



A visitor looks out to Horseshoe Bend from the Navajo Sandstone. Moki Marbles sit at the bottom-left corner.

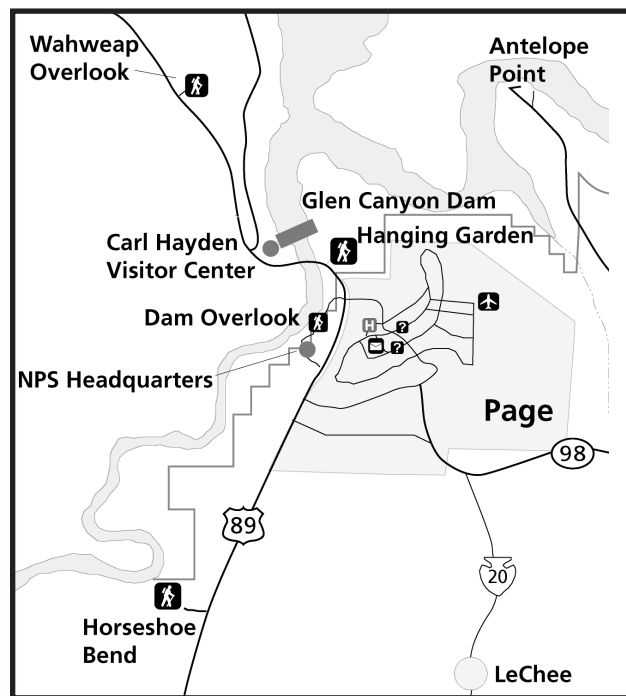
Crunchy Rocks

As you descend, the path is a little bumpier. It alternates between a whitish gravel, more sand, and some pretty solid, sloping rocks, the Navajo Sandstone. Notice how the rock itself has diagonal striped layers. These are the remnants of the layers of the ancient massive sand dunes before they were petrified into stone. The whitish stones tell us how the sandstone was petrified. This rock is calcite, or limestone, the same rock that drips itself into cave formations. Back 180 million years ago, this mineral mixed in with the rain and snow to cement the grains of sand together. The process took about 20 million years, but eventually all of the sand dunes were petrified by the calcite, retaining their beautiful sloping dune shapes. Today, as the grains of sand erode, chunks of the calcite also present themselves. As you get closer to the viewpoint, some of the rocks are covered with hard, sandy bumps. These are concretions of iron. Iron, being heavier than sand grains, was attracted to itself in ball shape while the sandstone was being petrified. Now that the sandstone is eroding away, the iron concretions are coming into view as well. When the little concretion balls break free from the rock, they are known as “Moki Marbles”.

Suggested Reading

Scenes of the Plateau Lands and How They Came to Be, Stokes
The Southwest Inside Out, Wiewandt and Wilks
Colorado Plateau: The Story Behind the Scenery, Ladd
Rainbow of Rocks, M. Chan and W. Parry

Please contact the Glen Canyon Natural History Association for a list of helpful books and maps of the area.
Glen Canyon Natural History Association
P.O. Box 1835 691 Scenic View Drive Page, AZ 86040
928-608-6359 www.glencanyonnha.org
The Glen Canyon NHA has bookstore outlets at Carl Hayden Visitor Center, Bullfrog Visitor Center, Glen Canyon Headquarters, Navajo Bridge Interpretive Center, and Rainbow Bridge docks.



Map to Horseshoe Bend Hiking Trail. Approximately 5 miles (8 km) south of Carl Hayden Visitor Center on U.S. Hwy 89, just south of highway marker 545, turn at the sign onto the dirt road which ascends the small hill. Park at the base of the hill. Vehicles are prohibited beyond the end of the parking lot at the base of the hill.

Glen Canyon NRA
P.O. Box 1507 Page AZ 86040
928-608-6404 www.nps.gov/glca
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National Park Service
U.S. Department of the Interior



Glen Canyon National Recreation Area

Horseshoe Bend Trail Guide



River Mile Nine, where the curve of Horseshoe Bend begins

You've seen the pictures, now visit the real thing for yourself! Ahead of you lies Horseshoe Bend, the tremendous curve in the Colorado River.

Safety Comes First

Take plenty of water. Wear sunglasses, sunscreen, and a hat. Avoid hiking during the hottest part of the day. Tell a friend where you are hiking and when you will be home. There are no guard rails at the viewpoint. Watch your footing, and keep track of your children!

Leave No Trace

Pack garbage out. Don't disturb any plants, rocks, or animals you come across. Dogs must stay on leashes no longer than six feet.

Trail Details

Distance: 1.5 miles (2.4 km) roundtrip. Walking time: 45 minutes. You will be walking up and down a sandy hill and across a gentle sandstone incline.

The Trail

Welcome to the Horseshoe Bend trailhead. Whether this is your first or hundredth visit to this awe-inspiring bend in the Colorado River, you are guaranteed to see something new. The colors of the rocks change throughout the day, the shadows move in and out of the canyons, and as the river flows, it sparkles and shines in different shades of green and blue. As you make your way along the trail, use this guide to bring you closer to some of the details others may have missed along the way.

Recycled Sand

As you walk up the path, the trudge up the sandy hill might seem like a nuisance; but it is actually a walk through cycles of time. About 200 million years ago this sand was part of the largest system of sand dunes the North American continent may have ever seen. These “sand seas” are known as ergs. Our enormous erg was eventually hardened by water and minerals into Navajo Sandstone, an amazing uniform, smooth sandstone layer. It stretches from Arizona to Wyoming, and it can be over two thousand feet thick in some places. When you reach the edge of Horseshoe Bend you will be looking down 1000 feet (305 meters) of the sandstone to the river. After the Navajo Sandstone hardened, other layers of sandstone, mudstone, and different sedimentary layers piled on top of it. Then, after a couple of million years, patient water in the form of rain, ice, floods, and streams, worked to erode away the different layers. Today the Navajo Sandstone is once again exposed, and its sand is slowly wearing away. So now, what you are walking upon is sand from the Navajo Sandstone, which was from the giant Jurassic erg – recycled sand!

Where am I?

Are you at the top of the hill? Look around you. In front of you is the rest of the trail to Horseshoe Bend, and beyond that are the Paria Plateau and Vermillion Cliffs, managed by the Bureau of Land Management. To your right the river leads up to Lake Powell in Glen Canyon National Recreation Area. Behind you, the ever-growing city of Page. And to your left stretches the vast Navajo Nation. You are standing at the crossroads of these unique natural and cultural meeting places.

Horseshoe Bend

You've made it. Worth the walk, wasn't it? The view of Horseshoe Bend from the rim of the canyon is extraordinary. (You'll need a wide-angle lens to get the entire scene in your picture!) If you find the height a little daunting, try lying down on the ground and looking over the edge that way. It gives you a much better sense of security. Make sure you keep an eye on your animal



companions as well; they can slip as easily as you. Below you, the Colorado River makes a wide sweep around a sandstone escarpment. Long ago, as the river meandered southward toward the sea, it always chose the steepest downward slope. This downward journey did not always occur in a straight line, and sometimes the river made wide circles and meanders. As the Colorado Plateau uplifted

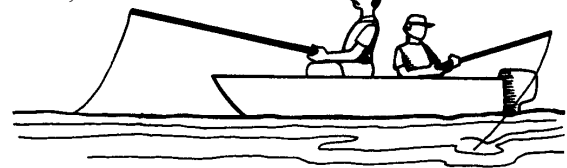
about 5 million years ago, the rivers that meandered across the ancient landscape were trapped in their beds. The rivers cut through the rock, deep and fast, seeking a new natural level. Here at Horseshoe Bend, the Colorado River did just that, and as the river cut down through the layers of sandstone, it created a 270° horseshoe-shaped bend in the canyon.

Conceivably, at some time far in the future, the river could erode through the narrow neck of rock, creating a natural bridge and abandoning the circular channel around the rock. Maybe in a few million years, this will be the site of a brand new natural bridge formed the same way as nearby Rainbow Bridge National Monument.



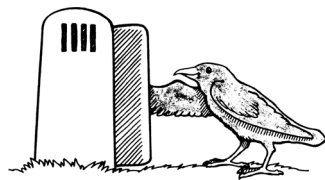
Little Tiny Boats

Fishermen and recreational boaters frequent the 15 miles of Colorado River between Glen Canyon Dam and Lees Ferry. This is the stretch of calm water Major John Wesley Powell floated during his 1869 and 1871 explorations of the Colorado River before he started hitting rapids again downstream in Marble Canyon. The calmness of the water and greenery on the canyon walls inspired him to name Glen Canyon. This stretch of the river is a world-renowned trout fishery. The clear, cold, slow-flowing water makes for a great trout habitat. These same conditions, plus the opportunity to see the last stretch of Glen Canyon unaffected by the Glen Canyon Dam attracts kayakers, rafters, and fishermen.



Is That What I Think it is?

Yes, that is a little outhouse on the beach. There are six designated camping areas on the Colorado River between the dam and Lees Ferry. None of these campsites are accessible by land, they are used by recreational boaters on the river. At all of these locations are outhouses and fire rings. This camping situation is set up for the protection and health of the plants and animals that live along the river, as well as for the convenience of the campers.



Leopard Frogs

A population of leopard frogs (*Rana pipiens*) lives straight below you at the crook of Horseshoe Bend. At least, we hope they still do. All over the world amphibian populations are decreasing, and the situation here is no different. This unique population of frogs was studied in the 1990s because of its isolation from any other leopard frogs on the Colorado River system. The construction of the Glen Canyon Dam forever changed the habitat of this group, cutting them off from the rest of the leopard frog groups now living on the shores of Lake Powell. In the fall of 2005, there was a study made by the US Geological Survey to see how the population was faring. Leopard frogs range over North America, and can live in cold or warm waters. Despite this, the species is still at risk throughout the nation. The National Park Service and Bureau of Reclamation have been working together as part of the Bureau's Adaptive Management program to try to ensure that the Horseshoe Bend leopard frogs thrive.



Ancient Messages

Down on the river, you could stop here to see the only petroglyph panel available for the public to see in Glen Canyon below the dam. These rock carvings were left here by Ancestral Puebloans (called by some "Anasazi") over 800 years ago. At this particular terrace, we have evidence that the people who made the carvings also did some farming: corn, beans, and squash. But they don't seem to have lived down at the river level, because although the river water was great for farming, it was far too silty for drinking. These messages the ancients left to each other are beautiful and precious to us. Your messages to each other today are not. Graffiti carvings in the rock are disappointing to see and illegal to make. Please leave this stunning view the way you found it.

