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### A Surveillance Monitoring

Monitoring of **Effects of long term changes** (natural or anthropogenic) in the over-all **ecological status** of a river basin or sub-basin (no relation to a single water body)

Where to monitor:

- at least in areas of **2.500 km<sup>2</sup>**,
- significant water bodies crossing **national border lines**,
- stations where **pollution load** is necessary to be estimated.

Frequency: **6 years**

Quality elements:

- **all biological components**,
- **important supporting abiotic parameters**



### B Operational Monitoring

Monitoring of **WB's being at risk** or identified of being heavily modified.

#### Target:

- information on the actual ecological status,
- controlling the efficiency of measures

#### Where to monitor:

- In **every water body** or **homogenous water body group** being at risk or identified of being (provisionally or finally) heavily modified.

Frequency: **depending on the quality elements** monitored (3 or 6 month, 3 or 6 years)

#### Quality elements:

- **selected biological components** indicating best the reason for failing GES (e.g. point sources, diffuse sources, hydromorphological pressures) and
- **selected supporting abiotic parameters (incl. priority substances)**



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## Monitoring Program (German proposal)



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Quality element	Rivers	Lakes	Transitional	Coastal
<b>Biological</b>				
Phytoplankton	6 months	6 months	6 months	6 months
Other aquatic flora	3 years	3 years	3 years	3 years
Macro-invertebrates	3 years	3 years	3 years	3 years
Fish	3 years	3 years	3 years	
<b>Hydro-morphological</b>				
Continuity	6 years			
Hydrology	continuous	1 month		
Morphology	6 years	6 years	6 years	6 years
<b>Physico-chemical</b>				
Thermal conditions	3 months	3 months	3 months	3 months
Oxygenation	3 months	3 months	3 months	3 months
Salinity	3 months	3 months	3 months	
Nutrient status	3 months	3 months	3 months	3 months
Acidification status	3 months	3 months		
Other pollutants	3 months	3 months	3 months	3 months
Priority substances	1 month	1 month	1 month	1 month



### C Investigative Monitoring

Monitoring to **evaluate the magnitude and impact of accidental pollution** and **online monitoring to prevent damage in water uses** (e.g. water supply, flood control) .

Where to monitor:

- where the **reason** of failing the objectives of the WFD is unknown,
- where the **impact** of an anthropogenic pressure is unknown.

Frequency: **depending on the particular targets and quality elements**

Quality elements:

- **best investigative biological components** and
- **selected supporting abiotic parameters (incl. priority substances) to identify the reasons and/or impacts.**



### Strategy to create a monitoring program (German proposal)

#### Step 1:

Selection of all water bodies being at risk / hmwb.

#### Step 2:

Selecting the reason for being at risk / hmwb:

- diffuse sources agriculture,
- diffuse sources urbanisation,
- point sources,
- morphology,
- migration obstacles,
- hydrology (not considered in the German part of the PRB).



### Strategy to create a monitoring program (German proposal)

#### Step 3:

Aggregation of water bodies of:

- the same river type,
- the same reason of being at risk, and
- belonging to one sub-basin

to be treated as one monitoring group. Every monitoring group will be represented by at least one monitoring station.

#### Step 4:

Every monitoring site will be decided to be:

- an operational monitoring site, or
- an investigative monitoring site, or
- both



### Strategy to create a monitoring program (German proposal)

#### Step 5:

Selection of the biological quality elements and supporting abiotic parameters depending on the reason of being at risk / hmwb (e.g. migration obstacle => fish monitoring, in larger impoundments also phytoplankton).

#### Step 6:

Checking if these operational monitoring sites are also useful as surveillance monitoring locations

#### Step 7:

Screening of the whole river basin for further appropriate surveillance monitoring locations





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## Monitoring Program (German proposal)



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### General Goal of the Monitoring Strategy

- Reduction of costs, and
  - optimal use of actual informations to detect long term changes
- á Using already existing monitoring sites as far as possible



### Results for the German Part of the Neisse catchment

- 8 surveillance monitoring sites covering the whole German part of the RB
- 13 operational monitoring sites (7 single water bodies and 6 water body groups)
- The largest monitoring group is consisting of 10 single water bodies
- One investigative monitoring site

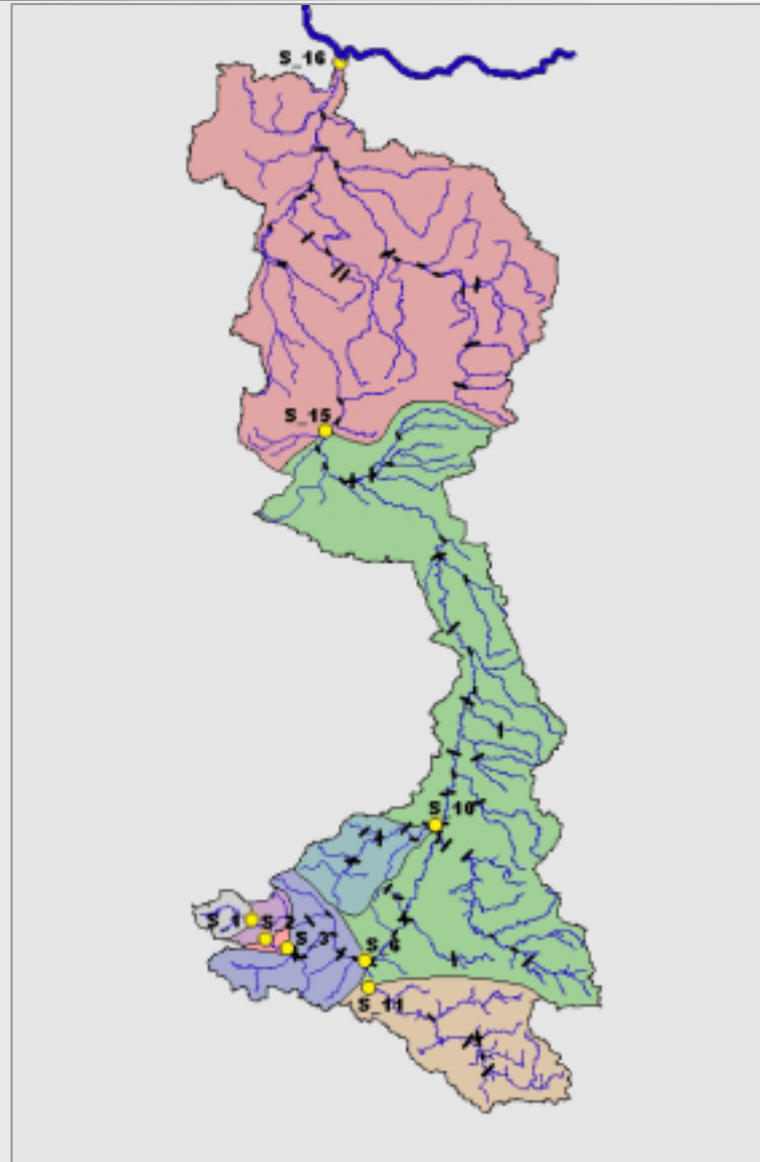


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## Map of surveillance monitoring sites



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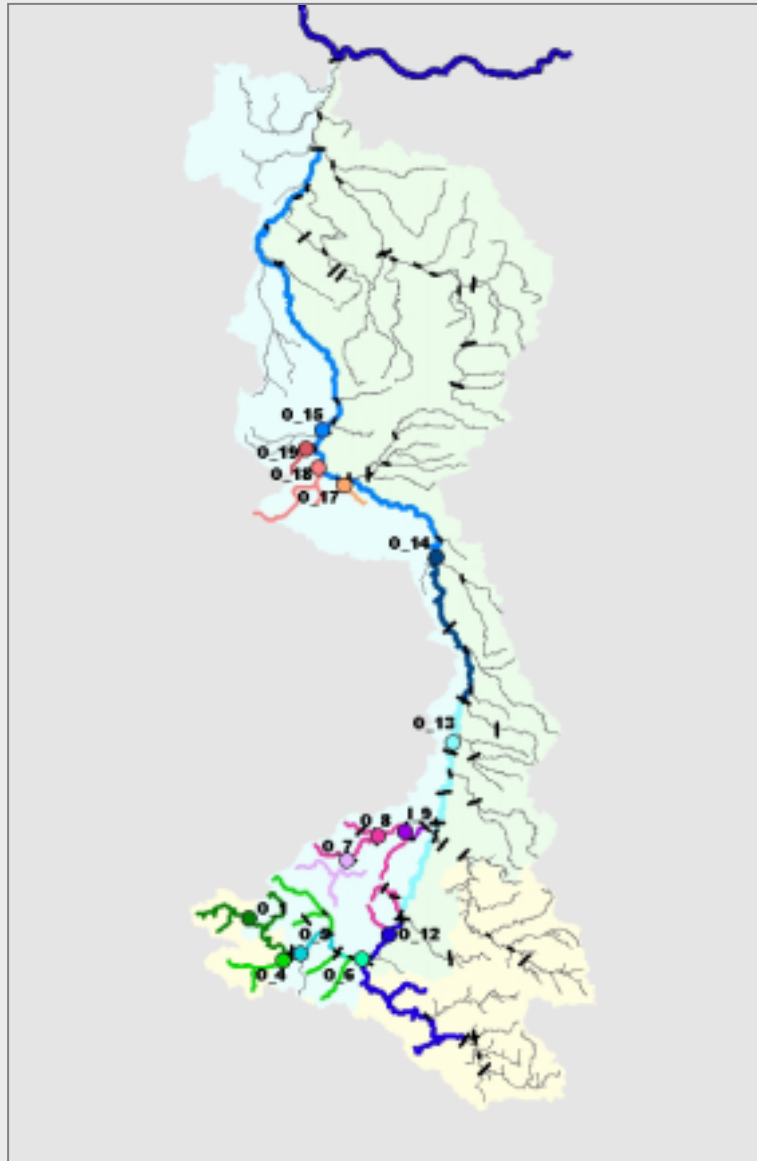


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## Map of operational and investigative monitoring sites



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# Map of operational and investigative monitoring sites - near to Bad Muskau -



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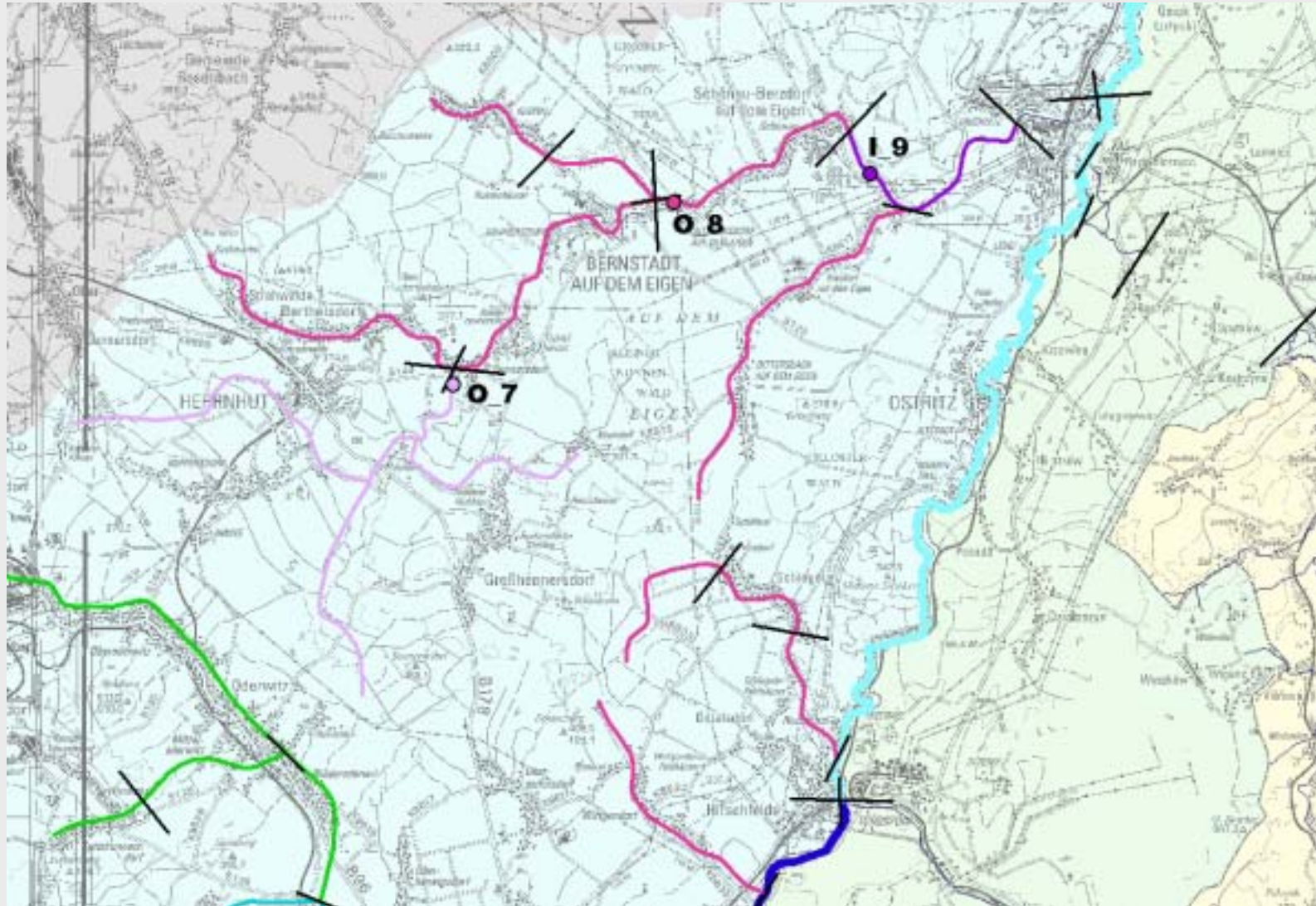


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# Map of operational and investigative monitoring sites - catchment of the Pließnitz river -



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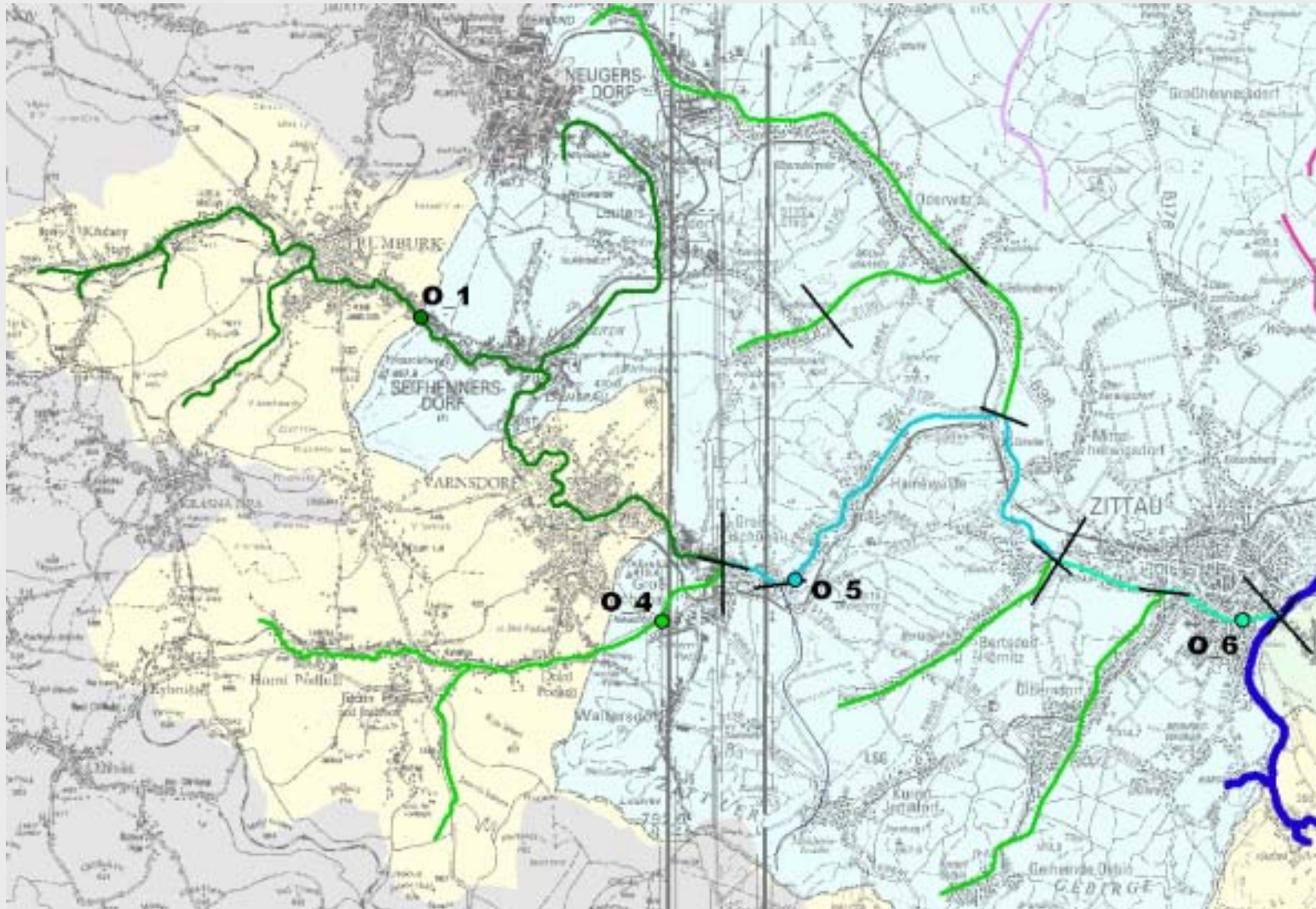


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# Map of operational and investigative monitoring sites - catchment of the Mandau river -



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PS_NR	GEWAESSER	MONITORING	RISK ASSESSMENT	PRESSURES					PARAMETERS					
				DIFF_LW	DIFF_URB	PUNKT	QBW	MORPH	MZB	FISCH	MP_PB	CHEMIE	MORPHOL	PEGEL
O_1	Mandau	operational	at risk	x	x		x		x	x		NO3; PO4; NH4; O2; pH; Temp.		
S_1	Mandau	surveillance	at risk						x	x	x	komplett	x	x
S_2	Mandau	surveillance	at risk						x	x	x	komplett	x	x
S_3	Mandau	surveillance	at risk						x	x	x	komplett	x	x
O_4	Lausur	operational	at risk	x	x		x		x	x		NO3; PO4; NH4; O2; pH; Temp.	x	
O_5	Mandau	operational	at risk			x	x	x	x	x		TOC; BSB; NO3; PO4; NH4; O2; pH; Temp.		
O_6	Mandau	operational	pot. hmwb		x		x		x	x		TOC; BSB; NO3; PO4; NH4; O2; pH; Temp.		
S_6	Mandau	surveillance	pot. hmwb						x	x	x	komplett	x	x
O_7	Petersbach	operational	at risk	x			x		x	x		NO3; PO4; NH4; O2; pH; Temp.	x	
O_8	Pließnitz	operational	at risk	x	x		x		x	x		NO3; PO4; NH4; O2; pH; Temp.	x	
I_9	Pließnitz	investigative	at risk					x	x	x	x		x	
S_10	Pließnitz	surveillance	at risk						x	x	x	komplett	x	x
S_11	Lausitzer Neiße	surveillance	at risk	x					x	x	x	komplett	x	x
O_12	Lausitzer Neiße	operational	at risk	x	x		x	x	x	x		NO3; PO4; NH4; O2; pH; Temp.		
O_13	Lausitzer Neiße	operational	at risk	x	x		x		x	x		TOC; BSB; NO3; PO4; NH4; O2; pH; Temp.		
O_14	Lausitzer Neiße	operational	at risk				x			x		NO3; PO4; NH4; O2; pH; Temp.		
O_15	Lausitzer Neiße	operational	at risk				x			x		NO3; PO4; NH4; O2; pH; Temp.		
S_15	Lausitzer Neiße	surveillance	at risk						x	x	x	komplett		x
S_16	Lausitzer Neiße	surveillance	not at risk						x	x	x	komplett	x	x
O_17	Mühlengraben Sagar	operational	at risk	x					x			NO3; PO4; NH4; O2; pH; Temp.	x	
O_18	Legnitzka	operational	at risk	x	x				x			NO3; PO4; NH4; O2; pH; Temp.	x	
O_19	Räderschnitza	operational	at risk	x	x				x			NO3; PO4; NH4; O2; pH; Temp.	x	





## Next steps:



Project 2.7. Guidance on monitoring	<p>surface water</p> <ul style="list-style-type: none"> <li>-development of surveillance monitoring</li> <li>specification of monitoring sites, monitoring frequency, quality parameters</li> <li>- development of operational monitoring</li> <li>specification of monitoring sites, monitoring frequency, quality parameters</li> <li>- development of investigative monitoring</li> <li>specification of monitoring sites, monitoring frequency, quality parameters</li> </ul>	1/200 4	3/2004	2.7.1. 2.7.2. 2.7.3. 2.7.4.
<b>meeting on work block 3</b>	<ul style="list-style-type: none"> <li>-coordination of the results of work block 3</li> <li>- coordination for work block 4</li> </ul>	3/200 4		
<u>work block 4</u> Project 2.7. Guidance on monitoring	<p>ground water</p> <ul style="list-style-type: none"> <li>-development of surveillance monitoring</li> <li>specification of monitoring sites, monitoring frequency, quality parameters</li> <li>- development of operational monitoring</li> <li>specification of monitoring sites, monitoring frequency, quality parameters</li> <li>- development of investigative monitoring</li> <li>specification of monitoring sites, monitoring frequency, quality parameters</li> </ul>	4/200 4	6/2004	2.7.1. 2.7.2. 2.7.3. 2.7.4.
<b>task</b>	<b>sub-tasks</b>	<b>start</b>	<b>end</b>	<b>ref. key points</b>
Project 2.7. Guidance on monitoring	<p>summary of the results</p> <ul style="list-style-type: none"> <li>- preparation of sub-report and maps</li> <li>- <b>assessment of key points</b></li> </ul>	4/200 4	6/2004	
<b>consultation on work block 3</b>	preparation of the final report on projects 2.1.,2.3.,2.7.		12/2004	general key points



## Next steps:



- **Progress report on the harmonized surface water monitoring concept (until 15 June 2004)**
- **Creating a groundwater monitoring plan**
- **Table of contents for the final report of the PRB Neisse**
- **??? Other issues??**