

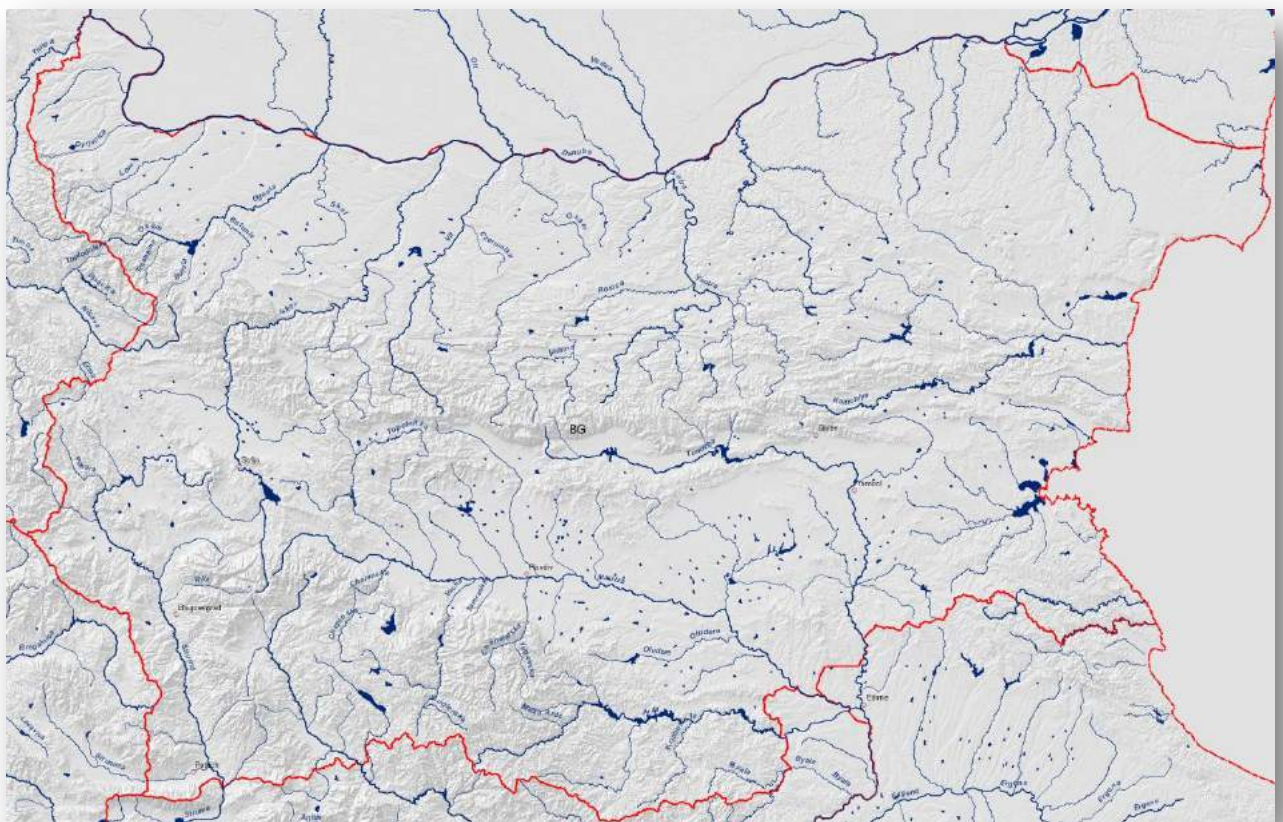


Outstanding Balkan River landscapes – a basis for wise development decisions

Bulgaria

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1. Hydromorphological intactness of rivers

There are four classes characterising the different levels of hydromorphological intactness: Class 1 shows in blue colour (near-natural conditions). Class 2-3 is characterised by slightly to moderately modified status, indicated in light green. Class 4 for river stretches which are extensively altered are orange and class 5 (red) indicates stretches with severe modifications in particular impoundments. Lakes and rivers outside of the project areas are visualised in dark blue.

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Hydromorphological assessment

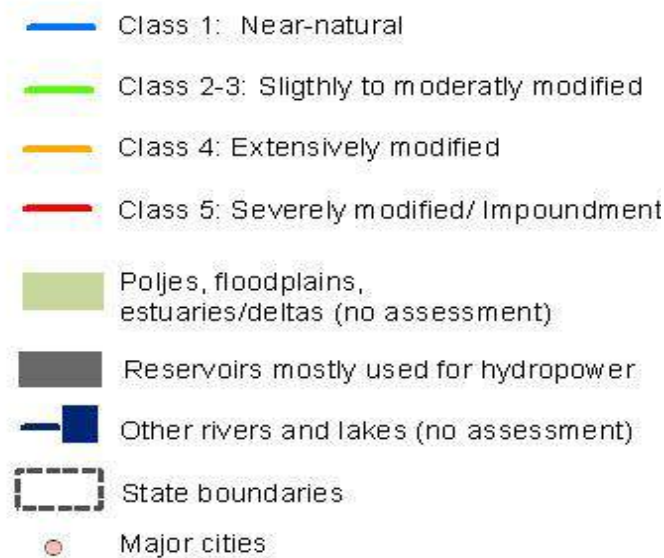


Fig. 1: Legend for the hydromorphological assessment map on next page

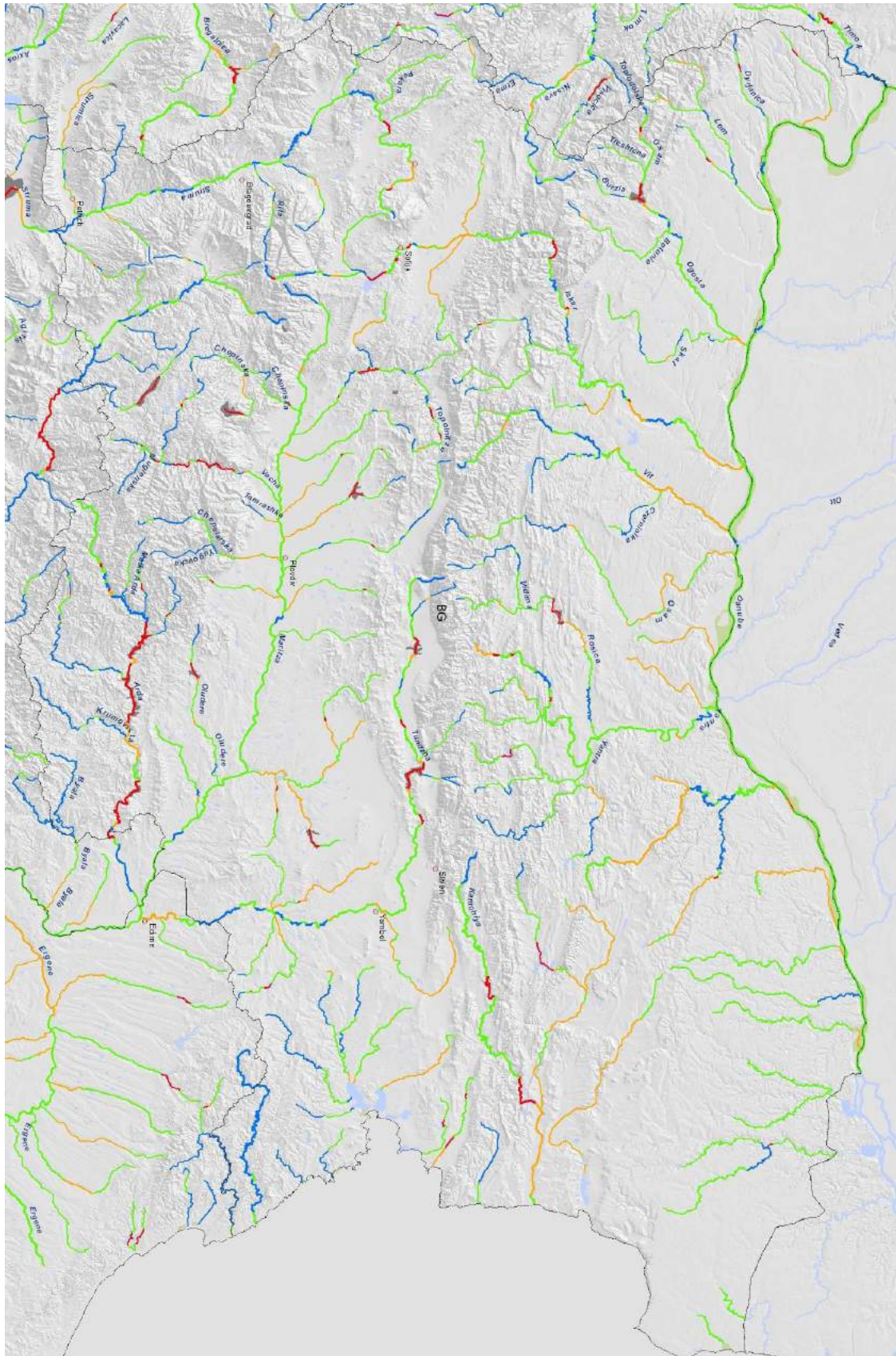


Fig. 2: Hydromorphological assessment for BG.

Bulgaria fall mostly into the Balkan region, only the far northeastern Pontic part is significantly different (more steppe climate with temporal streams). The Danube itself as border between Romania and Bulgaria still provide many in-channel features such as bars, islands and over large stretches untouched banks including shallow point bars and steep banks along the Bulgarian terrace. On a couple of very shorter stretches the Danube fall still in the class one where floodplains are not totally cut of, such as for most of the Romanian site. Danube tributaries fall mostly in the second class, often the lower courses are strongly altered (class 4) but intersected by some canyon like breakthroughs (e.g. Russenski Lom) or imposing steep banks (lower Yantra). The southeastern catchment of Struma still has many river stretches in the second and first class. The Maritsa is still free flowing but moderately altered. The Black Sea catchments are differentiated by size, larger rivers are often intensively used, smaller rivers are nearly intact.

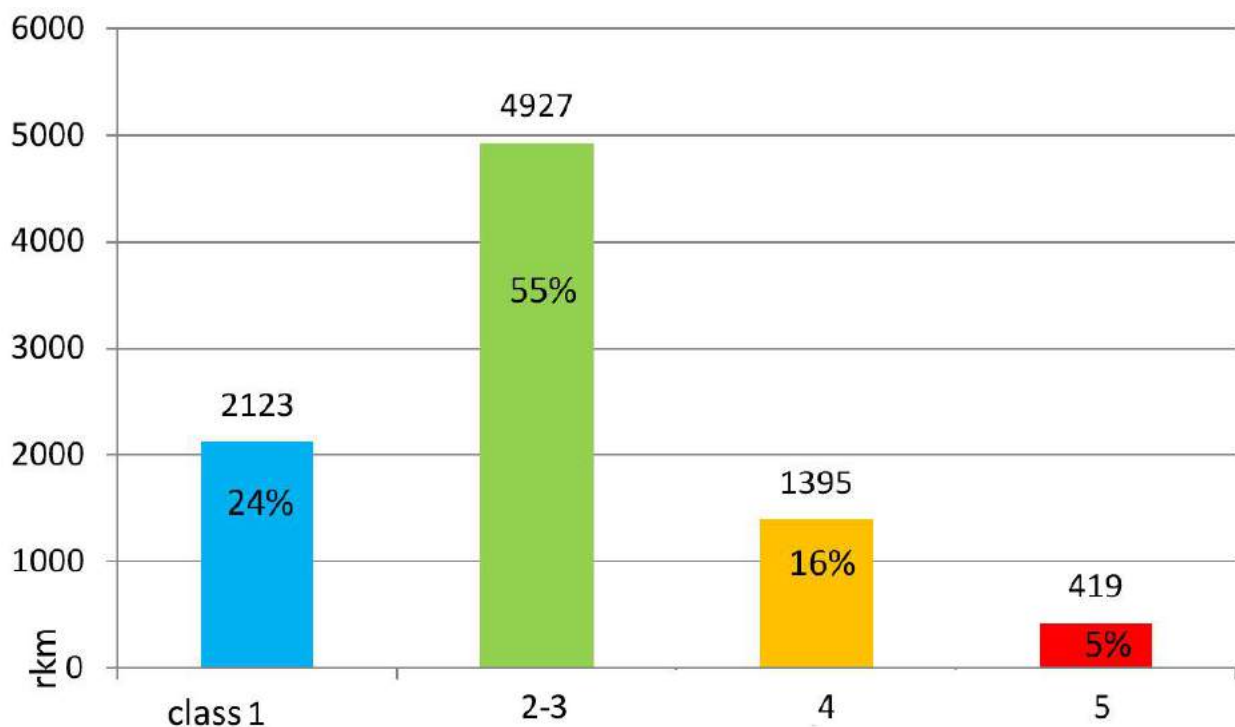


Fig. 3: Hydromorphological assessment in rkm and percentage for BG.

2. Protected areas, karst poljes, estuaries/deltas and important floodplains

The inventory of protected areas contains in particular Natura2000 for EU Member States (EC 2010) and Croatia (State Institute for Nature protection Croatia 2010), national parks, biosphere reserves, nature reserves, EMERALD network areas (as far as available) and Important Bird Areas as well as Ramsar sites for other countries.

Major important floodplains were used continuously, meaning for the large rivers such as Danube, Drava and Sava they are subdivided in upper, middle and lower parts. In addition the map includes all assessed karst poljes, estuaries/deltas as well as other wetlands.

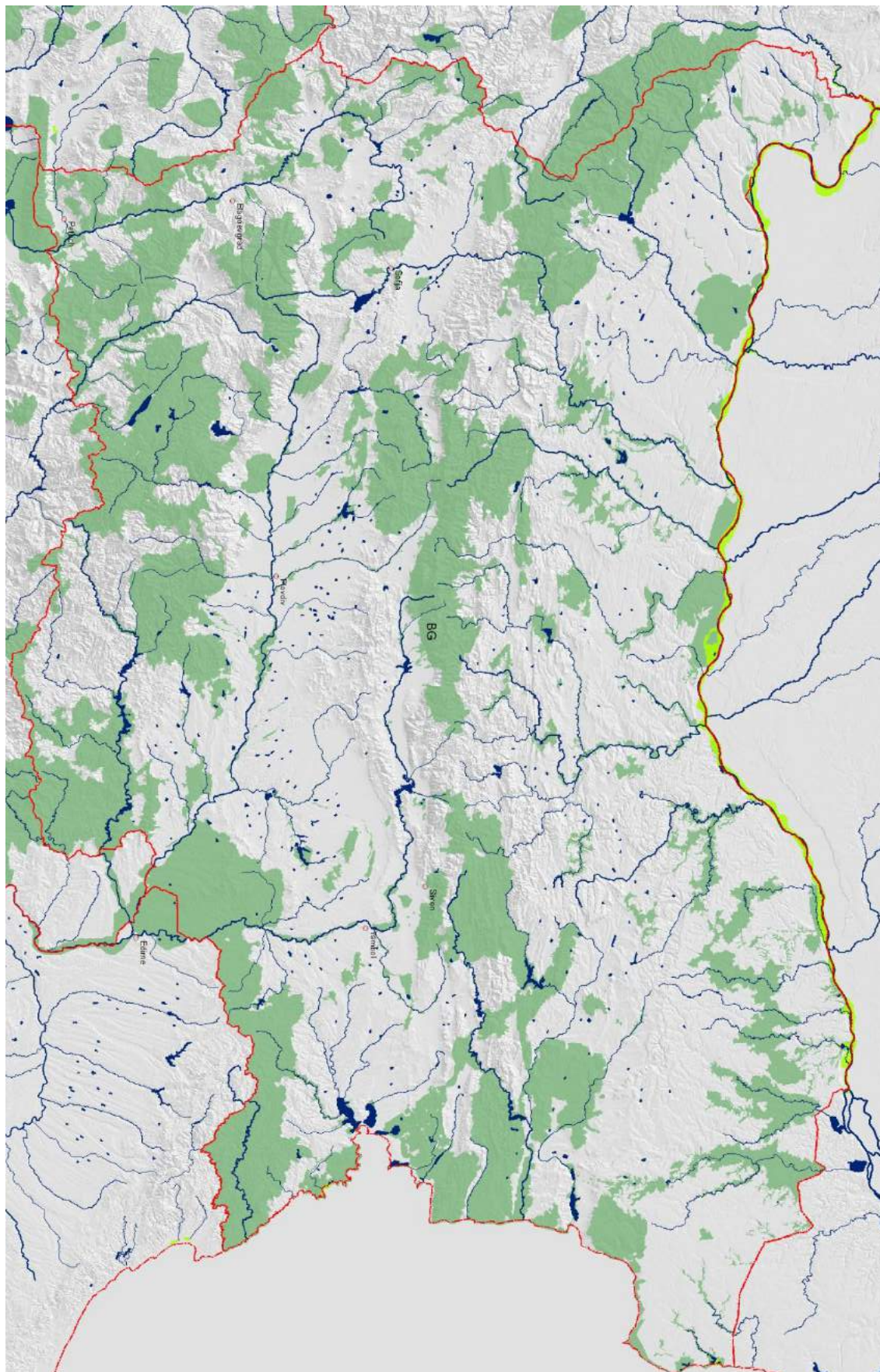


Fig. 4: Protected areas (incl. planned and proposed areas) in dark green (light green are poljes and large floodplain areas)

3. Conservation value of rivers

The conservation value is assessed in three levels: Very high conservation value (in blue), high conservation value (in dark green) and low conservation value (in light green). Karst poljes, major floodplains as well as deltas and estuaries with very high conservation value are visualized in dark blue-green and high conservation value in light green and low in light turquoise. Karst poljes and deltas are from particular interest for nature protection, therefore nearly all fall in the first two conservation classes.

	Hydro-morphological assessment class	Conservation value (assessment as result of overlay of hydromorphological assessment + protected areas + floodplains)
Class 1	Near-natural	Very high
Class 2-3	Slightly to moderately modified	High (river stretches crossing important floodplains/poljes/estuaries/deltas or overlapping with protected areas or both belonging to the “Very high” conservation value stretches)
Class 4	Extensively modified	Low, but important for longitudinal continuum (river stretches crossing important floodplains/poljes/estuaries/deltas or overlapping with protected areas or both belonging to the “High” conservation value stretches)
Class 5 Impoundments	Severely modified	Not assessed

Fig. 5: Definition of conservation value

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Conservation value for rivers (left) and poljes, estuaries/deltas and floodplains (right)











-  Very high conservation value 
-  High conservation value 
-  Low conservation value 
-  Impounded stretches and hydropower reservoirs
-  Other rivers and lakes (no assessment)
-  State boundaries
-  Major cities

Fig. 6: Legend for the map on conservation value on next page

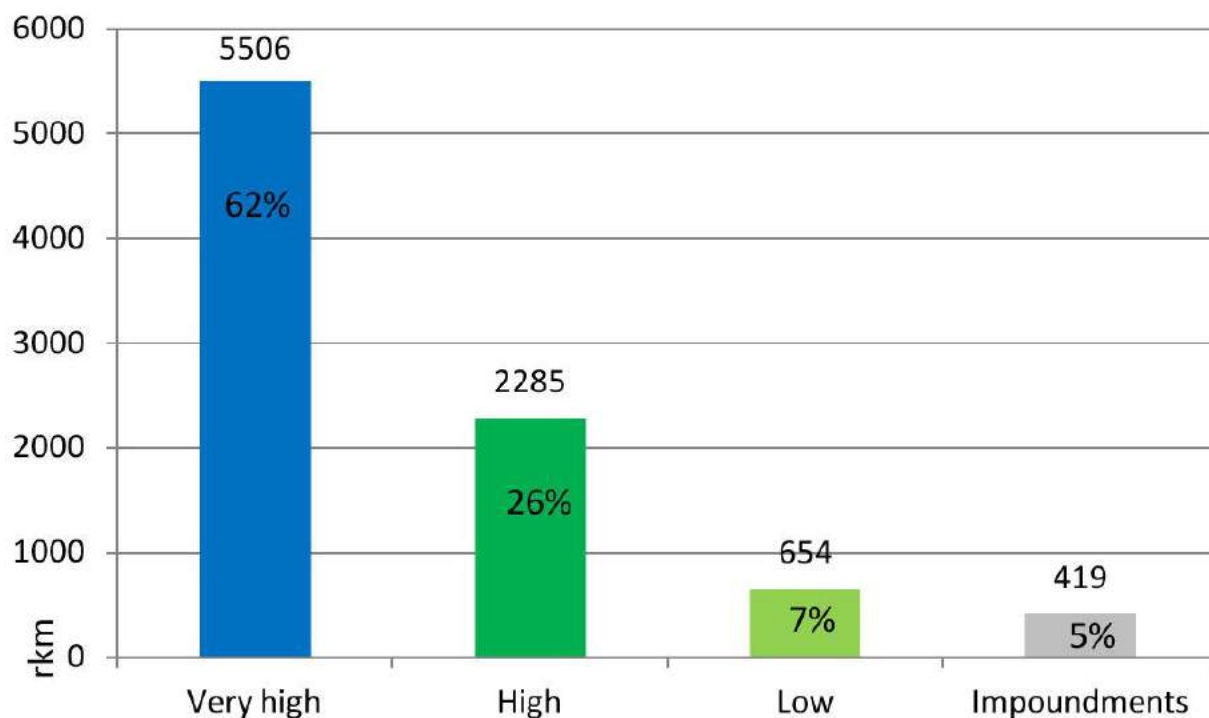


Fig. 8: Conservation value in rkm for BG.

4. Hydropower plants

Hydropower plants were recorded firstly along the “status type” into “existing/operating”, “under implementation” and “planned”. Further dams are classified in three size classes: 1-10 MW, 10-50 MW, and > 50 MW.

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- Hydropower plants:
-  Size classes: 1-10 MW, 10-50 MW, >50 MW
 -  Existing/operating
 -  Under implementation
 -  Planned
 -  Poljes, floodplains, estuaries/deltas
 -  Reservoirs mostly used for hydropower
 -  Other rivers and lakes (no assessment)
 -  State boundaries
 -  Major cities

Fig. 9: Legend for the dam map on next page

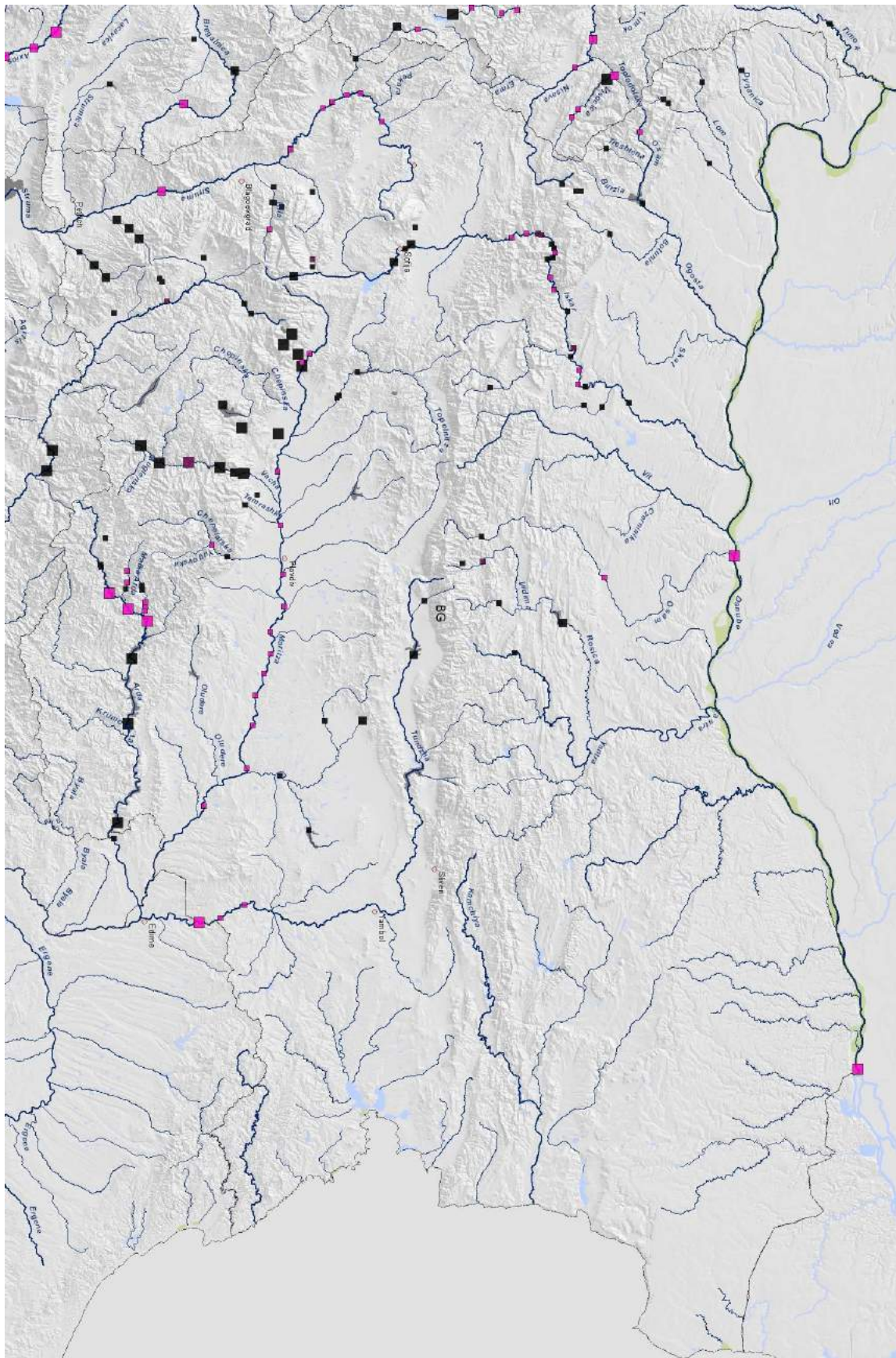


Fig. 10: Hydropower plants for BG.

The upper courses of Iskar, Maritsa tributaries and Arda are the most affected regions by dams (often collecting systems with mountain reservoirs).

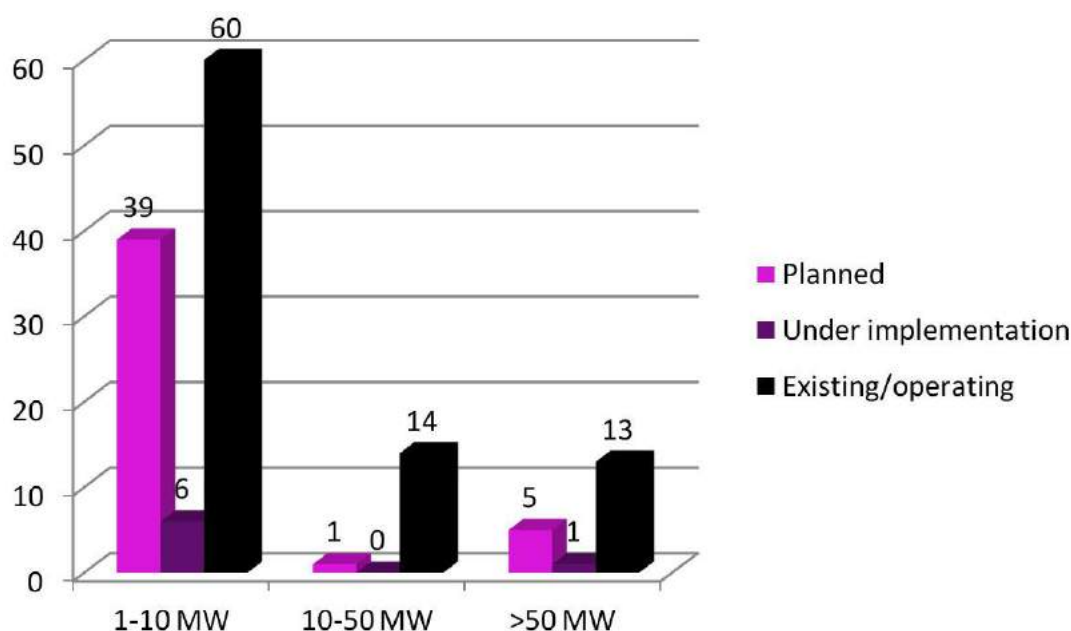


Fig. 11: Distribution of hydropower plants for BG.

5. Affected river stretches with conservation value by hydropower

This chapter combines the information of the “Conservation Value” with the planned hydropower plants.

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Hydropower plants:

Size classes: 1-10 MW,
10-50 MW, >50 MW

Planned

Conservation value for rivers (left) and poljes,
estuaries/deltas and floodplains (right):

Very high conservation value
High conservation value
Low conservation value

Fig. 12: Legend for the “conflict map” on next page

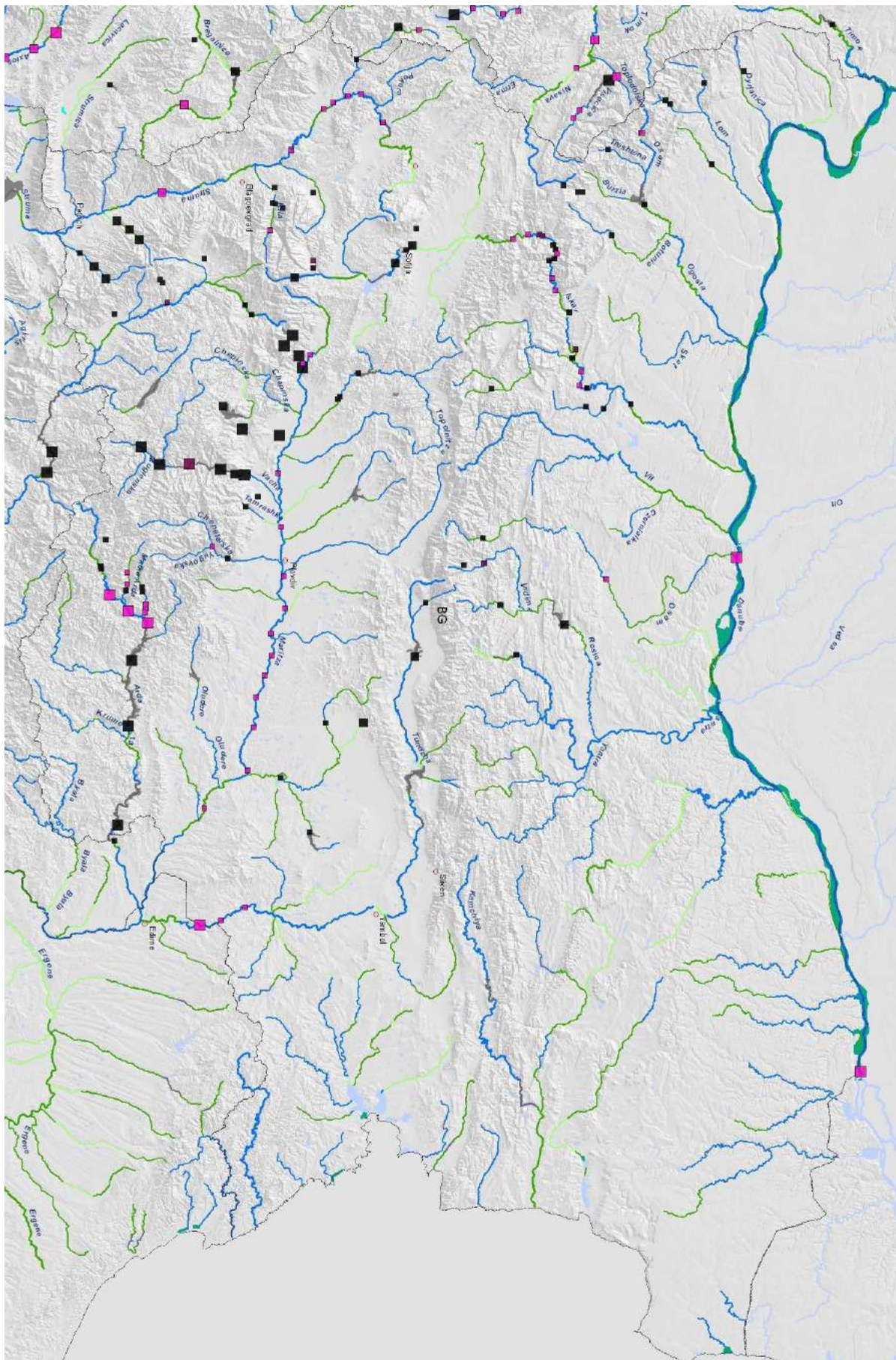


Fig. 13: Affected very high and high conservation stretches by planned hydropower plants for BG.

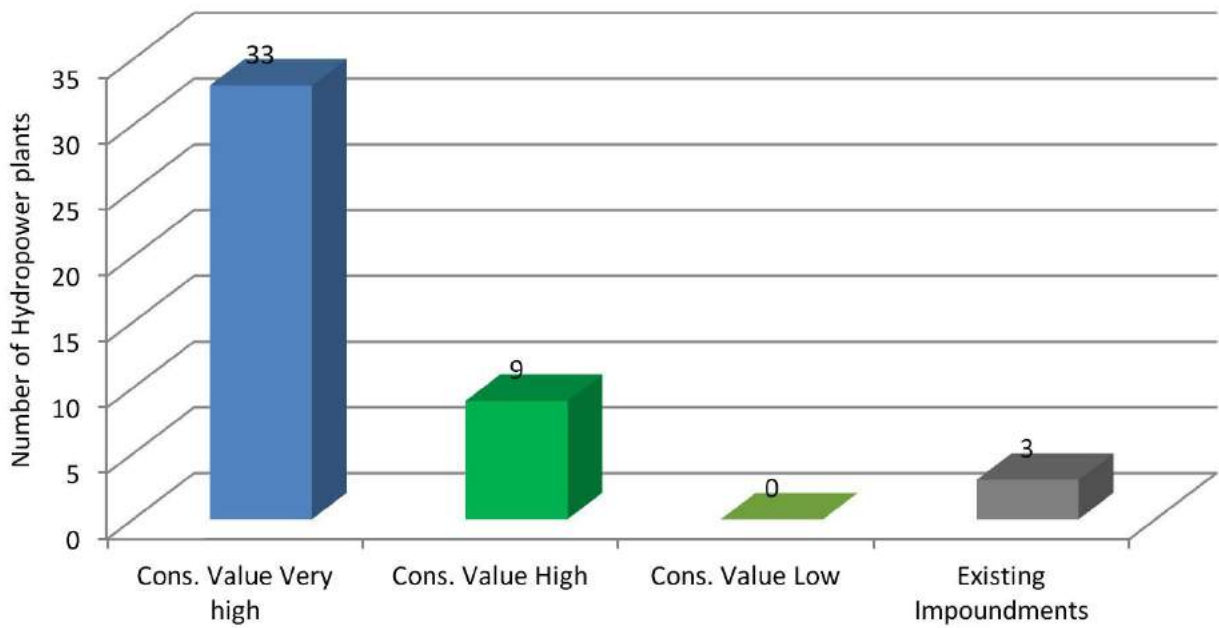


Figure 14: Number of planned hydropower plants that would affect very high, high and low conservation stretches for BG.



Fig. 15: Map zoom Danube: The two planned hydropower plants (together with RO) would destroy the “Lower Danube Green Corridor” and impound more than 500 rkm downstream of the existing Iron Gate dams.

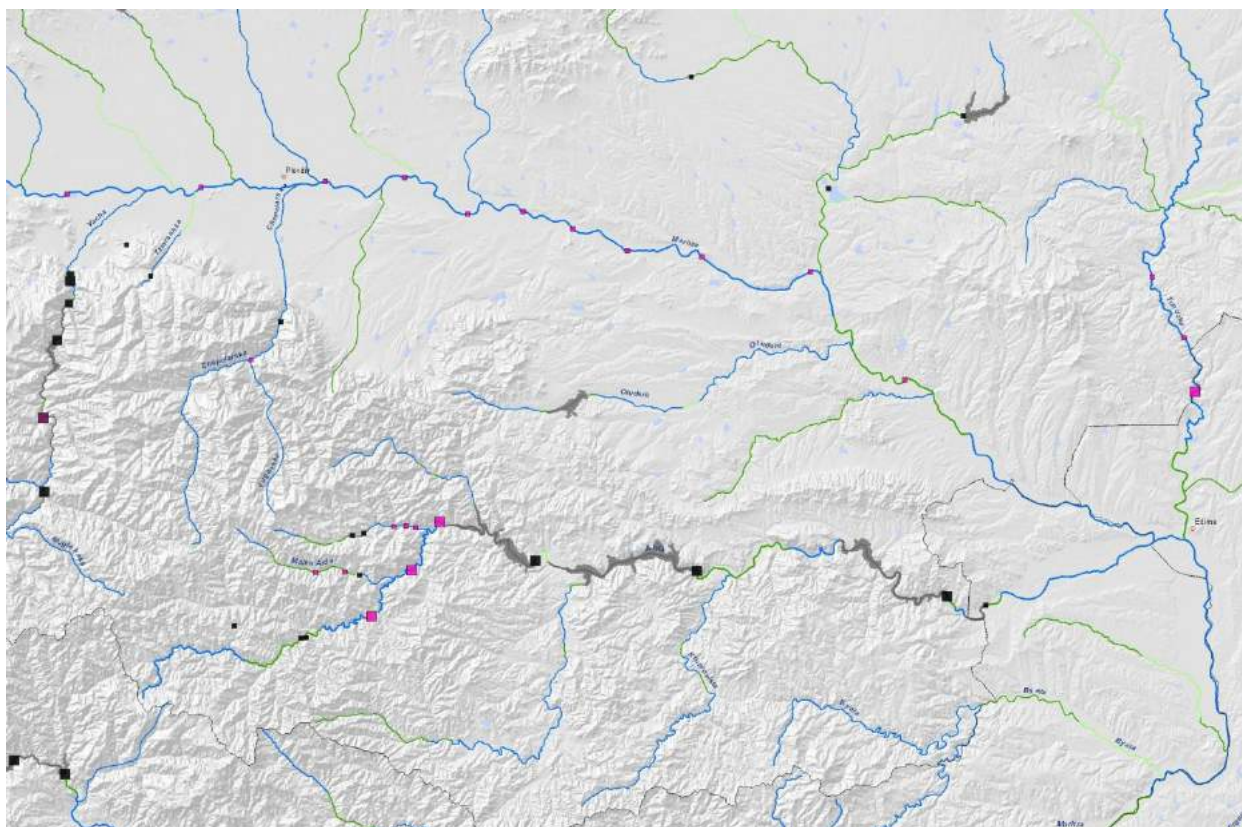


Fig. 16: Map zoom on Maritsa, lower Tundzha and upper Arda: Many medium sized dams will interrupt entire river systems.

6. List of planned Hydropower dams

ID_HP	Rivers Poljes	Name Location HPP	Installed MW	Affected RJ(s)
BG_HP_798	Iskar	Prokopnik	1-10	
BG_HP_799	Iskar	Tzerovo	1-10	
BG_HP_804	Iskar	Opletnya	1-10	
BG_HP_1558	Iskar	Roman	1-10	
BG_HP_1559	Iskar	Karlukovo 2	1-10	
BG_HP_1562	Iskar	Karlukovo 1	1-10	
BG_HP_871	Iskar	Zverino	1-10	
BG_HP_872	Iskar	Cherepish	1-10	
BG_HP_1026	Iskar	Kunino	1-10	
BG_HP_1038	Iskar tributary	Dolna Beshovitsa	1-10	
BG_HP_1579	Arda	Madan	> 50	
BG_HP_763	Arda	Kitnitsa	> 50	BG_RJ_443
BG_HP_1066	Malka Arda	Pesnopoi	1-10	
BG_HP_1068	Malka Arda	Malka Arda	1-10	
BG_HP_901	Malka Arda	Galabovo	1-10	
BG_HP_902	Malka Arda	Orahovo	1-10	
BG_HP_1200	Danube	Silistra - Calarasi	> 50	BG_RJ_397; BG_RJ_564

ID_HP	Rivers Poljes	Name Location HPP	Installed MW	Affected RJ(s)
BG_HP_1201	Danube	Nikopol - Turnu Magurele	> 50	BG_RJ_562; BG_RJ_397;
BG_HP_879	Struma	Struma 1	1-10	BG_RJ_671
BG_HP_880	Struma	Struma 2	1-10	BG_RJ_671
BG_HP_881	Struma	Struma 3	1-10	BG_RJ_671
BG_HP_882	Struma	Struma 4	1-10	
BG_HP_1560	Struma	Kresna-Cascade	10-50	BG_RJ_671
BG_HP_908	Struma	Pchelina	1-10	
BG_HP_969	Struma	Skrino 4	1-10	BG_RJ_446
BG_HP_970	Struma	Skrino 5	1-10	BG_RJ_446
BG_HP_885	Chiprovka	Energy-Chiprovtsi	1-10	
BG_HP_1561	Rila tributary	Rila Monastery	1-10	
BG_HP_1563	Osum	Yoglav	1-10	
BG_HP_1564	Maritza	Gabrovitza 1 and 2	1-10	
BG_HP_1565	Maritza	Govedare and Stamboliyski	1-10	
BG_HP_1566	Maritza	Dimitrovgrad	1-10	
BG_HP_1567	Maritza	Krum	1-10	
BG_HP_1568	Maritza	Dositeevo	1-10	
BG_HP_1570	Maritza	Manole	1-10	
BG_HP_1571	Maritza	Sestrimo	1-10	
BG_HP_1572	Maritza	Milevo	1-10	
BG_HP_1573	Maritza	Nova Nadejda	1-10	
BG_HP_1574	Maritza	Simeonovgrad	1-10	
BG_HP_1575	Maritza	Parvomay	1-10	
BG_HP_1576	Maritza	Dobri Dol	1-10	
BG_HP_1577	Maritza	Zlatna Livada	1-10	
BG_HP_1002	Lopyan	Stara	1-10	
BG_HP_1027	Retige	Retige 2 (Ilieva cherkva)	1-10	BG_RJ_506
BG_HP_909	Retige	Retige 1 (Haidushki kladenec)	1-10	BG_RJ_506
BG_HP_904	Davidkovska	Slivka	1-10	
BG_HP_1578	Tundzha	Ustrem and Srem	1-10	
BG_HP_1569	Tundzha	Radovets	1-10	
TR/BG_HP_999	Tundzha	Border/Suakacağı	>50	BG_RJ_467

Picture cover: User nn on Google Panoramio (upper tributary of Danube)

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