

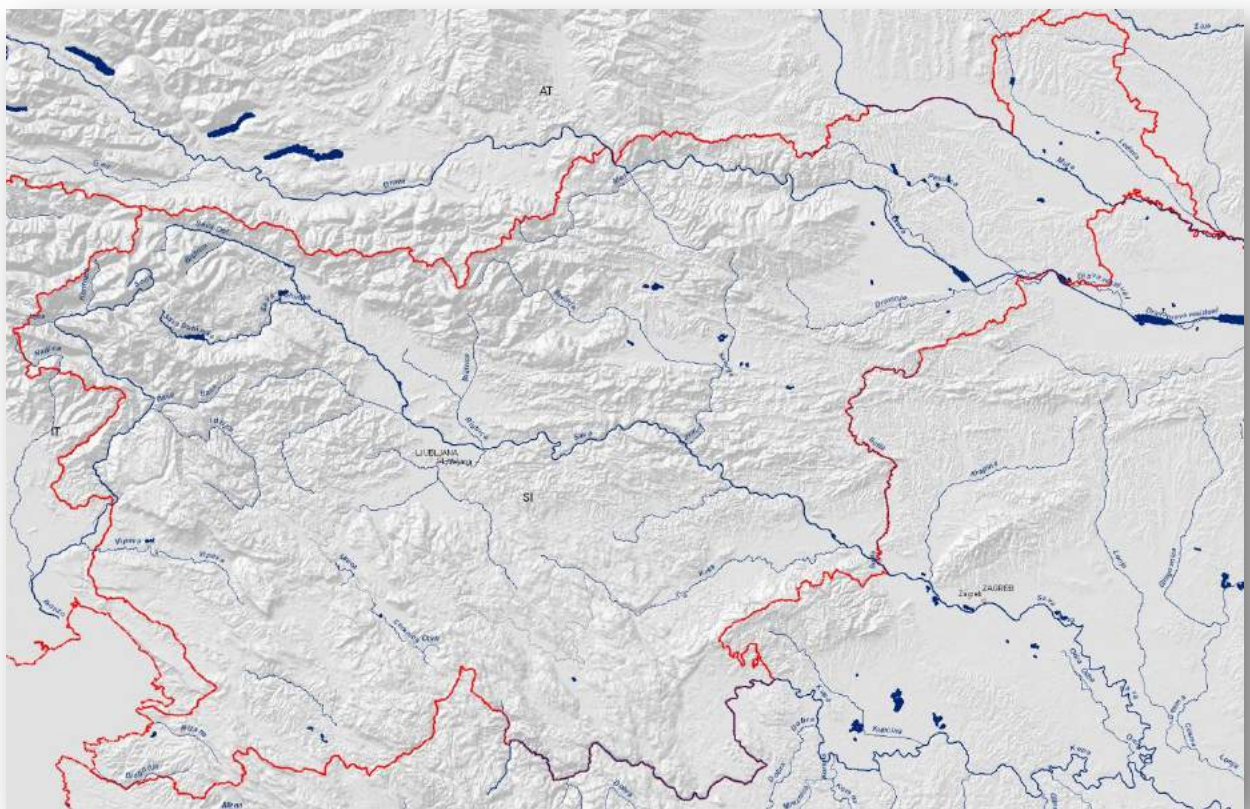


Outstanding Balkan River landscapes – a basis for wise development decisions

Slovenia

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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







-  Class 1: Near-natural
-  Class 2-3: Slightly to moderately modified
-  Class 4: Extensively modified
-  Class 5: Severely modified/ Impoundment
-  Poljes, floodplains, estuaries/deltas (no assessment)
-  Reservoirs mostly used for hydropower
-  Other rivers and lakes (no assessment)
-  State boundaries
-  Major cities

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

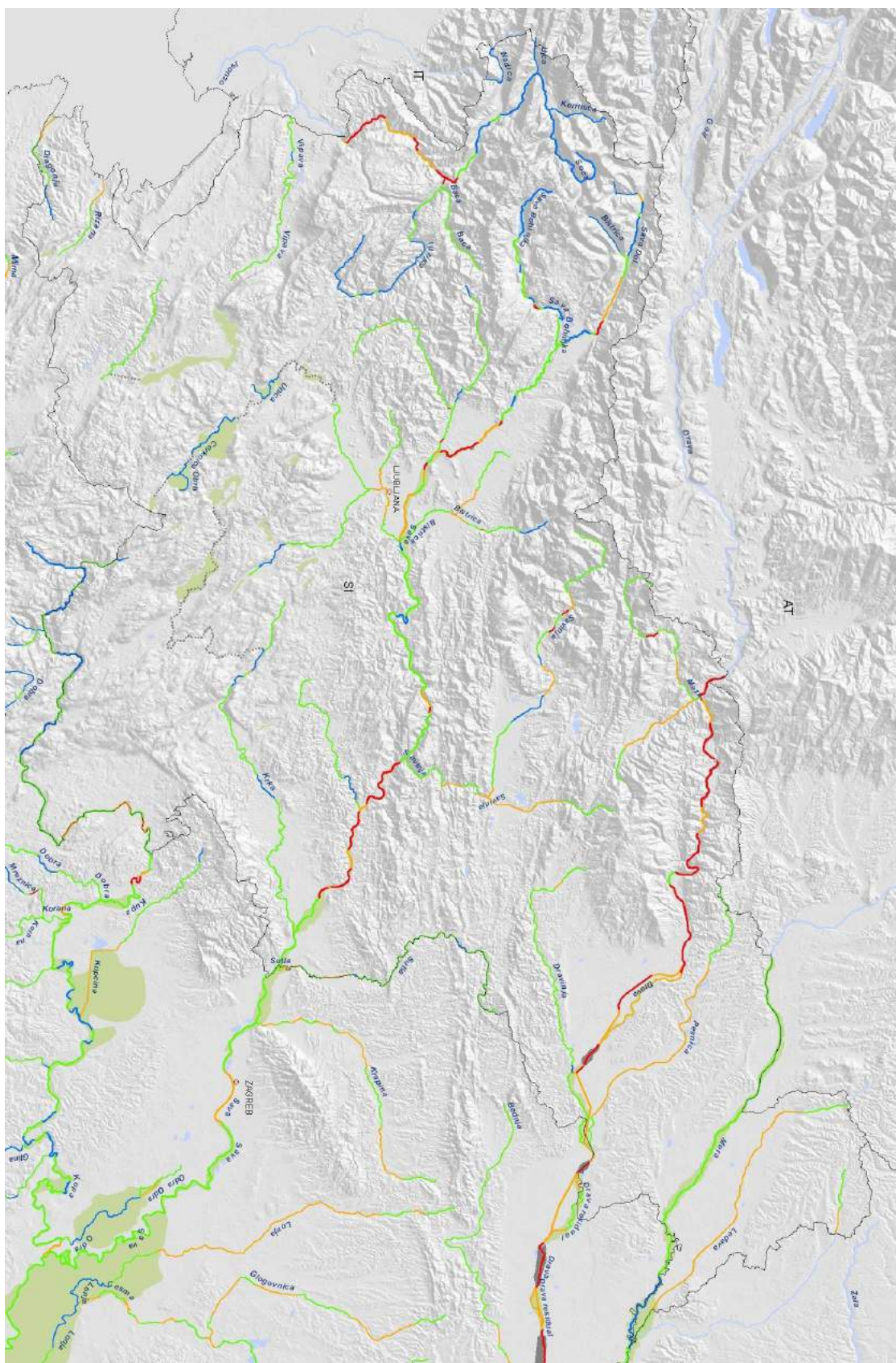


Fig. 2: Hydromorphological assessment for Slovenia.

Slovenia covers significant parts of the Alpine mountains. Major rivers are the Sava, Drava, Mura and Soča. Typical karst rivers in the south of the country are less modified than the main rivers in particular Drava is entirely used for hydropower. But also significant stretches of Sava and lower Soča are already strongly modified by impoundments and residual stretches for hydropower purposes. Hydromorphologically intact rivers can be found in the middle and upper Soča catchment, for most of the Sava headwaters and some Karst rivers. Due to the mountainous character of the country only along Mura and parts of the Drava as well as short stretches along inner Sava floodplains can be found. Additionally some regularly flooded poljes are typical and leads over to the karst systems of the Western Dinarides.

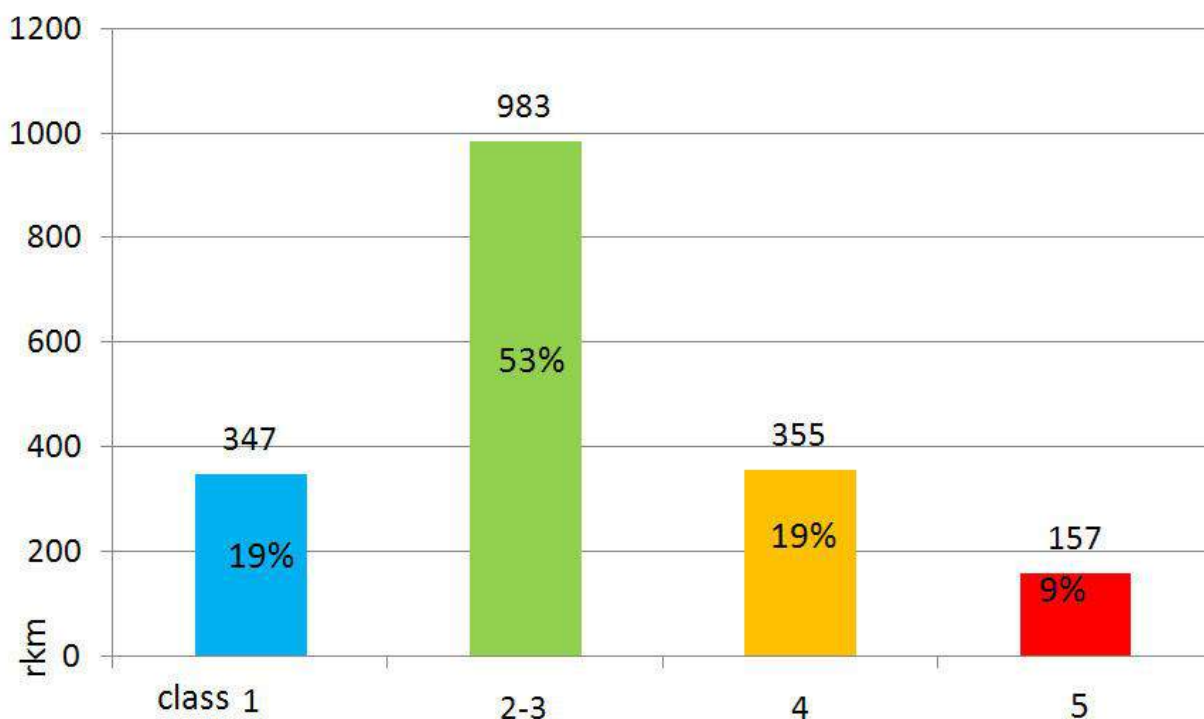


Fig. 3: Hydromorphological assessment in rkm and percentage for Slovenia.

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.

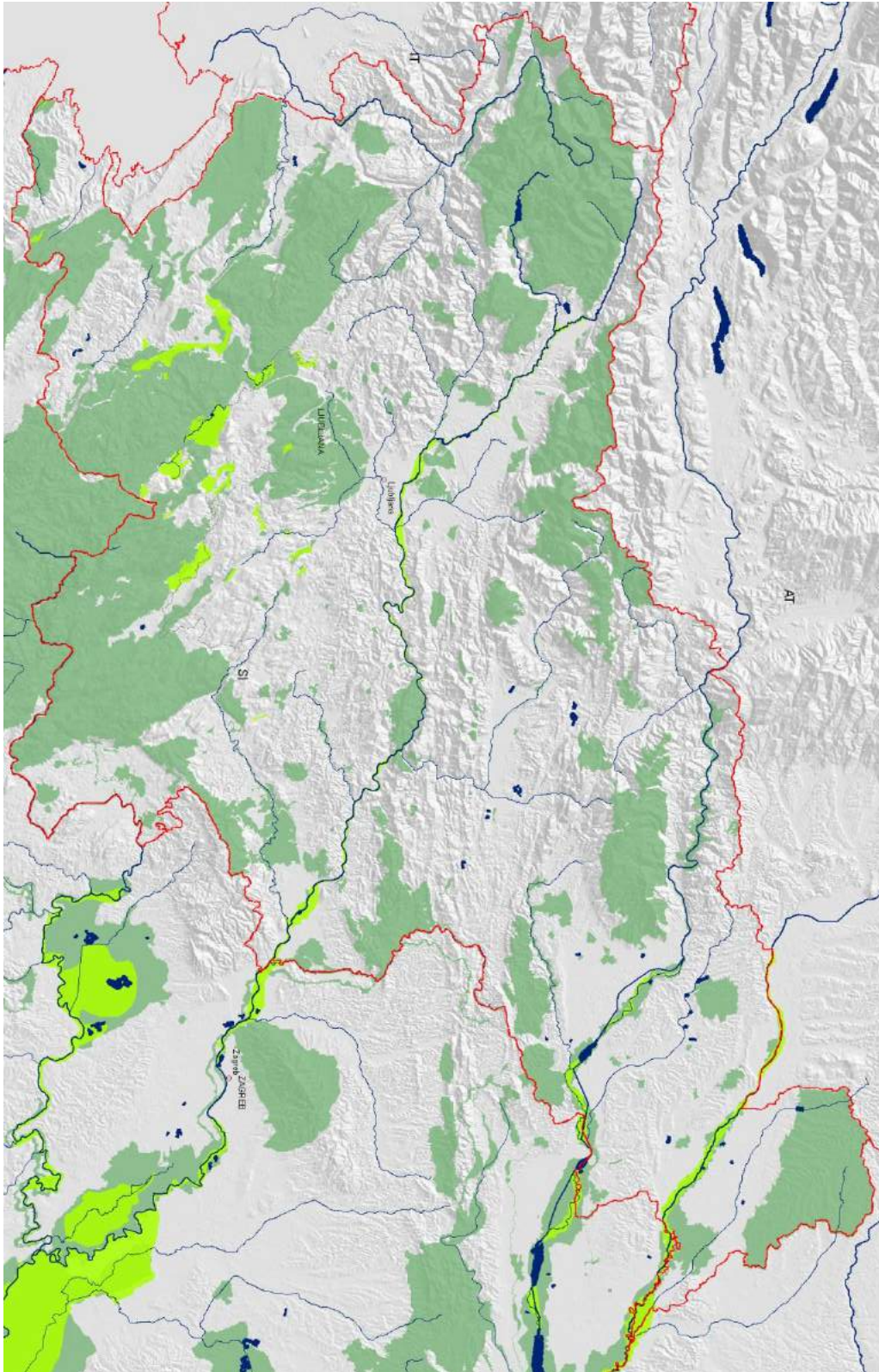


Fig. 4: Protected areas (incl. planned and proposed areas) in dark green (light green are poljes and large floodplain areas)

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

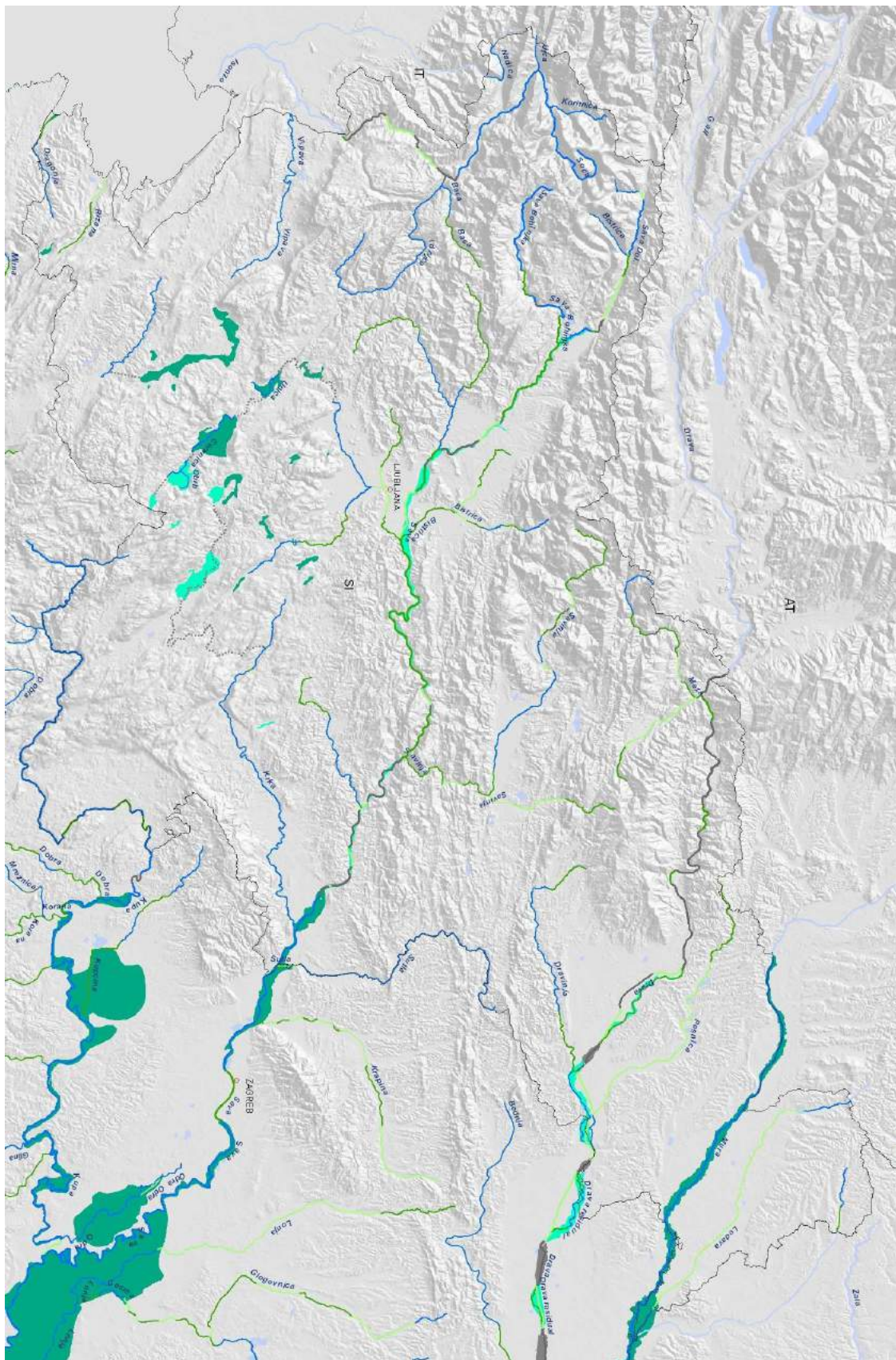


Fig. 7: Conservation value for SI.

The very high conservation value covers the upper Soča, Mura and many southern Karst rivers. The high conservation values along Drava are relevant for the residual water stretches of former river bed which are part of the Natura 2000 network (nevertheless hydrology is heavily damaged and the river and floodplains are degraded, but still in size

significant for the region). Special attention should be given also to middle and upper Sava in SI still providing valuable river reaches. Most of the karst poljes fall into the very high class.

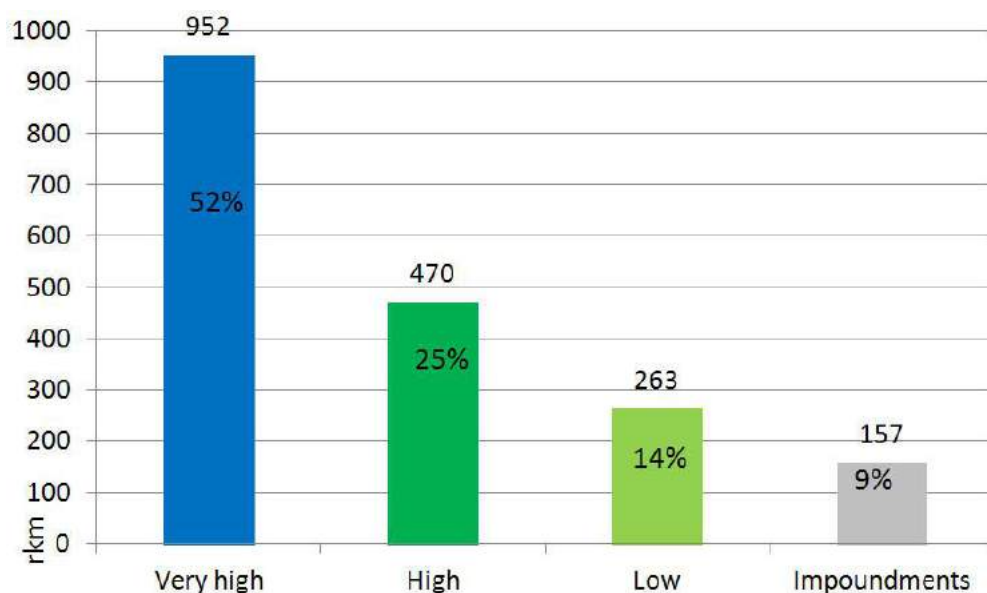


Fig. 8: Conservation value in rkm for SI.

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

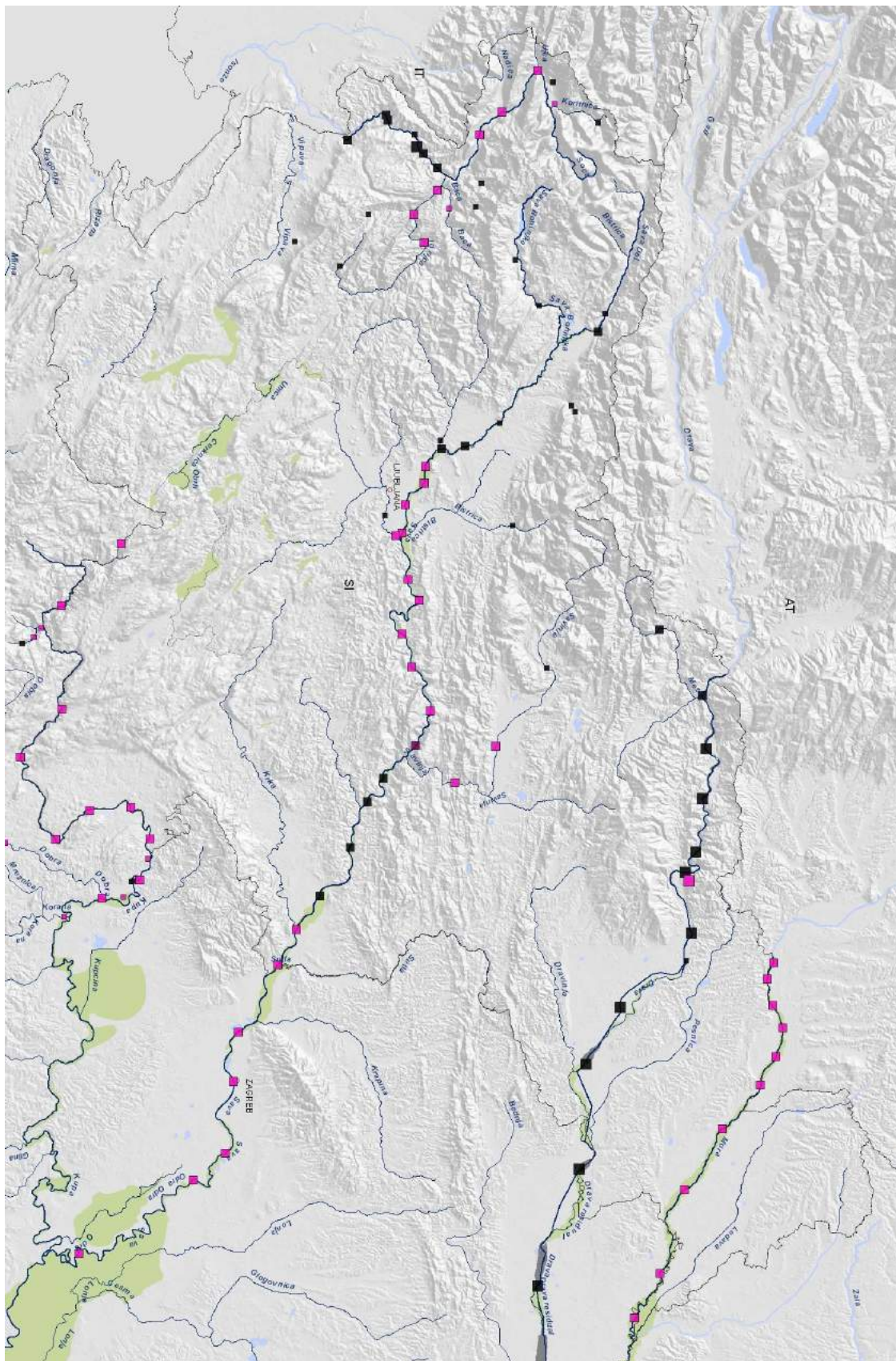


Fig. 10: Hydropower plants for SI.

Slovenia developed hydropower firstly on Drava and Soča, but in particular on Sava rather new projects were finished within last years and many new ones are planned to complete the chain.

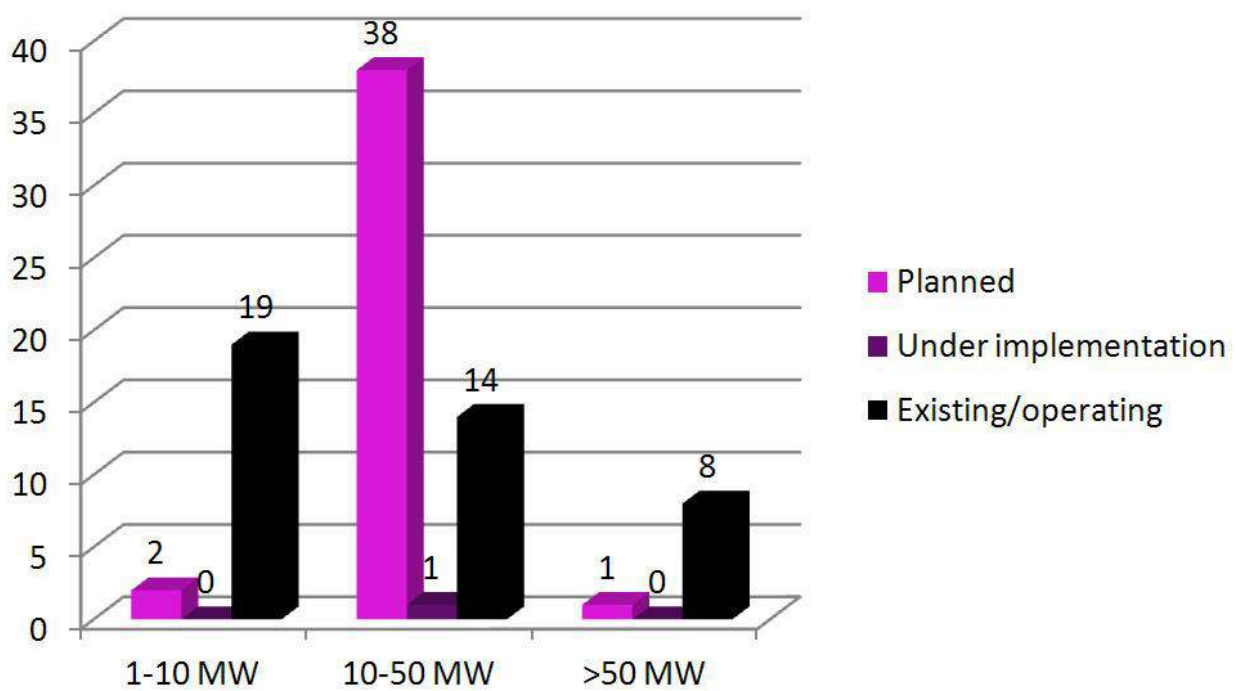



Fig. 11: Distribution of hydropower plants for SI.

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

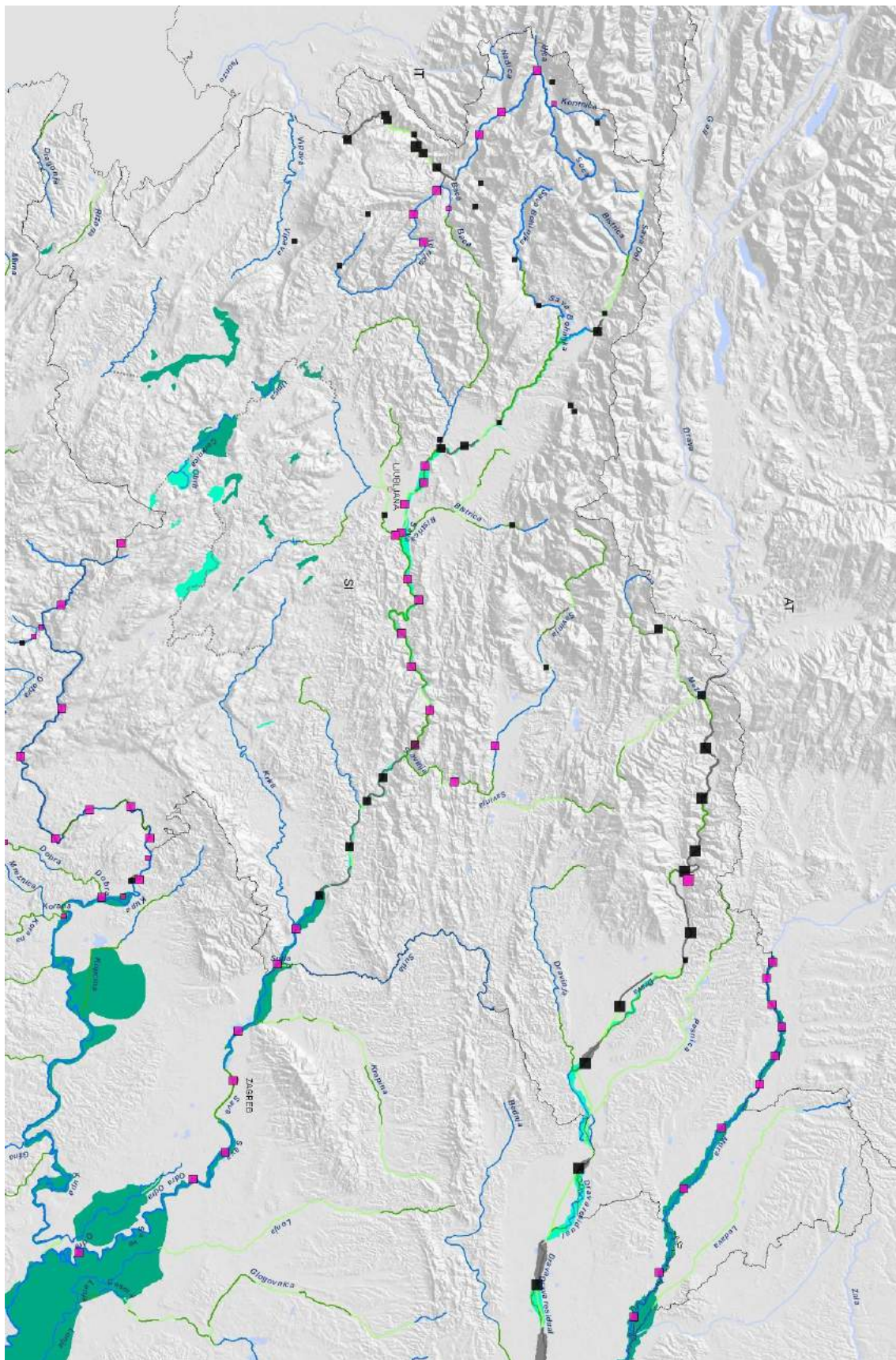


Fig. 13: Affected very high and high conservation stretches by planned hydropower plants for SI.

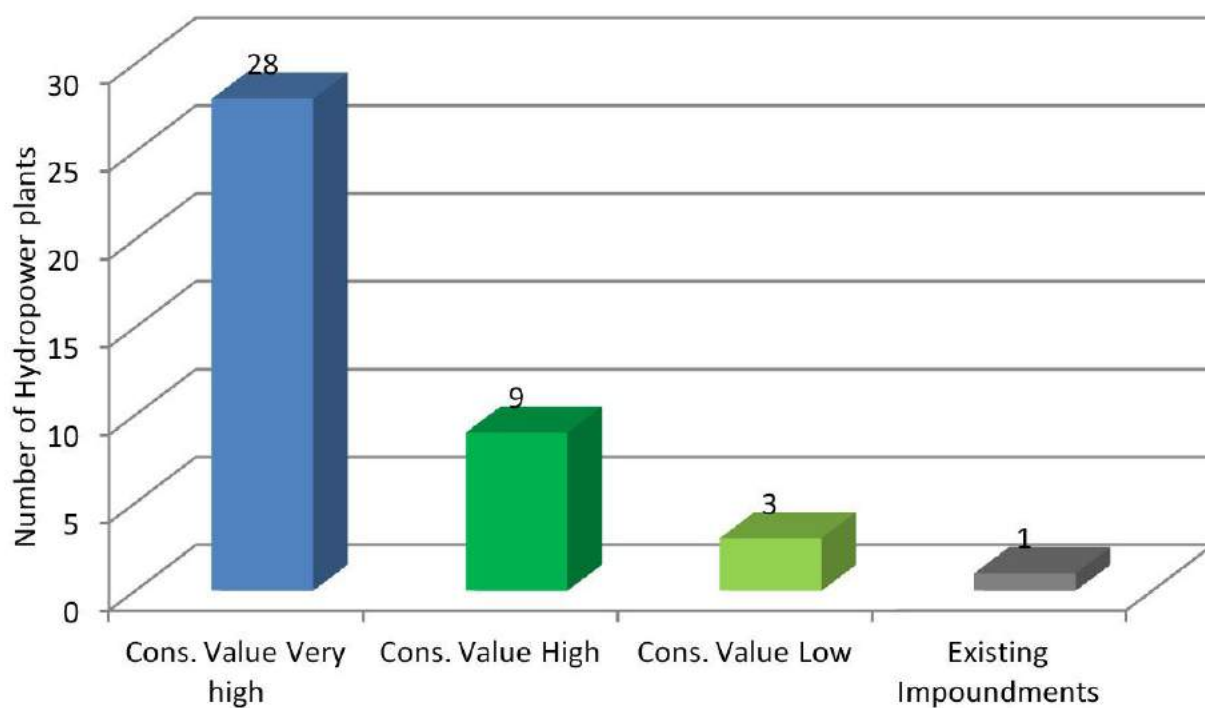


Fig. 14: Number of planned hydropower plants that would affect very high, high and low conservation stretches for SI.

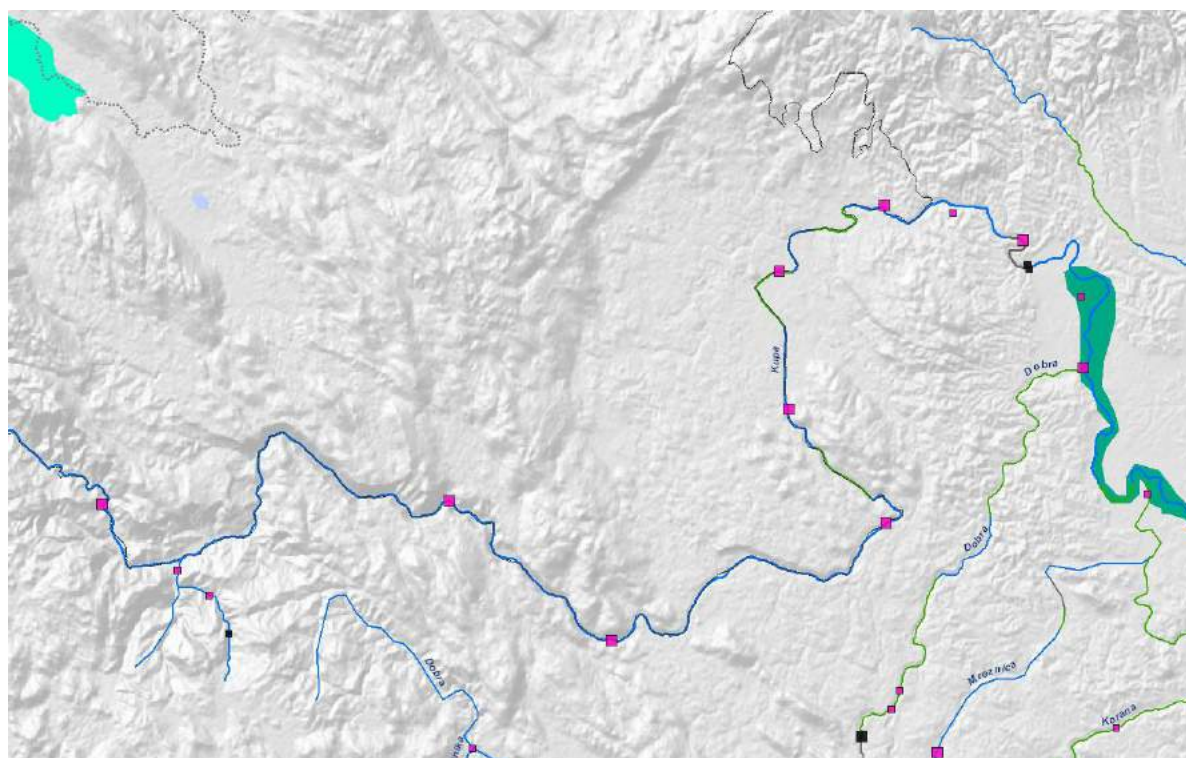


Fig. 15: Map zoom on the Kolpa/Kupa rivers: Numerous hydropower plants in SI and HR will impact large stretches of the rivers.

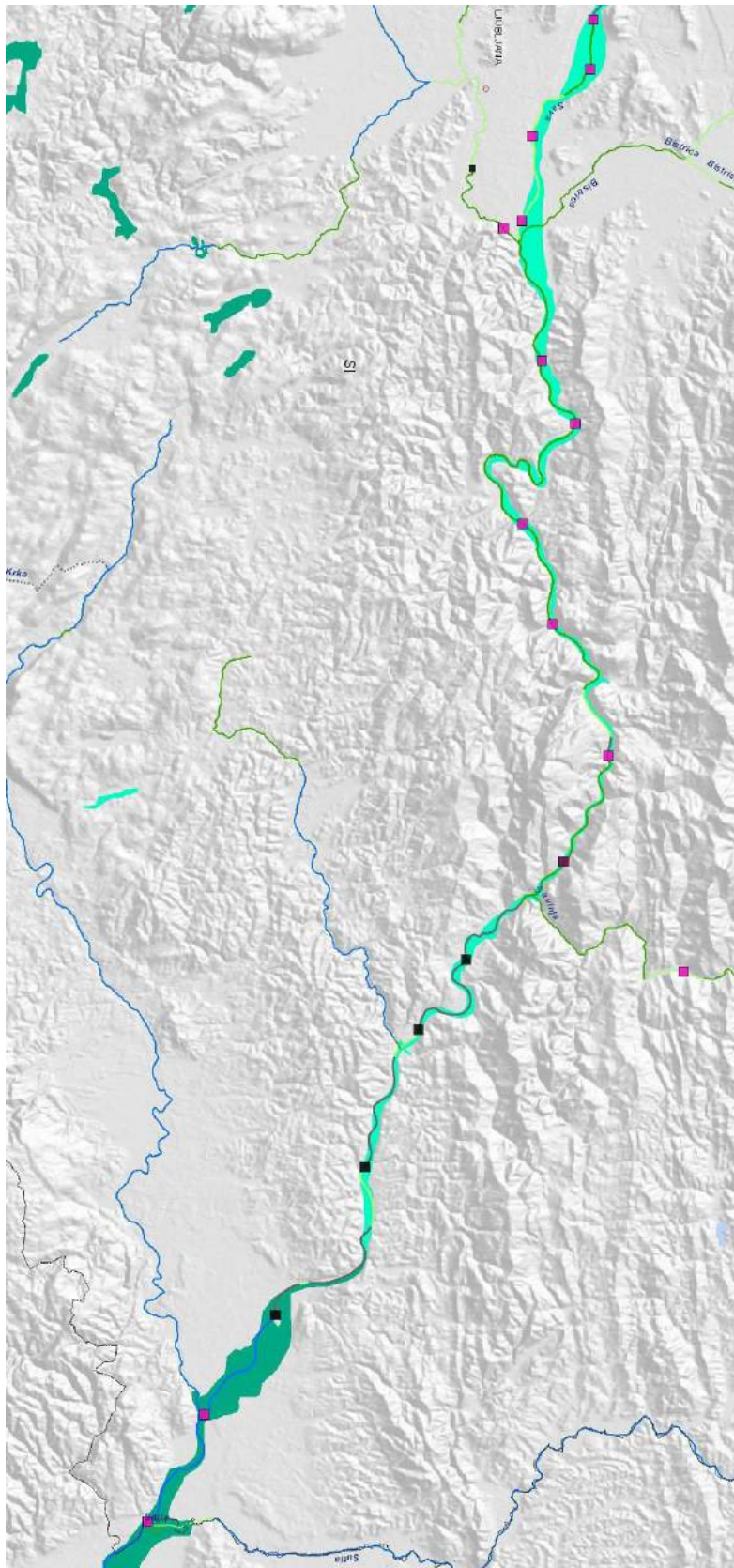


Figure 16: Map zoom on the upper Sava and tributaries: Plans will systematically turn the still free-flowing stretch and lower tributaries into a chain of hydropower plants (stretch is excluded from Natura 2000).

6. List of planned Hydropower dams

ID_HP	Rivers Poljes	Name Location HPP	Installed MW	Affected River Jewels
SI_HP_1500	Mura	Mura 1	10-50	SI_RJ_073; T_SI-HR_RJ_476
SI_HP_1502	Mura	Mura 2	10-50	SI_RJ_073; T_SI-HR_RJ_476
SI_HP_1503	Mura	Mura 3	10-50	SI_RJ_073; T_SI-HR_RJ_476
SI_HP_1504	Mura	Mura 4	10-50	SI_RJ_073; T_SI-HR_RJ_476
SI_HP_1505	Mura	Mura 5	10-50	SI_RJ_073; T_SI-HR_RJ_476
SI_HP_1506	Mura	Mura 6	10-50	SI_RJ_073; T_SI-HR_RJ_476
SI_HP_1507	Mura	Mura 7	10-50	SI_RJ_073; T_SI-HR_RJ_476
SI_HP_1508	Mura	Mura 8	10-50	SI_RJ_073; T_SI-HR_RJ_476
HR/SI_HP_511	Mura	Mursko Sredisce	10-50	T_SI-HR_RJ_476; T_SI-HR_RJ_628
HR/SI_HP_512	Mura	Podturen	10-50	T_SI-HR_RJ_476; T_SI-HR_RJ_628
SI_HP_618	Drava (pumping storage)	Kozjak	> 50	
SI_HP_622	Učja	Učja	10-50	
SI_HP_624	Bača	Kneza	1-10	
SI_HP_625	Soča	Kobarid	1-10	SI_RJ_048
SI_HP_626	Soča	Kamno	1-10	SI_RJ_048
SI_HP_1662	Idrijca	Idrijca1	10-50	
SI_HP_1663	Idrijca	Idrijca2	10-50	
SI_HP_1664	Idrijca	Idrijca3	10-50	
SI_HP_987	Sava	Tacen	10-50	
SI_HP_988	Sava	Trbovlje	10-50	
SI_HP_989	Sava	Renke	10-50	
SI_HP_990	Sava	Suhadol	10-50	
SI_HP_991	Sava	Ponovice	10-50	
SI_HP_992	Sava	Kresnice	10-50	
SI_HP_993	Sava	Jevnica	10-50	
SI_HP_994	Sava	Gameljne	10-50	
SI_HP_995	Sava	Zalog	10-50	
SI_HP_614	Sava	Brežice	10-50	T_SI-HR-RS_RJ_422
SI_HP_615	Sava	Mokrice	10-50	T_SI-HR-RS_RJ_422
SI_HP_996	Sava	Šentjakob	10-50	
SI_HP_996	Savinja	Savinja 1	10-50	
SI_HP_996	Savinja	Savinja 2	10-50	
SI_HP_996	Ljubljana	Podgrad	10-50	
SI_HP_996	Moznica	Moznica	1.10	SI_RWJ_048
HR/SI_HP_520	Kupa	Kupari	10-50	
HR/SI_HP_521	Kupa	Kocicin	10-50	T_HR-SI_RJ_077
HR/SI_HP_522	Kupa	Dol	10-50	T_HR-SI_RJ_077
HR/SI_HP_523	Kupa	Severin	10-50	T_HR-SI_RJ_077
HR/SI_HP_524	Kupa	Prilisce	10-50	T_HR-SI_RJ_077
HR/SI_HP_525	Kupa	Stankovci	10-50	
HR/SI_HP_526	Kupa	Otok	10-50	
HR/SI_HP_527	Kupa	Bozakovo	10-50	

Pictures cover: Igor Mohorič Bonča on Google Panoramio (Krka River karst spring)

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