

Additional information

Physical features of the site

Geology and Geomorphology

The Ramsar site is located on a high mountain plateau. Geographically, it represents the northernmost part of the mountain plateaus of the Near East. To the North and West it is bordered by the slopes of the Eghnakhagh Ridge, to the East by the Javakheti Ridges and to the South it gradually connects with the Yerevan Plateau. The total area covered by the Armenian Section of the Plateau and surrounding mountains is approximately 350 square km. The plateau is composed of volcanic rock materials originating from the Miocene, Upper Pliocene and the Pleistocene. Elevations range from 1500 to 3042m. The Plateau is composed of a flat table and softly undulating terrain. Except for the Ardenis Pond, Lake Arpi is the only lake found in the Armenian Section of the Plateau. Wetlands characterize the Akhuryan drainage system to the South of the Plateau. The lakes were formed as a result of volcanic activity.

The site is of high seismic activity. Disastrous Spitak earthquake on 7 December 1988 destroyed or heavily damaged most of constructions in surrounding settlements.

Origin.

Lake Arpi had been a natural lake until 1950 when it was dammed to provide irrigation water via an artificial canal constructed parallel to the Akhuryan River for the Akhuryan Reservoir, located south-west of the Region's capital Gyumri, near the Turkish border. Prior to damming, the lake water volume averaged 5 mln. m³. The lake's average depth used to be less than 50-70 cm and its total water surface area approximately 5 km². In 1950 Lake Arpi was converted into a reservoir. On completion of the dam the average water surface area of the Arpi Reservoir increased to 22,1 km² with a volume increase to an average of 90 mln. m³ and an average depth of 1-1.5 m. The maximum storage capacity of the Reservoir is 110 mln. m³.

Hydrology

All water catchment area of Lake Arpi is 22,000 ha and is fully protected by National Park. The largest and most important of the six tributaries of Arpi Reservoir is River Chivin, providing almost 30% of the total inflow into the reservoir. The inflow is located to the North-west of the lake. River Chivin is fed by more than 60 natural springs. River Chivin provides about 25 million m³ of water per year to the Arpi Reservoir.

More 4,907 ha are part of the water catchment areas of the Ashotsk and Ghukasyan rivers draining the West-facing slopes of the Javakheti Mountain Ridge. Both rivers merge north of the Akhuryan Gorge, draining the plateau via the gorge. Rivers Ashotsk and Ghukasyn and their tributaries, has a significantly higher water storage capacity resulting in a much more balanced flow regime, taking into consideration the significant abstraction for drinking water (down to Gyumri Region out of this upper basin) from two locations upstream of the gauging station at Krasar. The main reason is obviously a much higher storage capacity of sub-terrain soils (young volcanic formations, high porosity of tuff), also formed by the high flow volumes of upwelling groundwater at the locations of abstraction. Mean monthly flows in April and June cover only 40% of the annual flow compared to 65% in the Lake Arpi Basin. This relation is to be considered as natural as the drinking water abstraction is almost stable throughout the year. Also the relative discharge per catchment area (litres per second/square km) is more than 50% higher than in the western part of the upper Akhuryan Basin.

Downstream of the Arpi Reservoir this natural hydrological flow regime is heavily altered.

Roughly 80% of the annual flow is discharged in the period June to October while in the period April to June only about 20%. Mean monthly flows in July and August are roughly 15-times higher than in low flow periods.

Wetland, marshes and oxbows are mostly found along the former Akhuryan River below the village of Berdashen. All villages situated in here receive their potable water from natural springs.

Due to the frequent winds and shallow water the transparency in the lake-reservoir at present normally is not exceed 0.5 m, usually 0.2-0.4 m.

The water quality in the streams is remarkably high as compared to international standards and can be used for drinking without prior treatment. The water is carbonate with total mineralization about 100 mg l⁻¹.

Soils

Soils vary with elevation, slope, and edaphic conditions. The higher reaches of the Akhdag and Javakheti mountain ranges are characterized by mountain meadow soils, turning into meadow brown semi-desert soils at the foothills. The larger part of the Lake Arpi Plateau is covered by chernozems, interspersed with meadow-swamp soils found mostly in depressions and along the old Akhuryan Riverbed.

Climate,

The Javakheti/Ashotsk Plateau is typified by a harsh, predominantly continental climate, considered extreme and inhospitable. The Plateau is located at elevations ranging from 1,500 to 3,100 m. Average temperature in mid-July is recorded at 15°C for the central part of the Plateau.

Mean temperature ranges from -13°C in January to +13°C in July with an annual average of +1°C. There are 210 days annually with a daily temperature above Zero Centigrade. The vegetation period averages 160 days. Approximately 2,400 hours of sunshine per year are recorded for the area. The mean annual precipitation is 550 mm. Winds are pronounced in spring and fall.

Physical features of the catchment area

The total surface of Lake Arpi catchment area is 220 km². The highest point of the catchment area, Mount Ghukasyan (3042 m a. s. l.) is situated on Armenian-Turkish border.

Physical features of the catchment area do not differ significantly from those described for the Ramsar site

Ecosystem Services

Current recreation and tourism:

Birding

The lakes and marshes are excellent birdwatching sites where one can observe breeding birds from May to July and migratory birds resting during spring and autumn.

Mountain and tourbiking

In summertime most of the area is suitable for mountain- and tour-biking. Nearly all gravel-roads in the area can be used for mountain and tour biking.

Horseback riding

There are horses for rent available near Lake Arpi (Darik village), the season typically extends from May to October.

Cross country skiing

With almost half a year snow cover Lake Arpi region is a perfect place for cross country skiing. Both equipment and guide service are available in Metsepar, Ashotsk and through the Shiraktours based in Gyumri.

Total number of tourists is constantly increasing but estimated number is still below 1,000.