



Water Stewardship

Water is an essential resource for people, communities and the environment. It is also a core element of natural capital utilized by many business activities. Natural resource crises, including water, are among the top 10 global risks identified by the World Economic Forum’s 2022 Global Risks Report.²⁰ Additionally, the latest Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report states that risks related to physical water availability and water-related hazards will increase in the mid to long term.²¹

Water is essential to mining, as it is used in several activities, including mineral processing, dust suppression and employee use. Mining can affect both the availability and the quality of water in surrounding environments, which requires careful planning and mitigation actions to minimize these impacts.

Teck recognizes that responsible water management is essential for the protection of water for the communities in the watersheds where we operate. Responsible water management includes the protection of water quality downstream of our operations, improving water use efficiency, and engaging with communities of interest (COIs) on watershed management. To address risks related to the drought in Chile,²² we have a strategic priority to

transition to seawater or low-quality water sources for all operations in water-scarce regions by 2040. We are producing water from the new desalination plant at our Quebrada Blanca Phase 2 (QB2) project, which will allow us to avoid using fresh water in this water-scarce region.

In 2022, we continued to implement the Elk Valley Water Quality Plan at our steelmaking coal operations in southeast British Columbia. This year, construction and commissioning activities resulted in a total constructed treatment capacity of up to 77.5 million litres of water per day. For more information, see the Managing Water Quality in the Elk Valley section on page 36, as well as page 25 of our [2022 Annual Report](#).

GRI Indicators

GRI 3-3, 2-23, 2-24, 2-25, 2-27, 303, 303-1, 303-2, 303-3, 303-4, 303-5, 306-3

This topic is considered one of the most material by our shareholders, employees, local communities, regulators and society in the context of Teck’s operations.

How Does Teck Manage This Topic?

Information about how we steward water, including relevant policies and our management practices and systems, is available for [download on our website](#).

²⁰The Global Risks Report 2022. World Economic Forum. 2022. ²¹AR6 Summary for Policymakers. IPCC. 2022. ²²Consequences will be dire: Chile’s water crisis is reaching breaking point. The Guardian. 2022.

Pictured: Employee in the Elk Valley, Canada.

2022 Highlights

74%

the percentage of water reused and recycled on average at mining operations

Completed the construction of a seawater desalination facility at Quebrada Blanca Phase 2 (QB2) project

Completed our fourth water treatment facility at our steelmaking coal operations; by the end of 2022, we had capacity to treat up to 77.5 million litres per day

Case Study: Update on QB2 Desalination Plant

As part of Teck's focus on responsible mining and resource management, one of our strategic priorities is to transition to seawater or low-quality water sources for all operations in water-scarce regions by 2040. The construction and implementation of a seawater desalination facility at our Quebrada Blanca Phase 2 (QB2) copper project in Chile marks a milestone in achieving these goals by using seawater for mineral processing, rather than scarce fresh water, which is the case in the dry northern region. The desalination facility will use reverse osmosis, a water purification process that will force the seawater through a semi-permeable membrane, to reduce the dissolved salt content of saline water to a usable level. The desalination facility will supply water to all production processes at QB2 starting in 2023, with the possibility of providing additional water to other users in the area in the future.

Read the full case study at [teck.com/news/stories](https://www.teck.com/news/stories).

Our Performance in Water Stewardship in 2022

Our Targets and Commitments Teck is committed to responsible management of water resources, and to protecting water quality and water access where we operate. The following table summarizes our performance against our sustainability strategy and goals for water stewardship.

Sustainability Strategy Goals	Status	Summary of Progress in 2022
Strategic Priority: Transition to seawater or low-quality water sources for all operations in water-scarce regions by 2040		
Goal: By 2025, design all development projects in water-scarce regions with a seawater or low-quality water source.	On Track	Completed the construction of a seawater desalination facility at QB2.
Strategic Priority: Implement innovative water management and water treatment solutions to protect water quality downstream of our operations		
Goal: By 2025, implement new source control or mine design strategies and water treatment systems to further advance efforts to manage water quality at our operations.	On Track	Completed our fourth water treatment facility at our steelmaking coal operations. By the end of 2022, our treatment capacity increased from 47.5 million litres per day to up to 77.5 million litres per day.

Performance Metrics

Indicator

Percentage of water reused and recycled at mining operations



Indicator

Significant⁽¹⁾ water-related incidents



(1) Teck uses a risk management consequence matrix to determine incident severity, which includes environmental, safety, community, reputational, legal and financial aspects. "Significant incidents" includes incidents assessed as Level 4 or Level 5 based on our risk matrix and guidance.

(2) The fish decline in the Upper Fording River is not classified as a significant water-related incident in accordance with our incident reporting system, as it has not been connected to a specific incident under our control. However, the decline is a significant event that Teck is taking very seriously, and we are fully committed to a thorough and extensive evaluation of cause and implementation of the comprehensive recovery plan.

Managing Water Quality in the Elk Valley

In 2022, we continued to implement the Elk Valley Water Quality Plan (the Plan), a long-term approach to address the management of selenium and other substances released by mining activities in the Elk Valley. The Plan was approved in 2014 by the B.C. Minister of Environment and developed in cooperation with governments in Canada and the U.S. as well as with Indigenous groups, communities, independent scientific experts and others. The goal of the Plan is to stabilize and reverse the trend of mine-related substances and to maintain the health of the watershed while allowing for continued sustainable mining in the region where our steelmaking coal operations are located. The Plan is among the largest water quality management programs in the world, and Teck is making significant progress in advancing the Plan and protecting water quality in the Elk Valley.

The Plan establishes short-, medium- and long-term water quality targets, which are protective of the environment and human health, for selenium, nitrate, sulphate and cadmium, as well as a plan to manage calcite formation. In 2022, we continued to implement a range of practices and mitigation projects as part of the Plan, including increasing our overall total treatment capacity up to 77.5 million litres per day; this is a fourfold increase in treatment capacity over 2020. See more details in the Water Treatment Facilities section.

To date, total spend (capital, research and development, operating costs, etc.) related to water treatment in the Elk Valley has been more than \$1.2 billion; by 2024, we plan to invest up to a further \$550 million of capital in work to protect the watershed. For information on our management of water quality in the Elk Valley, see page 25 of our [2022 Annual Report](#) and our [website](#).

In 2022, we published the 2022 Implementation Plan Adjustment (IPA), which is Teck's third water treatment mitigation plan and the second adjustment since the Initial Implementation Plan. Through the development of the 2022 IPA, Teck provided opportunities to share information and gather feedback from external parties, including the Ktunaxa and other governments.

Monitoring Aquatic Health

Teck conducts ongoing aquatic health studies and monitoring in the Elk Valley and makes these reports public to help advance community knowledge and scientific understanding. Water and sediment quality, habitat conditions and biota (e.g., fish, bugs) are common monitoring endpoints to support the evaluation of aquatic health in a watershed.

Water quality sampling is completed routinely at more than 150 locations across the Elk Valley. Monitoring shows that selenium concentrations have been reduced downstream of our water treatment facilities. Our permit sets water quality concentration limits for selenium, nitrate, sulphate and cadmium; since 2015, water quality has met these limits 94% of the time, on average. There are 14 locations with water quality concentration limits downstream from the mine sites. At each of these locations, limits become more stringent over time. We have prepared the 2022 IPA to achieve full compliance as soon as possible. Our timelines consider design, permitting, construction and operating schedules. We expect improved compliance as additional water treatment facilities are constructed and become operational, with full compliance at all locations by mid-2028. Our compliance evaluation is continuously evolving as mitigation projects progress and will inform future updates to the IPA.

Routine monitoring found that the abundance of westslope cutthroat trout (WCT) in the upper Fording River had declined between 2017 and 2019. Teck established an Evaluation of Cause (EoC) team of external experts to investigate the possible causes of the fish count declines in this area. The team found that the declines were caused by the interaction of extreme ice conditions, sparse overwintering habitats and restrictive fish passage conditions during the fall 2018 migration period. The findings indicate water quality constituents, including selenium, were not a primary contributor to the decline. Based on monitoring data analyzed through 2021, fish health metrics suggest a diverse and productive population of WCT.

In a separate watershed (which includes Harmer and Grave creeks), results of WCT population monitoring indicated that a negligible number of individuals were added to the WCT population in 2018 and 2019 in Harmer Creek. The abundance of adult WCT in the Harmer Creek population has remained comparatively small but stable, throughout both the historical period and recent years. An evaluation of cause assessment has been performed, and the findings suggested the small size of fish before winter was likely related to natural conditions, specifically short growing season and natural low water temperatures and, to a lesser extent, reduced growth that may have resulted from young fish being exposed to selenium. More recent fish monitoring indicated that recruitment of juvenile fish in the Harmer Creek population was higher in 2020 than from 2017 to 2019 and considered sufficient for the population to remain stable over the long term.

In 2022, Teck continued to support recovery and improved resilience of the WCT populations and is working with government regulators and the Ktunaxa Nation Council to develop and implement a comprehensive recovery strategy. Details of our rehabilitation of fish habitats can be found alongside monitoring reports and EoC reports on our [website](#).

Annual reports about our ongoing monitoring programs, which are prepared by professional scientists, reflect data generated since the Elk Valley Water Quality Plan was approved. The reports have been reviewed by the Environmental Monitoring Committee (EMC), a group that provides science-based and Ktunaxa traditional knowledge advice and input to Teck, and to the B.C. Ministry of Environment and Climate Change Strategy regarding monitoring designs and reports in the Elk Valley. The EMC includes representatives from the Ministry of Environment and Climate Change Strategy; Ministry of Energy, Mines and Low Carbon Innovation; Ktunaxa Nation Council; Interior Health; an independent scientist; and Teck. Read the [2022 EMC Report](#) available on our website.

Water Treatment Facilities

We increased our treatment capacity through the construction of active water treatment facilities (AWTFs) and through the successful implementation of our innovative saturated rock fill (SRF) technology, a nature-inspired water treatment solution that effectively removes compounds such as selenium and nitrate from water.

By the end of 2022, Teck's water treatment facilities in the Elk Valley included:

- Our first facility, West Line Creek Water Treatment Facility, successfully treating up to **7.5 million litres** of water per day
- Our second facility, Elkview Saturated Rock Fill, successfully treating up to **20 million litres** of water per day
- Our third facility, Fording River South Water Treatment Facility, successfully treating up to **20 million litres** of water per day
- Our fourth facility, Fording River North Saturated Rock Fill, has a constructed treatment capacity of up to **30 million litres** of water per day

By the end of 2022, Teck had constructed capacity to treat up to 77.5 million litres per day – more than quadruple our treatment capacity in 2020 of 17.5 million litres per day. With treatment capacity ramping up, we expect to achieve one of the primary objectives of the Elk Valley Water Quality plan: stabilizing and reducing the selenium trend in the Elk Valley and Koochanusa. Our water modelling projections show that selenium concentrations are expected to continue to decline next year.

We also completed the Kilmarnock Water Diversion, a clean water diversion structure at Fording River Operations (FRO), that is conveying up to 86 million litres of water per day, reducing the volume of water affected by waste rock and thereby reducing the amount of water that needs to be treated.

More information on Teck's most recent plans and progress implementing the EVWQP can be found in our [2022 IPA Overview](#).

Managing Water Quality in the Elk Valley (continued)

Reducing Nitrate in Blasting

Our comprehensive research and development program has led to the creation of a new nitrate prevention technique that uses liners that prevent explosives with nitrate from coming into contact with water, with the goal of significantly reducing the amount of nitrate in the environment. This technique was successfully piloted in 2019 at our steelmaking coal operations. In 2022, 88% of all explosives were loaded in a liner at our steelmaking coal operations.

Research and Development

Teck is focused on continued Research and Development (R&D) to improve water quality in the short and long term. Examples of this work include:

- **Source control:** Aggressively pursuing the use of source control technologies in our mined rock facilities, and constructing mined rock facilities to limit air entry and the corresponding natural reactions that generate constituents of interest; in 2021, we advanced our first example of this technology at Cedar North at Elkview Operations

- **Alternative water treatment technologies:** Exploring the use of smaller in situ water treatment facilities that can be built much closer to where treatment is needed, and evaluating emerging treatment technologies that target mine water constituents of interest
- **Mined rock covers:** Evaluation of different forms of covers, ranging from vegetative to geomembrane covers, for mined rock piles
- **Water Diversions:** Clean water diversions can reduce the volume of water affected by waste rock, thereby reducing the amount of water that needs to be treated; we are assessing the contribution of diversions to water quality performance through the construction and monitoring of the Kilmarnock Creek Diversion at Fording River Operations (FRO), which was completed in 2022 and is conveying up to 86 million litres of water per day

Capital spending on water treatment (AWTFs and SRFs) and water management (source control, calcite management and tributary management) was \$184 million in 2022. Research and development costs related to water management were \$28.5 million in 2022.

Community Engagement on Water

Access to clean and sufficient water by users in our areas of influence is important to us and to our COIs. When implementing our water management practices, we consider and engage with other water users in the watersheds where we operate. In 2022, we engaged with local communities and Indigenous Peoples on water management, including our work in the Elk Valley on water quality, as well as on key projects such as QB2, the

proposed Highland Valley Copper 2040 project and the proposed Fording River Extension project. We also engaged in watershed level discussions in the Elk Valley on the Area Based Management Plan, the Fraser Council at our Highland Valley Copper Operations, the Mesa Hídrica de Pan de Azúcar at the Carmen de Andacollo Operations and the Singagmiut Working Group at our Red Dog Operations.

Improving Water Efficiency

At Teck, we use water primarily for material processing and transport, cooling and dust control. A portion of the water we use is consumed through entrainment in our products and tailings or through evaporative processes. The water we use is typically obtained from where our operations interface with surface water and groundwater systems, and we are transitioning to seawater sources in water-scarce regions such as northern Chile. We manage and discharge a significant amount of water without use (water that is actively managed without intent to supply the operational water demands), and we discharge this water as close as practical to the source location. The water we discharge is monitored and treated where necessary.

We monitor water data at all our operations and are working to incorporate the data into scenario planning using site-wide water balances.²³ The company-wide water balance (Figure 18) is the aggregation of all the site-wide water balances. This water balance is complex due to the variability of natural factors such as rainfall, snowmelt, and the diversity of the climates and geological conditions where our operations are located. Understanding our site-wide and company-wide water balances is key to improving water management practices and enabling better decision-making.

Our water data collection and reporting is aligned with the ICMM's *A Practical Guide to Consistent Water Reporting*. Our detailed water data is provided in our [Sustainability Performance Data](#).

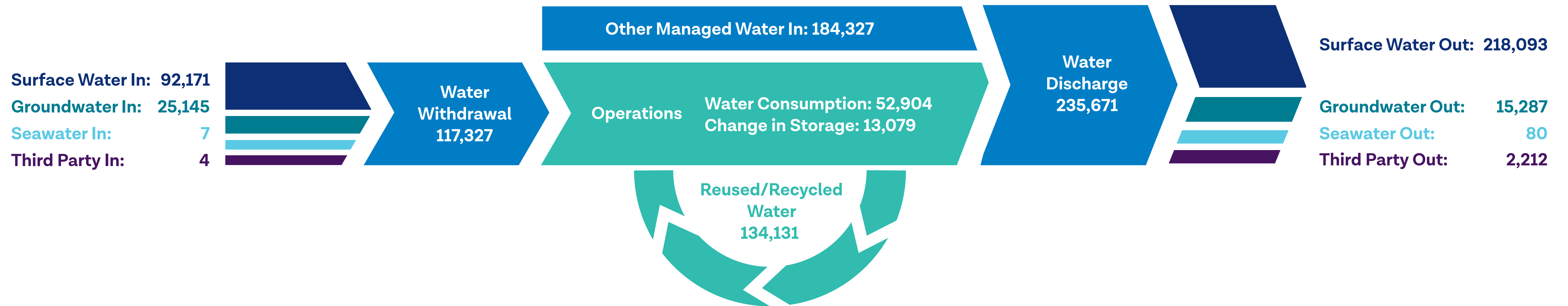
Table 13: Water Withdrawals and Water Reused and Recycled – Megalitres (ML)

All Operations	2022	2021	2020	2019
Water withdrawals (ML)	117,327	117,262	118,284	127,018
Water reused/recycled (ML)	134,131	138,812	157,641	148,914
Mining operations				
Water withdrawals (ML)	47,701	45,222	47,739	51,954
Water reused/recycled (ML)	134,131	138,812	157,641	148,914
Percentage of water reused and recycled (ratio of reused/recycled and withdrawals)	74%	N/A	N/A	N/A

²³Site-wide water balances provide an understanding of water withdrawals, consumption, reuse/recycle and discharge volumes at each operation. Water balances are developed using a mix of measurements and modelling computation.

Improving Water Efficiency (continued)

Figure 18: Company-Wide Operational Water Balance – Megalitres (ML)



Water withdrawal: All water that enters the operational water system and is used to supply the operational water demands.

Other managed water: Water that is actively managed without intent to supply the operational water demands.

Water discharge: Water that is released back to the water environment or to a third party.

Water consumption: Water that is permanently removed, by evaporation, entrainment (in product or waste) or other losses, and not returned to the water environment or a third party.

Reused and recycled water: Water that has been used in an operational task and is recovered and used again in an operational task, either without treatment (reuse) or with treatment (recycle).

Change in water storage: The net change (positive or negative) in the volume of water stored over the accounting period; a positive number indicates water accumulation, and a negative number indicates water reduction.

Types of Water

Surface water: Water from precipitation and runoff that is not diverted around the operations; includes water inputs from surface waterbodies that may be located within the boundaries of our operations.

Groundwater: Water from beneath the earth's surface that collects or flows in the porous spaces in soil and rock that is not diverted around the operations.

Third-party sources: Water supplied by an entity external to the operation, such as from a municipality; we do not use wastewater from other organizations.

Seawater: Water obtained from a sea or ocean.

In 2022, an average of 74% of water was reused or recycled at our operations. This means that 74% of water used was recovered and used again in an operational task, either without treatment (reuse) or with treatment (recycle).

Trail Operations accounts for 59% of our water withdrawals. Almost all the water used at Trail Operations is for cooling purposes, meaning that it does not come into contact with chemicals or reagents, and the only change it undergoes is a slight increase in temperature before being returned to the environment within regulatory-approved conditions. In 2022, our water withdrawals were nearly the same as in 2021. Our total water consumption in areas with water stress was 11,040 ML in 2022. Additional water data is provided in our [Sustainability Performance Data](#).

Improving Water Efficiency (continued)

Metal Leaching and Acid Rock Drainage (ML/ARD)

Teck thoroughly evaluates the potential for ML/ARD in the exploration and feasibility design stages, and appropriate plans, controls and water management infrastructure are put in place for construction, operation and closure. We design and operate for closure and consider the potential for ML/ARD generation and required mitigation measures at every step of project development. All of these evaluations are contained in publicly available environmental assessment documents submitted to regulatory authorities. Also see our [Approach to Water Stewardship](#) for more details.

Technology and Innovation

In 2022, Teck implemented several initiatives across our organization to improve water use, monitoring and efficiency. At FRO, we advanced development of a digital tool that displays real-time water quality and flow rate results that are used by the operation to inform water management decisions. The Advanced Water Dispatch System provides enhanced water management capabilities at FRO, combining water flow and water quality data to provide recommendations for water management across the mine site. These advancements will enable enhanced short- and long-range planning of water management with the goal of improving operational efficiency, data analytics and real-time decision-making and response capabilities. In addition to supporting regional water quality and quantity objectives and Teck's sustainability priorities, the Advanced Water Dispatch System enhances both response time and safety by allowing water monitoring and management to be conducted remotely.

Water-Related Compliance

Non-Compliances and Significant Water-Related Incidents

We continue to implement the water quality improvement measures identified in the Elk Valley Water Quality Plan. The pace of construction of some of the water treatment facilities was hindered by challenges related to the treatment technology and, more recently, as a result of the COVID-19 pandemic. Partly due to the slower-than-anticipated pace of construction, we have recorded non-compliances in relation to certain of the permit limits in the Elk Valley. To address these non-compliances, we are aggressively advancing construction of several water treatment facilities and we are implementing other water quality improvement measures in parallel, such as reducing nitrate from blasting, and accelerating research and development projects in the areas of source control, water diversions and mine rock cover systems.

We assess the severity of environmental incidents based on the potential environmental, safety, community, reputational and financial impacts. Based on our incident severity criteria, there were no significant water-related incidents in 2022.

Litigation

Teck continues studies under the 2006 settlement agreement with the U.S. Environmental Protection Agency (EPA) to conduct a remedial investigation on the Upper Columbia River in Washington state. The Lake Roosevelt litigation involving Teck in the Federal District Court for the Eastern District of Washington continues. In December 2012, on the basis of stipulated facts agreed between Teck and the plaintiffs, the Court found in favour of the plaintiffs in phase one of the case, issuing a declaratory judgment that Teck is liable under the Comprehensive Environmental Response, Compensation, and Liability Act for response costs, the amount of which will be determined in later phases of the case. A hearing with respect to natural resource damages and assessment costs is expected to follow in 2024. For more information, see pages 103-105 of our [2022 Annual Information Form](#).

Charges, Fines and Penalties

In 2022, our Fording River Operations (FRO) received a Determination of Administrative Penalty from the B.C. Ministry of Environment and Climate Change Strategy for \$62,000 for failing to comply with the permit requirement to maintain the operation of the sewage treatment plant in good working order and for unauthorized bypasses in 2019 and 2020.