



Transboundary Waters Assessment Programme (TWAP)

River Basins

UNEP-DHI CENTRE
for Water and Environment



Center for International Earth
Science Information Network
EARTH INSTITUTE | COLUMBIA UNIVERSITY



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Programme

CESR Center for
Environmental
Systems Research





TWAP River Basin Indicators

Water Quantity

1. Environmental Stress Induced by Flow Regime Alterations

2. Human Water Stress

3. Agricultural Water Stress

Water Quality

4. Nutrient Pollution

5. Wastewater Pollution

Ecosystems

6. Biodiversity and Habitat Loss

7. Ecosystem Impacts from Dams

8. Threat to Fish

Governance

9. Legal Arrangements

10. Potential Institutional Risk Due to Water Variability

11. Enabling Environment

Socio-economics

12. Economic Dependency

13. Societal Well-being

14. Vulnerability to Climate-related Natural Disasters

Projected transboundary stress 2030 / 2050

Environmental Water Stress

Human Water Stress

Nutrient Pollution

Population Density

Potential hydro-political tensions due to basin development in absence of institutional capacity

Water Systems Interlinkages

Delta Vulnerability Index

Lake Influence Index

TWAP River Basin Partners

Center for International Earth
Science Information Network
EARTH INSTITUTE | COLUMBIA UNIVERSITY

OSU
Oregon State
UNIVERSITY

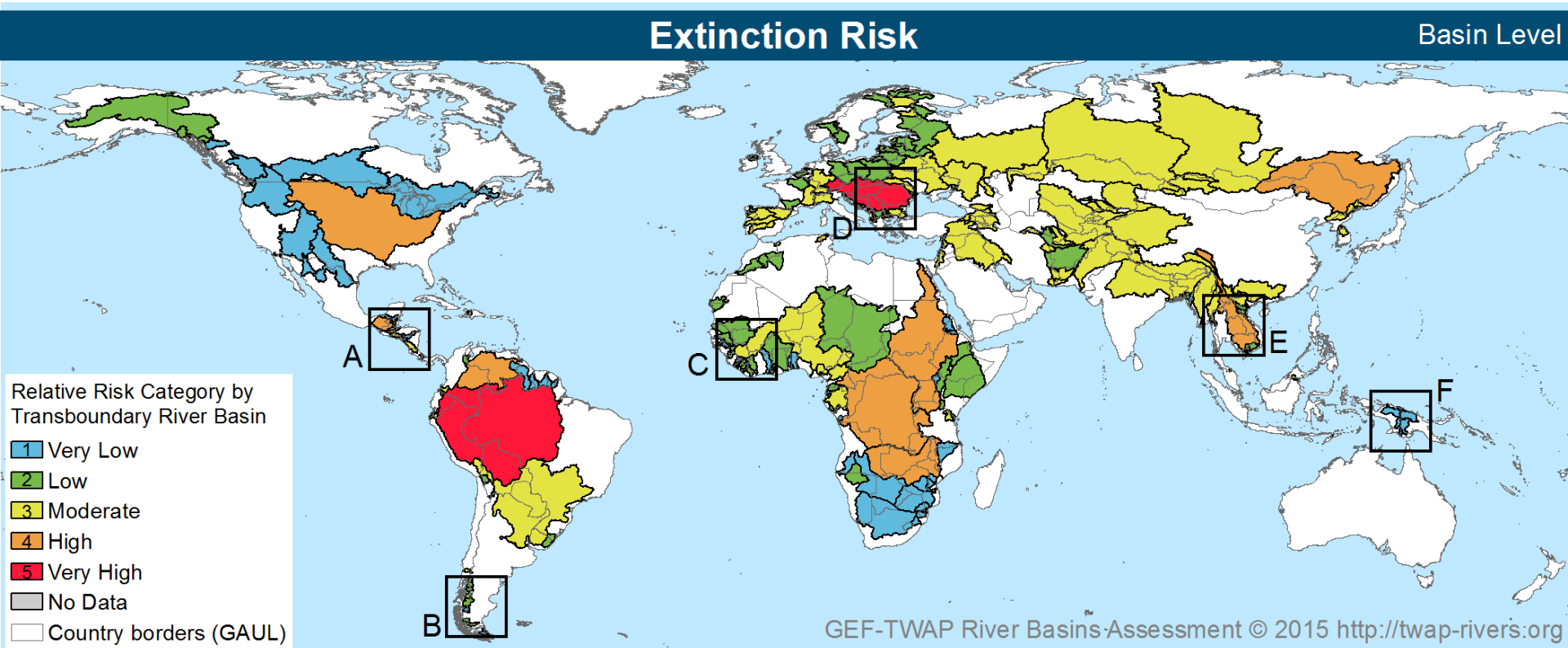
CUNY The City
University
of
New York



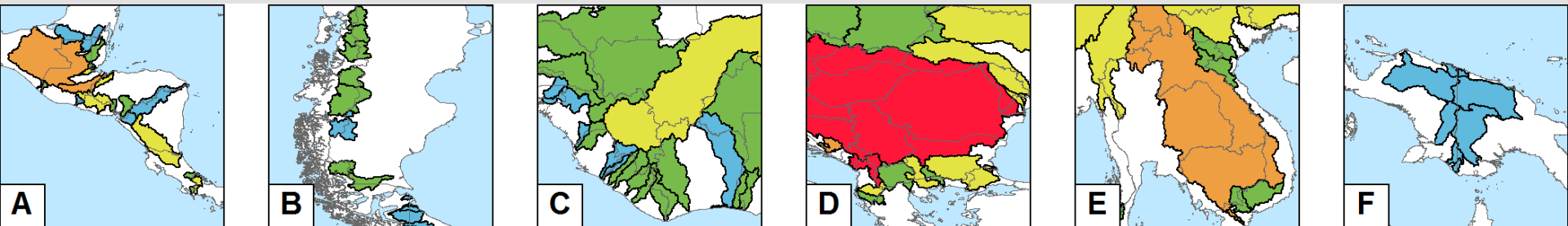
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Biodiversity and habitat loss

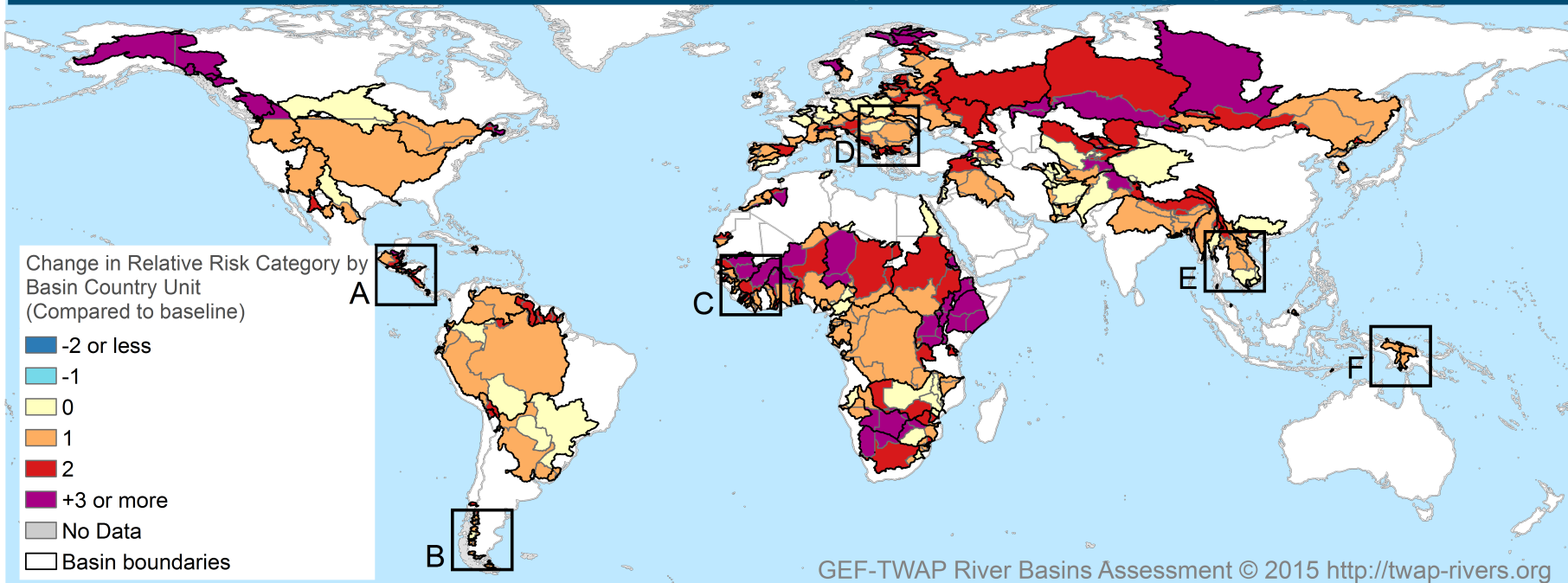


Small Basin Clusters

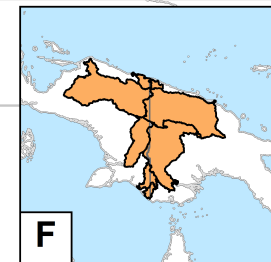
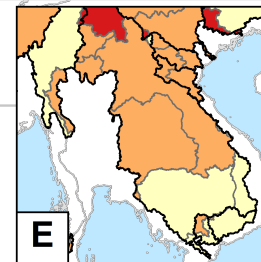
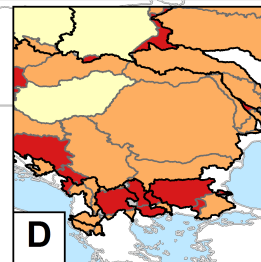
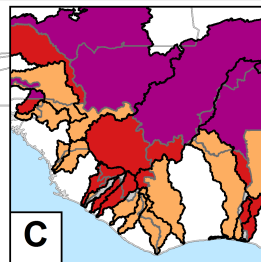
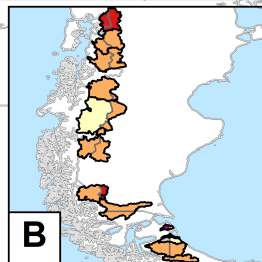
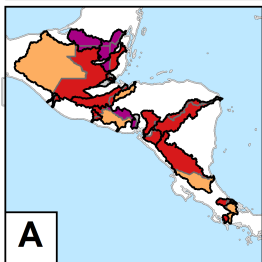


Projections results

Environmental Water Stress - Projected Risk Change (2050)



Regional Snapshots (small basins)



Global 'hot-spots'



Projected hotspots and drivers for transboundary river basins

