

# The Fossil Lake Story

Fifty-million years ago ancient Fossil Lake existed in what is now southwest Wyoming. Of its estimated maximum extent of 930 square miles, approximately 500 square miles of sediments remain. The 230 square miles across the center of the ancient lakebed contain exceptionally fossiliferous sediments and associated geologic features including deltas, beaches, springs, and rocks from center and near shore environments.

The unusual chemistry of Fossil Lake prevented decay and scavenging of dead organisms, while millimeter-thick layers of alternating limestone and organic matter slowly accumulated. The resulting laminated limestones contain the highest concentration of articulated fossil fish in the world. These fish, other fossilized aquatic organisms, and associated geologic features make Fossil Lake the world's best Paleogene record of a freshwater lake ecosystem.

Since its discovery in the 1870s more than a million perfectly preserved fossil fish have been recovered. Preserved with the fish in the laminated limestone is a complete ancient aquatic ecosystem: cyanobacteria, plants, insects, crustaceans (shrimp, crayfish, and ostracods), amphibians (frog and primitive salamander), alligators, turtles, birds and mammals, including the oldest pantolestid (otter-like animal). The subtropical terrestrial ecosystem surrounding the lake is also represented by rare fossils, including a horse, two snakes, lizards, two bat species, birds, an apatemyid (an arboreal insectivore), a miacid (primitive carnivore), insects, and more than 325 types of leaves, seeds and flowers.



**Amphiplaga  
brachyptera**

Although commonly known as trout-perch, this fish is neither trout nor perch. Its relatives today are restricted to near-shore freshwater environments of North America. Length: up to 15 cm (6 in).



**Diplomystus  
dentatus**

This is the second most common fish in Fossil Lake. Fish are occasionally preserved in their stomachs or stuck in their mouths, which indicates it included fish in its diet. Length: up to 61 cm (24 in).



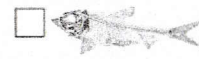
**Hiodon  
falcatus**

Based on its living relatives, *H. falcatus* fed on insects and lived mostly in streams, which may explain its relative rarity in Fossil Lake. Length: up to 30 cm (12 in).



**Knightia  
alta**

The deep-bodied *K. alta* is less common in Fossil Lake than *K. eocaena*, unlike neighboring Lake Gosiute which contains abundant *K. alta* and fewer *K. eocaena*. Length: up to 18 cm (7 in).



**Knightia  
eocaena**

*K. eocaena* is the most common fish in Fossil Lake and may be the most common articulated vertebrate fossil in the world. It is Wyoming's state fossil. Length: up to 25 cm (10 in).



**Mioplosus  
labracoides**

Of all the Fossil Lake species, *Mioplosus* are most commonly found with other fish stuck in their mouths. One fish died trying to swallow a *Knightia* half its own length. Length: up to 50 cm (20 in).



**Notogoneus  
oculus**

Adults and fry are only found in one horizon, the 18-inch layer. The lack of juveniles may suggest that adults spawned in the lake and fry returned to the streams to mature. Length: up to 60 cm (24 in).



**Phareodus  
encaustus**

Many sharp teeth indicate this fish was a piscivore (fish-eater). In fact, remains of *Knightia*, *Mioplosus*, and *Priscacara* have been found in *P. encaustus* stomachs. Length: up to 76 cm (30 in).



**Phareodus  
testis**

Although smaller than *Phareodus encaustus*, this fish was just as well equipped with teeth as its larger relative. Length: up to 38 cm (15 in).



**Priscacara  
hypsacantha**

According to recent reviews, this small perch-like fish is not a *Priscacara*. Its formal name will not likely change until the whole perch group is revised. Length: up to 15 cm (6 in).



**Priscacara  
liops**

A mass death of these fish suggests they formed schools much like modern bluegill or crappie. Length: up to 15 cm (6 in).



**Priscacara  
serrata**

Rounded crushing teeth suggest this fish ate shrimp, crayfish, or ostracods. It grew much larger than *P. liops*. Length: up to 43 cm (17 in).