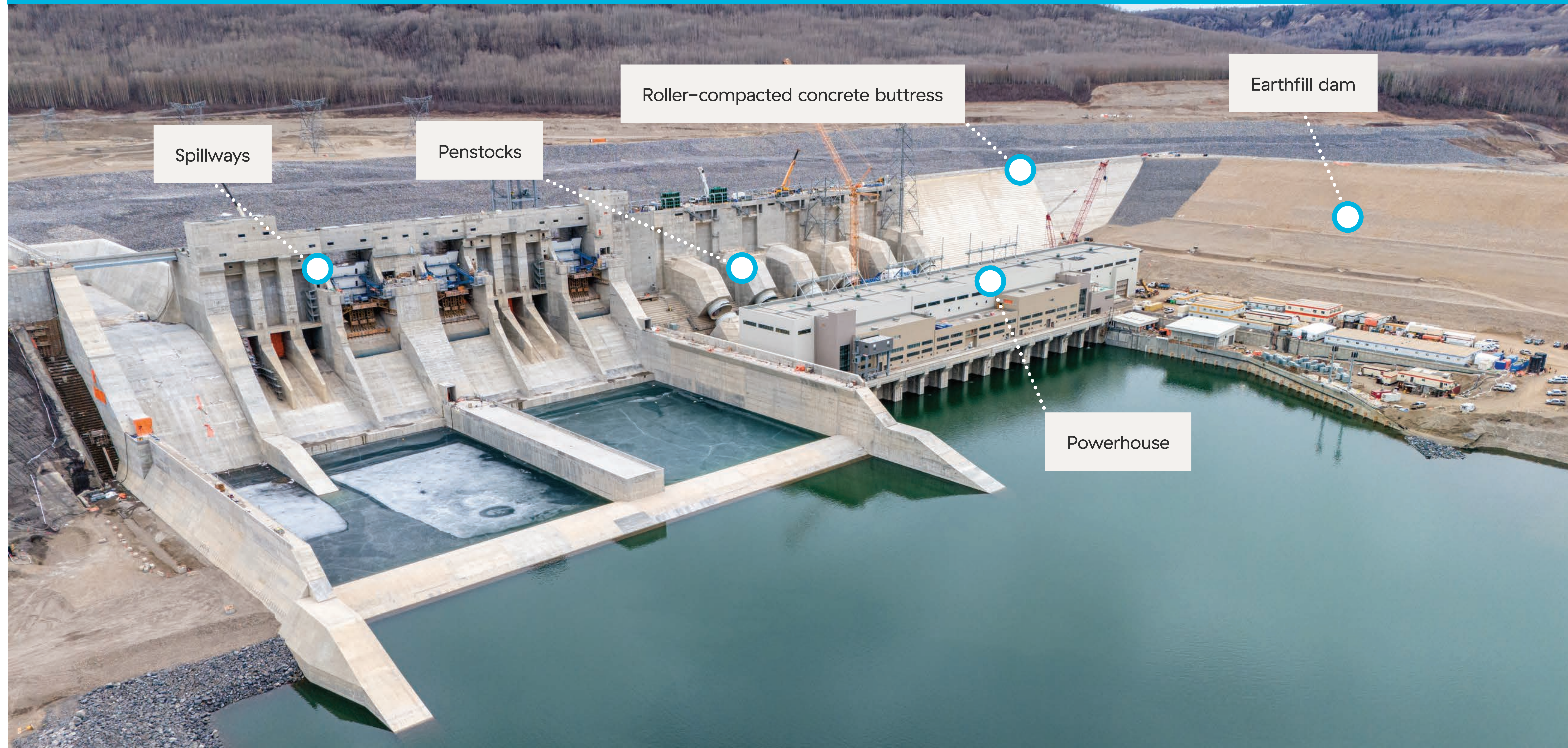


Site C dam: Overview



Site C dam: Downstream



Spillways

Penstocks

Roller-compacted concrete buttress

Earthfill dam

Powerhouse

Site C construction progress

Site C construction began in 2015 and the project is now about 85% complete. Reservoir filling is targeted to begin in late summer 2024.

The project remains on-track to have all six generating units in-service in 2025.

Complete:

DAM SITE AREA

- ✓ Earthfill dam at elevation for reservoir filling
- ✓ Approach channel ready for reservoir filling
- ✓ Powerhouse, intakes and spillways built
- ✓ Right bank foundation enhancement work finished
- ✓ Tailrace filled and right bank cofferdam removed
- ✓ Diversion Tunnel 2 converted and ready for reservoir filling
- ✓ Transmission towers between Site C and the South Bank substation
- ✓ Two 500 kV transmission lines connecting Site C to the BC Hydro grid complete and energized
- ✓ Permanent fishway facility constructed

PEACE RIVER / RESERVOIR AREA

- ✓ Hudson's Hope shoreline protection berm built
- ✓ Highway 29 realignment: About 30km between Fort St. John and Hudson's Hope
- ✓ About 200 fish habitat enhancements built to support many fish species.



Earthfill dam



Intakes

Remaining work:

As we approach the final stages of the Site C project, several important tasks remain, including:

- Complete the spillway and intake gates
- Assembly of all six generating units
- String transmission lines connecting Site C to the Southbank substation
- Reservoir filling targeted to begin in late summer 2024
- Commissioning and bringing all six generating units into service



Powerhouse



Scan for construction updates

Filling the reservoir in 2024

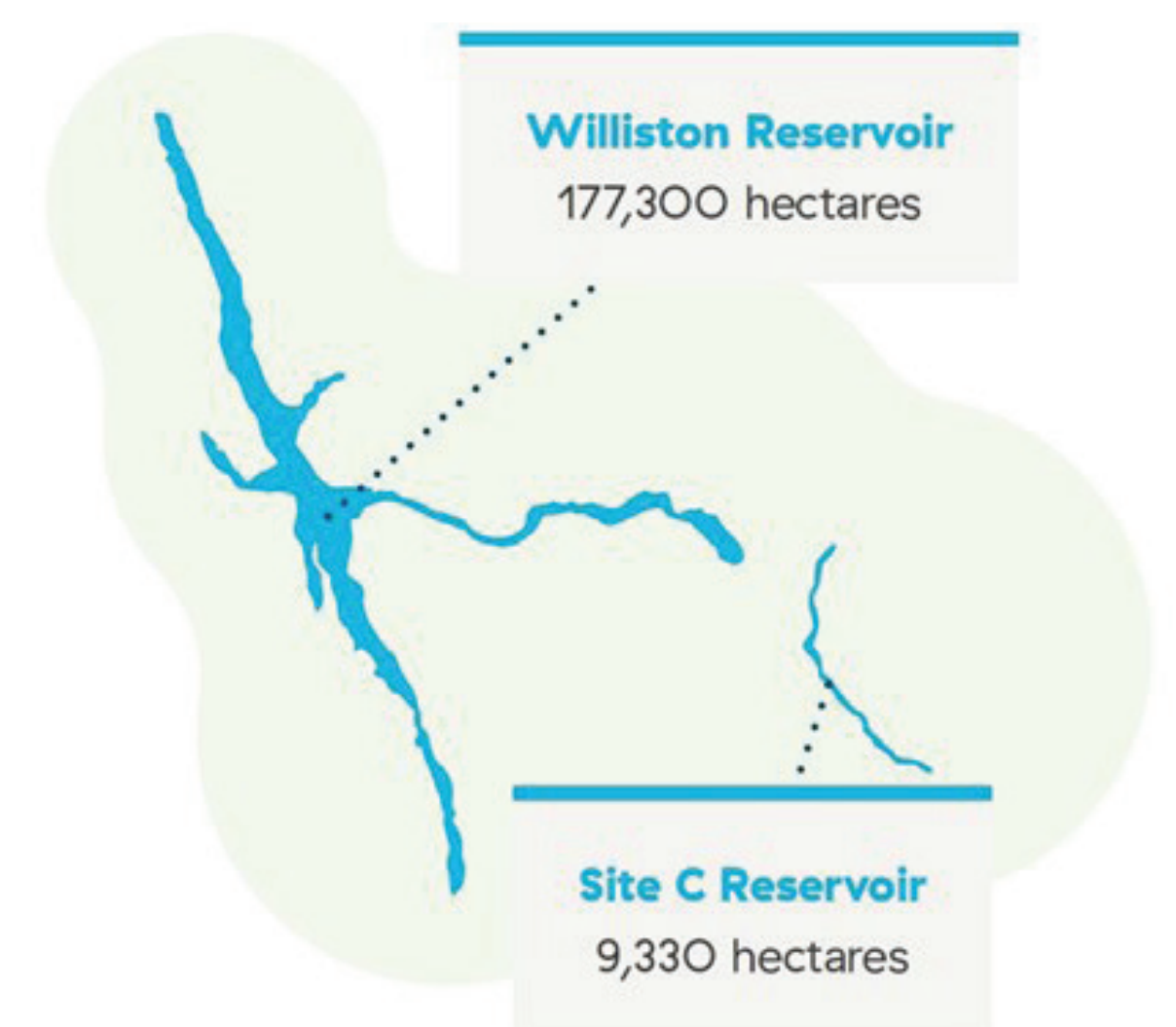
Site C reservoir filling is targeted to begin late this summer. This timing will avoid the peak spring to early summer bird nesting and late fall / winter black bear hibernation seasons to reduce potential wildlife impacts. Public safety during and after a safe, gradual reservoir filling is a top priority.

Filling the reservoir with water allows us to put the generating station, spillways, turbines and generators into operation, creating enough energy to power the equivalent of about 450,000 homes per year in B.C.

What to expect during reservoir filling

Filling the reservoir will create permanent shoreline changes. This is what you can expect as the water level rises:

- The Site C reservoir will cover 5,550 hectares of land, with a total surface area of about 9,330 hectares.
- The 83-kilometre-long reservoir will be, on average, two to three times the width of the current Peace River. The mouths of the Moberly River, Halfway River and Cache Creek will also widen.
- It will take approximately four months for the water to reach its full depth, and the depth will vary: 52 metres close to the dam, 36 metres at Halfway River, and 18 metres near Hudson's Hope.
- During reservoir filling, the reservoir will fill at a varying rate of 0.3 metres to three metres per day.
- The Site C reservoir will be filled using water already stored in and released from the Williston Reservoir. Drought and a below-average snowpack will not affect plans to fill Site C in 2024.

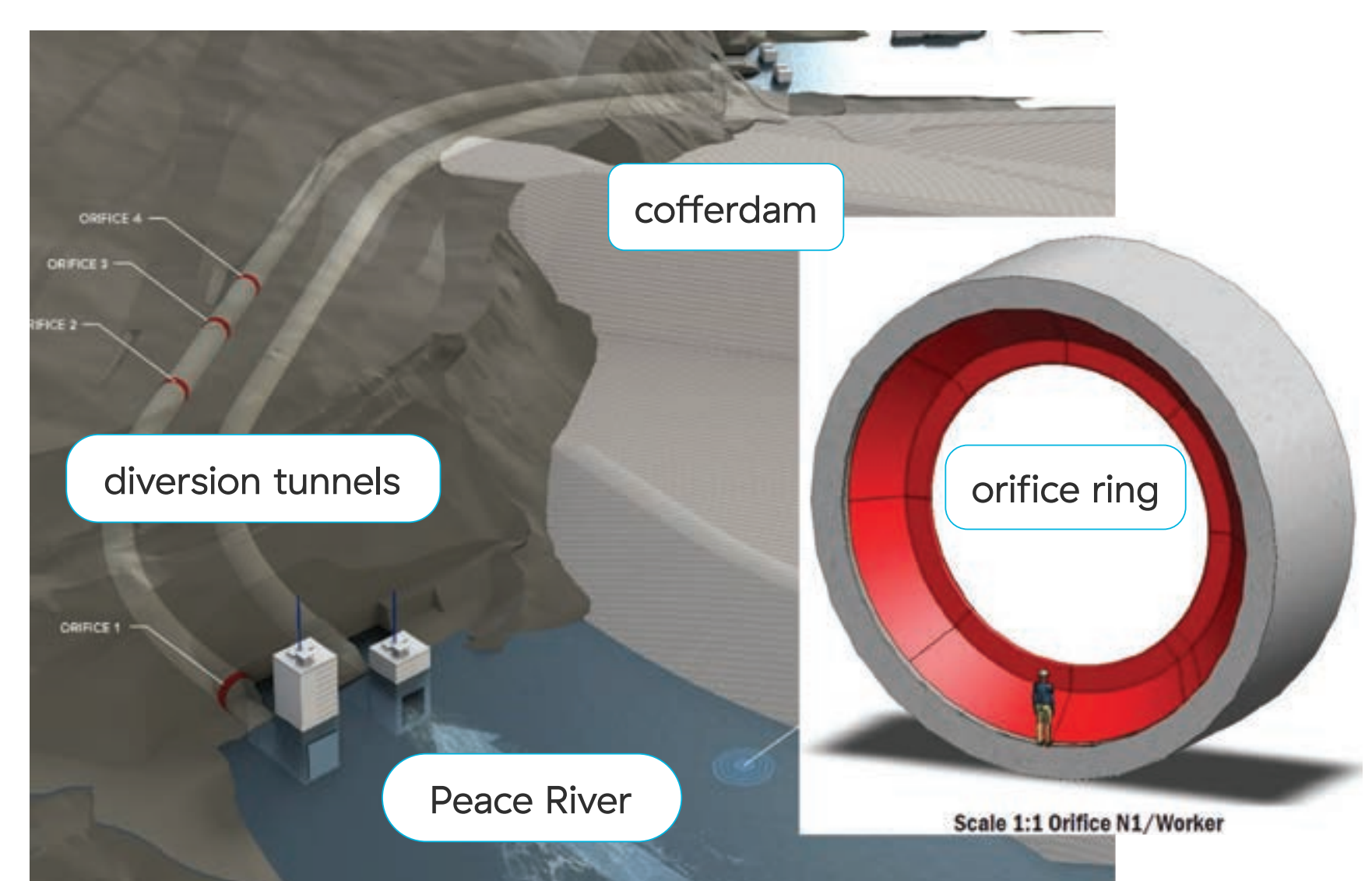


Tunnel conversion complete

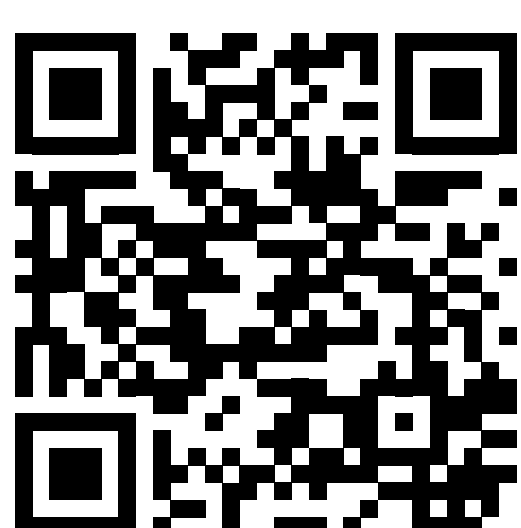
To prepare for reservoir filling, we've installed constrictions (or orifices) inside one of two diversion tunnels that are currently in service to divert the Peace River. The constrictions will reduce the flow of water and cause water levels to rise at the start of reservoir filling after the unconverted tunnel is closed.

When the water is high enough to flow through the spillway, both tunnels will be closed.

Flows downstream will continue throughout reservoir filling. The diversion tunnels will be permanently sealed and filled in after reservoir filling is done.



For more info:



Reservoir filling timeline



Drought will not affect Site C reservoir filling

The water used to fill the Site C reservoir is managed through BC Hydro's regular operations, generating power at WAC Bennett and Peace Canyon before it enters the Site C reservoir.

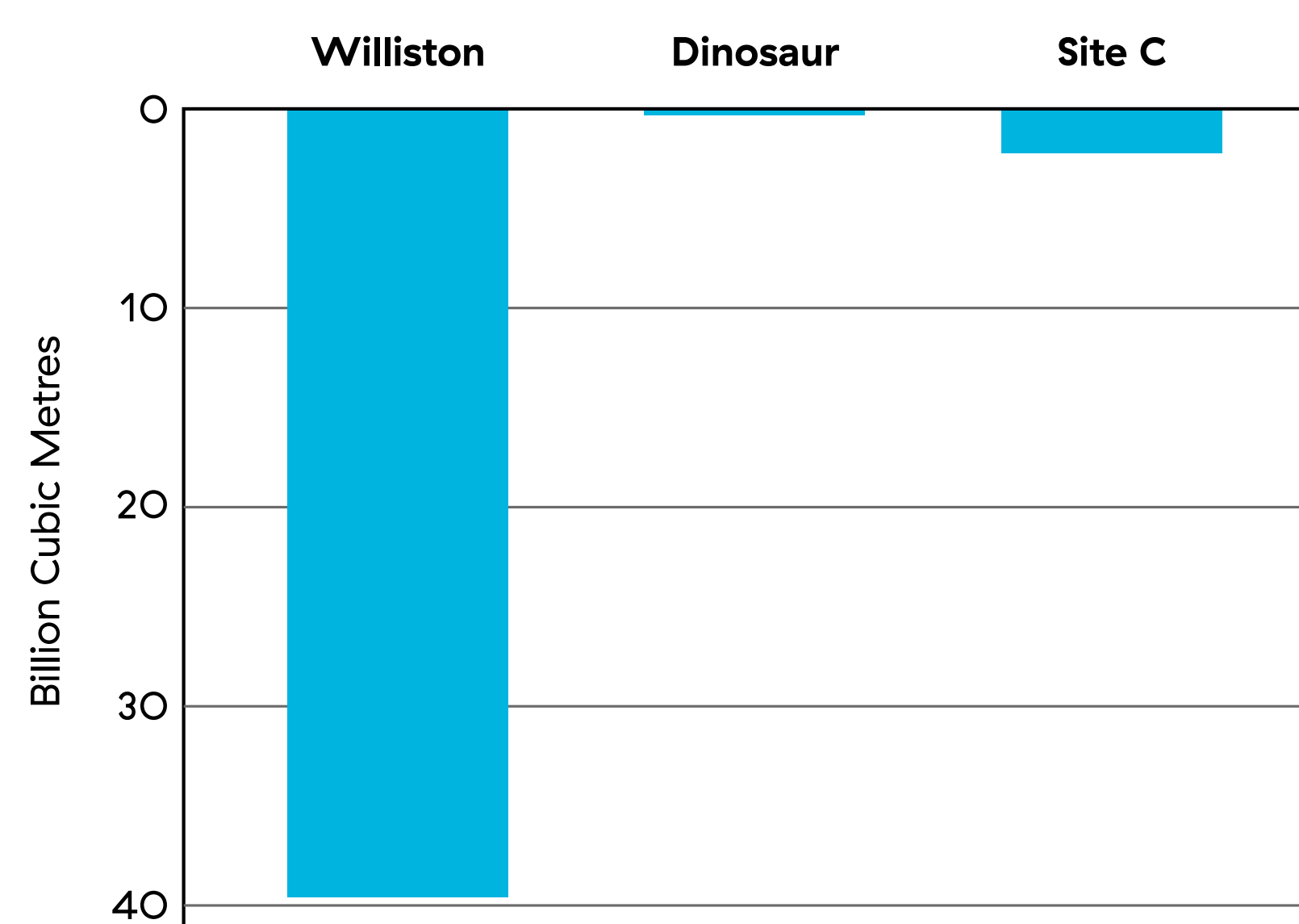


BC Hydro continues to actively take steps and plan for reservoir operations for all conditions, ranging from drought to flood risk management.

Reservoir Volume

Drought and below-average Williston Reservoir levels won't impact Site C reservoir filling in 2024.

The volume of the Site C reservoir is many times smaller than the expected annual minimum flow releases from the Williston Reservoir.



There will be enough inflow to fill Site C in drought

- In an average year, water flowing into the Williston Reservoir can fill Site C up to 20 times.
- Even in another regional drought, similar to last year, the Williston Reservoir has over 10 times more generation discharge than the volume required to fill Site C.



BC Drought
Information Portal

Downstream effects during reservoir fill and commissioning

During reservoir filling, which is targeted to begin late this summer, and commissioning of the generating units there will be some effects on Peace River flows downstream of the dam site.

During reservoir filling and generating unit commissioning

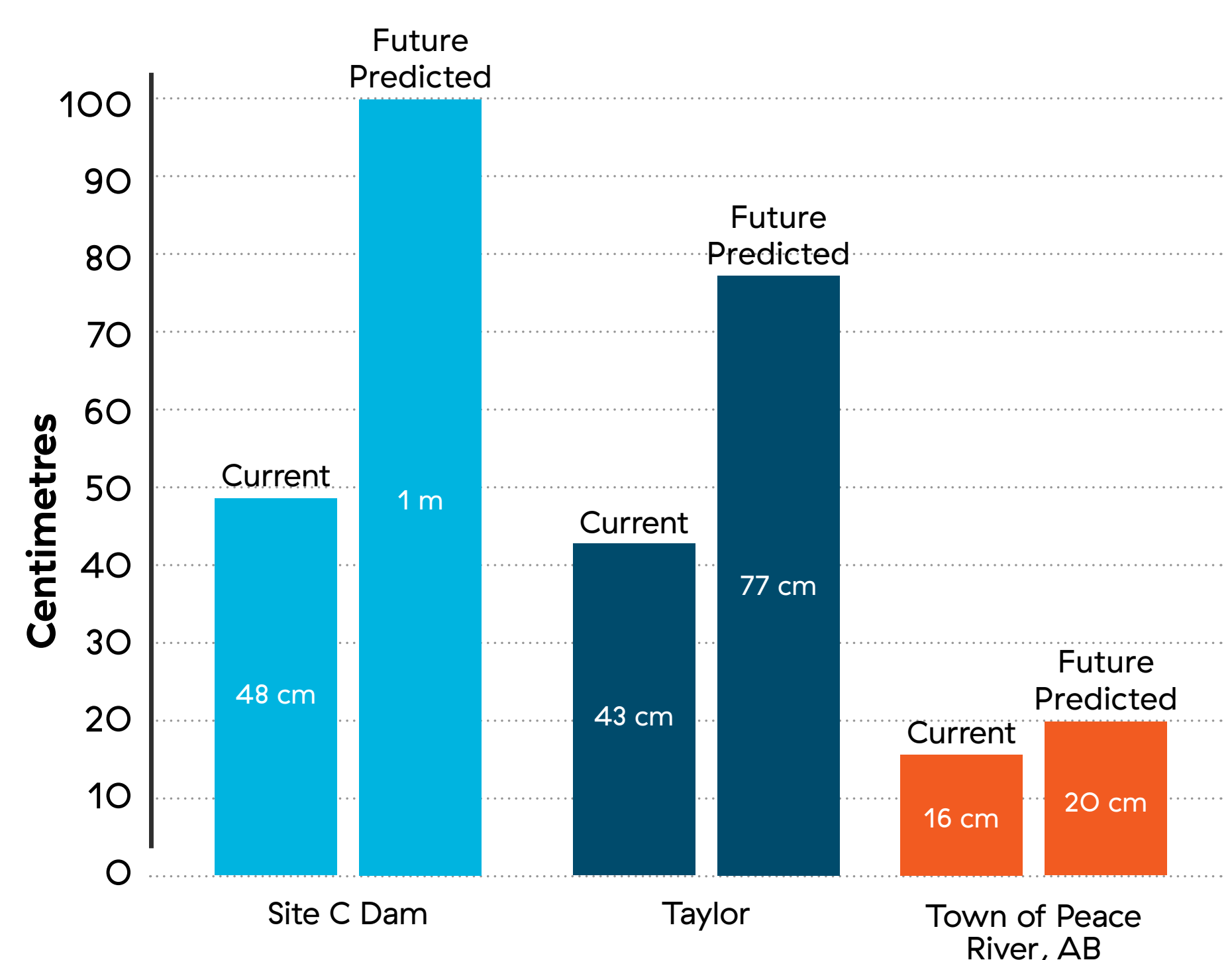
- BC Hydro will ensure continuous downstream flows of at least 390 m³/s. This flow is consistent with current minimum flows.
- Water will flow through the spillways until at least four generating units are commissioned. This means the spillways will be regularly used for several months until flows can be transferred to the generating units.
- Downstream flows may increase to 1,200 m³/s or higher to meet energy demand. These higher flows would be released from the upstream WAC Bennett and Peace Canyon dams during periods of higher energy generation.
- Flows may also increase to manage ice formation on the river downstream of Site C.



During operations

- Once in operation, the six Site C generating units will discharge water from the powerhouse at a rate ranging from 390 to 2,700 m³/s depending on energy demand. Spillway use will be infrequent.
- Daily average water levels directly downstream of Site C are expected to fluctuate by 1 m. Further downstream, these water level changes will decrease with distance from the dam site.
- Reservoir operations and resulting river flows will meet all regulatory requirements.

DAILY AVERAGE WATER LEVEL RANGE



Downstream effects during reservoir fill and commissioning

Safety near the dam site

- Downstream of the dam site, water levels can change quickly, fluctuating by up to 3 metres due to increases and decreases in power generation.
- Public access will be restricted in the downstream zone between the dam and the temporary Peace River construction bridge.
- There will also be water level fluctuations and strong currents in the river up to 2 km downstream of the Peace River construction bridge.



Hazard signage will be posted. Please use caution and remain aware of the water level, surroundings, and any observable changes in these areas.



Warning signals and sounds will be used to alert people near the damsite before and during the initial period of spillway operations. The sounds are expected to carry about 1.5 km downstream.

Water clarity and temperatures

Suspended sediment levels are expected to increase when reservoir filling begins and last several months. Levels will be regularly monitored.

Over the long term, downstream Peace River suspended sediments are expected to decrease.

Compared to existing conditions, water temperatures immediately downstream of Site C are expected to be:

- Slightly warmer between July and January, with differences ranging between 0.3°C (July) and 1.5°C (January).
- Slightly cooler between February and June, with differences ranging between 0.4°C (March) and 0.9°C (June).

Downstream Monitoring

BC Hydro is implementing long-term monitoring programs on water flow, as well as fisheries and aquatic habitat downstream of the project.



Peace Region reservoir and related river levels



Fish habitat enhancements and monitoring programs

Dam safety at Site C

Site C is built and maintained in accordance with the highest international and Canadian safety practices

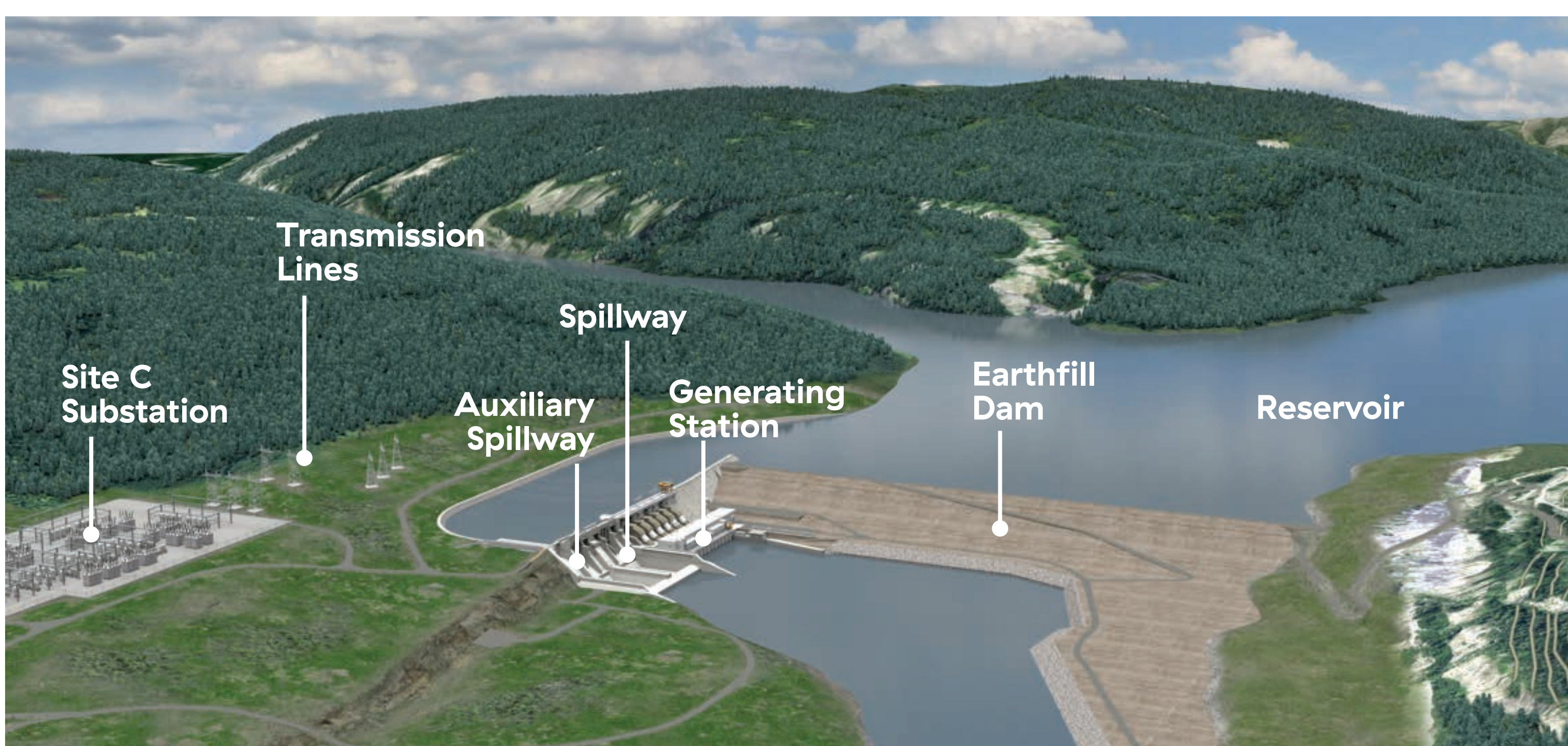
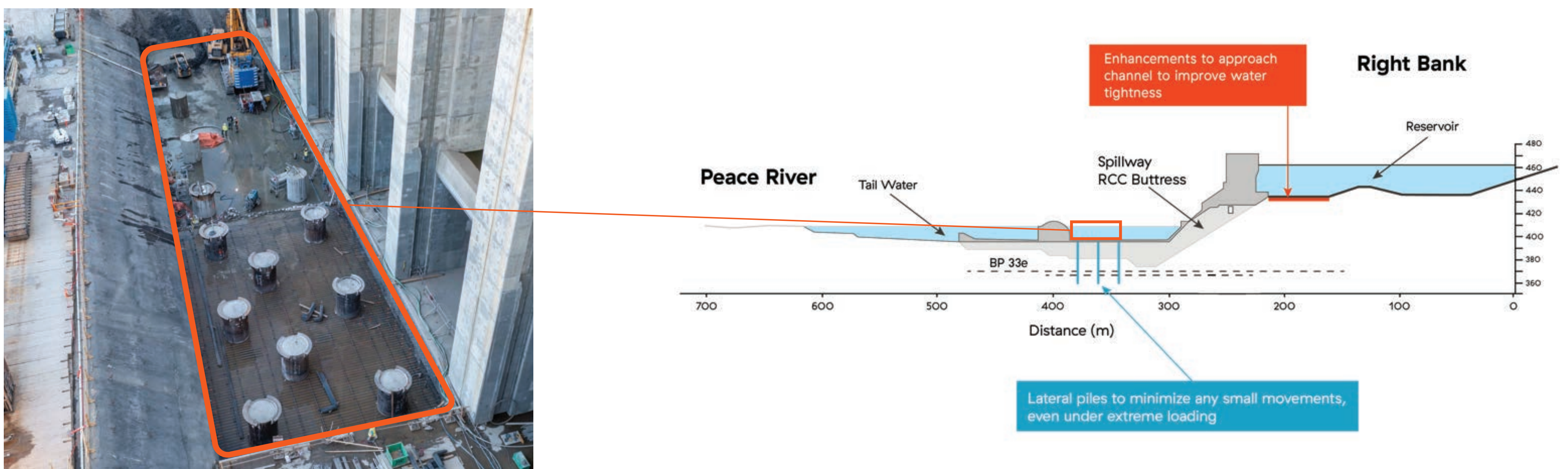
- Designed to withstand unlikely extreme earthquakes and floods
- Meets the Canadian Dam Association's highest level of design guidelines
- Aligns with best practices in instrumentation and surveillance
- A dam safety engineer and two dam safety technologists are based in Fort St. John

The L-shaped design

- Includes a long concrete buttress under the spillway and generating station, which improves stability and seismic performance
- Features a large-capacity gated spillway and an overflow auxiliary spillway
- Meets current seismic and safety standards

Right bank foundation enhancements

We've improved the stability of the right bank structures by installing 96 piles (large steel pipes filled with concrete) 46 metres into the stronger rock below. These piles prevent any potential movement.



Scan to watch



Dam safety at BC Hydro

Safety is a key consideration in the Site C project design. We've been safely operating and maintaining dams across B.C. for more than 60 years. We currently manage and operate 86 dams at 42 locations throughout the province.

Our dam safety program is rigorous and based on provincial regulations, guidelines published by the Canadian Dam Association, and international best practice.

BC Hydro's emergency management program

- B.C. Emergency Management System manages and responds to emergencies
- Drills with employees validate and reinforce procedures
- Table-top and role-play sessions with provincial and local emergency management agencies coordinate emergency procedures

Dam safety program

- Thousands of instruments to collect and report dam performance data
- 24/7 automated monitoring system including alarm notification
- Weekly visual checks, more extensive inspections and engineering evaluation twice a year
- Annual reports submitted to Province of B.C.
- Audits of our dam management system every five years
- Each dam undergoes an independent safety review every 7 to 10 years
- Extensive maintenance of critical equipment
- Ongoing assessment against current standard of practice
- Dam upgrades when needed



Peace Canyon Dam



W.A.C. Bennett Dam



Scan to learn more

Slope stability monitoring

The reservoir shoreline and slopes will be monitored for safety

Shoreline erosion and slope instability will occur as a result of reservoir creation. They may take place during reservoir filling and could continue for a number of years. The impacts will vary around the shore, depending on the location.

As part of our public safety plan, we'll communicate any hazards that may impact the public.

Please be careful around the reservoir and shoreline. We'll monitor for signs of erosion or instability. The public will be notified when the reservoir can be accessed again.



Once the reservoir is filled, here's what you need to know about slope stability and safety:

- The impacts of shoreline erosion will be variable around the reservoir, depending on the location.
- Residents are encouraged to use caution when near the reservoir, look for signs of active erosion and slope movements, and maintain a safe distance from these areas.
- Embankments and slopes are particularly prone to sudden sloughing (soil falling off banks and slopes). Sudden sloughing may trigger waves on the reservoir that could run up onto adjacent areas of shoreline or the shoreline on the opposite side of the reservoir.
- After the reservoir is filled, shoreline erosion is expected to accelerate in some areas and new sloughing may occur.
- We've developed a reservoir-wide shoreline monitoring and surveillance program.
- Our monitoring program includes aerial inspections, visual observations, remote sensing, and instrumentation.
- Over 200 instruments (on the surface and below ground) collect monitoring data about groundwater, slope stability and climate conditions.



A GPS monitoring station



Scan to watch

Protecting the shoreline

Hudson's Hope Berm

Once the reservoir is filled, shoreline erosion combined with changes in groundwater conditions could cause the banks to recede in the lower slopes below the District of Hudson's Hope.

We've built a 2.6-kilometre berm—a large barrier made of riprap, rocks and gravel—to reinforce the shoreline below Hudson's Hope and protect it from potential erosion.

While the berm will protect the shoreline from instability caused by the reservoir, it cannot mitigate preexisting conditions or instabilities due to natural causes on the slopes immediately above the berm.

Incorporated into the berm, we're building a recreation site that can be accessed by vehicles seasonally and will also be connected by walking trails.

Public access to the recreation site is currently limited to ensure safety during construction. It will be closed during reservoir filling and until the reservoir is deemed safe.



The shoreline protection berm extends for 2.6 km and is made of riprap, rocks and gravel.

Berm protection along Highway 29

We've also built berms to reinforce sections of Highway 29 that will be along the new reservoir.



Recreational access

Keeping boaters safe

Filling the reservoir will provide new and enhanced recreational activities for the community.

- The existing Halfway River boat launch will remain open via a gravel access road from Highway 29 for most of the 2024 season. It will be permanently closed in mid-August before reservoir filling.
- The D.A. Thomas and Lynx Creek boat launches are currently inaccessible.

The new boat launches at Lynx Creek and Halfway River, as well as a new small craft launch at the D.A. Thomas Public Use Management Area, will remain closed for at least one year after filling for reservoir slope stability and erosion monitoring.

Our boat launches will be opened for public use based on the results of monitoring reservoir conditions related to slope stability and debris management following the initial filling.

D.A. Thomas Recreation Area

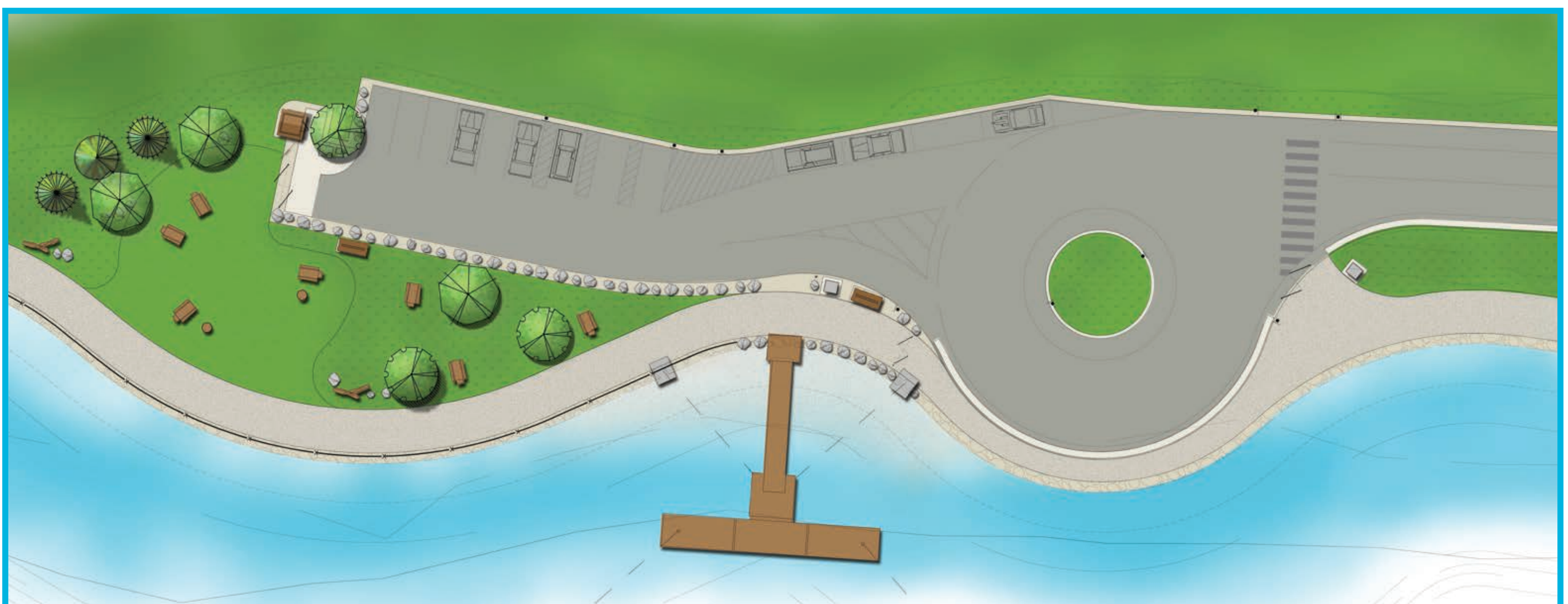
As part of our community investment program in Hudson's Hope, we're building a recreation site featuring a small craft launch at the D.A. Thomas Public Use Management Area. The launch will consist of a gangway and floating dock. This will allow the launch of car topper-type boats only, such as kayaks and canoes, at regular reservoir operating levels. Boats on trailers will still need to be launched at the new boat launch and day use area at Lynx Creek.

There is currently no public access to the river at the bottom of D.A. Thomas Rd.

The small craft launch at the new D.A. Thomas Public Use Management Area will remain closed for at least one year after reservoir filling. The recreation site is scheduled to be open for the 2025 recreation season. Only the launch will remain closed.



Scan to learn more



Layout of D.A. Thomas Recreation Area

Lynx Creek boat launch

The Lynx Creek boat launch will be rebuilt and upgraded at a site east of its current location.

The new boat launch will include:

- Day use area with picnic site, interpretive kiosk, and pit toilet
- Safe road access for vehicles with trailers
- Double-wide concrete boat ramp with a 10–15% grade
- Safe turnaround area for trailered, motorized boats longer than five metres
- Parking for vehicles with trailers

The old Lynx Creek boat launch is closed.

The new boat launch will be inaccessible for at least one year after reservoir filling to allow time for slope stability and erosion monitoring.



Scan to watch



Halfway River boat launch

The existing Halfway River boat launch will remain open until mid-August 2024, via a gravel access road from Highway 29. There may be access delays and intermittent closures due to nearby construction activities. It will close permanently in August prior to reservoir filling.

The existing Halfway River boat launch will be replaced by a site east of its current location.

The new boat launch will include:

- Safe road access and pull-through parking for vehicles with trailers
- Double-wide concrete boat ramp with a 10–15% grade
- Turnaround area for trailered, motorized boats longer than five metres
- Day use area with picnic site, interpretive kiosk, and pit toilet



Indigenous relations



Interactive travelling exhibit

The Site C project is located within the traditional territories of the Treaty 8 First Nations.

The Peace River has been used by Indigenous people for thousands of years and has been changed dramatically by development and hydroelectric dams.

We're working with Indigenous communities to build long-term relationships by incorporating their interests into the Site C project and finding ways to mitigate impacts and advance reconciliation together.

- Community engagement
- Environmental stewardship
- Economic opportunities
- Cultural recognition and commemoration



Dual-language sign on Highway 29

Scan to learn more:



The Culture and Heritage Resources Committee is an example of our collaborative work with Indigenous Nations impacted by Site C. Through this committee we have worked to mitigate impacts to culture and heritage resources.



The McLeod Lake Indian Band is building the Sas Cho Koh ("big black bear home") culture camp, with funding from BC Hydro's Indigenous Traditional Use Fund.

Some of the projects include:

- Indigenous language crossing signage along Highway 29
- Interactive travelling exhibit
- Video project sharing Indigenous communities' history and perspectives on the Site C project
- Site C public viewpoint signage
- Boat tours to view areas of cultural significance
- Working to develop a cultural centre near Site C, a joint project between Nations

In everything we do, we strive to learn from our shared past and find ways to incorporate Indigenous knowledge and perspectives in our work today, and build lasting relationships with communities affected by Site C.



Site C public viewpoint sign

Protecting fish, wildlife and the environment

Our goal is to protect the environment and reduce the environmental impacts of Site C.

There are over 1,000 regulatory conditions we must follow while building and operating the Site C dam. They focus on avoiding, reducing or compensating for the potential effects that could result from the project.

Because the new reservoir will change fish habitat movement, and health and survival, we developed a range of monitoring and mitigation programs to address these changes.

Upstream fish passage

The Site C dam will affect the ability of fish to migrate upstream past the dam site.

Our fish passage facility allows fish to continue to migrate upstream and fulfill their lifecycles in the Peace River and its tributaries. Since migrating fish are attracted to fast-flowing water, we've placed the facility where water flows out of the generating station. Inside the facility, we tag and sort the fish, then transport and release them upstream of the dam site in the reservoir and near tributaries to which they'd naturally migrate.



We built a temporary fish passage facility for use during dam construction. We used what we learned from the temporary facility to build the permanent facility.



Scan to watch

Fish habitat

We're creating and enhancing fish habitat in the Peace River to support many fish species.

Downstream habitat

Downstream of the dam site, the river levels will change, causing some areas to occasionally dry up and become unsuitable for the fish, algae and invertebrates that depend on permanently wetted habitat.

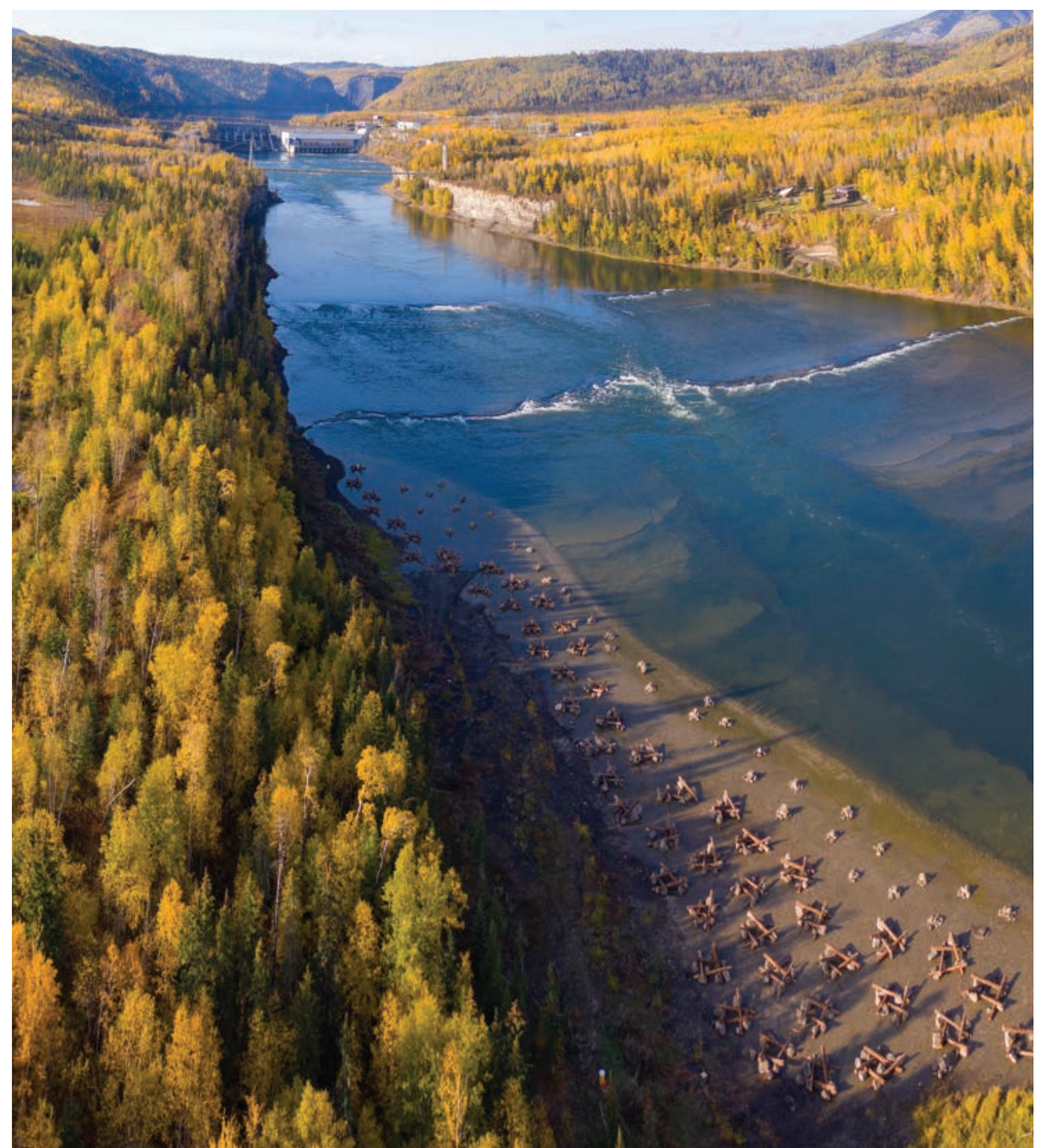
We've increased the amount of permanently wetted areas by excavating the channels and placing habitat structures such as wood and boulders in the side channels to support fish in various stages of life.



Enhanced fish habitat downstream of Site C

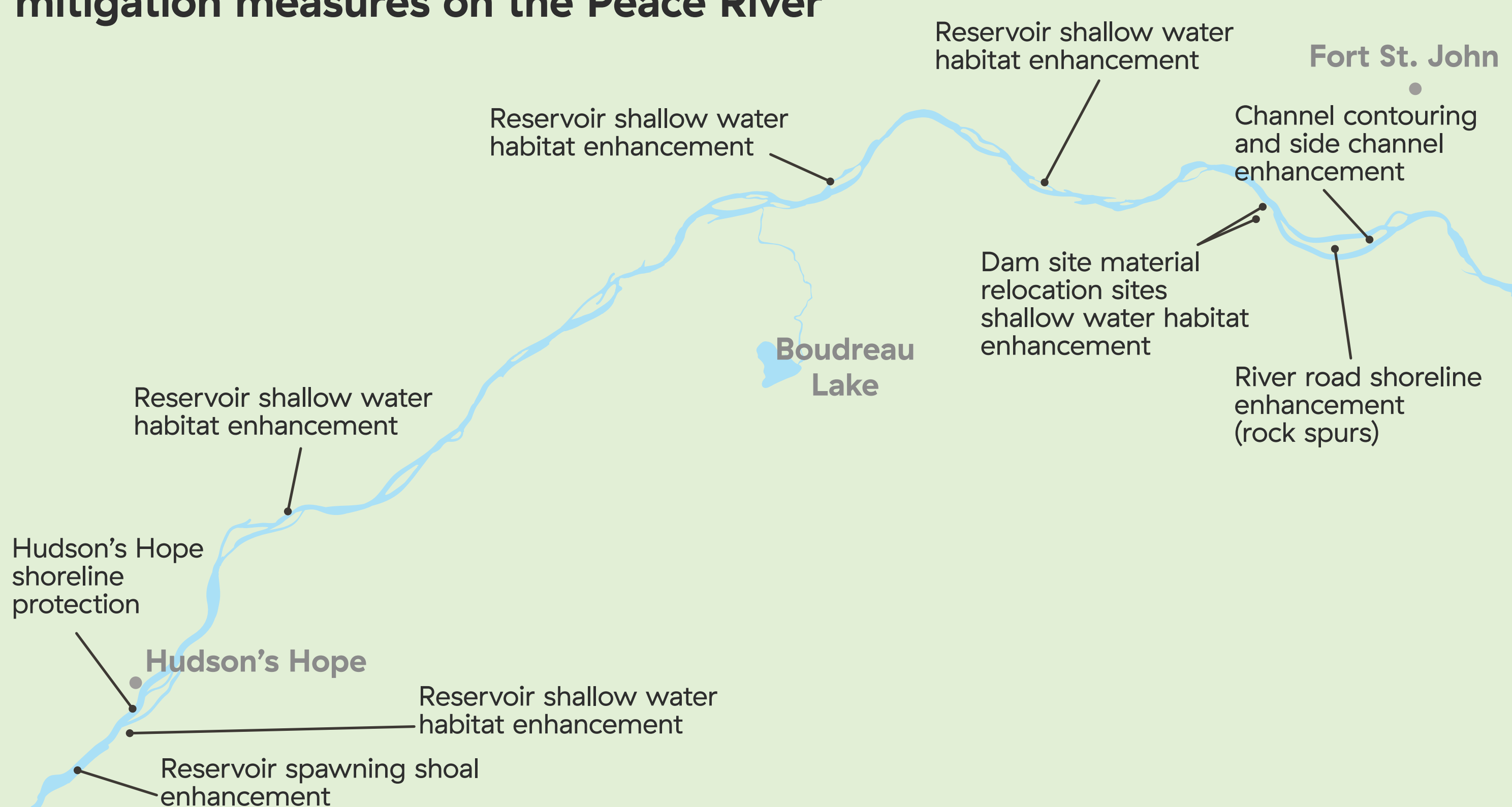
Upstream habitat

Upstream of the dam, we've completed shallow-water habitat enhancements in the reservoir to provide nutrients and shelter for fish.



Maurice Creek spawning shoals

Locations of fish and fish habitat mitigation measures on the Peace River



Scan to watch



BC Hydro
Power smart

Methylmercury in fish

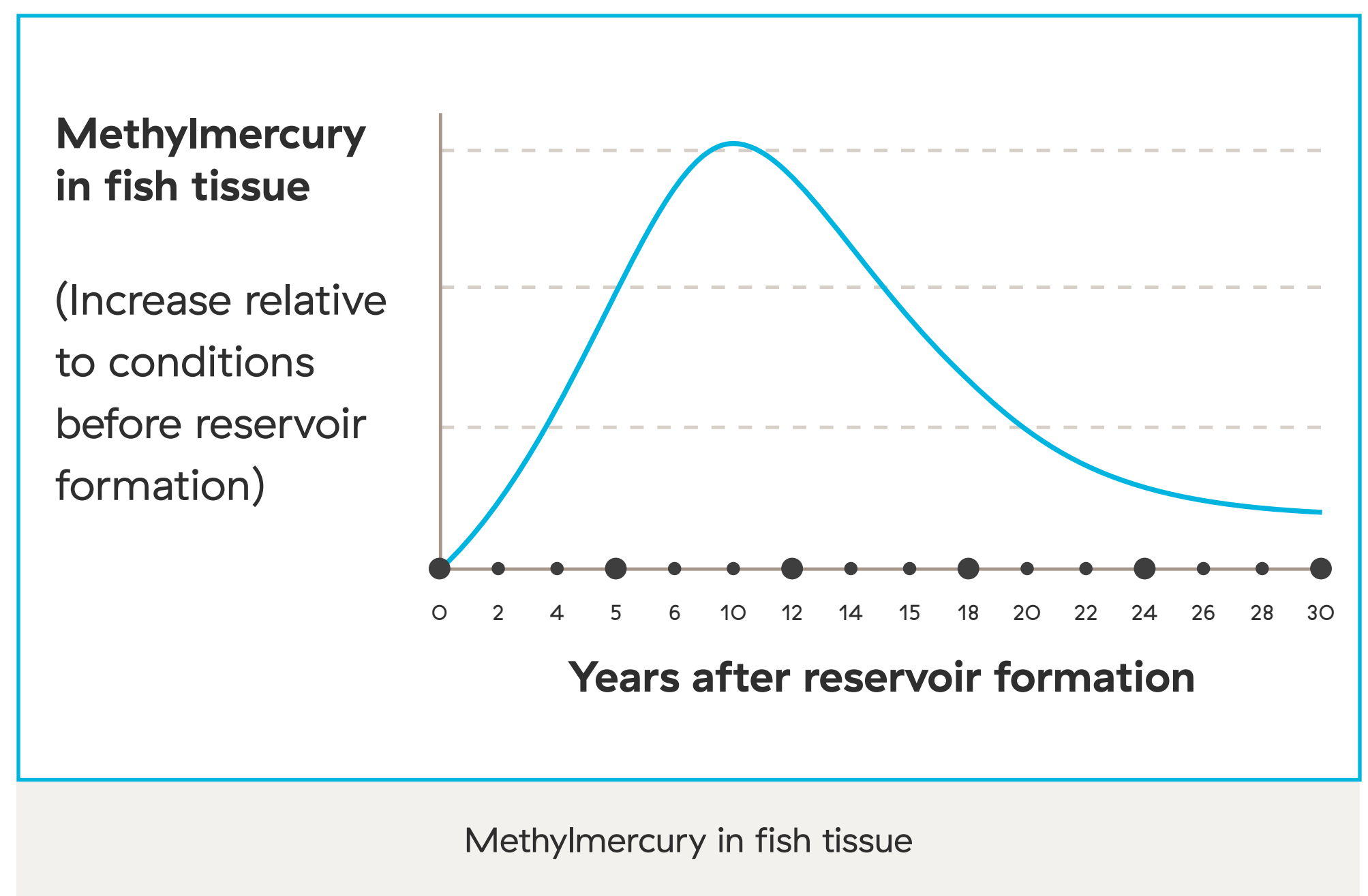
Methylmercury levels in fish will temporarily increase by three to four times, before slowly returning to a new baseline 20 to 30 years after the reservoir is created.

Methylmercury monitoring

We're working with Indigenous Nations, communities, and health authorities to measure methylmercury levels in fish in the years after the Site C reservoir is filled.

Safe levels of fish consumption

This table shows how much fish can currently be eaten from the Peace River system. After the reservoir is filled, we'll work with health authorities to measure methylmercury levels in fish over time, and the guidelines will be updated.



General consumption information	
Safe to eat	
Every day	Green
Every second day	Light Green
Twice a week	Yellow
Once a week	Orange

Number of servings per month			
Fish type	Children under 12	Pregnant or could be	Others
Williston Reservoir and Tributaries			
Lake Trout (22")	7	12	28
Bull Trout (22")	7	12	28
Lake Whitefish (12")	10	18	42
Kokanee (12")	19	33	78
Rainbow Trout (12")	30	53	124
Dinosaur Reservoir and Tributaries			
Bull Trout (22")	17	30	71
Lake Trout (22")	19	33	78
Rainbow Trout (12")	41	71	168
Peace River between Hudson's Hope, B.C. and Many Islands, AB			
Bull Trout (22")	10	18	41
Mountain Whitefish (14")	22	39	93
Rainbow Trout (12")	54	94	222



Scan to learn more:

Methylmercury monitoring plan results



Methylmercury page



Info sheet with fish consumption guidelines

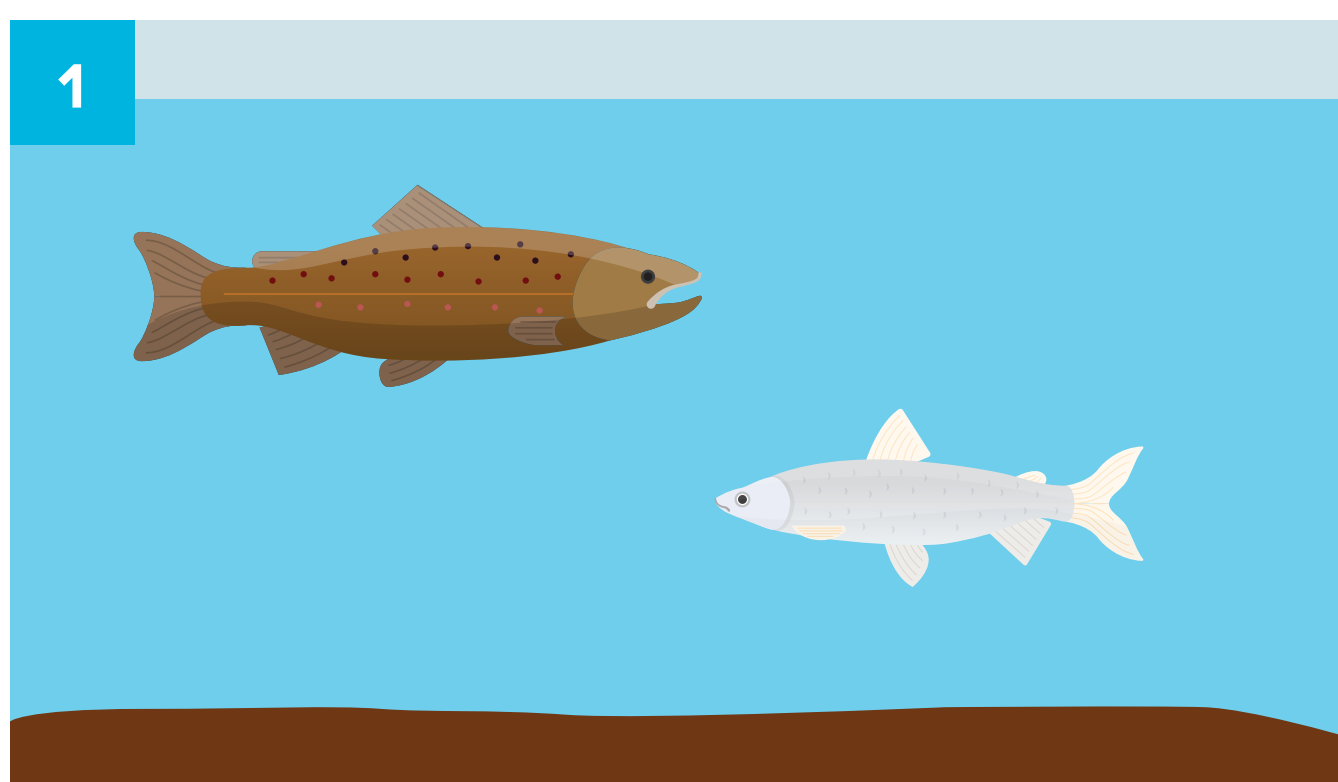


Serving size recommendations for the Peace River between Hudson's Hope, B.C. and Many Islands, AB will be reviewed after Site C reservoir filling.

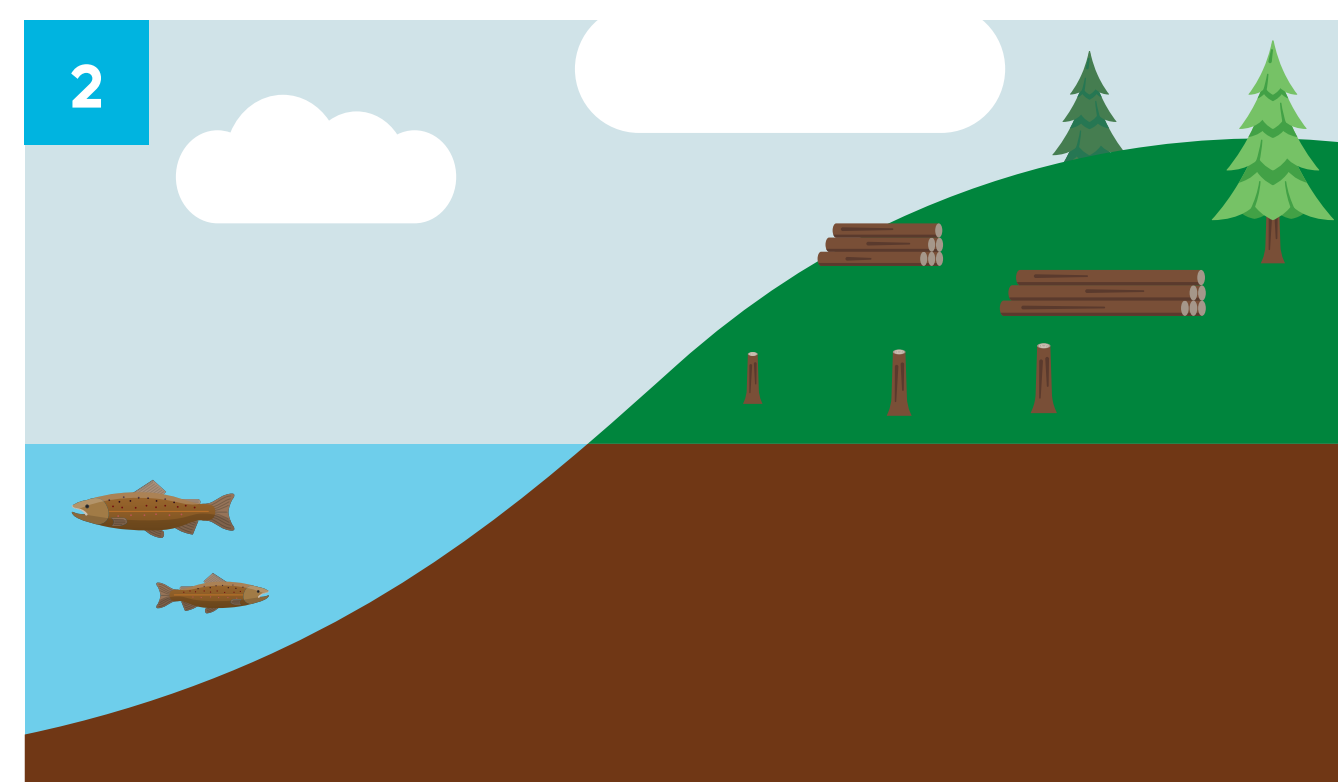
Methylmercury in the Site C reservoir

As the third dam on the Peace River, the Site C project will temporarily change methylmercury levels in fish once the reservoir begins filling. Mercury is a naturally occurring element found in low levels everywhere in the environment—in air, water, soil, plants, animals and humans.

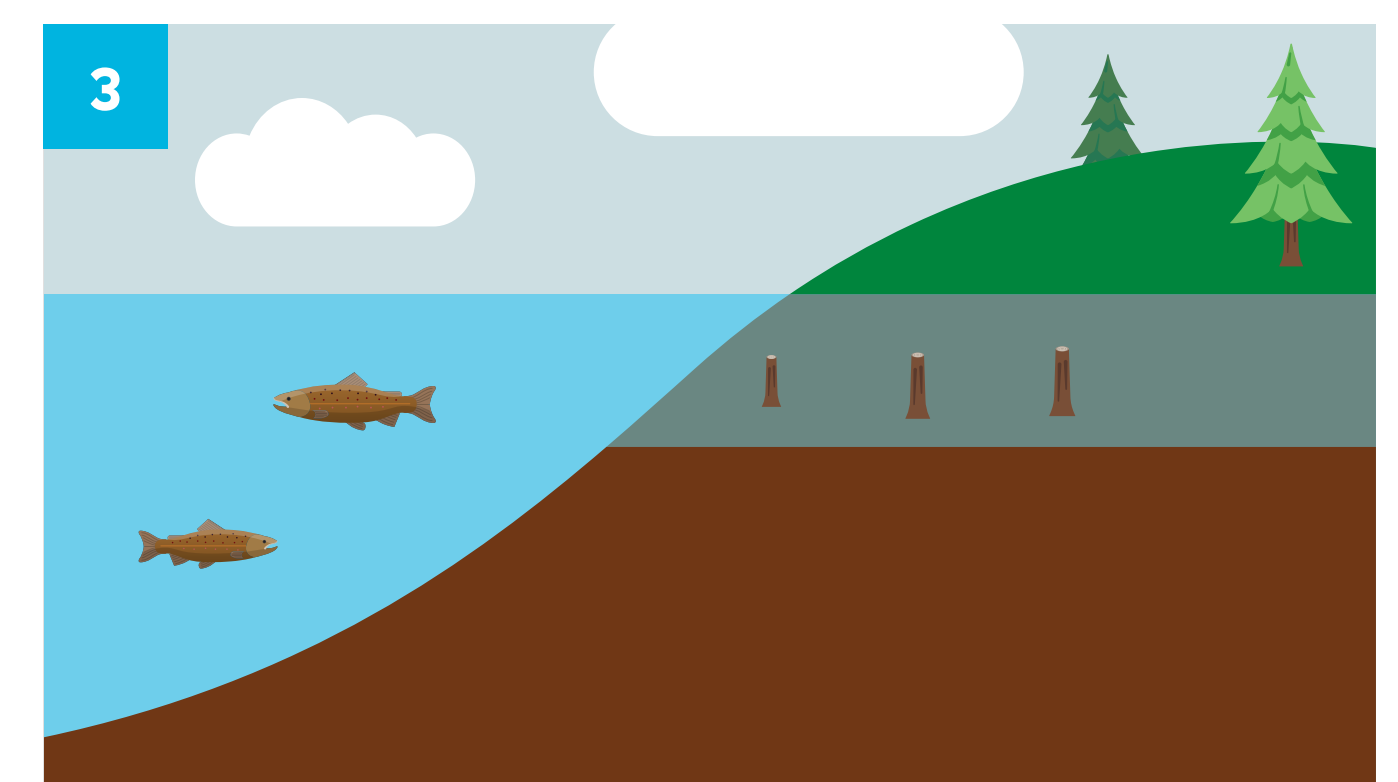
Mercury in the Site C reservoir



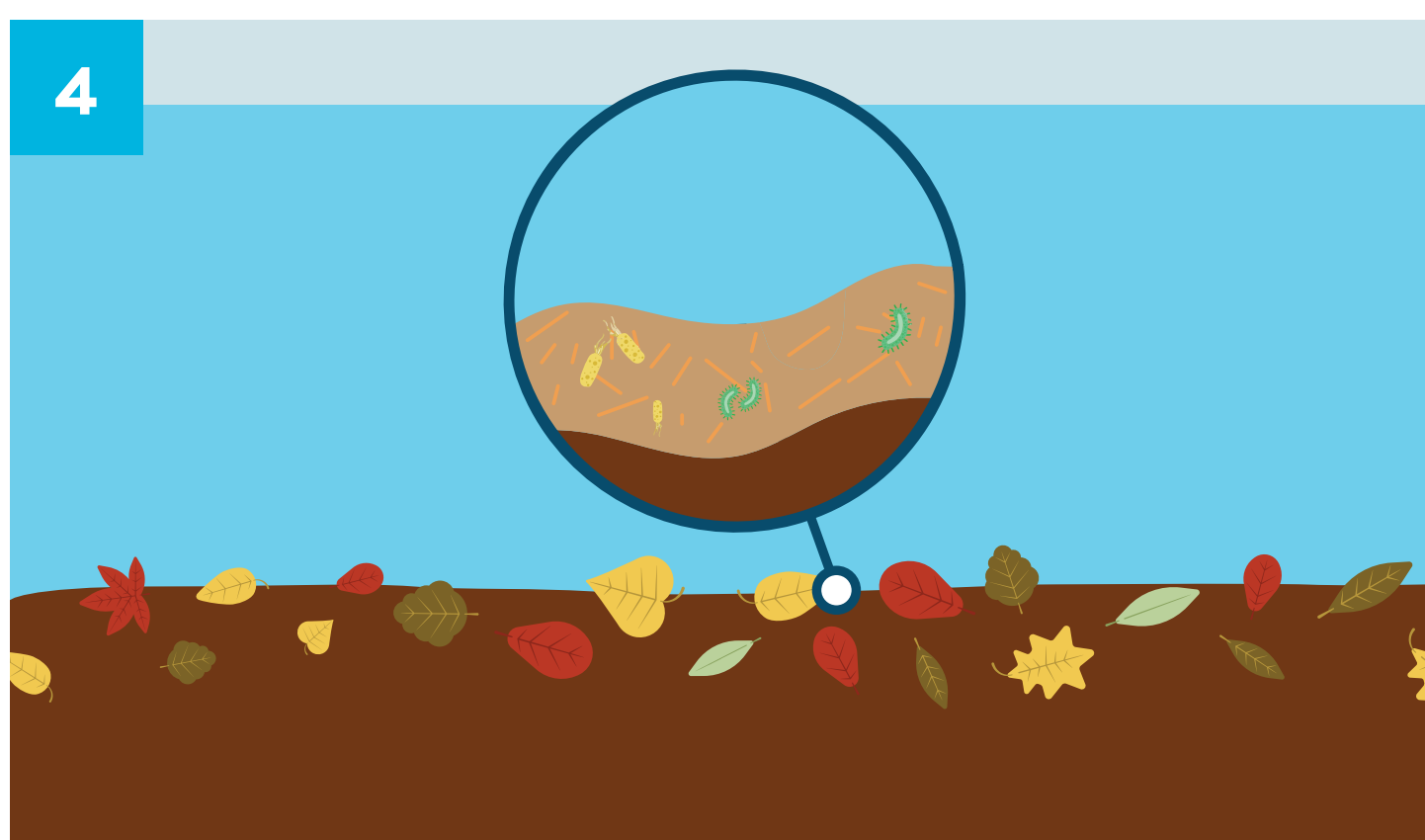
1 Currently, methylmercury levels in Peace River fish are relatively low—similar to fish in other lakes and rivers in B.C.



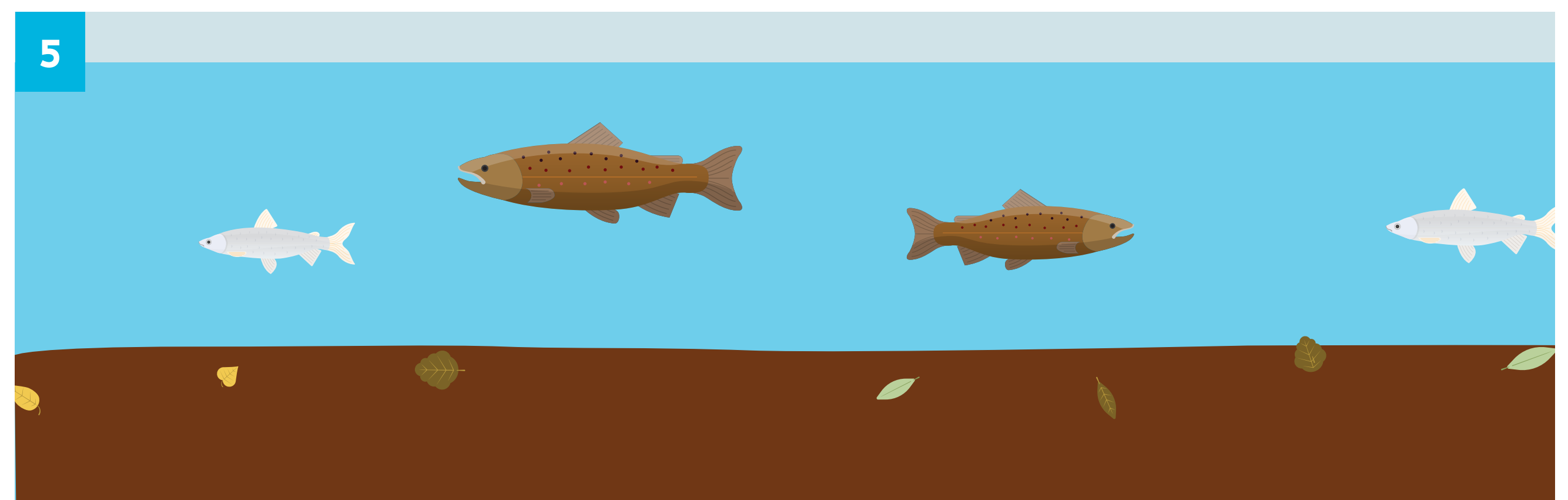
2 We're removing most of the vegetation in the reservoir area to reduce organic material that will end up underwater.



3 When the Site C reservoir is created, parts of the existing shoreline will be permanently covered with water.



4 Methylmercury levels in fish in the reservoir will initially rise as bacteria decompose organic material in newly submerged areas and convert inorganic mercury to methylmercury.



5 Eventually, organic matter becomes scarce at the bottom of the reservoir. Methylmercury creation will slow down and levels will drop throughout the food chain.

Scan to watch



Wildlife habitat

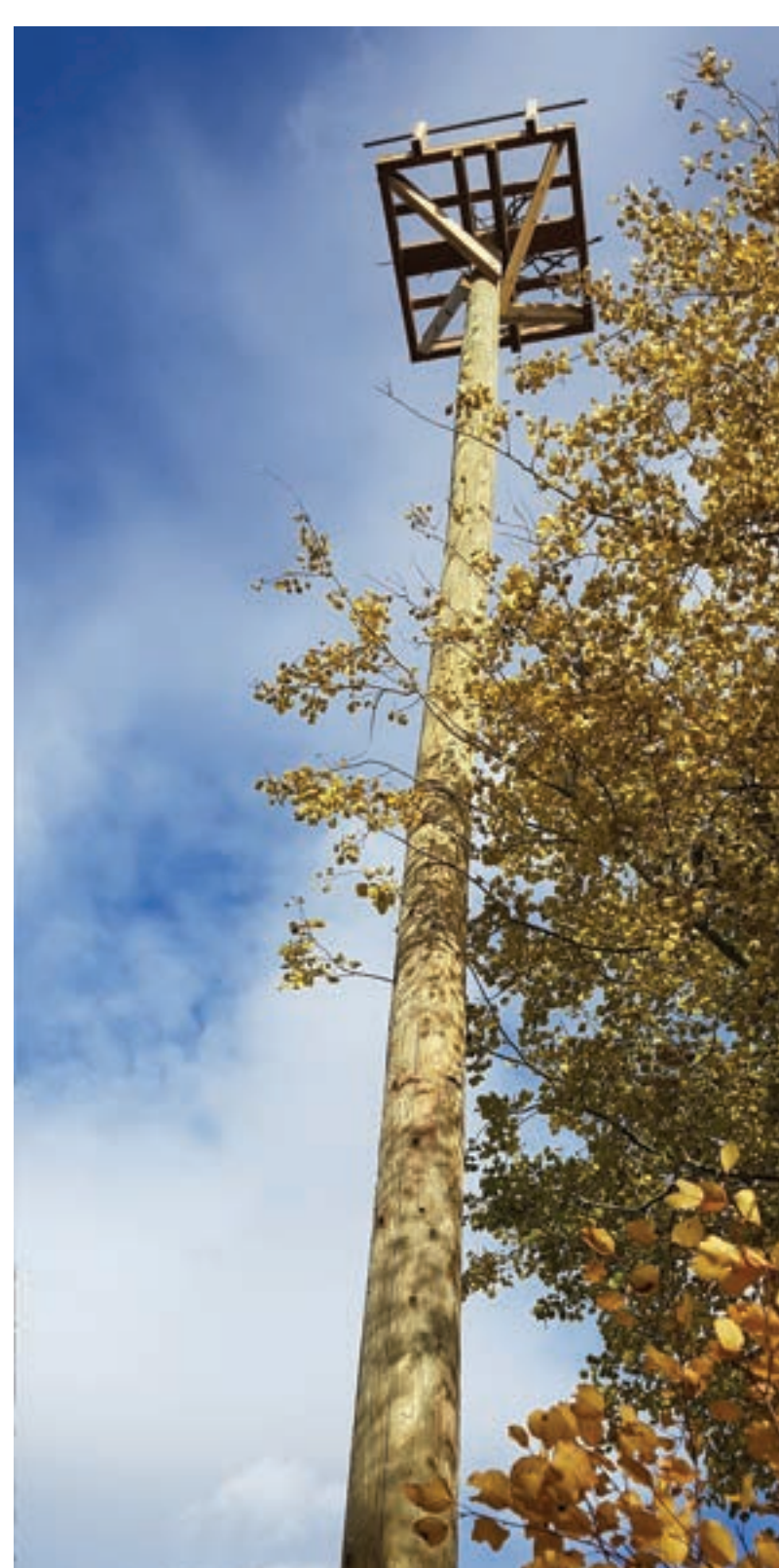
The objective of the wildlife and vegetation program at Site C is to avoid, reduce or offset the potential impacts of the project on wildlife, wildlife habitat, vegetation and rare plants.

One of the ways we've been doing this is by creating new habitat for animals that will be affected by the new reservoir. We've built:

- 42 Bald Eagle nest platforms
- 120 bat boxes
- 3 artificial bat hibernacula (4th under construction)
- 7 snake dens
- 88 fisher den boxes
- 277 nest boxes for songbirds, waterfowl, and raptors
- 70 woody debris piles for fishers



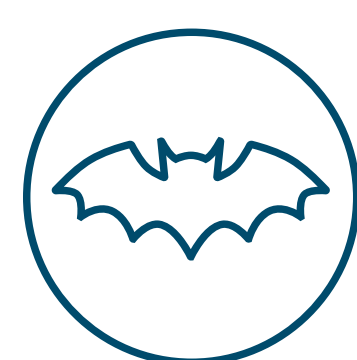
Bat boxes



Eagle nest platform



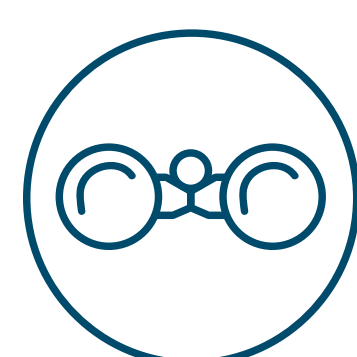
Fisher den box



- 20,000 bat calls are recorded each year
- Detectors are recording up to 350 bat calls per night
- 120 bat roosting structures constructed and being monitored
- 80 bat maternity boxes
- 70 trees received bat roost tree-specific modifications



- 1,617 km of waterbird surveys along the Peace River
- 109,359 individual waterbirds of 66 species were observed



- 3,953 breeding bird surveys completed since 2006
- 39,460 birds observed during breeding bird surveys
- 277 bird nest boxes installed in the Peace River Valley since 2017
- 37 bald eagle nest trees and 42 artificial nest platforms for bald eagles are being monitored
- 300 wildlife trees created, providing nesting, denning and roosting habitat for various cavity-nesting birds (e.g., woodpeckers, owls, chickadees), fisher, marten, squirrels and bats



- 1,500 rare plants from a diversity of eight different plant species have been translocated back to the land within the Peace region
- 292 rare plant sites located
- Rare plant surveys have occurred over nine years
- 1,825 km have been walked as part of the surveys

Wetland construction and restoration

We're partnering with Ducks Unlimited to restore and build wetland habitat, as part of the mitigation measures for Site C. Wetlands provide a wide range of species with areas to eat, shelter and raise their young. They also help clean pollution from the water, regulate water supply and reduce the effects of drought. Overall, we plan to build or restore 885 hectares of wetlands.

Over the past few years, we've worked with Ducks Unlimited to save or build 245 hectares of wetlands, starting with the Golata Creek wetlands built in 2020. In 2022 and 2023, we rebuilt aging water control infrastructure on four more wetlands: Cutbank Lake, Doig-Beatton West, Doig-Beatton East, and Scott Lake.

BC Hydro and Ducks Unlimited continue to actively seek wetland creation and restoration opportunities throughout the Peace Region, with at least three more projects planned over the next few years.



Golata wetlands: About 50 hectares of new wetland



Doig Beatton: About 40 hectares of wetland restored



Cutbank Lake: About 140 hectares of wetland restored

Scan to watch



Reclamation

We've begun a process called reclamation, which is how we restore temporarily disturbed areas to their natural pre-construction states. All construction structures and equipment will be removed, and reclamation will take place over several years.

1. Planning

When construction is finished we develop reclamation plans in consultation with First Nations that look at landscape, soil conditions, hydrology and vegetation.

2. Collecting plants and seeds

We collect seeds and plant cuttings from the Site C project area, as it's best to gather plants that are locally adapted. We then grow the seedlings at nurseries and keep them in cold storage. Seeds are cleaned, dried and tested before also being stored. We've collected and grown thousands of seedlings, such as trembling aspen, balsam poplar, white spruce, willow and alder.



3. Growing seedlings in nurseries

Once areas are ready for reclamation, we place seedling orders with nurseries. These nurseries get the seeds and cuttings to grow the orders. The plants are grown for two years, and then in the spring they are delivered to site.



4. Preparing the ground

We prepare the ground by landscaping it to match its pre-construction state. We also prepare the soil by loosening it to increase water absorption, help roots take hold and provide shelter for small seedlings. We spread coarse woody debris to provide shelter and add nutrients.



5. Planting seedlings

In early spring, nurseries deliver the seedlings to the site, where they're planted. Each seedling is carefully placed in a spot with the right loose prepared soils, lighting and spacing. Some plants prefer sheltered north-facing sites, while others prefer drier south-facing sites.



6. Monitoring

We will monitor the survival and health of the seedlings. We'll share monitoring results with First Nations and any lessons learned will be incorporated in future reclamation planning.