MODERN WASHINGTON

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- Columbia Basin Project Interactive Map
  Harnessing the River: The Mighty Columbia
  Energy Production: The Power of Water
  Hanford: Atomic City
  Irrigation: The Key to Prosperity
- Encyclopedia Washingtonia
- Columbia River Theater
- Conversations With Washington

LOOKING BACK WHILE MOVING FORWARD

PEOPLE AND THE LAND

"Scoop Jackson once said that electricity has done more than anything else since the white man came to this country. And if you look at this country, this was desert country. The Columbia Basin Project transformed this whole area into the most productive farmland in the world."

—Vera Claussen, PUD Commissioner for Grant County

No one can stop change. We can review decisions that affect change, we can observe changes in nature and in population, we can even do our best to predict change, but trying to stop change is like trying to stop time. Can't be done. In the Modern Washington section of the exhibit, students use an interactive map and the three-screen film "River of the West" to look closely at Columbia Basin Projects such as Grand Coulee Dam and Hanford as effectors of change in modern-day Washington. Additionally, students can explore historic happenings through the interactive bank of computers known as "Encyclopedia Washingtonia" and meet 16 contemporary Washingtonians via "Conversations with Washington."

Through these exhibit components, students can begin to make connections between past actions and present situations. What sacrifices have we made in the past to ensure "prosperity" in the future? How have our values changed from one generation to the next? How might our present-day actions affect Washington's future? These are some of the questions posed in Modern Washington.

COLUMBIA BASIN PROJECT

Harnessing the River: The Mighty Columbia

The Columbia River is the most powerful river in North America. Its forceful flow carries one-third of the potential hydroelectric energy of all of the rivers of the continent.

To harness this power was a long-felt desire of settlers in the Columbia Basin. In 1932, a congressional commission recommended that the federal government construct a series of dams to produce electricity and to irrigate farms. President Hoover rejected the project largely because of its cost and the lack of market for the

Modern Washington VOCABULARY

ATOMIC
Relating to or utilizing changes in the nucleus of an atom; as in the production of atomic energy, atomic power, and atomic weapons.

HYDROELECTRICITY
Electricity produced by the force of water.

RESERVOIR
A place where water is collected and kept in quantity for use when wanted. Especially an artificial lake in which water is impounded for domestic and industrial use, irrigation, hydroelectric power, flood control, or other purposes.

SPAWN
To lay and fertilize eggs; an abundance of newly hatched offspring. Pacific salmon inherently return to the rivers and streams where they hatched to spawn.

AGRICULTURE
The science or art of raising crops or animals. Some of Washington's agricultural resources include wheat, hops, orchards, cattle, and sheep.

COMMUNITY
A group of people living in a common area and abiding by particular rules. The people of Washington form a large community that lives by state and federal laws.

NUCLEAR
Utilizing atomic power or atomic energy.
electric power. But as Hoover's successor, Franklin Delano Roosevelt, campaigned for the presidency, he promised to build a dam at Bonneville. In office, FDR built the Grand Coulee Dam as well in order to generate jobs during the Depression.

**Sacrifice of the Spawners**

Columbia River salmon were the major food source for most of Washington's indigenous people and the mainstay, for generations, of its non-Indian fishing and canning industry. Although fish ladders were built at the Bonneville Dam, salmon migration upstream declined following its construction. By 1992 when over 200 major dams spanned the Columbia and its tributaries, the wild salmon run, which once exceeded ten million, had declined by 90%.

The dams are not the sole threat to the wild salmon species’ ability to survive. Other factors, including logging practices and overfishing, had also reduced the population of spawners.

**Land Beneath the Waters**

The dams of the Columbia Basin Project created 75 reservoirs. The largest is Lake Roosevelt which covers 100,000 acres from Grand Coulee to the Canadian border. The lake flooded 11 towns and 18,000 acres of land on the Colville Reservation. As the water rose, WPA workers cleared the terrain, burning buildings and cutting trees.

**Questions & Answers from the Columbia Basin Interactive Map**

Q: How long is the Columbia River and what are the boundaries of the region that is called the Columbia Basin?

A: The Columbia River is 1,210 miles long. The area drained by the Columbia and its tributaries covers portions of seven states and British Columbia. The watersheds of the Columbia Basin form a rough triangle each side of which is approximately 250 miles in length.

Q: What did Indian people lose when the Grand Coulee Dam was built?

A: In 1941, the completion of the Grand Coulee Dam created Franklin D. Roosevelt Lake, closing the upper Columbia and its tributaries to salmon migration. This also submerged Kettle Falls, an important Indian fishing grounds.

Q: What population center in Washington grew as a direct result of the Columbia Basin Project?

A: The Tri-Cities area of Richland, Pasco, and Kennewick mushroomed as the secret nuclear facility at Hanford, drawing electricity from the Grand Coulee Dam, brought tens of thousands of workers to the region. Much of the farmland in the area was irrigated as the result of the Columbia Basin Project.

Q: How did the livelihood of Washington residents change as a result of the Columbia Basin Project?

A: The abundant hydroelectric power generated by Columbia Basin Project dams was one reason why defense industries flourished in the Pacific Northwest during WWII and afterwards. Other corporations, attracted by the relatively low electric rates in this region, have relocated here as well, making Washington more of an urban industrialized state than it otherwise would be.

TRY THIS!

- Have your students make a list of all the items that operate via electricity in their kitchen and in their bedroom.
- How many have or had non-electric counterparts?
- Make a collage of "then & now" images as taken from present-day and period magazines and catalogs.
THE POWER OF WATER

ENERGY PRODUCTION

The once wild Columbia River has become the largest hydropower system in the world. Falling from reservoirs upstream of the hydroelectric dams that cross the river, the Columbia’s water spins powerhouse turbines, generating electric current.

The Bonneville Dam alone supplies the electrical needs of two cities the size of Portland. The powerhouse of the entire Columbia River Basin produce 40% of the electricity used in the Pacific Northwest. In addition, the Bonneville Power Administration, a federal agency, sends kilowatts, as needed, into the power grids of utilities outside the region.

WPPSS—THERE GOES THE NEIGHBORHOOD

The Washington Public Power Supply System began small. Public and private utilities joined forces, beginning in 1957, to increase the state’s supply of electricity. Working with the Bonneville Power Administration, but without using federal funds, WPPSS built a nuclear plant at Hanford among its early projects.

WPPSS initiated five additional nuclear power plants, three at Hanford and two at Satsop, during the 1970s. Poor management, strong opposition to nuclear power, costs that climbed to 24 billion dollars, and the failure to sell enough bonds doomed these projects and brought on the greatest municipal bond default in U.S. history.

POWER STRUGGLE

The federal agency that markets the energy output of the Columbia Basin Project was originally conceived as an interim organization. The Bonneville Power Administration was supposed to function as a stopgap until Congress created a comprehensive Columbia Valley Authority (CVA) modeled on the Tennessee Valley Authority. However, opponents of federal control of public utilities succeeded in blocking legislation to create the CVA.

QUESTIONS & ANSWERS FROM THE COLUMBIA BASIN INTERACTIVE MAP

Q: What percentage of homes in the Columbia River Basin had electricity in the 1930s?
A: About 10% of the homes in the Columbia Basin received electric current. In those years, before hydroelectric dams made electricity available at low rates, households used electric power mainly for lighting.

Q: How many hydroelectric dams have been built on the Columbia River?
A: By 1994, 14 hydroelectric dams spanned the Columbia, including three in Canada. The hydroelectric dams in (or touching) Washington that generate the most kilowatt hours are the Grand Coulee, Chief Joseph, John Day, McNary, The Dalles, and Bonneville.

Q: How was the hydroelectric output of the Grand Coulee Dam used during WWII?
A: Electricity generated by the Grand Coulee power houses made possible the production of plutonium at Hanford. When Grand Coulee went on-line in 1942, more than 80% of its electrical output went to Hanford.

HOW A DAM WORKS

Bonneville Dam was Franklin D. Roosevelt’s answer to the job shortage in the Northwest. Built in the 1930s, it was originally designed to operate with just two generators because few people believed there would be a use for all the electricity it produced. By 1943, however, the number of Bonneville’s generators had leapt to ten.

Dams use the force of water to produce electricity. Here’s how: Generators produce electricity by spinning magnets past coils of copper wire. The generator is connected to a turbine by a shaft. The turbine is a giant propeller that is turned by the force of the river’s water. The water turns the turbine, the turbine turns the shaft, the shaft spins the generator parts, and the result is electricity production.
DROPPING THE BOMBS

In August 1945, the United States dropped two bombs on Japan, one on Hiroshima and another on Nagasaki. Two B-29s, the Enola Gay and Bock's Car, were selected for strike aircraft.

On August 6, at 8:15 AM, the Enola Gay dropped the bomb known as “Little Boy” on Hiroshima. Three days later at 11:15 AM, the crew of Bock's Car dropped the implosion bomb “Fat Man” on Nagasaki. With a cumulative death count nearing 450,000 people, as well as other enemy pressures, Japan accepted the Allied Terms of Surrender on August 14, 1945.

Q: How has the electricity produced by the dams on the Columbia River affected the development of industry in Washington?
A: Because the dams on the Columbia produce an abundance of hydropower, electrical rates are lower in the Pacific Northwest than in other parts of the country. Consequently the region is attractive to industries that consume large quantities of electric power.

ATOMIC CITY

BUILDING HANFORD

The Hanford facility, which the federal government developed during World War II to produce plutonium for the first atomic bombs, was so secret that few of those who built it knew why they were there. The world’s first large nuclear reactors were built at Hanford. The A-bomb (containing Hanford plutonium) that obliterated Nagasaki has been credited, together with the uranium bomb that destroyed Hiroshima, with ending World War II.

In recent years, Hanford has become known as one of the most dangerously polluted places on Earth. And the A-bomb’s role in terminating the war has become the subject of controversy among historians.

DOWNWIND OF THE “GREEN RUN”

A large amount of radioactive pollutants, 5,050 curies, was knowingly released into the air at Hanford. It contained “green” uranium, including iodine 131, which passes into the human food chain via grazing cows and milk.

“This experimental green run,” said a Hanford report, “was performed on December 2, 1949.” A high incidence of cancer was later observed downwind of Hanford, probably due, in part, to the secret test.

THE WEAPON THAT NOBODY MADE

I was in Richland when they announced the bombs,” recalled Joe Holt. A few days later, a reporter asked him what his work was on the Hanford project. “I said, ‘Well, a carpenter.’ ‘Did you see any of the stuff?’ ‘No,’ I told him, ‘I didn’t see nothing.’ He says, ‘Well, I don’t see how they ever made anything because I ain’t found anybody who ever done anything.’”

QUESTIONS & ANSWERS FROM THE COLUMBIA BASIN INTERACTIVE MAP

Q: Why was Hanford selected as the site for the secret wartime A-Bomb project?
A: Hanford was a remote place where a large and dangerous project could be developed in secret and without menacing a large population. Since Hanford was sparsely populated, the government was able to relocate residents without great expense. The region had access to abundant hydroelectric power from the Grand Coulee Dam. The Columbia River could provide a coolant for the project's nuclear reactors.

Q: Who lived in the Hanford area before it became a federal nuclear facility?
A: Priest Rapids, upriver from Hanford, had been the home of Wanapum Indians and the center of the Indian Dreamer religion. By the early 1940s, there were fruit orchards, ranches, and three villages in the area that later became the Hanford Engineer Works. White Bluffs, Hanford, and Richland had populations of 200-300.
Q: Why was the A-bomb, which was made with plutonium from Hanford, dropped on Nagasaki, Japan?

A: Many historians contend that Nagasaki and Hiroshima were bombed to make Japan surrender. Others argue that the cities were obliterated in order to test the A-bombs and that Nagasaki was destroyed to determine whether the plutonium bomb was the better weapon. Still others maintain that the bombing served to warn the USSR not to challenge U.S. interests.

Q: How much radioactive waste has Hanford produced and where has it gone?

A: Hanford has 1,400 sites that are contaminated with chemical and nuclear wastes. One hundred seventy steel tanks hold 60 million gallons of toxic sludge. More than 440 billion gallons of chemical and radioactive liquid waste, including plutonium, have been poured directly into the ground. Radioactive pollutants have also been discharged into the air and into the Columbia River.

THE KEY TO PROSPERITY

IRRIGATION

Twenty thousand new farms will appear,” proclaimed a booklet promoting the Columbia Basin Project. By irrigating formerly barren country and providing the water to family farms, the Columbia Basin Project would populate the region and make it prosperous.

By the time the network of pumping plants, reservoirs, and canals was developed, during the postwar years, large-scale farms had dominated American agriculture. Instead of small farms, as originally envisioned, agribusinesses owning hundreds of acres received federally subsidized irrigation. By 1982, the Columbia Basin Project was supplying water to only 6,000 farms. Producing 60 different crops, these farms did bring prosperity, but not to as many farmers as planned.

TOO MANY FARMERS, TOO LITTLE LAND

There wasn’t enough good land for all the people that needed land, and there isn’t enough yet,” said Charles Osborne, a pioneer rancher, to an interviewer at the Coulee Dam construction site in 1939. “And now we have an influx from the Dust Bowl. They are driving in here nearly every day, inquiring about land…. They’ll have to build this dam, and all the other dams where there’s an acre of land to be irrigated. People have pushed too far out on the desert and range, and the drought and wind have driven them back. They’ve got to have someplace to go.”

WHY THE THIRSTY LAND WAITED FOR WATER

A congressional commission, reporting to President Hoover, recommended the building of ten multipurpose dams on the Columbia. Yet Hoover refused to support the project. In spite of the widespread hunger during the Depression, Hoover did not want to irrigate new farmland. He reasoned that farm prices would fall as more food was marketed. Already, many farmers refused to plant crops and some destroyed harvests because prices were not high enough to cover their costs.
Hydropower, and not irrigation, had been the original rationale for damming the Columbia. Job creation was the political motivation for funding the first major dams. Not until the 1950s, during an era of postwar prosperity, did the Columbia Basin Project provide irrigation for farmers.

**QUESTIONS & ANSWERS FROM THE COLUMBIA BASIN INTERACTIVE MAP**

**Q**: How much land has been farmed since the Columbia Basin Project made irrigation available to farmers?

**A**: In 1980, thirty years after irrigation became available through the Columbia Basin Project, 80% of the land was used for agriculture. Land irrigated as a result of the Columbia Basin Project amounted to approximately 550,000 acres.

**Q**: How much of the land of the Columbia Basin was farmed before the Columbia Basin Project provided irrigation?

**A**: Almost 57% of the Columbia Basin was farmed, or 1,733,813 acres in all.

**Q**: What size farms were planned for the lands irrigated by the Columbia Basin Project and what is the size of farms that have actually operated under the Project?

**A**: Forty acres of land were to be allotted to a single man, 80 acres to a married couple. The amount was raised to 320 acres in 1957 and 960 acres in 1982. In 1973, the average farm size was 240 acres. By 1990, four farms exceeded 2,000 acres.

**Q**: What is grown on farms as a result of the Columbia Basin Project?

**A**: Before irrigation was available, farms grew wheat almost exclusively, which is conducive to “dry farming.” Land was also used for grazing cattle. The 60 new crops grown on irrigated land in the Columbia Basin include corn, potatoes, asparagus, alfalfa, mint, and grapes.

**ENCYCLOPEDIA WASHINGTONIA**

It’s “TRIVIAL PURSUIT”—electrified. Accessible via a bank of seven touch-screen computers, Encyclopedia Washingtonia is a challenge to both young and old. Touch-type a number related to a clue on the giant topographical map or search the 100-question menu by topic, people, or place. A sampling of questions to pose to your students as a pre- or post-visit exercise follows:

**Q**: Hazard Stevens was one of the first two men to climb Mount Rainier. What did he claim lived inside?

**A**: A race of subterranean humans.

**Q**: What U.S. President once grew potatoes in southwest Washington?

**A**: Ulysses S. Grant, who cultivated the spuds while serving in the army at Fort Vancouver in the 1850s.

**Q**: What was so deceiving about Deception Pass?

**A**: Explorer George Vancouver thought it was a narrow bay instead of a narrow passage between Whidbey and Fidalgo islands.
Q: Wishkah in Grays Harbor county takes its name from an Indian word adaptation that means what?
A: Stinking water—wishkah, from the Chehalis word 'whish-kahl. Legend has it that a whale once swam up the Wishkah River and died.

Q: What's a Walla Walla sweet?
A: An onion.

Q: What famous Native American leader is buried in Nespelem?
A: Chief Joseph of the Nez Perce.

Q: What phenomenon outside America's borders boosted Washington's economy at the turn of this century?
A: The Klondike Gold Rush, which brought $174 million in gold through Seattle's assay office from 1898 to 1902.

Q: What was the first book ever written by a resident of the Washington Territory?
A: The Northwest Coast by James G. Swan.

Q: From which country did the founders of the first non-Indian settlement in Washington come?
A: Spain. They came to Neah Bay in 1792.

Q: What Washington citizen was the first woman to be mayor of a major American city?
A: Bertha Landes, elected mayor of Seattle in 1926.

Q: What structure in Washington is the largest building in the world?
A: The Boeing plant in Everett, with nearly 300,000,000 cubic feet of space.

Q: When Congress first gave Washington its official name in 1853, what name had residents preferred?
A: Columbia.

THE COLUMBIA RIVER THEATER

“All the water that is on the planet now is the same water that was on it from the beginning. So this river, this water, is an accumulation of things very old.”

The history of the Columbia is a story of sacrifice, trade, and change. Where thousands of years ago great floods ravaged the Columbia Basin, gouging a throughway, plunging desperately to the sea, today the Columbia is an entirely engineered river—its flow controlled hour by hour.

Through “River of the West,” students will see that the Columbia is a source of food, irrigation, transportation, and hydroelectricity, not all of which are compatible with one another. Presented in a unique three-screen projection format, “River of the West” is shown every hour and half-hour.

Modern Washington
BIBLIOGRAPHY

SECONDARY


CONVERSATIONS WITH WASHINGTON

Why did you come to Washington? How does your generation differ from your parents’ or grandparents’ generation? What is your biggest concern about Washington’s future? These are some of the questions posed to interviewees in the “Conversations With Washington” section of the exhibit. Utilizing eight touch-screen terminals, this oral history display explores contemporary Washington and the issues we face today—as seen through a multicultural selection of active Washingtonians.

By seeing and hearing the responses of this diverse group of Washingtonians, students will not only be exposed to the methods and means by which people have come to live in and care about our state, they will begin to see the connections between past actions and present consequences, preservation and exploitation.

Some of those interviewed include:

Joe Delacruz — Quinault Indian Tribal Leader
Les Clark — Gillnet Fisherman
Vera Claussen — Public Utility Commissioner
Eloy Estudillo — Mexican American Storeowner
Larry Fujita — Japanese American Lettuce Farmer
Myra Hartman — Longshore Worker
Charles Johnson — Author & Professor at University of Washington
Alex McGregor — Commercial Wheat Farmer
Huang Meng — Chinese Artist
Katrina Perekrestenko — Coordinator, AIDS Peer Education
Gabriel Portugal — Son of a Bracero Worker
Kim Thayil — Guitar player, Soundgarden
Wilfred Woods — Editor, The Wenatchee World

INTERVIEW SAMPLER

Why did you or your family come to Washington?
My great-grandparents came here first in the early 1900s. I guess they landed here because it was the closest port or port of entry. And a few years later my grandparents came. And my father was born here, and my mother was too. And they’ve always lived in this area, except for the time when they were sent to a concentration camp—or relocation camp, I guess they called them—in Idaho. And after that they returned back to the farm where we’ve been farming ever since.

—Larry Fujita, Japanese American Farmer

How is Washington different from your original home?
Both countries have their good points. China is now temporarily poorer. America has more freedom. The artwork I do is not accepted in China now. That is the reason I don’t like to work in China and came to work in the U.S.

—Huang Meng, Chinese Artist
What are the major changes you've observed in your lifetime?
The big change is we had lots of fish, and the fish have been going down and down, and now we don't have fish. And the question of no fish is hard to swallow. We never ever thought we wouldn't have no fish. And too—we never thought we'd come to the time where they would tell us we don't have no fish. You just can't get over those words, "no fish." And no fish that you can't go fishing anymore is one thing, but to think there would be no fish for the future people to come and see or have—to not have access to that resource is just unthinkable.

—Les Clark, Fisherman

What have you done that is most satisfying to you?
Beating the odds on things. They told me I couldn't have children. So I had one, and then I had to prove I could do it again, so I had another one. Then I was the first woman in the graduate school of public administration at the University of Washington. And they told me "you can't have a career in public power." Well, I did that too. And then they said "you can't be a commissioner. Women are not commissioners." Well, I did that too.

—Vera Clausen, Public Utility Commissioner

What is your major concern about Washington's Future?
Some of our [Indian] communities have some of the highest unemployment anywhere in the world. We're a little more fortunate up in the Northwest than in parts of the country where Indians live—some places you've got 70-80% unemployment, and the mean or average income is like $300 a month. How do people live like that in today's world?

—Joe DeLaCruz, Quinault Indian Tribal Leader

One of the things that really concerns me is the growth and what that brings. When I was growing up, we never locked our doors. We never had that fear of violence or invasions of privacy, and you obviously can't do that now. I worry about my grandchildren. What kind of world is going to be here for them?

—Ron Peterson, Sheriff, Search & Rescue

People are just not really connecting with other people anymore. People aren't caring about who their neighbor is. They don't care about the person down the street anymore, because it's just—for some reason, it's just too scary.

And if people start, you know, working in their own communities, and they start seeing results there, then it's a lot easier to try to tackle the bigger problems. You know, just city-wide, then county-wide, and then Washington—you know, Washington state, and on up. So it's just—it's very simple. You just have to start talking to people and connecting once again.

—Katrina Perekrstenko, representative for the Coalition for AIDS Peer Education

Modern Washington MILESTONES

1937
Bonneville Dam completed

1941
Grand Coulee Dam begins operation

United States enters World War II

1943
Hanford plutonium plant built

1948
Washington's first TV station (KING-TV) begins broadcasting in Seattle

1954
First flight of the Boeing 707—first jet transport

1957
Washington Public Power Supply System (WPPSS) created to develop Washington's energy resources

1962
Seattle World's Fair

1975
Microsoft founded

1976
Dixie Lee Ray, first woman governor of Washington elected

1980
Mount St. Helens erupts

1989
Washington's centennial of statehood

1996
The new Washington State History Museum opens