

# The Second Assessment of Transboundary Rivers, Lakes and Groundwaters in Eastern and Northern Europe: Maps and graphics

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Convention on the Protection and Use of Transboundary Watercourses and International Lakes

# About the approach

- More content presented in the form of maps and graphs (expressive, adds to the effect of communication)
- Surface water and groundwater presented both in the assessment text and maps in an integrated way
- Figures provided by the countries used; if gaps remain in information necessary graphs > filled from selected datasets



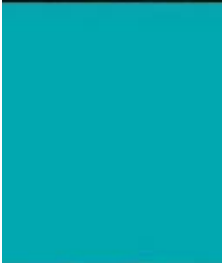
# Elements of the basin maps and accompanying graphics

Basin maps showing

- the basin boundaries
- topography
- land cover/land use distribution
  - Source: GlobCover, a 300 metre resolution global Land Cover product of the European Space Agency

Selected graphs to accompany the basin maps :

- Percentage shares of landuse/land cover classes (based on figures reported by countries when possible)
- Population by country in each basin: in the case of gaps, output from the LandScan model to be used
- Discharges:
  - i. Monthly distribution of discharge: as bar charts give an idea about the distribution of water availability in time within a year based on long-term mean values.
  - ii. Variability of discharge: maximum, average and minimum flows as bar charts (logarithmic scale)



# Prototype basin map: featuring the Sava as example



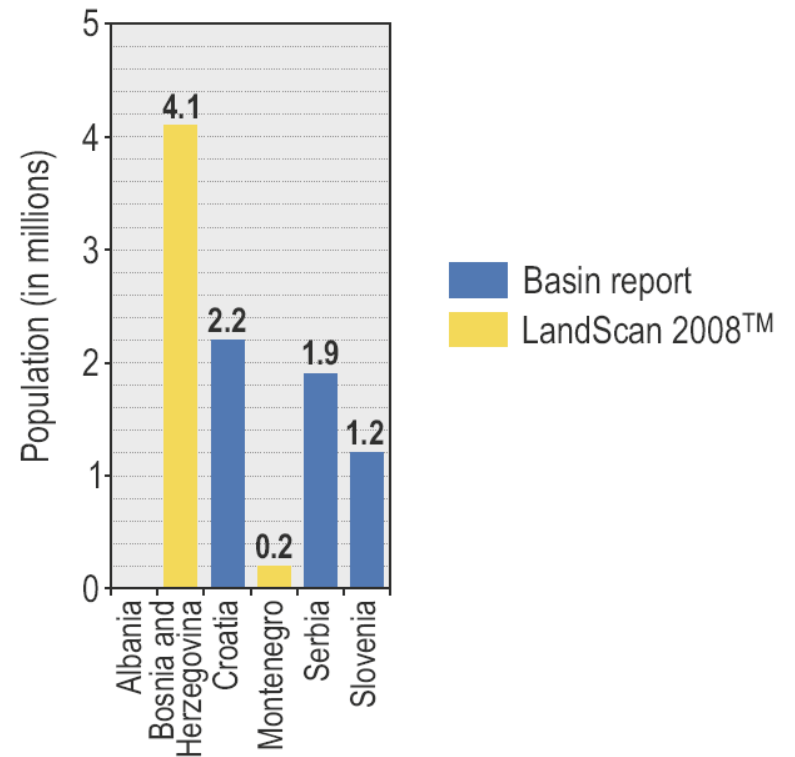
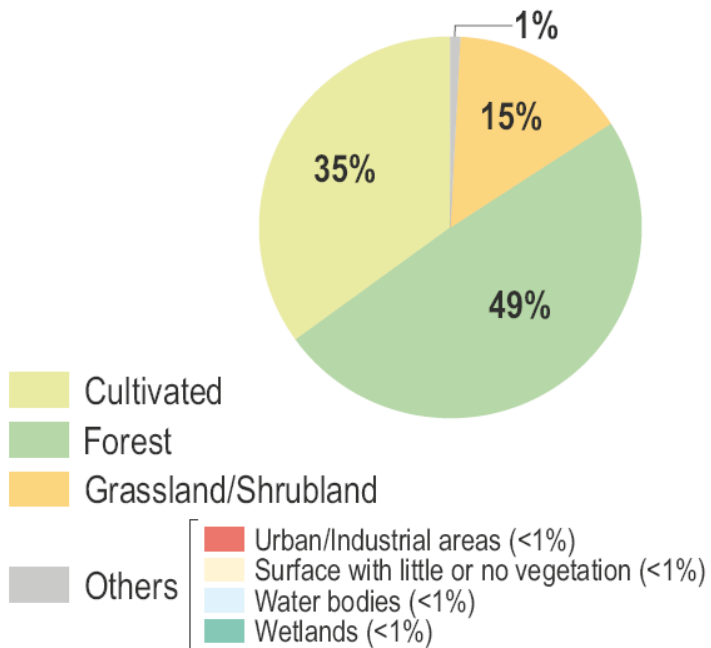
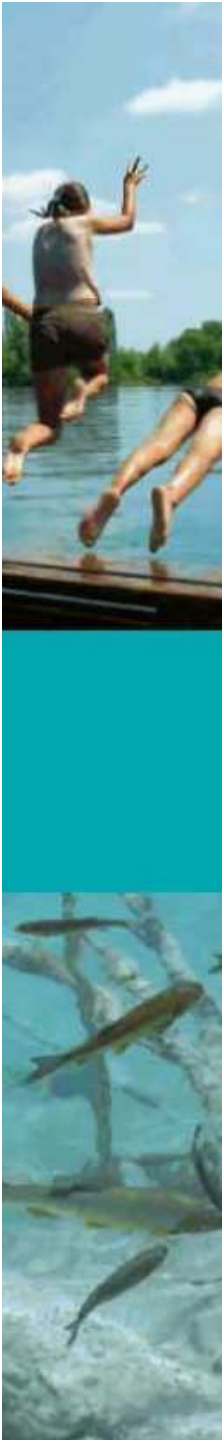
**Gauging stations to link to discharges**

**Background map as in the 1<sup>st</sup> Assessment**



# Graphs accompanying the basin maps

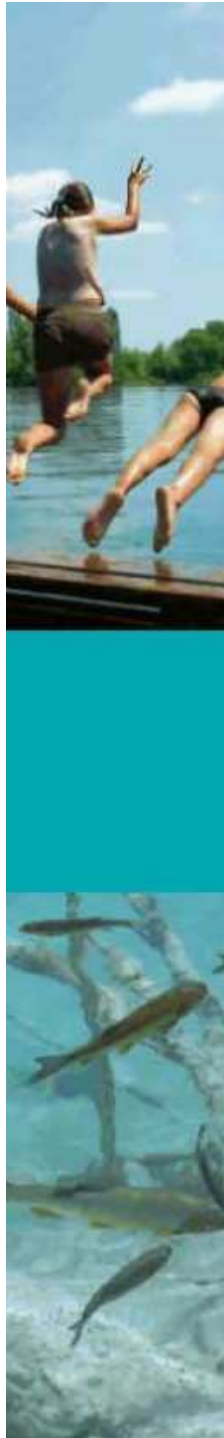
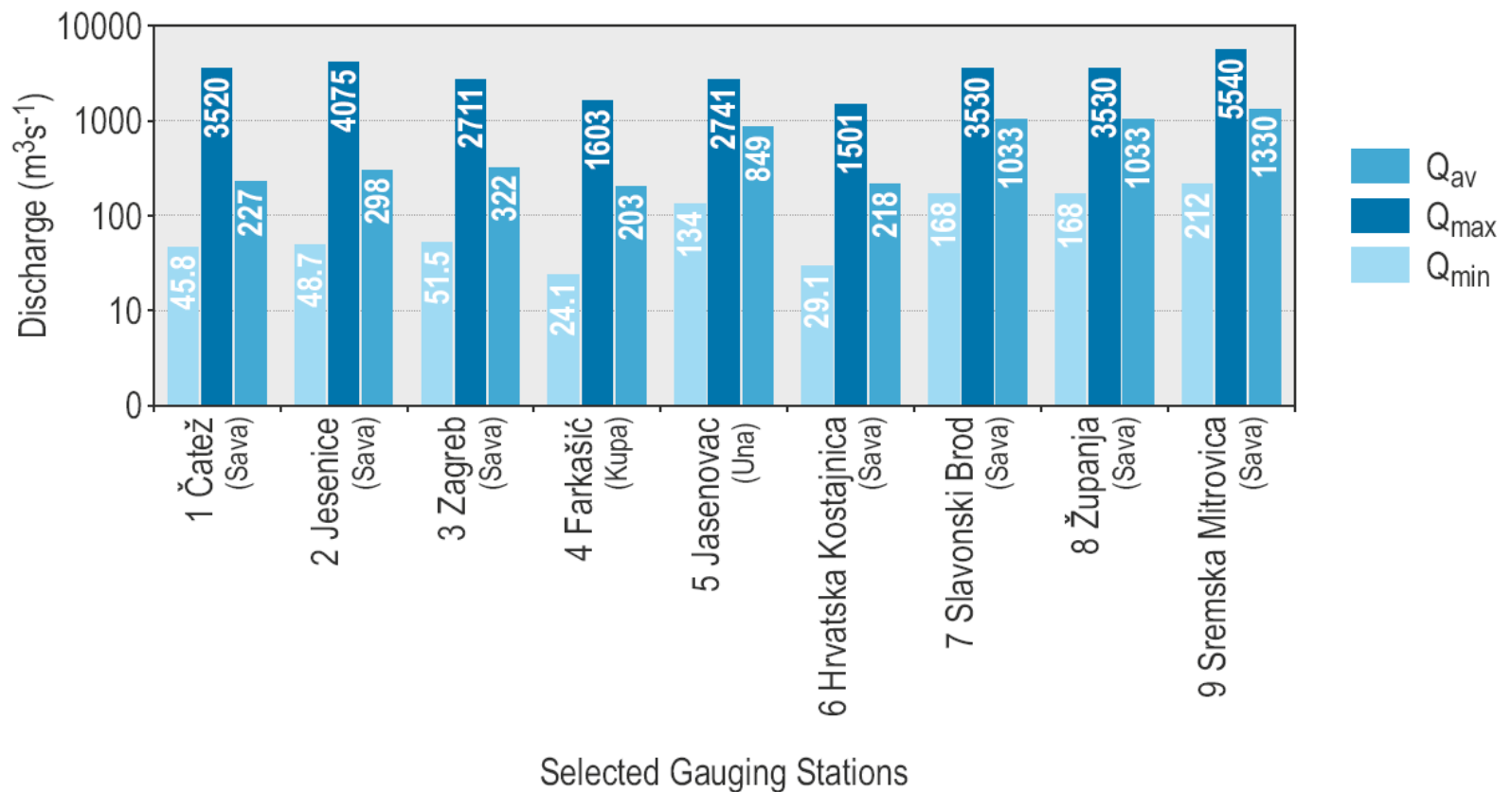
## Landuse/land cover and population



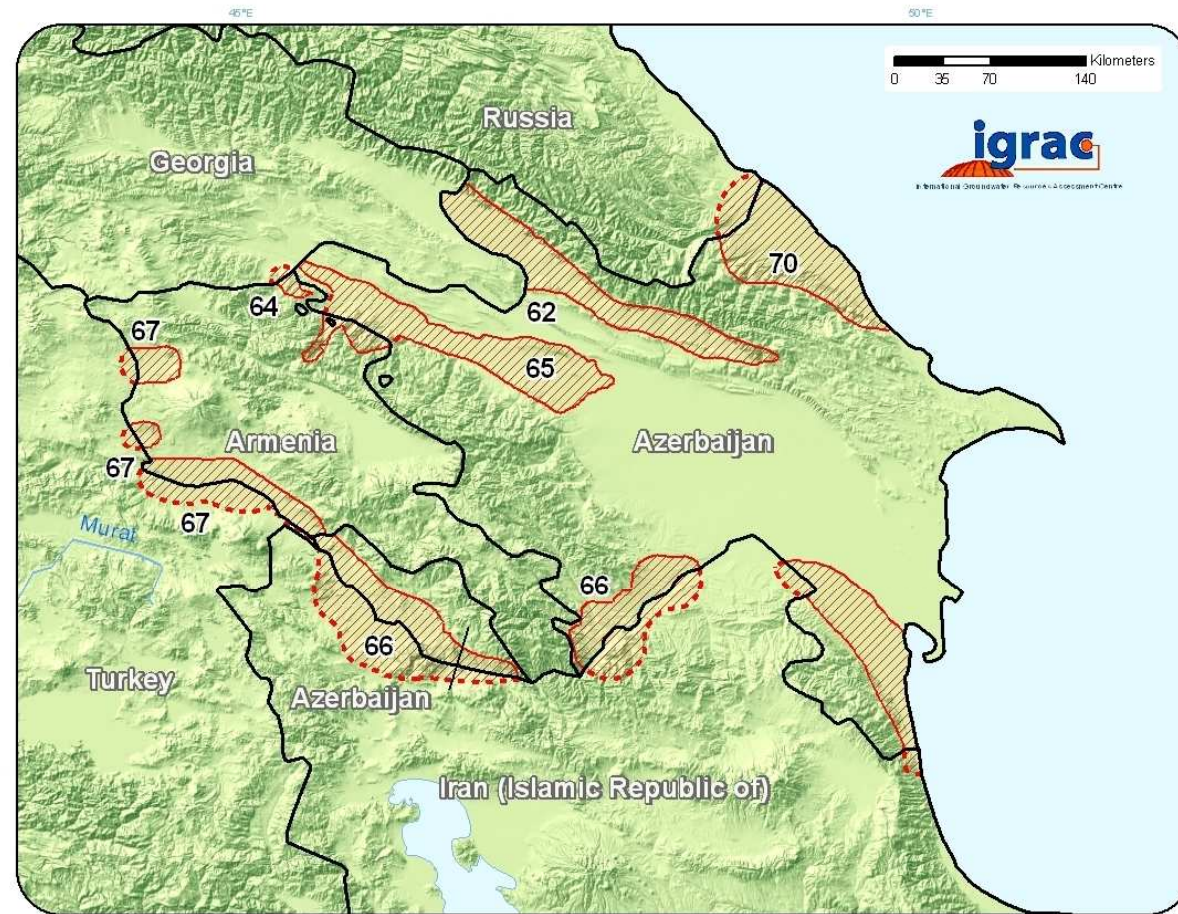
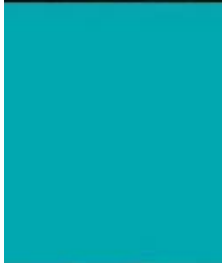


# Graphs accompanying the basin maps (2)

Discharges: average, minimum and maximum



# Transboundary aquifers



<p><b>Legend</b></p> <p><b>Transboundary Aquifers</b></p> <ul style="list-style-type: none"> <li> aquifer extent</li> <li> confirmed boundary</li> <li> approximate boundary</li> </ul>		<p><b>Geographical elements</b></p> <ul style="list-style-type: none"> <li> political borders</li> <li> lakes</li> <li> rivers</li> </ul>		<p><b>elevation</b></p>	<p><b>Base maps</b></p> <p>Geographic features: ESRI data and maps (2006)          Elevation: SRTM and GTOPO30 provided by ESRI (2006)</p> <p><b>Map projection</b></p> <p>Robinson projection, geographic coordinates,          spheroid WGS84, longitude of central meridian 0°.</p> <p><b>Cartographic editing/GIS</b></p> <p>C.M. van Kempen</p>	<p><b>© IGRAC, 2010</b></p> <p>IGRAC works under auspices of UNESCO and WMO,          is hosted by DELTARES and funded by the government          of the Netherlands through Partners for Water.</p> <p>www.igrac.net          info@igrac.net</p> <p>P.O. Box 85467          3508 AL Utrecht          the Netherlands</p>
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# Individual maps and graphics for specific basins or aquifers

The countries are invited to submit proposals for specific graphs and/or maps to be included. Some have already made material available.

The graphs could, for example, illustrate the following:

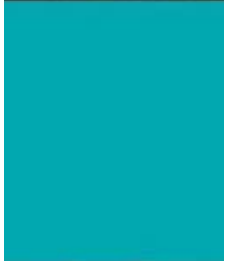
- distribution of specific pressures within a basin
- a change in water quantity or quality over time or along the course of a transboundary river
- water quality change linked to developments such as aggravated impacts or effectiveness of measures taken
- For data showing trends, the time period for which the information is presented is important to indicate and the recent years are given priority
- adding new data to continue what was presented in the first Assessment welcome





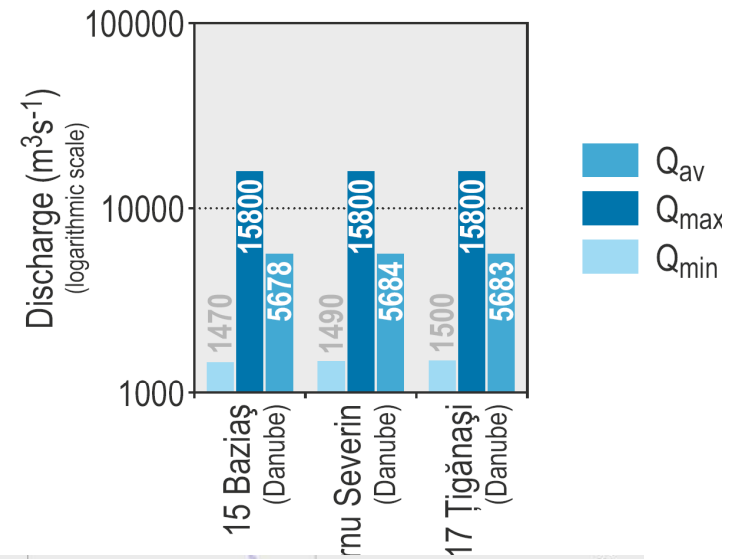
## Implications to the assessment text from adding graphics

- Discharge are to be presented in graphical form (accompanying basin maps) and therefore the tables are to be left out
- Water resources per basin or by a country's territory in each basin to be compiled to a summary table or bar chart (currently in the body text; not expressive/meaningful for e.g. a policy-maker)





# Danube

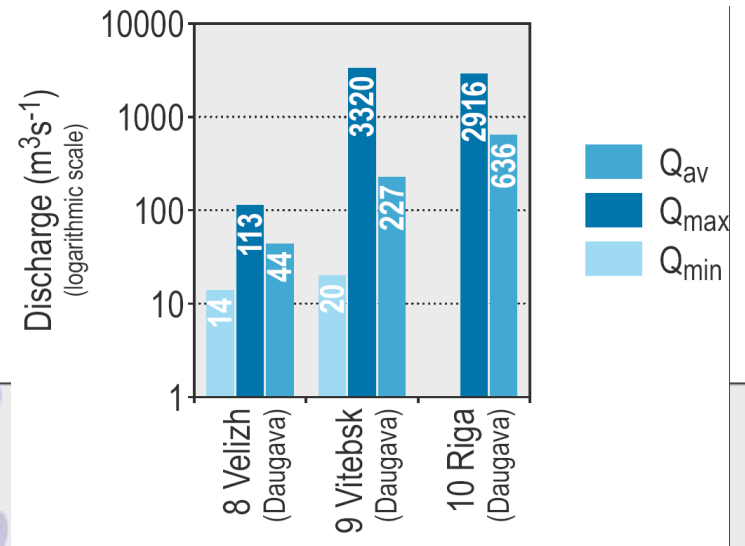


The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

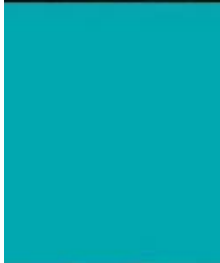
Kilometres  
0 50 100 150 200  
UNEP/DEWA/GRID-Europe 2010



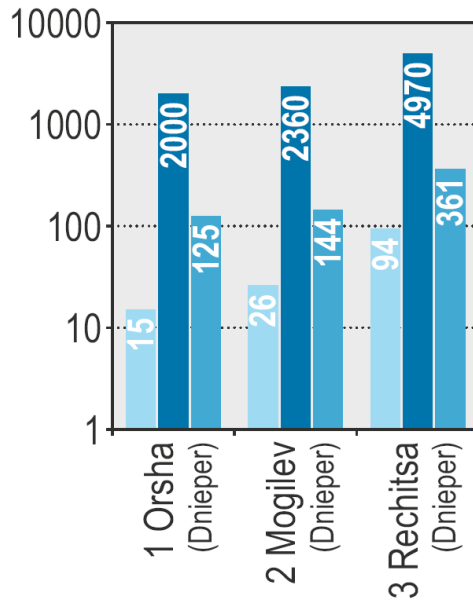
# Daugava







Discharge ( $\text{m}^3\text{s}^{-1}$ )  
(logarithmic scale)



UNEP

# Dnieper

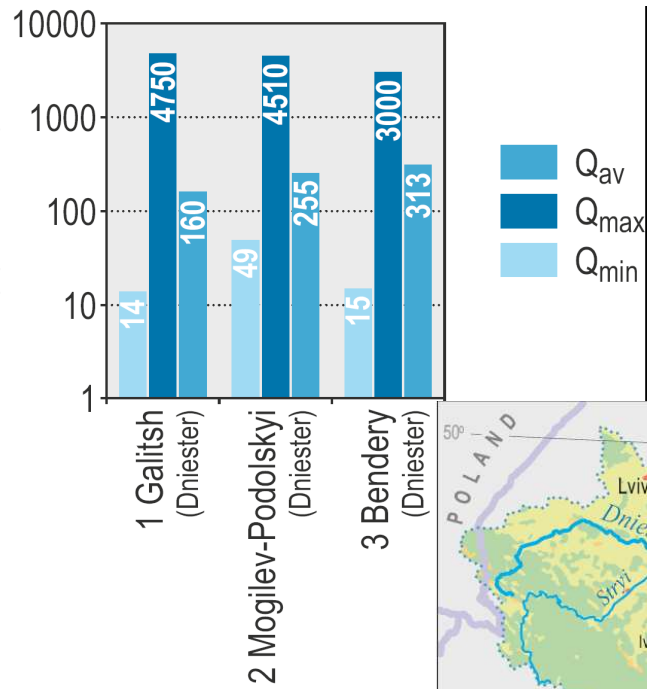
$Q_{\text{av}}$   
 $Q_{\text{max}}$   
 $Q_{\text{min}}$





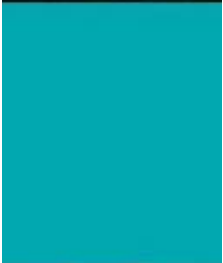


Discharge ( $m^3s^{-1}$ )  
(logarithmic scale)



# Dniester

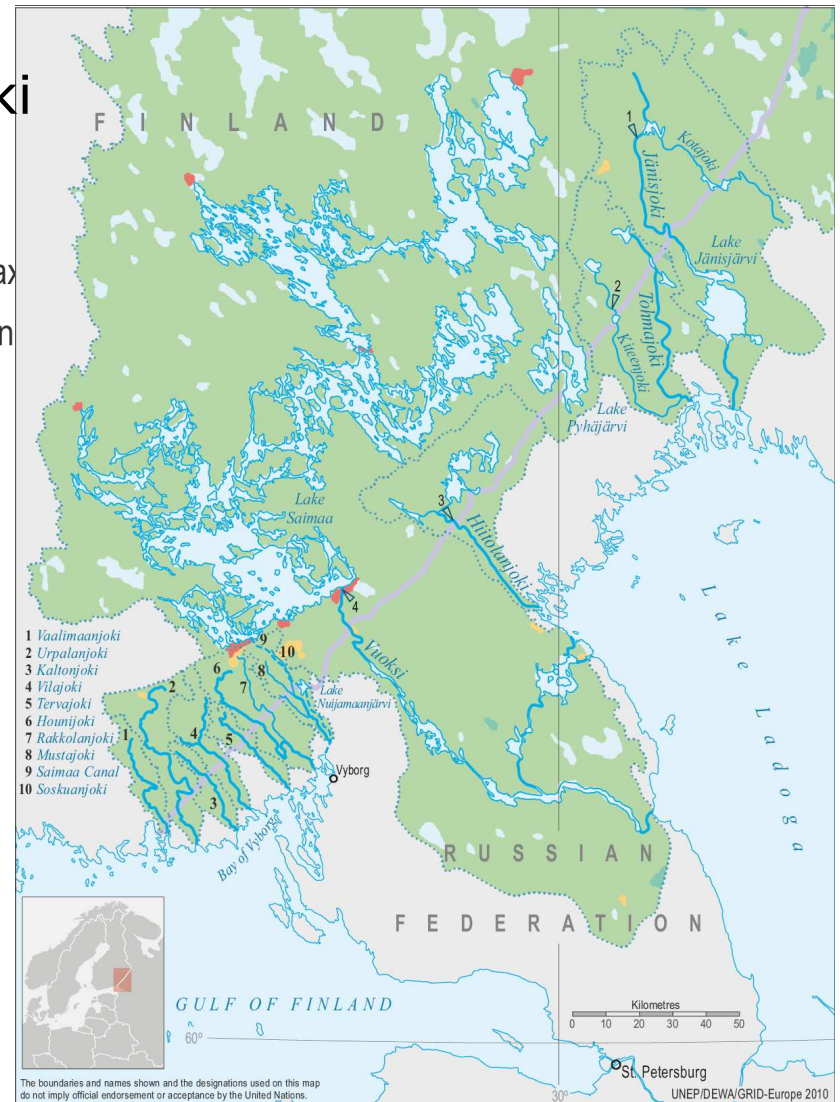
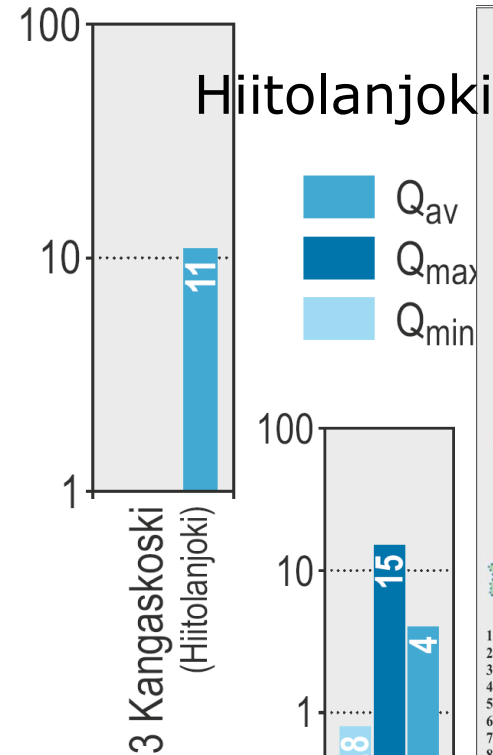
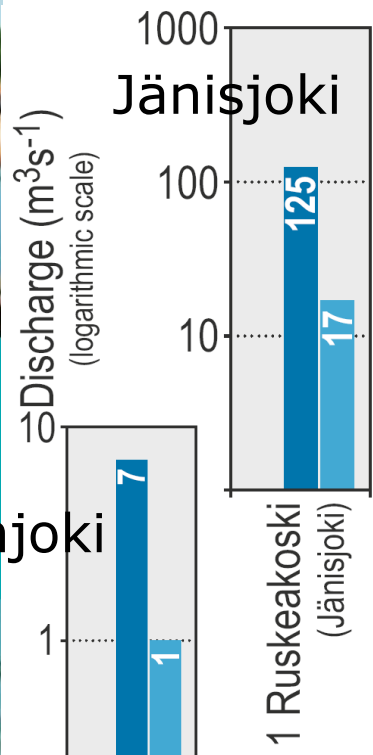
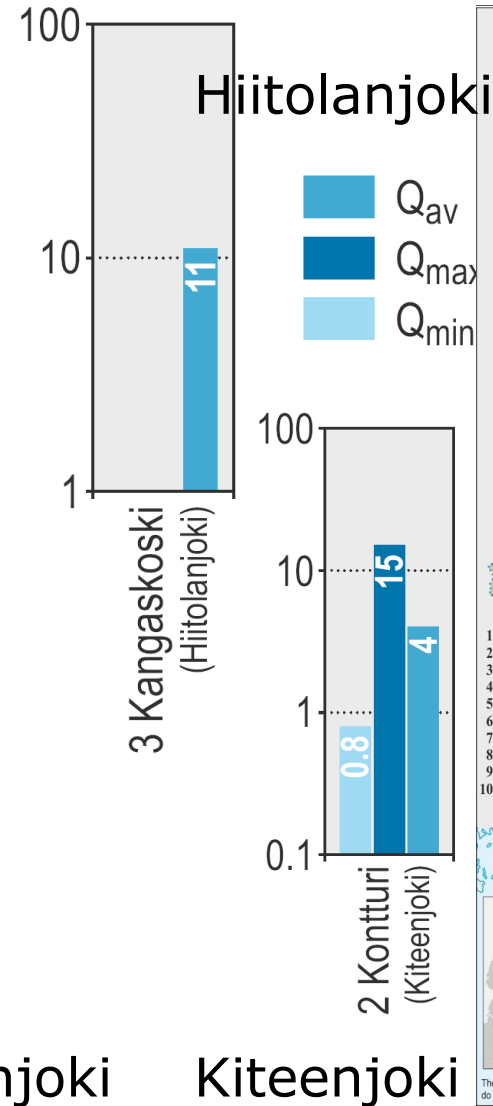
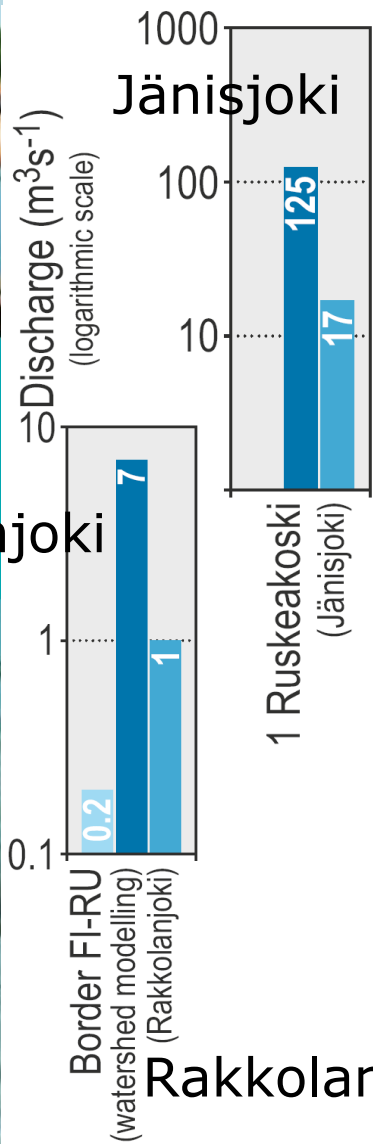
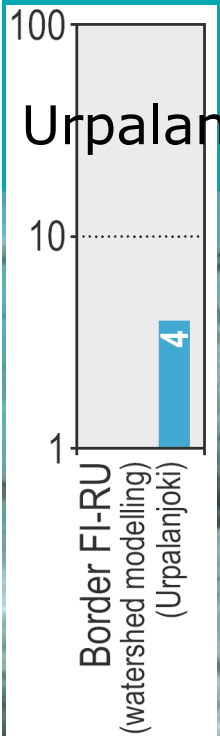




# Don/Siversky Donets



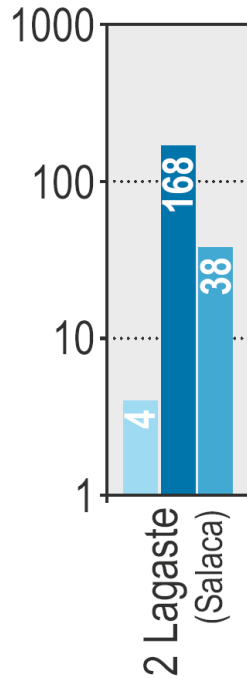
# Rivers shared by Finland and the Russian Federation discharging to Lake Ladoga or the Gulf of Finland







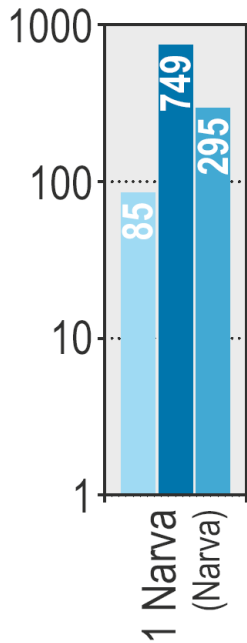
Discharge ( $\text{m}^3\text{s}^{-1}$ )  
(logarithmic scale)



Salaca



Discharge ( $\text{m}^3\text{s}^{-1}$ )  
(logarithmic scale)



Narva

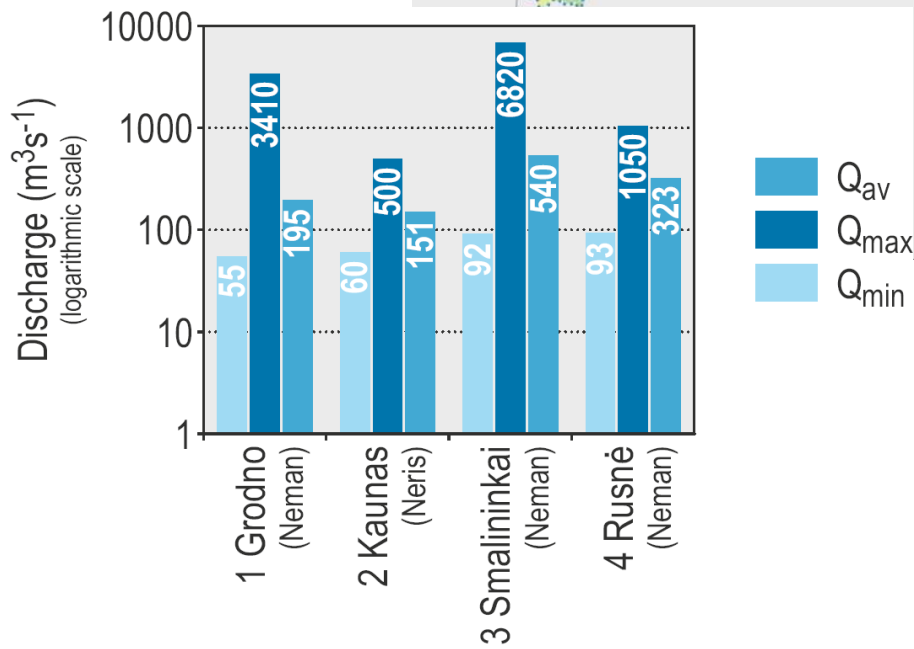
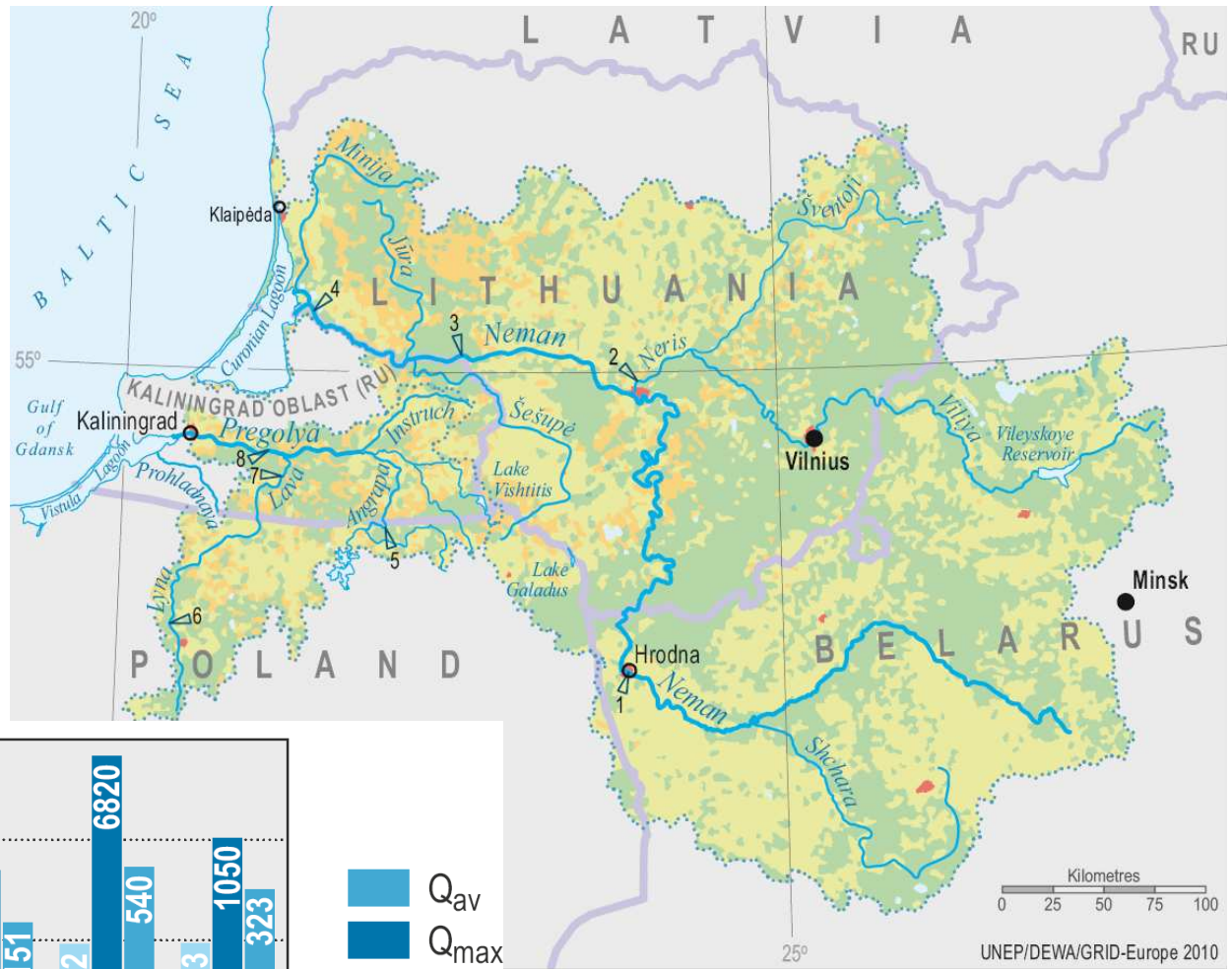
# Narva, Gauja/Koiva, Salaca





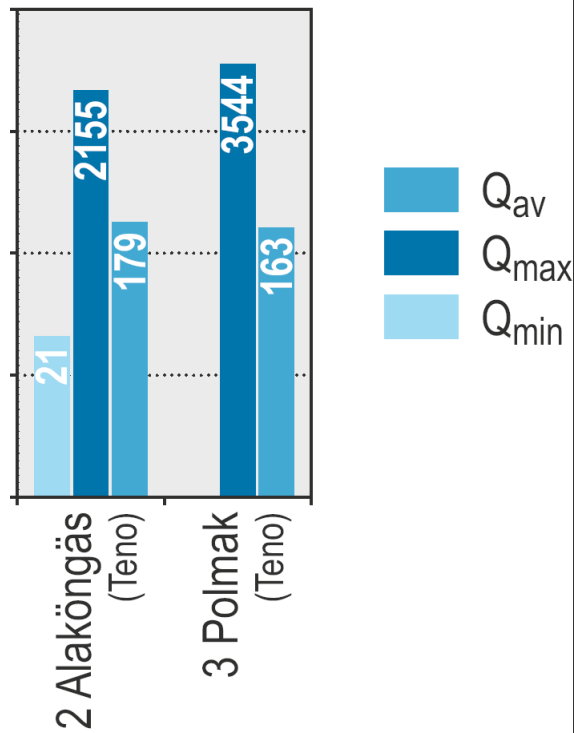
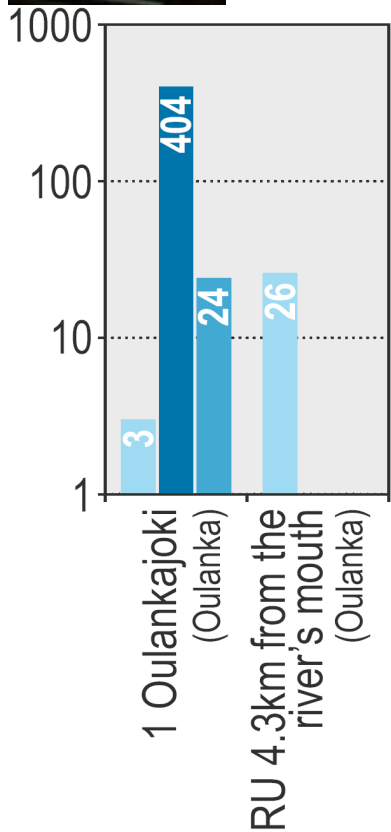
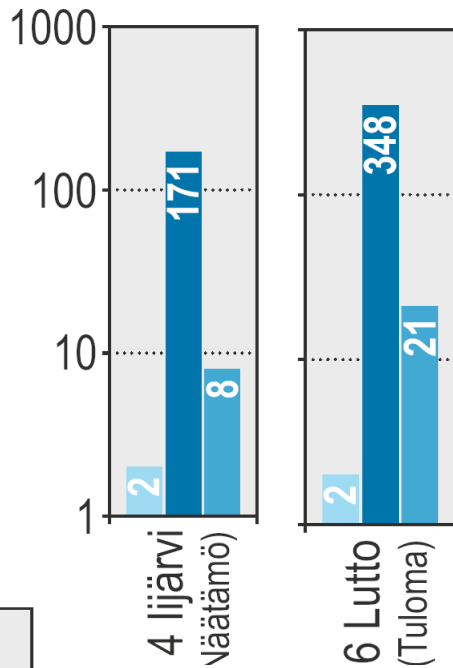


# Neman





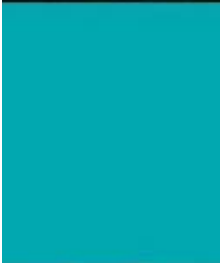
Discharge ( $m^3s^{-1}$ )  
(logarithmic scale)



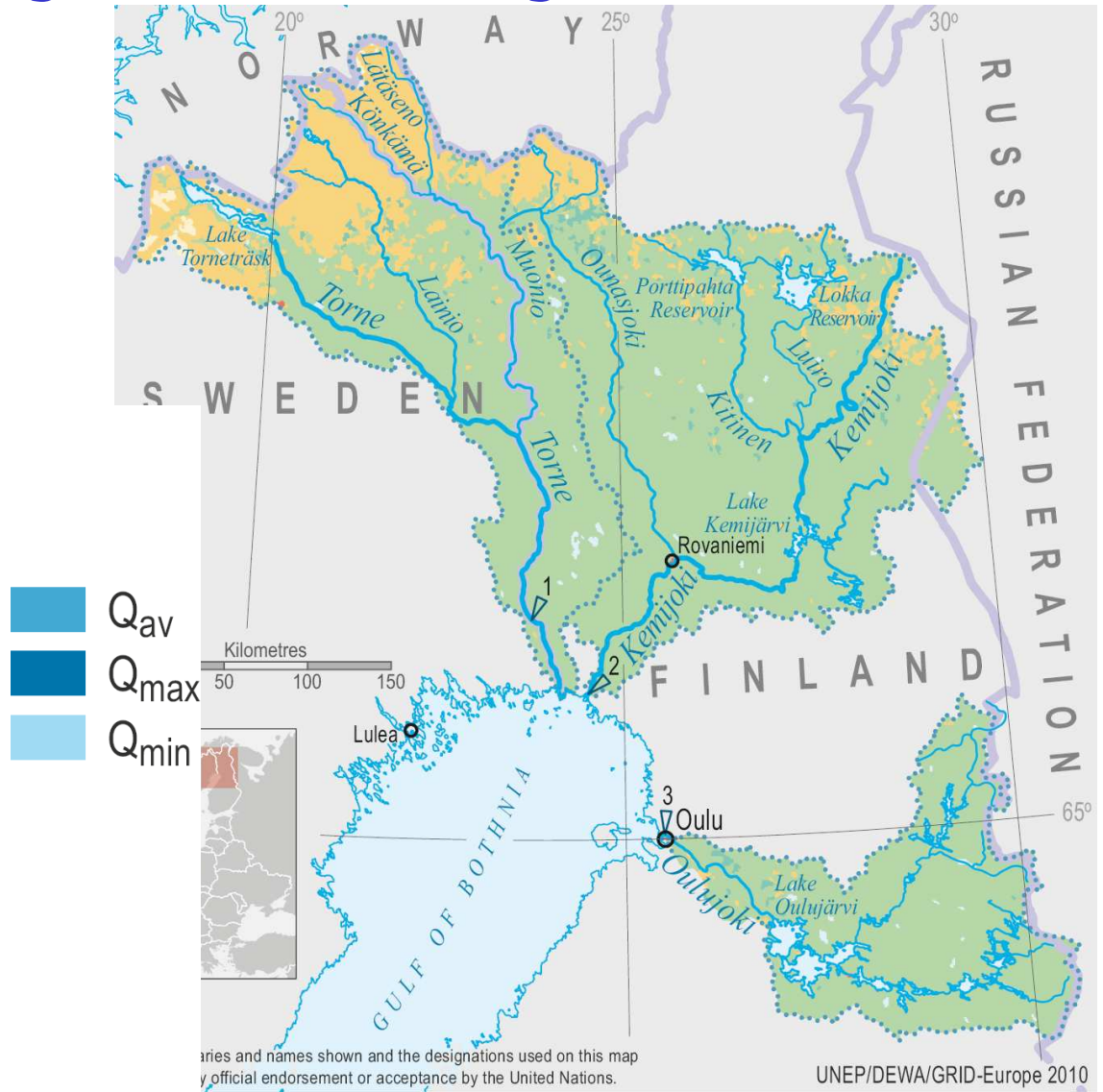
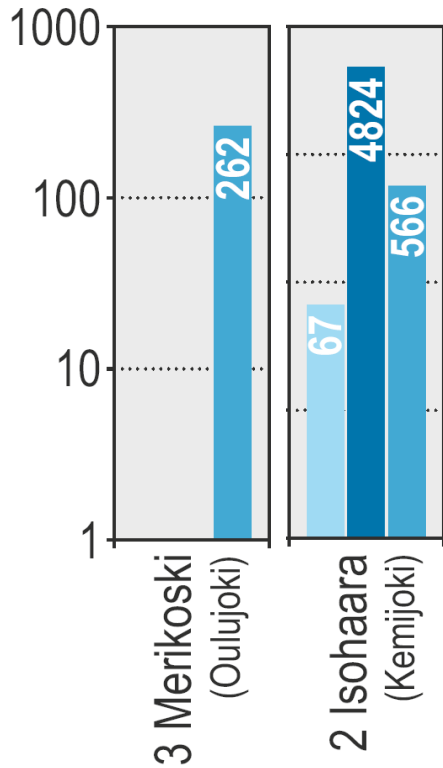
# Teno, Näätämö, Paatsjoki, Tuloma

$Q_{av}$   
 $Q_{max}$   
 $Q_{min}$





# Kemijoki, Oulujoki

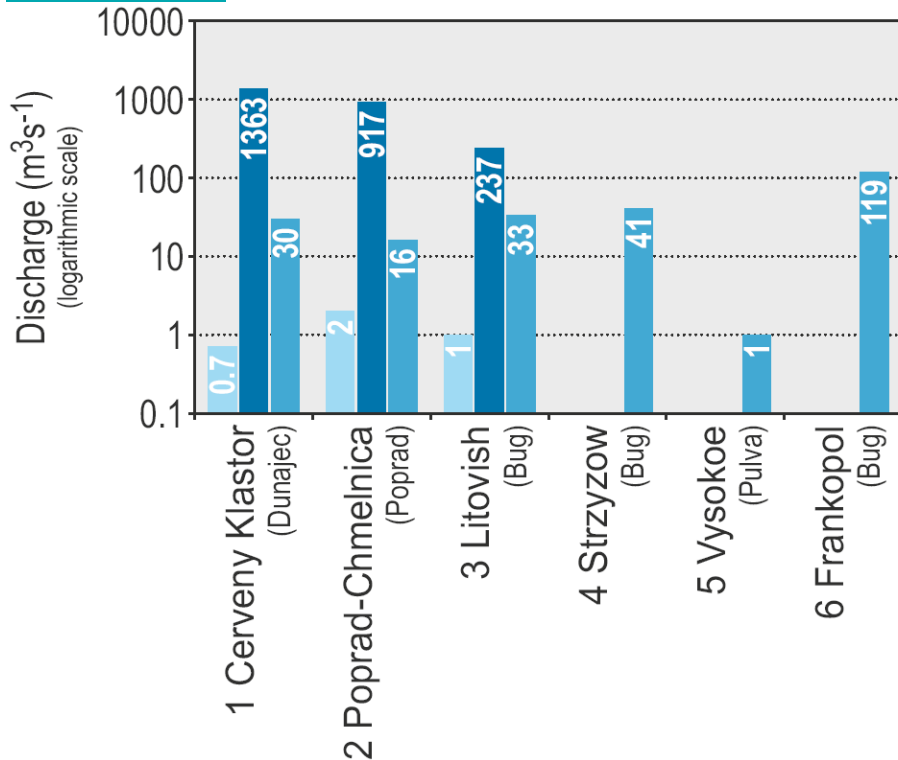


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UNEP/DEWA/GRID-Europe 2010

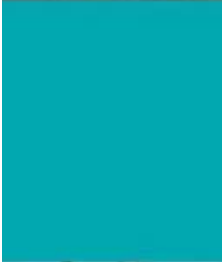


# Vistula and tributaries

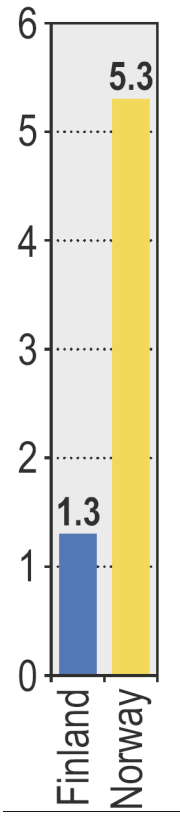
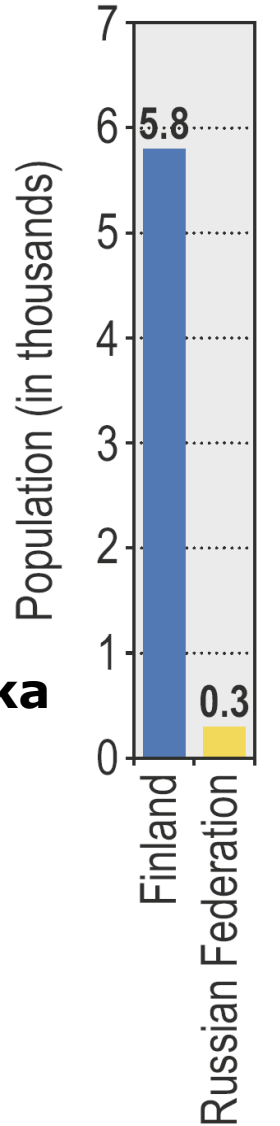




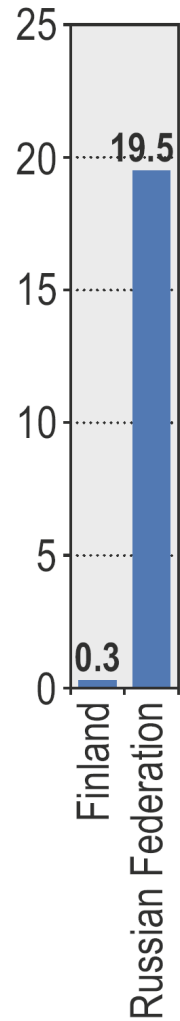
# Population charts: Northern rivers FI,NO, RU



## Oulanka

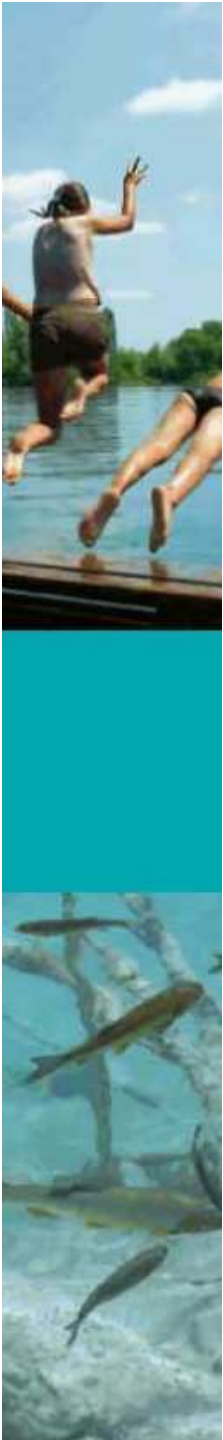


## Teno

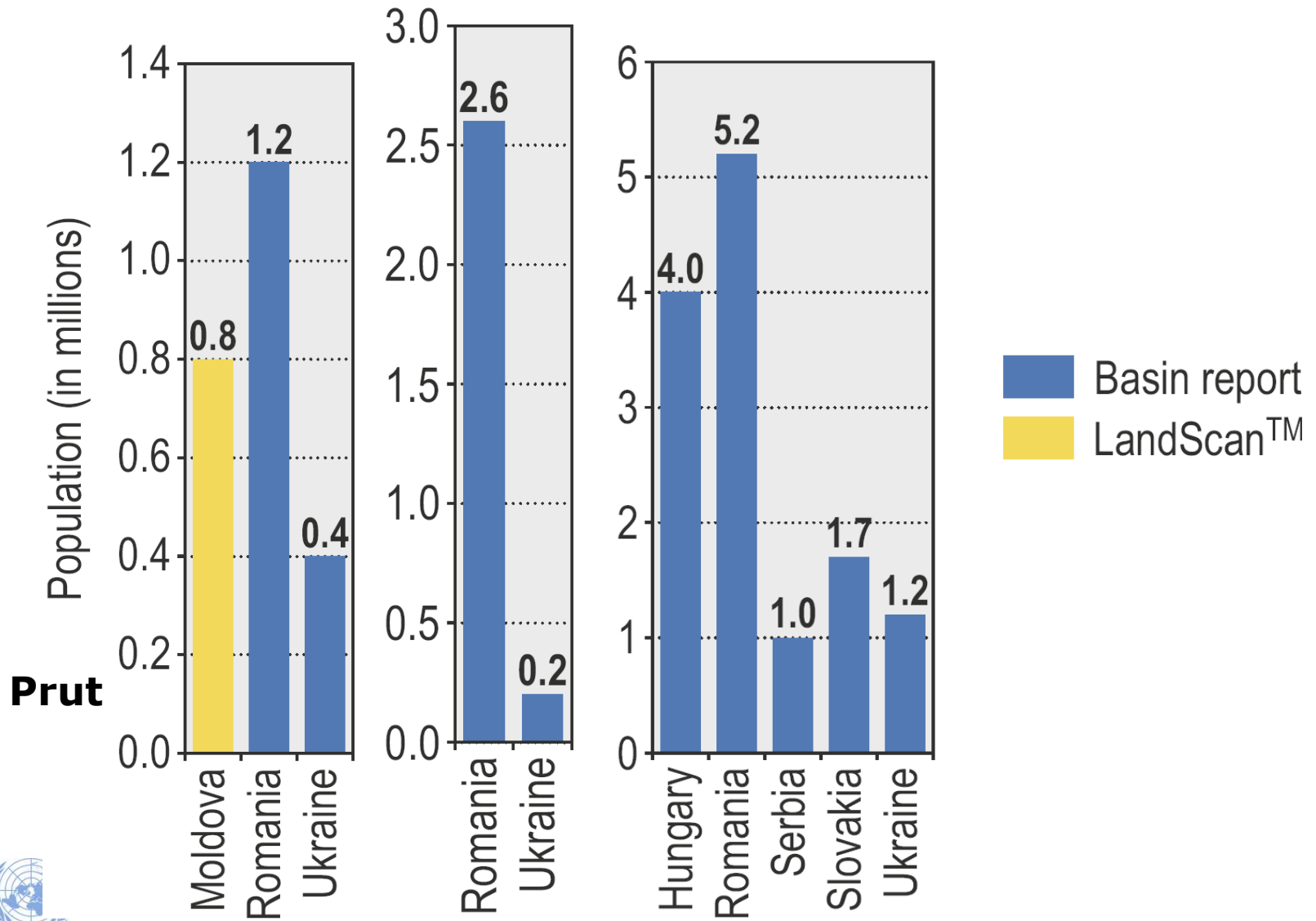


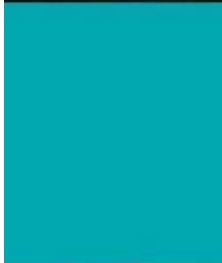
## Tuloma

- Basin report
- LandScan™



# Population charts: Prut, Siret, Tisza





# Transboundary aquifers & groundwater bodies



- 2010 -

## Transboundary Aquifers of Eastern and Northern Europe

