-03	3.01E-05	4.06E-05
JDS47	M	<LOQ	3.23E-03	2.60E-03	2.25E-03	1.84E-04	1.25E-03	1.29E-03	2.40E-05	3.68E-05
JDS51	M	<LOQ	8.86E-04	1.75E-03	3.98E-03	1.95E-04	1.63E-03	1.40E-03	5.39E-05	9.48E-05
JDS53	M	<LOQ	1.20E-03	1.65E-03	2.64E-03	2.33E-04	1.36E-03	1.39E-03	6.25E-05	9.13E-05
JDS56	M	<LOQ	9.20E-04	2.33E-03	3.63E-03	1.87E-04	8.36E-04	8.03E-04	2.46E-05	5.24E-05
JDS58	M	<LOQ	1.02E-03	1.51E-03	2.21E-03	2.44E-04	1.28E-03	1.17E-03	4.56E-05	6.18E-05
JDS76	M	<LOQ	6.91E-04	9.31E-04	2.61E-03	2.10E-04	1.34E-03	1.13E-03	4.91E-05	6.39E-05
JDS80	M	<LOQ	3.56E-04	8.18E-04	1.49E-03	1.46E-04	8.40E-04	8.08E-04	1.85E-05	2.76E-05
JDS83	M	<LOQ	3.98E-04	7.48E-04	1.66E-03	1.18E-04	8.95E-04	1.01E-03	3.00E-05	4.33E-05
JDS85	M	<LOQ	4.37E-04	6.89E-04	1.63E-03	1.68E-04	8.06E-04	1.04E-03	3.79E-05	5.14E-05
JDS86	M	<LOQ	3.98E-04	6.80E-04	1.53E-03	1.43E-04	8.01E-04	1.16E-03	4.84E-05	6.63E-05
JDS89	M	<LOQ	<LOQ	<LOQ	2.10E-04	<LOQ	1.41E-04	2.45E-04	1.37E-05	1.69E-05
JDS92	M	<LOQ	3.98E-04	9.99E-04	1.33E-03	1.86E-04	9.84E-04	1.37E-03	5.48E-05	5.83E-05
JDS95	M	<LOQ	4.45E-04	7.56E-04	1.26E-03	1.67E-04	9.72E-04	1.36E-03	4.41E-05	5.83E-05

Table 7: PAHs in water [µg/L],

		Benzo(b)-fluoranthene	Benzo(j)-fluoranthene	Benzo(k)-fluoranthene	Benzo(e)pyrene	Benzo(a)pyrene	Perylene	Dibenzo(a,h)-anthracene	Benzo(g,h,i)-perylene	Indeno(1,2,3-c,d)pyrene
JDS2	M	4.88E-05	1.08E-05	1.66E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS7	M	5.01E-05	1.35E-05	1.55E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS12	M	4.51E-05	1.53E-05	1.50E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS16	M	4.08E-05	1.40E-05	1.24E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS22	M	5.16E-05	1.78E-05	1.59E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS26	M	4.49E-05	1.64E-05	1.44E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS35	M	5.49E-05	1.49E-05	1.65E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS39	M	5.28E-05	1.29E-05	1.49E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS42	M	3.50E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS45	M	3.19E-05	1.29E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS47	M	3.08E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS51	M	4.28E-05	1.64E-05	1.62E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS53	M	3.90E-05	1.47E-05	1.16E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS56	M	2.76E-05	1.30E-05	1.01E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS58	M	3.13E-05	1.06E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS76	M	3.72E-05	1.05E-05	1.20E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS80	M	1.69E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS83	M	3.04E-05	1.15E-05	1.00E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS85	M	2.56E-05	1.05E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS86	M	3.09E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS89	M	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS92	M	3.25E-05	1.30E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
JDS95	M	3.53E-05	1.19E-05	1.32E-05	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ

Table 8: PCDD/Fs in water [µg/L],

All PCDD/Fs < LOD.

Table 9: Pesticides in water [µg/L],

		α-HCH	Aldrin	β–HCH	cis-chlordane	cis-nonachlor	Dieldrin	Endosulfane -alpha	Endosulfane -beta	Endosulfane -sulphate	Endrin	γ-HCH	HCB	Heptachlor	Heptachlor-endo-epoxide	Heptachlor -exo-epoxide
JDS2	M	2.35E-05	<LOD	4.25E-05	6.40E-07	3.35E-06	1.45E-05	3.75E-06	5.73E-06	5.72E-05	3.08E-06	2.75E-04	6.07E-05	6.79E-08	<LOD	4.35E-06
JDS7	M	3.35E-05	<LOD	3.71E-05	8.82E-07	2.17E-06	1.65E-05	8.01E-06	6.96E-06	8.02E-05	4.62E-06	2.58E-04	3.96E-05	1.28E-07	<LOD	5.49E-06
JDS12	M	3.41E-05	<LOD	<LOD	1.09E-06	3.02E-06	1.44E-05	1.09E-05	6.37E-06	6.40E-05	5.29E-06	2.77E-04	3.22E-05	2.02E-07	<LOD	4.65E-06
JDS16	M	4.19E-05	<LOD	3.09E-05	1.39E-06	1.43E-06	1.92E-05	8.94E-06	7.49E-06	4.71E-05	3.67E-06	3.44E-04	4.74E-05	1.53E-07	<LOD	5.53E-06
JDS22	M	2.13E-04	<LOD	1.75E-04	1.27E-06	2.26E-06	2.14E-05	5.73E-06	4.63E-06	1.11E-04	4.10E-06	4.09E-04	4.21E-05	4.08E-07	<LOD	4.96E-06
JDS26	M	1.29E-04	1.36E-06	1.39E-04	9.73E-07	8.42E-06	2.12E-05	6.69E-06	1.64E-05	1.05E-04	4.80E-06	2.95E-04	3.54E-05	2.26E-07	<LOD	4.79E-06
JDS35	M	1.48E-04	2.05E-06	2.81E-04	5.12E-07	2.14E-06	2.38E-05	7.84E-06	5.14E-06	<LOD	4.65E-06	2.68E-04	4.51E-05	5.66E-08	<LOD	5.38E-06
JDS39	M														<LOD	
JDS42	M	2.16E-05	<LOD	2.34E-05	4.15E-07	<LOD	1.16E-05	<LOQ	4.01E-06	1.21E-07	5.32E-06	1.12E-04	3.44E-05	1.69E-07	<LOD	2.60E-06
JDS45	M	9.74E-05	1.29E-06	1.88E-04	4.69E-07	2.08E-06	1.80E-05	4.99E-06	3.07E-06	<LOD	4.32E-06	2.29E-04	3.31E-05	<LOD	<LOD	4.03E-06
JDS47	M	9.21E-05	1.36E-06	1.66E-04	4.07E-07	1.65E-06	1.81E-05	<LOD	4.30E-06	<LOD	4.53E-06	2.12E-04	3.21E-05	7.10E-08	<LOD	3.85E-06
JDS51	M	5.92E-05	<LOD	6.17E-05	5.04E-07	1.43E-06	1.42E-05	<LOD	3.67E-06	1.59E-04	<LOD	1.70E-04	1.79E-05	<LOD	<LOD	1.71E-06
JDS53	M	1.67E-04	2.00E-06	3.37E-04	4.00E-07	1.96E-06	1.91E-05	6.24E-06	3.92E-06	<LOD	4.13E-06	2.31E-04	2.56E-05	<LOD	<LOD	3.45E-06
JDS56	M	1.04E-04	<LOD	1.97E-04	5.33E-07	1.41E-06	8.35E-06	<LOD	2.37E-06	2.13E-04	<LOD	7.09E-04	1.39E-05	<LOD	<LOD	2.23E-06
JDS58	M	1.57E-04	<LOD	3.25E-04	5.22E-07	1.90E-06	1.66E-05	<LOD	2.98E-06	5.41E-04	4.90E-06	2.49E-04	2.04E-05	<LOD	<LOD	1.89E-06
JDS76	M	2.64E-03	3.36E-06	5.76E-03	6.94E-07	2.14E-06	1.62E-05	<LOD	3.69E-06	8.99E-04	4.37E-06	9.36E-04	2.90E-05	<LOD	<LOD	1.53E-06
JDS80	M	1.73E-04	1.93E-06	5.35E-04	<LOD	<LOD	2.17E-05	<LOD	<LOD	1.70E-03	5.02E-06	2.29E-04	2.52E-05	5.65E-07	<LOD	7.40E-06
JDS83	M	2.11E-03	2.18E-06	3.98E-03	1.04E-06	<LOD	1.77E-05	<LOD	<LOD	5.46E-04	<LOD	6.39E-04	3.72E-05	2.88E-07	<LOD	5.57E-06
JDS85	M	2.57E-03	4.17E-06	7.02E-03	1.01E-06	<LOD	1.96E-05	<LOD	1.95E-06	7.73E-04	<LOD	8.03E-04	3.81E-05	7.69E-07	<LOD	7.07E-06
JDS86	M	2.00E-03	2.52E-06	3.43E-03	1.12E-06	2.28E-06	2.20E-05	<LOD	<LOD	2.35E-04	<LOD	6.82E-04	4.12E-05	3.87E-07	<LOD	7.02E-06
JDS89	M	1.39E-04	<LOD	5.64E-05	3.64E-07	<LOD	<LOD	<LOD	<LOD	1.34E-05	<LOD	4.97E-05	7.89E-06	<LOD	<LOD	5.47E-07
JDS92	M	2.01E-03	2.16E-06	3.27E-03	1.12E-06	<LOD	1.11E-05	<LOD	<LOD	3.83E-04	<LOD	6.97E-04	4.51E-05	<LOD	<LOD	8.18E-06
JDS95	M	1.84E-03	<LOQ	3.61E-03	1.46E-06	<LOD	2.82E-05	<LOD	<LOD	8.22E-04	6.07E-06	7.81E-04	4.20E-05	<LOD	<LOD	7.75E-06

Table 9: Pesticides in water [µg/L],

		Mirex	op-DDD	op-DDE	op-DDT	Oxychlordane	pp-DDD	pp-DDE	pp-DDT	trans-chlor-dane	trans-nona-chlor	d-HCH	e-HCH	Isodrin	Methoxychlor
JDS2	M	<LOD	6.21E-06	5.16E-07	3.04E-06	3.99E-07	1.05E-05	1.00E-05	8.80E-06	6.31E-07	6.18E-07	8.46E-06	4.18E-06	<LOD	<LOD
JDS7	M	<LOD	4.60E-06	5.15E-07	2.40E-06	3.52E-07	9.03E-06	8.43E-06	5.89E-06	8.65E-07	7.81E-07	3.71E-06	3.21E-06	<LOD	<LOD
JDS12	M	<LOD	4.38E-06	9.25E-07	2.71E-06	5.33E-07	1.04E-05	8.41E-06	5.63E-06	1.08E-06	8.68E-07	5.93E-06	7.39E-06	<LOD	<LOD
JDS16	M	<LOD	7.62E-06	1.32E-06	5.12E-06	4.59E-07	2.13E-05	2.80E-05	1.44E-05	1.30E-06	1.05E-06	3.79E-06	5.86E-06	<LOD	<LOD
JDS22	M	<LOD	7.28E-06	1.27E-06	5.71E-06	3.06E-07	2.23E-05	2.04E-05	9.52E-06	1.58E-06	8.72E-07	3.89E-05	4.21E-05	<LOD	<LOD
JDS26	M	<LOD	6.57E-06	1.12E-06	4.15E-06	4.59E-07	2.05E-05	1.96E-05	1.13E-05	1.09E-06	6.56E-07	2.64E-05	3.18E-05	<LOD	<LOD
JDS35	M	<LOD	1.70E-05	1.30E-06	3.88E-06	3.48E-07	4.35E-05	1.90E-05	9.21E-06	4.79E-07	3.47E-07	5.29E-05	4.22E-05	<LOD	<LOD
JDS39	M														
JDS42	M	<LOD	5.08E-06	5.16E-07	1.60E-06	3.97E-07	1.17E-05	9.69E-06	4.26E-06	4.03E-07	3.30E-07	5.45E-06	1.76E-06	<LOD	<LOD
JDS45	M	<LOD	1.37E-05	6.57E-07	7.40E-06	3.29E-07	3.87E-05	1.47E-05	7.49E-06	3.98E-07	2.69E-07	3.10E-05	2.53E-05	<LOD	<LOD
JDS47	M	<LOD	1.25E-05	6.71E-07	7.03E-06	2.29E-07	3.37E-05	1.44E-05	1.05E-05	3.28E-07	2.13E-07	2.69E-05	2.22E-05	<LOD	<LOD
JDS51	M	<LOD	1.83E-05	1.13E-06	4.77E-06	<LOD	2.59E-05	1.20E-05	7.06E-06	3.01E-07	2.47E-07	1.05E-05	1.21E-05	<LOD	<LOD
JDS53	M	<LOD	1.72E-05	8.65E-07	2.30E-06	<LOD	3.54E-05	1.83E-05	4.07E-06	4.70E-07	1.94E-07	2.98E-05	2.12E-05	<LOD	<LOD
JDS56	M	<LOD	5.36E-06	8.91E-07	9.48E-07	1.70E-07	8.65E-06	1.19E-05	5.20E-06	6.06E-07	2.91E-07	2.17E-05	1.00E-05	<LOD	<LOD
JDS58	M	<LOD	1.47E-05	8.51E-07	7.90E-06	2.00E-07	2.76E-05	2.27E-05	9.74E-06	4.91E-07	3.44E-07	3.75E-05	2.56E-05	<LOD	<LOD
JDS76	M	<LOD	8.63E-06	1.03E-06	2.17E-06	8.16E-08	2.57E-05	1.87E-05	6.64E-06	1.41E-06	3.77E-07	6.32E-04	2.13E-04	<LOD	<LOD
JDS80	M	<LOD	1.55E-05	1.49E-06	2.67E-06	6.39E-07	4.10E-05	3.31E-05	1.44E-05	4.51E-06	9.38E-07	4.65E-05	2.93E-05	<LOD	<LOD
JDS83	M	<LOD	1.43E-05	1.41E-06	3.67E-06	<LOD	2.70E-05	2.75E-05	1.39E-05	2.73E-06	6.42E-07	4.64E-04	1.65E-04	<LOD	<LOD
JDS85	M	<LOD	2.24E-05	1.66E-06	3.49E-06	7.43E-07	5.53E-05	3.41E-05	1.86E-05	3.38E-06	7.56E-07	7.47E-04	2.45E-04	<LOD	<LOD
JDS86	M	<LOD	2.07E-05	1.80E-06	2.77E-06	5.90E-07	6.62E-05	3.33E-05	1.31E-05	3.08E-06	6.15E-07	3.60E-04	1.26E-04	<LOD	<LOD
JDS89	M	<LOD	1.96E-06	2.42E-07	1.52E-06	<LOD	4.88E-06	5.16E-06	4.47E-06	4.63E-07	1.24E-07	1.13E-05	5.55E-06	<LOD	<LOD
JDS92	M	<LOD	4.94E-05	3.27E-06	9.64E-06	<LOD	1.22E-04	5.99E-05	3.26E-05	3.45E-06	8.12E-07	4.69E-04	1.51E-04	<LOD	<LOD
JDS95	M	<LOD	8.35E-05	4.15E-06	7.52E-06	4.94E-07	1.28E-04	7.11E-05	2.79E-05	3.78E-06	5.74E-07	4.79E-04	1.58E-04	<LOD	<LOD

Table 10: PBDEs in water [µg/L],

		BDE-17	BDE-28	BDE-47	BDE-49	BDE-66	BDE-85	BDE-99	BDE-100	BDE-153
JDS2	M	<LOD	3.63E-07	1.27E-05	8.24E-07	4.65E-07	5.82E-07	2.09E-05	4.27E-06	1.29E-06
JDS7	M	2.55E-07	3.26E-07	9.78E-06	3.31E-07	5.1E-07	3.49E-07	1.33E-05	3.29E-06	5.98E-07
JDS12	M	<LOD	4.76E-07	1.72E-05	<LOD	<LOD	<LOD	3.46E-05	8.37E-06	<LOD
JDS16	M	<LOD	<LOD	2.99E-05	1.1E-06	1.29E-06	1.66E-06	6.07E-05	1.31E-05	<LOD
JDS22	M	<LOD	<LOD	2.37E-05	1.76E-06	<LOD	1.79E-06	3.45E-05	8.51E-06	2.82E-06
JDS26	M	<LOD	<LOD	2.77E-05	<LOD	<LOD	<LOD	5.25E-05	1.22E-05	4.53E-06
JDS35	M	4.06E-07	5.97E-07	1.87E-05	<LOD	<LOD	1.09E-06	4.7E-05	8.58E-06	4.57E-06
JDS39	M	4.37E-07	<LOD	1.03E-05	<LOD	7.82E-07	3.39E-07	1.69E-05	3.68E-06	1.05E-06
JDS42	M	7.72E-07	7.01E-07	1.34E-05	1.55E-06	1.88E-06	<LOD	2.55E-05	5.41E-06	1.53E-06
JDS45	M	<LOD	<LOD	8.03E-06	<LOD	<LOD	4.07E-07	1.61E-05	3.79E-06	<LOD
JDS47	M	3.41E-07	6.85E-07	9.11E-06	1.11E-07	7.28E-07	3.24E-07	1.5E-05	3.52E-06	<LOD
JDS51	M	<LOD	<LOD	1.23E-05	2.2E-07	4.54E-07	3.63E-07	1.61E-05	3.11E-06	1.29E-06
JDS53	M	<LOD	<LOD	6.85E-06	5.76E-07	<LOD	2.94E-07	1.02E-05	2.23E-06	<LOD
JDS56	M	<LOD	<LOD	2.44E-05	6.93E-07	<LOD	5.25E-07	2.2E-05	5.27E-06	1.5E-06
JDS58	M	<LOD	<LOD	9.74E-06	1.28E-06	<LOD	<LOD	1.39E-05	2.8E-06	2.07E-06
JDS76	M	<LOD	2E-07	1.36E-05	3.76E-07	4.73E-07	4.54E-07	2.39E-05	4.57E-06	1.91E-06
JDS80	M	<LOD	<LOD	1.19E-05	6.44E-07	1E-06	<LOD	2.04E-05	3.41E-06	1.72E-06
JDS83	M	<LOD	<LOD	1.63E-05	<LOD	<LOD	7.53E-07	3.01E-05	5.05E-06	1.89E-06
JDS85	M	<LOD	<LOD	1.15E-05	<LOD	<LOD	<LOD	2.15E-05	4.11E-06	1.51E-06
JDS86	M	<LOD	<LOD	8.03E-06	<LOD	<LOD	<LOD	1.28E-05	2.47E-06	<LOD
JDS89	M	<LOD	<LOD	8.41E-06	5.76E-07	<LOD	<LOD	2.12E-05	4.12E-06	8.89E-07
JDS92	M	<LOD	<LOD	1.55E-05	<LOD	<LOD	<LOD	2.66E-05	4.91E-06	<LOD
JDS95	M	<LOD	<LOD	1.11E-05	1.29E-06	<LOD	1.2E-06	3.56E-05	7.31E-06	<LOD

Table 10: PBDEs in water [µg/L],

		BDE-154	BDE-183	BDE-196	BDE-197	BDE-203	BDE-206	BDE-207	BDE-208	BDE-209
JDS2	M	1.13E-06	8.36E-08	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	1.33E-05
JDS7	M	3.97E-07	2E-07	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	7.1E-06
JDS12	M	<LOD	7.38E-07	1.05E-06	<LOD	<LOD	8.44E-06	5.03E-06	3.85E-06	8.29E-05
JDS16	M	1.8E-06	9.76E-07	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	1.25E-05
JDS22	M	2.62E-06	1.12E-06	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	1.79E-05
JDS26	M	2.73E-06	1.22E-06	5.45E-07	<LOD	<LOD	1.31E-05	7.59E-06	4.09E-06	5.3E-05
JDS35	M	3.32E-06	5.78E-07	8.57E-07	2.82E-07	<LOD	1.26E-06	1.32E-06	5.88E-07	8.8E-06
JDS39	M	1.25E-06	1.75E-07	6.26E-08	3.73E-07	<LOD	8.03E-07	8.72E-07	4.27E-07	9.25E-06
JDS42	M	1.18E-06	<LOD	<LOD	4.96E-08	<LOD	9.62E-07	<LOD	<LOD	1.55E-05
JDS45	M	8.12E-07	2.06E-07	<LOD	<LOD	<LOD	1.42E-06	1.2E-06	7.02E-07	1.95E-05
JDS47	M	8.67E-07	<LOD	<LOD	<LOD	<LOD	8.14E-07	8.58E-07	3.89E-07	9.41E-06
JDS51	M	9.46E-07	1.85E-07	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	7.64E-06
JDS53	M	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	4.36E-07	<LOD	5.54E-06
JDS56	M	9.19E-07	3.08E-07	<LOD	<LOD	<LOD	1.47E-06	1.31E-06	8.46E-07	1.5E-05
JDS58	M	1E-06	1.35E-07	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	9.11E-06
JDS76	M	1.39E-06	2.42E-07	<LOD	<LOD	<LOD	9.58E-07	1.16E-06	<LOD	1.24E-05
JDS80	M	1.23E-06	3.47E-07	<LOD	<LOD	<LOD	2.63E-06	2.16E-06	<LOD	3.29E-05
JDS83	M	1.16E-06	3.89E-07	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	1.23E-05
JDS85	M	9.06E-07	3.84E-07	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	7.25E-06
JDS86	M	6.57E-07	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	5.64E-06
JDS89	M	6.64E-07	<LOD	<LOD	2.4E-08	<LOD	1.13E-06	8E-07	5.99E-07	1.11E-05
JDS92	M	1.57E-06	7.04E-07	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD
JDS95	M	<LOD	7.68E-07	<LOD	2.42E-07	9.79E-07	<LOD	<LOD	<LOD	1.57E-05

Table 11: PCBs in SPM [µg/kg],

		PCB 81	PCB 77	PCB 126	PCB 169	PCB 105	PCB 114	PCB 118	PCB 123	PCB 156	PCB 157	PCB 167	PCB 189
JDS2	M												
JDS7	M	7.05E-04	2.33E-02	4.14E-03	7.49E-04	8.99E-02	8.71E-03	2.46E-01	3.20E-03	8.54E-02	1.28E-02	4.62E-02	1.54E-02
JDS12	M	1.10E-03	2.88E-02	4.59E-03	3.02E-04	9.26E-02	9.59E-03	2.56E-01	3.50E-03	9.08E-02	1.28E-02	4.93E-02	1.54E-02
JDS16	M	1.58E-03	4.07E-02	3.62E-03	6.63E-04	1.13E-01	1.05E-02	2.88E-01	4.48E-03	1.00E-01	1.54E-02	5.09E-02	1.58E-02
JDS22	M	3.55E-03	9.11E-02	4.93E-03	9.22E-04	1.63E-01	1.53E-02	3.89E-01	7.37E-03	1.13E-01	1.92E-02	5.93E-02	1.92E-02
JDS26	M	4.97E-03	1.21E-01	6.53E-03	3.84E-04	2.35E-01	2.18E-02	5.12E-01	1.06E-02	1.30E-01	2.05E-02	6.80E-02	2.17E-02
JDS35	M	4.26E-03	1.02E-01	6.18E-03	8.27E-04	1.75E-01	1.76E-02	4.17E-01	6.69E-03	1.15E-01	1.98E-02	6.34E-02	2.14E-02
JDS39	M	2.83E-03	8.03E-02	4.88E-03	7.55E-04	1.35E-01	1.48E-02	3.20E-01	6.51E-03	1.05E-01	1.71E-02	5.32E-02	2.03E-02
JDS42	M	1.18E-03	2.28E-02	3.00E-03	2.10E-04	7.26E-02	6.40E-03	1.77E-01	2.99E-03	5.24E-02	8.15E-03	2.49E-02	7.87E-03
JDS45	M	4.29E-03	1.20E-01	8.10E-03	1.24E-03	2.59E-01	2.86E-02	6.25E-01	1.29E-02	1.86E-01	2.97E-02	9.84E-02	3.58E-02
JDS47	M	2.29E-03	5.94E-02	4.04E-03	8.56E-04	1.29E-01	1.19E-02	3.41E-01	5.52E-03	1.11E-01	1.94E-02	5.90E-02	1.66E-02
JDS51	M	4.11E-03	9.82E-02	6.50E-03	1.10E-03	3.85E-01	3.08E-02	8.42E-01	1.58E-02	1.82E-01	3.08E-02	8.80E-02	2.70E-02
JDS53	M	3.06E-03	8.13E-02	5.41E-03	8.67E-04	2.06E-01	1.79E-02	4.94E-01	8.66E-03	1.25E-01	2.17E-02	6.82E-02	2.03E-02
JDS56	M												
JDS58	M	2.69E-03	8.01E-02	4.65E-03	6.25E-04	2.32E-01	2.08E-02	5.23E-01	9.95E-03	1.01E-01	2.21E-02	5.77E-02	1.41E-02
JDS76	M	1.72E-03	3.90E-02	2.21E-03	5.56E-04	7.31E-02	5.31E-03	1.49E-01	3.65E-03	3.38E-02	7.03E-03	1.95E-02	6.76E-03
JDS80	M	1.71E-03	4.15E-02	2.08E-03	3.96E-04	1.08E-01	7.05E-03	1.94E-01	4.15E-03	3.05E-02	8.95E-03	1.84E-02	4.55E-03
JDS83	M	1.22E-03	3.25E-02	1.81E-03	3.19E-04	1.17E-01	7.78E-03	2.08E-01	4.97E-03	3.48E-02	8.41E-03	1.82E-02	4.75E-03
JDS85	M	2.04E-03	5.19E-02	2.34E-03	2.51E-04	2.05E-01	1.10E-02	3.33E-01	7.35E-03	4.14E-02	1.14E-02	2.12E-02	5.13E-03
JDS86	M	2.03E-03	5.33E-02	1.97E-03	4.37E-04	2.31E-01	1.30E-02	3.59E-01	8.22E-03	4.70E-02	1.28E-02	2.41E-02	6.23E-03
JDS89	M	1.44E-03	3.71E-02	1.58E-03	2.45E-04	1.38E-01	7.81E-03	2.03E-01	5.57E-03	3.15E-02	7.89E-03	1.71E-02	5.03E-03
JDS92	M	1.64E-03	3.98E-02	1.68E-03	2.39E-04	1.34E-01	7.74E-03	1.97E-01	5.55E-03	3.26E-02	8.06E-03	1.75E-02	5.01E-03
JDS95	M	1.36E-03	4.05E-02	1.53E-03	3.53E-04	1.19E-01	6.65E-03	1.74E-01	4.71E-03	2.77E-02	6.27E-03	1.32E-02	3.74E-03

Table 11: PCBs in SPM [µg/kg],

		1998 WHO-TEQ for PCBs	2005 WHO-TEQ for PCBs	PCB 28	PCB 52	PCB 101	PCB 138	PCB 153	PCB 180	Indicator (EC-6)
JDS2	M									
JDS7	M	5.13E-04	4.54E-04	1.73E-01	1.62E-01	3.78E-01	8.24E-01	1.04E+00	6.90E-01	3.27E+00
JDS12	M	5.59E-04	4.87E-04	2.14E-01	1.78E-01	4.17E-01	8.54E-01	1.15E+00	7.42E-01	3.55E+00
JDS16	M	4.79E-04	4.05E-04	4.89E-01	2.61E-01	4.58E-01	1.01E+00	1.37E+00	9.41E-01	4.53E+00
JDS22	M	6.44E-04	5.54E-04	1.12E+00	5.82E-01	6.54E-01	1.26E+00	1.74E+00	1.10E+00	6.45E+00
JDS26	M	8.34E-04	7.09E-04	1.41E+00	8.49E-01	7.97E-01	1.40E+00	1.89E+00	1.15E+00	7.50E+00
JDS35	M	7.75E-04	6.79E-04	9.83E-01	5.67E-01	6.42E-01	1.31E+00	1.75E+00	1.13E+00	6.39E+00
JDS39	M	6.21E-04	5.39E-04	8.60E-01	4.65E-01	5.45E-01	1.14E+00	1.51E+00	1.06E+00	5.57E+00
JDS42	M	3.64E-04	3.20E-04	2.29E-01	2.71E-01	2.87E-01	5.19E-01	7.01E-01	4.84E-01	2.49E+00
JDS45	M	1.05E-03	8.99E-04	1.17E+00	8.46E-01	1.05E+00	2.04E+00	2.81E+00	1.95E+00	9.87E+00
JDS47	M	5.40E-04	4.58E-04	5.76E-01	4.29E-01	6.20E-01	1.16E+00	1.62E+00	1.04E+00	5.44E+00
JDS51	M	9.20E-04	7.42E-04	1.16E+00	8.18E-01	1.18E+00	2.01E+00	2.49E+00	1.71E+00	9.37E+00
JDS53	M	7.14E-04	6.05E-04	1.13E+00	6.79E-01	8.64E-01	1.42E+00	1.97E+00	1.30E+00	7.38E+00
JDS56	M									
JDS58	M	6.30E-04	5.22E-04	9.77E-01	5.44E-01	7.97E-01	1.33E+00	1.72E+00	9.07E-01	6.27E+00
JDS76	M	2.77E-04	2.51E-04	4.66E-01	1.96E-01	1.99E-01	4.21E-01	5.50E-01	4.12E-01	2.24E+00
JDS80	M	2.70E-04	2.35E-04	4.02E-01	2.31E-01	2.26E-01	4.08E-01	4.79E-01	2.68E-01	2.01E+00
JDS83	M	2.46E-04	2.06E-04	3.63E-01	2.03E-01	2.28E-01	3.96E-01	4.71E-01	3.40E-01	2.00E+00
JDS85	M	3.29E-04	2.66E-04	8.44E-01	3.91E-01	3.13E-01	4.86E-01	5.43E-01	3.58E-01	2.94E+00
JDS86	M	3.04E-04	2.37E-04	7.46E-01	3.71E-01	3.46E-01	5.31E-01	5.73E-01	4.11E-01	2.98E+00
JDS89	M	2.24E-04	1.82E-04	4.06E-01	2.51E-01	2.30E-01	3.67E-01	4.30E-01	3.39E-01	2.02E+00
JDS92	M	2.33E-04	1.92E-04	4.09E-01	2.58E-01	2.24E-01	3.66E-01	4.63E-01	4.00E-01	2.12E+00
JDS95	M	2.11E-04	1.79E-04	3.60E-01	2.36E-01	2.10E-01	3.36E-01	4.14E-01	3.21E-01	1.88E+00

Table 12: PAHs in SPM [µg/kg],

		Anthracene	Benzo(a)-anthracene	Benzo(a)pyrene	Benzo(b)-fLuoranthene	Benzo(e)pyrene	Benzo(g,h,i)-perylene	Benzo(j)-f-Luoranthene	Benzo(k)-fluoranthene	Chrysene	Dibenzo(a,h)-anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)-pyrene	Phenanthrene	Pyrene
JDS2	M	8.84E+01	1.53E+02	2.31E+02	1.79E+02	1.31E+02	1.23E+02	1.14E+02	1.40E+02	1.92E+01	5.54E+02	3.51E+01	2.06E+02	2.81E+02	3.89E+02	3.89E+02
JDS7	M	2.34E+01	3.22E+01	3.60E+01	2.93E+01	2.47E+01	1.88E+01	3.11E+01	3.04E+01	3.29E+00	7.23E+01	5.83E+00	3.32E+01	4.05E+01	5.59E+01	5.59E+01
JDS12	M	2.82E+01	2.59E+01	4.54E+01	3.00E+01	3.31E+01	2.41E+01	2.65E+01	2.94E+01	3.25E+00	8.81E+01	5.73E+00	2.84E+01	3.60E+01	6.41E+01	6.41E+01
JDS16	M	4.70E+01	3.66E+01	7.92E+01	4.81E+01	5.23E+01	4.22E+01	4.51E+01	4.59E+01	9.81E+00	1.37E+02	<LOQ	5.02E+01	4.29E+01	1.07E+02	1.07E+02
JDS22	M	3.74E+01	6.22E+01	5.79E+01	4.93E+01	5.43E+01	4.14E+01	3.67E+01	4.39E+01	7.99E+00	1.33E+02	4.27E+01	5.35E+01	4.22E+01	1.11E+02	1.11E+02
JDS26	M	4.26E+01	4.42E+01	7.47E+01	5.34E+01	5.45E+01	4.46E+01	4.22E+01	4.75E+01	1.17E+01	1.41E+02	1.05E+01	5.25E+01	3.96E+01	1.16E+02	1.16E+02
JDS35	M	6.70E+01	7.47E+01	9.54E+01	7.11E+01	8.23E+01	6.11E+01	7.91E+01	6.69E+01	1.50E+01	2.05E+02	7.87E+00	8.02E+01	6.69E+01	1.73E+02	1.73E+02
JDS39	M	6.90E+01	6.38E+01	1.08E+02	6.73E+01	7.91E+01	6.54E+01	6.15E+01	6.99E+01	1.45E+01	2.11E+02	1.98E+01	8.85E+01	7.74E+01	1.72E+02	1.72E+02
JDS42	M	2.45E+01	1.87E+01	2.85E+01	2.44E+01	2.32E+01	1.61E+01	2.67E+01	2.44E+01	3.99E+00	7.58E+01	<LOQ	2.21E+01	3.34E+01	5.70E+01	5.70E+01
JDS45	M	3.13E+01	3.67E+01	5.38E+01	4.03E+01	4.20E+01	2.90E+01	3.40E+01	3.44E+01	8.31E+00	8.72E+01	<LOQ	4.19E+01	3.57E+01	7.81E+01	7.81E+01
JDS47	M	3.98E+01	5.01E+01	6.33E+01	4.45E+01	5.18E+01	3.47E+01	3.05E+01	3.98E+01	7.93E+00	1.13E+02	6.81E+00	3.84E+01	3.82E+01	8.87E+01	8.87E+01
JDS51	M	6.77E+01	6.48E+01	9.39E+01	7.22E+01	7.89E+01	4.46E+01	5.16E+01	8.13E+01	1.66E+01	1.78E+02	1.91E+01	6.46E+01	8.21E+01	1.32E+02	1.32E+02
JDS53	M	4.86E+01	5.43E+01	6.49E+01	5.24E+01	6.83E+01	3.48E+01	3.82E+01	4.91E+01	1.04E+01	1.38E+02	1.04E+01	4.81E+01	5.24E+01	1.10E+02	1.10E+02
JDS56	M	5.30E+00	<LOQ	<LOQ	1.92E+01	9.58E+00	1.53E+01	9.76E+00	8.43E+00	4.79E+00	3.63E+01	3.28E+01	5.06E+00	6.63E+01	2.75E+01	2.75E+01
JDS58	M	4.27E+0	4.69E+0	6.15E+0	4.66E+01	4.71E+0	4.32E+0	4.52E+0	4.37E+0	1.07E+0	1.23E+0	1.13E+0	4.99E+0	4.85E+0	9.79E+0	9.79E+0

		1	1	1		1	1	1	1	1	2	1	1	1	1	1
JDS76	M	2.30E+01	2.59E+01	4.43E+01	2.65E+01	3.14E+01	1.61E+01	1.82E+01	2.25E+01	5.49E+00	6.74E+01	7.11E+00	2.71E+01	3.76E+01	6.78E+01	6.78E+01
JDS80	M	3.27E+01	3.99E+01	3.78E+01	3.84E+01	3.67E+01	2.49E+01	2.43E+01	3.20E+01	8.35E+00	1.00E+02	4.04E+01	3.14E+01	1.37E+02	8.45E+01	8.45E+01
JDS83	M	2.16E+01	2.35E+01	2.59E+01	2.39E+01	2.50E+01	1.51E+01	1.77E+01	2.35E+01	4.69E+00	7.34E+01	3.52E+01	2.45E+01	1.15E+02	7.30E+01	7.30E+01
JDS85	M	2.22E+01	2.57E+01	2.42E+01	2.58E+01	2.30E+01	1.73E+01	2.45E+01	2.28E+01	4.55E+00	6.59E+01	2.41E+01	1.87E+01	7.75E+01	6.28E+01	6.28E+01
JDS86	M	2.09E+01	1.78E+01	2.02E+01	2.25E+01	2.37E+01	1.50E+01	1.28E+01	2.59E+01	7.43E+00	6.01E+01	2.25E+01	1.89E+01	7.61E+01	6.25E+01	6.25E+01
JDS89	M	1.42E+01	2.07E+01	1.63E+01	1.60E+01	1.72E+01	7.47E+00	8.02E+00	1.51E+01	3.75E+00	4.04E+01	7.19E+00	1.69E+01	2.80E+01	4.42E+01	4.42E+01
JDS92	M	1.16E+01	1.47E+01	1.75E+01	1.54E+01	1.79E+01	8.29E+00	9.80E+00	1.29E+01	1.58E+00	3.38E+01	1.90E+00	1.63E+01	1.73E+01	3.30E+01	3.30E+01
JDS95	M	1.61E+01	1.25E+01	1.89E+01	1.72E+01	1.72E+01	9.71E+00	1.03E+01	1.55E+01	4.51E+00	4.23E+01	4.93E+00	1.94E+01	2.45E+01	4.37E+01	4.37E+01

Table 13: PCDD/Fs in SPM [µg/kg],

		1234678-HpCDD	1234678-HpCDF	1234789-HpCDF	123478-HxCDD	123478-HxCDF	123678-HxCDD	123678-HxCDDin)	123789-HxCDD	123789-HxCDF	12378-PeCDD	12378-PeCDF	1998 WHO-TEQ for PCDD/Fs	2,3,7,8-TCDD	2005 WHO-TEQ for PCDD/Fs	234678-HxCDF
JDS2	M	2.42E-02	8.02E-03	8.91E-04	6.47E-04	2.17E-03	1.62E-03	1.07E-03	1.05E-03	6.51E-04	<LOQ	1.67E-03	2.77E-03	<LOQ	2.37E-03	1.26E-03
JDS7	M	7.70E-03	2.92E-03	2.91E-04	1.93E-04	6.78E-04	7.31E-04	4.28E-04	4.21E-04	2.12E-04	<LOQ	4.66E-04	1.22E-03	9.44E-05	1.03E-03	4.48E-04
JDS12	M	7.75E-03	3.65E-03	4.83E-04	1.50E-04	1.21E-03	5.04E-04	5.47E-04	5.56E-04	2.01E-04	<LOQ	6.92E-04	1.71E-03	4.59E-04	1.52E-03	6.82E-04
JDS16	M	9.35E-03	4.01E-03	4.63E-04	1.96E-04	9.44E-04	7.44E-04	6.02E-04	6.97E-04	2.01E-04	1.74E-04	6.83E-04	1.61E-03	2.82E-04	1.43E-03	8.06E-04
JDS22	M	1.17E-02	5.36E-03	6.76E-04	2.72E-04	1.31E-03	7.90E-04	8.18E-04	8.21E-04	2.59E-04	3.38E-04	9.38E-04	2.35E-03	4.94E-04	2.12E-03	8.94E-04
JDS26	M	1.23E-02	6.03E-03	6.50E-04	3.12E-04	1.25E-03	7.03E-04	8.96E-04	7.76E-04	2.22E-04	1.72E-04	1.29E-03	2.41E-03	4.85E-04	2.12E-03	9.46E-04
JDS35	M	1.61E-02	8.30E-03	1.23E-03	3.20E-04	1.97E-03	1.42E-03	1.03E-03	9.28E-04	5.13E-04	2.17E-04	1.09E-03	3.07E-03	7.79E-04	2.77E-03	1.07E-03
JDS39	M	1.31E-02	6.60E-03	5.11E-04	4.04E-04	1.78E-03	8.08E-04	9.15E-04	4.71E-04	2.46E-04	2.63E-04	9.25E-04	2.33E-03	3.41E-04	2.07E-03	9.89E-04
JDS42	M	6.76E-03	3.83E-03	5.70E-04	3.01E-04	7.28E-04	6.31E-04	3.15E-04	5.22E-04	<LOQ	<LOQ	4.95E-04	8.47E-04	<LOQ	8.04E-04	3.40E-04
JDS45	M	2.26E-02	1.18E-02	1.04E-03	5.30E-04	2.58E-03	1.57E-03	1.61E-03	1.24E-03	6.95E-04	<LOQ	2.12E-03	8.23E-03	5.11E-03	7.74E-03	1.41E-03
JDS47	M	1.22E-02	6.42E-03	4.82E-04	2.40E-04	1.62E-03	1.04E-03	8.83E-04	6.14E-04	3.60E-04	3.15E-04	1.10E-03	2.45E-03	6.22E-04	2.25E-03	9.52E-04
JDS51	M	1.59E-02	5.95E-03	9.16E-04	3.17E-04	1.86E-03	1.18E-03	1.02E-03	1.12E-03	2.65E-04	3.43E-04	1.29E-03	2.67E-03	2.60E-04	2.34E-03	1.20E-03
JDS53	M	1.24E-02	6.20E-03	6.86E-04	3.10E-04	1.40E-03	1.04E-03	8.15E-04	9.34E-04	3.94E-04	2.78E-04	1.05E-03	2.39E-03	4.30E-04	2.13E-03	9.15E-04
JDS56	M	4.38E-03	3.68E-03	3.34E-04	1.88E-04	7.32E-04	2.88E-04	5.27E-04	4.63E-04	<LOQ	<LOQ	5.85E-04	1.13E-03	9.77E-05	9.70E-04	5.48E-04
JDS58	M	1.17E-02	5.93E-03	6.36E-04	3.34E-04	1.21E-03	8.63E-04	8.80E-04	9.86E-04	2.62E-04	<LOQ	9.71E-04	1.81E-03	<LOQ	1.55E-03	9.06E-04
JDS76	M	1.29E-02	2.96E-03	1.78E-04	3.82E-04	7.51E-04	7.17E-04	5.22E-04	1.08E-03	2.01E-04	2.27E-04	5.40E-04	1.49E-03	2.12E-04	1.38E-03	5.51E-04
JDS80	M	9.45E-03	3.07E-03	4.19E-04	2.23E-04	7.95E-04	7.47E-04	4.78E-04	8.29E-04	4.94E-05	2.34E-04	3.64E-04	1.44E-03	1.77E-04	1.29E-03	5.97E-04
JDS83	M	8.96E-03	2.36E-03	2.62E-04	1.95E-04	6.12E-04	5.66E-04	3.61E-04	8.62E-04	1.04E-04	<LOQ	3.54E-04	9.88E-04	<LOQ	9.04E-04	5.25E-04
JDS85	M	9.50E-03	2.69E-03	2.88E-04	3.21E-04	6.14E-04	5.52E-04	4.26E-04	9.75E-04	1.52E-04	<LOQ	4.08E-04	1.06E-03	<LOQ	9.60E-04	4.44E-04
JDS86	M	9.06E-03	2.46E-03	2.60E-04	2.18E-04	6.06E-04	5.21E-04	3.48E-04	8.55E-04	1.28E-04	1.70E-04	4.90E-04	1.25E-03	<LOQ	1.09E-03	5.34E-04
JDS89	M	8.48E-03	2.22E-03	2.25E-04	3.14E-04	5.52E-04	5.11E-04	3.88E-04	8.00E-04	9.98E-05	<LOQ	3.59E-04	1.02E-03	<LOQ	9.07E-04	4.10E-04
JDS92	M	7.86E-03	2.06E-03	1.99E-04	2.60E-04	5.01E-04	4.15E-04	2.38E-04	7.94E-04	5.68E-05	<LOQ	3.36E-04	8.33E-04	<LOQ	7.69E-04	3.61E-04
JDS95	M	6.87E-03	1.73E-03	2.12E-04	2.86E-04	4.54E-04	5.35E-04	2.40E-04	6.48E-04	8.70E-05	2.63E-04	2.50E-04	9.61E-04	8.11E-05	8.97E-04	3.83E-04

Table 13: PCDD/Fs in SPM [µg/kg],

		23478-PeCDF	2378-TCDF	HpCDD	HpCDF	HxCDD	HxCDF	I-TEQ	OCDD	OCDF	PeCDD	PeCDF	TCDD	TCDF	Total PCDD/Furans	Total PCDDs	Total PCDFs
JDS2	M	2.04E-03	2.72E-03	4.60E-02	1.50E-02	1.61E-02	1.38E-02	2.90E-03	1.76E-01	2.05E-02	2.64E-03	2.64E-02	2.90E-03	3.26E-02	3.52E-01	2.44E-01	1.08E-01
JDS7	M	9.15E-04	1.14E-03	1.50E-02	4.91E-03	6.57E-03	5.14E-03	1.22E-03	5.10E-02	6.86E-03	1.34E-03	1.09E-02	1.32E-03	1.32E-02	1.16E-01	7.52E-02	4.11E-02
JDS12	M	9.63E-04	1.26E-03	1.50E-02	5.80E-03	7.75E-03	9.29E-03	1.71E-03	5.13E-02	7.92E-03	1.18E-03	1.30E-02	1.50E-03	1.84E-02	1.31E-01	7.68E-02	5.45E-02
JDS16	M	8.75E-04	1.16E-03	1.85E-02	6.56E-03	8.84E-03	7.18E-03	1.58E-03	6.07E-02	8.70E-03	3.01E-03	1.43E-02	2.17E-03	1.78E-02	1.48E-01	9.32E-02	5.45E-02
JDS22	M	1.13E-03	2.02E-03	2.35E-02	8.74E-03	1.01E-02	9.00E-03	2.26E-03	7.57E-02	1.31E-02	3.58E-03	1.90E-02	3.17E-03	2.37E-02	1.89E-01	1.16E-01	7.34E-02
JDS26	M	1.42E-03	2.67E-03	2.46E-02	9.72E-03	1.22E-02	9.19E-03	2.42E-03	9.06E-02	1.33E-02	5.00E-03	2.08E-02	4.68E-03	2.75E-02	2.18E-01	1.37E-01	8.05E-02
JDS35	M	1.53E-03	2.55E-03	3.20E-02	1.43E-02	1.49E-02	1.69E-02	3.10E-03	1.42E-01	1.92E-02	5.39E-03	2.37E-02	1.03E-02	3.56E-02	3.15E-01	2.05E-01	1.10E-01
JDS39	M	1.31E-03	2.52E-03	2.62E-02	1.15E-02	9.66E-03	1.14E-02	2.31E-03	1.02E-01	1.90E-02	5.12E-03	2.51E-02	9.72E-03	2.79E-02	2.48E-01	1.53E-01	9.50E-02
JDS42	M	2.28E-04	9.50E-04	1.27E-02	6.53E-03	6.43E-03	5.17E-03	8.53E-04	5.33E-02	8.95E-03	8.41E-04	6.70E-03	2.15E-03	1.11E-02	1.14E-01	7.54E-02	3.84E-02
JDS45	M	2.44E-03	3.51E-03	4.30E-02	2.05E-02	2.04E-02	1.76E-02	8.37E-03	1.81E-01	3.58E-02	5.16E-03	3.16E-02	2.31E-02	4.23E-02	4.20E-01	2.73E-01	1.48E-01
JDS47	M	1.02E-03	1.80E-03	2.42E-02	1.13E-02	1.12E-02	1.05E-02	2.40E-03	9.70E-02	2.13E-02	3.76E-03	1.90E-02	8.98E-03	2.14E-02	2.29E-01	1.45E-01	8.36E-02
JDS51	M	1.69E-03	2.18E-03	3.22E-02	1.02E-02	1.45E-02	1.10E-02	2.64E-03	1.42E-01	1.16E-02	5.72E-03	2.04E-02	6.19E-03	2.91E-02	2.82E-01	2.00E-01	8.23E-02
JDS53	M	1.31E-03	1.97E-03	2.47E-02	9.22E-03	1.15E-02	9.96E-03	2.35E-03	9.37E-02	1.68E-02	4.25E-03	1.99E-02	8.61E-03	2.52E-02	2.24E-01	1.43E-01	8.11E-02
JDS56	M	7.82E-04	1.37E-03	9.22E-03	5.22E-03	5.21E-03	5.71E-03	1.12E-03	3.56E-02	7.45E-03	2.74E-03	1.72E-02	7.12E-03	3.05E-02	1.26E-01	5.99E-02	6.61E-02
JDS58	M	1.28E-03	1.82E-03	2.37E-02	9.09E-03	1.14E-02	8.31E-03	1.85E-03	9.22E-02	1.32E-02	3.91E-03	1.97E-02	6.41E-03	2.33E-02	2.11E-01	1.38E-01	7.36E-02
JDS76	M	6.49E-04	1.08E-03	3.10E-02	4.09E-03	1.36E-02	5.13E-03	1.51E-03	1.36E-01	6.53E-03	4.73E-03	1.02E-02	4.23E-03	1.25E-02	2.28E-01	1.89E-01	3.84E-02

JDS80	M	7.87E-04	1.09E-03	2.14E-02	4.58E-03	1.06E-02	5.97E-03	1.40E-03	7.51E-02	6.59E-03	3.67E-03	1.11E-02	4.03E-03	1.35E-02	1.57E-01	1.15E-01	4.17E-02
JDS83	M	4.72E-04	8.75E-04	2.08E-02	3.78E-03	9.93E-03	4.27E-03	1.02E-03	8.05E-02	5.24E-03	2.98E-03	7.51E-03	3.13E-03	9.08E-03	1.47E-01	1.17E-01	2.99E-02
JDS85	M	5.59E-04	8.06E-04	2.15E-02	4.14E-03	9.60E-03	4.83E-03	1.09E-03	8.09E-02	6.53E-03	3.40E-03	8.07E-03	3.00E-03	9.67E-03	1.52E-01	1.18E-01	3.32E-02
JDS86	M	8.32E-04	9.07E-04	2.10E-02	3.77E-03	9.49E-03	4.45E-03	1.24E-03	8.30E-02	5.93E-03	3.11E-03	8.00E-03	3.44E-03	9.99E-03	1.52E-01	1.20E-01	3.21E-02
JDS89	M	6.36E-04	6.30E-04	1.95E-02	3.31E-03	9.07E-03	3.88E-03	1.05E-03	7.78E-02	6.14E-03	2.69E-03	6.44E-03	2.96E-03	8.43E-03	1.40E-01	1.12E-01	2.82E-02
JDS92	M	3.60E-04	6.54E-04	1.80E-02	3.33E-03	8.72E-03	3.61E-03	8.49E-04	6.77E-02	5.36E-03	2.66E-03	6.24E-03	3.11E-03	7.99E-03	1.27E-01	1.00E-01	2.65E-02
JDS95	M	3.66E-04	6.24E-04	1.61E-02	2.83E-03	8.42E-03	3.31E-03	8.92E-04	6.50E-02	4.90E-03	2.50E-03	5.82E-03	3.07E-03	7.72E-03	1.20E-01	9.51E-02	2.46E-02

Table 14: Pesticides in SPM [µg/kg],

		α-HCH	Aldrin	β–HCH	cis-chlordane	cis-nonachlor	Dieldrin	Endosulfane -alpha	Endosulfane -beta	Endosulfane -sulphate	Endrin	γ-HCH	HCB	Heptachlor	Heptachlor-endo-epoxide	Heptachlor -exo-epoxide
JDS2	M	2.54E-02	<LOD	4.52E-02	1.08E-02	<LOD	7.23E-02	<LOD	<LOD	<LOD	7.67E-03	2.07E-01	1.09E+00	5.05E-03	5.98E-03	7.69E-03
JDS7	M	7.95E-03	<LOD	1.90E-02	9.95E-03	<LOD	3.34E-02	<LOD	<LOD	<LOD	<LOD	6.46E-02	3.61E-01	5.99E-03	<LOD	<LOD
JDS12	M	1.76E-02	<LOD	2.27E-02	8.13E-03	<LOD	2.85E-02	<LOD	<LOD	<LOD	<LOD	6.59E-02	4.45E-01	7.02E-03	<LOD	<LOD
JDS16	M	1.34E-02	1.10E-02	4.16E-02	1.18E-02	<LOD	5.56E-02	<LOD	<LOD	<LOD	2.21E-02	1.24E-01	1.13E+00	<LOQ	1.06E-02	1.08E-02
JDS22	M	3.35E-02	<LOD	1.78E-01	1.72E-02	<LOD	6.81E-02	<LOD	<LOD	<LOD	9.19E-03	2.46E-01	5.66E-01	1.05E-01	<LOD	<LOD
JDS26	M	4.44E-02	<LOD	1.07E-01	<LOD	<LOD	9.46E-02	<LOD	<LOD	<LOD	3.99E-02	1.59E-01	6.73E-01	<LOD	<LOD	<LOD
JDS35	M	4.46E-02	<LOD	1.73E-01	n. a.	n. a.	7.51E-02	n. a.	n. a.	<LOD	<LOD	1.63E-01	2.24E+00	<LOD	<LOD	<LOD
JDS39	M	2.86E-02	<LOD	1.63E-01	n. a.	n. a.	7.46E-02	n. a.	n. a.	n. a.	<LOD	1.74E-01	1.37E+00	<LOD	n. a.	n. a.
JDS42	M	9.12E-03	1.32E-02	1.15E-02	8.97E-03	<LOD	4.03E-02	<LOD	<LOD	3.89E-02	<LOD	7.42E-02	3.48E-01	<LOD	<LOD	<LOD
JDS45	M	3.49E-02	9.91E-03	9.51E-02	1.46E-02	<LOD	1.06E-01	<LOD	<LOD	9.69E-02	<LOD	1.22E-01	6.14E-01	<LOD	<LOD	9.26E-03

JDS47	M	3.65E-02	6.38E-03	9.14E-02	n. a.	n. a.	9.90E-02	n. a.	n. a.	1.24E-01	2.62E-02	1.33E-01	9.58E-01	<LOD	n. a.	n. a.
JDS51	M	2.99E-02	2.21E-02	4.54E-02	9.99E-03	<LOD	6.14E-02	<LOD	<LOD	1.22E-01	1.70E-02	1.72E-01	3.32E-01	1.05E-02	<LOD	<LOD
JDS53	M	6.06E-02	1.53E-02	1.58E-01	1.62E-02	<LOD	9.05E-02	<LOD	<LOD	1.26E-01	<LOD	1.77E-01	7.01E-01	<LOD	<LOD	1.05E-02
JDS56	M	1.36E-01	<LOD	1.68E-01	1.38E-01	<LOD	<LOD	5.33E-01	1.10E-01	4.65E-01	<LOD	1.36E+00	1.31E+00	4.88E-02	<LOD	3.63E-02
JDS58	M	7.39E-02	1.00E-02	1.60E-01	1.51E-02	<LOD	7.82E-02	<LOD	<LOD	1.27E-01	2.78E-02	2.35E-01	4.29E-01	7.58E-03	<LOD	1.18E-02
JDS76	M	2.69E-01	1.21E-02	9.32E-01	<LOD	<LOD	4.55E-02	<LOD	<LOD	5.06E-02	<LOD	1.88E-01	3.95E-01	1.16E-02	<LOD	<LOD
JDS80	M	2.26E-01	2.01E-02	1.86E-01	n. a.	n. a.	1.27E-01	n. a.	n. a.	n. a.	<LOD	1.21E+00	1.50E+00	8.50E-02	n. a.	n. a.
JDS83	M	3.40E-01	2.30E-02	6.08E-01	1.26E-01	<LOD	1.09E-01	<LOD	<LOD	5.44E-02	<LOD	1.18E+00	2.46E+00	5.87E-02	<LOD	3.68E-02
JDS85	M	2.46E-01	9.77E-03	4.98E-01	9.65E-02	<LOD	1.25E-01	<LOD	<LOD	5.92E-02	4.29E-02	6.55E-01	1.35E+00	5.11E-02	<LOD	<LOD
JDS86	M	2.62E-01	<LOD	5.92E-01	8.58E-02	<LOD	7.92E-02	<LOD	<LOD	4.26E-02	<LOD	6.46E-01	1.19E+00	2.85E-02	<LOD	<LOD
JDS89	M	1.64E-01	<LOD	5.37E-01	1.71E-02	<LOD	4.48E-02	<LOD	<LOD	3.37E-02	<LOD	1.92E-01	1.81E+00	9.38E-03	<LOD	<LOD
JDS92	M	2.88E-01	2.16E-02	8.32E-01	1.66E-02	<LOD	5.52E-02	<LOD	<LOD	3.03E-02	<LOD	1.97E-01	9.42E-01	7.41E-03	<LOD	9.88E-03
JDS95	M	1.94E-01	<LOD	7.32E-01	2.89E-02	<LOD	5.76E-02	<LOD	<LOD	4.25E-02	<LOD	1.49E-01	7.79E-01	9.05E-03	<LOD	9.02E-03

Table 14: Pesticides in SPM [µg/kg],

		Mirex	op-DDD	op-DDE	op-DDT	Oxychlordane	pp-DDD	pp-DDE	pp-DDT	trans-chlor-dane	trans-nona-chlor	d-HCH	e-HCH	Isodrin	Methoxychlor
JDS2	M	<LOD	1.80E-01	2.53E-02	1.21E-01	<LOD	3.08E-01	8.05E-01	4.11E-01	1.65E-02	1.96E-02	<LOD	<LOD	<LOD	<LOD
JDS7	M	<LOD	6.38E-02	1.24E-02	5.85E-02	<LOD	1.09E-01	2.23E-01	2.85E-01	1.36E-02	8.06E-03	<LOD	<LOD	<LOD	<LOD
JDS12	M	<LOD	5.12E-02	1.47E-02	2.74E-02	<LOD	1.17E-01	2.90E-01	1.93E-01	9.99E-03	1.22E-02	<LOD	<LOD	<LOD	<LOD
JDS16	M	<LOD	1.59E-01	1.42E-02	3.46E-01	<LOD	4.84E-01	2.80E+00	1.59E+00	1.40E-02	1.28E-02	<LOD	<LOD	<LOD	<LOD
JDS22	M	<LOD	1.98E-01	3.91E-02	2.27E-01	<LOD	6.15E-01	1.67E+0	5.49E-01	1.74E-02	1.83E-02	<LOD	<LOD	<LOD	<LOD

								0							
JDS26	M	<LOD	2.00E-01	<LOD	9.50E-02	<LOD	4.56E-01	<LOD	6.20E-01	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD
JDS35	M	<LOD	5.29E-01	n. a.	3.73E-01	<LOD	1.41E+00	n. a.	1.75E+00	n. a.	n. a.	7.79E-03	<LOD	<LOD	<LOD
JDS39	M	<LOD	6.01E-01	n. a.	7.13E-01	n. a.	1.34E+00	n. a.	2.40E+00	n. a.	n. a.	<LOD	<LOD	<LOD	n. a.
JDS42	M	<LOD	1.29E-01	1.94E-02	4.76E-02	<LOD	2.15E-01	5.27E-01	1.33E-01	1.06E-02	8.96E-03	<LOD	<LOD	<LOD	<LOD
JDS45	M	<LOD	6.27E-01	6.04E-02	7.84E-01	<LOD	1.38E+00	1.71E+00	8.52E-01	1.41E-02	1.39E-02	<LOD	<LOD	<LOD	<LOD
JDS47	M	<LOD	7.09E-01	n. a.	3.21E-01	n. a.	1.66E+00	n. a.	2.05E+00	n. a.	n. a.	2.09E-02	<LOD	<LOD	<LOD
JDS51	M	<LOD	6.00E-01	6.22E-02	3.53E-01	<LOD	1.09E+00	1.09E+00	1.65E+00	1.28E-02	9.03E-03	<LOD	<LOD	<LOD	<LOD
JDS53	M	<LOD	8.78E-01	9.44E-02	1.27E-01	<LOD	2.03E+00	2.74E+00	3.47E+00	2.31E-02	1.57E-02	1.98E-02	<LOD	<LOD	<LOD
JDS56	M	<LOD	3.15E-01	1.08E-01	1.90E-01	<LOD	5.91E-01	2.14E+00	3.63E-01	1.71E-01	8.39E-02	<LOD	<LOD	<LOD	<LOD
JDS58	M	<LOD	7.66E-01	8.39E-02	2.76E-01	<LOD	2.31E+00	2.51E+00	2.45E+00	1.90E-02	1.33E-02	2.29E-02	<LOD	<LOD	<LOD
JDS76	M	<LOD	4.15E-01	5.99E-02	4.04E-01	<LOD	1.07E+00	1.42E+00	9.27E-01	4.17E-02	1.36E-02	9.56E-02	1.90E-02	<LOD	<LOD
JDS80	M	n. a.	4.51E-01	n. a.	4.13E-01	n. a.	1.10E+00	n. a.	1.44E+00	n. a.	n. a.	<LOD	<LOD	<LOD	n. a.
JDS83	M	<LOD	4.84E-01	1.08E-01	2.08E-01	<LOD	1.16E+00	1.66E+00	1.10E+00	2.28E-01	8.25E-02	1.42E-01	<LOD	<LOD	<LOD
JDS85	M	<LOD	4.69E-01	1.04E-01	2.79E-01	<LOD	1.18E+00	1.45E+00	1.01E+00	1.31E-01	3.77E-02	6.85E-02	<LOD	<LOD	<LOD
JDS86	M	<LOD	5.03E-01	1.03E-01	8.92E-01	<LOD	1.25E+00	1.81E+00	1.27E+00	1.19E-01	5.33E-02	7.92E-02	<LOD	<LOD	<LOD
JDS89	M	<LOD	5.18E-01	6.35E-02	8.14E-01	<LOD	1.23E+00	1.52E+00	7.85E-01	4.00E-02	1.02E-02	6.23E-02	<LOD	<LOD	<LOD
JDS92	M	<LOD	2.92E+00	2.27E-01	1.02E+00	<LOD	4.03E+00	4.63E+00	3.11E+00	4.35E-02	8.74E-03	1.20E-01	<LOD	<LOD	<LOD
JDS95	M	<LOD	1.80E+0	1.54E-01	2.80E+0	<LOD	1.99E+0	3.95E+0	2.70E+0	3.53E-02	9.64E-03	9.10E-02	<LOD	<LOD	<LOD

			0		0		0	0	0						

Table 15: PBDEs in SPM [µg/kg],

		BDE-17	BDE-28	BDE-47	BDE-49	BDE-66	BDE-85	BDE-99	BDE-100	BDE-153
JDS7	M	3.35E-03	4.91E-03	1.49E-01	1.31E-02	1.35E-02	5.61E-03	1.68E-01	4.01E-02	2.30E-02
JDS12	M	3.78E-03	5.76E-03	1.72E-01	2.23E-02	1.28E-02	6.79E-03	1.79E-01	4.44E-02	2.06E-02
JDS16	M	3.53E-03	5.24E-03	1.88E-01	1.72E-02	8.76E-03	8.42E-03	2.06E-01	5.33E-02	2.57E-02
JDS22	M	4.68E-03	8.64E-03	2.56E-01	3.43E-02	1.41E-02	6.85E-03	2.21E-01	5.94E-02	3.24E-02
JDS26	M	4.61E-03	8.31E-03	2.68E-01	3.15E-02	1.84E-02	8.12E-03	2.83E-01	7.35E-02	4.39E-02
JDS35	M	4.19E-03	1.37E-02	4.53E-01	4.33E-02	2.98E-02	1.98E-02	5.34E-01	1.29E-01	7.91E-02
JDS39	M	4.06E-03	9.91E-03	2.99E-01	3.22E-02	1.85E-02	1.18E-02	3.26E-01	8.49E-02	5.29E-02
JDS42	M	2.15E-03	6.45E-03	2.22E-01	3.30E-02	1.55E-02	6.90E-03	2.35E-01	5.80E-02	5.05E-02
JDS45	M	8.43E-03	1.89E-02	5.67E-01	7.31E-02	3.52E-02	2.19E-02	8.06E-01	1.94E-01	9.53E-02
JDS47	M	4.22E-03	1.21E-02	2.72E-01	4.38E-02	2.10E-02	9.02E-03	2.82E-01	7.83E-02	4.34E-02
JDS51	M	5.86E-03	1.20E-02	3.84E-01	5.74E-02	2.99E-02	1.85E-02	4.68E-01	1.30E-01	8.07E-02
JDS53	M	7.39E-03	1.28E-02	3.06E-01	6.65E-02	2.29E-02	9.77E-03	3.22E-01	8.72E-02	5.94E-02
JDS56	M									
JDS58	M	6.62E-03	9.70E-03	2.17E-01	3.97E-02	1.34E-02	8.96E-03	2.09E-01	7.67E-02	3.17E-02
JDS76	M	9.44E-04	2.29E-03	5.26E-02	6.71E-03	7.53E-03	1.60E-03	6.60E-02	2.12E-02	1.24E-02
JDS80	M	1.65E-03	2.45E-03	5.89E-02	9.36E-03	5.89E-03	2.81E-03	7.21E-02	2.53E-02	1.34E-02
JDS83	M	<LOD	1.41E-03	4.03E-02	5.12E-03	2.24E-03	2.19E-03	5.90E-02	1.56E-02	8.96E-03
JDS85	M	7.68E-04	1.85E-03	4.97E-02	<LOD	<LOD	1.86E-03	7.15E-02	2.04E-02	1.11E-02
JDS86	M	<LOD	2.03E-03	5.39E-02	6.52E-03	<LOD	2.32E-03	6.82E-02	1.95E-02	9.79E-03
JDS89	M	<LOD	<LOD	5.17E-02	5.59E-03	<LOD	2.73E-03	9.49E-02	2.07E-02	1.21E-02
JDS92	M	<LOD	<LOD	4.11E-02	<LOD	<LOD	1.84E-03	4.99E-02	1.40E-02	8.40E-03
JDS95	M	<LOD	<LOD	4.16E-02	3.68E-03	<LOD	<LOD	6.56E-02	1.46E-02	6.51E-03

Table 15: PBDEs in SPM [µg/kg],

		BDE-154	BDE-183	BDE-196	BDE-197	BDE-203	BDE-206	BDE-207	BDE-208	BDE-209
JDS2	M	5.46E-02	8.71E-02	4.62E-02	5.28E-02	8.46E-02	4.37E-01	3.95E-01	2.84E-01	9.05E+00
JDS7	M	1.88E-02	2.73E-02	1.55E-02	2.08E-02	3.25E-02	1.96E-01	1.88E-01	1.16E-01	3.40E+00
JDS12	M	2.17E-02	3.27E-02	2.08E-02	2.19E-02	3.25E-02	1.81E-01	1.53E-01	9.28E-02	3.49E+00
JDS16	M	2.79E-02	5.35E-02	2.11E-02	2.88E-02	2.54E-02	1.80E-01	1.73E-01	1.05E-01	4.68E+00
JDS22	M	2.79E-02	3.85E-02	3.51E-02	3.44E-02	6.39E-02	3.18E-01	2.72E-01	1.90E-01	8.24E+00
JDS26	M	3.96E-02	6.43E-02	5.49E-02	4.56E-02	8.36E-02	4.34E-01	4.25E-01	2.79E-01	1.20E+01
JDS35	M	5.88E-02	8.31E-02	6.45E-02	6.30E-02	1.13E-01	8.45E-01	6.72E-01	4.67E-01	2.42E+01
JDS39	M	4.58E-02	7.17E-02	6.75E-02	6.33E-02	1.15E-01	1.09E+00	1.07E+00	7.24E-01	3.69E+01
JDS42	M	3.14E-02	4.23E-02	4.03E-02	2.70E-02	6.14E-02	8.50E-01	7.33E-01	4.94E-01	2.58E+01
JDS45	M	8.92E-02	1.28E-01	8.98E-02	9.34E-02	1.81E-01	1.59E+00	1.49E+00	1.03E+00	5.21E+01
JDS47	M	4.07E-02	6.25E-02	4.88E-02	4.90E-02	1.05E-01	7.49E-01	6.67E-01	4.63E-01	2.45E+01
JDS51	M	5.11E-02	6.73E-02	5.10E-02	4.81E-02	1.03E-01	9.53E-01	7.68E-01	5.50E-01	2.37E+01
JDS53	M	4.08E-02	5.18E-02	5.40E-02	4.22E-02	9.52E-02	7.82E-01	6.43E-01	4.18E-01	2.63E+01
JDS56	M									
JDS58	M	2.67E-02	3.38E-02	4.11E-02	3.31E-02	6.38E-02	7.01E-01	6.31E-01	4.22E-01	2.42E+01
JDS76	M	1.28E-02	2.01E-02	1.20E-02	1.13E-02	2.29E-02	1.40E-01	1.42E-01	1.03E-01	3.96E+00
JDS80	M	1.19E-02	1.77E-02	1.21E-02	1.32E-02	2.03E-02	1.82E-01	1.54E-01	1.15E-01	5.53E+00
JDS83	M	7.60E-03	1.03E-02	8.81E-03	7.65E-03	1.30E-02	1.15E-01	1.13E-01	7.71E-02	3.42E+00
JDS85	M	9.85E-03	1.40E-02	1.06E-02	1.18E-02	1.83E-02	1.77E-01	1.62E-01	1.11E-01	5.80E+00
JDS86	M	1.00E-02	1.42E-02	1.05E-02	1.08E-02	1.77E-02	1.19E-01	1.16E-01	8.59E-02	3.47E+00
JDS89	M	1.15E-02	1.34E-02	1.25E-02	7.75E-03	1.79E-02	1.30E-01	1.24E-01	8.77E-02	3.35E+00
JDS92	M	7.66E-03	1.09E-02	1.09E-02	8.77E-03	1.57E-02	1.01E-01	1.03E-01	8.89E-02	2.84E+00
JDS95	M	7.45E-03	1.01E-02	<LOD	<LOD	1.52E-02	1.21E-01	1.17E-01	8.09E-02	2.96E+00

Table 16: PCBs in mussels [µg/kg],

		Species	PCB 81	PCB 77	PCB 126	PCB 169	PCB 105	PCB 114	PCB 118	PCB 123	PCB 156	PCB 157	PCB 167	PCB 189
JDS20	L	Unio tumidus	5.69E-03	1.16E-01	7.65E-03	1.34E-03	3.69E-01	3.56E-02	1.15E+00	2.20E-02	3.17E-01	6.97E-02	2.39E-01	5.85E-02
JDS21	L	Unio tumidus	1.14E-02	2.86E-01	1.27E-02	2.06E-03	3.59E-01	3.67E-02	1.03E+00	2.49E-02	2.90E-01	4.26E-02	2.21E-01	6.23E-02
JDS22	L	Unio tumidus	1.03E-02	2.35E-01	1.09E-02	1.72E-03	3.58E-01	4.29E-02	1.01E+00	2.51E-02	2.90E-01	4.37E-02	2.16E-01	6.39E-02
JDS22	R	Unio tumidus	9.60E-03	2.39E-01	1.56E-02	2.18E-03	6.15E-01	6.25E-02	2.03E+00	3.59E-02	4.85E-01	7.86E-02	3.48E-01	8.88E-02
JDS29	R	Unio tumidus	5.04E-03	1.08E-01	8.31E-03	1.40E-03	2.66E-01	2.59E-02	8.24E-01	1.56E-02	2.29E-01	5.03E-02	1.77E-01	5.54E-02
JDS32	R	Unio tumidus	5.48E-03	1.18E-01	7.26E-03	1.14E-03	2.52E-01	2.26E-02	7.26E-01	1.33E-02	1.68E-01	3.11E-02	1.09E-01	2.52E-02
JDS33	R	Unio tumidus	6.37E-03	1.52E-01	7.59E-03	1.13E-03	2.92E-01	2.28E-02	7.88E-01	1.89E-02	1.81E-01	3.22E-02	1.19E-01	3.21E-02
JDS35	R	Unio tumidus	3.65E-03	8.89E-02	5.89E-03	8.82E-04	1.89E-01	1.99E-02	5.93E-01	1.06E-02	1.47E-01	2.63E-02	1.02E-01	2.65E-02
JDS39	R	Unio tumidus	1.01E-02	2.39E-01	1.44E-02	2.12E-03	4.72E-01	4.68E-02	1.49E+00	3.12E-02	3.50E-01	6.35E-02	2.57E-01	6.34E-02
JDS45	R	Unio tumidus	8.29E-03	1.89E-01	1.30E-02	1.38E-03	4.62E-01	4.08E-02	1.46E+00	2.81E-02	3.16E-01	6.16E-02	2.33E-01	6.37E-02
JDS47	R	Unio tumidus	9.79E-03	2.33E-01	1.85E-02	2.33E-03	6.53E-01	6.55E-02	2.14E+00	4.35E-02	4.56E-01	8.81E-02	3.45E-01	8.61E-02
JDS51	R	Unio tumidus	7.23E-03	1.41E-01	1.30E-02	2.56E-03	9.22E-01	6.88E-02	2.45E+00	4.25E-02	6.01E-01	1.04E-01	3.68E-01	9.85E-02
JDS52	R	Unio tumidus	2.59E-02	5.94E-01	4.42E-02	5.18E-03	4.85E+00	3.25E-01	1.45E+01	2.35E-01	2.34E+00	4.30E-01	1.16E+00	2.13E-01
JDS53	R	Unio tumidus	1.29E-02	2.94E-01	2.07E-02	2.48E-03	1.22E+00	1.09E-01	3.58E+00	6.15E-02	6.98E-01	1.29E-01	4.20E-01	1.03E-01
JDS56		Unio tumidus	6.35E-03	1.28E-01	8.84E-03	8.62E-04	5.79E-01	4.36E-02	1.69E+00	2.58E-02	2.35E-01	5.26E-02	1.23E-01	1.87E-02
JDS58	R	Unio tumidus	5.21E-03	1.22E-01	8.18E-03	1.20E-03	5.42E-01	4.46E-02	1.50E+00	2.70E-02	2.62E-01	5.54E-02	1.69E-01	3.31E-02
JDS91		Unio tumidus	1.68E-02	2.74E-01	1.74E-02	4.80E-03	1.10E+00	1.17E-01	2.71E+00	7.10E-02	4.26E-01	7.22E-02	2.66E-01	7.34E-02
JDS93		Unio tumidus	1.33E-02	2.48E-01	1.31E-02	2.73E-03	9.75E-01	9.68E-02	1.94E+00	5.45E-02	3.39E-01	7.79E-02	2.50E-01	6.67E-02
JDS17		Anadonta anatina	7.35E-03	1.71E-01	1.65E-02	2.66E-03	7.31E-01	6.19E-02	2.36E+00	3.55E-02	5.98E-01	1.09E-01	4.41E-01	9.76E-02
JDS18	M	Anadonta anatina	6.15E-03	1.27E-01	1.15E-02	1.69E-03	4.61E-01	4.06E-02	1.48E+00	2.23E-02	4.17E-01	7.17E-02	3.00E-01	7.10E-02
JDS20	L	Anadonta anatina	9.90E-03	2.03E-01	1.46E-02	2.30E-03	6.59E-01	5.19E-02	2.12E+00	3.69E-02	6.02E-01	1.14E-01	4.67E-01	1.11E-01
JDS32	R	Anadonta anatina	5.78E-03	1.35E-01	8.88E-03	1.42E-03	3.14E-01	2.73E-02	8.87E-01	1.82E-02	2.35E-01	4.57E-02	1.57E-01	3.45E-02
JDS39	R	Anadonta anatina	5.76E-03	1.32E-01	8.45E-03	1.18E-03	2.71E-01	2.62E-02	8.26E-01	1.93E-02	2.16E-01	4.25E-02	1.68E-01	3.48E-02
JDS41	L	Anadonta anatina	5.79E-03	1.43E-01	9.99E-03	1.49E-03	3.12E-01	3.10E-02	1.02E+00	2.33E-02	2.74E-01	5.64E-02	2.15E-01	5.09E-02
JDS47	R	Anadonta anatina	8.59E-03	2.11E-01	1.70E-02	2.16E-03	6.02E-01	5.58E-02	1.82E+00	3.77E-02	4.72E-01	8.53E-02	3.14E-01	8.54E-02
JDS91		Anadonta anatina	5.51E-03	9.35E-02	6.46E-03	1.96E-03	4.06E-01	3.73E-02	1.01E+00	2.34E-02	1.62E-01	2.98E-02	9.79E-02	2.75E-02
JDS18	M	Unio pictorum	1.41E-02	2.81E-01	2.31E-02	3.36E-03	7.65E-01	8.67E-02	2.90E+00	4.71E-02	7.74E-01	1.25E-01	5.67E-01	1.30E-01
JDS26	L	Unio pictorum	7.09E-03	1.55E-01	1.22E-02	2.21E-03	4.34E-01	4.45E-02	1.45E+00	2.59E-02	3.55E-01	7.43E-02	2.77E-01	7.50E-02
JDS35	R	Unio pictorum	6.29E-03	1.43E-01	9.79E-03	1.57E-03	2.86E-01	2.84E-02	1.01E+00	1.85E-02	2.46E-01	4.06E-02	1.83E-01	5.11E-02
JDS18	L	Sinodonta waodiana	7.48E-03	1.46E-01	1.09E-02	1.89E-03	3.38E-01	3.88E-02	1.28E+00	2.09E-02	3.27E-01	5.81E-02	2.36E-01	6.28E-02
JDS42		Sinodonta waodiana	5.21E-03	1.04E-01	9.85E-03	1.39E-03	3.87E-01	4.04E-02	1.07E+00	2.31E-02	2.71E-01	4.35E-02	1.68E-01	3.67E-02

Table 16: PCBs in mussels [µg/kg],

		Species	1998 WHO-TEQ for PCBs	2005 WHO-TEQ for PCBs	PCB 28	PCB 52	PCB 101	PCB 138	PCB 153	PCB 180	Indicator (EC-6)
JDS20	L	Unio tumidus	1.16E-03	8.86E-04	1.39E+00	2.54E+00	2.60E+00	5.26E+00	7.84E+00	5.17E+00	2.48E+01
JDS21	L	Unio tumidus	1.66E-03	1.43E-03	2.00E+00	1.99E+00	2.32E+00	6.00E+00	1.05E+01	6.55E+00	2.93E+01
JDS22	L	Unio tumidus	1.47E-03	1.23E-03	1.71E+00	1.84E+00	2.25E+00	5.41E+00	9.58E+00	5.94E+00	2.67E+01
JDS22	R	Unio tumidus	2.20E-03	1.76E-03	1.77E+00	2.01E+00	3.71E+00	7.40E+00	1.20E+01	6.78E+00	3.36E+01
JDS29	R	Unio tumidus	1.13E-03	9.35E-04	9.63E-01	1.01E+00	1.62E+00	4.02E+00	6.60E+00	3.85E+00	1.81E+01
JDS32	R	Unio tumidus	9.63E-04	8.14E-04	1.21E+00	1.10E+00	1.34E+00	2.46E+00	3.71E+00	2.04E+00	1.19E+01
JDS33	R	Unio tumidus	1.02E-03	8.54E-04	1.54E+00	1.30E+00	1.39E+00	2.85E+00	4.56E+00	2.53E+00	1.42E+01
JDS35	R	Unio tumidus	7.87E-04	6.59E-04	8.07E-01	8.86E-01	1.16E+00	2.18E+00	3.52E+00	2.02E+00	1.06E+01
JDS39	R	Unio tumidus	1.92E-03	1.61E-03	2.26E+00	2.06E+00	2.76E+00	5.66E+00	9.39E+00	4.95E+00	2.71E+01
JDS45	R	Unio tumidus	1.75E-03	1.44E-03	1.65E+00	2.86E+00	2.78E+00	5.08E+00	8.93E+00	4.60E+00	2.59E+01
JDS47	R	Unio tumidus	2.49E-03	2.06E-03	1.68E+00	2.12E+00	3.72E+00	7.45E+00	1.27E+01	6.98E+00	3.46E+01
JDS51	R	Unio tumidus	2.08E-03	1.53E-03	1.10E+00	1.67E+00	3.88E+00	8.40E+00	1.29E+01	8.95E+00	3.69E+01
JDS52	R	Unio tumidus	8.07E-03	5.36E-03	8.76E+00	1.13E+01	1.86E+01	2.59E+01	3.46E+01	1.71E+01	1.16E+02
JDS53	R	Unio tumidus	3.09E-03	2.37E-03	3.50E+00	3.90E+00	6.03E+00	1.05E+01	1.59E+01	9.58E+00	4.94E+01
JDS56		Unio tumidus	1.31E-03	1.01E-03	1.25E+00	1.19E+00	1.99E+00	2.65E+00	3.62E+00	1.62E+00	1.23E+01
JDS58	R	Unio tumidus	1.24E-03	9.46E-04	1.53E+00	1.45E+00	2.48E+00	3.79E+00	5.68E+00	3.07E+00	1.80E+01
JDS91		Unio tumidus	2.52E-03	2.06E-03	2.63E+00	3.37E+00	3.86E+00	6.67E+00	1.27E+01	9.50E+00	3.87E+01
JDS93		Unio tumidus	1.92E-03	1.53E-03	1.70E+00	3.01E+00	3.00E+00	5.68E+00	9.61E+00	7.71E+00	3.07E+01
JDS17		Anadonta anatina	2.41E-03	1.88E-03	1.24E+00	1.53E+00	3.90E+00	9.27E+00	1.35E+01	8.10E+00	3.75E+01
JDS18	M	Anadonta anatina	1.65E-03	1.30E-03	1.11E+00	1.28E+00	2.60E+00	6.00E+00	9.18E+00	6.06E+00	2.62E+01
JDS20	L	Anadonta anatina	2.18E-03	1.67E-03	2.22E+00	1.71E+00	3.54E+00	9.59E+00	1.37E+01	9.71E+00	4.05E+01
JDS32	R	Anadonta anatina	1.20E-03	9.97E-04	1.15E+00	1.06E+00	1.41E+00	3.14E+00	4.60E+00	3.17E+00	1.45E+01
JDS39	R	Anadonta anatina	1.13E-03	9.43E-04	1.15E+00	9.22E-01	1.37E+00	3.26E+00	4.95E+00	3.13E+00	1.48E+01
JDS41	L	Anadonta anatina	1.35E-03	1.12E-03	1.00E+00	1.30E+00	1.85E+00	4.55E+00	7.04E+00	4.49E+00	2.02E+01
JDS47	R	Anadonta anatina	2.31E-03	1.90E-03	1.44E+00	1.81E+00	2.72E+00	7.02E+00	1.09E+01	6.63E+00	3.05E+01
JDS91		Anadonta anatina	9.37E-04	7.69E-04	8.53E-01	2.83E+00	1.74E+00	2.69E+00	5.05E+00	3.76E+00	1.69E+01
JDS18	M	Unio pictorum	3.26E-03	2.61E-03	3.80E+00	3.39E+00	5.76E+00	1.15E+01	2.05E+01	1.06E+01	5.56E+01
JDS26	L	Unio pictorum	1.70E-03	1.39E-03	1.54E+00	1.59E+00	2.74E+00	4.98E+00	8.93E+00	4.92E+00	2.47E+01
JDS35	R	Unio pictorum	1.31E-03	1.10E-03	1.15E+00	1.29E+00	1.83E+00	3.46E+00	6.13E+00	3.46E+00	1.73E+01
JDS18	L	Sinodonta waodiana	1.51E-03	1.24E-03	1.85E+00	1.89E+00	2.85E+00	4.68E+00	8.41E+00	4.90E+00	2.46E+01
JDS42		Sinodonta waodiana	1.34E-03	1.10E-03	8.16E-01	1.32E+00	1.81E+00	3.43E+00	5.40E+00	2.83E+00	1.56E+01

Table 17: PCDD/Fs in mussels [µg/kg],

			1234678-HpCDD	1234678-HpCDF	1234789-HpCDF	123478-HxCDD	123478-HxCDF	123678-HxCDD	123678-HxCDDin)	123789-HxCDD	123789-HxCDF	12378-PeCDD	12378-PeCDF	1998 WHO-TEQ for PCDD/Fs	2,3,7,8-TCDD	2005 WHO-TEQ for PCDD/Fs	234678-HxCDF
JDS20	L	Unio tumidus	1.12E-03	3.65E-03	6.72E-04	<LOD	1.08E-03	<LOD	5.00E-04	8.37E-05	2.77E-04	<LOD	4.63E-04	1.68E-03	4.34E-04	1.48E-03	2.00E-03
JDS21	L	Unio tumidus	1.08E-03	3.60E-03	5.72E-04	3.68E-05	1.01E-03	1.19E-04	4.79E-04	7.47E-05	3.40E-04	6.10E-05	6.62E-04	1.58E-03	2.46E-04	1.32E-03	5.60E-04
JDS22	L	Unio tumidus	6.02E-04	6.29E-04	7.78E-05	5.61E-05	2.35E-04	1.98E-04	1.49E-04	8.70E-05	6.84E-05	<LOD	4.59E-04	1.33E-03	2.84E-04	1.09E-03	2.30E-04
JDS22	R	Unio tumidus	7.69E-04	5.89E-04	8.98E-05	4.26E-05	2.39E-04	1.90E-04	1.37E-04	9.27E-05	<LOD	9.34E-05	4.44E-04	1.69E-03	5.90E-04	1.44E-03	2.49E-04
JDS29	R	Unio tumidus	8.66E-04	3.37E-03	7.15E-04	7.07E-05	9.78E-04	1.36E-04	4.72E-04	<LOD	2.64E-04	<LOD	4.23E-04	1.68E-03	5.62E-04	1.45E-03	4.58E-04
JDS32	R	Unio tumidus	1.16E-03	3.32E-03	5.09E-04	<LOD	9.29E-04	<LOD	4.70E-04	<LOD	3.02E-04	<LOD	3.67E-04	1.32E-03	2.80E-04	1.10E-03	4.22E-04
JDS33	R	Unio tumidus	6.82E-04	1.94E-03	<LOD	<LOD	5.24E-04	<LOD	2.76E-04	<LOD	<LOD	<LOD	3.99E-04	1.28E-03	3.97E-04	1.11E-03	2.84E-04
JDS35	R	Unio tumidus	5.68E-04	3.53E-04	1.59E-05	<LOD	1.95E-04	<LOD	<LOD	<LOD	<LOD	<LOD	2.59E-04	9.09E-04	3.78E-04	7.98E-04	1.87E-04
JDS39	R	Unio tumidus	1.18E-03	7.06E-03	2.01E-03	8.42E-05	1.60E-03	2.03E-04	7.32E-04	1.34E-04	4.22E-04	<LOD	6.58E-04	2.10E-03	4.40E-04	1.78E-03	5.70E-04
JDS45	R	Unio tumidus	1.88E-03	1.14E-02	2.41E-03	<LOD	2.87E-03	<LOD	1.42E-03	<LOD	8.45E-04	<LOD	8.88E-04	2.48E-03	<LOD	2.16E-03	1.20E-03
JDS47	R	Unio tumidus	1.64E-03	7.90E-03	1.79E-03	1.55E-04	2.13E-03	2.61E-04	1.13E-03	2.26E-04	5.15E-04	<LOD	9.50E-04	2.41E-03	4.63E-04	2.11E-03	6.69E-04
JDS51	R	Unio tumidus	1.99E-03	4.57E-03	9.57E-04	1.28E-04	1.35E-03	3.09E-04	6.98E-04	1.80E-04	3.32E-04	2.07E-04	6.98E-04	1.75E-03	1.22E-04	1.44E-03	6.14E-04
JDS52	R	Unio tumidus	2.77E-03	1.37E-02	3.52E-03	<LOD	3.58E-03	5.20E-04	1.57E-03	3.87E-04	1.03E-03	<LOD	1.54E-03	4.06E-03	7.97E-04	3.49E-03	1.52E-03
JDS53	R	Unio tumidus	2.37E-03	1.03E-02	1.92E-03	1.70E-04	2.69E-03	4.60E-04	1.30E-03	1.98E-04	6.78E-04	1.53E-04	1.20E-03	2.69E-03	2.93E-04	2.25E-03	1.03E-03
JDS56		Unio tumidus	6.44E-04	4.44E-03	8.57E-04	<LOD	1.05E-03	<LOD	4.94E-04	<LOD	2.99E-04	<LOD	2.25E-04	8.81E-04	1.38E-04	7.65E-04	4.17E-04
JDS58	R	Unio tumidus	6.79E-04	4.54E-03	9.40E-04	6.37E-05	1.14E-03	1.28E-04	6.07E-04	7.74E-05	2.54E-04	<LOD	4.17E-04	1.16E-03	2.39E-04	1.01E-03	4.22E-04
JDS91		Unio tumidus	7.95E-03	1.48E-02	2.84E-03	8.78E-04	4.12E-03	1.51E-03	1.84E-03	1.78E-03	1.19E-03	1.88E-03	1.67E-03	5.99E-03	7.98E-04	5.43E-03	1.54E-03
JDS93		Unio tumidus	2.26E-03	7.19E-03	1.26E-03	2.36E-04	1.97E-03	2.97E-04	8.98E-04	3.16E-04	5.65E-04	1.72E-04	7.47E-04	2.33E-03	3.80E-04	1.98E-03	8.25E-04
JDS17		Anadonta anatina	1.15E-03	3.24E-03	6.24E-04	7.52E-05	9.19E-04	1.78E-04	3.99E-04	7.33E-05	2.58E-04	<LOD	6.15E-04	1.75E-03	3.41E-04	1.45E-03	4.54E-04
JDS18	M	Anadonta anatina	1.38E-03	3.69E-03	6.62E-04	7.08E-05	1.04E-03	1.76E-04	4.64E-04	1.02E-04	2.54E-04	7.66E-05	5.51E-04	1.48E-03	3.61E-04	1.27E-03	4.13E-04
JDS20	L	Anadonta anatina	1.08E-03	3.26E-03	6.22E-04	6.63E-05	9.18E-04	1.93E-04	5.10E-04	1.27E-04	2.85E-04	<LOD	6.25E-04	1.88E-03	5.44E-04	1.62E-03	4.78E-04
JDS32	R	Anadonta anatina	1.84E-03	3.50E-03	6.46E-04	5.29E-05	9.88E-04	2.90E-04	5.01E-04	1.05E-04	2.09E-04	1.27E-04	5.16E-04	1.81E-03	4.81E-04	1.54E-03	3.94E-04
JDS39	R	Anadonta anatina	7.69E-04	8.03E-04	<LOD	<LOD	1.93E-04	2.15E-04	1.06E-04	7.60E-05	<LOD	<LOD	2.68E-04	1.11E-03	4.05E-04	9.62E-04	1.61E-04
JDS41	L	Anadonta anatina	1.17E-03	5.15E-03	1.29E-03	1.21E-04	1.30E-03	1.31E-04	7.04E-04	1.16E-04	3.19E-04	7.97E-05	4.93E-04	1.84E-03	6.57E-04	1.63E-03	4.52E-04
JDS47	R	Anadonta anatina	2.57E-03	8.00E-03	1.76E-03	<LOD	2.05E-03	2.16E-04	1.07E-03	<LOD	4.88E-04	<LOD	1.04E-03	2.76E-03	6.49E-04	2.33E-03	6.92E-04
JDS91		Anadonta anatina	2.98E-03	4.08E-03	6.56E-04	4.07E-04	1.05E-03	5.03E-04	5.41E-04	6.54E-04	3.89E-04	7.18E-04	5.29E-04	2.18E-03	3.77E-04	1.99E-03	5.44E-04
JDS18	M	Unio pictorum	1.14E-03	3.49E-03	5.70E-04	9.91E-05	1.05E-03	2.87E-04	3.73E-04	1.31E-04	3.51E-04	1.66E-04	5.36E-04	2.11E-03	4.01E-04	1.76E-03	4.88E-04
JDS26	L	Unio pictorum	6.47E-04	5.38E-04	6.01E-05	6.03E-05	1.95E-04	1.91E-04	1.44E-04	8.65E-05	8.57E-05	<LOD	3.27E-04	1.35E-03	3.00E-04	1.09E-03	2.61E-04
JDS18	L	Sinodonta waodiana	6.47E-04	3.52E-03	6.78E-04	<LOD	9.69E-04	1.57E-04	3.32E-04	<LOD	3.26E-04	<LOD	3.65E-04	1.35E-03	3.39E-04	1.16E-03	3.62E-04
JDS42		Sinodonta waodiana	1.79E-03	6.87E-03	1.25E-03	1.27E-04	1.75E-03	2.11E-04	7.96E-04	1.48E-04	5.10E-04	<LOD	5.82E-04	1.35E-03	<LOD	1.16E-03	6.52E-04

Table 17: PCDD/Fs in mussels [µg/kg],

			23478-PeCDF	2378-TCDF	HpCDD	HpCDF	HxCDD	HxCDF	I-TEQ	OCDD	OCDF	PeCDD	PeCDF	TCDD	TCDF	Total PCDD/Furans	Total PCDDs	Total PCDFs
JDS20	L	Unio tumidus	9.57E-04	1.31E-03	2.27E-03	5.97E-03	1.49E-03	5.61E-03	1.63E-03	4.98E-03	1.28E-02	7.60E-04	8.48E-03	2.49E-03	2.36E-02	6.85E-02	1.20E-02	5.65E-02
JDS21	L	Unio tumidus	1.24E-03	3.03E-03	2.21E-03	5.58E-03	1.60E-03	6.17E-03	1.56E-03	4.54E-03	1.13E-02	1.38E-03	1.39E-02	2.68E-03	3.68E-02	8.62E-02	1.24E-02	7.38E-02
JDS22	L	Unio tumidus	1.18E-03	2.45E-03	1.39E-03	1.11E-03	1.81E-03	2.37E-03	1.30E-03	3.52E-03	1.77E-03	4.57E-04	9.57E-03	3.54E-03	3.02E-02	5.57E-02	1.07E-02	4.50E-02
JDS22	R	Unio tumidus	1.20E-03	2.71E-03	1.49E-03	1.11E-03	2.06E-03	1.65E-03	1.64E-03	3.03E-03	1.44E-03	1.58E-03	9.66E-03	6.22E-03	3.46E-02	6.28E-02	1.44E-02	4.85E-02
JDS29	R	Unio tumidus	1.13E-03	1.47E-03	1.82E-03	5.76E-03	1.62E-03	5.20E-03	1.65E-03	4.30E-03	1.09E-02	8.16E-04	9.02E-03	2.93E-03	2.16E-02	6.40E-02	1.15E-02	5.25E-02
JDS32	R	Unio tumidus	1.04E-03	1.49E-03	2.03E-03	5.40E-03	1.33E-03	5.10E-03	1.30E-03	4.30E-03	1.11E-02	1.48E-03	8.97E-03	9.00E-03	2.11E-02	6.98E-02	1.81E-02	5.17E-02
JDS33	R	Unio tumidus	8.31E-04	1.80E-03	1.50E-03	3.48E-03	1.50E-03	4.17E-03	1.24E-03	2.97E-03	5.70E-03	2.52E-03	8.83E-03	1.10E-02	2.36E-02	6.53E-02	1.95E-02	4.58E-02
JDS35	R	Unio tumidus	5.35E-04	1.21E-03	1.34E-03	6.58E-04	1.35E-03	1.00E-03	8.87E-04	2.64E-03	1.44E-03	1.12E-03	5.76E-03	6.83E-03	1.69E-02	3.90E-02	1.33E-02	2.57E-02
JDS39	R	Unio tumidus	1.57E-03	3.01E-03	2.61E-03	1.65E-02	2.54E-03	7.98E-03	2.09E-03	7.04E-03	1.78E-02	1.78E-03	1.20E-02	1.85E-02	3.34E-02	1.20E-01	3.24E-02	8.77E-02
JDS45	R	Unio tumidus	1.53E-03	2.73E-03	3.90E-03	1.98E-02	2.05E-03	1.51E-02	2.47E-03	1.14E-02	3.88E-02	1.12E-03	1.53E-02	7.68E-03	3.49E-02	1.50E-01	2.62E-02	1.24E-01
JDS47	R	Unio tumidus	1.40E-03	3.20E-03	3.17E-03	1.42E-02	3.05E-03	1.17E-02	2.31E-03	9.87E-03	2.50E-02	2.01E-03	1.43E-02	1.25E-02	4.03E-02	1.36E-01	3.06E-02	1.05E-01
JDS51	R	Unio tumidus	1.48E-03	2.06E-03	4.42E-03	7.50E-03	4.31E-03	7.80E-03	1.66E-03	9.22E-03	1.40E-02	3.22E-03	1.43E-02	8.35E-03	3.70E-02	1.10E-01	2.95E-02	8.05E-02
JDS52	R	Unio tumidus	2.74E-03	5.78E-03	1.17E-02	2.35E-02	6.17E-03	2.12E-02	4.04E-03	1.45E-02	4.88E-02	4.19E-03	2.77E-02	2.61E-02	7.73E-02	2.61E-01	6.26E-02	1.98E-01
JDS53	R	Unio tumidus	2.11E-03	3.24E-03	4.75E-03	1.67E-02	5.11E-03	1.53E-02	2.65E-03	8.72E-03	3.14E-02	4.32E-03	2.15E-02	1.77E-02	5.80E-02	1.83E-01	4.06E-02	1.43E-01
JDS56		Unio tumidus	5.77E-04	8.85E-04	1.48E-03	6.92E-03	9.86E-04	5.67E-03	8.71E-04	3.22E-03	1.34E-02	7.69E-04	6.19E-03	4.72E-03	2.23E-02	6.56E-02	1.12E-02	5.44E-02
JDS58	R	Unio tumidus	7.28E-04	1.22E-03	1.64E-03	7.50E-03	1.39E-03	6.51E-03	1.14E-03	3.86E-03	1.42E-02	1.06E-03	8.50E-03	5.79E-03	2.33E-02	7.37E-02	1.37E-02	6.00E-02
JDS91		Unio tumidus	2.68E-03	3.36E-03	1.51E-02	2.50E-02	1.99E-02	2.40E-02	5.11E-03	1.95E-02	4.60E-02	1.57E-02	3.49E-02	3.54E-02	9.16E-02	3.27E-01	1.06E-01	2.22E-01
JDS93		Unio tumidus	1.71E-03	2.63E-03	4.92E-03	1.25E-02	6.38E-03	1.15E-02	2.27E-03	9.73E-03	2.27E-02	3.76E-03	1.70E-02	1.55E-02	4.38E-02	1.48E-01	4.03E-02	1.07E-01
JDS17		Anadonta anatina	1.43E-03	2.67E-03	2.69E-03	5.66E-03	2.49E-03	4.95E-03	1.71E-03	6.58E-03	9.50E-03	1.53E-03	1.25E-02	3.69E-03	3.78E-02	8.74E-02	1.70E-02	7.04E-02
JDS18	M	Anadonta anatina	1.01E-03	1.99E-03	2.97E-03	6.29E-03	1.62E-03	5.75E-03	1.46E-03	6.18E-03	1.09E-02	8.42E-04	9.57E-03	2.52E-03	2.79E-02	7.46E-02	1.41E-02	6.04E-02
JDS20	L	Anadonta anatina	1.21E-03	2.40E-03	2.41E-03	5.40E-03	2.02E-03	5.21E-03	1.82E-03	6.92E-03	1.11E-02	1.05E-03	1.13E-02	3.51E-03	3.31E-02	8.21E-02	1.59E-02	6.62E-02
JDS32	R	Anadonta anatina	1.31E-03	2.02E-03	3.80E-03	6.15E-03	2.50E-03	5.13E-03	1.76E-03	1.14E-02	1.18E-02	2.00E-03	1.09E-02	1.12E-02	2.64E-02	9.12E-02	3.09E-02	6.04E-02
JDS39	R	Anadonta anatina	7.13E-04	1.68E-03	1.50E-03	1.30E-03	1.82E-03	1.37E-03	1.08E-03	4.20E-03	1.73E-03	8.96E-04	6.44E-03	1.03E-02	2.14E-02	5.10E-02	1.87E-02	3.23E-02
JDS41	L	Anadonta anatina	9.99E-04	1.83E-03	2.57E-03	1.47E-02	2.24E-03	8.01E-03	1.82E-03	6.62E-03	1.50E-02	1.42E-03	9.42E-03	1.15E-02	2.68E-02	9.83E-02	2.44E-02	7.39E-02
JDS47	R	Anadonta anatina	2.08E-03	3.12E-03	5.35E-03	1.43E-02	3.56E-03	1.22E-02	2.75E-03	1.51E-02	2.56E-02	1.81E-03	1.59E-02	1.47E-02	4.46E-02	4.06E-02	1.13E-01	1.53E-01
JDS91		Anadonta anatina	9.27E-04	1.11E-03	5.75E-03	7.19E-03	6.99E-03	7.35E-03	1.84E-03	9.23E-03	1.34E-02	4.96E-03	1.07E-02	1.09E-02	3.01E-02	1.07E-01	3.78E-02	6.87E-02
JDS18	M	Unio pictorum	1.74E-03	3.17E-03	2.28E-03	5.67E-03	2.25E-03	6.33E-03	2.05E-03	5.66E-03	1.12E-02	1.87E-03	1.33E-02	4.85E-03	4.23E-02	9.57E-02	1.69E-02	7.88E-02
JDS26	L	Unio pictorum	1.29E-03	2.18E-03	1.43E-03	9.83E-04	2.01E-03	2.18E-03	1.33E-03	3.06E-03	1.78E-03	1.66E-03	1.02E-02	4.53E-03	3.00E-02	5.78E-02	1.27E-02	4.51E-02
JDS18	L	Sinodonta waodiana	9.23E-04	1.65E-03	1.25E-03	5.81E-03	1.54E-03	4.83E-03	1.32E-03	2.90E-03	1.12E-02	1.09E-03	1.01E-02	2.57E-03	2.39E-02	6.52E-02	9.36E-03	5.58E-02
JDS42		Sinodonta waodiana	8.91E-04	2.00E-03	3.77E-03	7.04E-03	2.93E-03	9.03E-03	1.35E-03	1.12E-02	2.12E-02	1.22E-03	9.62E-03	5.34E-03	2.80E-02	9.92E-02	2.44E-02	7.48E-02

Table 18: PBDEs in mussels [µg/kg],

			BDE-17	BDE-28	BDE-47	BDE-49	BDE-66	BDE-85	BDE-99	BDE-100	BDE-153	BDE-154
JDS20	L	Unio tumidus	1.71E-03	1.40E-02	5.05E-01	2.63E-02	2.34E-02	3.17E-03	3.84E-01	5.81E-02	<LOD	<LOD
JDS21	L	Unio tumidus	9.52E-03	1.25E-02	3.74E-01	5.83E-02	<LOD	<LOD	4.17E-01	1.15E-01	4.81E-02	4.06E-02
JDS22	L	Unio tumidus	9.59E-03	1.51E-02	8.66E-01	<LOD	1.81E-02	<LOD	6.53E-01	1.50E-01	9.98E-02	4.31E-02
JDS22	R	Unio tumidus	1.53E-02	3.02E-02	1.18E+00	5.94E-02	3.91E-02	1.02E-02	8.37E-01	1.75E-01	8.71E-02	4.60E-02
JDS29	R	Unio tumidus	<LOD	1.11E-02	5.06E-01	2.11E-02	<LOD	<LOD	3.59E-01	7.18E-02	5.52E-02	3.18E-02
JDS32	R	Unio tumidus	8.41E-03	2.14E-02	1.26E+00	3.25E-02	<LOD	4.40E-03	9.35E-01	1.51E-01	8.73E-02	2.37E-02
JDS33	R	Unio tumidus	1.06E-02	1.39E-02	8.82E-01	<LOD	<LOD	<LOD	7.59E-01	1.68E-01	6.84E-02	2.64E-02
JDS35	R	Unio tumidus	<LOD	9.43E-03	5.07E-01	1.65E-02	2.61E-02	<LOD	4.69E-01	9.69E-02	5.68E-02	2.38E-02
JDS39	R	Unio tumidus	<LOD	3.05E-02	1.33E+00	4.23E-02	6.28E-02	<LOD	8.32E-01	1.76E-01	4.81E-02	2.69E-02
JDS45	R	Unio tumidus	1.22E-02	5.78E-02	1.04E+00	5.24E-02	3.89E-02	1.80E-03	8.55E-01	2.12E-01	9.36E-02	0.00E+00
JDS47	R	Unio tumidus	<LOD	6.13E-02	1.42E+00	7.29E-02	1.21E-01	<LOD	1.01E+00	2.62E-01	1.48E-01	0.00E+00
JDS51	R	Unio tumidus	2.53E-02	<LOD	8.19E-01	6.87E-02	7.65E-02	<LOD	1.40E+00	2.27E-01	1.73E-01	4.52E-02
JDS52	R	Unio tumidus	9.18E-02	1.25E-01	4.80E+00	2.70E-01	3.55E-01	5.59E-02	4.45E+00	5.71E-01	2.85E-01	<LOD
JDS53	R	Unio tumidus	3.19E-02	6.44E-02	2.25E+00	1.00E-01	1.55E-01	<LOD	1.68E+00	1.83E-01	1.57E-01	6.55E-02
JDS56		Unio tumidus	8.90E-03	2.23E-02	5.90E-01	3.12E-02	<LOD	<LOD	5.65E-01	1.00E-01	<LOD	<LOD
JDS58	R	Unio tumidus	1.26E-02	1.65E-02	7.19E-01	3.15E-02	1.70E-02	<LOD	5.88E-01	6.59E-02	7.55E-02	<LOD
JDS91		Unio tumidus	<LOD	<LOD	5.41E-01	<LOD	<LOD	2.95E-02	7.22E-01	7.63E-02	1.36E-01	<LOD
JDS93		Unio tumidus	<LOD	<LOD	3.66E-01	1.42E-02	3.06E-02	<LOD	4.85E-01	8.51E-02	1.07E-01	<LOD
JDS17		Anadonta anatina	2.00E-02	<LOD	1.38E+00	5.20E-02	<LOD	<LOD	1.13E+00	4.43E-01	9.10E-02	9.58E-02
JDS18	M	Anadonta anatina	1.47E-02	1.97E-02	8.14E-01	5.00E-02	<LOD	4.39E-03	6.45E-01	2.50E-01	9.04E-02	6.95E-02
JDS20	L	Anadonta anatina	1.04E-02	1.66E-02	7.18E-01	3.90E-03	1.80E-02	<LOD	4.70E-01	2.00E-01	7.02E-02	5.09E-02
JDS32	R	Anadonta anatina	1.37E-02	2.46E-02	1.35E+00	4.30E-02	<LOD	9.08E-03	8.70E-01	3.32E-01	1.01E-01	7.98E-02
JDS39	R	Anadonta anatina	1.05E-02	2.19E-02	7.05E-01	<LOD	<LOD	<LOD	3.99E-01	2.07E-01	<LOD	4.95E-02
JDS41	L	Anadonta anatina	<LOD	2.31E-02	6.21E-01	3.01E-02	<LOD	<LOD	3.33E-01	1.92E-01	6.35E-02	3.99E-02
JDS47	R	Anadonta anatina	3.45E-02	4.74E-02	1.05E+00	<LOD	<LOD	<LOD	5.73E-01	3.18E-01	1.16E-01	<LOD
JDS91		Anadonta anatina	<LOD	6.04E-03	2.11E-01	1.87E-02	<LOD	1.12E-02	2.51E-01	6.63E-02	5.11E-02	5.02E-02
JDS18	M	Unio pictorum	3.15E-02	2.58E-02	1.26E+00	9.90E-02	2.24E-02	2.35E-02	8.39E-01	3.92E-01	1.29E-01	8.66E-02
JDS26	L	Unio pictorum	<LOD	1.51E-02	8.68E-01	4.65E-02	<LOD	<LOD	6.54E-01	1.51E-01	9.44E-02	4.32E-02
JDS35	R	Unio pictorum	1.44E-02	1.87E-02	9.74E-01	4.16E-02	<LOD	<LOD	8.40E-01	1.78E-01	1.05E-01	6.40E-02
JDS18	L	Sinodonta waodiana	4.73E-03	1.40E-02	6.87E-01	4.33E-02	2.22E-02	2.27E-03	5.32E-01	1.11E-01	6.32E-02	2.77E-02
JDS42		Sinodonta waodiana	1.75E-02	2.56E-02	1.10E+00	0.00E+00	4.26E-02	<LOD	7.12E-01	2.58E-01	7.31E-02	<LOD