

Abstract (draft)  
摘要 (初稿)

# WORLD RIVER HAPPINESS REPORT

2021

世界河流幸福指数报告



中国水利水电科学研究院  
China Institute of Water Resources and Hydropower Research

# **WORLD RIVER HAPPINESS REPORT**

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## 前言

河流是地球的血脉，人类文明的摇篮，是流域区域发展的核心。

可持续发展之河，就是能够实现人类与河流生态系统健康、平等地融合发展的河流，是造福人民的幸福河。幸福河，既力求维护河湖自身健康，又追求更好造福流域人民，具体体现为以下几方面的要求：维护河湖健康是幸福河的前提基础，提供更多优质生态产品是幸福河湖的重要功能，支撑经济社会可持续发展是幸福河的本质要求，人水和谐是幸福河的综合表征，能否让流域人民具有安全感、获得感与满意度是幸福河的衡量标尺。基于此，中国水利水电科学研究院提出了“幸福河”的概念：**幸福河是指能够维持河流自身健康，支撑流域和区域经济社会可持续发展，体现人水和谐，让流域内人民具有高度安全感、获得感与满意度的河流。幸福河就是永宁水安澜、优质水资源、宜居水环境、健康水生态、先进水文化相统一的河湖，是安澜之河、富民之河、宜居之河、生态之河、文化之河的集合与统称。**

世界河流幸福指数测算在全球范围属首次，是一项探索性工作，加之课题组理论经验水平及基础数据等因素的局限，本报告不当之处在所难免，恳请读者批评指正，以不断改进完善。期待通过共同努力，推动世界河流朝着幸福河流的目标迈进。

## Introduction

Rivers are the bloodline of the earth, the cradle of human civilization, and the nexus of regional development in the river basins.

A river of sustainable development is one that enables the healthy, equitable, and integrated development of mankind and the river ecosystem. It is a river of happiness benefiting the people. A river of happiness hence shall not only maintain a healthy ecosystem for itself, but also serves to advance the well being of the people along its blue and green. Specifically, a river of happiness can have the following criteria: the prerequisite is its health; a core function is to provide more quality ecosystem products; an comprehensive manifestation is the harmony between man and water; and the fundamental gauge is whether it helps fulfill a sense of security, a sense of gain, and a sense of satisfaction for the people of the river.

Based on such understanding, China Institute of Water Resources and Hydropower Research (IWHR) conceptualize a "River of Happiness" as such: a River of Happiness is a river that maintains its own health, supports the sustainable socio-economic development of the basin and the region, allows harmony between man and water, and fulfills a high sense of security, gain and satisfaction to the people in the watershed. A River of Happiness maintains safety of its waters, provides high quality water resources, supports a livable water environment, sustains a healthy aquatic ecosystem, and nurtures vibrant water culture. A River of Happiness is hence characterized by five dimensions: safety, prosperity, livability, health, and culture.

It is the first time globally to index the happiness of the world's rivers, hence an exploratory endeavour. The readers may find this report wanting in certain aspects, brought by the limitations in theory and experiences, and the insufficiency of basic data. Therefore, the report team wishes for our readers' understanding and advice so that we can improve. We look forward to joining hands with you to promote the world's rivers toward becoming Rivers of Happiness.

## 河流幸福指数及其评价标准

河流幸福指数（River Happiness Index, RHI）是根据幸福河内涵，从水安全、水资源、水环境、水生态、水文化 5 个维度进行评价，形成水安澜保障度、水资源支撑度、水环境宜居度、水生态健康度和水文化繁荣度 5 个一级指标和 18 个二级指标及相应的三级指标（表 1）。

表 1 河流幸福指数指标体系

一级指标	二级指标	三级指标
水安澜保障度	1、洪涝灾害人员死亡率	
	2、洪涝灾害经济影响率	
	3、洪涝灾害防御适应能力	
水资源支撑度	4、人均水资源占有量	
	5、用水保障率	实际灌溉面积比例
	6、水资源支撑高质量发展能力	水资源开发利用率
		单位水资源国内生产总值
	7、居民生活幸福指数	人均国内生产总值
		GINI 系数
		平均预期寿命
水环境宜居度	8、河流优良水质比例	
	9、安全饮用水源的人口比例	
	10、城市污水处理率	
	11、滨水指数	
	12、生态水文过程变异指数	
水生态健康度	13、河流纵向连通性指数	
	14、鱼类濒危指数	
	15、输沙模数	
	16、历史水文化保护传承指数	
水文化繁荣度 PWC (Prosperity of Water Culture)	17、现代水文化创造创新指数	
	18、公众水治理认知参与度	

## River Happiness Index (RHI) and its evaluation criteria

Evaluated through the five dimensions of a River of Happiness: safety, resources, environment, ecosystem, and culture, the River Happiness Index (RHI) sets up five primary indicators that comprises of Security of Flood Control, Reliability of Water Resources, Livability of Water Environment, Health of Aquatic Ecosystem, and Prosperity of Water Culture. There are 18 secondary indicators and certain tertiary indicators under the five primary indicators (Table 1).

Table 1 River Happiness Indexation

Primary indicators	Secondary indicators	Tertiary indicators
SFC (Security of Flood Control)	1.FMR (Flood-Induced Mortality Rate)	
	2. EIR (Economic Impact Rate)	
	3. PAC (Flood Disaster Prevention and Adaptation Capacity)	
WRR (Water Resources Reliability)	4. AWP (Available Water Volume Per Capita)	
	5. WSR (Water Supply Reliability)	RIA (Rate of Actual Irrigated Areas)
	6. CSD (Capacity for Supporting High-Quality Development)	WUR (Water Resources Utilization Rate)
		GOW (GDP Output Per Cubic Meter of Water Use)
	7. LSI (Life Satisfaction Index)	GDC (GDP Per Capita)
		GINI (Gini Coefficient)
		ALE (Average Life Expectancy)
LWE (Livability of Water Environment)	8. PGW (Proportion of Bodies of Water with Good Ambient Water Quality)	
	9. SWR (Safely Managed Drinking Water Services Rate)	
	10. WTR (Urban Wastewater Treatment Rate)	
	11. WFI (Waterfront Index)	
	12. VIH (Variation Index of Eco-Hydrological Process)	
HAE (Health of Aquatic Ecosystem)	13. LCI (River Longitudinal Connectivity Index)	
	14. FEI (Fish Endangered Index)	
	15. STM (Sediment Transport Modulus)	
PWC (Prosperity of Water Culture)	16. CPI (Water Culture Protection and Inheritance Index)	
	17. MCI (Modern Water Culture Creation and Innovation Index)	
	18. PAG (Public Awareness and Involvement in Water Governance)	

河流幸福指数计算公式如下所示：

$$RHI = \sum_{i=1}^5 F_i w_i^f$$

$$F_i = \sum_{j=1}^4 S_{i,j} w_{i,j}^s$$

$$S_{i,j} = \sum_{k=1}^K T_{i,j,k} w_{i,j,k}^t$$

式中：RHI- 河流幸福指数； $F_i$ - 第  $i$  个一级指标得分， $i$  是一级指标下标，从 1 到 5，分别表示水安澜保障度、水资源支撑度、水环境宜居度、水生态健康度、水文化繁荣度； $w_i^f$ - 第  $i$  个一级指标权重； $S_{i,j}$ - 第  $i$  个一级指标中第  $j$  个二级指标得分， $j$  是二级指标下标，从 1 到 4； $w_s^{ij}$ - 第  $i$  个一级指标中第  $j$  个二级指标权重； $T_{i,j,k}$ - 第  $i$  个一级指标中第  $j$  个二级指标的第  $k$  个三级指标得分， $k$  是三级指标下标，从 1 到  $K$ ； $w_t^{i,j,k}$ - 第  $i$  个一级指标中第  $j$  个二级指标的第  $k$  个三级指标权重。

河流幸福指数评价实行百分制。河流幸福指数 RHI 得分达到 85 分以上，即为“幸福河”（表 2），各级评价指标达到 85 分以上，即达到良好等级（表 3）。

表 2 河流幸福指数分级标准表

RHI	等级		
$RHI \geq 95$	很幸福		
$95 > RHI \geq 85$	幸福		
$85 > RHI \geq 60$	一般	$85 > RHI \geq 80$	一般偏上
		$80 > RHI \geq 70$	一般
		$70 > RHI \geq 60$	一般偏下
$RHI < 60$	不幸福		

表 3 河流幸福指数指标分级标准表

指标赋值 $V^*$	等级		
$V \geq 95$	优秀		
$95 > V \geq 85$	良好		
$85 > V \geq 60$	中等	$85 > V \geq 80$	中等偏上
		$80 > V \geq 70$	中等
		$70 > V \geq 60$	中等偏下
$V < 60$	差	$70 > V \geq 60$	较差
		$V < 30$	很差

\*  $V$  表示  $F_i$ ,  $S_{i,j}$  或  $T_{i,j,k}$

The formulae for calculating the River Happiness Index are shown as:

$$RHI = \sum_{i=1}^5 F_i w_i^f$$

$$F_i = \sum_{j=1}^4 S_{i,j} w_{i,j}^s$$

$$S_{i,j} = \sum_{k=1}^K T_{i,j,k} w_{i,j,k}^t$$

Where: RHI - River Happiness Index;  $F_i$  - the score of the  $i$ th primary indicator, where  $i$  is the subscript of the primary indicator with an assigned value from 1 to 5 that corresponds to SFC, RWR, LWE, HAE, and PWC, respectively;  $w_i^f$  - the weight of the  $i$ th primary indicator;  $S_{i,j}$  - the score of the  $j$ th secondary indicator under the  $i$ th primary indicator, where  $j$  is the subscript of the secondary indicator with an assigned value from 1 to 4;  $w_s^{ij}$  - the weight of the  $j$ th secondary indicator under the  $i$ th primary indicator;  $T_{i,j,k}$  - the score of the  $k$ th tertiary indicator under the  $j$ th secondary indicator under the  $i$ th primary indicator, where  $k$  is the subscript of the tertiary indicator with an assigned value from 1 to  $K$ ;  $w_t^{i,j,k}$  - the weight of the  $k$ th tertiary indicator under the  $j$ th secondary indicator under the  $i$ th primary indicator.

The River Happiness Index evaluation is based on a 100-point scoring system. A river is determined as a River of Happiness when its RHI scores 85 points or more (Table 2). All the indicators are graded (Table 3) according to which, the indicator reaches “good” when it scores 85 points or more.

Table 2 Grading of the River Happiness Index

RHI	Grade		
$RHI \geq 95$	very happy		
$95 > RHI \geq 85$	happy		
$85 > RHI \geq 60$	medium	$85 > RHI \geq 80$	medium high
		$80 > RHI \geq 70$	medium
		$70 > RHI \geq 60$	medium low
$RHI < 60$	unhappy		

Table 3 Grading of the indicators under the River Happiness Index

Indicator scoring $V^*$	Grade		
$V \geq 95$	excellent		
$95 > V \geq 85$	good		
$85 > V \geq 60$ medium		$85 > V \geq 80$	medium high
		$80 > V \geq 70$	medium
		$70 > V \geq 60$	medium low
$V < 60$ poor		$70 > V \geq 60$	quite poor
		$V < 30$	extremely poor

\*  $V$  indicates  $F_i$ ,  $S_{i,j}$ , or  $T_{i,j,k}$ .

## 世界河流评价范围

根据河流悠久的历史 and 区位优势重要性，在兼顾各大洲和数据可获取的条件下，本次评价在世界范围内选择了 15 条具有重要代表性的河流（图 1），包括亚洲 4 条、欧洲 4 条、北美洲 3 条、南美洲 1 条、非洲 2 条、大洋洲 1 条（表 4）。

图 1 世界河流幸福指数评价河流分布图

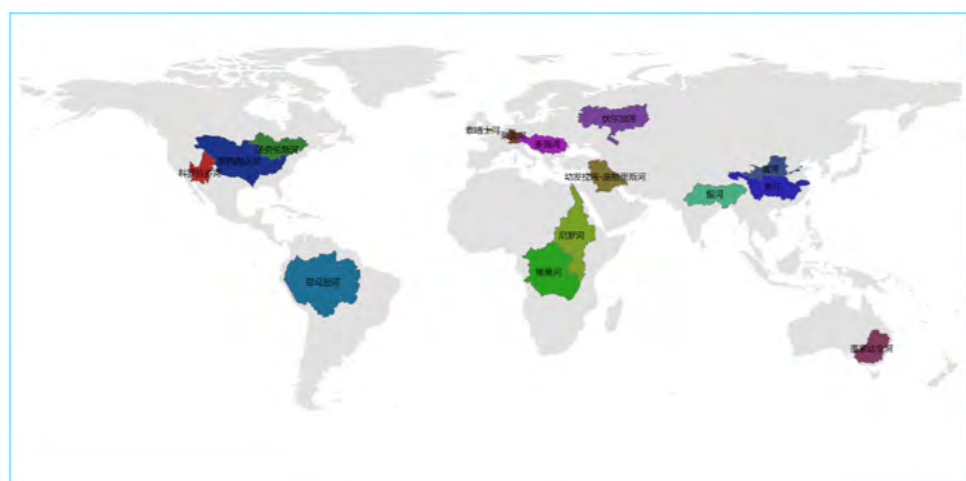


表 4 世界河流幸福指数评价范围表

河流名称	所在区域	流经国家	河流长度, km	面积, 万 km <sup>2</sup>
亚马逊河	南美洲	7	6448	596.8
科罗拉多河	北美洲	2	2330	65.3
刚果河	非洲	10	4700	368.9
多瑙河	欧洲	10	2857	78.6
幼发拉底河	亚洲 - 欧洲	6	2800/1950	106.6
恒河	亚洲	2	2525	180.8
密西西比河	北美洲	2	6051	320.4
墨累达令河	大洋洲	1	3672	155.7
尼罗河	非洲	10	6650	309.3
莱茵河	欧洲	9	1320	16.1
圣劳伦斯河	北美洲	2	3058	105.4
泰晤士河	欧洲	1	346	1.3
伏尔加河	欧洲	1	3645	127.0
长江	亚洲	1	6300	178.4
黄河	亚洲	1	5464	79.5

## Evaluation Scope of the World's Rivers

This report evaluates 15 representative rivers worldwide, including four in Asia, four in Europe, three in North America, one in South America, two in Africa, and one in Oceania (Figure 1). These rivers are selected in consideration of continental representation, data availability, and the history and the location significance of the rivers (Table 4).

Figure 1 The Distribution of evaluated rivers in this report

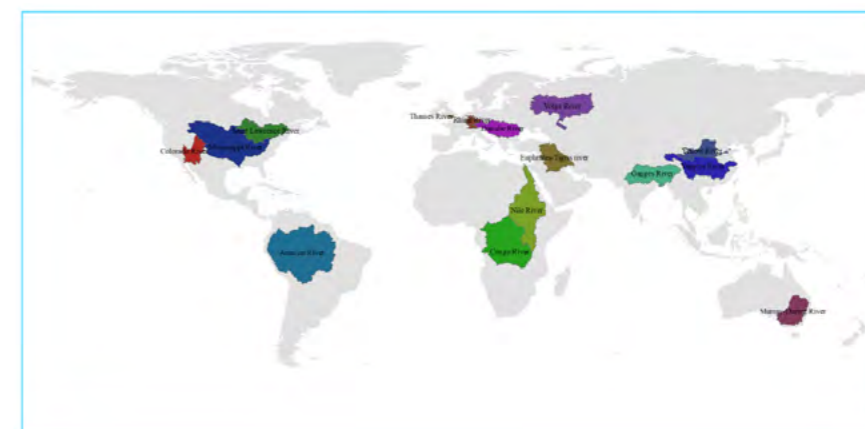


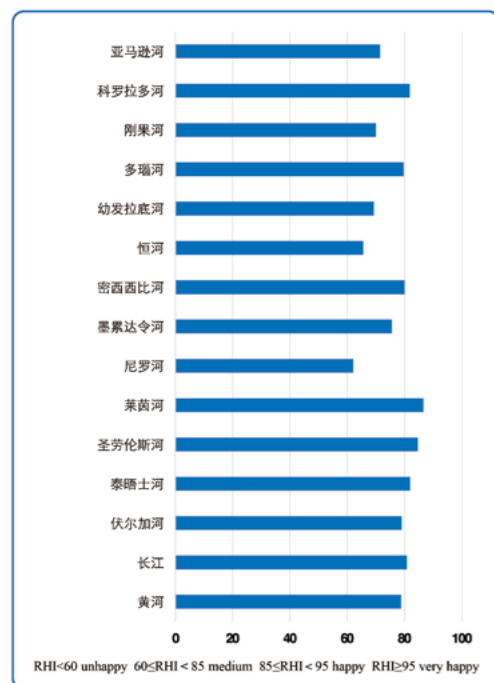
Table 4 Basic information of the the 15 rivers selected for RHI evaluation

River	Continent	Riverine countries	Length (km)	Area (10,000 km <sup>2</sup> )
Amazon	South America	7	6,448	596.8
Colorado	North America	2	2,330	65.3
Congo	Africa	10	4,700	368.9
Danube	Europe	10	2,857	78.6
Euphrates-Tigris	Eurasia	6	2,800/1,950	106.6
Ganges	Asia	2	2,525	180.8
Mississippi	North America	2	6,051	320.4
Murray-Darling	Oceania	1	3,672	155.7
Nile	Africa	10	6,650	309.3
Rhine	Europe	9	1,320	16.1
Saint Lawrence	North America	2	3,058	105.4
Thames	Europe	1	346	1.3
Volga	Europe	1	3,645	127.0
Yangtze	Asia	1	6,300	178.4
Yellow River	Asia	1	5,464	79.5

## 总结

世界河流的幸福指数得分总体上处于一般幸福等级，其中莱茵河幸福指数得分最高 86.6 分，达到幸福等级，其他 14 条河流均处于一般幸福等级。圣劳伦斯河、泰晤士河、科罗拉多河、长江和密西西比河的幸福指数得分稍高，处于一般偏上等级；多瑙河、伏尔加河、黄河、墨累达令河、亚马逊河和刚果河幸福指数得分处于一般等级；幼发拉底 - 底格里斯河、恒河、尼罗河幸福指数得分处于一般偏下等级（图 2）。

图 2 世界河流幸福指数条形图



### 通过比较 5 个准则层的结果表明：

15 条河流中，多数河流的水安澜保障度指标得分达到中等及以上水平，沿河人民群众的安全感有了较好保障，亚马逊河、恒河和尼罗河还需要进一步加强对洪涝灾害的防控；

水资源开发强度高是多数河流面临的问题，河流的水资源支撑度总体处于中等水平，用水保障率较低，水资源支撑社会经济高质量发展的能力还有待加强；

世界河流水环境宜居度总体处于中等偏上水平，河流所处国家的发达水平与河流治理能力，对环境宜居度的各项指标具有显著的影响，应继续提高城市污水处理率和安全饮用水源的人口比例；

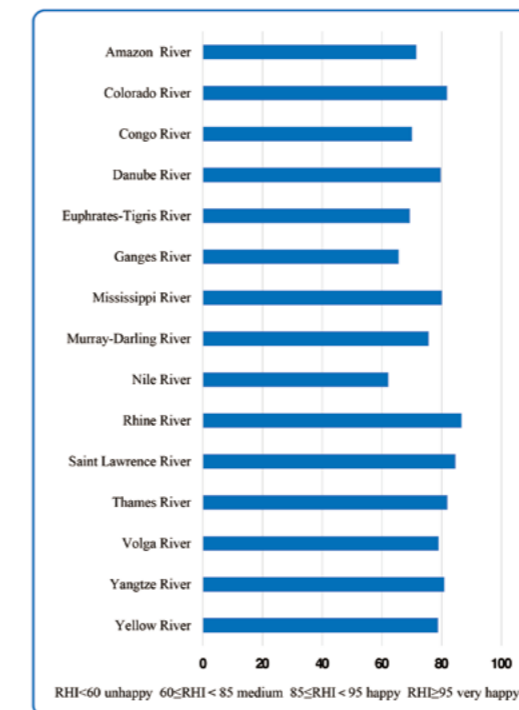
世界河流水生态健康度处于中等水平，除刚果河和亚马逊河外，其他流域的开发强度普遍偏高，河流连通度降低，河流生态水文过程变异指数得分多数处于较差、很差水平；

世界河流的水文化繁荣度指标得分整体达到中等及以上水平，水文化历史底蕴较为丰厚，但现代水文化创造创新和公众水治理认知参与度还有待进一步提高。

## Findings

Our evaluation of the world rivers using the River Happiness Index vastly yields "medium" of happiness. Only the Rhine is graded as "happy" with the highest score of 86.6, while the other 14 rivers are all graded as "medium". Specifically, the happiness of the St. Lawrence, Thames, Colorado, Yangtze and Mississippi are graded as "medium high"; the happiness of the Danube, Volga, Yellow, Murray-Darling, Amazon and Congo are graded as "medium"; and the happiness of the Euphrates-Tigris, Ganges and Nile are graded as "medium low" (Figure 2).

Figure 2 A bar diagram of the RHI of evaluated rivers



### Referring to the five fundamental dimensions (primary indicators), it can be noted as follows:

Most of the 15 rivers score "medium" or above in indicators under Security of Flood Control (SFC), meaning the people living along the rivers feel generally secure. However, the Amazon, the Ganges, and the Nile need to step up flood prevention and control.

The high development intensity is a pervasive issue for most rivers. They score "medium", in general, on Water Resources Reliability (WRR). In particular, the Water Supply Reliability (WSR) scores poorly, while the Capacity for Supporting High-Quality Development (CSD) needs to be improved.

The rivers score "medium high", in general, on Livability of Water Environment (LWE). It can be noted that how well the riverine countries develop and govern the rivers significantly sway the scores under LWE. More need to be done to increase the population coverage of urban wastewater treatment (WTR) and safely managed drinking water services (SWR).

The rivers score "medium" on Health of Aquatic Ecosystem (HAE) in general. With the exception of the Congo and the Amazon, other rivers are subject to intensive development in their basins, resulting in reduced river connectivity (LCI), and "quite poor" or "extremely poor" Variation of Eco-Hydrological Process (VIH).

The rivers score "medium" or above on Prosperity of Water Culture (PWC) in general, exhibiting rich water cultural legacies. However, there is room for improvement in Modern Water Culture Creation and Innovation (MCI), and Public Awareness and Involvement in Water Governance (PAG).



## 附件：15 条河流基本信息

### 1. 亚马逊河

亚马逊河为世界第二长河，是世界上流量最大、流域面积最广、支流最多的河流。亚马逊河流域生物资源极为丰富，被誉为“地球之肺”，流域中有鱼近 3000 多种，鸟 1600 多种。

### 2. 科罗拉多河

科罗拉多河是北美洲西南部最大的河流，对美国西南部和墨西哥西北部干旱地区经济发展具有重要意义，素有“美洲尼罗河”之称。

### 3. 刚果河

刚果河发源于非洲刚果盆地，是流域面积世界第二大河，是世界上深度最深的河。刚果河水能资源丰富，拥有世界第二大热带雨林，占全世界热带雨林总面积的 25%。

### 4. 多瑙河

多瑙河是欧洲第二长河，是世界上干流流经国家最多的河流。多瑙河水力资源蕴藏丰富，航运价值大，多瑙河也是著名的文化之河，《蓝色多瑙河》交响乐享誉世界。

### 5. 幼发拉底河 - 底格里斯河

幼发拉底 - 底格里斯河，是西亚最大的河流，幼发拉底 - 底格里斯河所滋润的美索不达米亚平原，曾是古巴比伦的所在地，孕育了灿烂的美索不达米亚文明。

### 6. 恒河

恒河是亚洲南部最大的河流，是印度的第一大河、印度人民心中的“圣河”和“印度的母亲”。恒河平原平坦广阔，水网稠密，土壤肥沃，是世界上人口居住最多的河流流域之一。本次恒河的评价范围只限于恒河印度境内的流域。

### 7. 密西西比河

密西西比河发源于美国明尼苏达州西北部海拔 446 米的艾塔斯卡湖，流经北美洲中央大平原，向南注入墨西哥湾。密西西比河是美国最大的河流，同时也是北美洲最长的河流，是世界第四长河，所在流域属世界三大黑土区之一，美国一半的谷物和大豆都经由密西西比河上游运出。

### 8. 墨累达令河

墨累达令河水系是澳大利亚最大的水系，位于澳大利亚东南部，包括 20 多条主要河流及支流。是澳大利亚的“母亲河”，是澳大利亚农业的心脏地带和粮仓，在澳大利亚经济社会发展中有着举足轻重的作用。

## Annex: Profiles of the 15 evaluated world rivers

### 1. Amazon

The Amazon is the world's second longest river, the largest river by volume and by drainage area, and also the river that has the most tributaries. Being crowned as “the lungs of the earth”, it boasts vastly rich ecological resources in its watershed. For example, it is home to nearly 3,000 fish species and over 1,600 bird species.

### 2. Colorado

The Colorado is the largest river in the southwestern North America. It is critically important to the dry areas in Southwest United States and northwestern Mexico. The Colorado is also called “the Nile of Americas”.

### 3. Congo

Running off from the Congo basin in Africa, the Congo is second largest river by drainage area and the deepest river in the world. It has rich water resources and contributes 25% of global tropical forests, being home to the second largest tropical rainforest in the world.

### 4. Danube

The Danube is the second longest river in Europe. It is the river whose mainstream runs through the most countries in the world. It is river of culture, the source of inspiration to the famous waltz the Blue Danube.

### 5. Euphrates-Tigris

The Euphrates-Tigris is the largest river in West Asia. The Mesopotamia it gives birth to once witnessed the glory of the Babylon.

### 6. Ganges

The Ganges is the largest river in south Asia. It is the largest river in India, being affectionately called “the Sacred river” and “Mother Ganges”. It fans out in flat vast plains, develops dense water networks, and deposits rich soils. It is home to the densest human settlement. Only the reaches in India is assessed in this report.

### 7. Mississippi

Located in central and southern North America, the Mississippi River is the fourth longest river in the world. It flows from its source at Lake Itasca in northwestern Minnesota, U.S., through the Great Plains to the Gulf of Mexico in the south. The watershed is one of the three black soil zones, where half of the US produce of grains and soybeans are shipped from the upstream of the Mississippi.

### 8. Murray-Darling

The Murray-Darling Basin covers around one-seventh of Australia's land mass. It originates in southeastern Australia and flows into the Encounter Bay of the Indian Ocean. It supports the most important agricultural area in Australia.

### 9. 尼罗河

尼罗河位于非洲的东北部，是世界第一长的河流，也是世界四大文明发源地之一。尼罗河有两条源头，分别为白尼罗河和青尼罗河，在苏丹首都喀土穆汇合形成尼罗河，过开罗后形成了巨大的尼罗河三角洲，流入地中海。

### 10. 莱茵河

莱茵河发源于瑞士的阿尔卑斯山区，流经列支敦士登、奥地利、德国和法国，最终于荷兰流入北海。莱茵河位于欧洲西部，是欧洲重要的国际河流，也是西欧第一大河流。因自然条件优越，在欧洲经济社会发展中占有极其重要的地位。

### 11. 圣劳伦斯河

圣劳伦斯河位于北美洲中东部，是美国与加拿大重要的界河，是五大湖区的入海水道。圣劳伦斯河上游为五大湖区，流域内平原肥沃广大，是北美地区最早发展也是最重要的工业区，在美国和加拿大两国占有重要的地位。

### 12. 泰晤士河

泰晤士河是位于南英格兰的一条河流，为英格兰最长的河流，英国第二长的河流，为英国著名的“母亲”河。

### 13. 伏尔加河

伏尔加河位于俄罗斯西南部，是欧洲最长的河流，也是世界最长的内流河。伏尔加河发源于莫斯科西北的东欧平原，主要靠雪水和地下水作为水源，是欧洲流域最广以及流量最大的河流，在俄罗斯文化中还有特别的意义，被称为是“俄罗斯的母亲河”。

### 14. 长江

长江地处亚洲东部，是亚洲最大的河流，也是全球水生生物多样性高热点河流。长江流域自然条件优越，在中国经济社会发展中占有极其重要的战略地位，是中国经济发展水平较高的地区之一。流域气候温和、雨量充沛、土地肥沃、光热资源充足，历来是中国重要的农业区和产粮区。

### 15. 黄河

黄河地处亚洲东部，是中国的第二大河，也是全球四大文明发源地之一。黄河哺育着中华民族，孕育了中华文明。黄河流域是中国重要经济地带，黄淮海平原、汾渭平原、河套灌区是农产品主产区，是中国重要的能源、化工、原材料和基础工业基地。

### 9. Nile

The Nile flows through eastern and northern Africa, and is the longest river in the world. Its two main tributaries are the White Nile and the Blue Nile, both of which are on the west flanks of the East African Rift Valley. It develops a huge delta beyond Cairo before draining to the Mediterranean.

### 10. Rhine

The Rhine River is an international European river that originates in the Alps of Canton of Graubünden, Switzerland and flows through Liechtenstein, Austria, Germany and France before finally flowing into the North Sea in the Netherlands. The Rhine is one of the longest rivers in Europe and one of the busiest basins in the world.

### 11. St. Lawrence

The Five Great Lakes of North America in order of size are Lake Superior, Lake Huron, Lake Michigan, Lake Erie and Lake Ontario. Located in Canada and the United States, the St. Lawrence River, replenished by rain and snow, is a large hydrographic system of east-central North America. It issues from Lake Ontario, flows through Montreal and Quebec city, and empties into the Gulf of St. Lawrence in the Atlantic Ocean at Gaspe.

### 12. Thames

The Thames is in the southwest of England and flows through three counties in England. It is the second longest river in England and one of the

world's most heavily transported urban rivers and London landmarks.

### 13. Volga

Located in southwestern Russia, the Volga is the longest river in Europe and the longest inland river in the world. Eleven of the top 20 most populous cities in Russia are in the Volga River Basin, including Moscow, the capital of Russia. It is the mother river of Russia.

### 14. Yangtze

The Yangtze mainstream flows through a total of 11 provincial-level administrative regions including Qinghai province, Tibet Autonomous Region, Sichuan province, Yunnan province, Chongqing city, Hubei province, Hunan province, Jiangxi province, Anhui province, Jiangsu province and Shanghai city, and pours into the East China Sea at the east of Chongming Island. It is the third longest river in the world.

### 15. Yellow River

The Yellow River, a great river in the northern region of China, is one of the longest rivers in the world and the second longest river in China (also known as the second largest river). It is the cradle of ancient Chinese civilization. Its flat plains not only produce agricultural products but also support key energy, chemicals, raw materials, and basic industries development.



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