


# Save the Alpine Rivers!

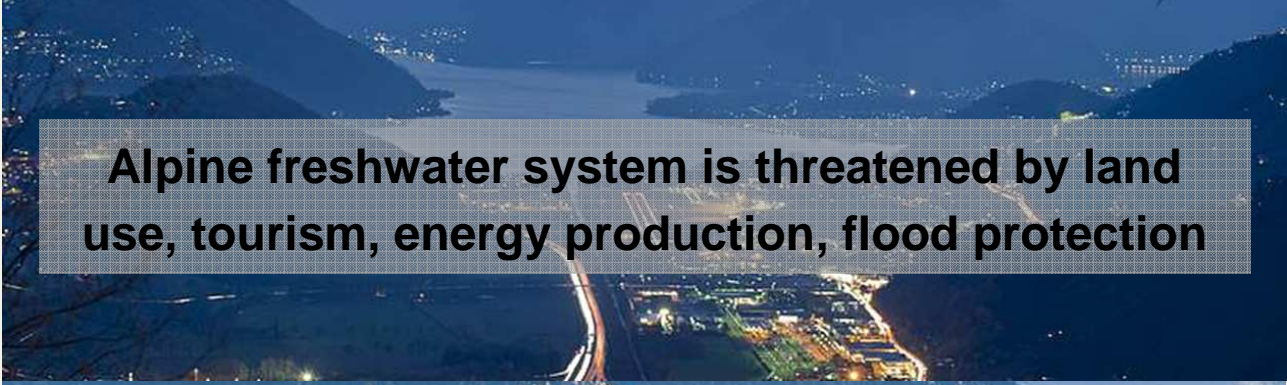
## AN ASSESSMENT OF THE ALPINE FRESHWATER SYSTEM

ERRC 2014. Vienna  
Christoph Litschauer  
WWF EALP




A photograph of a vibrant alpine meadow filled with purple and yellow wildflowers in the foreground, with snow-capped mountains in the background.

**Unique biodiversity (30,000 animal species and 13,000 plant species) - one of the richest biodiversity "hotspots" in Europe**

An aerial photograph showing a wide river valley. A large dam or bridge structure is visible in the middle ground, with a town or village situated on the riverbank.

**Alpine freshwater system is threatened by land use, tourism, energy production, flood protection**

A photograph of a scenic alpine landscape. In the foreground, there are green meadows and trees. In the background, a stone tower or castle ruins stand on a hill, with mountains rising behind them.

**Alpine Arc (~ 200.000 km<sup>2</sup>, Population 14 Mio.) supplies about 180 Mio. people with water**



## Pan-Alpine River Study

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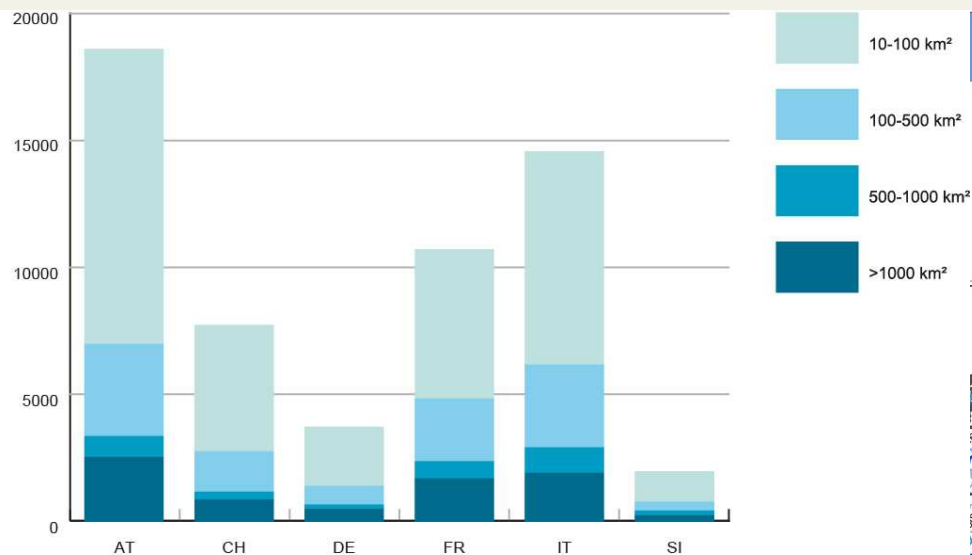
lack of a pan-Alpine overview of the status and the threats of Alpine Freshwater System



comprehensive pan-Alpine foundation for setting protection and restoration priorities

- By designation of river stretches with very high protection priority (“NoGo Areas”) and river stretches with high restoration potential
  - By identification and documentation of the main impacts and pressures on Alpine Rivers
  - By development of a consistent and comprehensive data base for increasing Know How on a pan-Alpine Level
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## Pan-Alpine river network

A pan-Alpine river network assembled from official river networks from responsible national authorities. Data were reprojected and modified to account for duplication and gaps along national borders. Common coordinate reference system (ETRS1989 LAEA). Rivers are assigned into four catchment size classes.

Only rivers with a catchment size larger than 10 km² are displayed in this map.

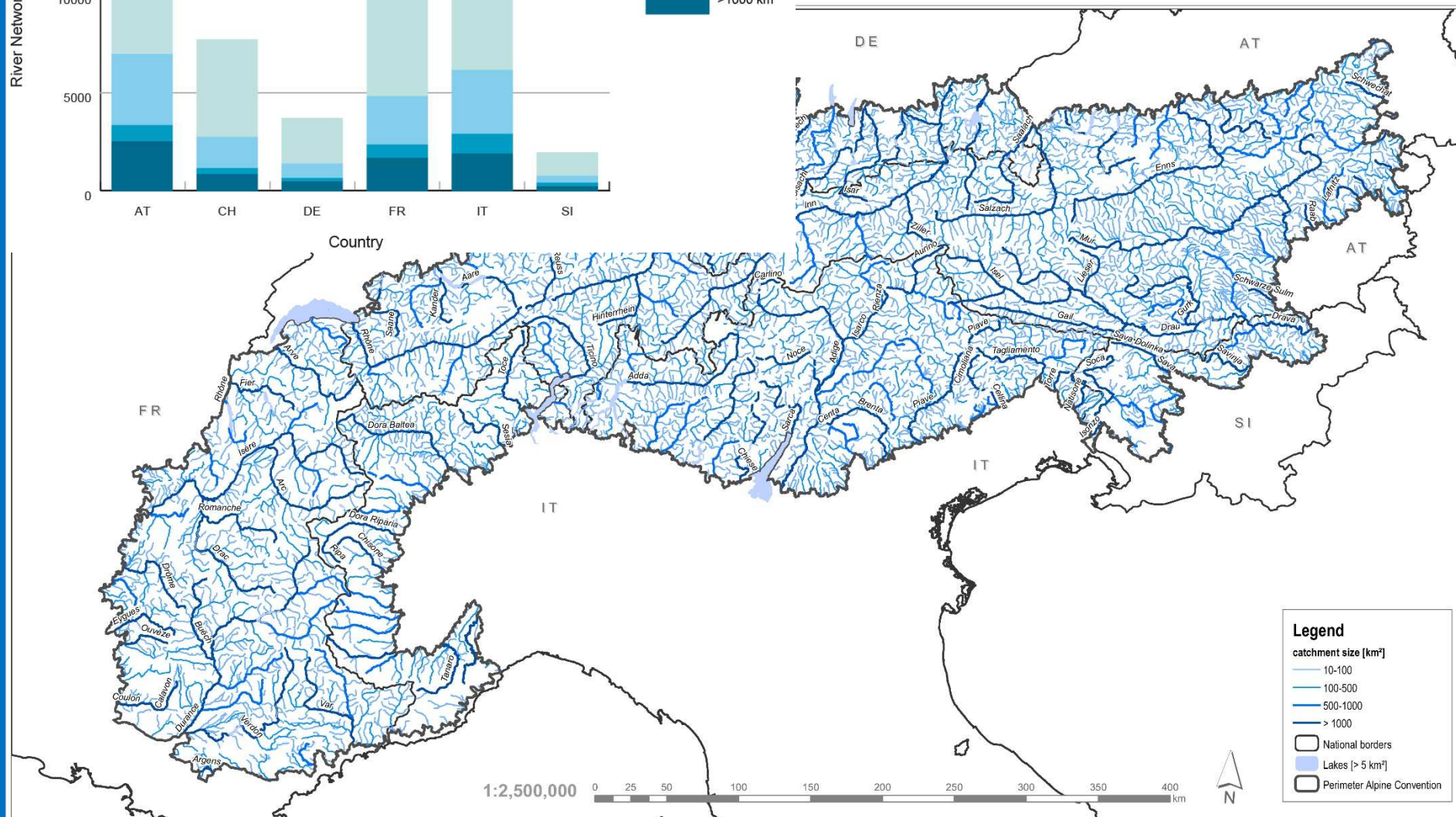
Data sources

Perimeter of the Alpine Convention: *Permanent Secretariat of the Alpine Convention*

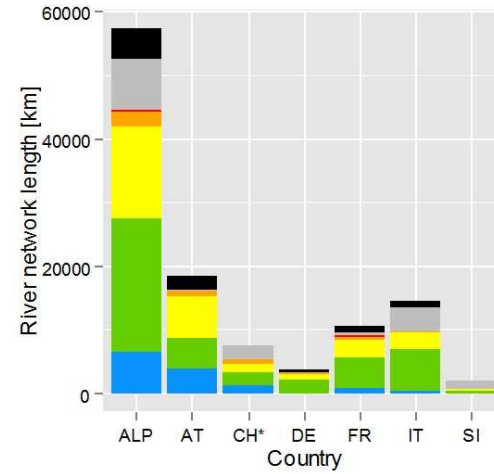
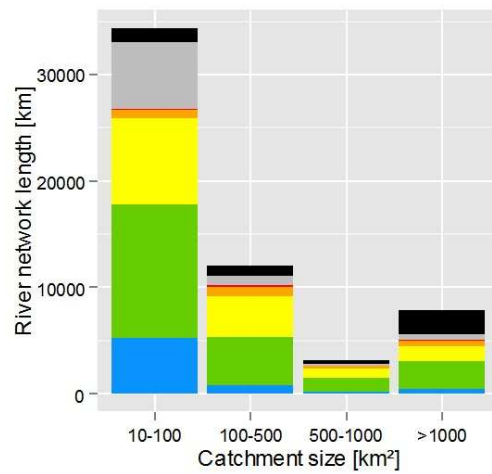
National river networks: *ADBPO, ADBVE, GURS, UBA, LFU, IRSTEA, Swisstopo*

Lakes (from ECRINS): *EEA*

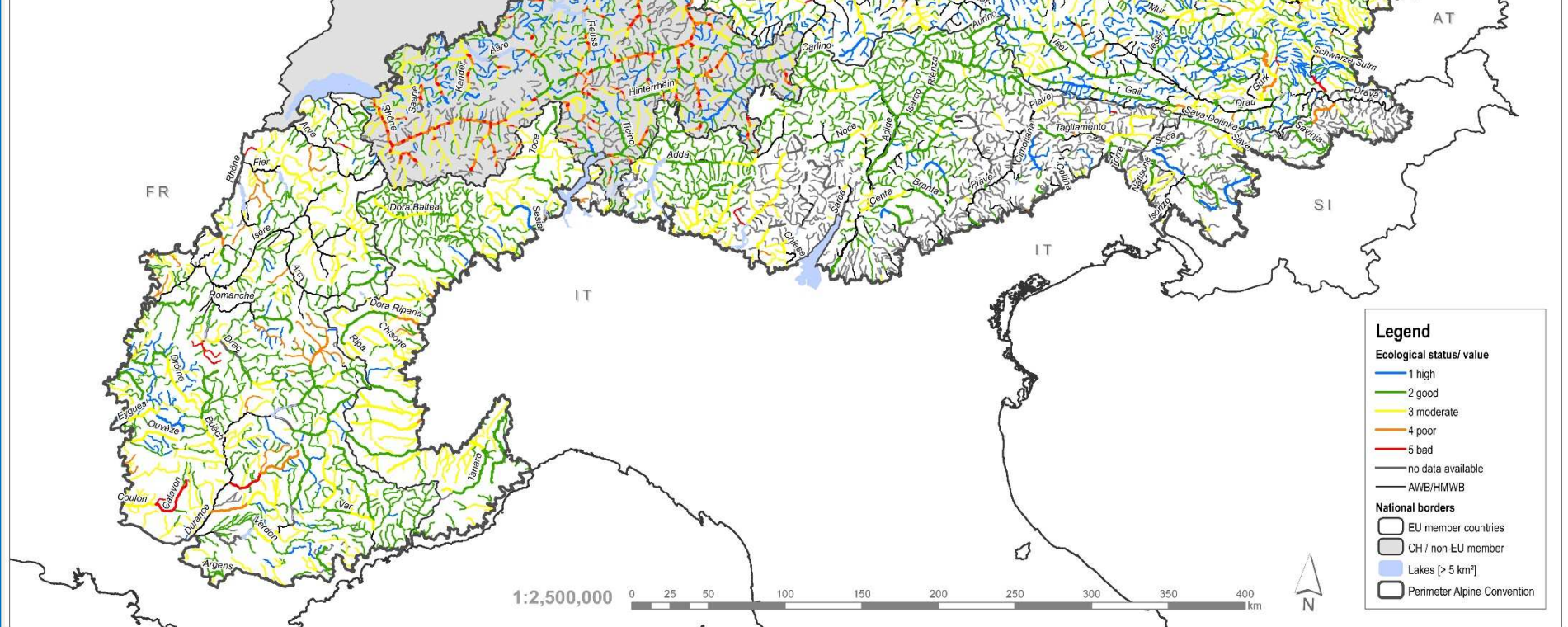
Administrative boundaries: *GADM database*







High Good Moderate Poor Bad No data AWB/HMW

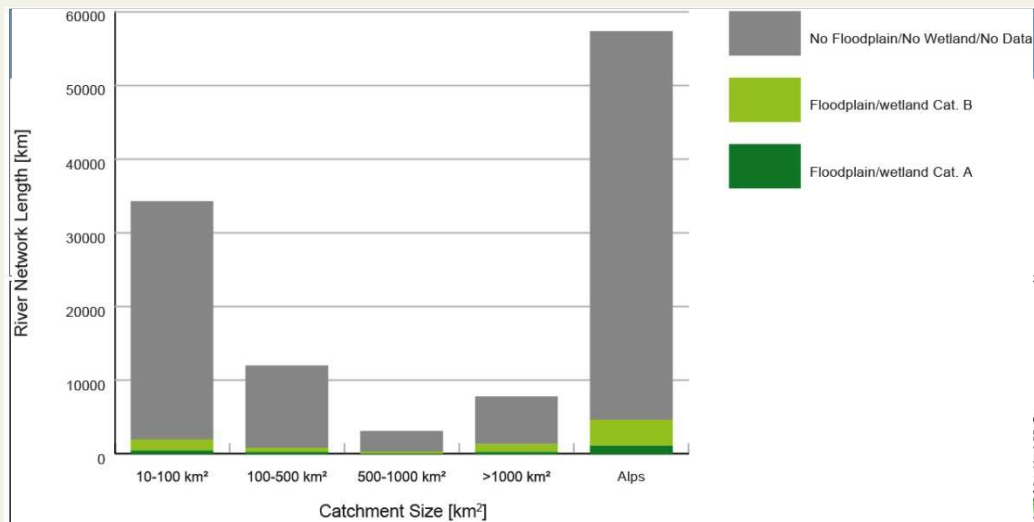


## Ecological status/ ecological value - Alpine Arc

Ecological status assembled from national data and a surrogate method for Switzerland. Aggregated to the spatial unit of confluence to confluence river segments (=river units). Pan-alpine river network assembled from official national river networks. Only rivers with a catchment size >10 km² are displayed.

Data sources

Perimeter of the Alpine Convention: Permanent Secretariat of the Alpine Convention  
National river networks: ADBPO, ADBVE, AUS, GURS, UBA, LFU, CEMAGREF, Swissstopo  
Ecological status: UBA, LFU, Eau France, ADBPO, ADBVE, Region Liguria, ARSO  
Lakes (from ECRINS): EEA  
Administrative boundaries: GADM database



## Floodplains/ wetlands - Alpine Arc

Floodplains and wetlands along rivers. Floodplains category A: high conservation value in AT or DE assessment system; category B: all other floodplains. Information was aggregated to river units (=the spatial unit of confluence to confluence river segments (=river stretch between two tributaries)). Pan-Alpine river network assembled from official national river networks. All rivers with a catchment size >10 km² are displayed.

Data sources

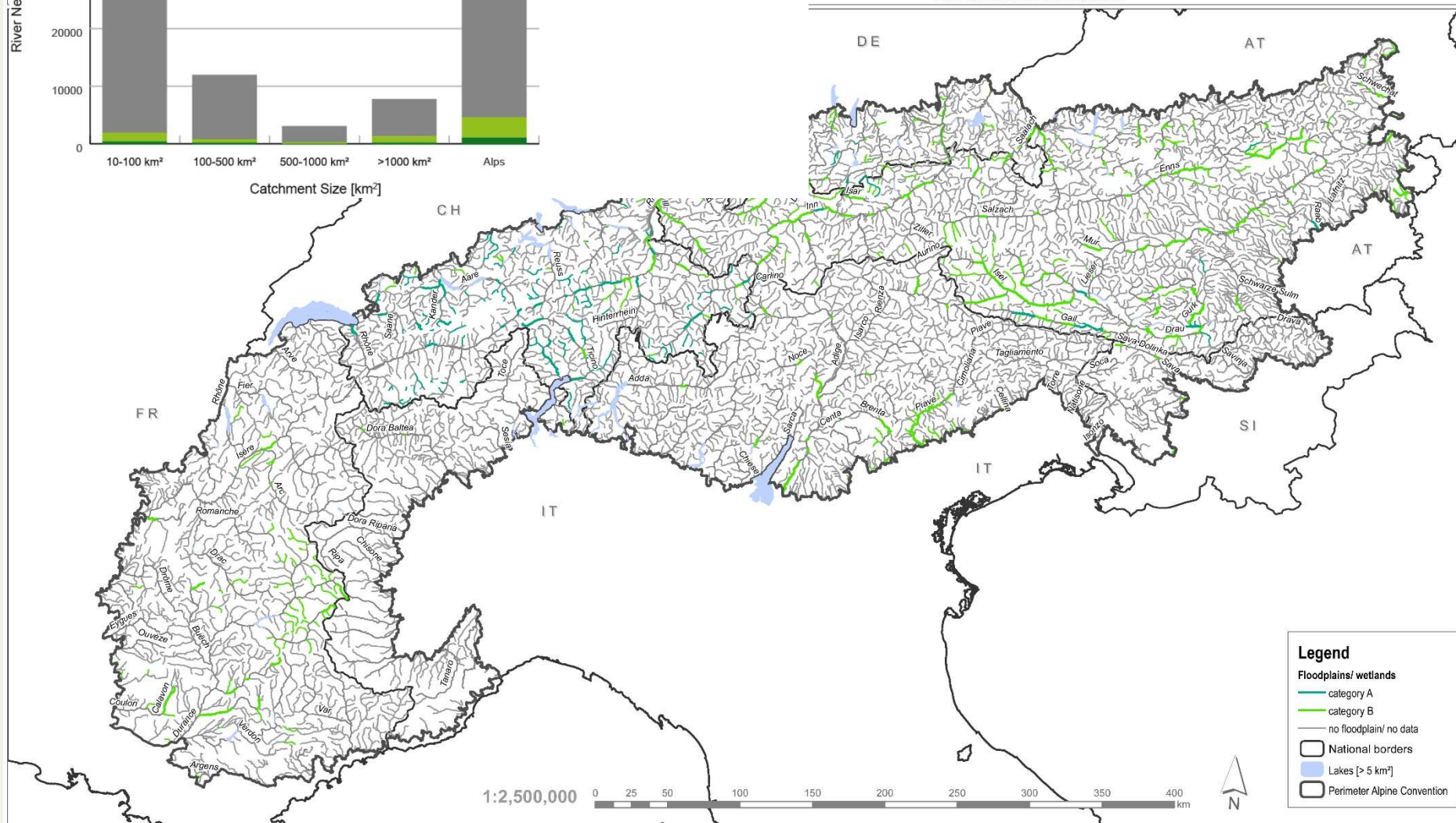
Perimeter of the Alpine Convention: *Permanent Secretariat of the Alpine Convention*

National river networks: *ADBPO, ADBVE, GURS, UBA, LFU, IRSTEA, Swisstopo*

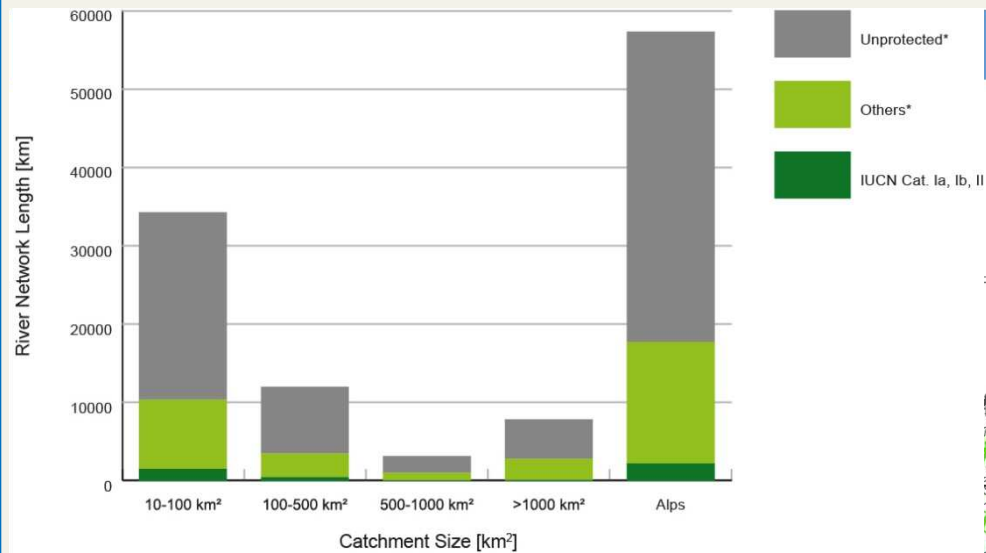
Floodplain/ Wetland data: *UBA, LFU, BAFU, Eau France, EEA, ARSO*

Lakes (from ECRINS): *EEA*

Administrative boundaries: *GADM database*



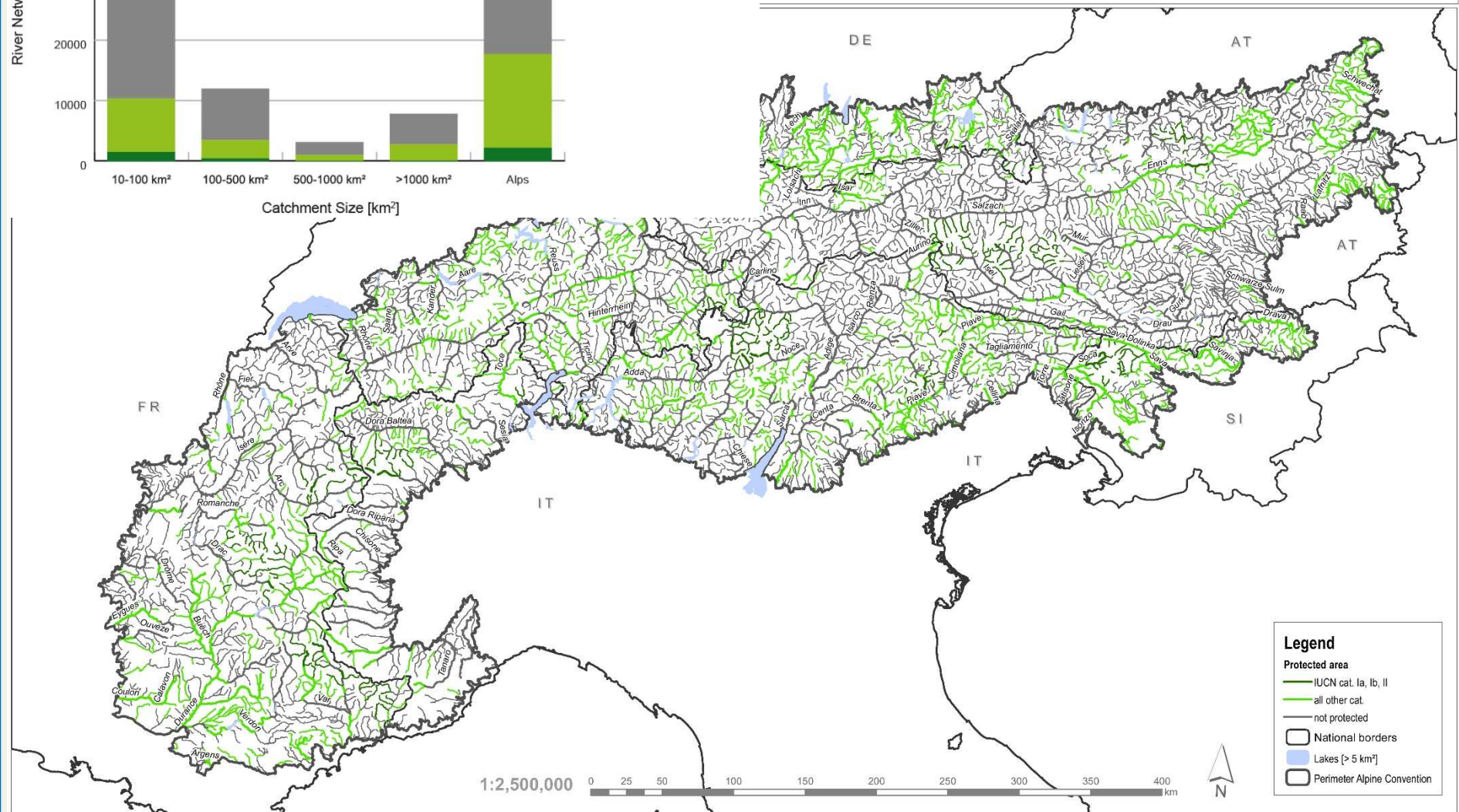




## Protected areas - Alpine Arc

River units in protected areas from spatial intersect with official river networks. Information is aggregated to river units (= river stretch between two tributaries).  
Pan-Alpine river network assembled from official national river networks. All rivers with a catchment size >10 km² are displayed.

Data sources  
Perimeter of the Alpine Convention: *Permanent Secretariat of the Alpine Convention*  
National river networks: *ADBPO, ADBVE, GURS, UBA, LFU, IRSTEA, Swisstopo*  
Protected areas: *EEA, BAFU, ARSO, national experts*  
Lakes (from ECRINS): *EEA*  
Administrative boundaries: *GADM database*



### Legend

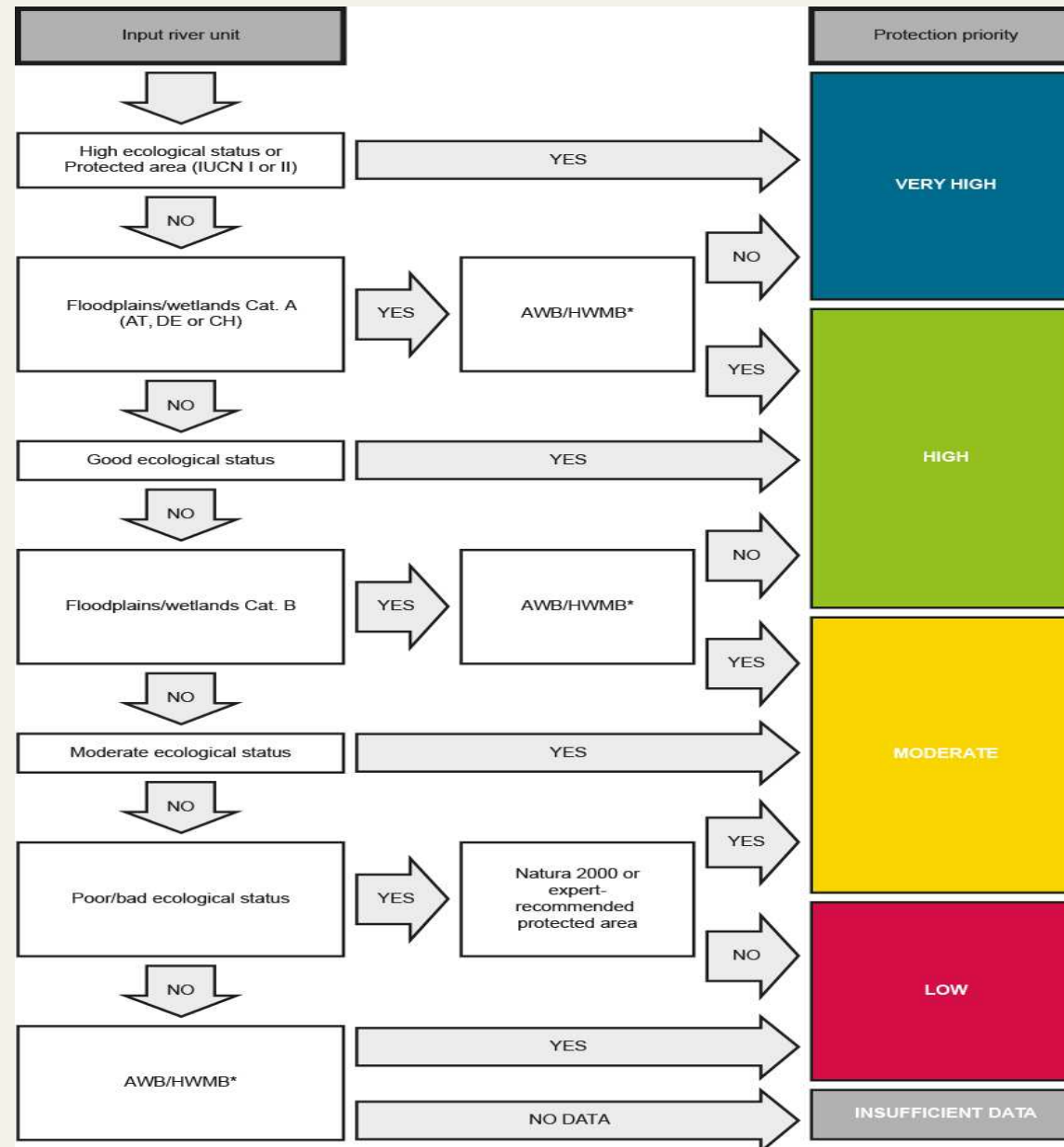
#### Protected area

- IUCN cat. Ia, Ib, II
- all other cat.
- not protected

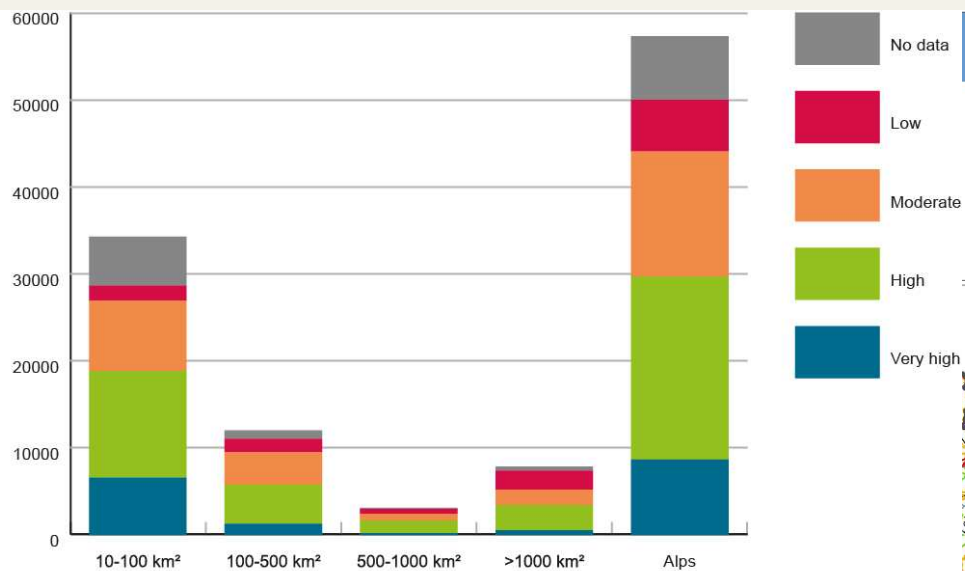
#### National borders

- Lakes (> 5 km²)

#### Perimeter Alpine Convention







## Protection priority - Alpine Arc

Criteria for the identification of protection priorities for rivers with catchment area > 10 km²:  
Aggregated from ecological status, protection status and floodplain/wetland data on a river unit.  
Pan-Alpine river network assembled from official national river networks.

### Data sources

Perimeter of the Alpine Convention: *Permanent Secretariat of the Alpine Convention*

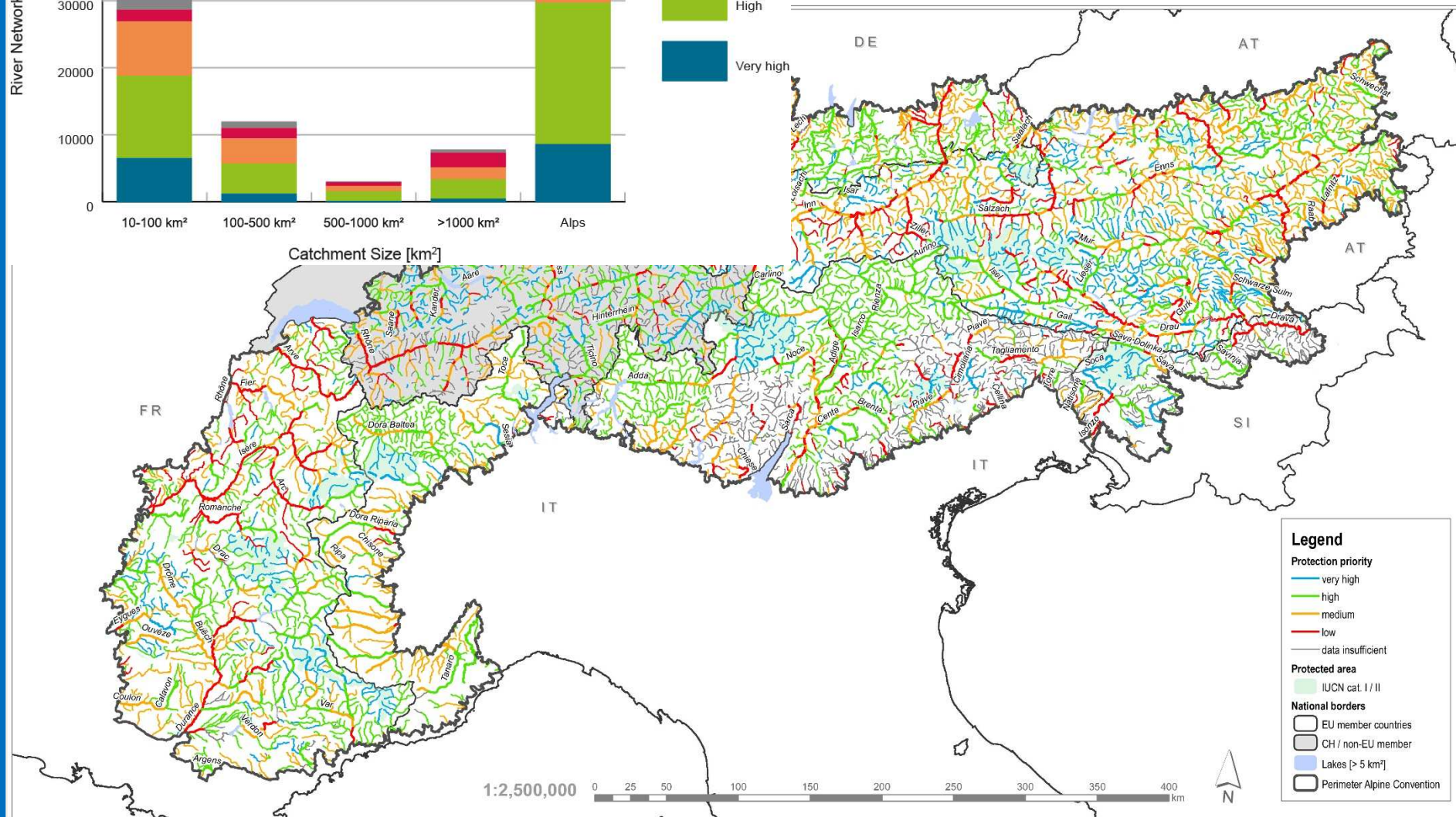
National river networks: *ADBPO, ADBVE, GURS, UBA, LFU, IRSTEA, Swisstopo*

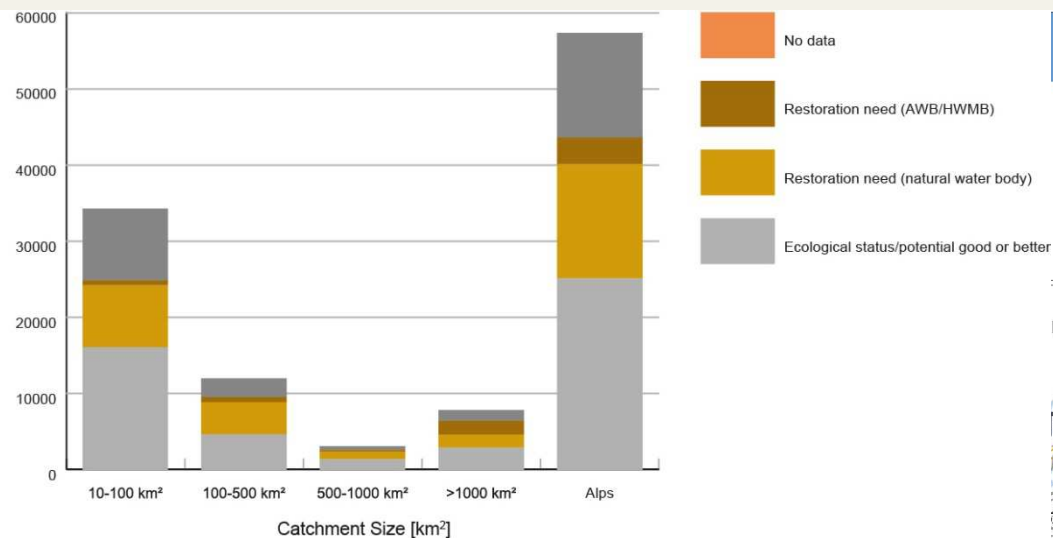
Ecological status: *UBA, LFU, Eau France, ADBPO, ADBVE, Region Liguria, ARSO*

Protected areas: *EEA, ARSO, BAFU*

Lakes (from ECRINS): *EEA*

Administrative boundaries: *GADM database*

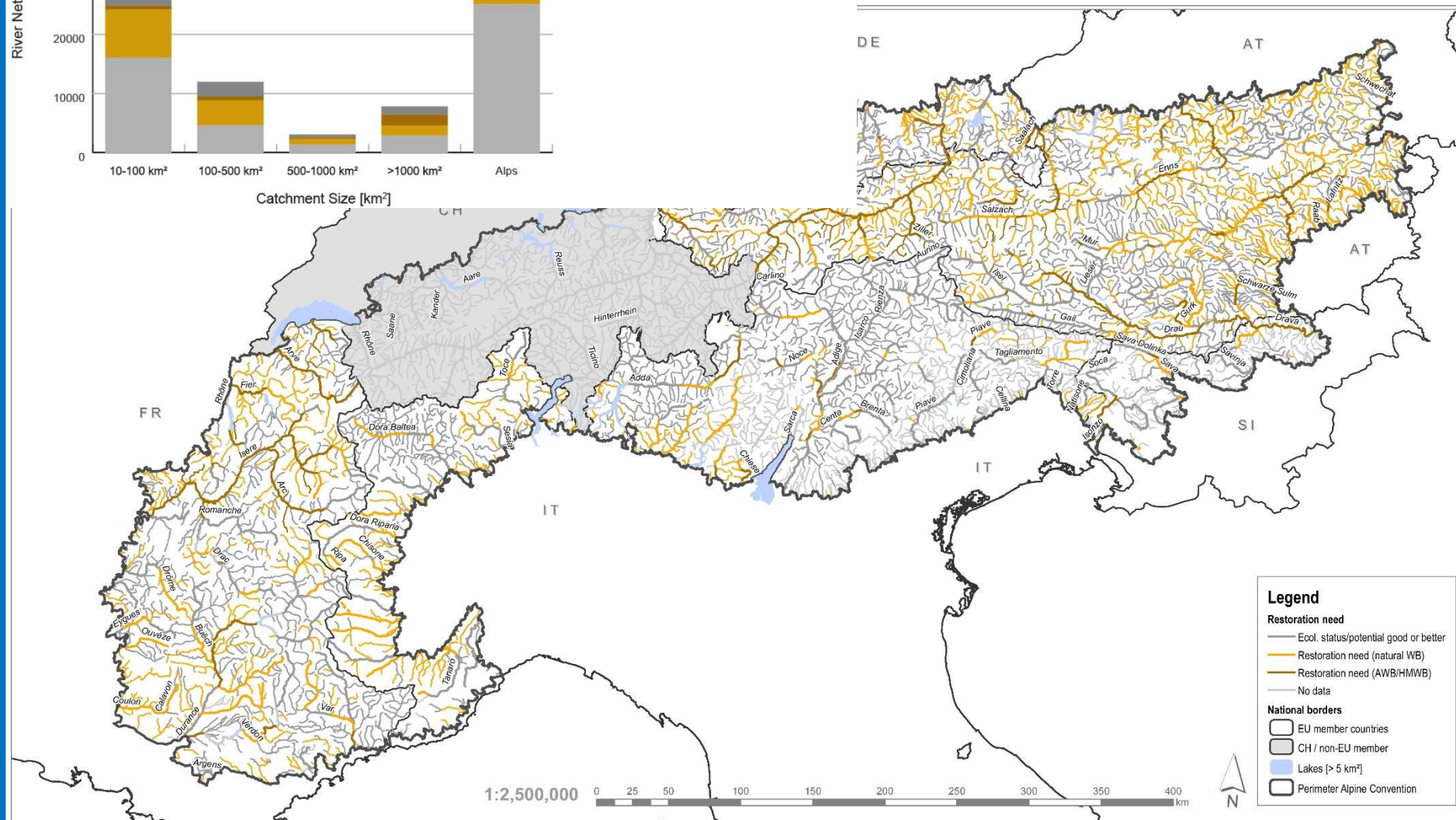




## Restoration need - Alpine Arc

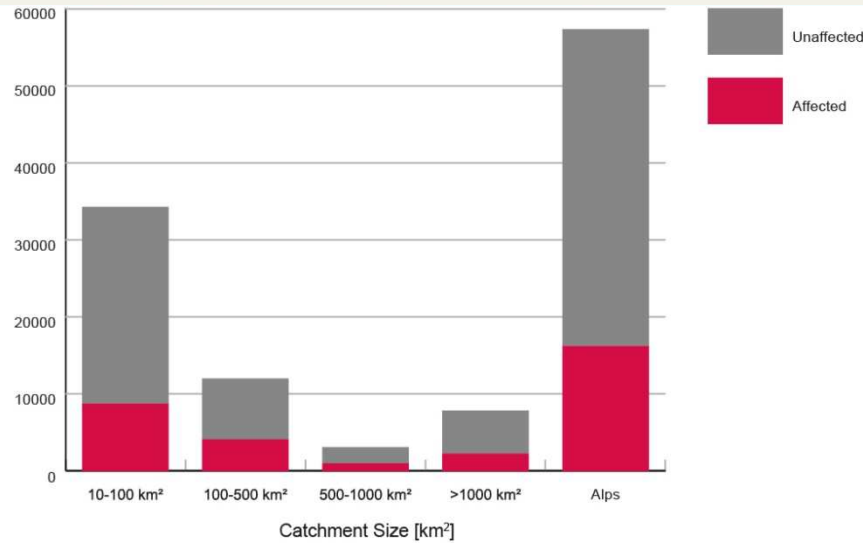
Restoration need based on ecological status and ecological potential. Data were aggregated to river units (= river stretch between two tributaries).  
Pan-alpine river network assembled from official national river networks. Only rivers with a catchment size >10 km² are displayed.

Data sources  
Perimeter of the Alpine Convention: Permanent Secretariat of the Alpine Convention  
National river networks: ADBPO, ADBVE, AUS, GURS, UBA, LFU, CEMAGREF, Swissstopo  
Ecological status: UBA, LFU, Eau France, ADBPO, ADBVE, Region Liguria, ARSO  
Lakes (from ECRINS): EEA  
Administrative boundaries: GADM database





River Network Length [km]



## Hydropower plants and other barriers

Hydropower plants and other barriers (where available/provided) are mapped on a pan-Alpine river network assembled from official national networks. Data quality and received information varies between countries. Incomplete/missing information for many regions.

All rivers with a catchment size >10 km² are displayed.

Data Sources

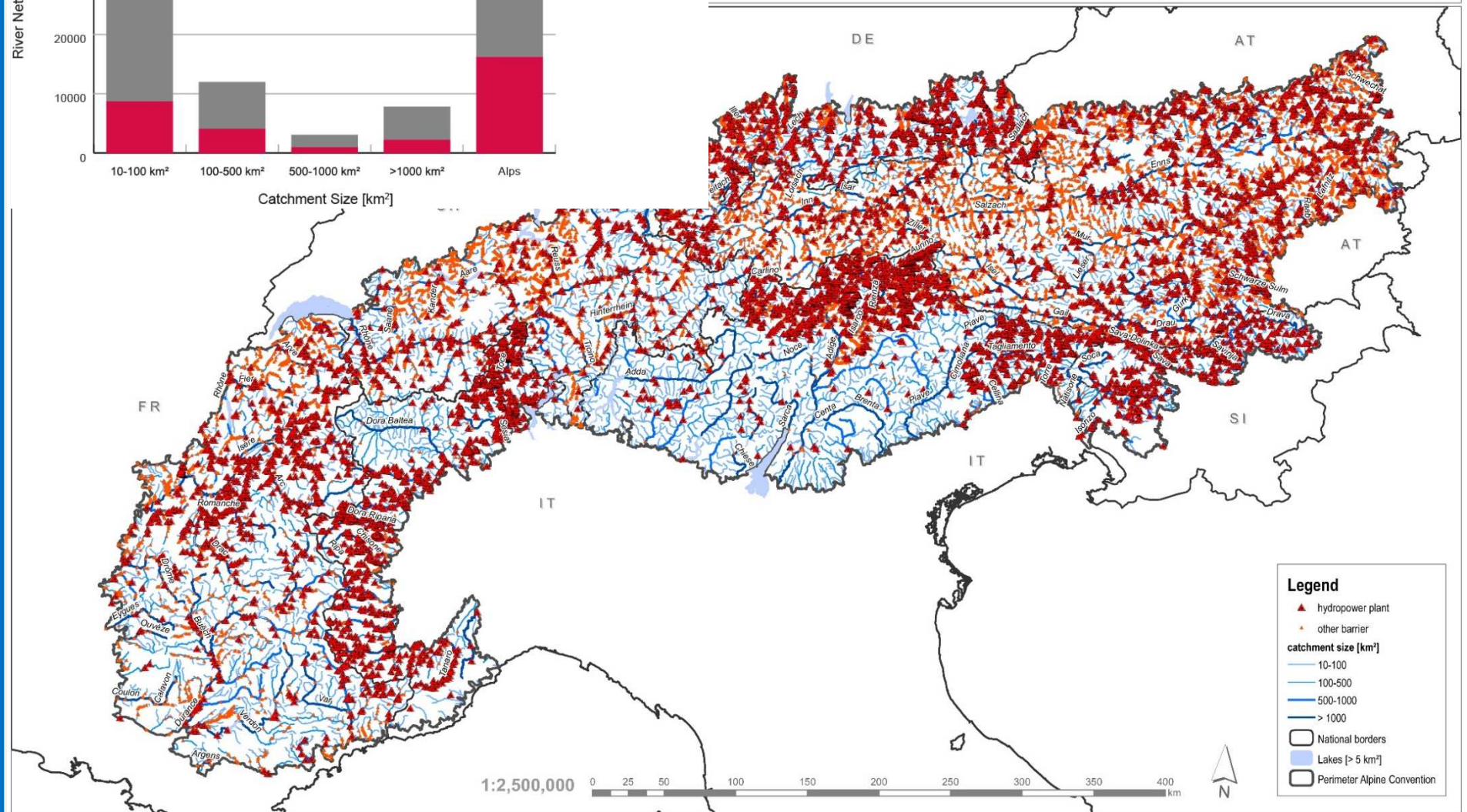
Perimeter of the Alpine Convention: *Permanent Secretariat of the Alpine Convention*

National river networks: *ADBPO, ADBVE, GURS, UBA, LFU, IRSTEA, Swisstopo*

Hydropower plants and barriers: *UBA, BAFU, LFU, Eau France ADBPO, ADBVE, Regione Liguria, ARSO, APPA Bozen, WWF*

Lakes (from ECRINS): *EEA*

Administrative boundaries: *GADM database*



### Legend

- ▲ hydropower plant
- other barrier
- catchment size [km²]
  - 10-100
  - 100-500
  - 500-1000
  - > 1000
- National borders
- Lakes > 5 km²
- Perimeter Alpine Convention



## To Summarize...

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### **Data Availability**

- official WFD data are missing or are not officially available
- data collection and data allocation is not transparent
- no harmonization between member states in gathering data or exchange of know-how

### **Alpine Rivers are threatened**

- morphological alterations and new hydro power plants
- especially large rivers are heavily degraded
- HPP, especially in headwaters, threaten the ecological integrity of small rivers in the Alps

### **Alpine Rivers already suffer from existing pressures**

- scale and magnitude of pressures appear to be immense
- Example Austria: 50.000 Barriers; >3.000 HPP; over 100 new HPP planned

### **Alpine Rivers face many new threats**

- New HPP
- Climate Change (more impact = less resilience)

### **Alpine Rivers lack sufficient protection**

- Given the rarity of “healthy” rivers it is of vital importance for the ecological integrity of the pan-Alpine river system that rivers in a natural state should be preserved
  - Protection status of rivers is often weak and no guarantee to exclude alterations or hydropower development within the protected areas
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# WWF urges...

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### **...to improve data quality and quantity**

Data acquisition and availability should be more transparent and harmonized between member states through extended stakeholder processes and involvement of relevant parties early on in the operational procedure. Quantitative information on existing hydro power plants and other barriers will be a prerequisite to assess the connectivity status of Alpine rivers.

### **...to define No-Go areas**

No-Go areas should be implemented as a strategic management tool within the River Basin Management Plans with focus on intact river basins

### **...to restore degraded rivers**

With floodplains, wetlands and large rivers being one of the most threatened ecosystem major efforts should be made to reverse the heavy degradation of large rivers and to restore natural regimes wherever possible. Special attention should be given to ecological flood protection and the role of healthy river ecosystems therein. Intact rivers are more resilient against the impacts of climate change than degraded rivers.

### **...to develop a Pan-Alpine River Management Plan to ensure balance between nature protection and human needs**

Develop strategies to balance the need of protecting unique habitats with human needs through regional programs for river management. Indirect influences, like Climate Change or Agriculture, need to be considered as important factors that play a significant role in the development of integrative river basin management.

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# Thank you

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## WWF IN SHORT

**+100**

WWF is in over  
100 countries, on  
5 continents

**1961**

WWF was founded  
In 1961



**+5,000**

WWF has over  
5,000 staff  
worldwide

**+5M**

WWF has over  
5 million supporters