River Basin & Barrier Planning & Tools

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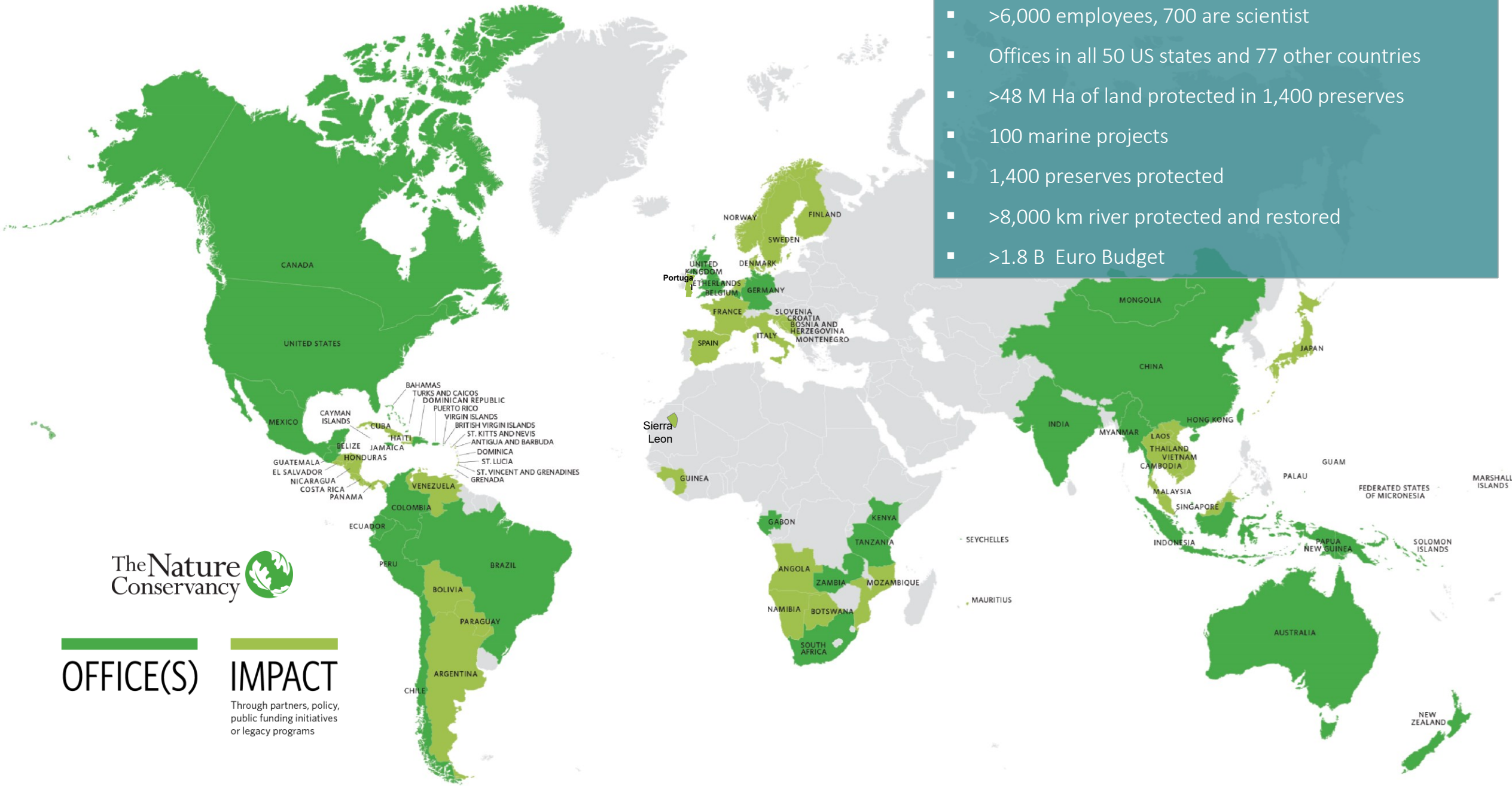
The Nature Conservancy
Maine

- >1 M supporting members/foundations
- >6,000 employees, 700 are scientist
- Offices in all 50 US states and 77 other countries
- >48 M Ha of land protected in 1,400 preserves
- 100 marine projects
- 1,400 preserves protected
- >8,000 km river protected and restored
- >1.8 B Euro Budget



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OFFICE(S)

IMPACT

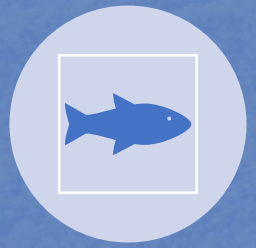
Through partners, policy, public funding initiatives or legacy programs

Multi-faceted Solutions

To Restore & Protect Rivers

Barriers & habitat data

Policies/rules for repair and new crossing



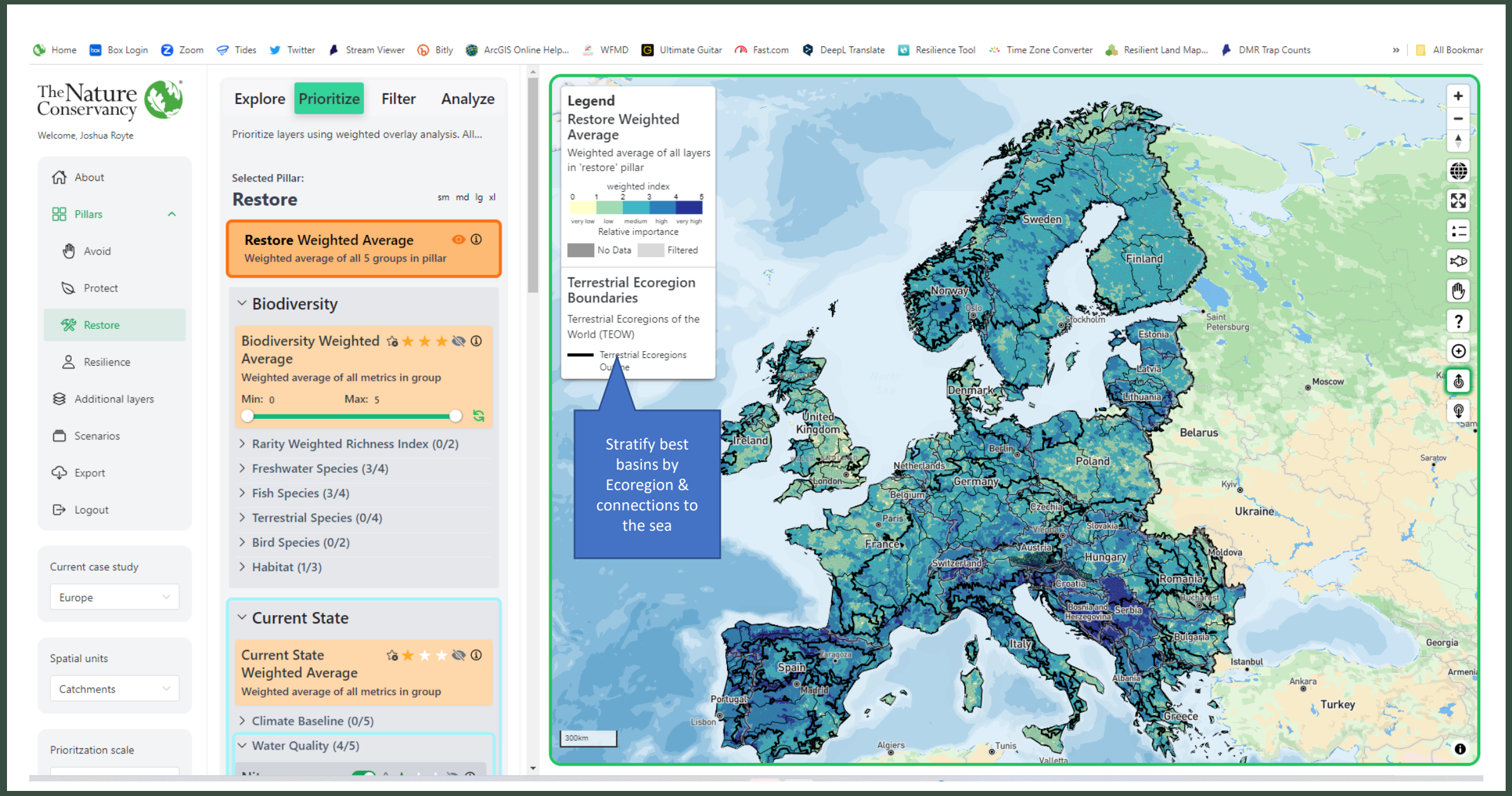
Analysis tools to focus work

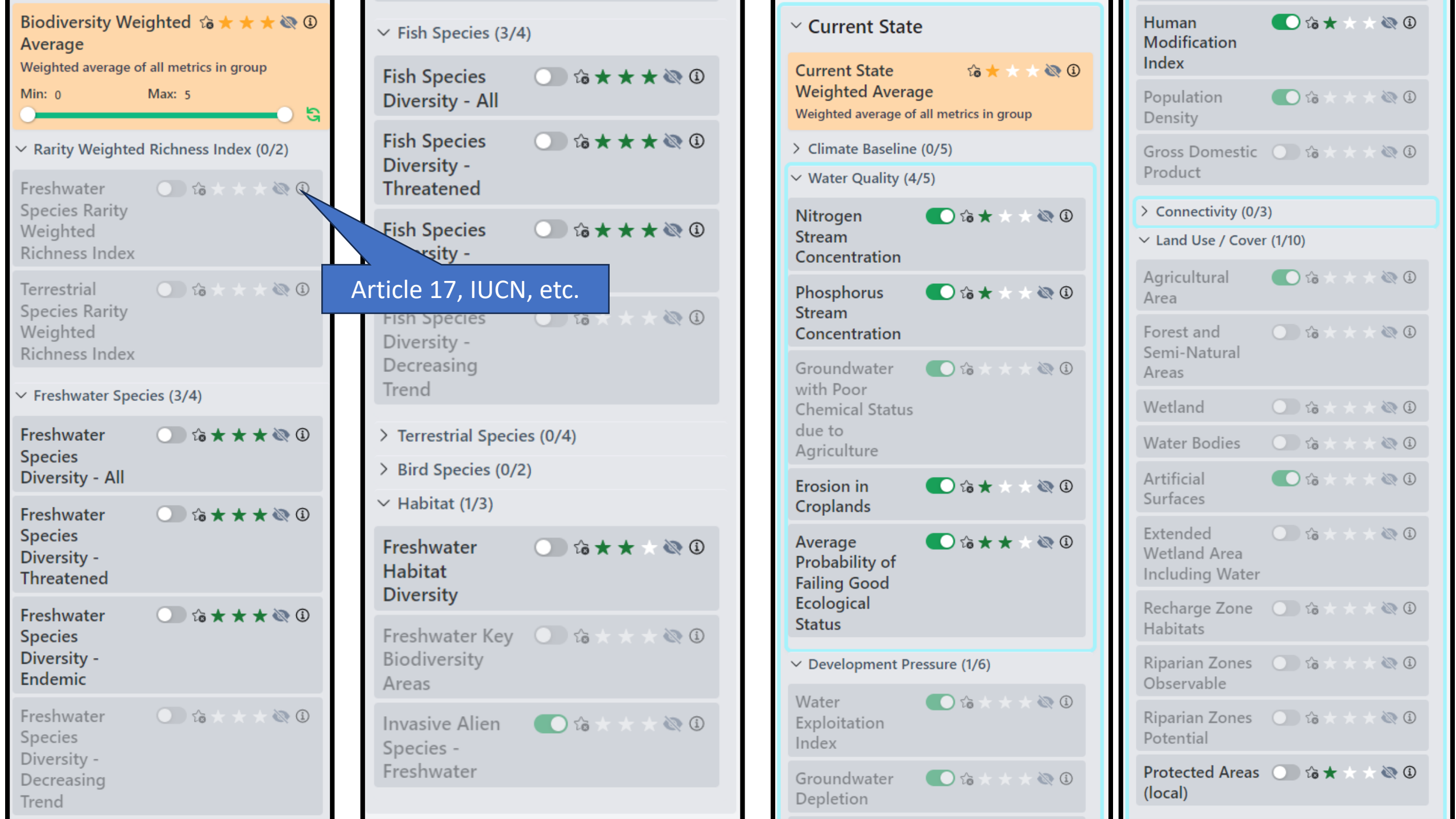
Outreach/Education

Engineers, managers, advocates

Funding Mechanisms

Implement/Monitor


Home
Box Login
Zoom
Tides
Twitter
Stream Viewer
Bitly
ArcGIS Online Help...
WFMD
Ultimate Guitar
Fast.com
DeepL Translate
Resilience Tool
Time Zone Converter
Resilient Land Map...
DMR Trap Counts
All Bookmar
The Nature Conservancy
Welcome, Joshua Royte
About
Pillars
Avoid
Protect
Restore
Resilience
Additional layers
Scenarios
Export
Logout
Current case study
Europe
Spatial units
Catchments
Prioritzation scale
Explore
Prioritize
Filter
Analyze
Prioritize layers using weighted overlay analysis. All...
Selected Pillar:
Restore
sm md lg xl
Restore Weighted Average
Weighted average of all 5 groups in pillar
Biodiversity
Biodiversity Weighted Average
Weighted average of all metrics in group
Min: 0
Max: 5
Rarity Weighted Richness Index (0/2)
Freshwater Species (3/4)
Fish Species (3/4)
Terrestrial Species (0/4)
Bird Species (0/2)
Habitat (1/3)
Current State
Current State Weighted Average
Weighted average of all metrics in group
Climate Baseline (0/5)
Water Quality (4/5)
Legend
Restore Weighted Average
Weighted average of all layers in 'restore' pillar
weighted index
0 1 2 3 4 5
very low low medium high very high
Relative importance
No Data
Filtered
Terrestrial Ecoregion Boundaries
Terrestrial Ecoregions of the World (TEOW)
Terrestrial Ecoregions
Stratify best basins by Ecoregion & connections to the sea
Sweden
Finland
Norway
Oslo
Stockholm
Saint Petersburg
Estonia
Latvia
Lithuania
Moscow
Denmark
United Kingdom
Ireland
Belarus
Berlin
Poland
Netherlands
Germany
London
Belgium
Paris
Czechia
Slovakia
Vienna
Kyiv
Ukraine
France
Austria
Switzerland
Hungary
Moldova
Romania
Croatia
Bucharest
Bosnia and Herzegovina
Serbia
Bulgaria
Italy
Spain
Zaragoza
Madrid
Portugal
Lisbon
Albania
Istanbul
Georgia
Armenia
Ankara
Turkey
Greece
Algiers
Tunis
Valletta
300km


Biodiversity Weighted Average
Weighted average of all metrics in group
Min: 0
Max: 5
Rarity Weighted Richness Index (0/2)
Freshwater Species Rarity Weighted Richness Index
Terrestrial Species Rarity Weighted Richness Index
Freshwater Species (3/4)
Freshwater Species Diversity - All
Freshwater Species Diversity - Threatened
Freshwater Species Diversity - Endemic
Freshwater Species Diversity - Decreasing Trend
Fish Species (3/4)
Fish Species Diversity - All
Fish Species Diversity - Threatened
Fish Species Diversity - Decreasing Trend
Terrestrial Species (0/4)
Bird Species (0/2)
Habitat (1/3)
Freshwater Habitat Diversity
Freshwater Key Biodiversity Areas
Invasive Alien Species - Freshwater
Article 17, IUCN, etc.
Current State
Current State Weighted Average
Weighted average of all metrics in group
Climate Baseline (0/5)
Water Quality (4/5)
Nitrogen Stream Concentration
Phosphorus Stream Concentration
Groundwater with Poor Chemical Status due to Agriculture
Erosion in Croplands
Average Probability of Failing Good Ecological Status
Development Pressure (1/6)
Water Exploitation Index
Groundwater Depletion
Human Modification Index
Population Density
Gross Domestic Product
Connectivity (0/3)
Land Use / Cover (1/10)
Agricultural Area
Forest and Semi-Natural Areas
Wetland
Water Bodies
Artificial Surfaces
Extended Wetland Area Including Water
Recharge Zone Habitats
Riparian Zones Observable
Riparian Zones Potential
Protected Areas (local)

Future Threats

Future Threats Weighted Average

Weighted average of all metrics in group

Climate Risks (0/4)

- Aridity Potential (Future Relative Change)
- Projected Increase in Drought Frequency
- Local Stream Water Temperature (Future Absolute Change)
- Flood Recurrence

Threats to Water Quality (0/3)

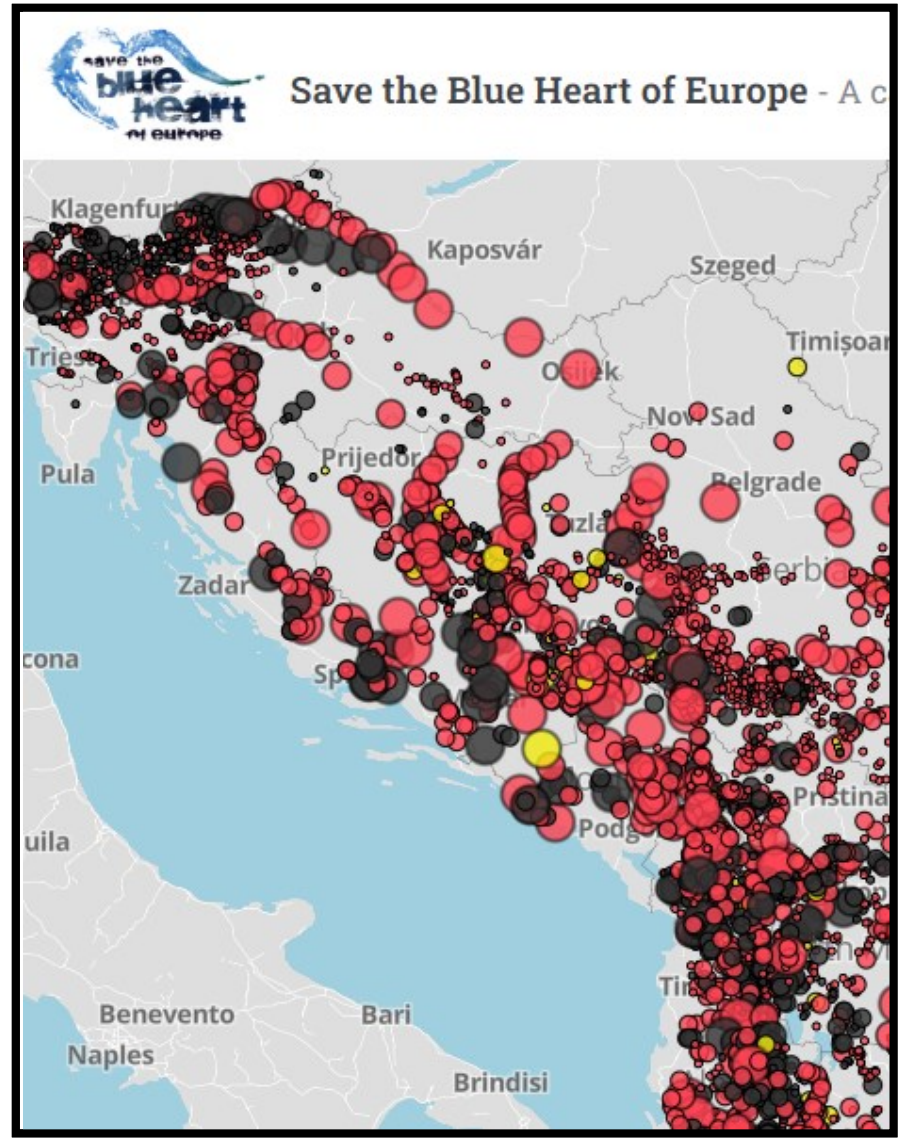
- Nitrogen Stream Concentration (Future Relative Change)
- Phosphorus Stream Concentration (Future Relative Change)
- Erosion in Cropland (Future Relative Change)

Development Threats (0/2)

- Development Potential Index
- Planned Hydropower

Threats to Water Quality (0/3)

Development Threats (0/2)



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Welcome, Joshua Royte

About
Pillars
Avoid
Protect
Restore
Resilience
Additional layers
Scenarios
Export
Logout

Current case study

Europe

Spatial units

Catchments

Prioritzation scale

Selected Pillar:

Restore

sm md lg xl

Biodiversity

Current State

Climate Baseline (0/5)

Water Quality (4/5)

Development Pressure (1/6)

Connectivity (0/3)

AMBER Barrier Density

Min: 0 Max: 0.5

Current Hydropower

Min: 0 Max: 697

Degree of Flow Alteration

Min: 0 Max: 1000

Land Use / Cover (1/10)

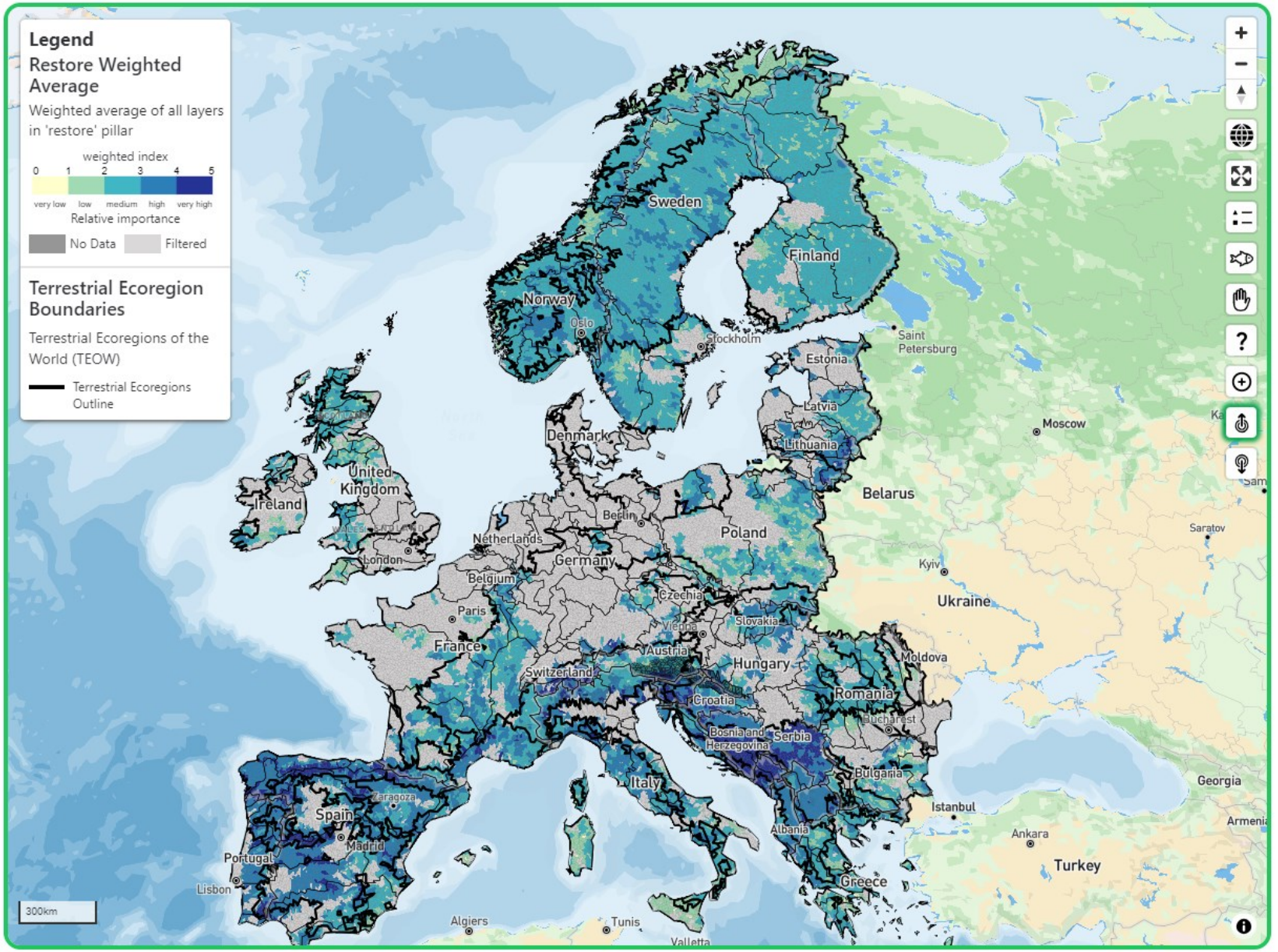
Future Threats

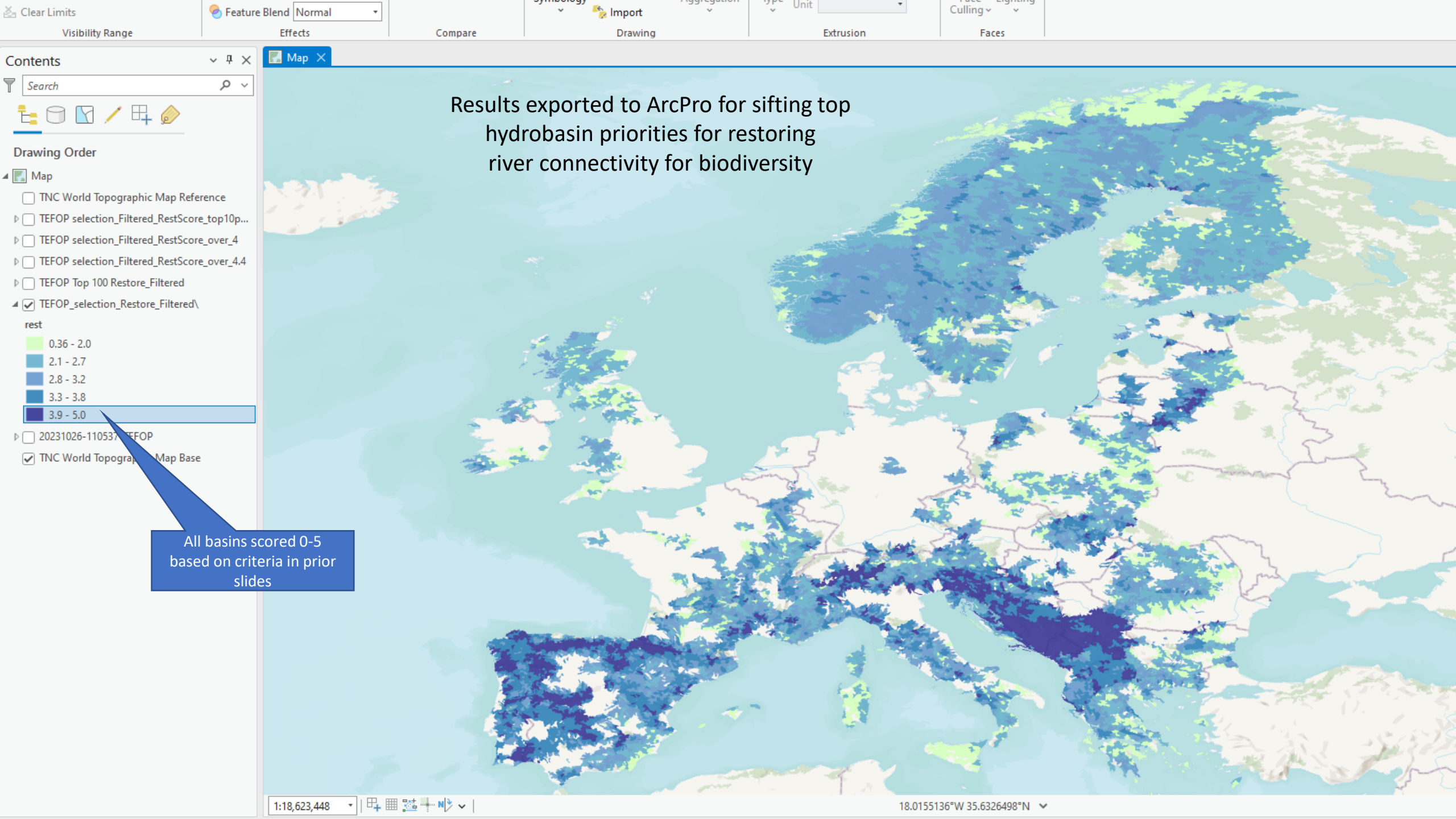
Development Pressure (1/6)

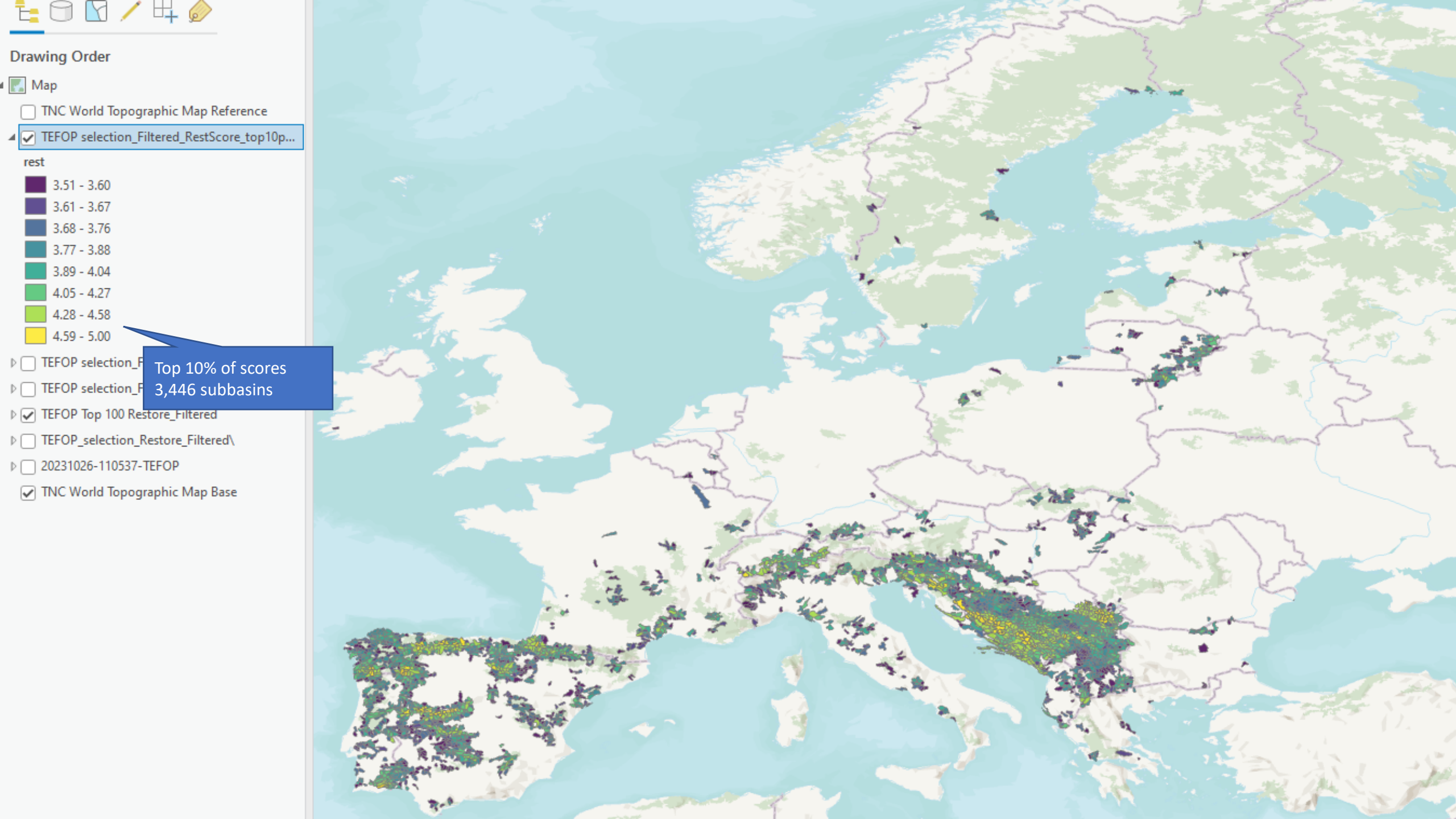
Connectivity (0/3)

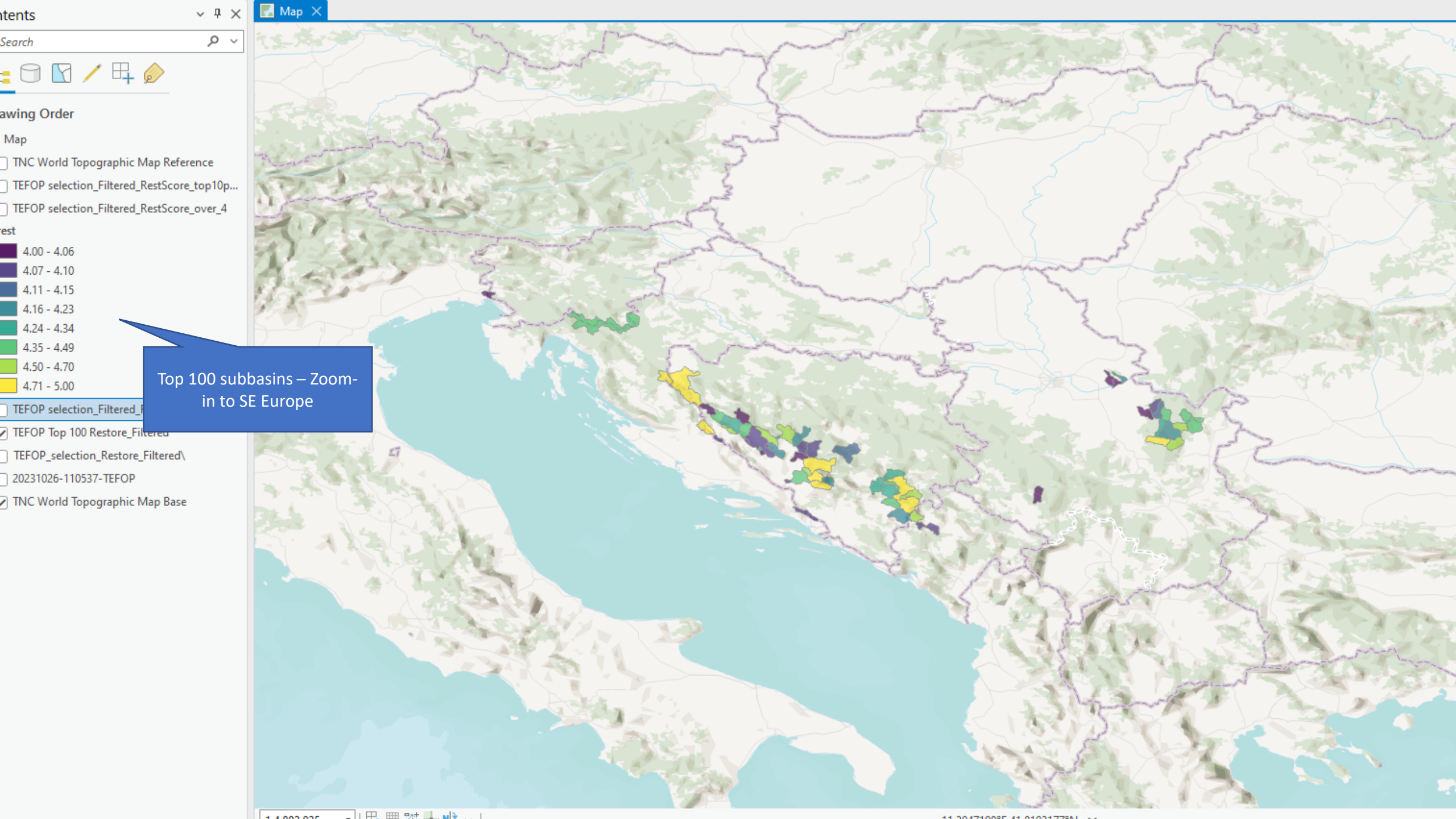
Land Use / Cover (1/10)

Future Threats




Clear Limits
Visibility Range
Feature Blend
Normal
Effects
Compare
Import
Drawing
Unit
Extrusion
Culling
Faces
Contents
Search
Drawing Order
Map
TNC World Topographic Map Reference
TEFOP selection_Filtered_RestScore_top10p...
TEFOP selection_Filtered_RestScore_over_4
TEFOP selection_Filtered_RestScore_over_4.4
TEFOP Top 100 Restore_Filtered
TEFOP_selection_Restore_Filtered\
rest
0.36 - 2.0
2.1 - 2.7
2.8 - 3.2
3.3 - 3.8
3.9 - 5.0
20231026-110537 TEFOP
TNC World Topograp Map Base
Map
Results exported to ArcPro for sifting top hydrobasin priorities for restoring river connectivity for biodiversity
All basins scored 0-5 based on criteria in prior slides
1:18,623,448
18.0155136°W 35.6326498°N


Drawing Order
Map
TNC World Topographic Map Reference
TEFOP selection_Filtered_RestScore_top10p...
rest
3.51 - 3.60
3.61 - 3.67
3.68 - 3.76
3.77 - 3.88
3.89 - 4.04
4.05 - 4.27
4.28 - 4.58
4.59 - 5.00
TEFOP selection_F
TEFOP selection_F
TEFOP Top 100 Restore_Filtered
TEFOP_selection_Restore_Filtered\
20231026-110537-TEFOP
TNC World Topographic Map Base
Top 10% of scores
3,446 subbasins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Search
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Map
TNC World Topographic Map Reference
TEFOP selection_Filtered_RestScore_top10p...
TEFOP selection_Filtered_RestScore_over_4
est
4.00 - 4.06
4.07 - 4.10
4.11 - 4.15
4.16 - 4.23
4.24 - 4.34
4.35 - 4.49
4.50 - 4.70
4.71 - 5.00
TEFOP selection_Filtered_
TEFOP Top 100 Restore_Filtered
TEFOP_selection_Restore_Filtered\
20231026-110537-TEFOP
TNC World Topographic Map Base
Map
Top 100 subbasins – Zoom-in to SE Europe

Thank you

- Global ecoregions & prioritization strategies for each
- Combine terrestrial & aquatic prioritization
- Opportunity can come from prioritized sets of basins
- Combine with Freshwater protection & restoration

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