



International river basins in the Baltic Sea Region

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There are 14 larger international river basins within the Baltic Sea Drainage Basin. These river basins vary in size, number of countries sharing the basins, environmental problems experienced and the way they are managed. But, they do have something in common. They are all international and they are all situated in the same geographical area, the Baltic Sea Region. The Interreg IIIB project TRABANT, launched to address topical issues in international water management, has decided to set up a small “fact sheet” for international river basins within the Baltic Sea Region. The fact sheet gives an overview of international cooperation and pressures on and status of water resources in the international basins. This may be of interest to water managers, stakeholders and other interested in international water management in the region.

Description

The Baltic Sea Drainage Basin (BSDB) is a large heterogeneous region. The drainage basin covers an area of 1 739 000 km², is shared by 14 countries (Belarus, Czech Republic, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Russia, Slovakia, Sweden and Ukraine) and home to about 84 million people (Hannerz and Destouni, 2005). Within the BSDB there are 14 larger international river basins, covering a total area of 1 050 000 km² (figure 1).

The following river basins have been included in the characterization: Klarälven-Trysilelva/Göta Älv, Indalsälven, Torne River, Kemijoki, Vuoksi/Lake Ladoga-Nevala River, Narva River/Lake Peipsi, Gauja,



Figure 1. Fourteen largest international river basins in the Baltic Sea Drainage Basin.

Daugava, Lielupe, Venta, Nemunas, Vistula, Pregola and Oder.

For each river basin, a one-page “fact sheet” has been produced. Each fact sheet lists the following information:

- Area of basin (km²)
- Population (total number of inhabitants)
- Land cover (% of total river basin)
- Total runoff to the Baltic Sea in year 2000 (million m³/a)
- Total N load to the Baltic Sea in year 2000 (tonnes)
- Total P load to the Baltic Sea in year 2000 (tonnes)
- Total BOD₇ load to the Baltic Sea in year 2000 (tonnes)

- Countries sharing the basin and share of each country (% of total river basin)
- Existence of a water treaty and/or water commission, countries signatories to the treaty and tasks of the treaty/commission

Sources of information

The information for the fact sheets have been collected from different databases, scientific reports, internet pages of ministries of environments and environmental protection agencies, and

through personal contacts. Only harmonized, publicly available geographical datasets covering the whole region have been used in the work. Table 1 lists the data sources used.

Other references

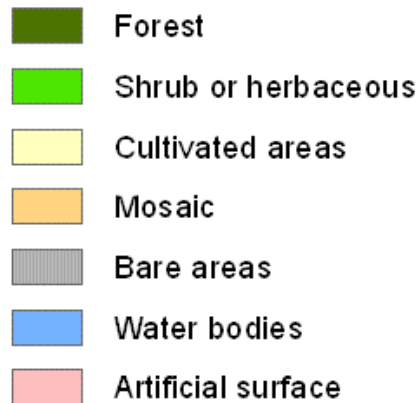
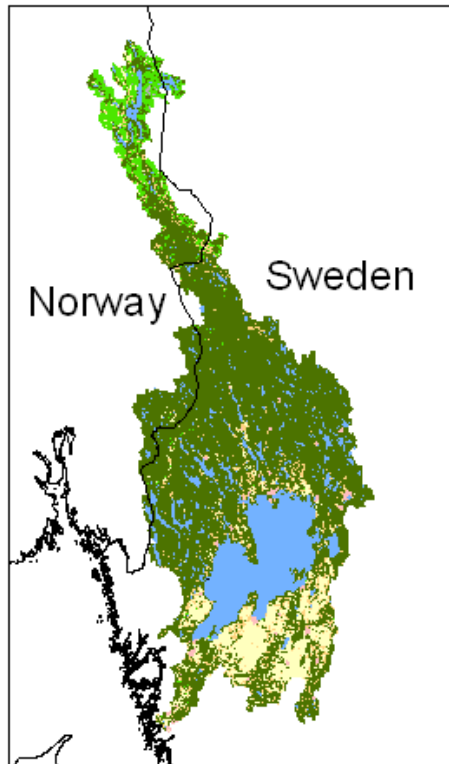
Hannerz, F. and Destouni G. (2005) Spatial characterization of the Baltic Sea drainage basins and its unmonitored catchments. (Accepted for publication in *Ambio*).

Table 1. Data sources used.

Information	Data source	Scale / resolution
Definition of BSDB	Dataset from: Hannerz, F. and Destouni G. (2005) Spatial characterization of the Baltic Sea drainage basins and its unmonitored catchments. (Accepted for publication in <i>Ambio</i>).	1:1 000 000
Area of river basin	Dataset on river basins from: JRC. (2000). <i>Catchment Database, GISCO</i> . Produced by GI GIS project and Natural Hazards – Flooding project, JRC. http://eusoiils.jrc.it/gisco_dbm/dbm/home.htm	1:1 000 000
Population	Oak Ridge National Laboratory. (2005). <i>LandScan 2003 Global Population Database</i> . http://www.ornl.gov/sci/landscan/index.html	30 x 30 arc seconds
Land cover	JRC. (2003b). <i>Global Land Cover for the Year 2000</i> . http://www-gvm.jrc.it/glc2000/	30 x 30 arc seconds
Runoff, N, P and BOD ₇ load	HELCOM. (2004). <i>The Fourth Baltic Sea Pollution Load Compilation (PLC-4)</i> . (Balt. Sea Environ. Proc. No. 93). Helsinki: Helsinki Commission. Kotilainen, P. (2005). HELCOM Baltic Sea pollution load compilation data. (Personal communication)	
Countries sharing the basin	Dataset on river basins from: JRC. (2000). <i>Catchment Database, GISCO</i> . Produced by GI GIS project and Natural Hazards – Flooding project, JRC. http://eusoiils.jrc.it/gisco_dbm/dbm/home.htm Dataset on international boundaries from: ESRI. (2005). <i>ESRI Data & Maps 2005</i> . http://www.esri.com/	1:1 000 000
Information about water treaties /commissions	CTC. (2005). <i>Peipsi Center for Transboundary Cooperation</i> . Retrieved 25.07.2005, from http://www.ctc.ee Finnish-Russian Commission on the utilization of frontier watercourses. (1995). Cooperation on the frontier water courses during thirty years. Helsinki: Painatuskeskus. Kinnunen, K. (2005). Personal communication. Ministry of Environment Estonia. (2005). <i>Estonia and Latvia manage the transboundary water bodies together</i> . Retrieved 25.07.2005, from http://www.envir.ee Oregon State University. (2002). <i>International Freshwater Treaties Database</i> . http://www.transboundarywaters.orst.edu/ Roll, G., Maximova, T., & Aliakseyeva, N. (1999). <i>The Daugava Directory - Environmental Organisations, Water Protection and Management</i> . Tartu-Pskov: Center for Transboundary Cooperation. Swedish EPA. (2003). <i>The Transboundary Waters Programme of the Swedish Environmental Protection Agency 1997-2002</i> . Stockholm: Swedish Environmental Protection Agency. Swedish EPA. (2005). <i>Beskrivning, kartläggning och analys av Sveriges vatten – sammanfattande rapport, Rapportering 22 mars 2005 enligt EU:s ramdirektiv för vatten (2000/60/EG)</i> . Stockholm: Naturvårdsverket. (In Swedish) Topilko, J., Zharkov, D., Lagzdina, E., & Sare, M. (2004). <i>Public Participation in water management in the Eastern Baltic Sea Region</i> . Tartu, Riga, Vilnius, Gdansk: Global Water Partnership CEE, Public Participation Task Force.	



Klarälven-Trysilälva/Göta Älv



Area (km²)
48 326

Population
1 003 300

Land cover (% of total river basin)
Forest 63, Shrub or herbaceous 4,9,
Cultivated areas 8,6, Mosaic (cropland /
tree cover / shrub / herbaceous) 4,8, Bare
areas 0,1, Water bodies 18, Artificial
surface 0,7

Total runoff to the Baltic Sea in year
2000 (million m³/a)
23 100

Total N load to the Baltic Sea in year
2000 (tonnes)
20 300

Total P load to the Baltic Sea in year
2000 (tonnes)
420

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
-

Countries (% of total river basin)
Sweden 84, Norway 16

Management regime

Treaty: Convention between Norway and
Sweden about all shared watercourses

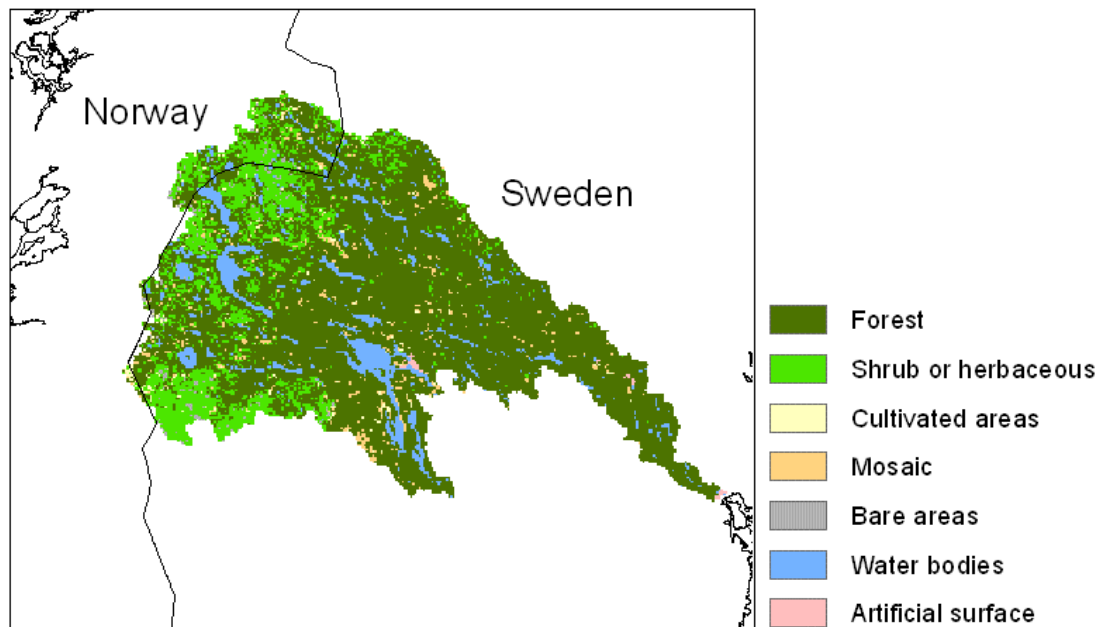
Year: 1929

Commission: No

Tasks: Hydraulic construction works, water
regulation



Indalsälven



Area (km²)
25 518

Population
109 200

Land cover (% of total river basin)
Forest 71, Shrub or herbaceous 16,
Cultivated areas 1,0, Mosaic (cropland /
tree cover / shrub / herbaceous) 2,6, Bare
areas 0,9, Water bodies 8,3, Artificial
surface 0,2

Total runoff to the Baltic Sea in year
2000 (million m³/a)
19 100

Total N load to the Baltic Sea in year
2000 (tonnes)
6 700

Total P load to the Baltic Sea in year
2000 (tonnes)
240

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
-

Countries (% of total river basin)
Sweden 92, Norway 8,0

Management regime

Treaty: Convention between Norway and
Sweden about all shared watercourses

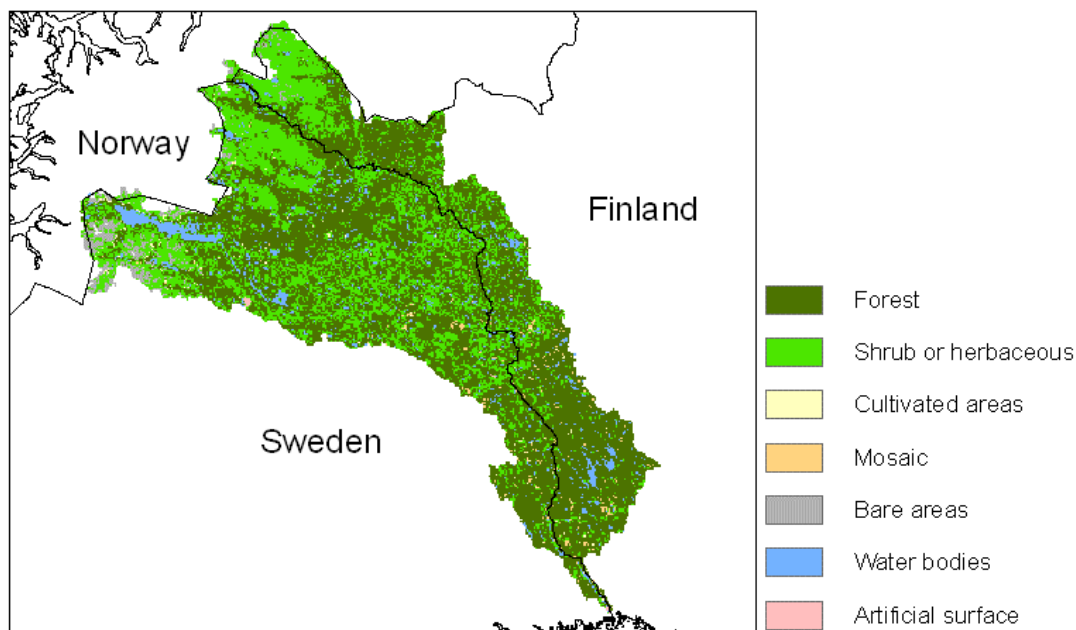
Year: 1929

Commission: No

Tasks: Hydraulic construction works, water
regulation



Torne River



Area (km²)
39 705

Population
79 700

Land cover (% of total river basin)
Forest 58, Shrub or herbaceous 33,
Cultivated areas 0,5, Mosaic (cropland /
tree cover / shrub / herbaceous) 0,8, Bare
areas 2,4, Water bodies 4,9, Artificial
surface 0,1

Total runoff to the Baltic Sea in year
2000 (million m³/a)
17 800

Total N load to the Baltic Sea in year
2000 (tonnes)
8 100

Total P load to the Baltic Sea in year
2000 (tonnes)
490

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
27 200

Countries (% of total river basin)
Sweden 64, Finland 35, Norway 1

Management regime

Treaty: Agreement between Finland and
Sweden concerning frontier waters

Year: 1971

Commission: Frontier river commission

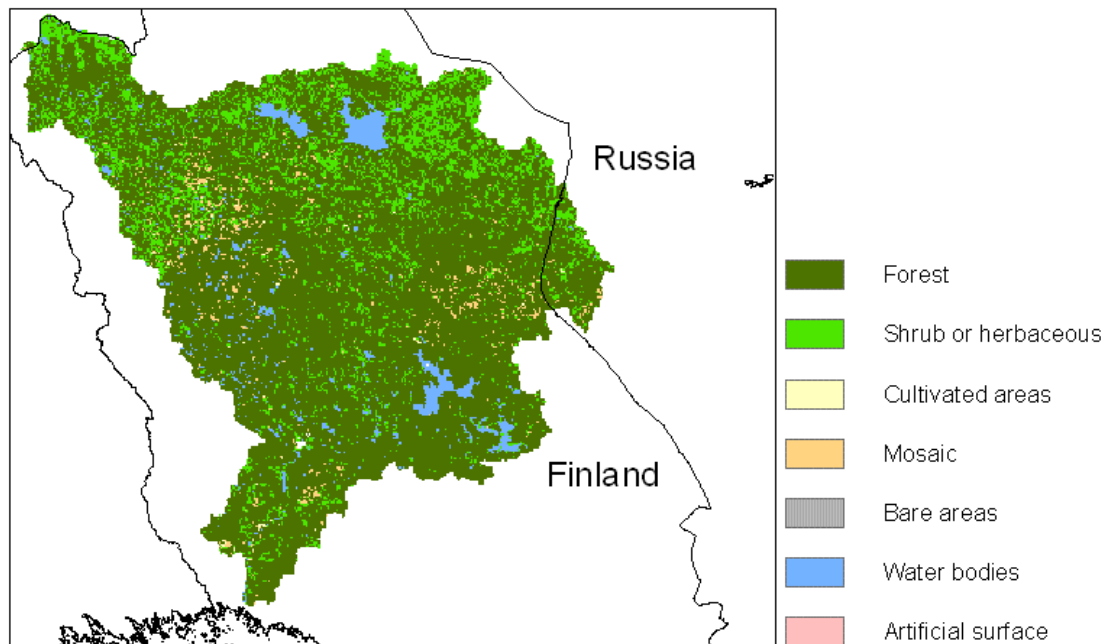
Tasks: Hydraulic construction works, water
regulation, fishing, pollution

Comment: In order to meet the
requirements of the EU Water Framework
Directive, the countries have decided to
develop a new agreement. This
agreement is planned to be signed 2006.
In the meantime, the countries have in
2003 signed a note where the partners
agree upon establishing an international
river basin district (according to the EU
Water Framework Directive).

Links: Torne River International
Watershed, TRIWA, <http://www.triwa.org/>



Kemijoki



Area (km²)
51 036

Population
108 100

Land cover (% of total river basin)
Forest 78, Shrub or herbaceous 16,
Cultivated areas 0,2, Mosaic (cropland /
tree cover / shrub / herbaceous) 1,8, Bare
areas 0, Water bodies 3,8, Artificial
surface 0

Total runoff to the Baltic Sea in year
2000 (million m³/a)
23 300

Total N load to the Baltic Sea in year
2000 (tonnes)
8 500

Total P load to the Baltic Sea in year
2000 (tonnes)
460

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
23 700

Countries (% of total river basin)
Finland 97, Russia 3

Management regime

Treaty: Agreement between Finland and
the Union of Soviet Socialist Republics
concerning frontier watercourses

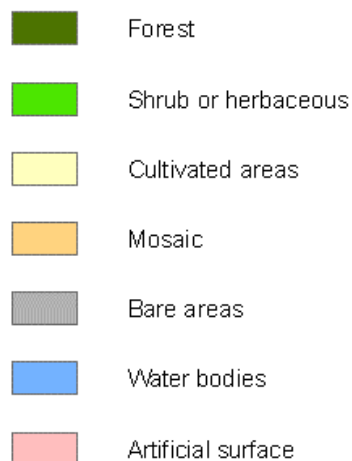
Year: 1964

Commission: Finnish-Russian Frontier
River Commission

Tasks: Industrial use of water, joint
management



Neva River



Area (km²)
286 553

Population
6 107 900

Land cover (% of total river basin)
Forest 73, Shrub or herbaceous 4,0,
Cultivated areas 1,7, Mosaic (cropland /
tree cover / shrub / herbaceous) 5,0, Bare
areas 0, Water bodies 16, Artificial surface
0,1

Total runoff to the Baltic Sea in year
2000 (million m³/a)
66 500

Total N load to the Baltic Sea in year
2000 (tonnes)
52 500

Total P load to the Baltic Sea in year
2000 (tonnes)
2 400

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
147 000

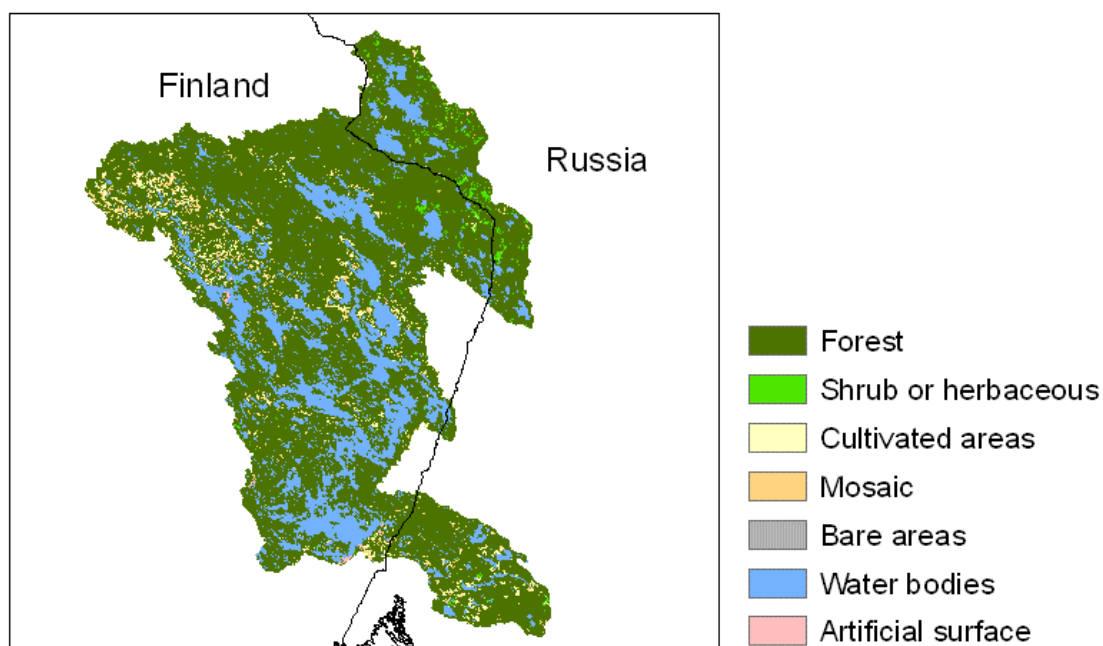
Countries (% of total river basin)
Russia 80, Finland 20

Management regime
Concerning Finnish-Russian cooperation,
see fact sheet Vuoksi River.



Vuoksi River

(Part of Neva river basin, flowing from Lake Saimaa into Lake Ladoga)



Area (km²)
68 473

Population
743 600

Land cover (% of total river basin)
Forest 75, Shrub or herbaceous 1,1,
Cultivated areas 2,2, Mosaic (cropland /
tree cover / shrub / herbaceous) 2,2, Bare
areas 0, Water bodies 19, Artificial surface
0,2

Countries (% of total river basin)
Finland 76, Russia 24

Management regime

Treaty: Agreement between Finland and
the Union of Soviet Socialist Republics
concerning frontier watercourses

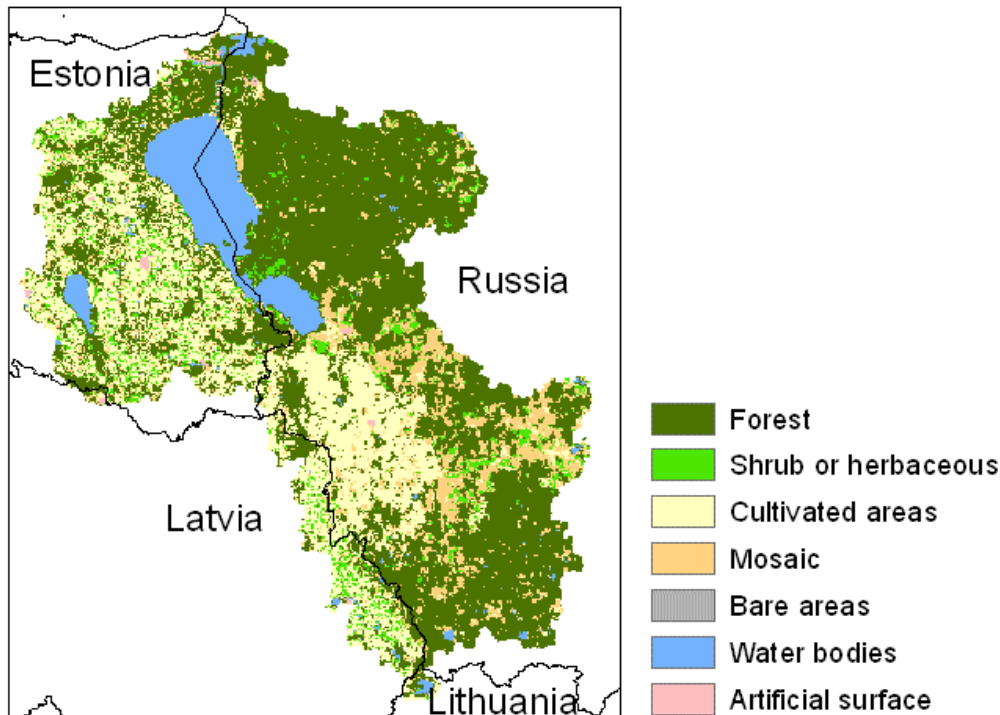
Year: 1964

Commission: Finnish-Russian Frontier
River Commission

Tasks: Industrial use of water, joint
management



Narva River/Lake Peipsi



Area (km²)
56 797

Population
936 100

Land cover (% of total river basin)
Forest 51, Shrub or herbaceous 5,4,
Cultivated areas 24, Mosaic (cropland /
tree cover / shrub / herbaceous) 11, Bare
areas 0, Water bodies 8, Artificial surface
0,3

Total runoff to the Baltic Sea in year
2000 (million m³/a)
10 700

Total N load to the Baltic Sea in year
2000 (tonnes)
6 500

Total P load to the Baltic Sea in year
2000 (tonnes)
530

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
21 800

Countries (% of total river basin)
Russia 63, Estonia 31, Latvia 6

Management regime

Treaty: Agreement between the
government of Estonia and the
government of the Russian Federation on
the protection and rational use of
transboundary waters

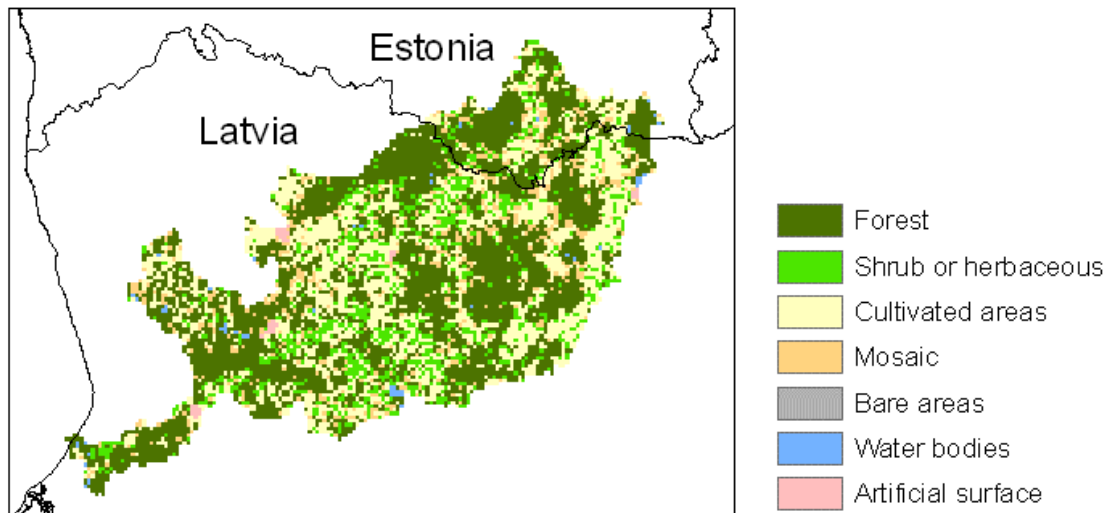
Year: 1997

Commission: Estonian-Russian Joint
Commission on Transboundary Waters

Tasks: Exchange of monitoring data,
agreement on common water quality
indicators, facilitating cooperation between
agencies



Gauja



Area (km²)
8 652

Population
155 300

Land cover (% of total river basin)
Forest 49, Shrub or herbaceous 12,
Cultivated areas 30, Mosaic (cropland /
tree cover / shrub / herbaceous) 8,1, Bare
areas 0, Water bodies 0,7, Artificial
surface 0,5

Total runoff to the Baltic Sea in year
2000 (million m³/a)
2 100

Total N load to the Baltic Sea in year
2000 (tonnes)
3 000

Total P load to the Baltic Sea in year
2000 (tonnes)
95

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
3 700

Countries (% of total river basin)
Latvia 87, Estonia 13

Management regime

Treaty: Agreement between Estonia and
Latvia on cooperation for protection and
sustainable use of transboundary
watercourses

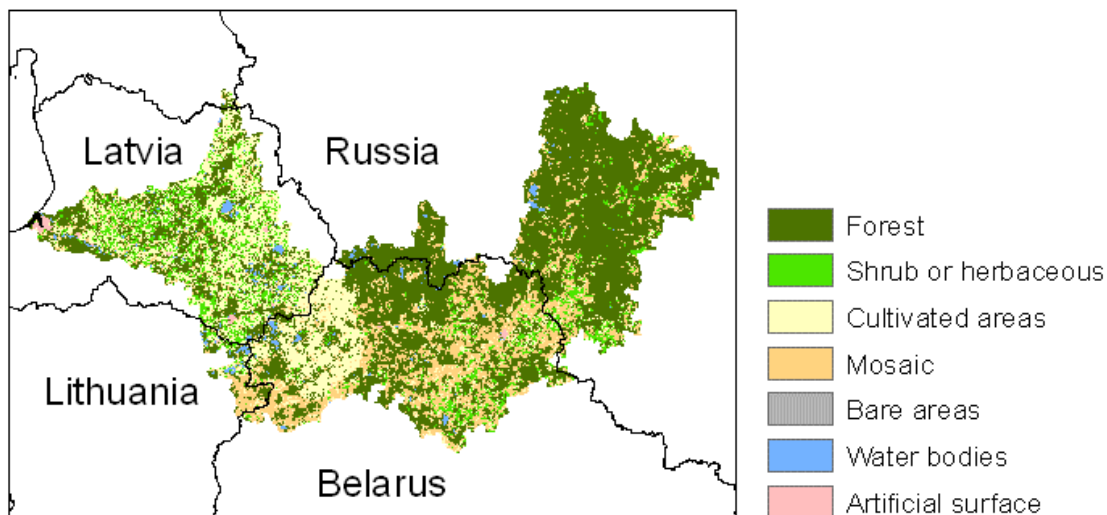
Year: 2003

Commission: No

Tasks: Sustainable use of shared river
basins, joint management of international
river basin districts established under the
EU Water Framework Directive



Daugava



Area (km²)
86 052

Population
2 783 200

Land cover (% of total river basin)
Forest 52, Shrub or herbaceous 9,2,
Cultivated areas 20, Mosaic (cropland /
tree cover / shrub / herbaceous) 17, Bare
areas 0, Water bodies 1,5, Artificial
surface 0,4

Total runoff to the Baltic Sea in year
2000 (million m³/a)
20 700

Total N load to the Baltic Sea in year
2000 (tonnes)
40 600

Total P load to the Baltic Sea in year
2000 (tonnes)
1 400

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
36 200

Countries (% of total river basin)
Belarus 38, Russia 32, Latvia 28,
Lithuania 2

Management regime

Treaty: 1) Agreement between Latvia and
Belarus on cooperation in nature
protection, 2) Agreement between Russia
and Belarus on cooperation in nature
protection, 3) Technical Protocol between
Lithuania and Latvia on the
implementation of river basin management
of three international river basin districts
(Venta, Lielupe, Daugava)

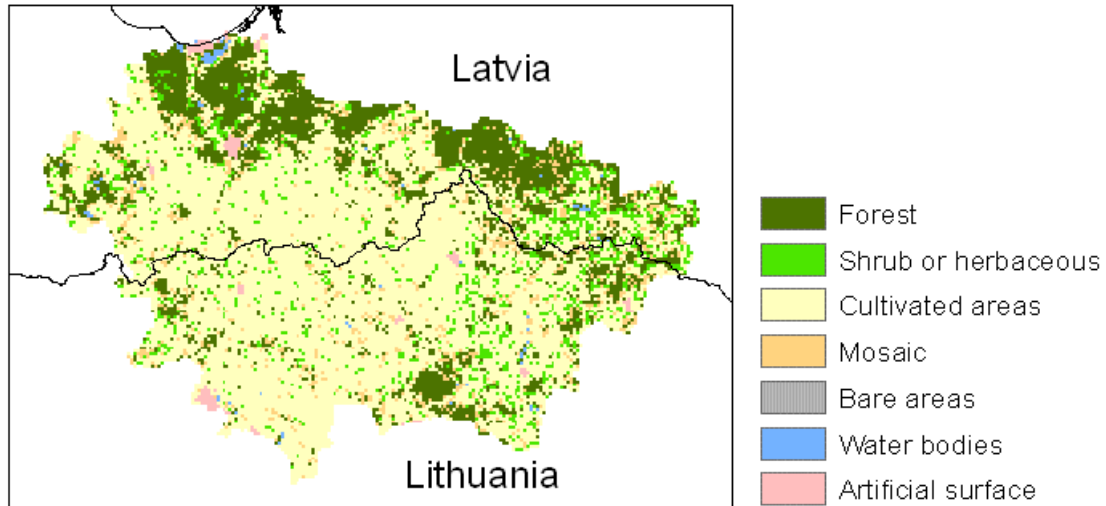
Year: 1) 1994, 2) 1994, 3) 2003

Commission: Commission between
Latvia and Lithuania

Tasks: 3) Joint management of
international river basin districts
established under the EU Water
Framework Directive



Lielupe



Area (km²)
17 876

Population
668 200

Land cover (% of total river basin)
Forest 20, Shrub or herbaceous 8,1,
Cultivated areas 64, Mosaic (cropland /
tree cover / shrub / herbaceous) 6,4, Bare
areas 0, Water bodies 0,5, Artificial
surface 0,9

Total runoff to the Baltic Sea in year
2000 (million m³/a)
2 400

Total N load to the Baltic Sea in year
2000 (tonnes)
10 700

Total P load to the Baltic Sea in year
2000 (tonnes)
230

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
6 000

Countries (% of total river basin)
Latvia 50, Lithuania 50

Management regime

Treaty: Technical Protocol between
Lithuania and Latvia on the
implementation of river basin management
of three international river basin districts
(Venta, Lielupe, Daugava)

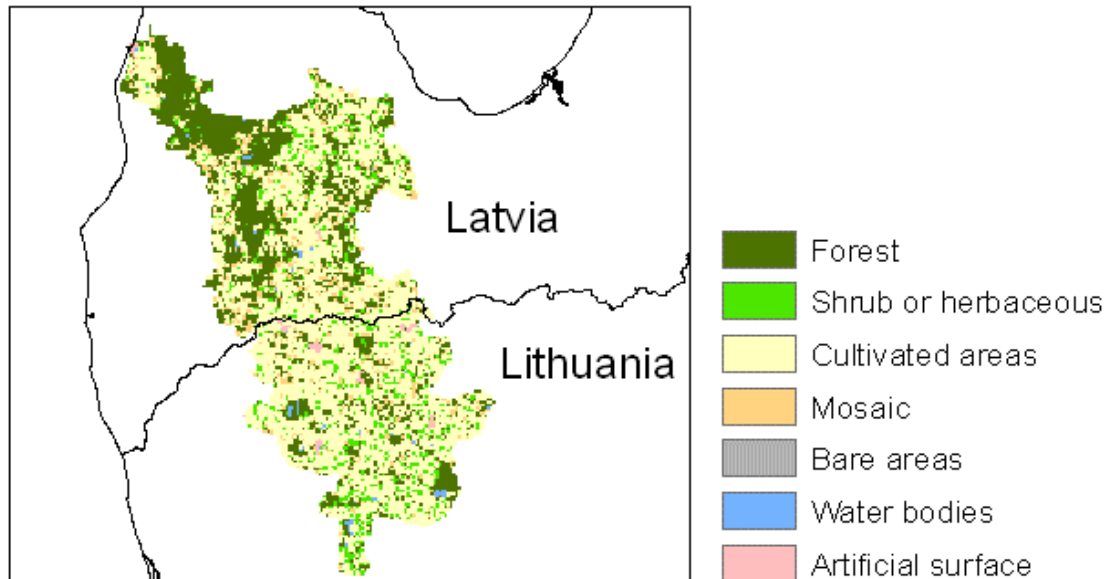
Year: 2003

Commission: Commission between
Latvia and Lithuania

Tasks: Joint management of international
river basin districts established under the
EU Water Framework Directive



Venta



Area (km²)
11 624

Population
347 600

Land cover (% of total river basin)
Forest 27, Shrub or herbaceous 8,9,
Cultivated areas 56, Mosaic (cropland /
tree cover / shrub / herbaceous) 6,5, Bare
areas 0, Water bodies 0,7, Artificial
surface 0,7

Total runoff to the Baltic Sea in year
2000 (million m³/a)
2 200

Total N load to the Baltic Sea in year
2000 (tonnes)
5 200

Total P load to the Baltic Sea in year
2000 (tonnes)
95

Total BOD₅ load to the Baltic Sea in
year 2000 (tonnes)
5 200

Countries (% of total river basin)
Latvia 55, Lithuania 45

Management regime

Treaty: Technical Protocol between
Lithuania and Latvia on the
implementation of river basin management
of three international river basin districts
(Venta, Lielupe, Daugava)

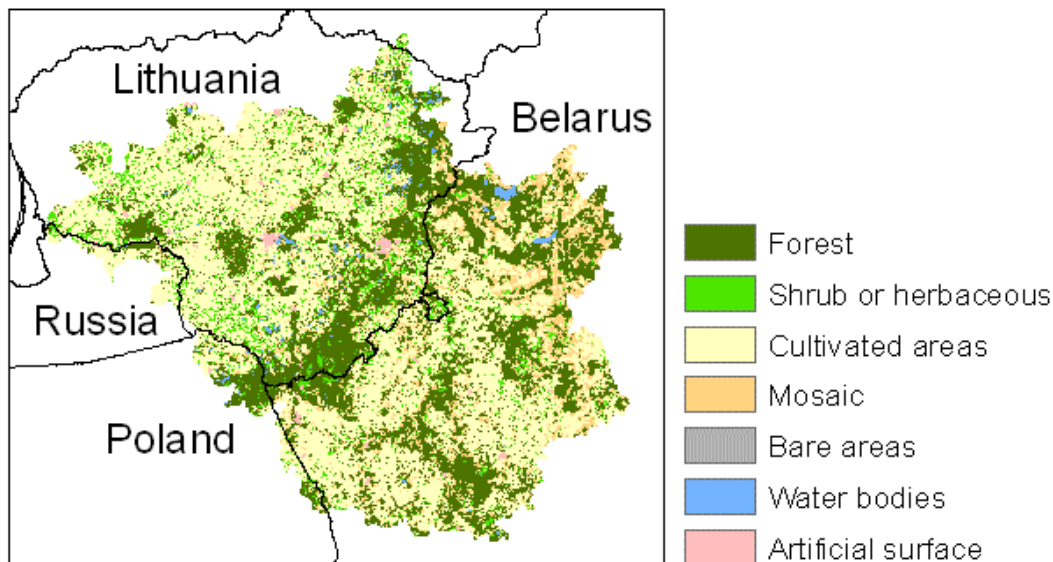
Year: 2003

Commission: Commission between
Latvia and Lithuania

Tasks: Joint management of international
river basin districts established under the
EU Water Framework Directive



Nemunas



Area (km²)
92 318

Population
4 890 900

Land cover (% of total river basin)
Forest 30, Shrub or herbaceous 7,7, Cultivated areas 49, Mosaic (cropland / tree cover / shrub / herbaceous) 12, Bare areas 0, Water bodies 1,0, Artificial surface 0,8

Total runoff to the Baltic Sea in year 2000
(million m³/a)
20 000

Total N load to the Baltic Sea in year 2000
(tonnes)
46 800

Total P load to the Baltic Sea in year 2000
(tonnes)
1 800

Total BOD₇ load to the Baltic Sea in year
2000 (tonnes)
100 600

Countries (% of total river basin)
Belarus 48, Lithuania 47, Poland 3, Russia 2

Management regime

Treaty: 1) Agreement between Poland and the USSR concerning the regime on the Soviet-Polish state frontier, 2) Agreement between the Lithuanian Department of Environment and the Ministry of Environmental Protection, Nature, Conservation and Forestry of Poland, 3) Agreement between the environmental protection ministry of the Republic of Lithuania and the ministry of environmental protection, nature conservation and forestry of the Republic Poland, 4) Agreement between the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus and the Environmental Protection Ministry of the Republic of Lithuania on cooperation in the field of environmental protection

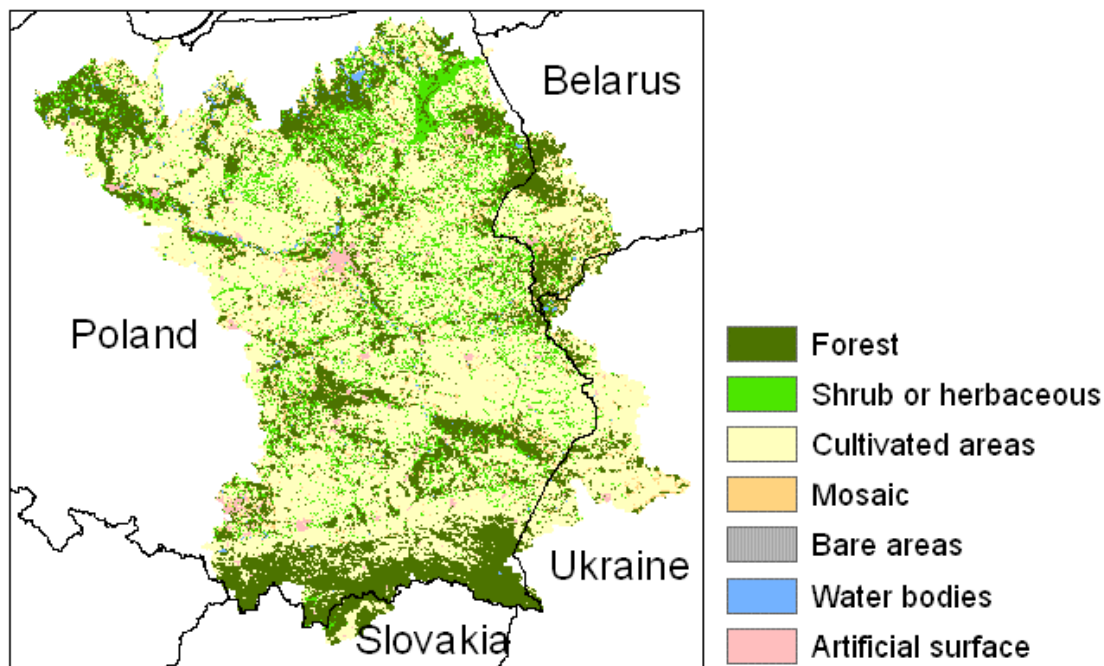
Year: 1) 1948, 2) 1992, 3) 1994, 4) 1995

Commission: No

Tasks: 1) Navigation, 2) Cooperation in environmental protection, including border river basins. Preparation and realisation of joint programs and projects, consultations between experts, formation of working groups, convocation of conferences and seminars, exchange of specialists, and exchange of scientific, technological, legislative and other information, 3) Qualitative protection of water resources: inventories of point pollution sources, common research, quality assurance of laboratory analysis, 4) Establishes a working group on water quality issues.



Vistula



Area (km²)
193 347

Population
23 487 300

Land cover (% of total river basin)
Forest 26, Shrub or herbaceous 12,
Cultivated areas 55, Mosaic (cropland /
tree cover / shrub / herbaceous) 4,9, Bare
areas 0, Water bodies 0,7, Artificial
surface 1,2

Total runoff to the Baltic Sea in year
2000 (million m³/a)
42 400

Total N load to the Baltic Sea in year
2000 (tonnes)
124 000

Total P load to the Baltic Sea in year
2000 (tonnes)
7 500

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
163 000

Countries (% of total river basin)
Poland 87, Ukraine 7, Belarus 5, Slovakia
1

Management regime

Treaty: 1) Agreement between Poland
and the USSR concerning the regime on
the Soviet-Polish state frontier, 2)
Agreement between the government of the
Polish People's Republic and the
government of the Union of Soviet
Socialist Republics concerning the use of
water resources in frontier waters

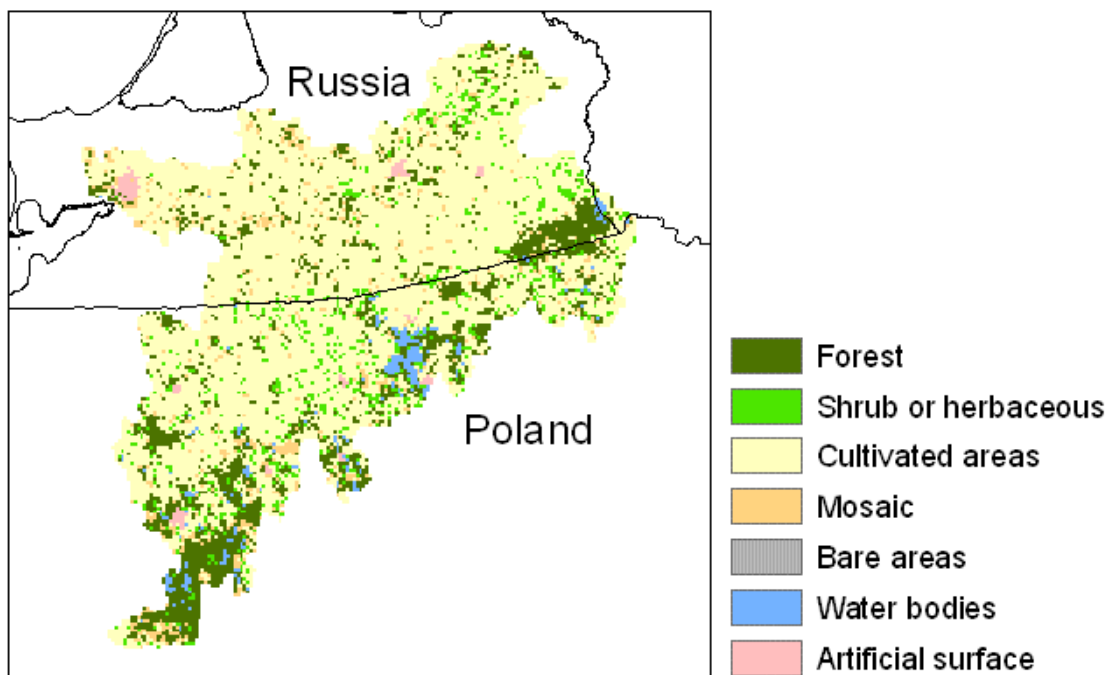
Year: 1) 1948, 2) 1964

Commission: No

Tasks: 1) Navigation, 2) Standards
relating to water purity, procedures for
controlling pollution.



Pregola



Area (km²)
14 783

Population
1 283 600

Land cover (% of total river basin)
Forest 16, Shrub or herbaceous 6,2,
Cultivated areas 70, Mosaic (cropland /
tree cover / shrub / herbaceous) 4,7, Bare
areas 0, Water bodies 2,0, Artificial
surface 1,0

Total runoff to the Baltic Sea in year
2000 (million m³/a)
2 700

Total N load to the Baltic Sea in year
2000 (tonnes)
9 500

Total P load to the Baltic Sea in year
2000 (tonnes)
570

Total BOD₇ load to the Baltic Sea in
year 2000 (tonnes)
6 700

Countries (% of total river basin)
Poland 52, Russia 48

Management regime

Treaty: 1) Agreement between Poland and the USSR concerning the regime on the Soviet-Polish state frontier, 2) Agreement between the government of the Polish People's Republic and the government of the Union of Soviet Socialist Republics concerning the use of water resources in frontier waters

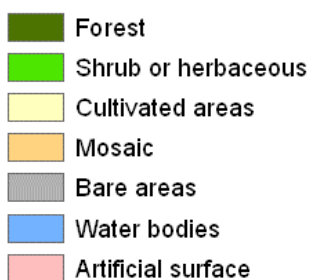
Year: 1) 1948, 2) 1964

Commission: No

Tasks: 1) Navigation, 2) Standards relating to water purity, procedures for controlling pollution.



Oder



Area (km²)

117 862

Population

16 167 200

Land cover (% of total river basin)

Forest 27, Shrub or herbaceous 8,7, Cultivated areas 57, Mosaic (cropland / tree cover / shrub / herbaceous) 4,3, Bare areas 0, Water bodies 0,7, Artificial surface 1,7

Total runoff to the Baltic Sea in year 2000

(million m³/a)

16 200

Total N load to the Baltic Sea in year 2000

(tonnes)

55 200

Total P load to the Baltic Sea in year 2000

(tonnes)

3 700

Total BOD₇ load to the Baltic Sea in year

2000 (tonnes)

66 300

Countries (% of total river basin)

Poland 90, Czech Republic 6, Germany 4

Management regime

Treaty: 1) Agreement between the government of the Polish Republic and the government of the German Democratic Republic concerning navigation in frontier waters and the use and maintenance of frontier waters, 2) Agreement between the government of the Czechoslovak Republic and the government of the Polish People's Republic concerning the use of water resources in frontier waters, 3) Agreement between the Federal Republic of Germany and the Republic of Poland on cooperation in the field of water management at border waters, 4) Agreement between the Federal Republic of Germany, the Czech Republic and the Republic of Poland on protection of the Oder river from pollution

Year: 1) 1952, 2) 1958, 3) 1992, 4) 1996

Commission: International Commission for the Protection of the Odra River against Pollution, ICPOAP

Tasks: 1) Navigation, 2) Regulation of amount of water to be taken from frontier waters for domestic, industrial, power generation, and agricultural requirements and on discharge of waste water, 3) Quantitative and qualitative protection of water resources and flood management, 4) Pollution control measures, including issues of drinking water quality, information exchange and implementing programs.

Links: International Commission for the Protection of the Odra River against Pollution, ICPOAP, <http://www.mkoo.pl/>



This fact sheet reflects the author's views. The European Union, the Joint Secretariat of the Baltic Sea Region Interreg III B Programme and/or Investitionsbank Schleswig-Holstein are not liable for any use that may be made of the information contained therein.