# **Endorheic basin**

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An **endorheic basin**, also called an **internal drainage system**, is a drainage <u>basin</u>, or <u>watershed</u>, that does not flow to one of the Earth's major <u>oceans</u>. This is unlike normal basins that collect in <u>rivers</u> and flow to the ocean. Endorheic basins usually end in a saline <u>lake</u> or a salt flat. They can be found in all parts of the world, but usually in <u>desert</u> locations. [1]

# List of major endorheic basins

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Major endorheic basins of the world. Endorheic basins are shown in dark gray; major endorheic lakes are shown in black.

#### **Antarctica**

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Endorheic lakes in Antarctica are located in the <u>McMurdo Dry Valleys</u>, <u>Victoria Land</u>, <u>Antarctica</u>, the largest ice-free area in Antarctica.

- <u>Don Juan Pond</u> in <u>Wright Valley</u> is fed by groundwater from a rock glacier and remains unfrozen throughout the year.
- Lake Vanda in Wright Valley has a perennial ice cover, the edges of which melt in the summer allowing flow from the longest river in Antarctica, the Onyx River. The lake is over 70 m deep and is hypersaline.
- <u>Lake Bonney</u> is in <u>Taylor Valley</u> and has a perennial ice over and two lobes separated by the Bonney Riegel. The lake is fed by glacial melt and discharge from <u>Blood Falls</u>. Its unique glacial history has resulted in a hypersaline brine in the bottom waters and fresh water at the surface.
- <u>Lake Hoare</u>, in <u>Taylor Valley</u>, is the freshest of the Dry Valley lakes receiving its melt almost exclusively from the Canada Glacier. The lake has an ice cover and forms a moat during the Austral summer.
- Lake Fryxell, in adjacent to the Ross Sea in Taylor Valley. The lake has an ice cover and receives its water from numerous glacial meltwater streams for approximately 6 weeks out of the year. Its salinity increases with depth.

#### Asia

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## Caspian Sea, a giant inland basin

Much of western and <u>Central Asia</u> is a single, giant inland basin. It contains several lakes, including:

- The <u>Central Asian Internal Drainage Basin</u>, the largest of the three major basins covering <u>Mongolia</u>.
- The <u>Caspian Sea</u>, the largest lake on Earth. In fact, a large part of Eastern Europe drained by the <u>Volga River</u> also belongs to its basin.
- The <u>Aral Sea</u>, whose tributary rivers have been diverted, leading to a dramatic shrinkage of the lake. The resulting ecological disaster has brought the plight faced by internal drainage basins to public attention.
- <u>Lake Balkhash</u> (<u>Kazakhstan</u>)
- Lop Nur Basin, in the southeastern portion of Xinjiang Uygur Autonomous Region in northwestern China
- Issyk-Kul, Son-Kul and Chatyr-Kul lakes in Kyrgyzstan
- Sistan Basin covering areas of Iran and Afghanistan
- Tarim Basin in Xinjiang Uyghur Autonomous Region
- Uvs Nuur basin, Mongolia, Tuvan Republic of Russia
- The <u>Dead Sea</u>, the lowest surface point on Earth and one of its saltiest bodies of water, lies between <u>Israel</u> and <u>Jordan</u>.
- <u>Sambhar Lake</u> in <u>Rajasthan</u>, north-western <u>India</u>, is also the terminal point of an endorheic basin.
- Lake Van in Turkey is one of the world's largest endorheic lakes.

## **Australia**

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Australia, being very dry and having exceedingly low runoff ratios due to its ancient soils, has a great prominence of variable, endorheic drainages. The most important are:

- <u>Lake Eyre Basin</u>, which drains into the highly variable <u>Lake Eyre</u> and includes <u>Lake Frome</u>.
- Lake Torrens, to the west of the Flinders Ranges in South Australia.
- Lake Corangamite, a highly saline crater lake in western Victoria.
- Lake George, formerly connected to the Murray-Darling Basin

A false-colour satellite photo of <u>Australia</u>'s <u>Lake Eyre</u> Image credit: *NASA's Earth Observatory* 

#### **Africa**

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- Lake Turkana in Kenya
- The Okavango Delta, an endorheic inland delta in the Kalahari Desert of Botswana
- Lake Ngami in Botswana
- <u>Lake Chad</u> (between <u>Chad</u> and <u>Cameroon</u>), fed by the <u>Chari</u> and <u>Logon</u> rivers

- Etosha pan in Namibia's Etosha National Park
- Qattara Depression in Egypt
- Chott Melrhir in Algeria
- Lake Chilwa in Malawi
- Afar Depression in Eritrea, Ethiopia and Djibouti
- Chott el Djerid in Tunisia

## North and Central America

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Great Salt Lake, Satellite photo (2003) after five years of drought

- Lago de Atitlán, in the highlands of Guatemala;
- Bolsón de Mapimí, in northern Mexico
- Crater Lake in Oregon
- Devil's Lake (North Dakota)
- Devil's Lake (Wisconsin)
- The Great Basin, which covers much of Nevada and Utah, includes:
  - The <u>Black Rock Desert</u> in <u>Nevada</u>, location of the <u>Thrust2</u> and <u>ThrustSSC</u> landspeed record runs, and the annual home to the <u>Burning Man</u> festival
  - Death Valley in California and Nevada, the lowest land point in the United States
  - Groom Dry Lake in Nevada, location of the secret Area 51 base
  - Utah's <u>Great Salt Lake</u>, the largest terminal lake in the <u>Western Hemisphere</u>
  - Salton Sea in California, a lake accidentally created in 1905 when irrigation canals ruptured, filling a desert endorheic basin and recreating an ancient saline sea
  - Utah's <u>Sevier Lake</u>
  - Pvramid Lake in Nevada
  - Mono Lake in California
- The <u>Great Divide Basin</u> in <u>Wyoming</u>, a small endorheic basin that straddles the <u>Continental Divide</u>.
- Guzmán Basin, in northern Mexico and the southwestern United States;
- Little Manitou Lake in Saskatchewan
- New Mexico has a number of desert endorheic basins including:
  - The <u>Tularosa Basin</u>, a <u>rift valley</u>;
  - Zuni Salt Lake, a maar;
- Rogers Lake, at Edwards Air Force Base in California
- <u>Tulare Lake</u>, an endorheic basin at the southern end of the <u>San Joaquin Valley</u> fed by the <u>Kings River</u>, <u>Tule River</u> and <u>Kaweah River</u>; since the late 19th century the lake bed has been reclaimed and used as farmland, though it occasionally floods when rainfall is especially heavy
- The <u>Valley of Mexico</u>. In <u>Pre-Columbian</u> times, the Valley was substantially covered with five lakes, including <u>Lake Texcoco</u>, <u>Lake Xochimilco</u>, and <u>Lake Chalco</u>.

Many small lakes and ponds in <u>North Dakota</u> and <u>Manitoba</u> are endorheic; some of them have salt encrustations along their shores.

## **Europe**

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- Neusiedlersee/Fertő tó in Austria and Hungary
- Lake Trasimeno in Italy
- Lake Velence in Hungary
- Lake Prespa between Albania, Greece and the Republic of Macedonia
- Rahasane turlough, in Co. Galway, Republic of Ireland, is the county's largest and covers about 2.5 square kilometres.

All these lakes are drained, however, either through manmade <u>canals</u> or via <u>karstic</u> phenomena. Minor additional endorheic lakes exist throughout the Mediterranean countries <u>Spain</u> (e.g. <u>Laguna de Gallocanta</u>), <u>Italy</u>, <u>Cyprus</u> (<u>Larnaca</u> and <u>Akrotiri</u> salt lakes) and <u>Greece</u>.

## **South America**

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MODIS image from November 4, 2001 showing <u>Lake Titicaca</u>, the <u>Salar de Uyuni</u>, and the <u>Salar de Coipasa</u>. These are all parts of the <u>Altiplano</u>

- <u>Altiplano</u> basin, one of the largest and second highest in the world.
- <u>Lake Valencia</u> (Spanish: Lago de Valencia) the second largest lake in Venezuela.
- Salar de Atacama, Atacama Desert, Chile (although close to the Altiplano it is not part of it)
- Northwest Pampas Basins in the Dry Pampas of Argentina
- Southwest Pampas Basins in the Dry Pampas of Argentina
- Meseta Somuncura in the Patagonia region of Argentina

#### Ancient

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Some of the Earth's ancient endorheic systems include:

- The Black Sea, until its merger with the Mediterranean
- The <u>Mediterranean Sea</u> itself and all its tributary basins, during its <u>Messinian desiccation</u> (5 m.y. BP aprox.) as it became disconnected from the Atlantic Ocean.
- Lake Lahontan in the western US
- Ebro and <u>Duero</u> basins, draining most of northern <u>Spain</u> during the <u>Neogene</u> and perhaps <u>Pliocene</u>.
- Lake Bonneville (Utah)

# **Related pages**

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• Inland sea

# References

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1. <u>↑ "Home>Endorheic"</u>. Archived from <u>the original</u> on 2008-10-13. Retrieved 2009-04-01.

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