

### Land use

79%

of the Amazon surface had natural vegetation in 2021.

forest (forest formation, savannas and mangroves)

6% non-forest natural formation

19% agricultural use

0,2% areas without vegetation (urban infrastructure, mining)

2% bodies of water (river, lake)<sup>5</sup>

\* The Amazon concept used for this document considers three criteria: biogeographic, watersheds and political boundaries to define the Amazon region.

### Reference

- 1. RAISG. (2020). Amazonia Under Pressure. www.amazoniasocioambiental.org
- 2. World Bank. (2021). Continuous National Household Sample Survey (Pesquisa Nacional por Amostra de Domicílio Contínua) harmonized by SEDLAC.
- 3. World Bank. (2020). World Bank Open Data. https://data.worldbank.org/
- 4. Amazônia 2030 (2022). Fatos da Amazônia: Meio ambiente e uso do solo. https://amazonia2030.org.br/fatos-da-amazonia-meio-ambiente-e-uso-do-solo/
- 5. MapBiomas Amazon.. (2022). MapBiomas Amazon Collection: Annual Dynamic of land cover and land use in the Legal Amazon and Amazon Basin (1985-2021). https://amazonia.mapbiomas.org/en/infographics/



# **Rivers and biodiversity**

The Amazon basin has the largest freshwater system in the world, discharging one fifth (20%) of the world's freshwater into the Atlantic.

Rivers provide many **ecological**, **economic**, and **cultural benefits to the communities** that live around them, as fish are the main source of protein for local populations, and rivers are essential for energy production, transportation, and other ecosystem services.<sup>7,9</sup>

The main tributaries of the Amazon River (Solimões-Amazonas) are the **Xingú**, **Tapajós**, **Madeira**, **Purus**, **Juruá**, **Içá**, **Javari**, **Japurá** and **Negro** rivers.8



The Amazon is home to

13%

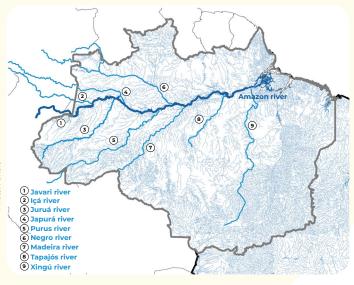
gigas) is an emblemation fish of the Amazon and the basis of footsecurity for hundred at communities and

of the world's freshwater fish.

The Pirarucu (Arapaima gigas) is an emblematic fish of the Amazon and the basis of food security for hundreds of communities and of economic importance for aquaculture.

Fish consumption in the Amazon is high, with commercial and subsistence fishing producing almost **425 000 tons of fish each year.**<sup>9</sup>

### Map of Brazil's Amazonian rivers



#### Madeira river basin:11

- It has 1.4 million km² of extension
- It is 3.300 km long, and the most important tributary of the Amazon
- It has a flow of 31.200 m³/s (contributes 15% of the total discharge from the Amazon River to the Atlantic)
- Home to +91 indigenous ethnic groups
- Covers 3 countries: Brazil, Bolivia and Peru

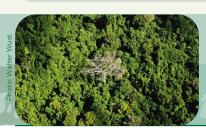
# Forest and biodiversity

The Amazon is home to the most extensive tropical forest in the world and a great diversity of ecosystems

Forests are a source of **Non-Timber Forest Products** (NTFPs), such as açai (Euterpe oleracea), castanhado-Pará (Bertholletia excelsa) and copaíba (Copaifera officinalis).

These fruits provide the communities with a livelihood and a source of income.<sup>12</sup>

Brazil has **382 million hectares** of natural forest in the Amazon.<sup>13,15</sup> The **Pink Dolphin** (*Inia geoffrensis*) is an umbrella species, its conservation status reflects the health of the habitat and the community. It is classified as an endangered species by the IUCN due to the fragmentation of its habitat, due to the construction of dams, and the contamination of rivers and lakes by extractive activities.<sup>7</sup>



The Amazon basin is one of the most important carbon reserves, with **123 billion tons of carbon** stored on its surface and below ground.<sup>14,15</sup>

Brazil storages 70 billion tons of carbon. 13,15



### References

- 6. Amazon Cooperation Treaty Organization. (2021). La Cuenca Amazónica de cara al Océano Atlántico. http://otca.org/la-cuenca-amazonica-de-cara-al-oceano-atlantico/
- 7. Vergara, A., Arias, M., Gachet, B., Naranjo, L.G., Román, L., Surkin, J. and Tamayo, V. (2022). Living Amazon Report 2022. Quito: WWF. https://www.worldwildlife.org/publications/living-amazon-report-2022
- 8. Instituto Brasileiro de Geografia e Estatística. (2021). Bacias e Divisões Hidrográficas do Brasil. https://www.ibge.gov.br/geociencias/cartas-e-mapas/informacoes-ambientais/31653-bacias-e-divisoes-hidrograficas-do-brasil.html
- 9. Macedo, M. and L. Castello. (2015). State of the Amazon: Freshwater Connectivity and Ecosystem Health; edited by D. Oliveira, C. C. Maretti and S. Charity. Brasília, Brazil: WWF Living Amazon Initiative. 136pp. https://wwf.panda.org/es/7244050/State-of-the-Amazon-Freshwater-Connectivity-and-Ecosystem-Health
- 10. Correa Assmus, Gustavo and Silva Colmenares, Luis Miguel. (2012). Sustainable production of pirarucu, Revista Ciencia Animal: No. 5, Article 2.
- 11. UNEP. (2004) Barthem, R. B., Charvet-Almeida, P., Montag, L. F. A. and Lanna, A.E. Amazon Basin, GIWA Regional assessment 40b. University of Kalmar, Kalmar, Sweden. Amazon Waters Alliance. (2023) Madeira. https://aguasamazonicas.org/cuencas/cuencas-principales/madeira
- RAISC. (2020). Indigenous Territories. www.amazoniasocioambiental.org

  12. Carvalho Ribeiro, S. M., Jardim, H. L., Ruchkys de Azevedo, Ú., Coelho, V. B. N., Bachi, L. S., & Soares-Filho, B. S. (2020). Non-Timber Forest Products (NTFP) in the Brazilian Amazon and Cerrado biomes: Multi scale governance for Implementing enhanced socio-biodiversity chains. Sustentabilidade em Debate, 11(2), 43-63. https://doi.org/10.18472/SustDeb.v11n2.2020.28393
- 13. MapBiomas Amazon. (2022). MapBiomas Amazon Collection 4: Annual Dynamic of land cover and land use in the Legal Amazon (1985-2021). https://amazonia.mapbiomas.org/en/infographics/
- 14. Gatti et al. (2021). Amazonia as a carbon source linked to deforestation and climate change. Nature, 595(7867), 388-393. https://doi.org/10.1038/s41586-021-03629-6
- 15. Verweij, P.A. & Schouten, Marieke & Van Beukering, P.J.H. & Triana, Jorge & Leeuw, Kim & Hess, Sebastiaan. (2009). Keeping the Amazon forests standing: a matter of values <a href="https://www.researchgate.net/publication/43977210\_Keeping\_the\_Amazon\_forests\_standing\_a\_matter\_of\_values">https://www.researchgate.net/publication/43977210\_Keeping\_the\_Amazon\_forests\_standing\_a\_matter\_of\_values</a>



## Threats in the Amazon

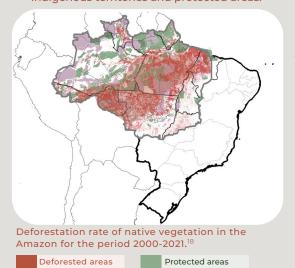


In 2022, were deforested

milĺion hectares of primary forest in the Brazilian Amazon<sup>16</sup>,

The "deforestation arc" is concentrated along the main road networks of the states of Acre, Amazonas, Pará and Rondônia.

Between 2020-2022, many areas experienced a combination of deforestation followed by anthropogenic fires (71% of all fires), affecting indigenous territories and protected areas.<sup>17</sup>

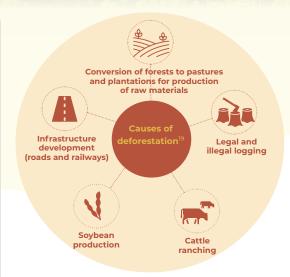


ndigenous Territories

**Poorly planned** infrastructure development threatens river connectivity, impacting ecosystem services and the life cycle

of aquatic species.26

The **use of mercury in mining** generates the poisoning of ecosystems and aquatic fauna. Through the trophic chain it is absorbed by humans, generating impacts on the nervous and cardiovascular systems.2



95% of deforestation in the

entire Amazon is produced within 5,5 km of a road<sup>20</sup>



legal oil blocks in the Brazilian Amazon<sup>21</sup>

Cattle ranching has been the main driver of deforestation since 1960, currently it is estimated that it is the cause of

80%

of deforestation in the Brazilian Amazon. 19,22



It is estimated that 30% of the gold produced in Brazil is of illegal origin<sup>23</sup>

The main centers of illegal mining are in 5 states: Amazonas, Pará, Mato Grosso, Rondônia and Roraima.23

Illegal gold mining affects forests and rivers, and in many cases overlaps with Protected Natural Areas and Indigenous Lands such as Kayapo, Menkragnoti, Yanomami and Mundurucu. 23,24,25



This activity directly causes forest deforestation, river contamination, and the development of other illegal activities such as land invasion and drug and human trafficking.25 

16. MAAP Project (2023). MAAP #187: Amazon Deforestation & Fire Hotspots 2022. https://www.maaproject.org/2023/amazon-deforestation-fire-2022/

17. MAAP Project. (2022). MAAP #168: Amazon Fire Season 2022. https://www.maaproject.org/2022/amazon-fires-2022/

**18.** RAISG. (2022). Deforestation map 2001-2020 in the Amazon. https://www.raisg.org/

19. Piotrowski, M. (2019). Nearing the Tipping Point: Drivers of Deforestation in the Amazon Region. Inter-American Dialogue. https://thedialogue.wpenginepowered.com/wp-content/up-loads/2019/05/Nearing-the-Tipping-Point-for-website.pdf

20. Barber, C. P., Cochrane, M. A., Souza, C. M., & Laurance, W. F. (2014). Roads, deforestation, and the mitigating effect of protected areas in the Amazon. Biological Conservation, 177, 203-209. https://doi.org/10.1016/j.biocon.2014.07.004

21. RAISG. (2020). Amazonia Under Pressure. www.amazoniasocioambiental.org

22. Pacheco et al. (2017). Beyond zero deforestation in the Brazilian Amazon: Progress and remaining challenges to sustainable cattle intensification. Center for International Forestry Research (CIFOR). https://doi.org/10.17528/cifor/006394

23. Heck, C., & Tranca, J. (Eds.). (2014). The reality of illegal mining in Amazonian countries: Bolivia, Brazil, Colombia, Ecuador, Peru, Venezuela. Sociedad Peruana de Derecho Ambiental. https://spda.org.pe/?wpfb\_dl=4576

24. InfoAmazonia (2023). Dredges: Gold spurs crime & corruption on Brazil-Colombia border, https://infoAmazonia.org/en/2023/08/03/dredges-gold-mining-spurs-crime-corruption-on-brazil-colom-

25. MAAP Project (2023), MAAP #197: Illegal gold mining across the Amazon, https://www.maaproject.org/2023/amazon-illegal-mining/

26. Caldas et al. (2023). Identifying the current and future status of freshwater connectivity corridors in the Amazon Basin. Conservation Science and Practice, 5(1). https://doi.org/10.1111/csp2.12853 27. Foundation for Conservation and Sustainable Development. (2022). Illegal mining and mercury in the Amazon: Brazil, Colombia and Peru. https://arcg.is/0v500v1

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