### Rivers and lakes in Austria

# The importance of rivers and streams

- -) <u>Economy</u>: along rivers people settled down and lived and worked there.

  The rivers are important for the economy: transport, production, trade.

  Agriculture: irrigation fields, for the ground water,
- -) Transportation: for the mobility of people, transportation of goods,
- -) Energy Supply: hydropower electricity, an important renewable energy,
- -) Source for Life: supply of drink water, habitat for plants and animals,
- -) <u>Historical meaning</u>: cultural hotspots and Birth of Religion, spiritual significance.
- -) <u>Tourism and sport</u>: used for tourism, canoeing, swimming, fishing.
- -) Formation of Landscapes: valleys, canyon.

Additional resources: https://impoff.com/importance-of-rivers/

Rivers are therefore vitally important for the population to be able to eat and drink and to support the economy through the export of these goods. Rivers are waterways to transport goods. Rivers are important areas for biodiversity. Rivers gave us the ability to grow as a civilization.

Even today, it is surprising just how much we still rely on rivers to support our livelihoods and economies.

Fresh, clean water is essential for humans and nature to survive. Rivers are precious sources of fresh drinking water for people across the world.

When rivers are so badly polluted by industry or unevenly distributed by poor water management practices, it can be a case of life-or-death. This unfortunately happens across the world. People depend on rivers for their way of life and their livelihoods. From fishing to agriculture, the way we manage our waterways has a direct impact on people's lives. We are now restoring natural river flows (renaturation) and cleaning up polluted water for people and nature. Although hydropower can play an important role in a low-carbon energy future, a doubling of hydropower capacity risks many other values that rivers provide, including fisheries and flood-recession agriculture that feed hundreds of millions of people. "The Power of Rivers" explores the potential for achieving more balanced outcomes from hydropower development.

The value of free-flowing rivers Free-flowing rivers are a fundamental resource for the world. Rivers represent less than 1 percent of the Earth's surface but are among the most productive and diverse ecosystems on the planet. Nearly half of all fish species on Earth can be found in rivers and hundreds of millions of people depend on food produced from rivers that are free flowing. Rivers carry water and nutrients to areas all around the earth. They play a very important part in the water cycle, acting as drainage channels for surface water. Rivers drain nearly 75% of the earth's land surface. Rivers provide excellent habitat and food for many of the earth's organisms. Rivers provide

excellent habitat and food for many of the earth's organisms. Rivers provide travel routes for exploration, commerce and recreation. Most settlements were built along major rivers. Rivers provide us with food, energy, recreation, transportation routes, and of course water for irrigation and for drinking.

Many rare plants and trees grow by rivers. During the early industrial era, mills, shops, and factories were built near fast-flowing rivers where water could be used to power machines. Today steep rivers are still used to power hydroelectric plants and their water turbines.

Rivers begin at their source in higher ground such as mountains or hills, where rainwater or melting snow collects and forms tiny streams. Rivers flow in channels. The bottom of the channel is called the bed and the sides of the channel are called the banks. Nearly all rivers have an upper, middle, and lower course.

#### Some special terms:

**Erosion:** as a river flows, the force of its moving water washes away loose soil and pieces of rock. In this way the river cuts its own channel in the ground. The process of wearing away rocks is called erosion.

**Gorge:** a gorge is a steep-sided river valley which is very narrow and deep.

**Meander:** a meander is a bend in a river. Meander has many curves, and these are formed where rivers are flowing slowly. Meanders normally occur in the middle and lower courses where the water is moving more slowly. The river carves out S-shaped bends.

**Mouth:** at its mouth, the river flows into another body of water. The mouth may be where the river meets the sea, a lake or a larger waterway. Most rivers flow out into the sea, and this is where they end their journey.

**Estuary:** if a river has a wide mouth, this is called an estuary. An estuary has a mixture of salty and fresh water. The fresh water from the river extends out into the sea. Some of the salty water from the sea travels up the river mouth. This mixture of salt and fresh water is called brackish water.

**Dams:** a dam is a barrier (wall) of earth, concrete or rock built across a river to restrict the flow of water.

Weirs: a weir is an artificial wall built across a river in order to make the river deeper.

-----

The **River Nile is the longest river** in the world. It measures 6,695 kilometres from its source in Burundi, along the White Nile, to its delta on the Mediterranean Sea.

The **biggest river in the world**, measured by the amount of water that flows down it, is the **Amazon**. On average 120,000 cubic metres (about 20 swimming pools' worth) of water flows out of its mouth every second.

The **longest river of Europe is the River Volga**. It flows primarily in a southerly direction through Russia into the Caspian Sea. The second longest is the Danube, flows west to east before entering the Black Sea.

### The longest Rivers of the World

River Name	Location	Length (miles approx)	Length (km approx)	Drainage Area (sq miles)	Flow at mouth (cubic m per second)
Nile	Africa	4,160	6,695	1,170,000	1,584
Amazon	South America	4,000	6,400	2,270,000	180,000
<u>Yangtze</u>	Asia (China)	3,900	6,240	698,000	35,000
Mississippi	USA	3,870	6,192	1,247,000	17,545
Ob	Asia (Russia)	3,459	5,534	1,154,000	12,600
Yenisei/ Angara	Asia (Russia)	3,440	5,504	996,000	19,600
Yellow River	Asia (China)	3,440	5,504	290,000	1,365
Congo	Africa (Zaire)	2,900	4,640	1,440,000	42,000
Amur	Asia	2,800	4,480	730,000	12,500
Parana	Uruguay	2,795	4,472	1,197,000	19,500
Lena	Asia (Russia)	2,700	4,320	961,000	16,400
Mackenzie	North America	2,640	4,224	697,000	7,500
Niger	Africa	2,600	4,160	850,000	5,700
Mekong	Asia	2,500	4,000	750,000	15,900
Volga	Europe	2,300	3,680	533,000	8,000

# The Rivers in Austria:



- 1. Rhein
- 2. Inn
- 3. Salzach
- 4. Drau
- 5. Mur

- 6. Raab
- 7. Enns
- 8. Donau
- 9. Traun
- 10. Thaya

## The 10 longest rivers in Austria:

- 1. Danube / Donau 2 857 km (davon 350 km in Österreich)
- 2. Drau 749 km (davon 268 km in Österreich)
- 3. Inn 517 km (davon 280 km in Österreich)
- 4. Mur 453 km (davon 343 km in Österreich)
- 5. Enns 254 km (davon 254 km in Österreich)
- 6. Salzach 225 km (davon 225 km in Österreich)
- 7. Leitha 180 km (davon 167 km in Österreich)
- 8. Gurk 158 km (davon 158 km in Österreich)
- 9. Traun 153 km (davon 153 km in Österreich)
- 10. Kamp 153 km (davon 153 km in Österreich)

Nearly all of Austria is drained by the Danube into the Black Sea; the rest flow into the North Sea.

The rivers Danube, Salzach and Inn was used for the trade. The river Salzach was used in earlier times to transport Salt.



The beautiful country of Austria is held with such high regard due to a wide range of factors. Its culture is vibrant and creative, while its food and drink is hearty and rich. Perhaps the most enchanting feature of Austria, however, is the tranquil rivers that drift elegantly throughout the cities and countryside. These rivers have been used to navigate the country for centuries and are still essential for transportation as well as being fantastic to look at.

Travelling on Austria's rivers can be a dream, allowing you to see the many hidden charms of the Central European country from the water. Float through the lush-green hills and valleys or witness the enigmatic city of Vienna — these rivers couldn't offer a better snapshot of Austria's many wonders.

The Danube (in German "Donau") is the biggest river of Austria and runs across the country from West to East. It is the only major river in Europe that follows this direction. The Alps act as a watershed and all major rivers North of the central mountains contribute to the Danube. This includes the Tyrolian Inn, the Salzach in Salzburg, and the Enns in Upper Austria.

Rivers south of the central mountain range contribute to the River Drau, which flows independently to Serbia, where it finally empties into the Danube. The economic role of the Danube as a waterway has increased in recent years mostly through the opening of Eastern Europe after the end of communism, partly due to the Rhine-Main-Danube Canal in Bavaria, which allows direct traffic anywhere between the North Sea and the Black Sea.

# River Rhine

The Rhine is one of the longest and most important rivers in Europe. It runs for over 1,232 km (766 mi) from its **source in the in the Swiss Alps** (in Switzerland), issuing from the Rheinwaldhorn Glacier 3,353m above sea level.

**The Rhine flows through six countries** -Switzerland, Principality of Liechtenstein, Austria, Germany, France and the Netherlands before flowing into the North Sea at Rotterdam.



Continent	Europe
Countries it flows through or borders	Switzerland, Principality of Liechtenstein, Austria, Germany, France and the Netherlands
Length	1,232 km (766 mi)

Number of tributaries	2
Source	Swiss Alps
Mouth	Rotterdam into the North Sea

The Rhine begins as a small stream in the Swiss Alps but soon gathers speed and volume on its way to **Lake Constance**, a source of drinking water for large parts of southern Germany. As it continues on its way to the North sea, the Rhine flows over the famous **Rhine Falls** at Schaffhausen and through the industrial town of Basel. There it becomes is a major transport route through Europe; transporting goods and raw materials by ship. It is now a wide river.

As the Rhine enters Germany it becomes the border between Germany and France. Through the **Rhine Gourge** the landscape changes again as the river narrows to form a steep sided-valley filled with vineyards and castles overlooking the river. Finally the Rhine reaches the Netherlands, a completely flat country, where it joins several other rivers on its final journey to Rotterdam and the sea.

# Did you know?

The River Rhine is called different names depending on the country it flows through. It is called **Rhein** in Germany; **Rhine** in France and **Rijn** in Netherlands.

## **Pollution**

Many years ago, the Rhine was considered as one of the most polluted rivers in Europe. In 1986 the river was severely polluted by a chemical factory fire (<u>Chemical spill turns Rhine Red - BBC News 1986</u>). Within 10 days the pollution had travelled the length of the Rhine and into the North Sea.

After the Chemical spill in 1986 the <u>Rhine Action Programme</u> -RAP was developed, and adopted by all the countries bordering the Rhine. By the year 2000, the programme aims to achieve a return to the river species such as the salmon which once thrived there.

# The use of the river for extracting drinking water is also safeguarded.

By contrast, the Rhine river (der Rhein) measures just 766 miles long, but still manages to pass through six countries. The Rhine begins in the Swiss Alps as just a small, trickling stream, before growing larger as it reaches the Rhine Valley on the Swiss-Austrian border. This most-western part of Austria is a glacial alpine valley, and is renowned for its large, snow-tipped mountains, seemingly endless blue skies and geographical significance.

The Rhine river is hugely important in the development of modern Europe, sign-posting borders between Switzerland, Austria, Liechtenstein, France, and Germany, as well as offering a broad waterway for navigating through the continent. As the Alpine Rhine, it passes the Austrian province of Vorarlberg, before flowing into scenic Lake Constance (der Bodensee) near Bregenz, Austria. The area is almost completely surrounded by mountains, which make for a great little hideaway for those looking to get away from the world for a while.

For lovers of cheese, the Vorarlberg has a famous cheese trail, where local delicacies can be sampled as you explore a mixture of traditional and modern cheese cellars — you can even have a go at making your own. All of the participants in this cheese trail are high spirited, and it is the sense of community in Vorarlberg that has made it thrive, despite such a small population.

\_\_\_\_\_\_

# **Danube**

# Information about the Danube in Austria:

https://www.austria.info/en/things-to-do/lakes-and-nature/danube

The Danube is the second longest river in Europe and the most important waterway in Austria. It has shaped the landscape and the people along its banks since time immemorial. The part of the Danube flowing through Lower Austria is 260 kilometers long and boasts some of the most scenic sections of this river valley. It is a genuine treasure for the province. The river proceeds from the Nibelungengau in the west through the Wachau, a UNESCO World Heritage landscape, and on to the gates of Bratislava in the east. Its banks are lined with magnificence architecture, picturesque towns and villages, and lush ancient vineyards. Anyone who appreciates art and fine dining will find an abundance of attractions here, as will nature lovers and athletes. The landscape along the Danube is particularly charming when viewed from a ship.

Mentioned in innumerable songs and much traveled, no river in the world flows through so many countries on its way to the sea as the Danube. This mighty river covers an astounding 2,889 km (1795 miles) from its source in Germany to the Black Sea. The Danube's course from west to east takes it through ten countries (Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Moldova, Bulgaria, and Ukraine), and

as Europe's lifeline it unites a wide variety of peoples, religions, and cultures into a harmonious whole. The diverse, sometimes idyllic, sometimes nearly mystical landscapes that line its banks are shrouded in myth and legend.

The entire history of Central Europe was written on its banks, and the centuries-long exchange between peoples and cultures left behind traces that can still be experienced today. The Danube is lined with witnesses to the past: imposing monasteries and magnificent castles and palaces.

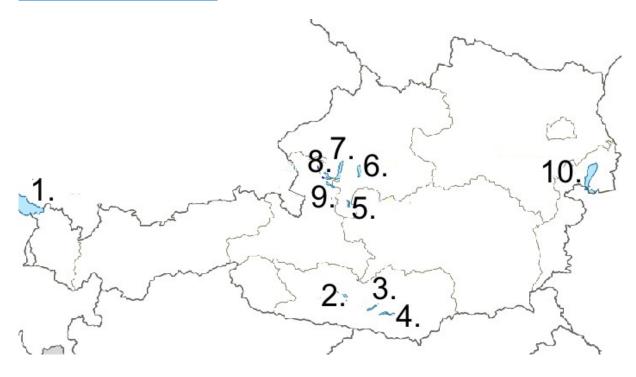
But not only the centuries-long encounters among the peoples of the Danube region are worth a closer look. Over the course of history, a wealth of cultural treasures was left behind by the legendary rulers of Europe as well, from Marcus Aurelius and Frederick Barbarossa to the Habsburgs. Thanks to an international cooperation among tourism organizations and shipping companies, visitors can embark on an enchanting journey along this historic travel route with all its splendid buildings and artistic treasures on the "Road of Emperors and Kings", which leads from medieval Regensburg via Passau and Vienna to Budapest, the Hungarian capital. Pristine river landscapes such as the picturesque Danube wetlands and spectacularly beautiful pastoral spots like the Wachau Valley, as well as the countless opportunities for excursions to cities and towns both ancient and modern, make this journey an unforgettable experience.



------

# **Lakes in Austria**

# **Lakes in Austria:**



- 1. Lake of Constance (Bodensee) Vorarlberg
- 2. Millstätter See Carinthia /Kärnten
- 3. Ossiacher See Carinthia /Kärnten
- 4. Wörthersee Carinthia / Kärnten
- 5. Hallstätter See Upper Austria /Oberösterreich
- 6. Traunsee Upper Austria / Oberösterreich
- 7. Attersee Upper Austria / Oberösterreich
- 8. Mondsee Upper Austria / Oberösterreich
- 9. Wolfgangsee Salzburg/ Upper Austria /Oberösterreich
- 10. Neusiedlersee Burgenland

## 10 largest Lakes in Austria:

- 1. Neusiedlersee 320 km² (230 km² belongs to Austria)
- 2. Lake of Constance / Bodensee 538 km² (58,6 km² belongs to Austria)
- 3. Attersee 46,2 km<sup>2</sup>
- 4. Traunsee 24,4 km<sup>2</sup>
- 5. Wörthersee 19,4 km<sup>2</sup>
- 6. Mondsee 13,8 km<sup>2</sup>
- 7. Millstättersee 13,3 km<sup>2</sup>
- 8. Wolfgangsee 12,8 km<sup>2</sup>
- 9. Ossiachersee 10,8 km<sup>2</sup>
- 10. Hallstättersee 8,6 km<sup>2</sup>

**Austria is a landlocked** country with a great variety of different landscapes: It has access to the largest Lake of Europe (Lake Constance or Bodensee), some of the highest mountain ranges of the Alps, hilly areas north and south of the Alps and extensive plains and the large steppe lake of Lake Neusiedler See.

This is particularly surprising if you consider Austria's size: It measures approximately 600 kilometres in its longest, East-West extension. The country is often divided into three major areas. The Alps themselves and their wider extensions into North, East and South, covering some 62 percent of the country (I find that number suspicious - I think you have to be fairly generous with that measure, or use purely geological criteria).

The Alpine Foreland and the Austrian part of the Pannonian Plain, including some smoothly hilly areas (about 28 percent of the country). And finally the area North of the Danube ("Böhmerwald") stretching towards the Czech Republic and Slovakia; the ground here is derived from a granite mountain range (makes the remaining 10 percent of Austria.

Most of the things that I talk about on this website target visitors of Austria that want a well-rounded Austria experience. Therefore, I focus on sightseeing and touring the country. About two thirds of this country is dominated by the Alps and during the last ice-age, mighty glaciers covered essentially all of what is Austria today. When they melted away to some very few areas in high altitudes in high altitudes (where they still

support an all-year-round skiing industry), the glaciers left a landscape shaped under their weight. Smooth hills, rubble and many lakes.

Lake Neusiedlersee is enormous - but shallow: At most only some 2 metres deep.

Today, there is a total of more than 300 lakes in Austria. They are a crucial factor in the country's tourism industry and appeal particularly to domestic and Central European tourists who come for water sports, hiking and natural beauty rather than sightseeing in Vienna. The largest and probably most famous lakes are Lake Constance or Lake Bodensee shared with Switzerland and Germany in the West and Lake Neusiedlersee shared with Hungary in the East.

The Lake Bodensee is best accessed from Bregenz, the capital of Vorarlberg and serves the town as a site for a floating stage during the Bregenzer Festspiele festival. Lake Neusiedlersee lies within the National Park of the same name, nonetheless, swimming, surfing, sailing and other water sports are allowed and hugely popular. Many Viennese take advantage of the Neusiedlersee, which has its own floating stage for the Seefestspiele festival of Mörbisch. Access to lake Neusiedlersee is constrained by the reed growing all over the shore, except in Podersdorf, the not-that-attractive tourism hub on the East shore.

### Lakes of Tyrol, Carinthia, Salzburg & the Salzkammergut

Beyond that, the regions most famous for lakes are Carinthia, south of the Alps, and the Northern edge of the Alps. Salzburg's Flachgau county is also called the "Salzburger Seenland" (Salzburg Lakeland, a somewhat over-done claim) with Lake Wallersee, the three Trumer Seen and Lake Mattsee; and the south of the province has Lake Zellersee to offer, with the tourist centre of Zell am See.

### Lake FuschIsee in the Salzkammergut

The region around Lake Mondsee in Upper Austria is called the Mondseeland and part of the Salzkammergut, which is generally famous for scenery and lakes such as Mondsee (with the town of Mondsee), Wolfgangsee (with St Gilgen and St Wolfgang), Fuschlsee, Attersee, Traunsee (with Gmunden), Hallstätter See (with the famous town of Hallstatt) and Grundlsee (by Bad Aussee).

**Alpine lakes** such as those of Tyrol are typically much smaller, but often very pretty: Lake Achensee is the only bigger lake of the province, but there are several small ones around Kufstein or Reutte. The Carinthian lakes such as Lake Ossiachersee, Lake Wörthersee (with the abbey of Maria Wörth and Velden), Millstätter See and the small Lake Faakersee near Villach are popular destinations for domestic Austrian tourists.

### Lakes of Southern Austria

Carinthians have not only a reputation for being hardcore conservative right-wingers, but also as an easy-going crowd that likes sports, good food and company.

As I said above, all in all there are some 300 lakes in Austria. International tourists will typically limit their stay to the Salzkammergut, unless they are keen on hiking and nature. The following table gives a more extensive list of bigger lakes. If you stay in a particular area, as the local tourism office for more information on nearby lakes that might make nice destinations for swimming, windsurfing, sailing or even diving.

#### The importance of lakes:

- habitat for plants and animals
- water resource, drink water for human live
- settlement for people around the lake
- economy: Tourism, fishing, transport,
- recreation
- sport

Each of the 62 lakes >50 ha has been identified as a separate surface water body. The total surface area is 1,034 km. Altogether, 61% of these have good ecological status or good ecological potential, and 34% even have a high ecological status.

Austria has three hundred lakes. Most of them are tourist attractions places.

### Slogans of the provinces in Austria:

Burgenland – The sunny side of Austria

Carinthia – The joy of living

Lower Austria – Feel alive!

Upper Austria – Explore our treasures

Salzburg – Stage of the World

Styria - The Green Heart of Austria

Tyrol - Heart of the Alps

Vienna – Now. Forever.

Vorarlberg – Poetry in Nature