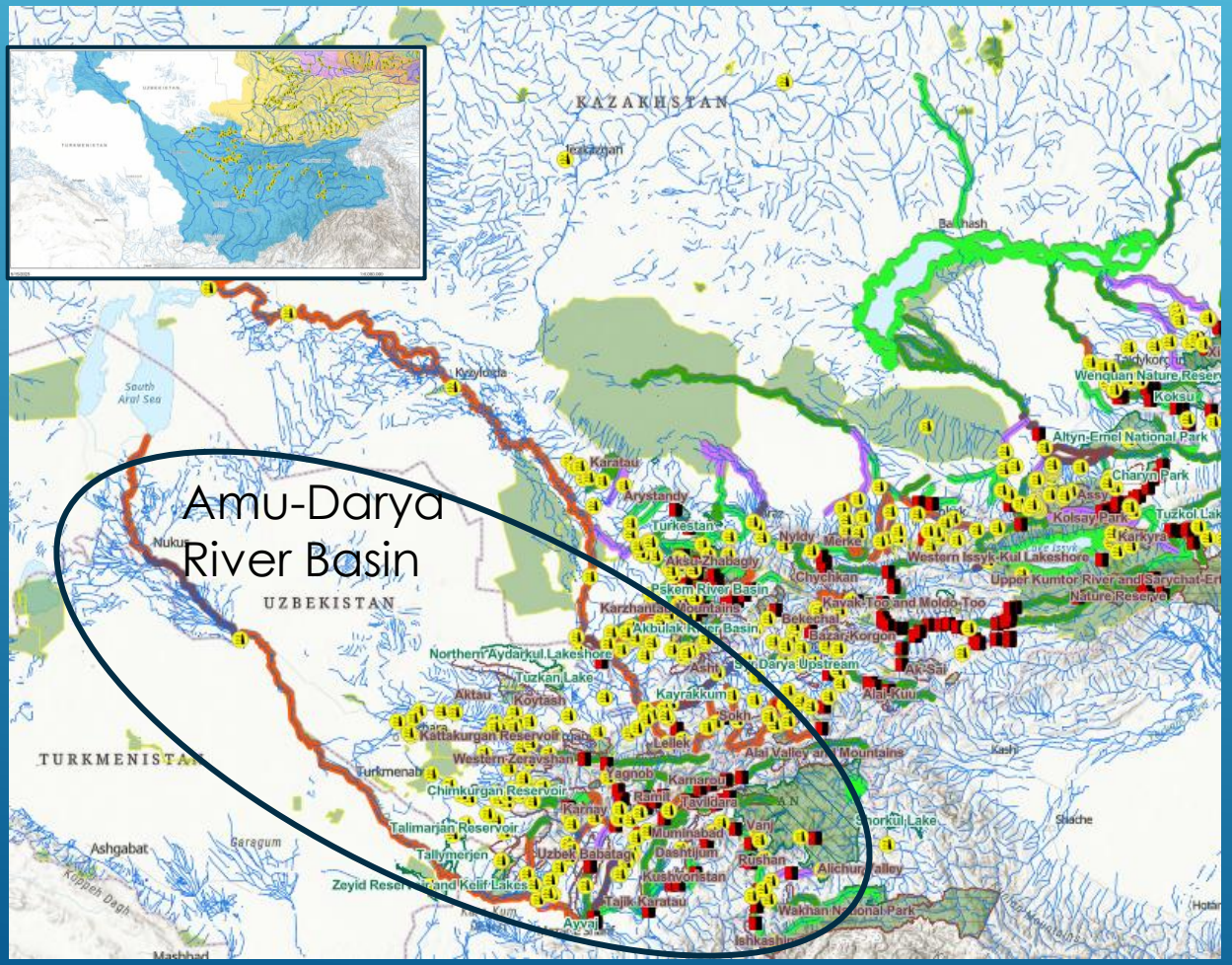
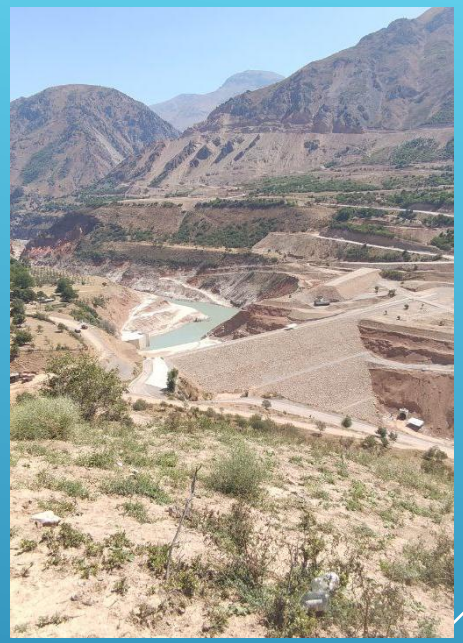
WILL THE NEW "FREE-FLOWING RIVERS" POLICY OF THE MULTILATERAL DEVELOPMENT BANKS (MDB) HELP TO SAVE FRESHWATER BIODIVERSITY?

INSIGHTS FROM THE CENTRAL ASIA





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FRESHWATER BIODIVERSITY CRISIS AND FREE FLOWING RIVERS (FFR)

- **Freshwater ecosystems occupy less than 2% of terrestrial Earth surface but contain 10% of known species and one-third of all known vertebrate animals (Balian et al.2008). Rivers provide ecosystem services essential for humankind.**
- Freshwater fauna is disappearing twice faster than terrestrial or marine (Living Planet Index, 2024). And it is much less thoroughly studied, with most rivers lacking observations on fish diversity, let alone invertebrates or molluscs.
- **To confront loss of river ecosystems it was proposed to identify rivers least affected by human encroachment (flow regulation, sediment retention and fragmentation by dams, , water abstraction, infrastructure in valleys) – "free flowing rivers"(FFR).**
- Global inventory by Grill et al. (2019) has demonstrated that more than 60% of rivers longer than 1000 km. and 50% of river longer than 500 km have already lost pristine free flowing status. As for rivers of medium length (100-500 km 77% of those still remained free flowing.
- **Fragmentation by dams was the prevailing factor that led**

  to loss of free-flowing status for two thirds of impacted rivers.

UP: Briefing Paper on FFR for International Banks

Article | Published: 08 May 2019

Mapping the world's free-flowing rivers

G. Grill, B. Lehner, M. Thieme, B. Geenen, D. Tickner, F. Antonelli, S. Babu, P. Borrelli, L. Cheng, H. Crochetiere, H. Ehalt Macedo, R. Filgueiras, M. Goichot, J. Higgins, Z. Hogan, B. Lip, M. E. McClain, J. Meng, M. Mulligan, C. Nilsson, J. D. Olden, J. J. Opperman, P. Petry, C. Reidy Liermann, ... C. Zarfl

+ Show authors

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65k Accesses | **1610** Altmetric | Metrics

- WWF and TNC launched a campaign to promote ideas of taking FFR under protection to governments and industry, while the Friends of the Earth US, International Rivers and RwB engaged in dialogue with multilateral development banks urging them to recognize FFRs as "**No Go Areas**" for infrastructure development.

! TWO MAJOR BANKS HAVE ADOPTED FFR SAFEGUARDS !

- "**Environmental and Social Framework**" of the Asian Development Bank (ADB) was approved in November 2024. Its standard on "Biodiversity and Sustainable Natural Resources Management" prohibits development of projects in no-go zones such as "**free flowing rivers of 500 kilometres or longer**".

- "**Environmental and Social Policy**" of the European Bank for Reconstruction and Development (EBRD) was updated in December 2024. It includes an addition to the Environmental and Social Exclusion List of the "**free-flowing sections of rivers 500 km or longer in length, with the exception of those projects specifically designed to contribute to the conservation of such areas**".

- **Emergence of specific policies of international banks to prohibit development of projects in certain river ecosystems is a great breakthrough for freshwater conservation**,

But the devil is in the details…

- Initial proposal from conservationists called for "free flowing river assessments" to guide selection of FFR for protection in each country\region. In their draft policies banks opted for a wholesale approach, which envisions using existing global assessment as the basis for decisions on FFR.
- At public consultations preceding the finalization of the policies, RwB and other conservation groups argued that approach should be differential, calling for protection of several largest free-flowing rivers found in a given region, which could be significantly shorter than 500 km.
- Next opportunity for improvement will (hopefully) come during consultations on draft guidance documents used by the banks' staff to implement/operationalise their safeguard policies.

MAIN SOURCES OF INFORMATION/SPATIAL DATA FOR OUR PROJECT ON "KEY FRESHWATER HABITATS"

General Geographic Data

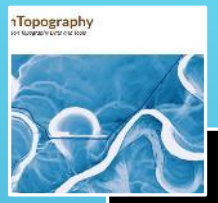
- ERS Data: Satellite and cartographic base maps from Google, Bing, Yandex, ESRI; satellite imagery from SENTINEL, LANDSAT, OSM;
- Topographic maps of various scales (up to 1:200,000).
- Digital Elevation Model (GEDTM30, SRTM)
- River Network Structure (HydroSHEDS, Hydrography90m, HydroAtlas)

Biodiversity and Nature Conservation Data

- Global databases on protected areas and KBAs (UNEP Environmental Data Explorer; WIDIPA, IUCN Red List, GBIF, RDB Flora, RDB Fauna, UNESCO Natural and Mixed World Heritage Sites);
- Literature and articles on ichthyology - over 150 sources;
- Data and unpublished reports from experts
- Field data collected within the CEPF project

Data on Infrastructure Projects

- Dam databases (Gdams, GOODD, GEM Hydropower Tracker, GDAT, GeoDAR, GDW);
- Agencies' documents (plans, reports, investment proposals;
- Project documentation for dams from developers and development banks (e.g. ESIAs);
- Materials from regional media monitoring (https://rivers.help/);
- Project's field data



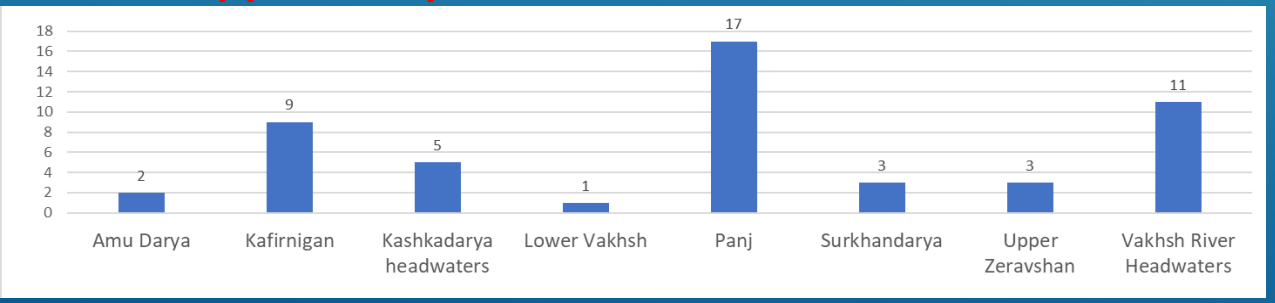
Data from other published GIS projects

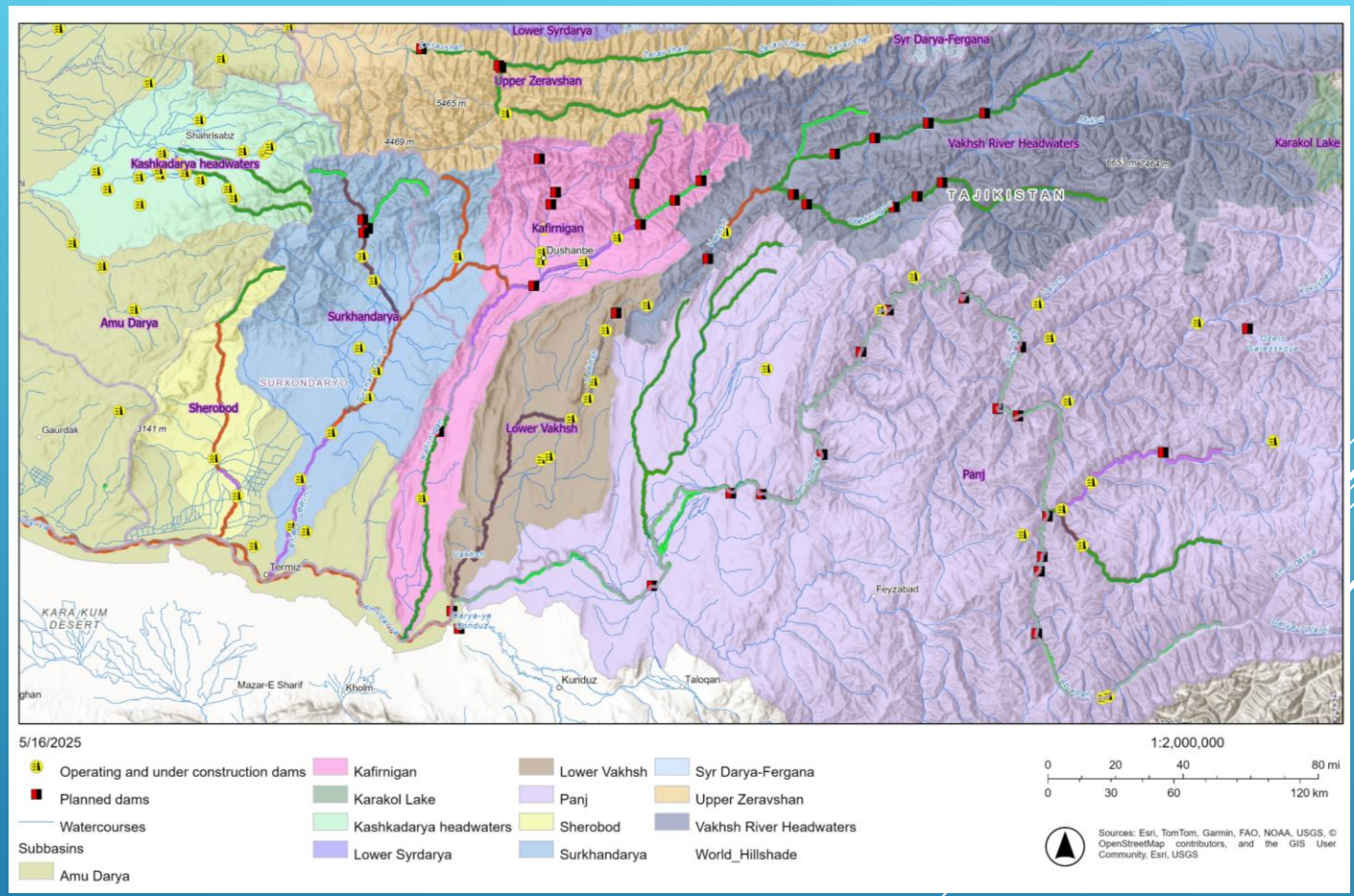
- GloRiC_v10
- GLCLUC-2020
- Geoboundaries.org
- Administrative Boundaries (GADM)
- ArcGIS Living Atlas
- WorldCover
- GLAD GLC
- DynamicWorld
- ESRI LULC
- OpenTopography
- Etc

GIS "Key Freshwater Habitats of Central Asia: https://arcg.is/0fDfGP0

AMU DARYA RIVER –THE BEST PRESERVED LARGE BASIN IN CENTRAL ASIA

- Out of three largest river basins of Central Asia the Amu-Darya is least affected by fragmentation.
- 88 sizeable dams already built in the basin
- River connectivity depends not only on number but on location of dams:
  - **Vakhsh River sub-basin has 7-9 large HPP dams on main stem and is already significantly fragmented (integrity/connectivity 37%).**
  - **Panj River sub-basin has 13 smaller HPPs on tributaries, but retains FFR status minimal (integrity/connectivity 92%)**
- 52 new hydropower dams are in construction and planning phases.
- **17 new HPPs planned in the Panj River basin may reduce connectivity index 7-fold: from 92% to 13%.**
- **All hydropower dams currently under construction are supported by MDBs**





UP: Planned and existing dams in the Amu Darya basin **https://arcg.is/0fDfGP0**

LEFT: Number of planned and under-construction dams in the identified sub-basins of the Amu Darya (as of May 2025).

ALTERATION OF NATURAL FLOW REGIME

- The natural regime of water flow, sediment, and nutrients is a crucial characteristic of river ecosystems, to which freshwater and riparian biota are adapted.
- The greatest flow transformation in Amu Darya basin has occurred in the lower reaches of the Vakhsh River, as a result of the large Vakhsh HPP cascade (5 reservoirs), as well as in the downstream Amu Darya River sub-basin, affected by numerous reservoirs and withdrawals for irrigation.
- Rogun HPP Reservoir, if built, will increase active reservoir volume in Vakhsh cascade from 4.5 to 14.8 cubic kilometers, equivalent to 90% of average annual flow. **5 MDBs are supporting this project.**
- Panj is the largest river with virtually unaltered natural flow regime, which also sustains better ecological conditions in the upper stretch of Amu Darya River.

UP: Lake in the Vakhsh River floodplain. MFA Tajikistan

Vakhsh and Panj water flow dynamics 1999-2023. Data: GLAD Project

RARE, ENDEMIC, AND EXTINCT FISH SPECIES

- **Of the 56 rare (IUCN-listed as CR,EN,VU,NT,DD) and endemic fish species inhabiting Central Asia, the Amu Darya basin was home to 26 species, but at least three of those are considered already extinct by most experts.**
- To analyze the state of fish populations, we analyzed (and linked to database) over 150 scientific works. Of the 7 river basins in Central Asia, the fauna of the Amu Darya basin is the least studied.
- **Amu Darya is currently actively inventoried (e.g. three new *Dzihunia* species discovered, but not yet described).**
- New species are not yet inscribed on the IUCN Red List, but may still require urgent conservation measures.
- **Some species recently assessed as "least concern" have already gone extinct.**

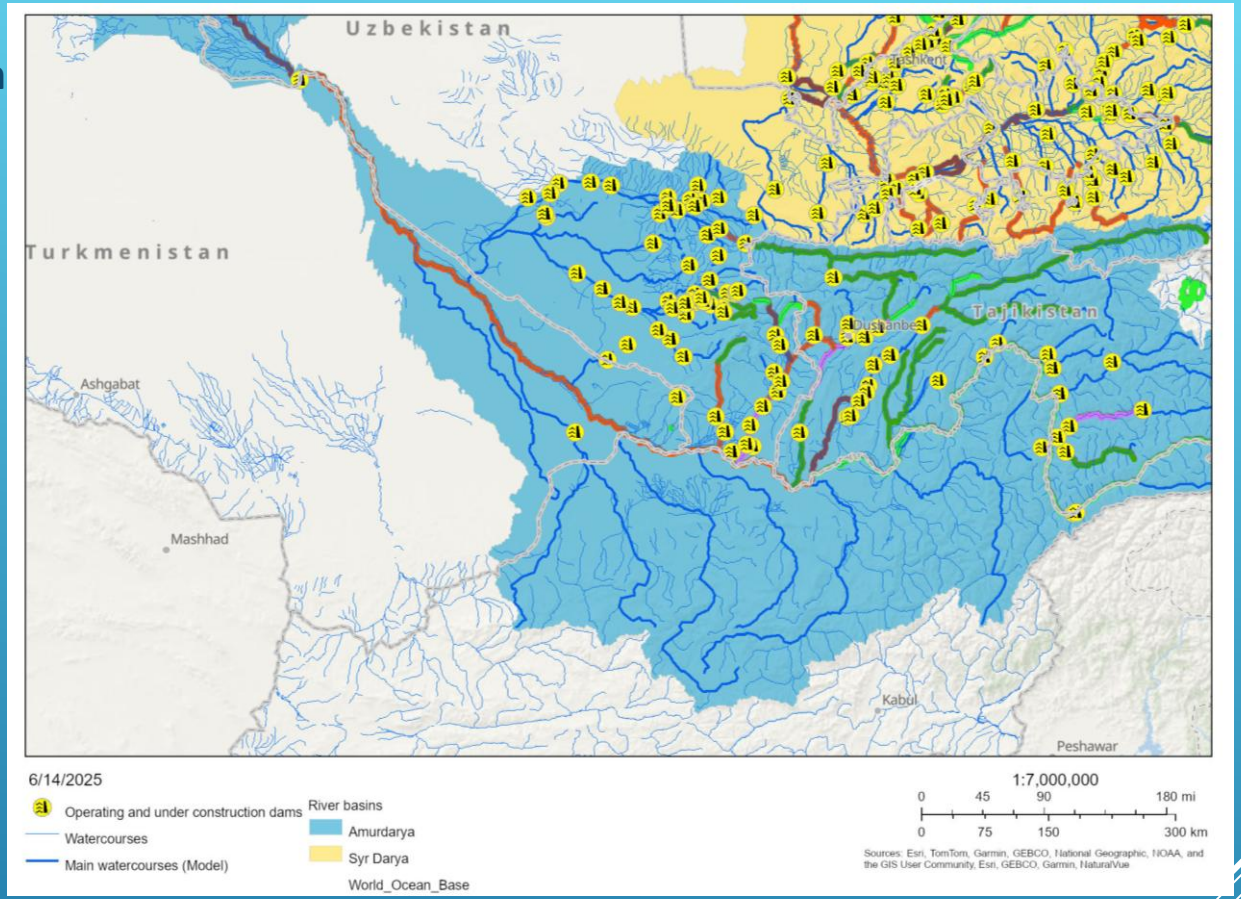
Pseudoscaphirhynchus hermanni	CR
Pseudoscaphirhynchus kaufmanni	CR
Acipenser nudiventris (extinct in the basin)	CR
Alburnoides taeniatus	DD
Aspiolucius esocinus	EN
Capoetobrama kuschakewitschi	EN
Luciobarbus brachycephalus	EN
Luciobarbus capito	VU
Leuciscus lehmanni	LC
Schizothorax eurystomus	LC
Schizothorax fedtschenkoi	LC
Schizothorax intermedius	LC
Dzihunia amudarjensis	LC
Dzihunia ilan (likely extinct)	LC
Iskandaria pardalis	LC
Oxynoemacheilus oxianus	LC
Triplophysa kafirnigani	LC
Triplophysa uranoscopus	LC
Triplophysa lacusnigri	VU
Troglocobitis starostini	VU
Gobio lepidolaemus	LC
Gymnodiptychus dybowskii	LC
Glyptosternon oschanini	LC
Glyptosternon reticulatum (Glyptosternon cf. akhtari)	LC
Salmo oxianus	N/A
Salmo (trutta) aralensis (extinct)	N/A

Large Amu Darya shovelnose sturgeon (Pseudoscaphirhynchus kaufmanni). Photo: Alexey Chernyak

MAPPING KEY FRESHWATER HABITATS IN CENTRAL ASIA

- **We analyzed 30,000 km of the river network in the Amu Darya basin (excluding Afghanistan).**
- Based on an analysis of the known biodiversity values (fishes, other endangered species, floodplain tugai forests, etc.) we identified 6,000 kilometers of the most important "key river habitats“ i.e., only 17% of the entire river network (very far from 30X30 CBD requirement).
- **Only 55% of the "key river habitats“ are undammed\unmodified watercourses.**
- The rest are modified river stretches known to host endangered fish species and remnant floodplain forests.
- **For each selected river stretch values and threats described by researchers have been listed in the database, priorities for new inventories identified.**

- **GIS: https://arcg.is/0fDfGP0**

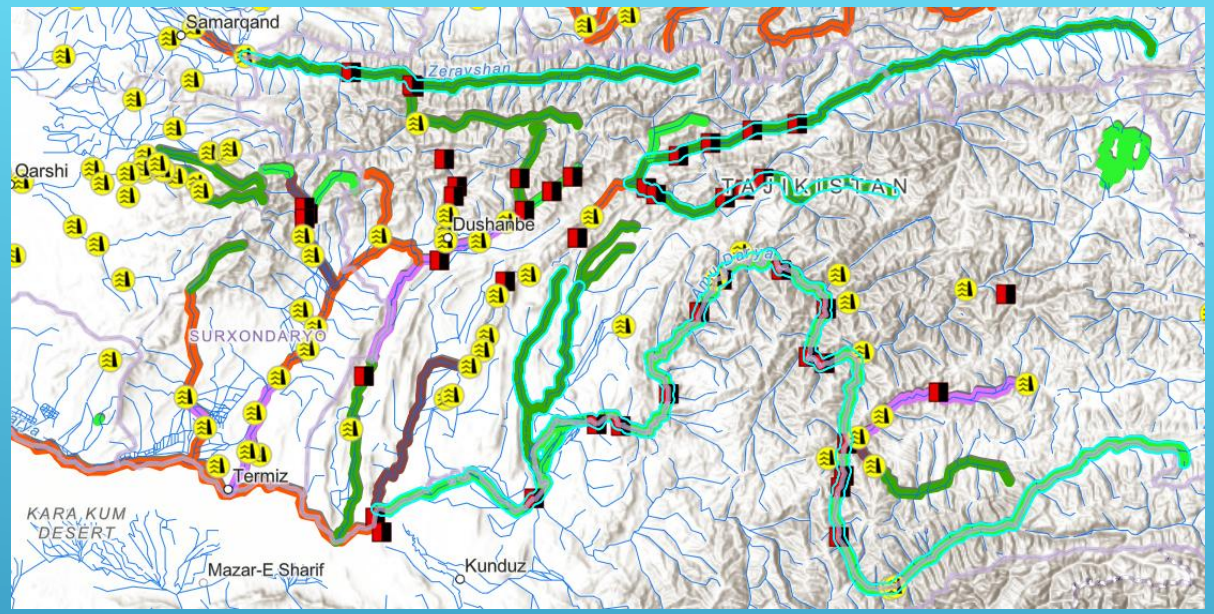


	Types of key freshwater habitats	Cumulative length, км
1	1 -Key freshwater ecosystems recently surveyed	1304
2	2 -Key freshwater ecosystems priority for surveys	1981
3	3 -Other key freshwater important for connectivity	425
4	4 -Modified water bodies of high biodiversity value	510
5	5 -Modified water bodies priority for surveys	1742
	Total (km)	5964

Tugai Forest. MFA Tajikistan

FREE-FLOWING RIVERS

- **Identification and protection of "free-flowing rivers" is especially crucial in the absence of reliable and complete data on rare species populations and habitats in basins like the Amu Darya.**
- Panj is the only free-flowing river in Central Asia over 1000 kilometers long.
- **Due to extensive economic transformations, Central Asia has almost no other large free-flowing rivers left. All other river stretches aspiring to this status are shorter than 500 km.**
- Syr Darya, Chu, Ili, and Amu Darya in their middle and/or lower reaches have sections over 500 kilometers free of dams, but their flow regime is significantly altered upstream by humans.
- **Almost all free-flowing rivers in the Amu Darya basin longer than 100 km are located in the headwaters – in Tajikistan, Uzbekistan and Kyrgyzstan (and Afghanistan not studied yet). Their length constitutes only 7% of the Amu Darya basin river network and only 40% of identified key freshwater habitats.**
- Free-flowing rivers are critically important for conserving the biodiversity of the Amu Darya basin. However, except for lower reaches of Panj, those have relative low diversity of fish species.



Amu Darya Sub-basins:	*Number of river sections longer than 100 km*	*Total length of those river sections, km*
Panj	*3*	*1384*
Upper Zeravshan River	*2*	*451*
Upper Vakhsh River	*2*	*597*
Total	*7*	*2432*

BACK TO BANKS & FREE FLOWING RIVERS

Photo: Rosa Vroom\ Bankwatch

- **In the whole Central Asia the new FFR policies of ADB and EBRD may be applied only to one watercourse: transboundary Panj River, which definitely merits the highest degree of protection due to high biodiversity and important ecosystem services.**
- Those are potentially important additional safeguards as Afghanistan and Tajikistan will not be able to build planned 13+ large dams on Panj without assistance of international finance institutions.
- **Central Asian governments plan to build 20+ new dams on all other sizeable rivers in Amu Darya Basin, which presently have free flowing sections longer than 100 km. MDBs would be able to finance those dam projects not violating their FFR policies.**
- Still-free flowing river stretches are found primarily in high mountain regions with limited number of fish species. Approximately 50% of 25 species we listed as conservation priorities (slide 7) are known to inhabit river sections of Amu Darya identified as FFR (longer than 100 km).
- **To protect other fish species human impacts should be mitigated in already modified key freshwater habitats (e.g. Lower Vakhsh, Amu-Darya main stem. Lower Kafirnigan).**
- We welcome the first step made by the MDBs but will push them to adopt more comprehensive river conservation policies and practices.

PRIORITY MEASURES FOR THE PROTECTION OF RIVER ECOSYSTEMS IN THE AMU DARYA BASIN

- **Protecting the last free-flowing rivers, first of all the Panj River, which is among the longest free-flowing rivers in the world and then the other.**
- Adjusting plans for further water-energy infrastructure development to minimize basin fragmentation and negative impacts on valuable ecosystems and protected areas.
- **Analyzing the representation of key river sections in the protected areas network and developing measures for their inclusion through PA expansion and new protection measures.**
- Developing and implementing environmental flow standards that ensure the preservation and restoration of valuable river ecosystems and floodplain forests. Lower Vakhsh River below the hydropower cascade that includes construction of Rogun HPP is the top priority.
- **Developing comprehensive measures for the protection and restoration of freshwater ecosystems and floodplain forests in modified habitats with high conservation value.**
- Assessing new species for the IUCN Red List and revising the status of the “least-concern" endemics in the light of new threats, planning measures for their protection.
- **Developing and urgently implementing an inventory program for less studied river sections (key freshwater categories 2, 3, and 5) and monitoring biodiversity in all valuable sections.**

THANK YOU FOR LISTENING!
NOW IT IS TIME FOR ACTION!!!

Photo: Ondřej Machač