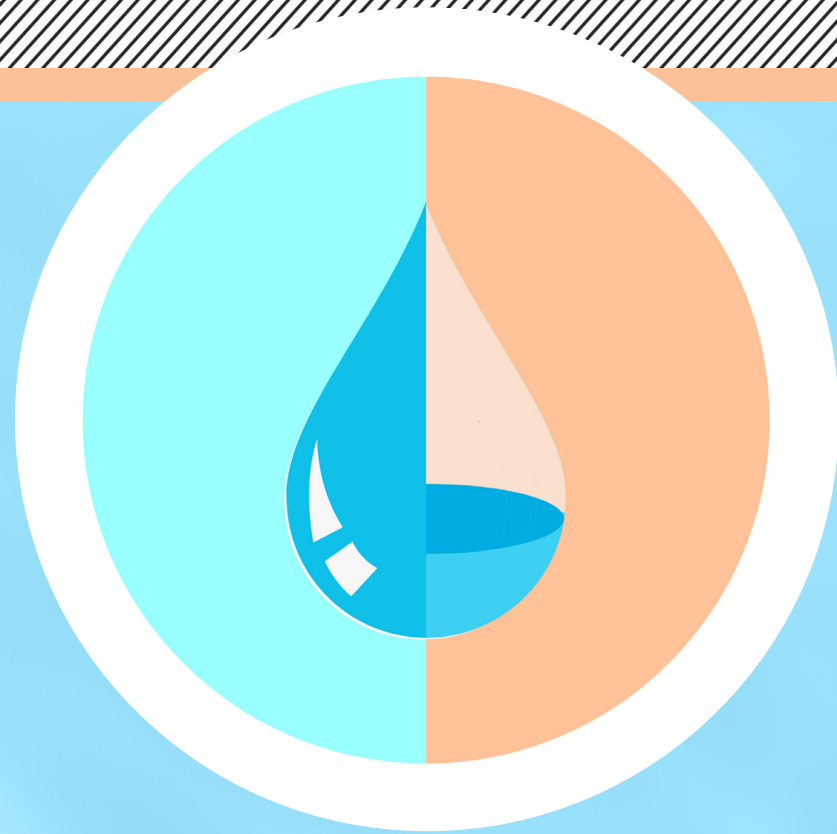


Amid the Shoalwater Bay Indian Tribe's relocation effort, the tribe continues to combat rising sea levels. Clockwise from top: Berm and dynamic revetment construction; Shoalwater Tribal Council — Shane Thomas, Joel Blake, Charlene Nelson, Quintin Swanson, and Lynn Clark — with Colonel Alexander Bullock of the U.S. Army Corps of Engineers during pre-construction site visit; tribal forest lands and area for community relocation, looking over Willapa Bay to the Pacific Ocean; collapsed dune construction after emergency erosion repairs failed within just two years



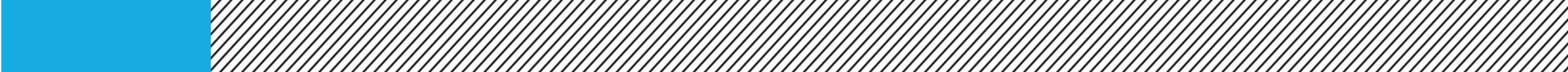
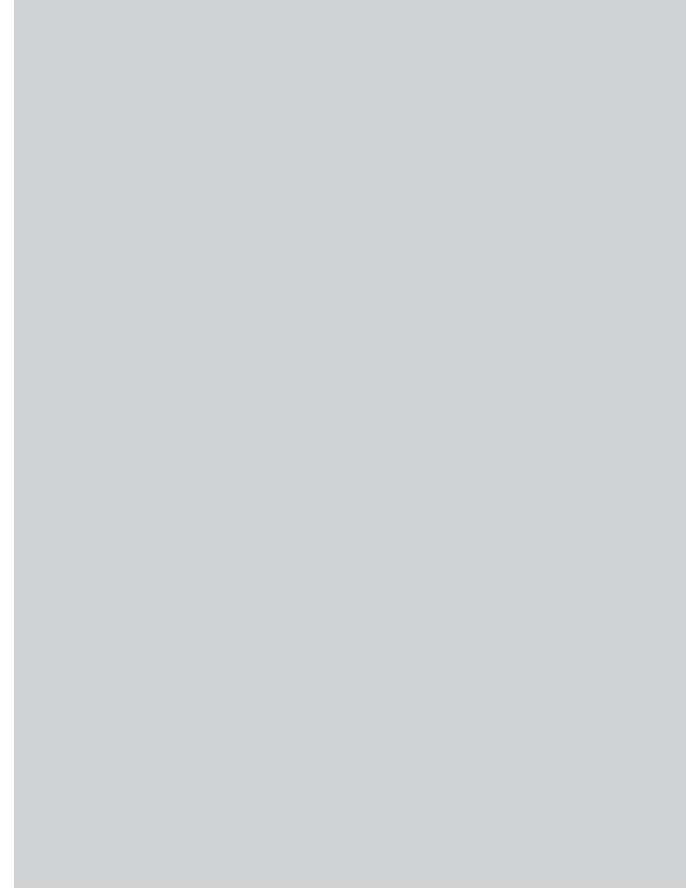
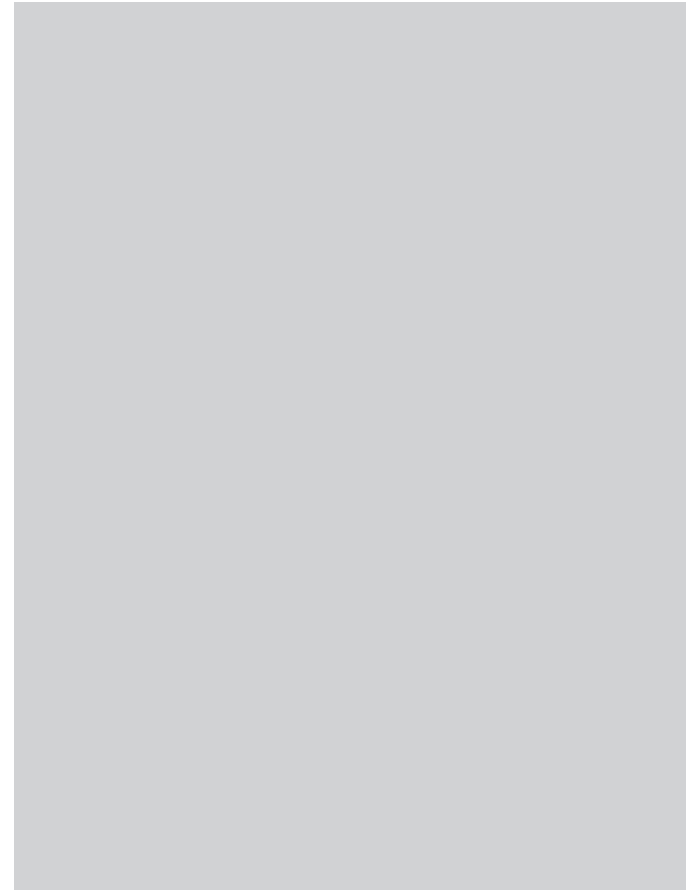
Coastal Tribes Confront Climate Change

Water — too much and too little — threatens survival for many communities

By Patty Talahongva

It's a small tribe with a massive problem. Of the 475 citizens of the Shoalwater Bay Indian Tribe, 90 live on the reservation in Tokeland, on the southwestern coast of Washington. "We have one of the biggest cases of land erosion in the western U.S.," says Quintin Swanson, the tribe's 27-year-old chairman. According to the state's Department of Ecology, between 100 to 130 feet of their land per year has washed into the ocean. ▶

CREDIT: TK



Congresswoman Marie Gluesenkamp Perez (D-WA), left, visited the Shoalwater Bay Tribe to discuss climate resiliency efforts. She toured the tribe’s vertical evacuation tower and upland relocation due to sea-level rise.

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This rugged coastline has been home to the tribe since time began, but when President Andrew Jackson created the boundaries, he set aside just one square mile for their use. Since then the tribe has purchased more land and now has approximately eight square miles, but rising sea levels and more aggressive storms could take some of it back. “My dad tells stories of drinking beer on the beach and watching houses fall into the ocean,” he says. That was back in the ’70s.

As a boy Swanson was able to play on that same beach. “Now the beach has eroded up to the highway,” he says. Swanson’s four-year-old son won’t ever play there. The loss of the beach is also a loss to their traditional diet. “We rely on clams and crabs as well as fish. How will this impact our tribal identity?” he wonders.

FACING RISING WATER

The tribe has heard from scientists who say Tokeland could be underwater in 85 years if nothing changes. In 2012 the Army Corps of Engineers built a seawall to help protect the reservation — they’ve had to rebuild it three times since then. “We’re all eventually going to have to relocate from our ancestral homelands, which is heartbreaking as we’ve lived here since time immemorial,” says the chairman.

In 2008 the tribe started a relocation initiative, but it’s taking multiple government agencies and years to make any progress. Swanson says the biggest challenge is securing between \$400 and \$450 million to build an entirely new village. “The majority of our land purchases have been raw terrain, with steep hills and

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— QUINTIN SWANSON

OFFICE OF REP. GLUESENKAMP PEREZ

deep ravines. That’s part of the reason why relocation is so expensive,” says Swanson. “How can we piecemeal funding from all the different agencies for a project of this magnitude?”

The current plan calls for 120 homes, a clinic, tribal center, education center, and police station. But what should come first for a tribe needing a safe place for its people? The tribe initially received \$6.2 million from HUD to develop homes for six families. The money must be spent in three years. Later the tribe secured \$25 million to build a road to the new site. That grant from the Department of Transportation must be spent in eight years and will pave only 3.8 miles. “The road is so costly because of the steep grade,” explains Swanson. “Plus they have to build retaining walls.”

CUTTING RED TAPE

How does a tribe navigate all the red tape that comes with trying to secure funding from various federal agencies? Climate change challenges in Indian

Country are so big that earlier this year Representatives Marie Gluesenkamp Perez (D-WA), Derek Kilmer (D-WA), and Mike Simpson (R-ID) introduced the TERRA Act, the Tribal Environmental Risk and Resilience Act, a bipartisan effort to streamline the process for tribes to respond to environmental threats.

The lawmakers noted that the TERRA Act establishes “an inter-agency framework at the Department of Interior for coordinating prevention, mitigation, and relocation efforts of Tribal Nations threatened by extreme weather and natural disasters.” Tribes would work directly with DOI to develop a comprehensive plan to integrate federal resources, an approach that will streamline meeting legal and administrative requirements and promote self-determination.

But until the act becomes law, it’s a waiting game for Chairman Swanson. Meanwhile, facing such a huge project is a significant burden on his small tribe and his four-person team.

Swanson says he has met with leaders from nearby tribes such as the Hoh, Quinault, Port Gamble Jamestown, Makah, and even several tribes in Alaska that are facing the same issue of coastal erosion and relocation. “We met about a month ago with the Quinault Tribe,” he says. “They are one of the biggest tribes on the West Coast also going through relocation due to climate change. The Quinaults have a solid master plan of moving around 1,500 people,” says Swanson.

CLIMATE CHANGE AND WATER RIGHTS

People driving on U.S. Route 395 north of Los Angeles can listen to “There It Is — Take It!” a car audio tour explaining the history of the Los Angeles Aqueduct system, which takes water from Owens Valley to the thirsty City of Angels. According to the tour website, “Although Los Angeles agreed to supply a set amount of water to the reservations, the land exchange did not include water ►





Above: L'eaux Stewart, the chair of the tribal council for the Big Pine Paiute Tribe, points to the former shoreline of Owens Lake earlier this year. Left: A marker above Mono Lake shows a point that would have been 200 feet below its surface in prehistoric times. An 11-mile tunnel was carved through volcanic peaks to divert water from streams that feed the lake and send it to Los Angeles. Changes in the water table have negatively impacted the Big Pine Paiute Tribe's traditional food sources.

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rights.” Instead the city and federal officials planned to resolve the water rights issue at a later date — that resolution has yet to happen.

One tribe lacking water rights is the Big Pine Paiute Tribe of the Owens Valley, who call themselves Nüü-mü, the people who live in Payahuunadü, the Land of the Flowing Water. Before climate change, melting snow from the nearby Sierra Nevada kept the area lush. Cheyenne Stone is the chair of the tribe, which has 400 of its citizens living on the reservation. “My mom is 69 years old. When she grew up, she was able to hit the water table garden- ing six inches deep,” says Stone, explaining that’s not the case today. The land has become a desert.

In addition to the lack of water, rising temperatures are affecting the tribe’s traditional diet. “We’re noticing the impacts on our food,” she says.

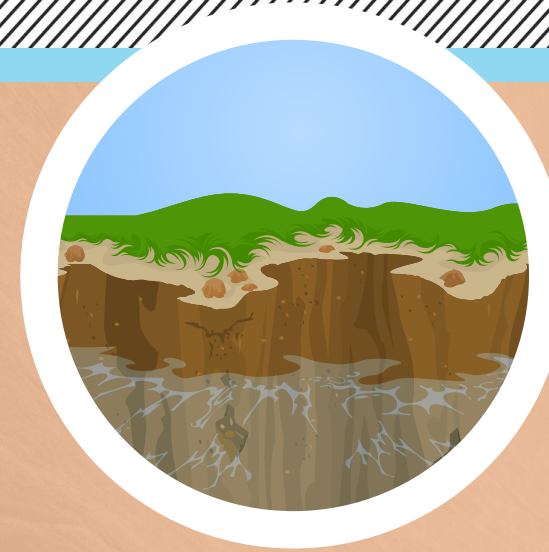
“My mom is 69 years old. When she grew up, she was able to hit the water table gardening six inches deep,” says Cheyenne Stone, explaining that’s not the case today. The land has become a desert.

Pine nuts, acorns, and berries made up their traditional diet, but with diminishing water, those food sources are scarcer.

Tribes like Stobe’s are caught between a lack of water rights and encroaching climate changes. “Our generational poverty helped build the generational wealth of Los Angeles,” she says. “We’re going to see a decline in our culture. We can’t gather willow branches to make baskets. How do you pass down that cultural knowledge when there are no willows?”

But she’s not ready to quit. She thinks about the future of her two children as she continues to work with the Bureau of Reclamation to secure funding to upgrade infrastructure. She also looks to her grandmother for inspiration. “My grandmother is 91 years old, and still cans food,” says Stone. “In order to be self-sufficient, we need our orchards.” **A**

PHOTOS BY CARL SMITH/GOVERNING



Seeking Solutions

First Nations strive to mitigate coastal erosion in Canada

By Patrick Quinn

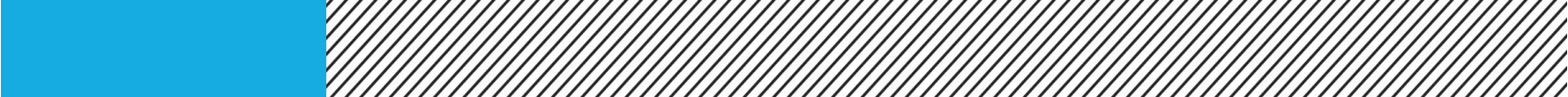
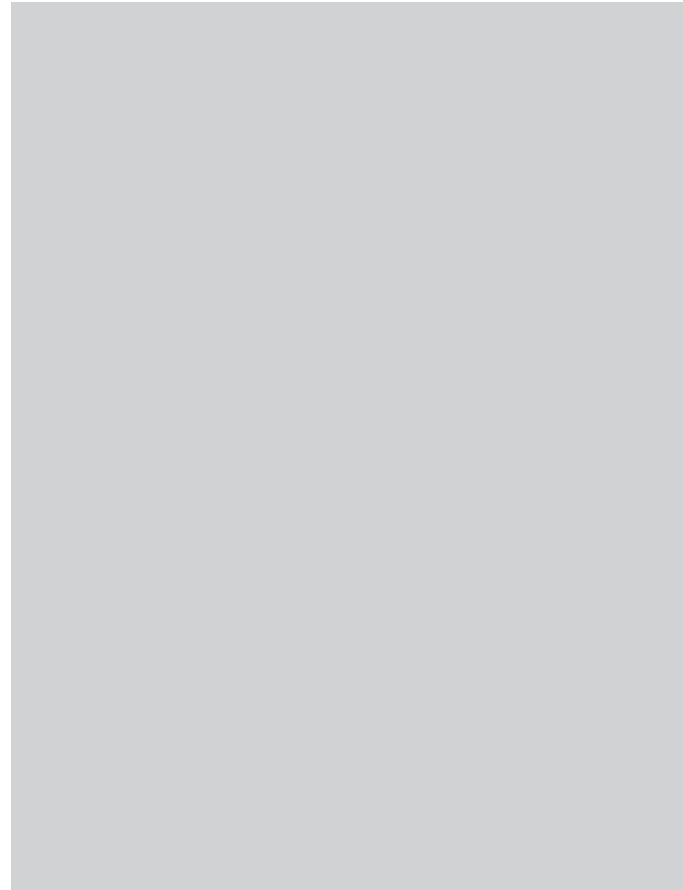
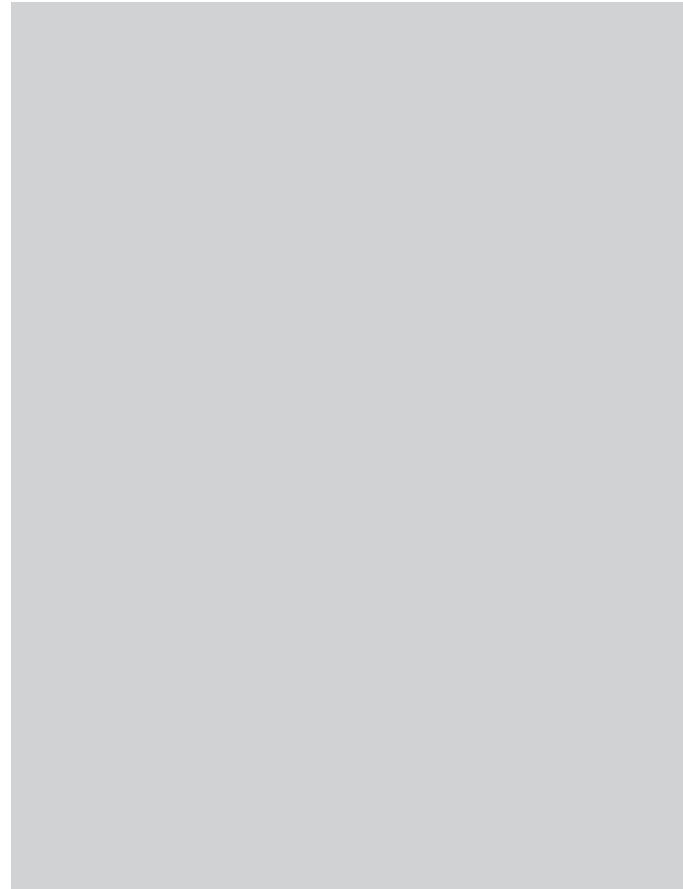
With rising sea levels, many First Nations are confronting aging infrastructure, habitat fragmentation, and diminishing harvests of traditional foods. While some cities have installed seawalls or breakwaters, Indigenous communities are often prioritizing natural infrastructure that minimizes impacts to local environments.

Last year, Eskasoni and Potlotek First Nations on the Atlantic coast received federal funding to implement improvements, including sediment controls and living dykes with salt marshes. Chief Leroy Denny has pointed out that because Eskasoni is one of the two coastal communities hardest hit by severe storms, the erosion protection project will help preserve their lands.

In 2019 coastal First Nations in British Columbia formed the Climate Action Network to support emergency preparedness, food security, and clean energy projects. Another group called Living with Water is empowering coastal communities to prepare adaptation strategies.

Tsleil-Waututh Nation has partnered with Living with Water on a study of sediment movement and pilot projects that leverage natural features to reduce flooding damage. **►**

ISTOCK



Trevor Gatzke (inset), Stz'uminus director of administration and a member of the Okanagan Indian Band, is part of a group working to develop a creative coastal erosion mitigation strategy that includes using natural materials to build up the coastline and a new drainage system for the Nation's traditional territory.

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Reviving the ancient cultural practice of clam gardens — low rock walls designed to build up sand — has been proposed to reduce beach erosion, wave energy, and ocean acidification.

Stz'uminus First Nation on Vancouver Island is planning a creative coastal erosion mitigation strategy, including beach nourishment with gravel and plants along with the construction of headlands using rock armor. The plan involves over 25,000 tons of material and a whole new drainage system. “We’re trying to keep the landscape as natural as

possible, without digging or putting in sea walls,” says Trevor Gatzke, Stz'uminus director of administration and a member of the Okanagan Indian Band. “It’s so easy to dump 100 tons of concrete somewhere, build a giant wall, and hope that works, but you take away from everything that First Nations believe in.”

While the community looked at other projects as it conducted several shore erosion studies and mapped out 20-year projections, it didn’t find other examples of a “green fix” of this magnitude. Once the project is

PUBLIC DOMAIN

“A lot of brains from different agencies are involved to try to make this work. The hardest thing to find is Indigenous engineers. We end up trying to teach non-Indigenous groups to ensure culture is respected.”
— TREVOR GATZKE

VIA LINKEDIN

completed, they will apply for the province’s Green Shores certification, which provides science-based tools to minimize impacts and restore shoreline ecosystems. “Stz’uminus’ history is traced to this bay,” explained Gatzke. “Half this project is protecting a very old cemetery on one of the points that’s eroding dramatically. This project works so well because it’s all build, so we’re not disturbing anything beneath the soil.”

Several historical sites of First Nations along the region’s coastline have been submerged or faced risk of flooding in recent years. With fierce storms, rising tides, and shifting sands, Stz’uminus has a Hesco barrier protecting

one side of a coastal road. Plants are a big piece of its mitigation strategy, says Gatzke as their “root systems will always be a better deterrent than just plain sand and rock.”

With Stz’uminus chief and council leading the process and elders providing guidance, the community has been collaborating with hydro and structural engineers along with Indigenous Services Canada’s capital projects team. “A lot of brains from different agencies are involved to try to make this work,” Gatzke says. “The hardest thing to find is Indigenous engineers. We end up trying to teach non-Indigenous groups to ensure culture is respected.”

As there’s little precedence for this type of project, continuous monitoring will ensure the community isn’t still losing ground. If these mitigation efforts are successful, Gatzke envisions supporting other First Nations facing similar issues. “We’re excited to see how this works,” he adds. “As we tackle issues, relying more on cultural knowledge will immediately start engaging our youth. They will give insight and input that you might miss, and they’ll be the catalyst for change.” **A**