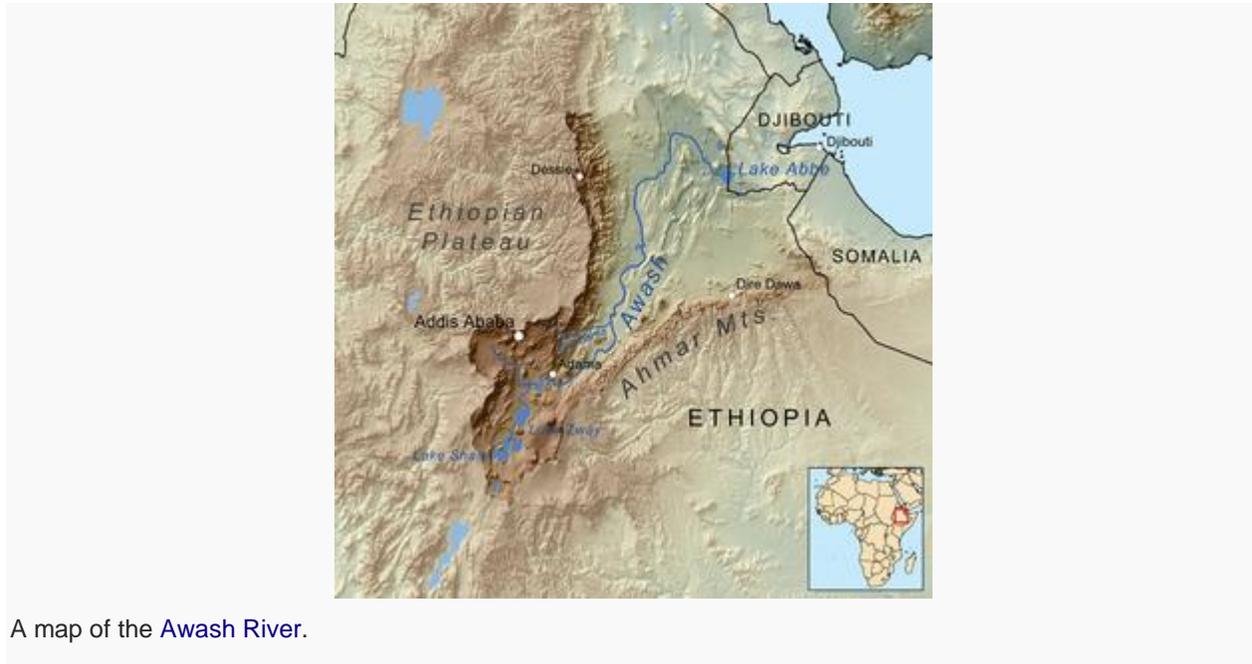


Hydrology



A map of the [Awash River](#).

Most of the Ethiopian uplands have a decided slope to the north-west, so that nearly all the large rivers flow in that direction to the [Nile](#), comprising some 85% of its water. Such are the [Tekezé River](#) in the north, the [Abay](#) in the center, and the [Sobat](#) in the south, and about four-fifths of the entire drainage is discharged through these three arteries. The rest is carried off by the [Awash](#), which runs out in the saline lacustrine district along the border with [Djibouti](#); by the [Shebelle River](#) and the [Jubba](#), which flow southeast through [Somalia](#), though the Shebelle fails to reach the [Indian Ocean](#); and by the [Omo](#), the main feeder of the closed basin of [Lake Turkana](#).

The Tekezé River, which is the true upper course of the [Atbarah River](#), has its headwaters in the central tableland; and falls from about 2,100 to 750 m (6,890 to 2,461 ft). in the tremendous crevasse through which it sweeps west, north, forming part of the border with Eritrea, and west again down to the western terraces, where it passes from Ethiopia to Sudan. During the rains the Tekezé (i.e. the "Terrible") rises some 5 m (16.4 ft) above its normal level, and at this time forms an impassable barrier between the northern and central regions. In its lower course, the river is known by the [Arabic](#) name [Setit](#).

In Sudan, the Setit is joined (at $14^{\circ}20'N$ $35^{\circ}51'E$) by the Atbarah, a river formed by several streams which rise in the mountains west and northwest of [Lake Tana](#). The Gash or [Mareb](#), which forms part of the border with [Eritrea](#), is the most northerly of the highland rivers which flow toward the Nile valley. Its headwaters rise on the landward side of the eastern escarpment within 80 km of Annesley Bay on the Red Sea. It reaches the Sudanese plains near [Kassala](#), beyond which place its waters

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are dissipated in the sandy soil. The Mareb is dry for a great part of the year, but like the Takazze is subject to sudden freshets during the rainy season. Only the left bank of the upper course of the river is in Ethiopian territory.

A map of the [Jubba River](#) and [Shebelle River](#) drainage basin.

The Abay — that is, the upper course of the Blue Nile — has its source near [Mount Denguiza](#) in the Choqa mountains, around [11°0'N 37°0'E](#). It first flows for 110 km (68.4 mi) nearly due north to the south shore of Lake Tana. Tana, which stands 750 to 1,000 m (2,461 to 3,281 ft) below the normal level of the plateau, has somewhat the physical aspect of a flooded crater. It has an area of about 2,800 square kilometres (1,081 sq mi), and a depth in some parts of 75 m (246 ft). At the southeast corner the rim of the crater is, as it were, breached by a deep crevasse through which the Abay escapes, and here makes a great semicircular bend like that of the Tekezé, but in the reverse direction — east, south and north-west — down to the plains of [Sennar](#), where it takes the name of Bahr-el-Azrak or [Blue Nile](#).

The Abay has many tributaries. Of these, the [Bashilo](#) rises near Magdala and drains eastern [Amhara](#); the [Jamma](#) rises near Ankober and drains northern [Shoa](#); the [Muger](#) rises near [Addis Ababa](#) and drains south-western [Shoa](#); the [Didessa](#), the largest of the Abay's affluents, rises in the [Kaffa](#) hills and has a generally south-to-north course; the [Dabus](#) runs near the western edge of the plateau escarpment. All these are perennial rivers. The right-hand tributaries, rising mostly on the western sides of the plateau, have steep slopes and are generally torrential in character. The [Beles](#), however, is perennial, and the [Rahad](#) and [Dinder](#) are important rivers in flood-time.

In the mountains and plateaus of [Gambela](#) and Kaffa in southwestern Ethiopia rise the [Baro](#), [Gelo](#), [Akobo](#) and other chief affluents of the Sobat tributary of the Nile. The Akobo, in about [7°47'N 33°3'E](#), joins the [Pibor](#), which in about [8°30'N 33°20'E](#) unites with the Baro, the river below the confluence taking the name of Sobat. These rivers descend from the mountains in great falls, and like the other Ethiopian streams are unnavigable in their upper courses. The Baro on reaching the plain becomes, however, a navigable stream affording an open waterway to the Nile. The Baro, Pibor and Akobo form for 400 km (249 mi) the western and southwestern frontiers of Ethiopia.

The chief river of Ethiopia flowing east is the [Awash River](#) (or Awasi), which rises in the Shewan uplands and makes a semicircular bend first southeast and then northeast. It reaches the [Afar Depression](#) through a broad breach in the eastern escarpment of the plateau, beyond which it is joined on its left bank by its chief affluent, the [Germama](#) (Kasam), and then trends round in the direction of the [Gulf of Tadjoura](#). Here the Awash is a copious stream nearly 60 m (197 ft) wide and 1.2 m (3.94 ft) deep, even in the dry season, and during the floods rising 15 to 20 m (49 to 66 ft) above low-water mark, thus inundating the plains for many kilometers along both its banks.

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After a winding course of about 800 km (497 mi), the Awash River passes (in its lower reaches) through a series of baddis (lagoons) to [Lake Abhe Bad](#) (or Abhe Bid) on the border with Djibouti and some 100 to 110 km (62 to 68 mi) from the head of the Gulf of Tadjoura. In this lake the Awash river is lost. This remarkable phenomenon is explained by the position of Abhe Bad in the centre of a saline lacustrine depression several hundred meters below sea level. While most of the other lagoons are highly saline, with thick incrustations of salt round their margins, Abhe Bad remains fresh throughout the year, owing to the great body of water discharged into it by the Awash.

Another lacustrine region extends from the Shoan heights southwest to the Samburu (Lake Turkana) depression. In this chain of scenic upland lakes — some fresh, some [brackish](#), some completely closed, others connected by short channels — the chief links in their order from north to south are: [Zway](#), communicating southwards with Hara and Lamina, all in the [Arsi Zone](#); then [Abijatta](#) with an outlet to a smaller turn to the Baroda and Gamo areas, skirted on the west sides by grassy slopes and wooded ranges from 2,000 m (6,562 ft) to nearly 3,000 m (9,843 ft) high; lastly, [Lake Chew Bahir](#) (formerly known as Lake Stephanie) which is completely closed and falling to a level of about 550 m (1,804 ft) above sea level.

To the same system belongs the neighbouring Lake Turkana, which is larger than all the rest put together. This lake receives at its northern end the waters of the Omo, which rises in the Shoan highlands and is a perennial river with many affluents. In its course of some 600 km (373 mi) it has a total fall of about 2,000 m (6,562 ft), from 2,500 m (8,202 ft) at its source to c. 500 m (1,640 ft) at lake level), and is consequently a very rapid stream, being broken by the Kokobi and other falls, and navigable only for a short distance above its mouth. The chief rivers of Somalia, the Webi Shebelle and the Jubba, have their rise on the south-eastern slopes of the Ethiopian escarpment, and part of their course is through territory belonging to Ethiopia.

There are numerous [hot springs](#) in Ethiopia, such as [Sodere](#).