

Water and forests interactions

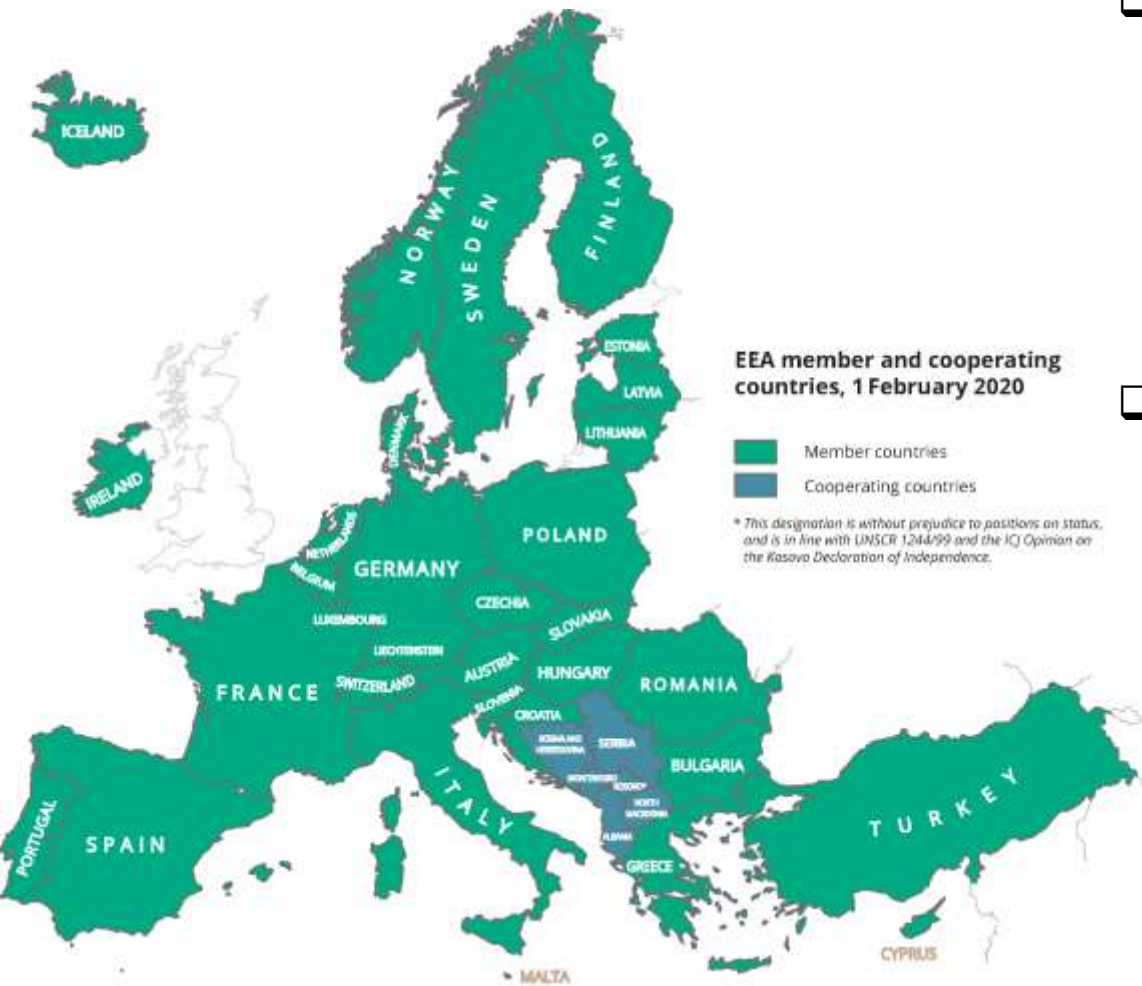
EEA activities on forests and water

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<http://www.eea.europa.eu>





❑ *The European Environment Agency is the EU body dedicated to providing sound, independent information on the environment*

❑ *We are a main information source for those involved in developing, adopting, implementing and evaluating environmental policy, and also the general public*



The European environment — state and outlook 2020

Knowledge for transition to a sustainable Europe

European Environment Agency



«Europe's environment is at a **tipping point**. We have a narrow window of opportunity in the next decade to scale up measures to **protect nature**, lessen the impacts of **climate change** and radically reduce our consumption of **natural resources**»

Hans Bruyninckx, EEA Executive Director





<https://biodiversity.europa.eu/>



<https://water.europa.eu/>



<https://forest.eea.europa.eu/>



<https://land.copernicus.eu/>

- Dashboards
- Interactive maps
- Indicators
- Water, land, ecosystem accounts
- Reports
- Databases etc.



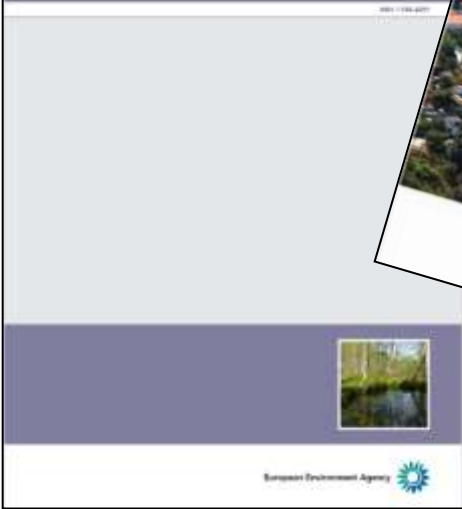
European forest ecosystems
State and trends



European Environment Agency



Water-retention potential of Europe's forests
A European overview to support natural water-retention measures



European Environment Agency



European waters
Assessment of status and pressures 2018



European Environment Agency



Food and Agriculture Organization of the United Nations

UNECE

Forests and Water
Valuation and payments for forest ecosystem services



UNITED NATIONS



Water and Forests

Water and forests are important natural resources providing food, energy, habitats and many other biological and socio-economic functions ([UNECE, 2018](#)).

Forests influence hydrological cycle and regulating temperature (Ellison et al., 2017)

Water availability together with temperature impacts on forest composition and distribution ([EEA, 2017](#))

Whereas, the role of forest in the overall availability of water resources and the water balance still requires further research ([UNECE, 2018](#))

Ecosystem services of water-forests interactions

Examples of water related ecosystem services from forests in Europe

Links to human well-being

Provisioning

Water supply

Clean water provisioning

Drinking water

Regulating services

Climate

Temperature regulation, water conservation

Access to clean air and water

Water

Water conservation, water retention and storage

Hazards

Reducing chemical and pesticide exposure; flood regulation

Security from disasters

Detoxification and purification

Water purification

Clean water

Cultural services

Environmental settings

Education and research, recreation and health, social activities, and spiritual and cultural values

Well-being, health, strength and social cohesion

Supporting services

Water cycles

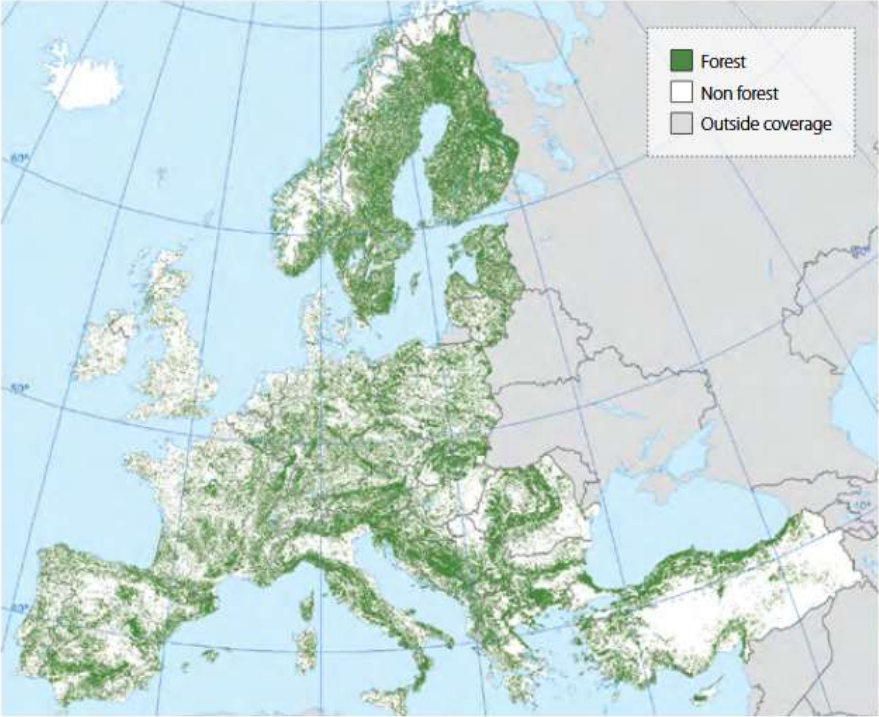
Forests support soil formation and other biogeochemical processes essential to life

[EEA, 2016](#)



An aggregated landuse/land cover accounts of Europe (2018)

Detailed map of forest area distribution in Europe



Source: EEA (2016a).

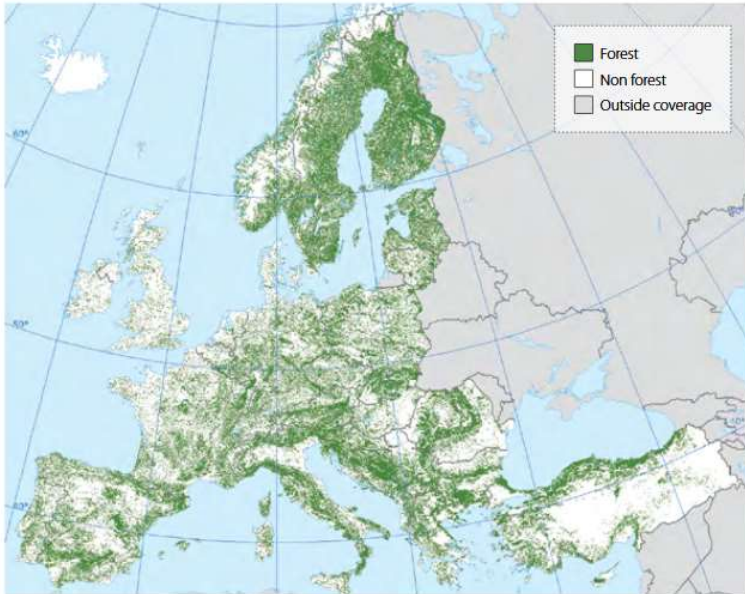
Cropland	35%
Forest and woodland	35%
Grassland	11%
Sparsely vegetated land	6%
Heathland and shrub	5%
Urban	4%
Rivers and lakes	2%
Inland wetlands	2%

<https://www.eea.europa.eu/data-and-maps/dashboards/land-cover-and-change-statistics>

Urban areas increased 7 % in last 20 years (2000-2018)

Forests largely impact on hydrological cycle in Europe

Detailed map of forest area distribution in Europe



Source: EEA (2016a).

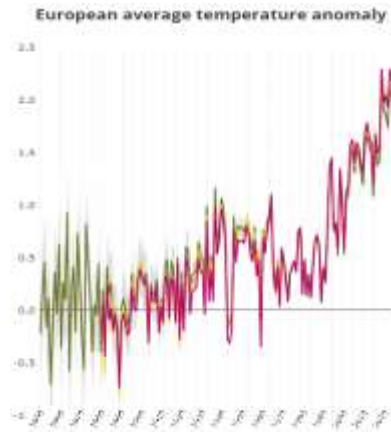
Forested basins shares around 60 % of annual precipitation in Europe

Forested basins accommodate more than **half of all lakes** in Europe ([EEA, 2015](#))

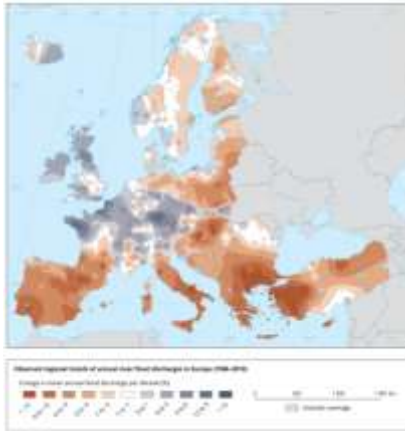
About **85 % of total river discharge** is regulated by forested basins while rivers meet more than **60 % of total water abstraction** in Europe

Forests and water resources are under the pressure of climate change in Europe

Average temperature

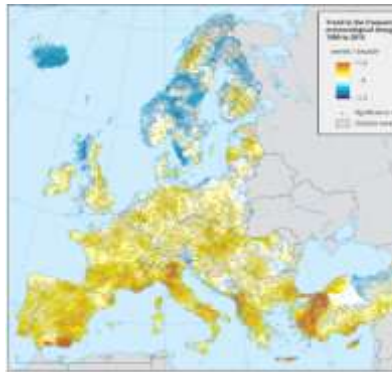


Floods

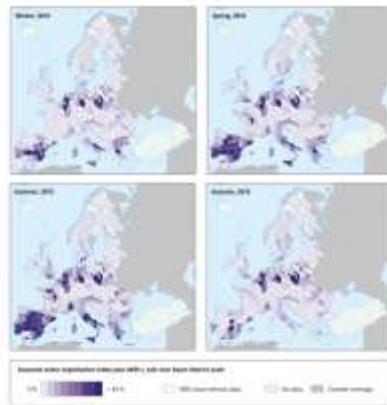


Climate change impacts temperature raising, water scarcity, droughts and floods in Europe

Droughts

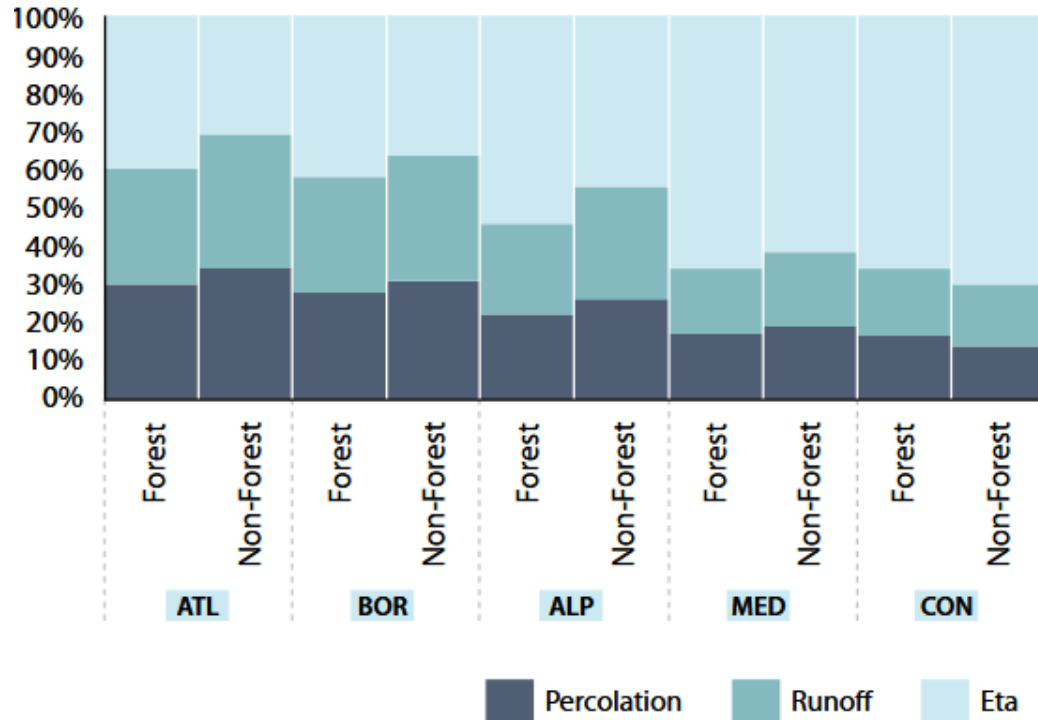


Seasonal water scarcity



Due to climate change impacts, forest growth is projected to increase in northern Europe and to decrease in southern Europe, which will have an impact on the goods and services that forests provide ([CLIM 034](#))

Water retention [of forests] was proposed by the EU Water Blueprint (2012) as one of the nature-based solutions for climate change adaptation (www.nwrm.eu)

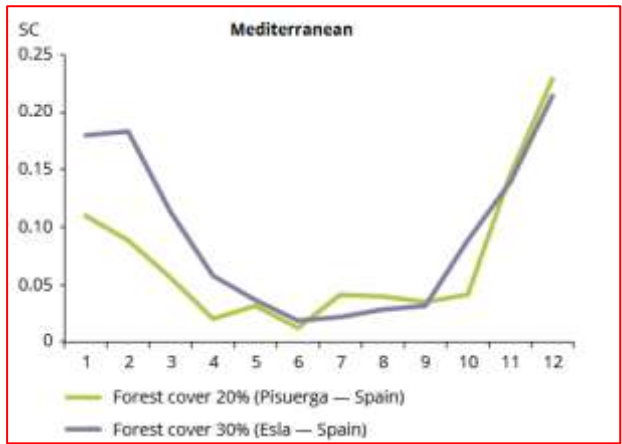
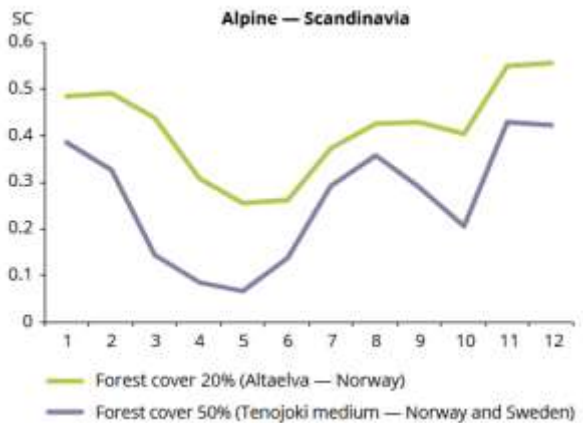
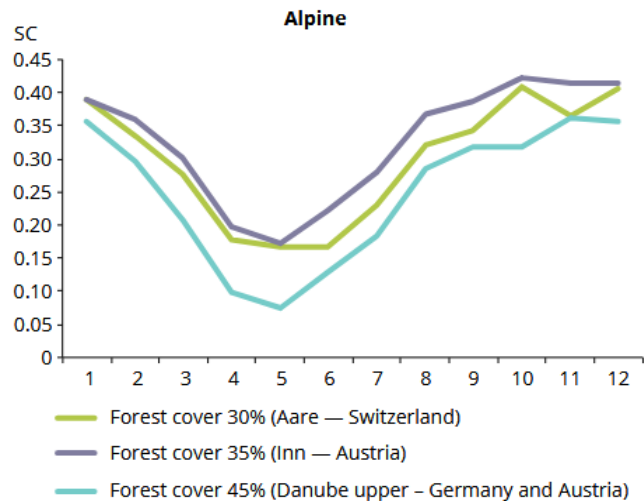
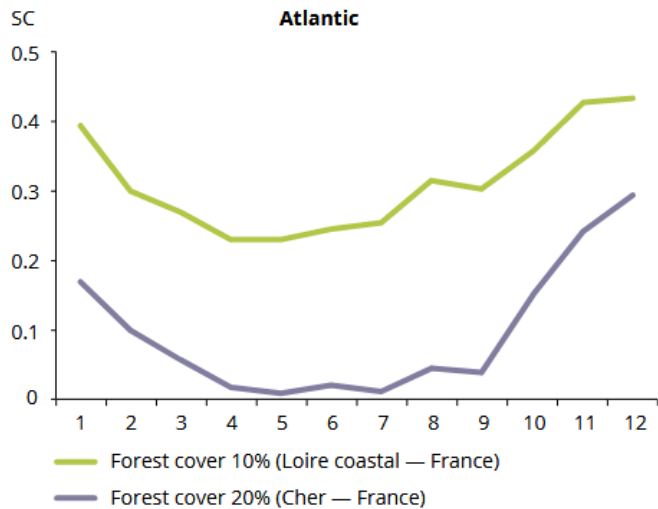


It is estimated that forests can decrease annual runoff between 5-10% in Europe (EEA, 2015)

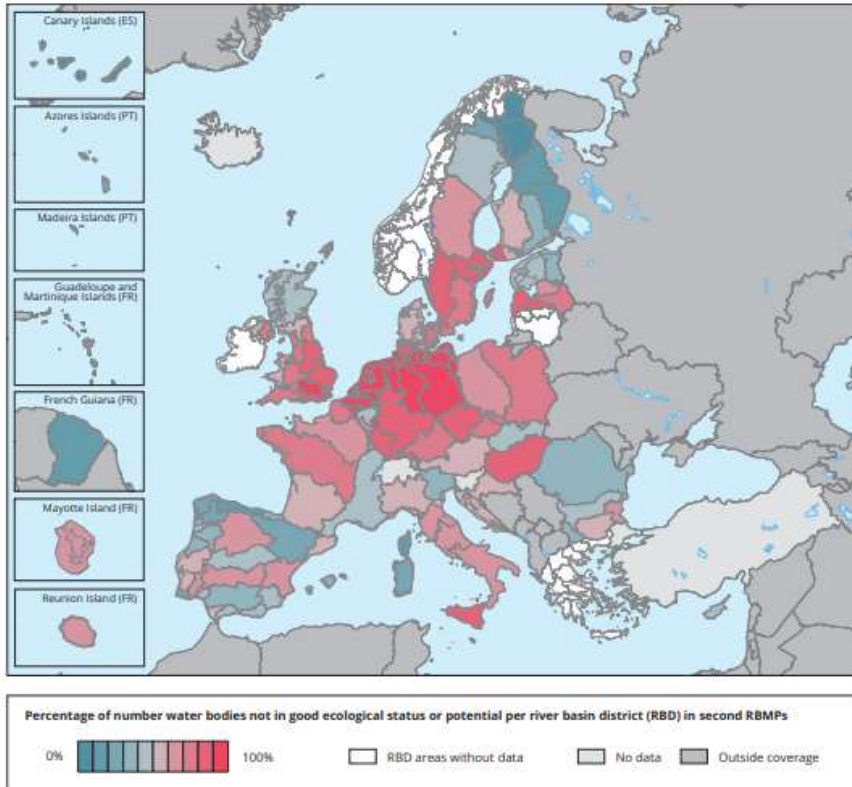
Source: EEA (2015).

Note: In the above figure, forested basins are adopted as those where forest cover is higher than 10 per cent. ATL: Atlantic region; BOR: boreal region; Alp: Alpine region; MED: Mediterranean region; CON= Continental region.

We need more synthesis at regional and global scales to provide a better overview on the role of forests in water retention (EEA, 2015)

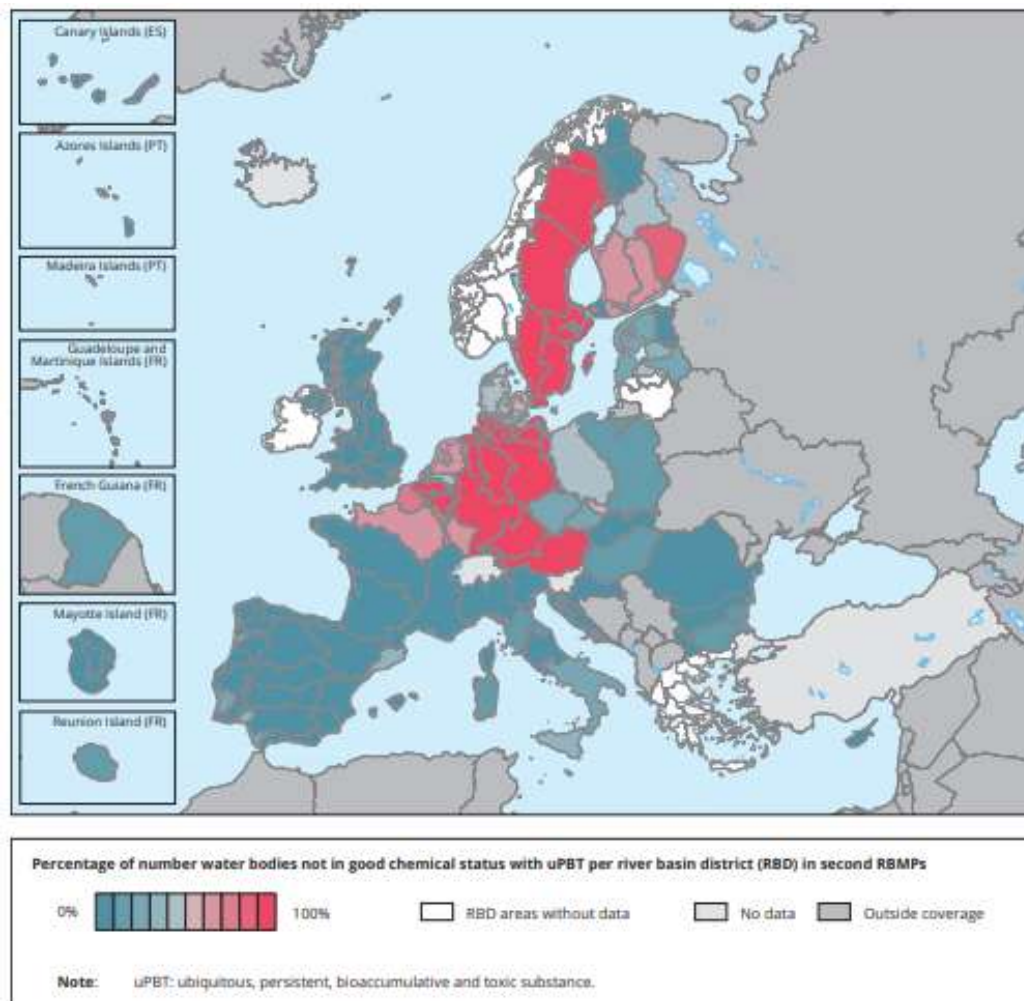


EU Water Framework Directive requests all surface water bodies and groundwater bodies to achieve good status through integrated water management at the river basin level (EC, 2000).



Overall, around 40 % of the surface water bodies are in good or better ecological status, while 60 % did not achieve good status in 2nd RBMPs ([EEA, 2018](#))

Chemical status of surface water bodies per RBD %



Reporting under the second RBMP shows that 38 % of surface water bodies are in good chemical status (by number of water bodies), while 46 % are not achieving good status and the status of 16 % is unknown

Status of Groundwater bodies

GWB Status	Chemical Status	Quantitative status	Combined status
Good	75	89,6	71,03
Poor	24	9,1	28,97
Unknown	1	1,3	

Intersection of GWB status with Corine landcover/land use classes (by area)

GWB Quantitative Status	Forest and semi natural areas	Agricultural areas	Water bodies	Artificial surfaces	Wetlands
Good	32%	25%	18%	18%	8%
Poor	25%	26%	17%	25%	7%
Unknown	35%	28%	16%	14%	6%

Chemical Status	Forest and semi natural areas	Agricultural areas	Water bodies	Artificial surfaces	Wetlands
Good	33%	24%	18%	17%	8%
Poor	25%	26%	17%	25%	8%
Unknown	35%	28%	18%	11%	7%

Forests accommodates the highest percentage of good status of groundwater bodies for both chemical and quantitative , but still unknown presents also high rate.

However, the estimation method should be interpreted with caution as the method is dominated by the total area of CLC classes

Promising EU policy initiatives for now and future - 2030

- EU Green Deal- *protecting the natural capital, increasing resource efficiency and protecting citizens from environmental risks*
- EU Biodiversity 2030- *Ecosystem restoration targets*
- Climate change adaptation strategy
- 8th Environmental Action Program
- EU Forest Strategy
- ...



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Thanks for your attention!

Please visit EEA website for further
information

<http://www.eea.europa.eu>

