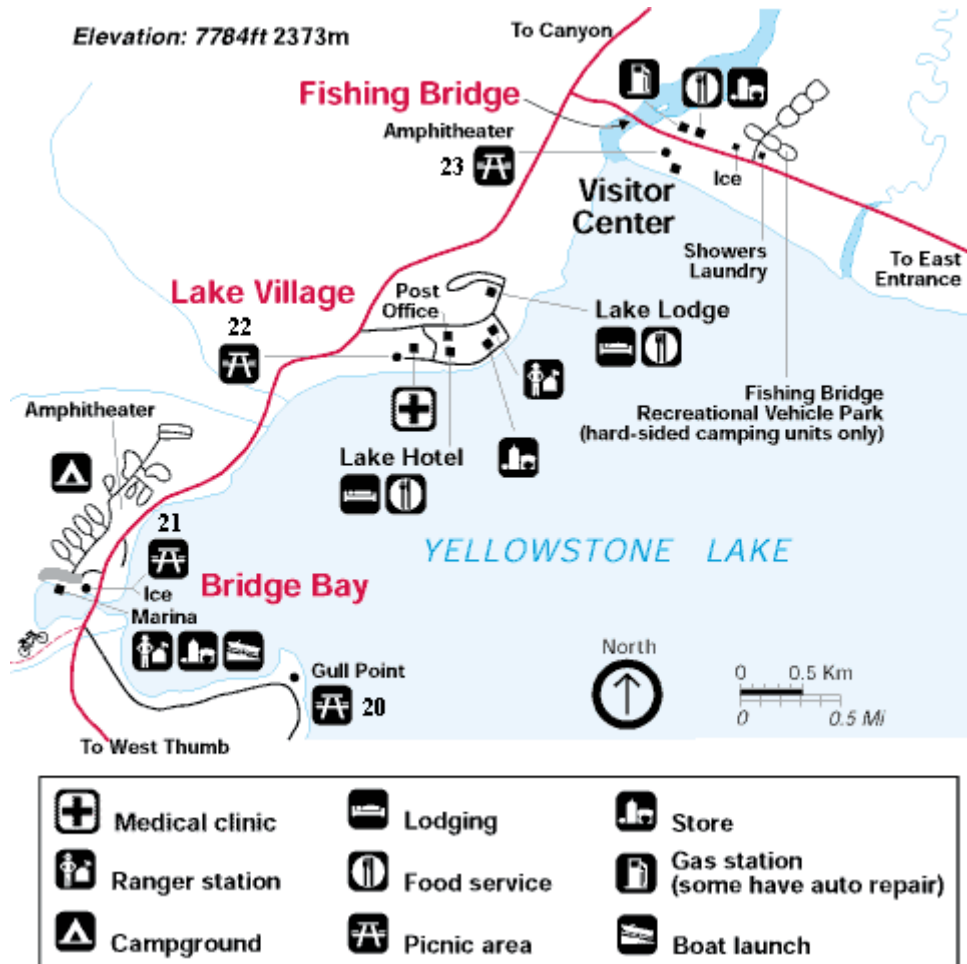


## LAKE VILLAGE AREA MAP



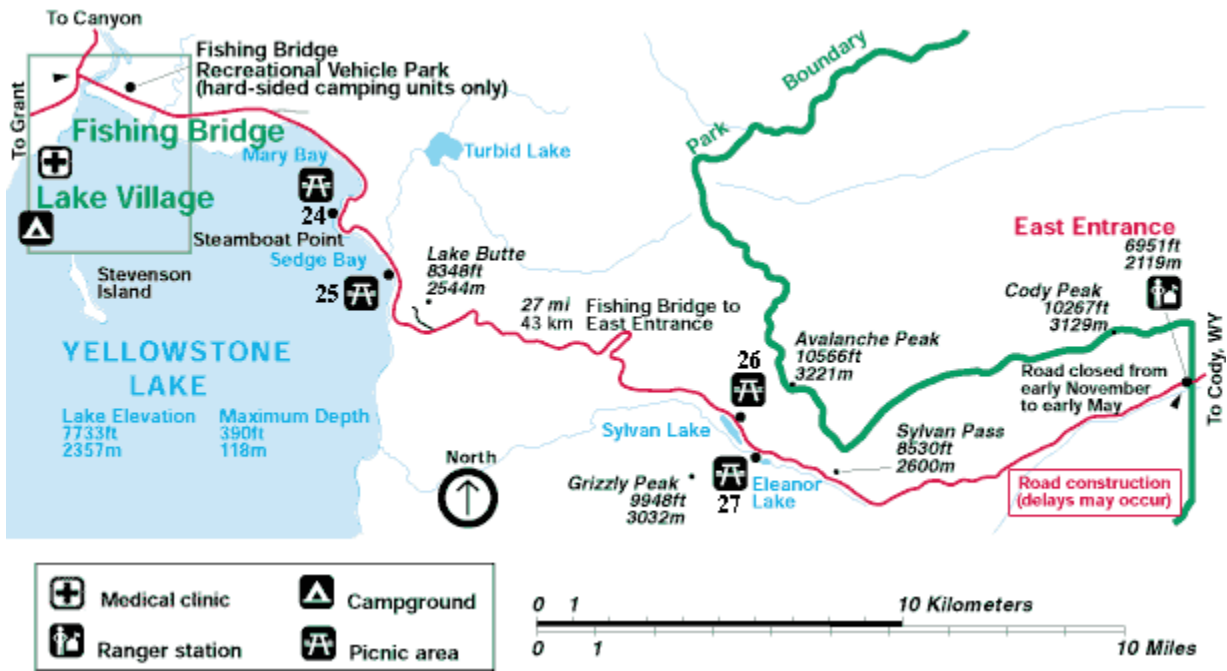
## Lake Area to Grant Village Road Map



## Lake Vicinity to Canyon Village Road Map



## Lake Area to the East Entrance Road Map



## Day Hikes Near Lake Village

Begin your hike by stopping at a ranger station or visitor center for information. Trail conditions may change suddenly and unexpectedly. Bear activity, rain or snow storms, high water, and fires may temporarily close trails.

### **Pelican Creek Trail**

This short but diverse trail passes through the forest to the lakeshore before looping back across the marsh along Pelican Creek to the trailhead. It is a scenic introduction to a variety of Yellowstone's habitats and a good place for birding.

Trailhead: West end of Pelican Creek Bridge, 1 mile (1.5 km) east of Fishing Bridge Visitor Center

Distance: 1 mile (1.5 km) loop

Level of Difficulty: Easy

### **Natural Bridge Trail**

The natural bridge is a 51 ft. (18 m) high cliff of rhyolite rock that has been cut through by the erosional forces of Bridge Creek. The trail from the campground meanders through the forest for 1.2 mile (0.8 km). It then joins the road and continues to the right (west) for 1 mile (1.5 km) before reaching the Natural Bridge. The short but steep switchback trail to the top of the bridge starts in front of the interpretive exhibit. To protect this fragile resource, the top of the bridge is closed to hiking. However, good views may be attained next to the bridge. The bicycle trail to the bridge begins just south of the marina off the main road.

The trail is closed from late spring to early summer due to bears feeding on spawning trout in Bridge Creek. Inquire at the Visitor Center about trail closures before hiking or bicycling these trails.

Trailhead: Bridge Bay Marina parking lot near the campground entrance road

Distance: 3 miles (5 km) roundtrip

Level of Difficulty: Easy

### **Storm Point Trail**

This trail begins in the open meadows overlooking Indian Pond and Yellowstone Lake. The trail passes by the pond before turning right (west) into the forest. It continues through the trees and out to scenic, windswept Storm Point. The rocky area near the point is home to a large colony of yellow-bellied marmots. Following the shoreline to the west, the trail eventually loops through the lodgepole pine forest and returns to Indian Pond.

Trailhead: Pullout at Indian Pond, 3 miles (5 km) east of Fishing Bridge Visitor Center

Distance: 2 mile (3 km) loop

Level of Difficulty: Easy

### **Elephant Back Mountain Trail**

This trail climbs 800 ft (244 m) in 1-1/2 miles (2.4 km) through a dense lodgepole pine forest. After a mile, the trail splits into a loop. The left fork is the shortest and least steep route to the top. The overlook provides a sweeping panoramic view of Yellowstone Lake and the surrounding area.

Trailhead: Pullout 1 mile (1.5 km) south of Fishing Bridge Junction

Distance: 3 mile (5 km) loop

Level of Difficulty: Moderately strenuous

### **Howard Eaton Trail**

From the east side of Fishing Bridge, the trail follows the Yellowstone River for a short distance before joining a service road; the trail continues on the road for 1/4 mile (0.4 km). Leaving the road, the trail meanders for three miles (5 km) through meadow, forest, and sagebrush flats with frequent views of the river. Wildlife and waterfowl are commonly seen here. The last mile (1.5 km) passes through a dense lodgepole pine forest before reaching an overview of LeHardy Rapids.

To return, follow the same trail back to the trailhead. The trail does continue on for another 12 miles (19 km) to the South Rim Drive at Canyon, but is not well maintained. This trip would require planning for a full day's hike and a return ride to the trailhead.

This area is good grizzly bear habitat, and the trail is closed when bears are known to be in the area. Inquire at the Visitor Center before hiking.

Trailhead: Parking lot on east side of Fishing Bridge

Distance: 7 miles (11.3 km) roundtrip

Level of Difficulty: Easy

### **Avalanche Peak Trail**

This trail climbs steeply (1,800 ft in 2.5 miles) without the benefit of switchbacks. It passes through the forest and into an old avalanche slide area. It continues through the whitebark pine forest to a small meadow at the base of the bowl of Avalanche Peak, affording some of the best panoramic views in the park. The trail continues up a scree slope along the narrow ridgeline of Avalanche Peak. An unmarked trail drops down the northeast side of the bowl and returns to the meadow. Since whitebark pine cones are a favored food of grizzly bears in the fall, avoid this trail at that time.

Trailhead: West end of Eleanor Lake across the road to the east of the small creek

Distance: 5 miles (8 km) roundtrip

Level of Difficulty: Strenuous

### **Pelican Valley Trail**

This trail winds through the Pelican Valley providing views of the broad open valley and forest, some of the best grizzly habitat in the lower 48 states. It reaches the footbridge in 3 miles (5 km). The trail continues on through the valley. Due to grizzly bears in the area, the trail is not open until July 4th, and then it is recommended (not required) for use by groups of four people or more.

Trailhead: Dirt road 3 miles (5 km) east of Fishing Bridge Visitor Center, across the road from Indian Pond

Distance: 6 miles (10 km) roundtrip to footbridge

Level of Difficulty: Moderate

## Lake Area Natural Highlights

### Yellowstone Lake

With a surface area of 132 square miles, Yellowstone Lake is the largest lake at high elevation (i.e., more than 7,000 ft.) in North America. It is a natural lake, situated at 7,733 ft. above sea level. It is roughly 20 miles long and 14 miles wide with 141 miles of shoreline. It is frozen nearly half the year. It freezes in late December or early January and thaws in late May or early June.

Recent research by Dr. Val Klump of the Center for Great Lakes Research and the University of Wisconsin has revolutionized the way we look at Yellowstone Lake. Figuratively, if one could pour all the water out of Yellowstone Lake, what would be found on the bottom is similar to what is found on land in Yellowstone; geysers, hot springs, and deep canyons. With a small submersible robot submarine, the researchers found a canyon just east of Stevenson Island which was 390 ft. deep. Prior to this finding, the deepest spot in the lake was thought to be 320 ft. at West Thumb. Underwater geysers, hot springs, and fumaroles were found at West Thumb and Mary and Sedge bays. The hottest spot in the lake was found at Mary Bay where the temperature was recorded at 252° F (122° C). Hollow pipes, or chimneys of silica, several feet in height, were found rising up from the lake bottom at Mary Bay. It is thought that these are the old plumbing systems of now dormant geysers. Rock spires up to 20-feet tall were found underwater near Bridge Bay. Samples of this rock are being analyzed, though it is believed that these features are probably related to underwater thermal activity.

This group of researchers also found that the conditions in Yellowstone Lake are similar to those that occur near the famous hydrothermal vents on the Pacific Ocean's mid-ocean ridge. Nutrient- and mineral-rich submarine fountains support incredible plant and animal communities, including bacterial mats, sponges, and earthworms.

### Yellowstone River

The Yellowstone River is the last major undammed river in the lower 48 states, flowing 671 miles from its source southeast of Yellowstone into the Missouri River and then, eventually, into the Atlantic Ocean. It begins in the Absaroka Mountain Range on Yount Peak. The river enters the park and meanders through the Thorofare region into Yellowstone Lake. It leaves the lake at Fishing Bridge and flows north over LeHardy Rapids and through Hayden Valley. After this peaceful stretch, it crashes over the Upper and Lower falls of the Grand Canyon. It then flows generally northwest, meeting its largest tributary, the Lamar River, at Tower Junction. It continues through the Black Canyon and leaves the park near Gardiner, Montana. The Yellowstone River continues north and east through the state of Montana and joins the Missouri River near the eastern boundary line of the state. The Missouri River eventually joins the Mississippi River, which flows into the Atlantic Ocean at the Gulf of Mexico.

In addition to the Yellowstone River, many of the spawning streams in the Lake/Fishing Bridge/Bridge Bay area provide critical food sources for grizzly bears in the spring time. Therefore, ecologically speaking, these river and streams are a primary resource in the district. The LeHardy Rapids are a cascade on the Yellowstone River, three miles north of Fishing Bridge. Geomorphologically, it is thought that this is the actual spot where the lake ends and the river continues its northward flow. In the spring, many cutthroat trout may be seen here, resting in the shallow pools before expending bursts of energy to leap up the rapids on their way to spawn under Fishing Bridge.

The rapids were named for Paul LeHardy, a civilian topographer with the Jones Expedition in 1873. Jones and a partner started off on a raft with the intent of surveying the river, planning to meet the rest of their party at the Lower Falls. Upon hitting the rapids, the raft capsized, and many of the supplies were lost, including guns, bedding, and food. LeHardy and his partner saved what they could and continued their journey to the falls on foot.

The rapids became a popular visitor attraction when a boardwalk was built in 1984 providing access to the area. Due to increased visitation, a group of harlequin ducks, which once frequented this area in spring, have not been seen for several years. The boardwalk has consequently been closed in early spring to protect this sensitive habitat, but the harlequins have not returned.

### **Mud Volcano/Sulphur Caldron**

When the Washburn Expedition explored the area in 1870, Nathaniel Langford described Mud Volcano as "greatest marvel we have yet met with." Although the Mud Volcano can no longer be heard from a mile away nor does it throw mud from its massive crater, the area is still eerily intriguing.

The short loop from the parking lot past the Dragon's Mouth and the Mud Volcano is handicapped accessible. The half-mile upper loop trail via Sour Lake and the Black Dragon's Caldron is relatively steep. Two of the most popular features in the Mud Volcano front country are the Dragon's Mouth and the Black Dragon's Caldron. The rhythmic belching of steam and the flashing tongue of water give the Dragon's Mouth Spring its name, though its activity has decreased notably since December 1994. The Black Dragon's Caldron exploded onto the landscape in 1948, blowing trees out by their roots and covering the surrounding forest with mud. The large roil in one end of the Caldron gives one the sense that the Black Dragon itself might rear its head at any time.

In January 1995, a new feature on the south bank of Mud Geyser became extremely active. It covers an area of 20 by 8 feet and is comprised of fumaroles, small pools, and frying-pan type features. Much of the hillside to the south and southwest of Mud Geyser is steaming and hissing with a few mudpots intermixed. This increase in activity precipitated a great deal of visitor interest and subsequent illegal entry into the area.

The most dramatic features of the Mud Volcano area however, are not open to the public. The huge seething mud pot known as the "Gumper" is located off-boardwalk behind Sour Lake. The more recent features just south of the Gumper are some of the hottest and most active in the area. Ranger-guided walks are offered to provide visitors an opportunity to view this interesting place.

Farther in the backcountry behind Mud Volcano, several features are being tested for the existence of thermophilic microbes, which may offer insights into origin of life theories as well as having medical/environmental applications.

The Sulphur Caldron area can be viewed from a staging area just north of Mud Volcano. The Sulphur Caldron is among the most acidic springs in the park with a pH of 1.3. Its yellow, turbulent splashing waters bring to mind images of Shakespeare's soothsayers. Other features which can be viewed from this overlook are Turbulent Pool (which is no longer "turbulent") and the crater of a large, active mudpot.

For more specific information on the features of the Mud Volcano/Sulphur Caldron area, consult the annual reports that are available in the Ranger Naturalist Office adjacent to the Fishing Bridge Visitor Center.



## **Hayden and Pelican Valleys**

The Hayden Valley is located six miles north of Fishing Bridge Junction. The Pelican Valley is situated three miles east of Fishing Bridge. These two vast valleys comprise some of the best habitat in the lower 48 states for grizzly bears, bison, elk, and other wildlife species.



## **Natural Bridge**

Located just south of Bridge Bay Campground, it is an easy one-mile walk to the Natural Bridge. There is also a bicycle trail leading to the bridge. The Natural Bridge was formed by erosion of this rhyolite outcrop by Bridge Creek. The top of the bridge is approximately 51 ft. above the creek. A short switchback trail leads to the top, though travel across the bridge is now prohibited to protect this feature.

## Lake Area Geologic Highlights

### Yellowstone Lake

Geologists indicate that large volcanic eruptions have occurred in Yellowstone on an approximate interval of 600,000 years. The most recent of these (600,000 years ago) erupted from two large vents, one near Old Faithful, the Mallard Lake Dome, and one just north of Fishing Bridge, the Sour Creek Dome. Ash from this huge explosion, 1,000 times the size of Mt. St. Helens, has been found all across the continent. The magma chamber then collapsed, forming a large caldera filled partially by subsequent lava flows. Part of this caldera is the 136-square mile basin of Yellowstone Lake. The original lake was 200 ft. higher than the present-day lake, extending northward across Hayden Valley to the base of Mt. Washburn.

It is thought that Yellowstone Lake originally drained south into the Pacific Ocean via the Snake River. The lake currently drains north from its only outlet, the Yellowstone River, at Fishing Bridge. The elevation of the lake's north end does not drop substantially until LeHardy Rapids. Therefore, this spot is considered the actual northern boundary of Yellowstone Lake.

In the last decade, geological research has determined that the two volcanic vents, now known as "resurgent domes", are rising again. From year to year, they either rise or fall, with an average net uplift of about one inch per year. During the period between 1923 and 1985, the Sour Creek Dome was rising. In the years since 1986, it has either declined or remained the same. The resurgence of the Sour Creek dome, just north of Fishing Bridge is causing Yellowstone Lake to "tilt" southward. Larger sandy beaches can now be found on the north shore of the lake, and flooded areas can be found in the southern arms.

### Hayden Valley

The Hayden Valley was once filled by an arm of Yellowstone Lake. Therefore, it contains fine-grained lake sediments that are now covered with glacial till left from the most recent glacial retreat 13,000 years ago. Because the glacial till contains many different grain sizes, including clay and a thin layer of lake sediments, water cannot percolate readily into the ground. This is why the Hayden Valley is marshy and has little encroachment of trees.

### Mud Volcano

The thermal features at Mud Volcano and Sulphur Caldron are primarily mud pots and fumaroles because the area is situated on a perched water system with little water available. Fumaroles or "steam vents" occur when the ground water boils away faster than it can be recharged. Also, the vapors are rich in sulfuric acid that leaches the rock, breaking it down into clay. Because no water washes away the acid or leached rock, it remains as sticky clay to form a mud pot. Hydrogen sulfide gas is present deep in the earth at Mud Volcano. As this gas combines with water and the sulfur is metabolized by cyanobacteria, a solution of sulfuric acid is formed that dissolves the surface soils to create pools and cones of clay and mud. Along with hydrogen sulfide, steam, carbon dioxide, and other gases explode through the layers of mud.

A series of shallow earthquakes associated with the volcanic activity in Yellowstone struck this area in 1978. Soil temperatures increased to nearly 200° F (93° C). The slope between Sizzling Basin and Mud Geyser, once covered with green grass and trees, became a barren landscape of fallen trees known as "the cooking hillside."

## Lake Area Historic Highlights

### Fishing Bridge

The original bridge was built in 1902. It was a rough-hewn corduroy log bridge with a slightly different alignment than the current bridge. The existing bridge was built in 1937. The Fishing Bridge was historically a tremendously popular place to fish. Angling from the bridge was quite good, due to the fact that it was a major spawning area for cutthroat trout. However, because of the decline of the cutthroat population (in part, a result of this practice), the bridge was closed to fishing in 1973. Since that time, it has become a popular place to observe fish.



### Fishing Bridge Museum and Visitor Center

The Fishing Bridge Museum was completed in 1931. Built of native rock and stone, it appears to rise out of a rock outcrop. The structure was built to reflect the beauty of nature itself. Approaching from the parking lot, it was designed so that one could see through the building to Yellowstone Lake, hence the notion of focussing on the natural resource that the building was created to interpret. It would eventually become a prototype of rustic architecture in parks all over the nation and was declared a National Historic Landmark in 1987. When automobiles replaced stagecoaches as the main means of transportation through the park, people were no longer accompanied by a guide. The Museum was built as a "Trailside Museum," allowing visitors to obtain information about Yellowstone on their own.

### Lake Village

The buildings comprising historic Lake Village are figuratively, and literally in some cases, landmarks in the history of the Yellowstone story.

#### The Lake Yellowstone Hotel

Built on a site long known as a meeting place for Indians, trappers, and mountain men, the Lake Yellowstone Hotel was ready to serve guests in 1891. At that time, it was not particularly distinctive, resembling any other railroad hotel financed by the Northern Pacific Railroad.



In 1903, the architect of the Old Faithful Inn, Robert Reamer, masterminded the renovation of the Hotel, designing the ionic columns, extending the roof in three places, and adding the 15 false balconies, which prompted it to be known for several years as the "Lake Colonial Hotel." A number of further changes by 1929, including the addition of the dining room, porte-cochere (portico), and sunroom as well as the refurbishing of the interior created the gracious landmark we see today.

By the 1970s, the Hotel had fallen into serious disrepair. In 1981, the National Park Service and the park concessioner, TW Recreational Services, embarked upon a ten-year project to restore the Lake Hotel in appearance to its days of glory in the 1920s. The work was finished for the celebration of the hotel's centennial in 1991. The Hotel was placed on the National Register of Historic Places that year.

The hotel is currently operated by [Xanterra Parks & Resorts](#). Information regarding reservation procedures is available through their website.



### **The Lake Ranger Station**

After a decade of military administration in Yellowstone, Congress created the National Park Service in 1916. Ranger stations began to replace soldier stations throughout the park. The Lake Ranger Station was completed in 1923. The first Director of the National Park Service, Steven Mather, suggested that the station should blend in with its natural and cultural environment. A local woodsman used pioneer building techniques to give the station its "trapper cabin" style. With park architects, Superintendent Horace Albright designed a

large octagonal "community room" with a central stone fireplace. This rustic hall served an informational function by day, and, in the evening, it became the scene of a folksy gathering around a log fire.

### **The Lake Lodge**

The advent of the auto in the park in 1915 created a great influx of visitors. The need arose for an intermediate style of lodging between the luxury of the Lake Hotel and the rustic accommodations of the tent camps. In 1926, the Lake Lodge (also a Robert Reamer design) was completed, one of four lodges in the park. The park was no longer primarily accessible to only affluent "dudes" or hearty "sagebrushers." Democracy had come to Yellowstone.



The lodge is currently operated by [Xanterra Parks & Resorts](#). Information regarding reservation procedures is available through their website.

### **Archeological Research**

For compliance purposes associated with the reconstruction of the East Entrance Road, recent archeological research has been conducted by the Mid-West Archeological Center of the National Park Service. Preliminary studies indicate that indigenous people inhabited the Lake area 9,600 years before present. Numerous projectile points have been found in addition to a hearth (cooking) structure, middens, and a bison harvest site.

## Lake Area NPS Visitor Facilities

### **Fishing Bridge Museum & Visitor Center**

The Fishing Bridge Museum and Visitor Center is located one mile off the Grand Loop Road on the East Entrance Road. Built in 1931, it is a National Historic Landmark. Its distinctive stone-and-log architecture, known as "parkitecture," became a prototype for park buildings all around the country. The historic bird specimens (by Carl Russell) were installed in 1931, provide a good overview of the birds of Yellowstone. Other taxidermied animals include a grizzly sow and two cubs (formerly from the Canyon Visitor Center) and a family of river otters. Because there is no auditorium in this building and because there is no film, video, or slide show on the resources specific to the Lake District, we do not show any audio-visual programs in the Fishing Bridge Visitor Center and Museum. The East Wing of the building houses a large [Yellowstone Association](#) book sales outlet.

### **Lake & Bridge Bay Backcountry Offices**

The Division of Resource Management and Visitor Protection operates two contact stations, the ranger stations at Lake and Bridge Bay, where they issue backcountry and boating permits and also distribute general park information.

## Frequently Asked Questions at Lake Village

### **Q. Why is there no fishing from Fishing Bridge?**

**A.** Because the gravelly bottom of the Yellowstone River at the outlet of the lake is a major spawning area for the cutthroat trout. Overfishing from this once popular fishing spot contributed to the decline of the cutthroat trout in the lake, which is home to the largest inland population of cutthroat trout in the world. Fishing was prohibited from the bridge in 1973.

### **Q. Where is the NPS campground at Fishing Bridge?**

**A.** The Park Service campground, a memorable camping spot for many, was removed in 1989 in compliance with the final decision on the Fishing Bridge EIS of 1988. That planning document called for this and other closures because of the notably high occurrence of bear/human conflicts and the ecological importance of this area to the grizzly bear, a threatened species.

### **Q. How big is Yellowstone Lake? How deep is it? Is it natural?**

**A.** Yellowstone Lake has 136 square miles of surface area and 110 miles of shoreline. Its deepest spot is in excess of 390 ft. according to recent research. It is a natural lake.

### **Q. Is Yellowstone Lake the largest lake in the world?**

**A.** No. It is the largest lake at high elevation in North America (above 7,000 ft.). Lake Tahoe is larger, though it is at lower elevation.

### **Q. Where does the Yellowstone River begin? Where does it end?**

**A.** It begins on the slopes of Yount Peak in the Absaroka Mountain Range outside the southeast boundary of the park and completes its 671-mile run by joining the Missouri River near the Montana and North Dakota border. Its waters then travel to the Mississippi River and on to the Atlantic Ocean at the Gulf of Mexico.

### **Q. What kind of fish live in Yellowstone Lake?**

**A.** Yellowstone cutthroat trout, longnose dace, redbreast shiners, longnose suckers, and lake chubs. In the summer of 1994, illegally introduced lake trout were discovered in Yellowstone Lake. Cutthroat trout and longnose suckers are often seen from Fishing Bridge. The longnose dace, redbreast shiners, and lake chubs are all small minnows and are, therefore, harder to detect from the bridge.

**Q. What fish are native to Yellowstone Lake?**

A. Yellowstone cutthroat trout and possibly the longnose dace are native to Yellowstone Lake; the other fish were most likely introduced by anglers. While the Yellowstone cutthroat trout inhabit Yellowstone Lake, other types of cutthroat trout are found elsewhere in Yellowstone waters, including the west-slope cutthroat and the Snake River (or fine-spotted) cutthroat.

**Q. Where can I see a moose?**

A. Moose are seen fairly commonly in the Lake District. Look in the marshy areas around the river, particularly at the Fishing Bridge. They are also seen with some frequency in the large meadows near Bridge Bay and the marshes along Pelican Creek. Moose are most often seen at dawn and dusk.

**Q. At Mud Volcano: What's that smell?**

A. Hydrogen sulfide gas gives the mud pots their infamous "rotten egg" smell. Sulfur, in the form of iron sulfide, gives the features their many shades of gray.