Dredging the Columbia River at the expense of tribal and aquatic communities

The U.S. Army Corps of Engineers has transformed the estuary and robbed the river of sediment over the last century.

***Josephine Woolington*June 1, 2026**

A barge moves equipment off Rice Island, which was created by sand dredged from the Columbia River Shipping Channel near Astoria, Oregon. The island is one of many locations the U.S. Army Corps of Engineers uses to deposit dredged sand.**Nathan Howard/The Columbian**

The story of people and the lower Columbia River has always centered around canoes. Varying shapes and styles were built to navigate the river's varying shapes and elements. There were canoes for shallow water and deep water, canoes to cut through currents and travel upstream, canoes for clamming, fishing and whale hunting.

Chinookan canoe construction reflected the diversity of the region's people and the lower Columbia, comprising a vast 146-mile estuary from the river's mouth to the western Columbia River Gorge. The most famous and largest canoes measured up to 60 feet long, designed to navigate powerful wind and waves near the river's mouth and big

enough for three tons of people and cargo. Among the smallest were 10- to 14-foot canoes made for gathering wapato, a wetland plant with emerald, arrowhead-shaped leaves and edible potato-like tubers. The boats were sleek, light enough to carry under one arm and ideal for the slow-moving shallow waters around present-day Portland, where wapato thrived.

Canoes decorated the river's sandy shorelines. Villages lined its banks. Before the 1800s, no levees separated the waterway from the floodplain. No dams blocked salmon. Cold water roared over rapids and sighed through the estuary. Braided channels thick with insects and songbirds curved through marshy bottomlands. Minnows, suckers and sturgeon filled the clear backwater tidal sloughs. These extensive channels snaked through the broad estuary like veins from the region's heart, the Columbia, known as wimaɬ to upper Chinookan peoples and iyagaytɬ imaɬ to the lower Chinookans at the river's mouth. The habitat supported one of the world's largest salmon runs, when 10 to 16 million salmon and steelhead returned from the ocean to spawn in their ancestral rivers.

The Columbia sustained so much life in part because of an often-overlooked element of river ecology: sediment. Tiny particles of sand, silt and clay built and maintained the estuary's wetlands. When rivers are allowed to twist and turn and spill out of their banks, nutrient-loaded sediments settle across floodplains. Deltas, sandbars and marshes form. These habitats support not only plants and fish, but also human cultures; Chinookan peoples along the lower Columbia comprised one of North America's densest civilizations. International commerce flourished for millennia, fueling emporiums like Celilo Falls. Canoes carved to handle the river in all its complexity carried tubers, hides, shells, beads and salmon. Moving sandbars created some of the most productive fishing sites. "The sediments and the soils are the foundation of humanity," said Roger Amerman, a geologist, artist, elder and citizen of the Choctaw Nation of Oklahoma who specializes in Columbia Plateau tribal histories. "Not just our culture, but all cultures.

"If that's poisoned or removed," he said of sediment, "we're impoverished, in every kind of way."

During low tide on the Columbia River, Chinook tribal members push a traditional style canoe called Skakwal (which means “Lamprey Eel” in Chinuk wawa) toward the sea during the annual First Salmon Ceremony.**Amiran White**

But the early United States saw the millimeter-sized particles as an obstacle to economic growth. In 1824, when Congress tasked the U.S. Army Corps of Engineers to “improve” navigation on the nation’s rivers for commerce, sand impeded the cargo vessels that replaced Chinookan canoes. Sand grounded ships with drafts so deep that they scraped the riverbed. The Columbia’s powerful mouth was especially dangerous, where river and ocean currents collided, creating sandbars hidden below white water and earning it the nickname “the graveyard of the Pacific.”

By the 1860s, the Corps, a military and civil-works engineering agency within the U.S. Army, started dredging the riverbed to create a 107-mile international shipping channel through the estuary, from the river’s mouth to Portland. The agency installed dozens of water-control structures that altered the flow and sediment, squeezing the waterway into a narrow, faster channel suited for vessels heavy with gold, wheat and timber. Later, between the 1930s and 1970s, the Corps and the U.S. Bureau of Reclamation built a series of hydropower dams upriver that further inhibited water and sediment to flood the estuary while also severing fish migration, devastating salmon populations and tribal lifeways.

The Corps helped fulfill the long-held colonial vision of the Columbia as an imperial river. Before Europeans even saw the waterway, they dreamed of “the Great River of the

West," as the French labeled it on maps, where profits would flow. While Chinookan peoples built boats to fit the river, the Corps built the river to fit boats. That legacy endures today, here and along the country's other largest rivers, through flood control, dredging, navigation locks, dams, jetties and levees.

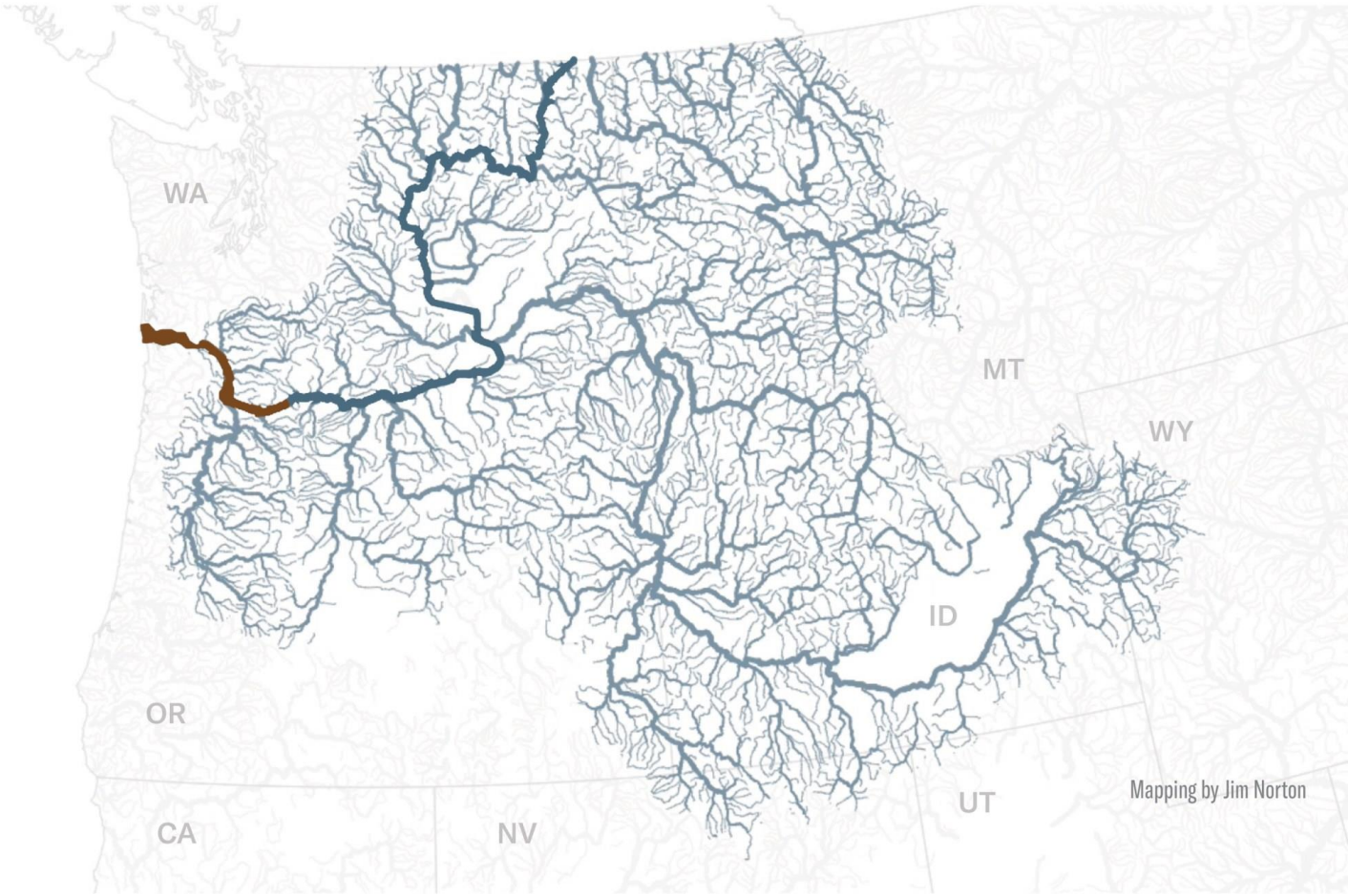
At 43 feet deep and 600 feet wide, the Columbia's current channel is nearly three times its natural depth and half its width in places. Wetland-replenishing sediments are largely trapped behind upriver dams like Bonneville. Sand that slips past the concrete barriers is dredged out and piled elsewhere in and along the river. A 2005 report by the National Marine Fisheries Service, the agency tasked with overseeing salmon recovery, found that dredging and filling in wetlands has been one of the major causes of habitat loss in the estuary over the last century. Seventy percent of the river's marshes have been eliminated. More than one-third of its salmon and steelhead populations are extinct, and those that remain are at risk, listed under the federal Endangered Species Act.

The Corps has long framed dredging as a necessary chore that causes minimal ecological and cultural harm. Each year, under the agency's command, 6 to 9 million cubic yards of sediment, mostly sand, is vacuumed out to keep giant freighters packed with wheat, petroleum, fertilizer, cars and electronics — $31.2 billion worth of goods — moving up and down the lower river. So much sand has been removed — piled on land, on river islands, in the river outside the shipping channel, in the ocean — that officials now say they're running out of places to put it. If too much sand piles underwater in bars or shoals, the Corps would have to issue draft restrictions for commercial vessels, limiting their cargo. "We'll eventually reach a point where we're not keeping up with the shoaling to maintain that channel," said Dan Robledo, who is managing the Corps' 20-year, $578.7 million plan for dumping sand. The agency published its final report in early May.

In an emailed statement, Kerry Solan, public affairs chief for the Corps' Portland district office, wrote that while the lower Columbia has been altered by a "variety of factors or parties," the agency's navigation mission can "contribute positively to the estuary's health." The Corps claims it can rebuild wetlands using dredged sand, although it lacks a restoration plan and budget. Tribal leaders warn that the agency's plan will continue to harm culturally significant and treaty-protected species, like salmon, lamprey and sturgeon, especially as the ongoing climate crisis warms the river and weakens its flow.

"There's a misleading effort made to say this is necessary for the economy," said Kathleen George, a tribal council member and ceremonial fisher for the Confederated Tribes of Grand Ronde, which includes several Chinookan bands whose ancestral homelands span much of the estuary. Commerce has always flowed on the river, not in steel cargo containers but in canoes. "It is often presented as if the economies of the people who rely upon salmon and steelhead and sturgeon and lamprey are not important," she said.

"We are prioritizing other values on the back of our river."



UP CLOSE, TAN, WHITE AND GRAY flecks of quartz sparkle and sift softly through your fingers. Depending on where you are on the river, the grains vary in size. Downstream of the Cowlitz River near Longview, Washington, pumice and other volcanic sediments from the 1980 eruption of Mount St. Helens still thicken the river. The sand is lighter, finer, measuring about .2 millimeters. Other tributaries deliver coarser sands, sometimes up to 4 millimeters.

Underwater, sand settles. Miniscule transparent crustaceans that feed salmon find shelter here. Young eyeless and toothless lamprey burrow their tubular bodies in the grit, while 800-pound, 12-foot-long sturgeon — the ancient "grandfathers of the river," George calls them — use their chin whiskers to locate critters in the murky bottom.

A natural riverbed has texture. Thick mud-like sediments entomb tree snags. Currents tug and pull sand into mounds.

Like all major rivers, the Columbia carries sand and other sediments. From its glacial headwaters in southern British Columbia, it churns through granite mountains, snatching quartz from rugged landforms and eventually pounding it into sand. Along its 1,243-mile journey, through high-desert basalt plateaus and the deep forested gorge cut by the waterway through the Cascade Range, the river is joined by a dozen major tributaries that contribute more sand along with glacial and lowland gravel, silt and clay. The Columbia gathers and grinds these sediments from as far away as the Grand Tetons and exhales them into its estuary, primarily from April to July, when snowmelt and heavy spring rains swell the river to its highest flow, called the spring freshet.

Sediments are deposited when water slows down, commonly at riverbends, like at Kelley Point Park in North Portland. The landscape has been heavily altered by the Army Corps at the now-channelized confluence of the Columbia and Willamette rivers. Here, the hard basalt of the Tualatin Mountains forces the Columbia to curve northward, creating the notch of Oregon's northwestern corner. As the river navigates the bend, sediments drop out. Before the Corps, sand could spread out, then smaller silts and clays settled on top, creating mushy new ground. Sand itself lacks nutrients, but the finer-grained materials are packed with phosphorus and nitrogen that encourage plant growth, replenishing and sustaining wetlands.

"We are prioritizing other values on the back of our river."

The process of eroding and building land is fundamental to a river, a constant if slow-moving geographical revision. Over millennia, mountains become tidal marshes. At Kelley Point and other sandy beaches, visitors can still hold this history — miniscule quartz fragments possibly 300 million years old — in a single handful of sand.

In the upper Chinookan language, the Kelley Point Park area is known as wakshin, "the dammed-up place." Sandbars, snags and marshes created wetlands so dense that, in the early 1800s, Lewis and Clark initially missed the present-day entrance to the Willamette. Chinookan canoes, their bows and sterns chiseled with elaborate images of animals, were pulled up along the shorelines of nearby sandy islands. At that time, Kelley Point essentially connected to Sauvie Island to the north. Only during high water, like the spring freshet, would the land masses separate into an obvious confluence like today's.

This was the first place that the Army Corps reshaped in Oregon, beginning in the 1860s. Portland-bound ships frequently bottomed out just downstream, where the river was sometimes only 6 feet deep. Portland officials tried to dredge the shifting sandbars but petitioned Congress to send engineers from the Corps to take over. "The amount of commerce to be benefited by the completion of this work is very great," said Major Robert Williamson, who oversaw the Corps' first projects along the Columbia and Willamette. Like many early Corps leaders, Williamson graduated from West Point, the U.S. military academy overseen by the Corps, which created a steady stream of engineers to, among other missions, transform the nation's waterways. Before the Civil War, he surveyed portions of California and Oregon for railroad routes. But shipping heavy materials, like wheat from eastern Oregon, Washington and Idaho — still among the Columbia's primary exports — was cheaper by water, even after transcontinental railroad lines arrived.

The seagoing hopper dredge Clatsop, circa 1938, doing maintenance dredging at the Skamokawa Bar on the Columbia River (left). *An aerial photo from 1938 shows the Sand Island Pile Dike System. This island was a traditional Chinook fishing location (right).* ***U.S. Army Corps of Engineers***

By 1869, under Williamson's command, the Corps dug a 17-foot-deep channel using a Portland dredge vessel. The gray sand filled marshes to build port facilities, and throughout the Portland area, people "with real estate stars in their eyes" used river sand to create developable land, historian and Portland State University professor emeritus Carl Abbott said.

To eliminate sandbars, Williamson super-vised the construction of wing dams, or pile dikes. The structures, still visible today, comprise a series of logs that reach toward the middle of the river diagonally across the current, gathering sand and diverting the flow away from the shoreline and toward the shipping channel. The water's increased velocity scours loose sand in the riverbed.

Over the decades, the Corps built 233 wing dams on the lower Columbia and created 15 islands from scratch, many of which span several thousand feet, strategically placed with one goal: narrow the river and quicken its flow.

Still, local officials and industry leaders craved an even deeper Columbia. Portland shippers lobbied the Corps for a deep riverbed and safe passage through the river mouth to accommodate bigger ships, helping ports compete with those in deep salt water, like Seattle and Vancouver, B.C. In 1878, the Corps dredged the Columbia to

20 feet. By 1976, after vessels ballooned with the advent of steel shipping containers, the river was dug to 40 feet.

In the 2000s, the Corps deepened the channel to its current 43 feet. The additional 3 feet allowed companies to pack 10,000 more tons of cargo onto ships traveling to and from China, Japan, South Korea, Taiwan, Australia and elsewhere. Their bottoms narrowly skirt the riverbed, sometimes by just 2 feet. "Would I rather have a 50-foot channel?" Bill Wyatt, former executive director of the Port of Portland, told *The Oregonian* in 2010. "Yeah. But we're going to make 43 feet work."

While Chinookan peoples built boats to fit the river, the Corps built the river to fit boats.

Today, Kelley Point Park is a sliver of green at the tip of North Portland's industrial thumb. Freighters dwarf the cottonwood trees and leave wakes that slap the shorelines. Hyundais fresh from South Korea glitter at the neighboring Port of Portland terminal. Tugboats hum. The park marks the present-day confluence of the Willamette and Columbia, but the waterways' joining was constructed by the Corps. Where marsh vegetation once thickened Kelley Point's northernmost beach, a wing dam stretches out. It looks more like an abandoned dock than a water-control device. Currents whirl around the logs where cormorants perch.

To the untrained eye, the river looks natural, a blue-gray expanse flowing toward the ocean much as it has for millennia. The Corps' changes are immense, yet subtle. Reshaping sediment isn't as brazen as the walls of concrete that block the Columbia upriver. "People think the river is free-flowing once we get past the dams," said Rachel Cushman, secretary-treasurer of the Chinook Tribal Council and a citizen of the Chinook Indian Nation, whose unceded homelands surround both the Oregon and Washington sides of the river west of Longview to the river's mouth. "It's very much engineered to flow the way that it does."

The Port of Portland's pipeline Dredge Oregon works the mouth of the Columbia River near Astoria, Oregon, in 2017.**U.S. Army Corps of Engineers**

DREDGE OREGON operates 24 hours a day, six days a week, with a crew of around 45. The barge, owned by the Port of Portland, is among a small dredging fleet that slurps sand in the shipping channel primarily from June until December. Its 11,000-pound steel sphere penetrates the riverbottom, churning sediment like an industrial eggbeater. As sand loosens, particles plume in an aquatic dust storm. Vibrations rattle the riverbed. Sand is vacuumed into a pipe, at about 15 feet per second, and spewed as far as two miles away. Few nearby residents notice.

"If dredging is working well, you won't know about it," *Dredge Oregon*'s navigation director, Don Tjostolvson, told a local news reporter in 2024. Ships travel in and out, he said. The economy flows.

As a riverbed is hollowed out, though, complex relationships break down. With a deeper channel and less friction from fewer sandy bumps, mounds and bars, salt water can reach farther up the estuary, and water levels around Portland are lower, according to a 2019 study by Portland State University researchers.

Creatures living in or close to the riverbed — young lamprey, sturgeon, crustaceans, crabs and clams — can get sucked into dredge pipes and killed, according to the U.S. Fish and Wildlife Service. When sand is dumped on land or in the river outside the channel, piles can bury and suffocate critters. "We are completely displacing that benthic component of the river system," Kathleen George of the Grand Ronde said, meaning the river-bottom species that form the basis of the food chain. "The Corps has very little understanding of those impacts." Fish and Wildlife officials also acknowledged that the

Corps has not studied dredging's effect on aquatic species in the Columbia. The Corps declined to comment.

Lamprey, a traditional food for Columbia River tribes, are of particular concern. These ancient eel-like fish migrate to and from the ocean, like salmon. For five to seven years, juveniles bury themselves in river sediment, feeding on microorganisms. But now, George said, "we see lamprey numbers year after year declining." There were once several million, but today fewer than 20,000 return to Bonneville Dam, according to the Columbia River Inter-Tribal Fish Commission. Less than 15% can navigate past the dams.

Research in other rivers may provide some insight. A 2018 study conducted for the Corps in California's Sacramento-San Joaquin River Delta, for example, found that dredge pipes suctioned a significant number of lamprey, invertebrates and other fish species. In the early 1970s, as some of the first dredging studies were performed, Fisheries and Oceans Canada estimated that in spring 1974, about 26,000 juvenile salmon were killed on a single day during dredging in the lower Fraser River in British Columbia. In several cases, researchers halted operations when they found the pipes inhaled substantial numbers of salmon and ooligan, or smelt, though some dredge companies didn't comply.

In its review of the Corps' plan for dumping dredged sand in the lower Columbia, Fish and Wildlife determined that it would harm some aquatic species, including lamprey. "These activities can have substantial and lasting effects on both fish and benthic communities, particularly in light of climate change," officials wrote, recommending further Corps studies. The National Marine Fisheries Service concluded that while the Corps' dredging and sand disposal is expected to "adversely affect" the region's federally threatened and endangered salmon, it's unlikely to jeopardize their long-term survival. That assessment, George said, allows ongoing damage to salmon and cultural sites along the river. "We need to do more to help salmon recovery by working to rebuild numbers," she said, "not create more injury or further delay long-needed improvements in an already broken system."

Tribal leaders and federal officials are also concerned about contaminants. Dredging may expose fish to banned toxins still present in the sediment, including PCBs, chemicals used in products ranging from plastics to motor oils. These substances have been found in the river's clams, fish, otters and fish-eating birds, federal officials noted. As sediments suspend in the water, toxins may be released and consumed by bacteria, insects and small organisms that fish eat, cycling through the food chain. In a 2007 study led by the National Marine Fisheries Service, juvenile chinook salmon from the Columbia's mouth contained the highest concentrations of PCBs found in any Oregon and Washington estuaries. Lamprey and sturgeon also have elevated levels of PCBs and mercury, prompting advisories from the Oregon and Washington health departments against eating either species.

Currently, the Corps tests sediment every five years. Officials assert that the sand is clean, but tribal leaders urge more testing, given the sheer amount of sediment moved — several million cubic yards annually. Tribal opinions differ concerning what

contaminant levels are safe, said Cushman, of the Chinook Nation. For the Corps, "The standards are in favor of capitalist endeavors," she said.

"People think the river is free-flowing once we get past the dams," said Rachel Cushman, secretary-treasurer and citizen of the Chinook Indian Nation. "It's very much engineered to flow the way that it does."**Amiran White/High Country News**

UPRIVER, A DIFFERENT sediment story has unfolded.

Behind Bonneville Dam, the river has become "a sandbox," as Yakama Nation research scientist Bill Sharp, who is non-Native, described it. Cold water from tributaries like the Klickitat, Hood and White Salmon flows into the mid-Columbia, bringing with it glacial sand and silt. But instead of meeting a fast-flowing river that delivers sediments to the estuary, the particles hit a series of warm lakes created by the Corps' hydropower dams.

In this stretch, the Columbia runs through a rocky gorge. For millennia, the rugged basalt outcroppings allowed Native fishers to net 100-pound chinook salmon at places like Celilo Falls, near the present-day town of The Dalles. To improve power generation and barge navigation, the Corps in 1957 constructed The Dalles Dam eight miles downstream from Celilo. As the dam's steel and concrete gates closed the morning of March 10, one of the oldest continuously inhabited places in North America was drowned by the afternoon. The dam is among 18 federally owned hydropower facilities on the

Columbia and Snake rivers mainstem that desecrated cultural sites and villages, displacing tribal communities.

When the dam was first constructed, its pool reached 60 feet deep, a tribal fisherman told Sharp. Now, it's 15 feet. As wildfires rip through eastern Washington, Oregon and Idaho, more sediment spills into the Columbia. About 70% of the sand carried by the Columbia can't pass through, Portland State University professor David Jay told *The Columbian* in 2018. The river is clogged, hot and shallow, Sharp said, and "bad things happen."

The dangers once posed to cargo ships by sandbars on the lower river have now been passed upstream — and onto tribal fishers. Boats run aground on sandy shoals, damaging engine equipment. Over the years, Sharp said, several fisherman friends have died.

With so much sediment piled behind the dams, dredging this stretch of the river is one of few ways the Corps could cool the water and improve habitat.

Sandy deltas create hazards for fish, too. Young salmon travelling downstream from tributaries meet the Columbia in a sand-choked confluence where shallow pools heat well above a lethal 68 degrees. Eleven years ago, hot water killed about 250,000 endangered adult sockeye — nearly all of the run — as they tried to return to their Idaho spawning grounds.

With so much sediment piled behind the dams, dredging this stretch of the river is one of few ways the Corps could cool the water and improve habitat. For years, tribal leaders have asked the agency to dig the mouths of several tributaries, but the Corps has yet to do so. The agency conducts some maintenance dredging to keep the mid-Columbia shipping channel 14- to 27-feet deep, extending to Lewiston, Idaho, on the Snake River. Only barges with shallower drafts can travel on locks past the dams.

In October, leaders from the Columbia River Inter-Tribal Fish Commission (CRITFC) met in Astoria in a room overlooking the 4-mile mint-green bridge across the river's mouth. Ships passed by, but one stood out. "That boat out there," a member noted, "that's a dredging vessel."

Bronsco Jim Jr., a CRITFC commissioner and chief of the Kamíłpa Band of the Yakama Nation, watched the dredge. Cargo ships the size of a city block anchored nearby. "That's big money there, that's priority," he said. "But when it comes to native species and what we're talking about in our concerns, there's no priority."

A Yakama Nation councilman once joked to Jim, "Tell them there's gold in there, and maybe they'll dredge it."

"Fishing for Salmon at Celilo Falls" shows traditional fishing methods used by Indigenous peoples in the Pacific Northwest at Celilo Falls on the Columbia River.**OSU Special Collections & Archives/cc via Wikipedia**

FEW RIVERS AND HARBORS across the country are naturally deep enough for cargo ships. Nationwide, the Corps digs 210 million cubic yards of sediment from waterways every year to clear pathways for the massive vessels. The agency holds the most power over earth-moving in the country, fundamentally altering slow geologic processes and turning them into political acts. The consequences of moving so much sediment are unknown and understudied, as noted in *Silt Sand Slurry,* a 2024 book that examines dredging practices. Congress authorizes the Corps' work and mission, but the federal government lacks a long-term nationwide dredging plan. There is no established maximum depth that the Corps could dig the Columbia. With salmon near extinction and climate change expected to diminish the river's already weakened flows, some federal scientists and tribal leaders have urged the agency to consider alternatives.

A "paradigm shift" is needed, Cowlitz Indian Tribe Chairman William B. Iyall wrote in a 2024 public letter in response to the Corps' proposed plan, urging officials to take a hard look at whether the river's current 43-foot depth is ecologically and culturally viable. The Corps could opt to dredge less, he wrote. More goods could be delivered via rail or air. Ships could decrease their drafts.

But any broad change would have to come from Congress, Portland district officials said in an emailed statement. And from the agency's standpoint, its work is not necessarily at odds with a natural river. When the agency digs sand from the shipping channel and spews it elsewhere, the sand is still in the system, Hans Moritz, a hydraulic engineer for the agency, said, though its placement is controlled. "We try to keep the river fed with sediment in a judicious way," he said.

“If I have to explain to someone what I do for the Columbia River, I help manage sediment for the river, by the river, of the river.

“It’s a symbiotic thing.”

In the 1990s, ecosystem restoration was formally adopted as part of the Corps’ civil works mission. Lt. Gen. Henry Hatch said at the time that engineers held “most of the keys to the solutions of the world’s environmental problems.” Much of the restoration challenge, though, lies in undoing the agency’s own extensive river reshaping that began long before federal officials understood the concept of ecology.

When Congress authorized deepening the Columbia to 43 feet in the early 2000s, the Corps pledged to restore wetland habitat. But many projects never panned out, a 2010 investigation by *The Oregonian* found. The Corps declined to say whether any wetlands have since been restored. A 2024 report by the U.S. Government Accountability Office found that over the years, the agency has failed to inform Congress about the status of mitigation projects for fish and wildlife.

Under its new plan, the Corps has proposed rebuilding marshes by spraying sand across several thousand acres of shallow water and shoreline habitat in the lower Columbia. Few, if any, studies on the river have found that the Corps’ dredged material has improved wetland habitat, especially for salmon, though a Corps official cited a 2025 study showing that sand placed on river islands has provided nesting habitat for the streaked horned lark, a federally threatened songbird. Dredged sand is coarse and doesn’t hold the nutrients that facilitate plant growth. And immense changes to the river’s flow — through dredging, wing dams, levees and dams — have caused invasive plants to thrive. Much of the estuary’s greenery is non-native reed canarygrass and purple loosestrife, plants that threaten to colonize any open space, including newly dredged sand piles, tribal leaders and Oregon and Washington fish and wildlife officials warn.

“That’s big money there, that’s priority. But when it comes to native species and what we’re talking about in our concerns, there’s no priority.”

Scotch broom, gorse and European beach grass have taken over Sand Island at the river’s mouth, a traditional Chinookan fishing site in what’s now called Baker Bay, near Ilwaco, Washington. “There’s really beautiful historic photos of people seine netting over there,” said Cushman, describing nets that extended horizontally across the water, with floats on top and weights on the bottom, catching salmon fresh and fat from the ocean. Chinookan peoples had numerous trading posts and villages where fishers seine-netted along the lower river. It made up the river economy, she said.

In the 1930s, the U.S. military removed Chinookan people from Sand Island to make way for the shipping channel. The Corps stabilized the sand, installing wing dams and pilings to help ships navigate the mouth. Invasive plants took hold. While the Corps controls the sand, Cushman said, “they’re not caring for the actual place.”

According to Cushman, Chinookan tribal members have no say in federal river management as they’ve been fighting for sovereignty and federal recognition since first

signing treaties with the U.S. government in 1851 that were never ratified. The tribe briefly regained recognition in 2001, only to have the federal government strip it away 18 months later. The Corps does not consult with Chinook leaders, Cushman said, though other federal agencies, like the Fish and Wildlife Service, have agreements with the tribe.

Grand Ronde's elected officials said they were not consulted during planning for the proposed dredge project, George said. In a written statement, the Corps did not acknowledge this but said that it is committed to "conducting robust, meaningful government-to-government consultation with all federally recognized tribes."

The lack of consultation leaves cultural sites and resources at risk. Of the Corps' 106 sites where it plans to spray dredged sand along the lower river, about half have not been surveyed for cultural resources, the Corps' report showed. There's a "high likelihood" that cultural resources would be present, requiring future surveys, though some sites have limited access and impacts may be unavoidable, the report stated.

But what the Corps considers a cultural resource differs from tribal definitions. Katherine Pollock, the Corps' Portland district archaeologist, said that fish, including salmon, are not legally a cultural resource. "That doesn't mean we don't care about them," she said. "We do. They just get looked at from the biological perspective."

Such a definition is "inappropriately narrow," George said. Cultural resources comprise not just archeological objects. "They are steelhead. They are sturgeon. They are lamprey," she said. They are a healthy river.

Large vessels move along the Columbia River between Portland and Vancouver in May, part of the river traffic made possible by an engineered shipping channel. Ongoing dredging keeps the channel deep enough for cargo ships even as tribal leaders and federal officials continue to raise concerns about its ecological and cultural costs.**Amiran White/High Country News**

LAST YEAR, in late June, dredge pipes delivered a slurry of sand and water just a few hundred feet from the Columbia. Bulldozers flattened the pile into a settling pond about the size of a football field. Dan Robledo, the Corps' project manager, gestured toward the massive gray mound — 300,000 cubic yards of sand freshly dug from the river, across from Kelley Point Park. A vessel blared its horn, and the single note echoed across the smooth silver water.

Over the years, the pile will amass more gritty girth. Some of the sand mountains along the river stand 60 feet tall. The shoreline resembled a construction zone, the early process of laying foundation.

For Robledo and others at the Corps, dredging the Columbia River is straightforward. Congress has charged the agency with a duty. The U.S. economy needs a deep river. "We have the mission to maintain the navigation channel to enable the use of this major transportation artery," he said.

The Corps has deepened and channelized so many rivers across the country — the Sacramento, Columbia and Mississippi, among others — that the work has transformed

the visible memory of what a river is, what it looks like and who it serves. Kelley Point, now a place where two large bodies of water meet, where differing paths converge, is deeply scarred by colonialism. Differing values imposed on the river have all but erased the cultural landscape. It has become just as difficult to remember a river's true dynamic nature as it has to recognize its undoing.

The landforms built by the river's sand — Sauvie Island and Kelley Point — still exist. The geologic ingredients for extensive marshes, where wapato once grew and canoes cut through the shallow, slow-moving water, are still present. The Tualatin Mountains' navy ridgelines border the river, guiding it north as it has flowed since the volcanic rock blanketed the landscape. The river still bends and slows here, still has the potential for sand to spill out and build something new.

Cargo vessels wait along the lower Columbia River beyond the Astoria-Megler Bridge before continuing upriver through the federally maintained navigation channel, a route kept open through ongoing dredging.**Amiran White/High Country News**

We welcome reader letters. Email High Country News *at editor@hcn.org or submit a letter to the editor. See our letters to the editor policy.*

This article appeared in the June 2026 print edition of the magazine *with the headline "A river robbed of sediment."*