

Open with “The Klamath Project” come up over visuals of a scene of a field being irrigated, replaced by a canal with running water to lead to the first paragraph.

The Klamath Project

The Klamath – Enriched by Resources.

For many of us, nothing stirs more emotion than the lure of water.

And, nothing makes us more nostalgic about our heritage than memories of the American West.

The story of the Klamath Irrigation Project includes both.

Take a moment to think about water.

Water is a simple resource, but one that most of us take for granted.

No matter who you are, or where you live, water is vital to your existence.

Let’s take a look at the Upper Klamath Basin, one of the nation’s greatest treasures.

The Klamath River begins in Oregon, extends into California and eventually winds its way to the Pacific Ocean.

The Basin is an intriguing place that’s rich in history and natural resources.

In some places, the dry land is scattered with sagebrush. In other places, lush woodlands and marshes thrive.

The Upper Klamath River Basin has even been referred to as the “Western Everglades,” comparing it to Florida’s famous region.

As a land of mountains, forests, wetlands, lakes and rivers, the entire Klamath River Basin is over 16-thousand square miles in size, making it larger than nine of the fifty states!

The diverse Basin encompasses everything from Upper Klamath Lake with its native sucker populations, to the West's largest population of migratory birds, to the Klamath River's seasonal salmon runs.

The Basin is located in the middle of the Pacific Flyway; a route used for centuries by birds making their yearly migratory pilgrimages.

With over 350-thousand acres of wetlands, about 6 million waterfowl a year pass through the Upper Klamath Basin, taking advantage of the ideal environment for resting and feeding.

The same amenities that attract the birds also presented a lucrative opportunity for early settlers.

They knew that if there was predictable water, the Upper Basin would become a fruitful place to farm and ranch.

The federal government recognized this opportunity, and authorized the Klamath Reclamation Project in 1905.

The ultimate goal was to provide fertile farm land for settlers by building canal systems to provide irrigation water and to reclaim some of the Basin's lands that were known then as either desert or swampland.

At the same time, dams were built to redirect water to control flooding and provide electricity.

But we're getting a little ahead of ourselves. Let's take a look at the history of one of the major developments in the Klamath Basin, the Klamath Irrigation Project.

How the Klamath Project Began:

Let's step back in time to see the events that shaped the legacy of the Upper Klamath River Basin.

Indian tribes lived in the Basin from ancient times. These were highly nomadic peoples, vitally attuned to the resources and the seasons. Among them, the Klamaths, lived along the Klamath Marsh, on the banks of Agency

Lake, near the mouth of the Lower Williamson River, on Pelican Bay, beside the Link River, and in the uplands of the Sprague River Valley. The Modoc's lands included the Lower Lost River, around Clear Lake, Lower Klamath Lake and Tule Lake, including the territory that extended south as far as the mountains beyond Goose Lake.

The Yahooskin occupied the area east of the Yamsay Mountains, south of Lakeview, and north of Fort Rock. The Tribes hunted these lands and fished the waters.

The first European settlers to enter the Upper Klamath Basin were fur trappers.

They came to the Klamath basin in the early 1800's stalking the large beaver population. Settlers, lured to the Oregon Territory by promises of fertile farmland, followed the trappers.

Competition for the rich resources of the Upper Klamath River Basin produced a great deal of unrest during the past century and a half.

The legacies of the quarrels between trappers, conflicts over minerals, the Indian wars, the current conflicts over land, timber, fish and water, continue the controversy in this beautiful area.

In 1882, farmers introduced irrigation to the Upper Basin.

Irrigation was necessary to the farmers because lack of timely and sufficient rain made watering crops a challenge.

The earliest irrigation project in the Upper Klamath Basin occurred when some residents of the town of Linkville dug a low capacity ditch connecting the town to the Link River, two miles above the present-day town of Klamath Falls.

The ditch was later extended and enlarged, turning it into a high capacity canal, known as the Ankeny-Henley Canal.

Additional ditches and canals were built in various places in the Upper Klamath Basin, mainly to provide power to mills, transport logs, and to supply irrigation water for farms and ranches.

These ingenious projects certainly improved life for the new residents in the region.

These small privately funded efforts became known as “reclamation” projects, following the idea that irrigation would “reclaim” either arid or swamp lands for productive use.

Supporters reasoned irrigation would encourage settlement of the West, making homes for Americans on family farms and ranches. In 1895, hydroelectric power first lit up the little settlement.

The Klamath Belle paddle wheeler and other steamboats and barges provided transportation and freight to the growing outpost.

President Theodore Roosevelt signed the Reclamation Act of 1902 authorizing the United States Reclamation Service to study large-scale water development in the western states.

The next year, an engineer came to the Upper Klamath Basin area at the request of local residents to investigate the possibility of a federal reclamation project.

They found the area to be a long gradually sloping basin that on average dropped a foot in elevation every 1,000 feet.

Upper Klamath Lake was at the northern end and two large shallow lakes, Lower Klamath and Tule Lake were to the south.

The Lost River Basin is just to the east.

The challenge for Reclamation would be to divert water from the Lost River Basin to prevent continual flooding of the area, and to drain Tule Lake and part of Lower Klamath Lake to create productive farmland.

Approval for the Project would also mean an end to navigation on Lower Klamath Lake and Tule Lake.

Oregon and California ceded land in the Upper Klamath Basin to the Federal Government for the purpose of developing agricultural homesteads.

Despite the challenges, local farmers and residents of Klamath Falls, Merrill and Bonanza were enthusiastic supporters of the Project, and the Reclamation Service began to buy and unify private water projects into one master plan.

In 1905, the U.S. Bureau of Reclamation started planning construction of the Klamath Project to develop the vast network of canals and drains that supply water to agricultural land throughout the Project.

By the time the water is used by wildlife refuges it is at the bottom of the valley, twenty-eight feet lower than the Klamath River.

Then it is pumped back uphill ten miles until it reaches the Klamath River and a new journey, this time for use downstream.

In 1921, a permanent regulating dam was constructed on the Link River at the outlet of Upper Klamath Lake to help store and control water for irrigation purposes and to produce electrical power.

The Klamath River, with its many tributaries, becomes the fourth largest river in the West by the time it reaches the ocean.

But at the top of the Basin, the home of the Klamath Project, it is a different story. On the dry side of the Cascades, Upper Klamath Lake is a shallow fresh water lake about 20 miles long and averages about 5 feet deep. The lake's water quality is compromised by its location on phosphorous rich volcanic rock and ash formed centuries ago as a result of volcanic activity.

The Project depends on the unpredictable behavior of Mother Nature to provide sufficient snow pack in winter; snowmelt and rain in spring and occasional rain throughout the summer and early fall to fill Upper Klamath Lake.

In the early years, once Reclamation completed the necessary canals and laterals for irrigation, the land units were offered in open public drawings. Later, lands were offered in lotteries to returning veterans. There were at least 12 lotteries between 1917 and 1949. The drawings were attended by hundreds of people from surrounding communities. These farmers and ranchers worked hard and the area flourished.

Unfortunately, the West suffers from a prolonged periods of drought. Droughts result in stressful conditions for fish and wildlife, as well as farmers and ranchers.

When this happens, the Klamath Project's task of fulfilling the competing demands for water becomes especially challenging.

Storage is an essential element in meeting today's water demands.

Unfortunately, no large magnitude off-stream storage is available for the Klamath Project.

The series of small dams and reservoirs that comprise the Project are essential for flood control and small scale storage for the entire watershed.

Without proper flow control, these dams would spill valuable water in the spring, and the rivers could go dry in the late summer, reducing output and efficiency.

In some years, because of differences in the weather and climate, not enough water is available to meet all the competing demands in the Klamath watershed.

This is why staff of the Klamath Project are constantly looking for ways to make sure the water is handled and distributed efficiently.

In due course, the Klamath Project grew to encompass three storage reservoirs providing active storage of 431,000 acre-feet of water in Upper Klamath Lake and a potential of 583,000 in the Lost River Basin, although Clear Lake has only come near to filling once in eighty years.

More than 1,220 miles of canals and drains, 37 pumps, and 2 tunnels provide service to water users, and provide seasonal water for 6 national wildlife refuges, which are part of the Klamath Basin National Wildlife Refuges Complex.

The Tribes believe that these alterations cause problems for the resources that are so important to them: lake levels and river flows.

Approximately 210,000 acres of cropland on about 1,400 farms and ranches reap the benefits of the Klamath Project.

High irrigation efficiencies are achieved Project-wide through reuse of water.

A vital part of the Klamath Project are the 185 miles of canals, 490 miles of lateral ditches and 545 miles of drains that collect irrigation water and recycle it back through the system for reuse up to seven times.

Because of the water Reclamation manages, ranchers have thriving herds of livestock and farmers grow a wide variety of crops such as cereal grains, alfalfa, potatoes and onions fueling a \$300,000,000 agriculture dependent economy throughout the Upper Klamath Basin.

While agricultural development and settlement thrived in the former swampland, birds and other wildlife were being displaced by the reduction in habitat.

In response, Congress passed legislation that dedicated much of the remaining lake area to preserving a successful mix of wetlands and croplands.

The Klamath Irrigation Project Today

Over a period of 100 years, and a process of trial and error, the Klamath Project today is an amazing series of lakes, rivers, canals, dams and reservoirs.

To understand how the Klamath Project benefits you, let's take a tour of the area and learn how all that water flows, cascades and ripples through the system.

Two main sources supply water for the Project: Upper Klamath Lake and the Klamath River on the west side and Clear Lake Reservoir and Gerber Reservoir, which are located in a closed basin on the east side.

In addition to providing water for irrigation and wildlife refuges, the Klamath Project plays a crucial role in controlling floods in the Tule Lake and Lower Klamath Lake region.

The Klamath Project stores water in Clear Lake and Gerber for the Lost River System.

Let's start at **Clear Lake Dam and Reservoir**, the head of the Lost River in California and only a few miles from the Oregon border.

Originally, Clear Lake dam was constructed from earth and rock, and was 42 feet high.

A new concrete dam with fish screens was completed in 2002 to provide improved safety and reduce the stranding of endangered Suckers when the water recedes in the fall.

Malone Diversion Dam, also on the Lost River, is located about 11 miles downstream from Clear Lake Dam.

The Malone Dam simply serves to control and divert irrigation water into two main canals that supply water for lands in the Langell Valley.

Our next stop is the **Gerber Dam and Reservoir**, located on Miller Creek near Bonanza, Oregon.

Gerber Reservoir functions in much the same way as Clear Lake, providing water storage for irrigation.

This dam is an 84 feet high concrete arch structure.

Prior to construction of the dam, Miller Creek ran dry from June to October most years.

Now it supports a sport fishery.

Miller Diversion Dam, located on Miller Creek about 8 miles below the Gerber Dam, is a small wooden structure that channels the irrigation releases from Gerber Dam into Langell Valley's North canal to provide irrigation water for the east side of the Langell Valley.

Let's move west to the **Lost River Diversion Dam**, located near Olene, Oregon.

Here, excess water from the Lost River is diverted to the Klamath River for irrigation and flood control.

The diversion channel was first constructed in 1911-1912 and enlarged over the years to accommodate larger flows.

If this diversion dam were not in place, some of the reclaimed portions of the Tule Lake area would likely be flooded during some times of the year.

The dam itself looks like a horseshoe with earthen wings and is sometimes referred to as "Horseshoe Dam".

The **Lost River Diversion Channel** flows nearly 8 miles from the Lost River Diversion Dam to the Klamath River.

This channel carries excess water to the Klamath River during the winter and spring months and provides additional irrigation and refuge water for the Tule Lake area during the summer months by reverse flow from the Klamath River.

At the **Anderson-Rose Diversion Dam** on the Lost River near Merrill, Oregon, water is directed to serve the lands reclaimed from the lakebed of Tule Lake.

The Klamath Project stores water in Upper Klamath Lake for the Klamath River system.

The A Canal is the Project's principal water delivery channel.

It diverts water that had been stored in Upper Klamath Lake, serving the largest area and delivering the most water of any Project feature. Reclamation installed a \$15 million dollar fish screen at the entry to the canal in 2003 to ensure that fish do not enter the canals and become marooned when the water recedes in the fall.

Typical water delivery operations of the Project begin in April and continue into October.

Flows generally begin at about 500 cfs to charge the canal system with a gradual increase to a peak of near 1,000 cfs in May or June.

The operation of the Project accommodates requirements established by Biological Opinions written by two Federal agencies to protect endangered species.

By 2001, nearly 100 years of consistent water delivery created some of the most productive agricultural land in the world. Yet, extremely low water caused by several years of drought conditions triggered regulations in the Endangered Species Act that forced a lapse in water delivery for nearly an entire season. The result was financially disastrous for irrigators and a strain on the regional economy. Since then, Reclamation has been working to balance the competing demands for water from irrigators, endangered species and Tribal trust requirements.

The Fish and Wildlife Services Biological Opinion protects the Lost River and shortnose suckers in Upper Klamath Lake. NOAA-Fisheries Biological Opinion protects the Coho salmon in the Klamath River. Reclamation also consults with the Hoopa Valley, Karuk, Klamath and Yurok Tribes on the Klamath Project operations as they affect the Federal government's responsibilities to the Tribes.

Immediately downstream of the A Canal intake, you'll find the **Link River Dam**. Built on one of the rocky reefs that once formed a natural barrier at

the outlet of the Lake, this dam was completed in 1921. It regulates storage and flow of water from the Upper Klamath Lake.

Reclamation installed a \$2.4 million fish ladder in 2004 to provide returning endangered fish improved access to Upper Klamath Lake and the rivers beyond.

The Ady Canal was constructed by the Klamath Drainage District and enlarged by Reclamation to serve lands within the District and later to serve water to the Lower Klamath National Wildlife Refuge.

The P Canal conveys water discharged from the Tule Lake Tunnel to multipurpose sumps located within the Lower Klamath National Wildlife Refuge.

In addition, water is conveyed to federal leased lands in the lower Klamath area and to some private land owners under surplus water rental agreements.

The Klamath Straits Drain begins at the Oregon-California border and continues northwesterly to the Klamath River.

The Straits Drain starts in the Lower Klamath Refuge, where it receives water from the Tule Lake National Wildlife Refuge.

The water is lifted over twenty feet by a series of pumps and released into the Klamath River.

This is how Reclamation created a series of diversions to reclaim land for agriculture and settlement.

Stick Around - - - and we'll show you the ongoing challenge of balancing the needs of both wildlife and people.

WATER: SUPPLY AND DEMAND

The shallow lakes and freshwater marshes of the Upper Klamath Basin are a yearly destination for over 6 million water birds.

You'll see many thousands of pelicans, ducks, cormorants, herons, egrets, geese, swans, and hundreds of shore birds like killdeer, avocets and curlew.

The nation's very first waterfowl refuge is the **Lower Klamath**.

It contains a diverse mix of shallow freshwater marshes, open water, and grassy uplands.

Croplands are maintained to provide feeding, resting, nesting and general habitat for waterfowl.

To make sure these birds have a place to rest and feed for many years to come, the coordinated efforts of Reclamation and the Fish and Wildlife Service, have established co-existing agricultural and water programs.

For example, at the **Tule Lake Wildlife Refuge**, farmers plant productive agriculture crops surrounding the wetland habitats.

The crops are shared with waterfowl, and serve as high-energy food for the ducks and geese that migrate there.

The Fish and Wildlife Service, in cooperation with Reclamation and local farmers, have agreed to rotate wetlands and croplands in this area over a period of several years.

This rotation of farm to wetland mirrors the natural wetland cycle of creation and succession.

As a result, some areas, like the Lower Klamath National Wildlife Refuge, note an increase in diverse waterfowl populations.

Bear Valley Refuge was established to protect a night roost site for wintering bald eagles.

Mature stands of evergreens have open branching patterns of large limbs, which allow easy access for the eagles.

Starting in November, as many as 300 bald eagles roost here in a single night!

Part V: In Conclusion...

It's important to recognize the critical role water played in the settlement of the American West and continues to play in the Klamath Basin today.

In the Klamath, when swamplands were drained, new land was opened for agriculture.

Through the irrigation efforts, those farmlands and ranchlands were supplied with valuable water resources.

Much of our Western heritage is a result of Reclamation facilitating settlement and enhancing our way of life.

The process was not an easy one, but Reclamation learned some valuable lessons throughout the decades, and more knowledge is gained through each passing year.

The Klamath Project's goal is to serve multiple purposes: to help restore vital watersheds, healthy fisheries and a naturally diverse Klamath Basin, to deliver water to farms and ranches, and to contribute to the Tribal Trust responsibilities of the Federal government.

To accomplish this compound goal, over the past several years, the Project has focused on efforts that will accommodate the needs of both wildlife and people.

As a result, the Klamath River Basin will benefit from a healthy economy and a higher quality of life.

Although the competition for the Klamath's rich resources characterized the last century, Reclamation is dedicated to making the next century's hallmark one of enhancing and sharing the valuable resources in the Klamath Basin based on sound scientific decisions.

We hope you have enjoyed your introduction to the mighty Klamath!

Closing credits.

