



**US Army Corps
of Engineers**
Portland District

ABOUT THE CORPS

The U.S. Army Corps of Engineers is the federal government's largest water resources development and management agency. The variety and challenge of water projects under its civil works program also serve to maintain a broad range of engineering skills critical to the Corps' capabilities and performance during national emergencies.

The Corps water resources program began in 1824 when the U.S. Congress first appropriated money for improving river navigation. Since then, the Corps has been involved in improving ports and river navigation, reducing flood damage and controlling beach erosion. Along with these missions, the Corps generates hydropower, supplies water to cities and industries, regulates development in navigable waters and wetlands, and operates an extensive recreation program. Today, the Corps manages nearly 2,000 water resources projects.

Sustaining the region's fisheries is not a new emphasis for the Corps. When Bonneville Dam was completed in the 1930's, fish ladders and bypass systems were ready. One million fish of various species were passed through the dam each of the first 30 years of operation. Continuous improvement and "state of the art" are the goals for fish passage facilities. The Corps has conducted more than \$60 million in fisheries-related research since the 1950's.

Along with developing our nation's water resources, the Corps is equally committed to providing a balance to conserve our natural environment.



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Public Information
U.S. Army Corps of Engineers
Portland District
P.O. Box 2946
Portland, OR 97208-2946

Bonneville Lock and Dam Project
U.S. Army Corps of Engineers
Cascade Locks, OR 97014-0150

The Dalles-John Day Project
U.S. Army Corps of Engineers
P.O. Box 564
The Dalles, OR 97058-9998

Fish Identification Booklet



Chinook or King Salmon



Coho Salmon



Steelhead



Sockeye Salmon



Shad



Lamprey



Sturgeon



SOCKEYE SALMON

Oncorhynchus nerka

Mature sockeye salmon (commonly called blueback, silver-side, Alaska red, or nerka) average three to seven pounds but can get as large as 15 pounds.

Unlike other salmon, sockeye require spawning grounds in streams flowing into or from lakes. After sockeye eggs hatch in the stream, juveniles migrate to a lake and spend one to two years there before migrating to the ocean. They will mature in the ocean, and usually return to the same stream to spawn between the ages of two and five.

Landlocked sockeye are called Kokanees. Since these fish do not migrate to the ocean (e.g. those found in Lake Tahoe), they live their lives in fresh water, moving between feeding and spawning areas.

DISTINGUISHING CHARACTERISTICS:

- ◆ Metallic blue back with silvery sides
- ◆ Spawning males turn bright red with a green head and tail and a hump on their backs. Females turn a similar color, but the body is a darker blotched red and has no hump.
- ◆ Fine black speckles are visible especially during spawning, but are difficult to see in migrating adults when they are still bright (or silvery) when they return from the ocean.
- ◆ Almost clear tail and fins

WHEN THEY PASS THE DAMS:

The peak of this run can be found in the lower Columbia River in July, although sockeye can be seen as early as May and as late as August.

CHINOOK SALMON

Oncorhynchus tshawytscha

Chinook (or King) salmon are the largest of the Columbia River salmon. Adults average 22 pounds, but many people frequently see 40- to 50-pound fish in the fish ladders at Bonneville Dam.

Chinook salmon spawn in the late summer and fall and die. In the spring, their offspring use the runoff provided by snowmelt to migrate to the ocean. Fingerlings from the spring and summer runs may stay in the river up to one and one-half years before starting their downstream migration. After spending two to five years in the ocean, the chinook migrate up the Columbia River to the stream where they were born. There, they spawn and die, completing the cycle.

DISTINGUISHING CHARACTERISTICS:

- ◆ Large size
- ◆ Oval body
- ◆ Silver in color until close to spawning when the male turn a dark "dirty" maroon hue or red color. The females become darker silver to almost black.
- ◆ Spots on the upper portion of body and on the tail or 'caudal fin'
- ◆ Crescent shape end of tail
- ◆ Black gum line

WHEN THEY PASS THE DAMS:

Chinook salmon pass the lower Columbia River dams between April and November in three runs:

- ◆ **Spring:** March to June
- ◆ **Summer:** June to July
- ◆ **Fall:** August to November (most numerous)

The spring chinook run goes farthest upriver to spawn, the summer run doesn't go as far, and most of the fall run stays in the lower Columbia tributaries, though some stocks go into the Snake River and its tributaries. Some fall chinook do spawn above the lower Columbia River, for example the fall Snake River chinook which has been declared an endangered species.



COHO SALMON

Oncorhynchus kisutch

Mature Columbia River coho (or silver) salmon average six to 12 pounds and can grow as large as 26 pounds.

Coho juveniles spend about a year in the stream where they were spawned, and move out of those streams when they are three and one-half or four and one-half inches long. They migrate to the ocean during the spring runoff. Adults generally spend one to two years in the ocean before returning to spawn and die in the stream where they were born.

DISTINGUISHING CHARACTERISTICS:

- ◆ Coho is most often confused with the chinook
- ◆ Long oval body
- ◆ Silver in color until they are near spawning, when the male turns a brick-red color and the female becomes a dull bronze.
- ◆ Spots on upper portion of body and on upper tip of tail.
- ◆ Crescent shaped end of tail
- ◆ White gum line
- ◆ "Nose" protrudes over lower jaw as the fish near spawning

WHEN THEY PASS THE DAMS:

The coho go through the fish ladders of lower Columbia River dams between August and November, with the peak of the run during September.

STEELHEAD

Oncorhynchus mykiss

Steelhead are rainbow trout that migrate to the sea. They average 10 pounds and can grow as large as 42 pounds.

Unlike salmon, steelhead do not necessarily die after spawning and a few may spawn several times. They spend from one to four years in the ocean before returning to their spawning streams. Spawning occurs any time from late winter to late spring. Juvenile steelhead can spend from one to three years in fresh water before migrating to the ocean.

DISTINGUISHING CHARACTERISTICS:

- ◆ Long slender body ("torpedo" shaped)
- ◆ Steel blue, spotted back with silvery sides. When close to spawning, both the male and female develop a pink to rose-red stripe down the sides (the "rainbow") and get a slight olive green tint on the back.
- ◆ Squared-off end of tail with fine spots throughout
- ◆ White gum line
- ◆ Hatchery raised fish will have adipose fin (on back just in front of tail) clipped for identification.

WHEN THEY PASS THE DAMS:

Steelhead can be seen throughout the year although most steelhead move past the lower Columbia River dams from July through September. There are two runs of steelhead:

- ◆ **Summer:** April through October
- ◆ **Winter:** November through April

Many winter run steelhead spawn in the lower Columbia tributaries. Summer run fish pass the lower Columbia River dams and migrate to the upper reaches of the Columbia and Snake rivers, where they spend the winter, and then move to their home streams in the spring to spawn.



AMERICAN SHAD

Alosa sapidissima

American shad are members of the herring family. Adults average 15 to 17 inches in length and weigh two to six pounds. They can grow as large as 13 pounds. These Atlantic Ocean fish were introduced into the Sacramento River in 1871 and are now found as far north as Alaska along the Pacific coast. Adult shad spend three to five years in the ocean. Most return to spawn in open water in the Columbia River at age five. Not all shad die after spawning and some may actually return to spawn up to five times during their lifetime. Juveniles spend the summer in fresh water and migrate to the ocean in the fall.

DISTINGUISHING CHARACTERISTICS:

- ◆ Teardrop body shape
- ◆ Deeply notched tail that forms a "V"
- ◆ Several large spots along the back between the head and dorsal fin
- ◆ Often seen in groups
- ◆ Iridescent in bright light, with large scales (like carp)
- ◆ No adipose fin

WHEN THEY PASS THE DAMS:

Shad can be seen in the fish ladders of lower Columbia River dams from May to August. The run peaks in mid-June.



WHITE STURGEON

Acipenser transmontanus

White sturgeon are commonly found above and below Bonneville Dam, as well as throughout the Columbia and Snake rivers. These fish like deep, cavernous areas, and are bottom feeders. Sturgeon are anadromous, which means they go from the ocean to fresh water to spawn. If they are not able to get to the ocean, they may successfully live their entire lives in fresh water.

Although rarely seen in the fish ladders at Bonneville, many sturgeon are caught by anglers below the dam. Their roe (eggs) are a delicacy and their flesh is tender and boneless.

DISTINGUISHING CHARACTERISTICS:

- ◆ Grey color, with sharp bony plates (scutes) along the back
- ◆ The skeleton is mostly cartilage
- ◆ Toothless mouth protrudes from the underside of the head
- ◆ Can live up to 100 years
- ◆ Can grow to 20 feet long and weigh up to 1,800 pounds
- ◆ Contrary to popular belief, they do not change sex

WHEN THEY PASS THE DAMS:

Few sturgeon migrate through the fish ladders. Anglers fish year round for sturgeon below Bonneville Dam.

There are a few live sturgeon (adult and juvenile) on display at the Bonneville Fish Hatchery.



LAMPREY

Lampetra tridentata

The Pacific Lamprey has been an important fish in the Columbia River for centuries and is vital to Columbia River tribal fisheries. Lamprey have few natural predators.

Lamprey look so much like an eel that people often call them "lamprey eels." These three-toothed lamprey are anadromous, meaning they are born in fresh water, grow to maturity in the ocean, and return to the fresh water to reproduce. They swim using a snake-like motion, and rest by attaching to rocks with their suction-cup-shaped mouths.

DISTINGUISHING CHARACTERISTICS:

- ◆ Body shaped like an eel
- ◆ Three-toothed suction-cup mouth
- ◆ Skeleton made of cartilage
- ◆ Life span of 7 years or more
- ◆ Female lays between 34,000 and 106,000 eggs
- ◆ Worm-like larvae (young)
- ◆ Returning adult average size 22 to 28 inches

WHEN THEY PASS THE DAMS:

Lamprey can be seen in the fish ladders of lower Columbia River dams from June to August.