

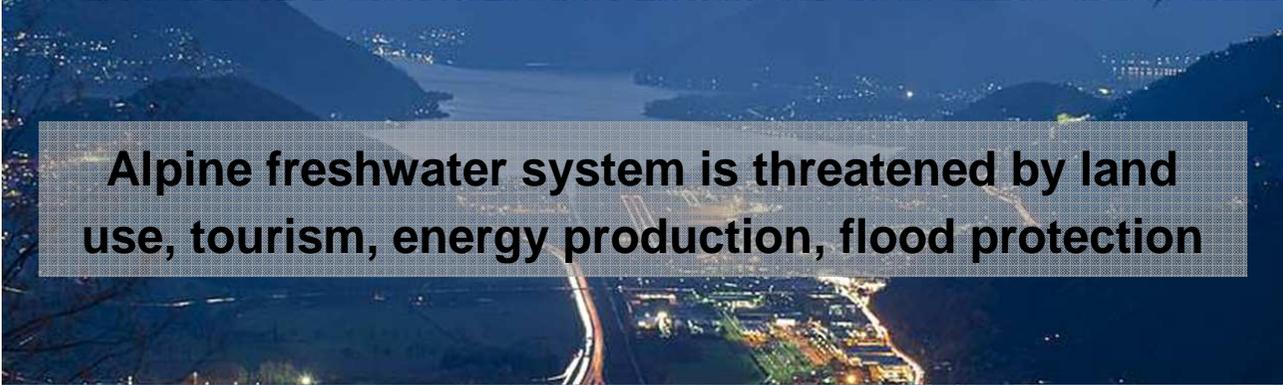
Save the Alpine Rivers!

AN ASSESSMENT OF THE ALPINE FRESHWATER SYSTEM

ERRC 2014. Vienna
Christoph Litschauer
WWF EALP



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

The background image shows a vibrant alpine meadow with purple and yellow flowers in the foreground, leading up to snow-capped mountain peaks under a clear blue sky.

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

The background image is an aerial view of a town nestled in a valley, with a river winding through it. The surrounding mountains are visible, and the scene is bathed in a soft, golden light.

Alpine Arc (~ 200.000 km², Population 14 Mio.) supplies about 180 Mio. people with water

The background image shows a scenic alpine landscape with a prominent stone tower on a hillside, surrounded by green fields and trees. The sky is a clear, pale blue.



Pan-Alpine River Study

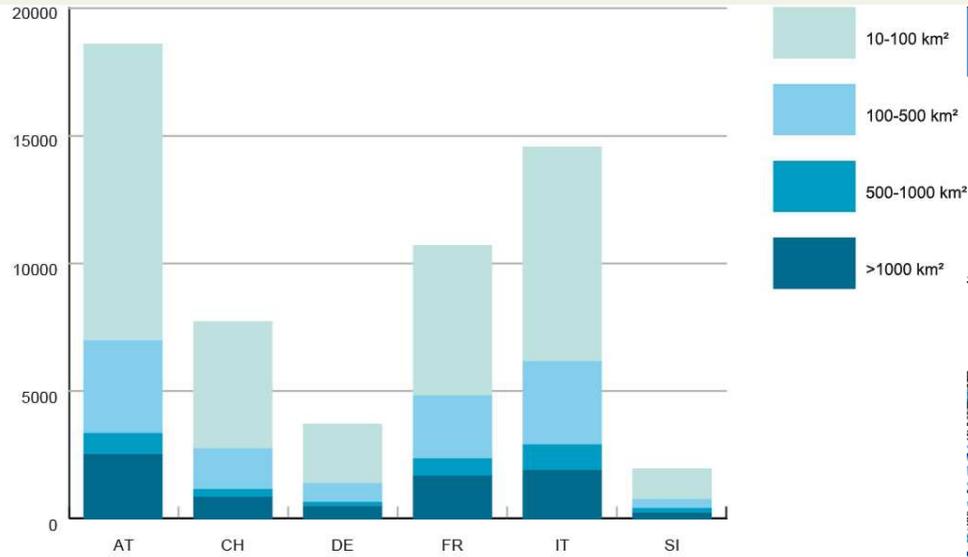
lack of a pan-Alpine overview of the status and the threats of Alpine Freshwater System



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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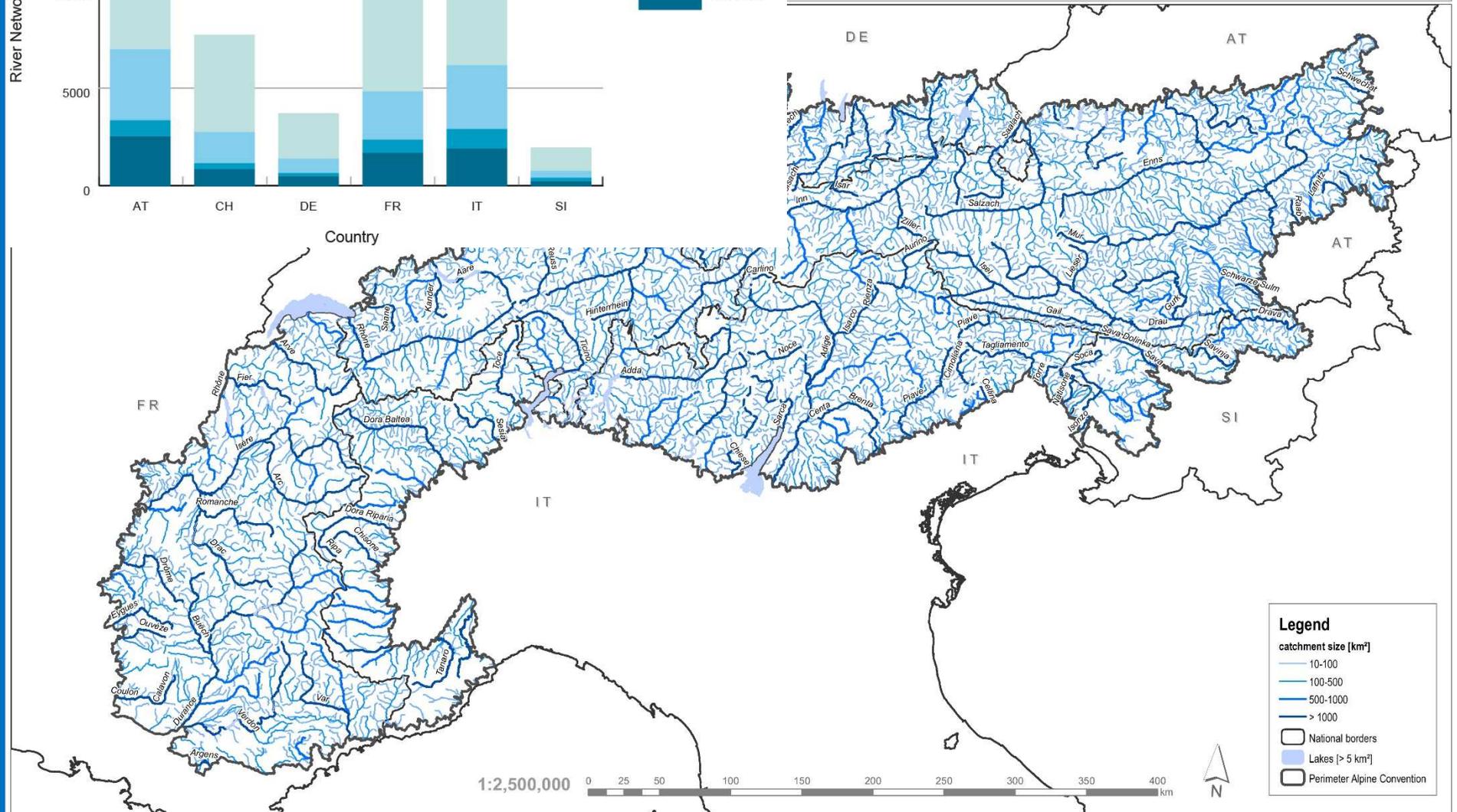
River Network Length [km]



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.

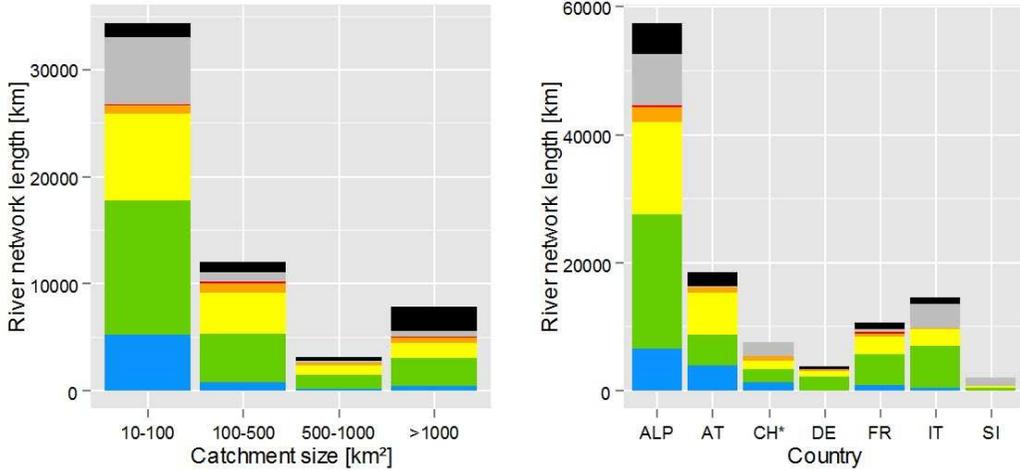
Data sources
 Perimeter of the Alpine Convention: *Permanent Secretariat of the Alpine Convention*
 National river networks: *ADBPO, ADBVE, GURS, UBA, LFU, IRSTEA, Swisstopo*
 Lakes (from ECRINS): *EEA*
 Administrative boundaries: *GADM database*



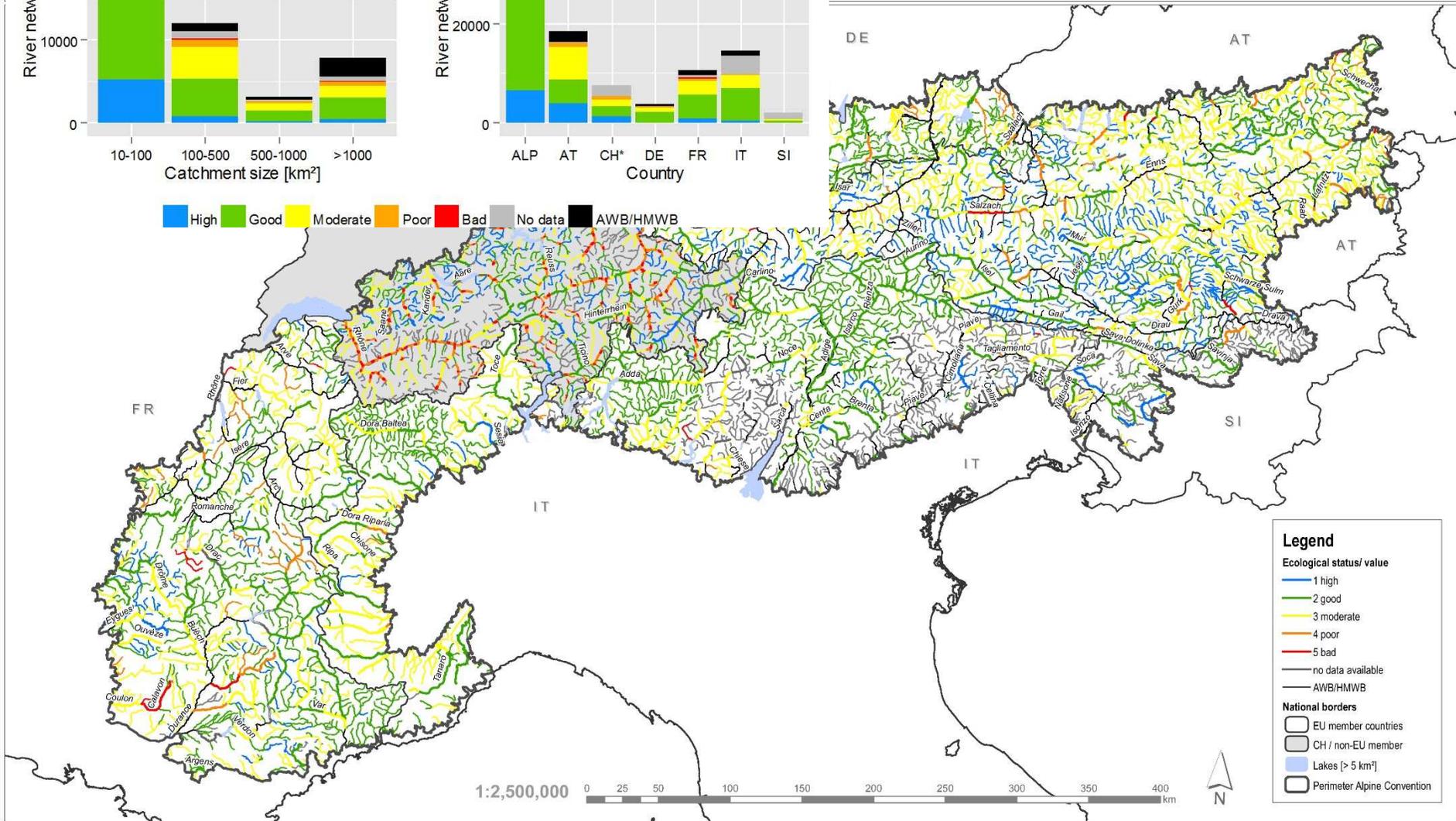
Ecological status/ ecological value - Alpine Arc

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, Swisstopo
 Ecological status: UBA, LFU, Eau France, ADBPO, ADBVE, Region Liguria, ARSO
 Lakes (from ECRINS): EEA
 Administrative boundaries: GADM database



High Good Moderate Poor Bad No data AWB/HMWB



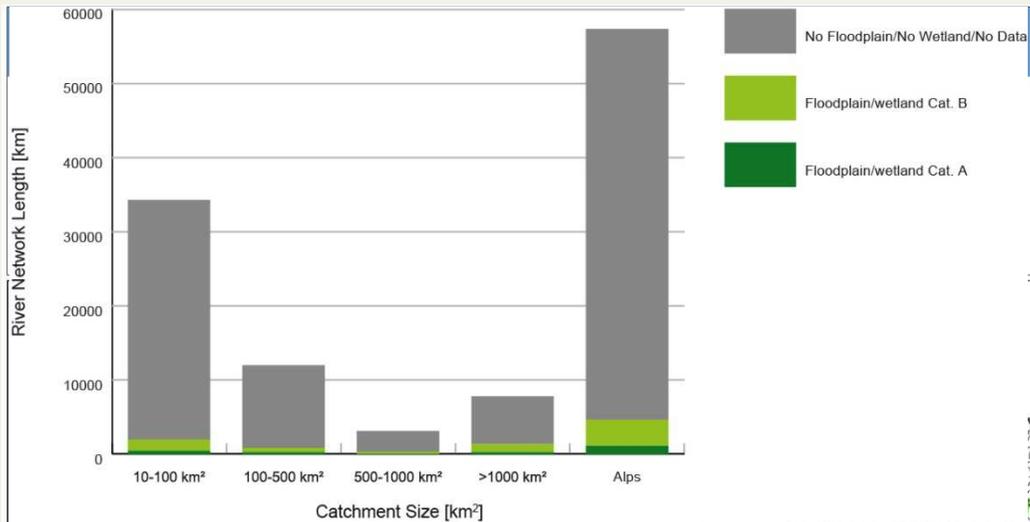
Legend

Ecological status/ value

- 1 high
- 2 good
- 3 moderate
- 4 poor
- 5 bad
- no data available
- AWB/HMWB

National borders

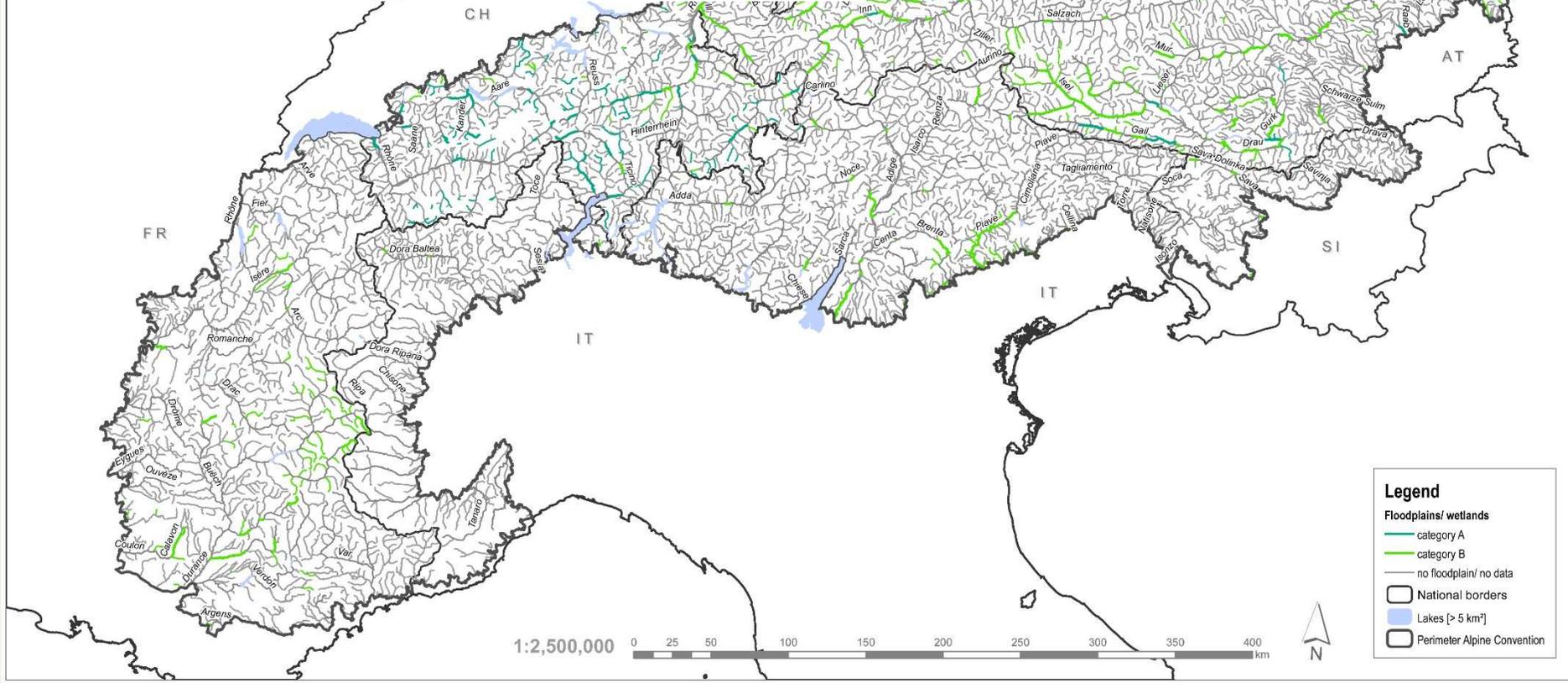
- EU member countries
- CH / non-EU member
- Lakes [> 5 km²]
- Perimeter Alpine Convention



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*



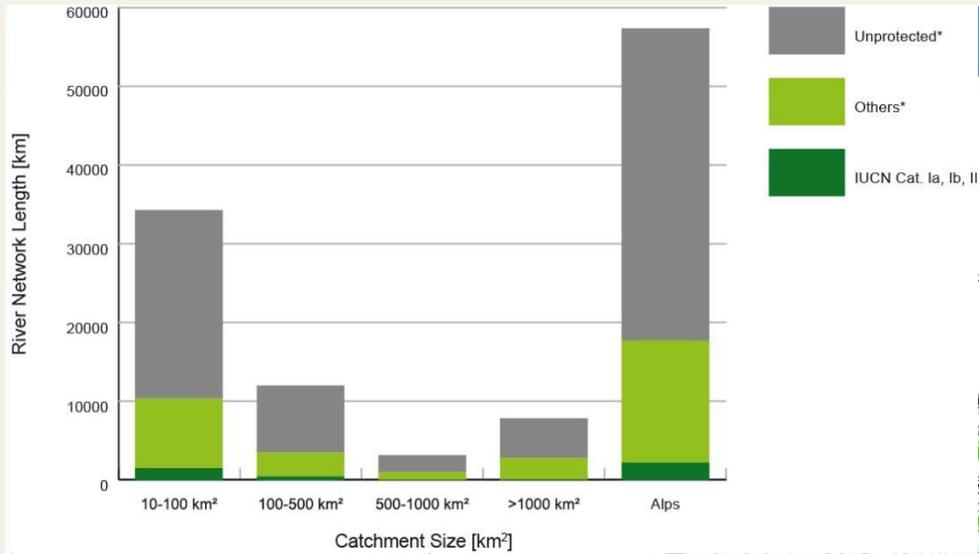
Legend

Floodplains/ wetlands

- category A
- category B
- no floodplain/ no data

Other symbols:

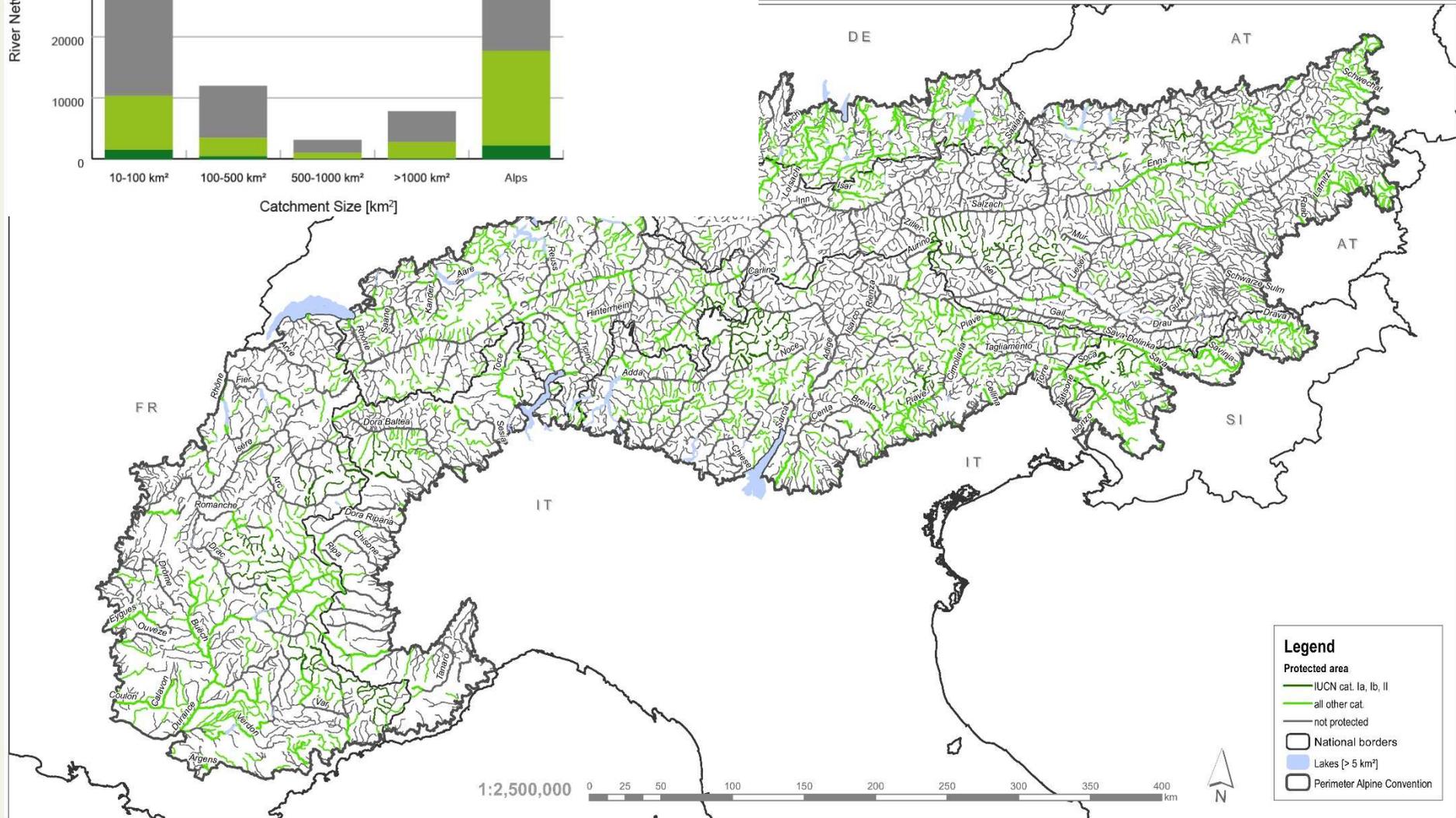
- National borders
- Lakes (> 5 km²)
- Perimeter Alpine Convention

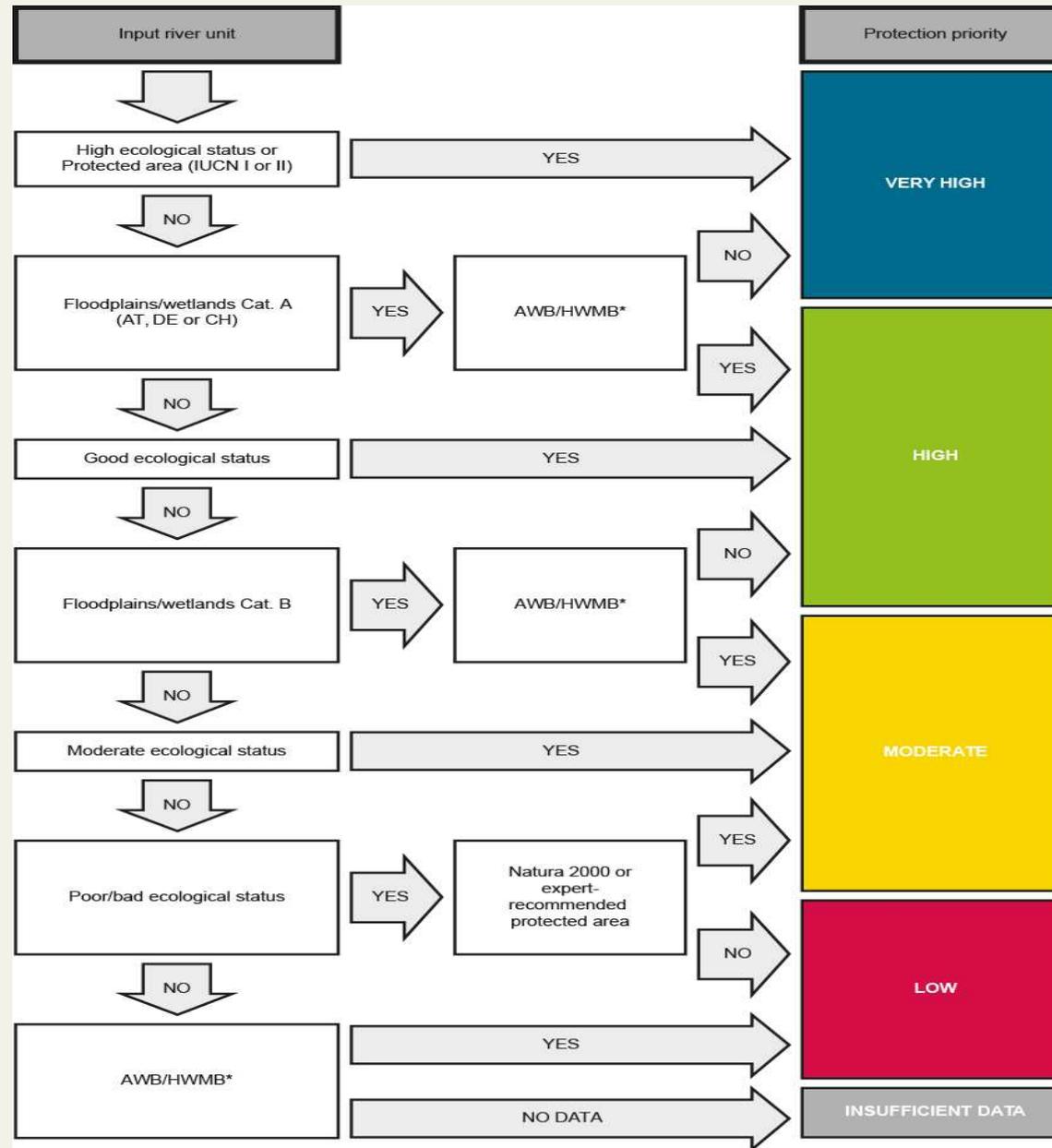


Protected areas - Alpine Arc

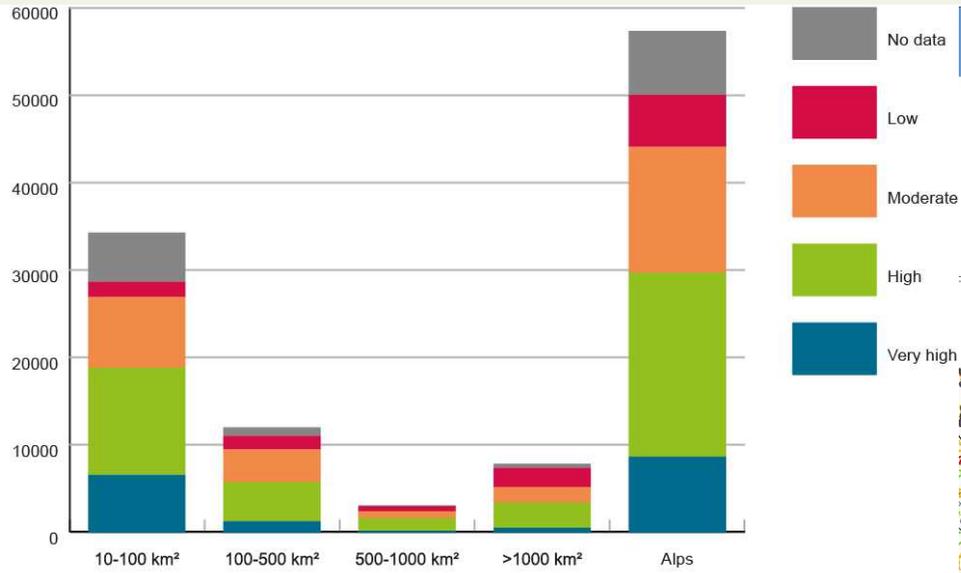
River units in protected areas from spatial intersect with official river networks. Information is aggregated to river units (= river stretch between two tributaries). Pan-Alpine river network assembled from official national river networks. All rivers with a catchment size >10 km² are displayed.

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*





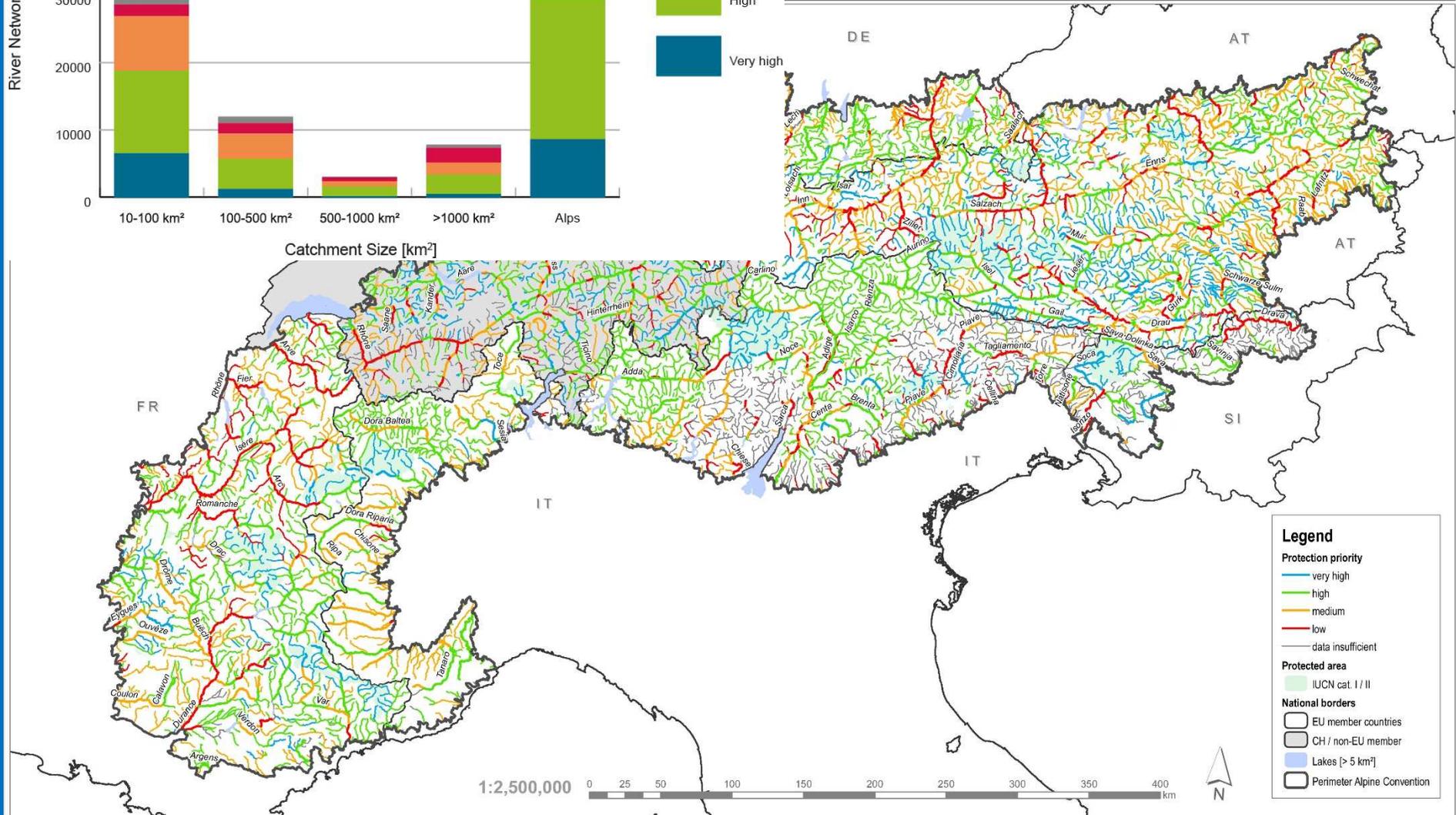
River Network Length [km]



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.

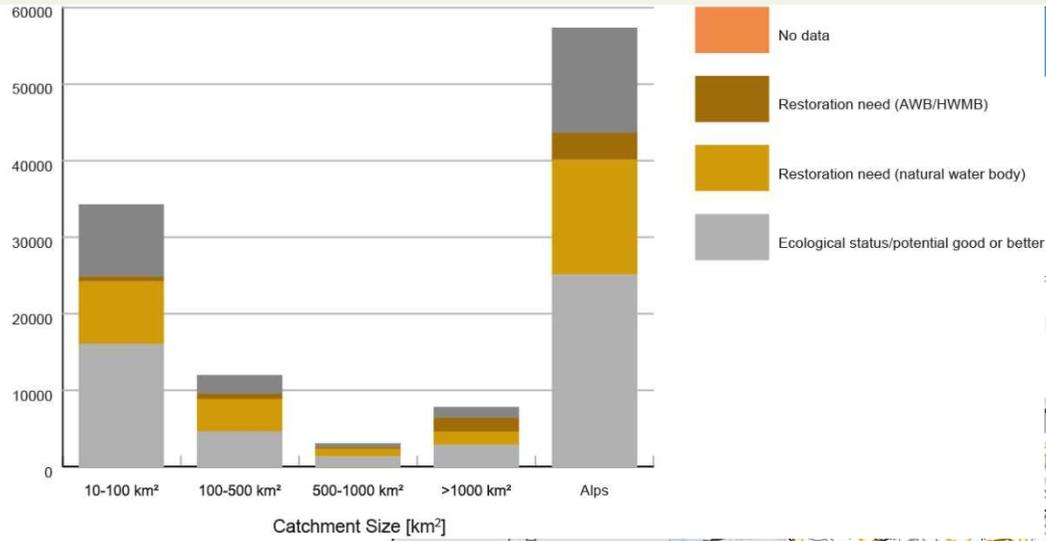
Data sources
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 National river networks: *ADBPO, ADBVE, GURS, UBA, LFU, IRSTEA, Swisstopo*
 Ecological status: *UBA, LFU, Eau France, ADBPO, ADBVE, Region Liguria, ARSO*
 Protected areas: *EEA, ARSO, BAFU*
 Lakes (from ECRINS): *EEA*
 Administrative boundaries: *GADM database*



1:2,500,000



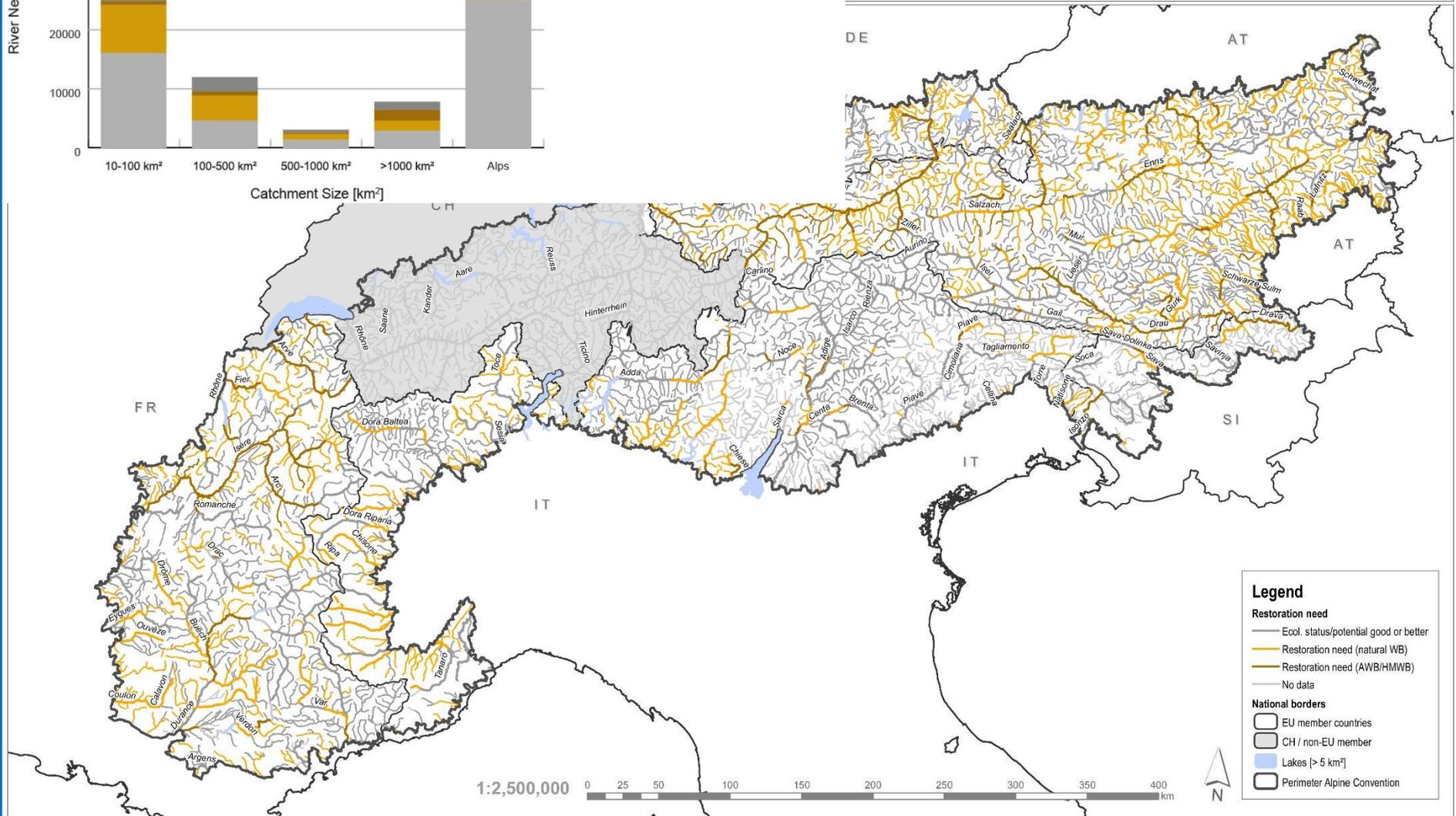
River Network Length [km]



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, Swisstopo*
 Ecological status: *UBA, LFU, Eau France, ADBPO, ADBVE, Region Liguria, ARSO*
 Lakes (from ECRINS): *EEA*
 Administrative boundaries: *GADM database*



Legend

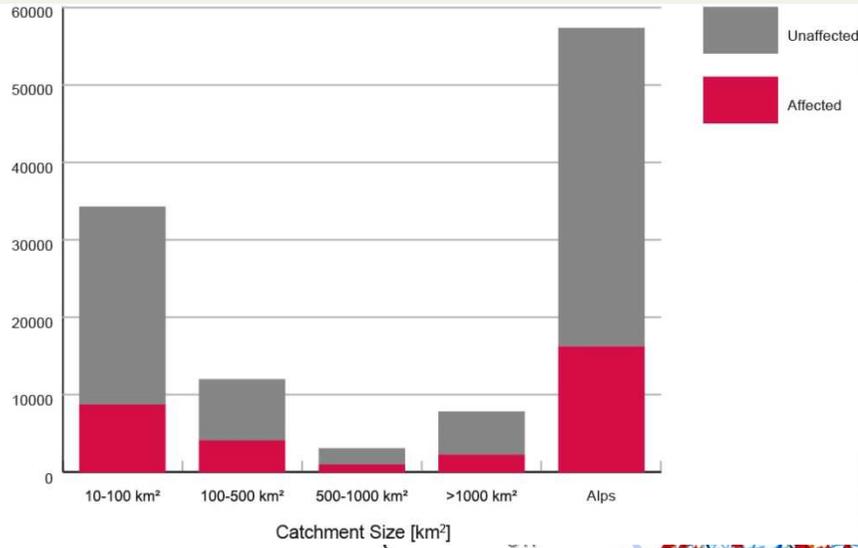
Restoration need

- Ecol. status/potential good or better
- Restoration need (natural WB)
- Restoration need (AWB/HWMB)
- No data

National borders

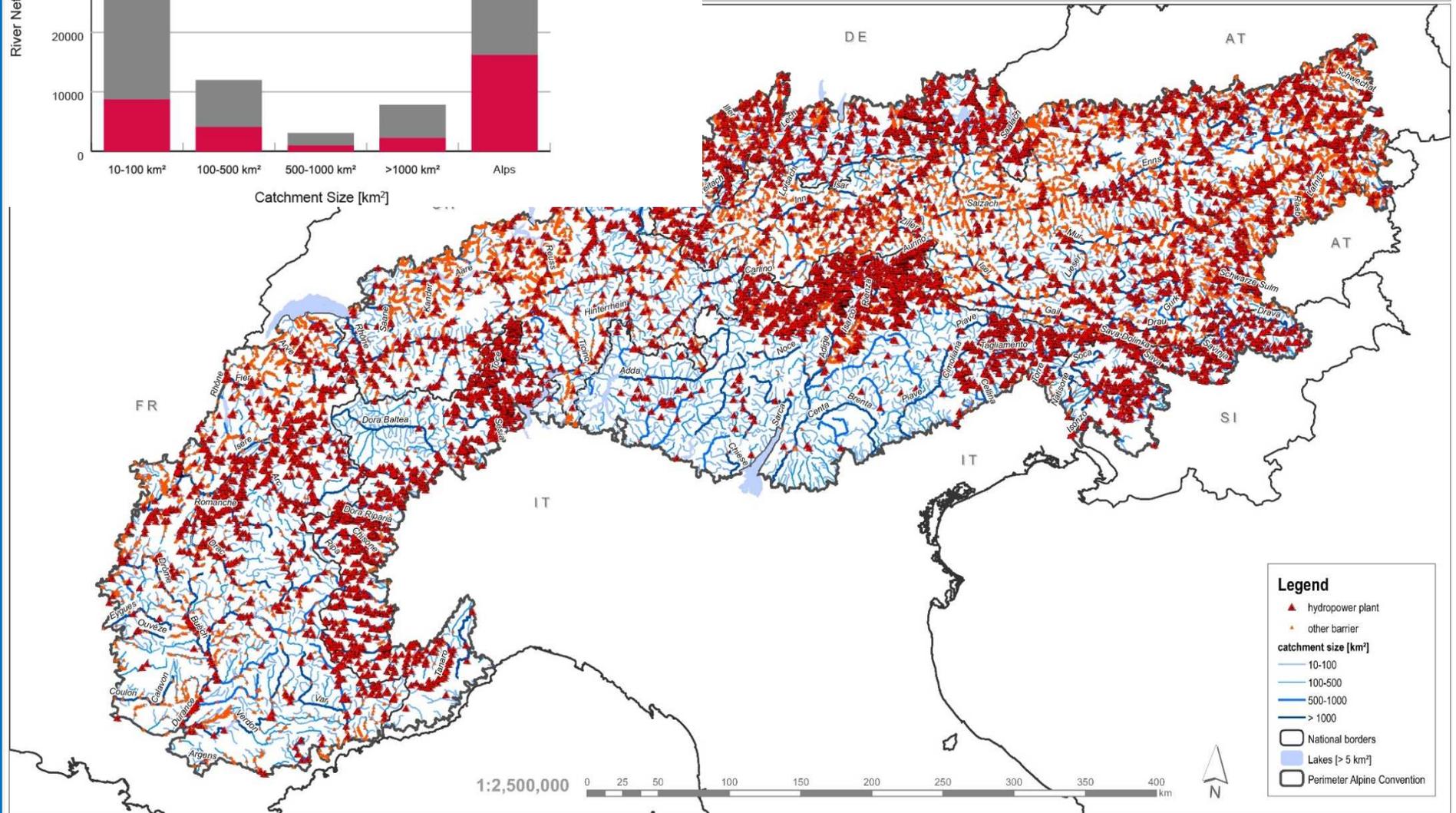
- EU member countries
- CH / non-EU member
- Lakes (> 5 km²)
- Perimeter Alpine Convention

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*





To Summarize...

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
-



WWF urges...

...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.



Thank you

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5 continents

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WWF was founded
In 1961



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WWF has over
5,000 staff
worldwide

+5M

WWF has over
5 million supporters