

= Chew Valley Lake =

Chew Valley Lake ( grid reference ST5659 ) is a large reservoir in the Chew Valley , Somerset , England , and the fifth @-@ largest artificial lake in the United Kingdom ( the largest in south @-@ west England ) , with an area of 1 @, @ 200 acres ( 4 @. @ 9 km <sup>2</sup> ) . The lake , created in the early 1950s and opened by Queen Elizabeth II in 1956 , provides much of the drinking water for the city of Bristol and surrounding area , taking its supply from the Mendip Hills . Some of the water from the lake is used to maintain the flow in the River Chew .

Before the lake was created , archaeological investigations were carried out that showed evidence of occupation since Neolithic times and included Roman artefacts . The lake is an important site for wildlife and has been designated a Site of Special Scientific Interest ( SSSI ) and a Special Protection Area ( SPA ) . It is a national centre for birdwatching , with over 260 species recorded . The lake has indigenous and migrant water birds throughout the year , and two nature trails have been created . The flora and fauna provide habitats for some less common plants and insects .

Some restricted use for recreational activities is permitted by the owner , Bristol Water , including dinghy sailing and fishing , primarily for trout .

= = Location = =

Chew Valley Lake is in the Chew Valley at the northern edge of the Mendip Hills , surrounded by meadows and woods and close to the villages of Chew Stoke , Chew Magna and Bishop Sutton . When it was built in the 1950s , its 1 @, @ 200 acres ( 4 @. @ 9 km <sup>2</sup> ) were flooded with 4 @, @ 500 million imperial gallons ( 20 @, @ 000 @, @ 000 m <sup>3</sup> ) of water from the Mendip hills , with a catchment area of 14 @, @ 000 acres ( 57 km <sup>2</sup> ) . It is shallow , with an average depth of 14 ft ( 4 m ) at top level and a maximum depth of just 37 ft ( 11 m ) . It is fed by small rivers , and it flows into the River Chew for 17 miles ( 27 km ) before it joins the Avon to head out to sea . The deepest part is near the dam and the outlet tower , where the steeply sloping shores of Walley Bank and the north shore result in depths of up to 20 ft ( 6 m ) . " Denny Island " , above the surface throughout the year , is wooded and provides a habitat for wildlife .

The lake is owned and operated by Bristol Water , which created it in 1956 when the demand became too large for nearby Blagdon Lake . Working with the Avon Wildlife Trust , Somerset Wildlife Trust and other environmental groups , Bristol Water has encouraged various species of birds and plants , and created a venue for visitors .

It has two landscaped picnic areas . Facilities include a tea shop , with indoor and outdoor seating areas with a view of the lake , and information centre . There are a souvenir shop and small art gallery and two nature trails . The Grebe Trail is a hard @-@ surfaced , all @-@ weather path suitable for pedestrians , pushchairs and wheelchairs and covers a circuit 0 @. @ 75 miles ( 1 @. @ 2 km ) long , starting and finishing at the wooded picnic area . The Bittern Trail is reached from the Grebe Trail by the footbridge over Hollow Brook . The grassy path is often waterlogged in winter , but there is a boardwalk over a short section . The trail runs along the east shore , visits an open bird hide and returns to the footbridge , making a 1 @-@ mile ( 1 @. @ 5 @-@ kilometre ) circuit . Bristol Water imposes conditions on visitors , particularly related to the areas where dogs are allowed .

= = Access and transportation = =

Access to the waterside is restricted in places to reduce the disruption to wildlife . Paths around the lake are generally flat and , where paths are surfaced , wheelchair access is possible .

Visitors are officially invited to use public transport , but overwhelmingly arrive by private car , encouraged by the provision of parking spaces . The " Chew Valley Explorer " bus route 672 / 674 provides access .

In 2002 a 1 @. @ 9 @-@ mile ( 3 @-@ kilometre ) safe cycle route , the Chew Lake West Green Route , was opened along the B3114 on the western part of the lake . It forms part of the Padstow to

Bristol West Country Way , National Cycle Network Route 3 . It has all @-@ weather surfacing , providing a smooth off @-@ road facility for ramblers , mobility @-@ challenged visitors and cyclists of all abilities . It was funded by Bath and North East Somerset Council with the support of Sustrans and the Chew Valley Recreational Trail Association . Minor roads around the lake are also frequently used by cyclists .

Bristol Airport is approximately 10 miles ( 15 km ) away . The nearest major road is the A368 , which runs along the southern edge of the lake and provides access from Bath and Weston super Mare . The A37 and A38 are slightly further away , providing access from Bristol . Car parking is available at the visitor centre and Woodford Lodge , for which a charge is made , and a small amount of parking is available at points around the lake ; some of these are restricted to those with fishing permits .

= = History = =

The area the lake covers was once rich farmland . Farms and houses had to be removed before the land was flooded , and old roads , hedgerows and tree stumps can reappear when dry summers cause the level of the lake to drop . Prior to the flooding of the reservoir , archaeological excavations were carried out by Philip Rahtz and Ernest Greenfield employed by the Ministry of Works , from 1953 to 1955 . The excavations found evidence of people belonging to the consecutive periods known as Upper Palaeolithic , Mesolithic and Neolithic ( Old , Middle and New Stone Age ) , Bronze Age and Iron Age , including implements such as stone knives , flint blades and the head of a mace , along with buildings and graves . The artefacts from this period are held at Bristol City Museum and Art Gallery . Further evidence of Neolithic and Bronze Age occupation is provided by the archaeological survey of the Mendip Hills Area of Outstanding Natural Beauty .

Excavations have also uncovered Roman remains , indicating agricultural and industrial activity from the second half of the first century to third century AD . The finds included a villa at Chew Park where wooden writing tablets ( the first in the UK ) with ink writing were found . The tablets were sent to the British Museum , but other Roman material is on display at the Bristol City Museum and Art Gallery with the lake 's other historical artefacts .

Further excavations around the village of Moreton , which has now been totally submerged , found evidence of a thriving community in medieval times and possibly the remains of the Nunnery of Santa Cruz . During the Middle Ages farming was the most important activity in the area covered by the lake , supported by four flour mills powered by the River Chew . Stratford Mill was demolished and re @-@ erected in the grounds of Blaise Castle Museum , in north @-@ west Bristol . The largest settlement was Moreton , which is listed in the Domesday Book and survived until the flooding of the lake , when the remains of the Moreton Cross were moved to Chew Stoke Parish Church . There is evidence of lime kilns , which were used in the production of mortar for the construction of local churches . Farming , both arable and dairy , continued until the flooding of the lake , with most households also keeping pigs . There were orchards for fruit production , including apples , pears and plums . Moreton was also the site of gunpowder mill in the 18th century .

= = = Reservoir = = =

Plans for the building of the reservoir were under discussion before the Second World War , and an Act of Parliament submitted by the Bristol Waterworks Company was passed in 1939 . Following this , farms were bought by the company and farmed by the previous owners as tenancies . Farms and buildings still remaining in private hands were acquired by compulsory purchase . The sanction for construction was given in 1949 and the contract awarded to A.E. Farr , who employed 300 people on the site . The main dam was stabilised by injecting concrete into the cracks in the bedrock . The core of the dam was made of puddled clay mixed with sand . This was the first time the gain in strength brought about by the use of sand drains had been quantified . The lake was inaugurated by Queen Elizabeth II , accompanied by Prince Philip , with the unveiling of a commemorative stone and plaque , which can be seen from the dam , on 17 April 1956 , although it was not full until 25

February 1958 . Flowers were presented to the Queen at the opening of Chew Valley Lake by Judith Blair Brown , daughter of Kennedy Brown , who worked at Bristol Water Works at the time of construction of the lake .

During the storm of 10 July 1968 , the lake gained an extra 471 million imperial gallons ( 2 @, @ 140 @, @ 000 m <sup>3</sup> ) and rose 19 inches ( 480 mm ) in under 12 hours . At one point worried Bristol police issued a warning that the dam might not hold , prompting localised evacuation of populated valley areas downstream including Pensford and Keynsham .

= = Ecology = =

The lake is designated a Site of Special Scientific Interest ( SSSI ) and a Special Protection Area ( SPA ) ( Site Code : UK9010041 ) largely because of the diversity of species and habitats . Providing further protection , much of the area around the lake also falls within the Mendip Hills Area of Outstanding Natural Beauty ( AONB ) .

The lake appears to have a higher sedimentation rate than would be expected in other similar reservoirs , being in the region of 100 ? 150 t.km ? 2.yr ? 1 .

= = = Geology = = =

The main geological outcrops around the lake are mudstone , largely consisting of red siltstone resulting in the underlying characteristic of the gently rolling valley landscape . Bands of sandstone from the Triassic period contribute to the undulating character of the area . There are also more recent alluvial deposits beside the course of the River Chew .

= = = Birds = = =

Over 260 species of birds have been recorded at Chew , an internationally important site for wintering and migrating wildfowl . From late July to February , up to 4 @, @ 000 ducks ( Anatidae ) of twelve different species may be present , including internationally important numbers of northern shoveler ( *Anas clypeata* ) and gadwall ( *Anas strepera* ) . Up to 600 great crested grebes ( *Podiceps cristatus* ) gather to moult on the lake in autumn . Data on bird species and their numbers on the lake , dating back to the first " ringing " in 1964 , is available from the Chew Valley Ringing Station .

Numerous other birds can be seen , especially during the spring and autumn migration . Sand martins ( *Riparia riparia* ) arrive early and can usually be seen hawking over the water for insects in the second or third week of March . Flocks of tits ( *Paridae* ) , swallows ( *Hirundinidae* ) and terns ( *Sternidae* ) can regularly be seen . Waders , such as lapwings ( *Vanellus vanellus* ) , dunlin ( *Calidris alpina* ) and common snipe ( *Gallinago gallinago* ) , are attracted to the muddy shores if the water level drops in autumn . By midwinter up to 55 @, @ 000 gulls , mostly black @-@ headed gull ( *Chroicocephalus ridibundus* ) and common gull ( *Larus canus* ) , may be roosting . Good numbers of reed warblers ( *Acrocephalus scirpaceus* ) and sedge warblers ( *A. schoenobaenus* ) nest in the fringing reeds , along with grebes ( *Podicipedidae* ) and Eurasian coots ( *Fulica atra* ) .

Much of the management work carried out in the nature reserve is aimed at encouraging ducks to breed , and small numbers of tufted duck ( *Aythya fuligula* ) , common pochard ( *Aythya ferina* ) , common shelduck ( *Tadorna tadorna* ) and gadwall raise broods most years . Recent breeding successes also include water rail ( *Rallus aquaticus* ) and Cetti 's warbler ( *Cettia cetti* ) .

A wetland reserve has been created at Heron 's Green Pool on the opposite side of the causeway to the lake . A shallow pool fringed with sedges ( *Cyperaceae* ) , rushes ( *Juncaceae* ) and reedgrasses ( *Calamagrostis* ) and surrounded by lightly grazed , rough grassland may also prove attractive to snipe and lapwings .

= = = Fish = = =

In late summer large shoals of roach ( *Rutilus rutilus* ) and perch ( *Perca fluviatilis* ) fry congregate around the margins and weed beds , which are predated by the brown trout ( *Salmo trutta morpha fario* ) and rainbow trout ( *Oncorhynchus mykiss* ) . Chew Valley also holds a large population of pike ( *Esox lucius* ) , and fishing for these is permitted at certain times of the year .

== Insects ==

Aquatic midges ( *Chironomidae* ) provide the highest proportion of the fly life of the lake . The trout ( *Salmonidae* ) will feed at the surface on these and water boatmen ( *Corixidae* ) , and below the surface on the caddisfly ( *Trichoptera* ) larvae and pupae ; they will also take the adult caddisflies when they emerge . Other aquatic fauna including daphnia and snails are also found in the lake . Large populations of dragonflies , including migrant hawker ( *Aeshna mixta* ) and significant numbers of ruddy darter ( *Sympetrum sanguineum* ) , occur at the lake . Eleven species of wainscot moth make their home in the reed beds , including the nationally local brown @-@ veined wainscot ( *Archanara dissoluta* ) , twin @-@ spotted wainscot ( *Archanara geminipuncta* ) and silky wainscot ( *Chilodes maritimus* ) .

== Vegetation ==

The lake is surrounded with fringing reedbeds , carr woodland and grassland , which are managed by Bristol Water . The water conditions are eutrophic with run off from local fields and streams . Open @-@ water plant communities are rather sparse , largely comprising fennel pondweed ( *Potamogeton pectinatus* ) , lesser pondweed ( *Potamogeton pusillus* ) , opposite @-@ leaved pondweed ( *Groenlandia densa* ) and water @-@ crowfoot ( *Ranunculus* spp . ) . On neutral soils around the reservoir , pepper @-@ saxifrage ( *Silaum silaus* ) , burnet @-@ saxifrage ( *Pimpinella saxifraga* ) and devil 's @-@ bit scabious ( *Succisa pratensis* ) occur , and on calcareous soils fairy flax ( *Linum catharticum* ) , dwarf thistle ( *Cirsium acaule* ) and salad burnet ( *Sanguisorba minor* subspecies *minor* ) are found .

The small and medium @-@ sized fields around the lake are generally bounded by hedges and occasionally by tree belts and woodland , some of which date back to the most evident period of enclosure of earlier open fields which took place in the late medieval period . Mature oak ( *Quercus* ) and ash ( *Fraxinus excelsior* ) trees are characteristic of the area with occasional groups of Scots pine ( *Pinus sylvestris* ) and chestnuts ( *Castanea sativa* ) . Many elm ( *Ulmus* ) trees have been lost in this area , and dead / dying elms are also evident in the surrounding landscape .

Four areas of woodland containing 157 trees has been planted by The Life for a Life Charity around the lake on the Restaurant side , for the cremated remains of loved ones to be placed beneath them . These forests contain Scots pine ( *Pinus sylvestris* ) , English oak ( *Quercus robur* ) , rowan ( *Sorbus aucuparia* ) and the silver birch ( *Betula pendula* ) .

== Leisure use ==

The lake is used for a wide variety of leisure pursuits .

== Birdwatching ==

During 2005 ? 2006 Bristol Water started restoring two artificial islands . These are intended to provide safe nesting and roosting sites for a range of wildfowl . Permits to enter the reservoir enclosure and to use the access roads , paths and bird hides are available ( for a fee ) only to members of ornithological and naturalist societies recognised by Bristol Water . They can be obtained from Woodford Lodge and include conditions of use imposed by the owners .

== Sailing ==

Chew Valley Lake Sailing Club has a sailing area , approximately 1 @. @ 9 miles ( 3 km ) long , for dinghy sailing . The lake is divided into two areas : a restricted summer area which is available during the fishing season ( mid @-@ March to mid @-@ October ) , and the full area which can be used throughout the winter and on Sunday afternoons . The sailing area is marked out by lines of small white buoys . Racing marks are red buoys with flags , although large inflatable marks are used of open events .

The club can cater for fleets of over one hundred boats and it hosts large national events . Normal club racing has fleet starts for the following dinghy classes : Flying Fifteen ( keelboat ) , Laser ( dinghy ) , Solo ( dinghy ) and Topper ( dinghy ) as well as a handicap fleet run under the Portsmouth yardstick scheme . Five slipways enable easy launching . Off the water , the clubhouse facilities include large changing rooms , hot showers , hot food at the weekends , a bar and terrace overlooking the lake . The club caters for disabled people with facilities on both floors and a lift . Royal Yachting Association sailing courses are held at the club for members including race training , youth training , powerboat training , race officer training as well as more informal training run within each fleet .

= = = Fishing = = =

Seasonal day and afternoon bank fishing permits are available at Woodford Lodge . The restrictions imposed by Bristol Water mean that no fishing is allowed from the dams or stone embankments , the sailing club , in front of Stratford bird hide , in front of the picnic areas and in the nature reserve . There is a fleet of 32 motor boats for hire to fish .