

Microsoft water replenishment project portfolio

As of end of FY23

Project name	Implementation party	Priority location	Basin name	Project type (VWBA activity) †	Benefit duration (years) ‡	Contract FY/operational FY	Estimated volumetric benefits expected (m³) §
Restoring wetlands to improve water quality in Iowa's agricultural landscape	Ducks Unlimited	Des Moines	<i>Major</i> —Mississippi-Missouri <i>Minor</i> —Middle Des Moines; North Raccoon	Wetland restoration and creation	10	2020/2022	674,940
Restoring and enhancing prairie sites for improved water storage and filtration	Audubon Great Plains	Fargo	<i>Major</i> —Saskatchewan-Nelson <i>Minor</i> —Upper Red	Land restoration	10	2020/2021	83,000
Bringing renewable water supplies to cities in central Arizona [Retired ¶]	Bonneville Environmental Foundation,* Gila River Water Storage	Phoenix	<i>Major</i> —North America, Colorado <i>Minor</i> —Middle Gila; Lower Salt; Lower Gila/Painted Rock	Agriculture water demand reduction measures	1	2020/2020	613,040
Partnering to achieve water security outcomes for Lake Mead and the lower Colorado River Basin	Bonneville Environmental Foundation,* Colorado River Indian Tribes, Arizona Department of Water Resources (ADWR)	Phoenix	<i>Major</i> —North America, Colorado <i>Minor</i> —Middle Gila; Lower Salt; Lower Gila/Painted Rock	Agricultural water demand reduction	10	2020/2020	873,211

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Improving water supply reliability and restoring aquatic habitat in the Columbia Basin	Bonneville Environmental Foundation,* Cascade Conservation District, Trout Unlimited	Quincy	<i>Major</i> —Columbia and Northwestern United States <i>Minor</i> —Lower Crab	Agricultural water demand reduction measures, Legal transactions to keep water in-stream, In-stream barrier removal, Operational efficiency measure, Wetland restoration and creation, Re-establish hydrologic connection	10	2018/2021	969,060
Restoring Sembakkam Lake and wetlands to improve water quality, storage capacity, and groundwater recharge potential	The Nature Conservancy	Chennai	<i>Major</i> —India East Coast <i>Minor</i> —India East Coast	Wetland restoration and creation	10	2019/2021	1,642,500
Acquiring additional land to help ensure ongoing protection and ecological functioning of a preserve	The Nature Conservancy	San Antonio	<i>Major</i> —Gulf Coast <i>Minor</i> —Medina / Upper San Antonio	Land conservation	10	2020/2020	155,419
Improving water quality and reducing flooding by restoring oxbows	The Nature Conservancy	Des Moines	<i>Major</i> —Mississippi-Missouri <i>Minor</i> —Middle Des Moines; North Raccoon	Wetland restoration and creation	10	2020/2022	43,560
Restoring channel-floodplain connectivity to attenuate flood waters and maintain healthy ecosystems	Plumas Corporation	Santa Clara	<i>Major</i> —California <i>Minor</i> —Coyote	Land restoration	10	2019/2021	172,690

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Enhancing river flows and supporting fish and wildlife habitats by reducing water diversion	The Nature Conservancy	Phoenix	<i>Major</i> —North America, Colorado <i>Minor</i> —Middle Gila; Lower Salt; Lower Gila/Painted Rock	Operational efficiency measures	10	2020/2020	335,190
Deploying erosion control methods for wetland habitats restoration	US Forest Service	Cheyenne	<i>Major</i> —Mississippi-Missouri <i>Minor</i> —Crow	Land restoration	10	2019/2021	378,540
Using beaver dam analogs to increase wetland area and extent and groundwater infiltration	Trout Unlimited	Quincy	<i>Major</i> —Columbia and Northwestern United States <i>Minor</i> —Lower Crab	Wetland restoration and creation	10	2020/2022	61,670
Restoring ponds and establishing pond injection wells to harvest and recharge groundwater	WaterAid	Hyderabad	<i>Major</i> —Krishna <i>Minor</i> —Musi / Aler	Rainwater harvesting	10	2019/2022	1,657,380
Reducing irrigation consumption using a 30-acre center pivot	The Nature Conservancy	Phoenix	<i>Major</i> —North America, Colorado <i>Minor</i> —Middle Gila; Lower Salt; Lower Gila/Painted Rock	Agricultural water demand reduction measures	10	2021/2022	678,414
Delivering water to managed aquifer recharge sites	Bonneville Environmental Foundation,* Gila River Indian Community	Phoenix	<i>Major</i> —North America, Colorado <i>Minor</i> —Middle Gila; Lower Salt; Lower Gila/Painted Rock	Wetland restoration and creation	10	2021/2022	1,134,803

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Restoring flow in the Sacramento River to restore spawning and rearing habitat	Bonneville Environmental Foundation,* Chico State Enterprises	Santa Clara	<i>Major</i> —California <i>Minor</i> —Coyote	Floodplain inundation/reestablish hydrologic connection	10	2021/2022	7,397,700
Enhancing recharge through conservation easements	Edwards Aquifer Conservancy	San Antonio	<i>Major</i> —Gulf Coast <i>Minor</i> —Medina / Upper San Antonio	Land conservation	10	2021/2021	1,906,290
Supporting farmers by switching to a new surface irrigation water supply	Columbia Basin Conservation District	Quincy	<i>Major</i> —Columbia and Northwestern United States <i>Minor</i> —Lower Crab	New water supply for crop irrigation	10	2021/2025	1,117,000
Embracing technology to reduce agricultural water use	Bonneville Environmental Foundation,* Kilimo	Santiago	<i>Major</i> —North Chile, Pacific Coast <i>Minor</i> —Maipo	Agricultural water demand reduction measures	4	2022/2023	1,314,168
Improving springflow and aquifer storage by leasing groundwater rights	Edwards Aquifer Conservancy	San Antonio	<i>Major</i> —Gulf Coast <i>Minor</i> —Medina / Upper San Antonio	Legal transactions to keep water in-stream	10	2022/2023	3,564,760
Restoring critical stream flows in Icicle Creek	Washington Water Trust	Quincy	<i>Major</i> —Columbia and Northwestern United States <i>Minor</i> —Lower Crab	In-stream barrier removal	10	2022/2024	5,546,548

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Restoring the hydrologic function of the Camas Meadows ecosystem	Chelan County	Quincy	<i>Major</i> —Columbia and Northwestern United States <i>Minor</i> —Lower Crab	Wetland restoration and creation	10	2022/2024	1,997,460
Enhancing stormwater capture by expanding an existing pond	Laramie County Conservation District	Cheyenne	<i>Major</i> —Mississippi-Missouri <i>Minor</i> —Crow	Wetland restoration and creation	10	2022/2024	228,700
Using precision drip installation to enhance agricultural water use efficiency	Bonneville Environmental Foundation,* Colorado River Indian Tribes (CRIT)	Phoenix	<i>Major</i> —North America, Colorado <i>Minor</i> —Middle Gila; Lower Salt; Lower Gila/Painted Rock	Agricultural water demand reduction measures	10	2022/2023	3,034,780
Using AI and site-specific data to improve irrigation management	Bonneville Environmental Foundation,* Kilimo	Santiago	<i>Major</i> —North Chile, Pacific Coast <i>Minor</i> —Maipo	Agricultural water demand reduction measures	3	2023/2023	352,500
Restoring longleaf pine ecosystem using invasive brush species removal and prescribed fire	Texas Longleaf Team	San Antonio	<i>Major</i> —Gulf Coast <i>Minor</i> —Medina / Upper San Antonio	Land restoration	10	2023/2025	2,081,590
Identifying leaks with leak detection hardware on toilets	Bonneville Environmental Foundation,* Sensor Industries, Pacific Institute, local housing authorities	San Antonio	<i>Major</i> —Gulf Coast <i>Minor</i> —Medina / Upper San Antonio	Leak repair	10	2023/2023	37,850

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Conserving water in hospitals through retrofitting industrial cooling systems	Bonneville Environmental Foundation,* BlueCommons, City of Phoenix	Phoenix	<i>Major</i> —North America, Colorado <i>Minor</i> —Middle Gila; Lower Salt; Lower Gila/Painted Rock	Operational efficiency measures	10	2023/2023	694,620
Leasing water rights to conserve water and support water resilience	Bonneville Environmental Foundation,* BlueCommons, Restauremos El Colorado	Phoenix	<i>Major</i> —North America, Colorado <i>Minor</i> —Middle Gila; Lower Salt; Lower Gila/Painted Rock	Agricultural water demand reduction measures	10	2023/2023	986,780
Rehabilitating effluent treatment for water reuse	Fundación Chile	Santiago	<i>Major</i> —North Chile, Pacific Coast <i>Minor</i> —Maipo	Constructed wetland treatment systems	10	2023/2024	630,000
Installing oxbow lakes to help recharge the Maipo aquifer	Fundación Chile	Santiago	<i>Major</i> —North Chile, Pacific Coast <i>Minor</i> —Maipo	Wetland restoration and creation	10	2023/2024	199,000
Using infiltration ditches to help recharge aquifers and prevent soil erosion in flood-prone areas	Fundación Chile	Santiago	<i>Major</i> —North Chile, Pacific Coast <i>Minor</i> —Maipo	Wetland restoration and creation	10	2023/2024	249,600
Helping threatened, endangered, and sensitive fish and increasing water security with a water sharing agreement	The Nature Conservancy	Phoenix	<i>Major</i> —North America, Colorado <i>Minor</i> —Middle Gila; Lower Salt; Lower Gila/Painted Rock	Legal transactions to keep water in-stream	9	2023/2024	2,903,931

Project name	Implementation party	Priority location	Basin name	Project type (VWBA activity) †	Benefit duration (years) ‡	Contract FY/ operational FY	Estimated volumetric benefits expected (m³) §
Establishing inlet-lake wetland restoration pilot sites and exploring nature-modelling restoration methods	The Nature Conservancy	Shanghai	<i>Major</i> —China Coast <i>Minor</i> —Lake Tail Hu	Agriculture best management practices	8	2023/2024	1,008,000
Improving water quality and ecology using agriculture best management practices	The Nature Conservancy	Shanghai	<i>Major</i> —China Coast <i>Minor</i> —Lake Tail Hu	Constructed Wetland Treatment Systems	8	2023/2024	1,400,000
Driving wetland restoration through on-the-ground efforts, public policy advocacy, collective action, and scientific research	The Nature Conservancy	Santiago	<i>Major</i> —North Chile, Pacific Coast <i>Minor</i> —Maipo	Wetland restoration and creation	3	2023/2024	27,999
Clearing invasive species in priority sub-catchments for the Western Cape Water Supply System	The Nature Conservancy	Cape Town	<i>Major</i> —South Africa, West Coast <i>Minor</i> —Groot Berg	Land restoration	8	2023/2025	457,660
Reducing water loss from London's aging water distribution network	FIDO	London	<i>Major</i> —England and Wales <i>Minor</i> —Thames 1; Colne	Leak repair	10	2023/2023	<i>TBD</i> #
Using beaver-powered analogs structures to restore Rock Island Creek	Trout Unlimited	Quincy	<i>Major</i> —Columbia and Northwestern United States <i>Minor</i> —Lower Crab	Wetland restoration and creation	10	2023/2025	292,671

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Restoring traditional wetland agriculture methods to conserve Lake Xochimilco	Conservation International	Mexico City	<i>Major</i> —Rio Verde <i>Minor</i> —Moctezuma	Wetland restoration and creation	10	2023/2025	3,858,510
Improving water quality for Shanghai by restoring naturally filtering wetlands	Conservation International	Shanghai	<i>Major</i> —China Coast <i>Minor</i> —Lake Tail Hu	Agriculture best management practices	10	2023/2025	950,000
Restoring and protecting freshwater ecosystems in São Paulo	Conservation International	Sao Paulo	<i>Major</i> —La Plata <i>Minor</i> —Tiete 2	Wetland restoration and creation	10	2023/2025	2,707,200
Ensuring water supply reliability in Hyderabad and North Karnataka	WaterAid	Hyderabad	<i>Major</i> —Krishna <i>Minor</i> —Musī / Aler	Improving recharge	10	2023/2026	4,446,900
Creating new wetlands to serve people and nature in London	Bonneville Environmental Foundation,* Thames21	London	<i>Major</i> —England and Wales <i>Minor</i> —Thames 1; Colne	Wetland restoration and creation	10	2023/2025	306,000
Reducing water loss from Mexico's aging water distribution network	FIDO	Querétaro	<i>Major</i> —Rio Lerma <i>Minor</i> —Laja	Leak repair	10	2023/2024	<i>TBD</i> #

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Reducing water loss from Phoenix's aging water distribution network	FIDO	Phoenix	<i>Major</i> —North America, Colorado <i>Minor</i> —Middle Gila; Lower Salt; Lower Gila/Painted Rock	Leak repair	10	2023/2024	<i>TBD</i> ¶
Reducing nitrate pollution in Iowa watersheds	Ducks Unlimited	Des Moines	<i>Major</i> —Mississippi-Missouri <i>Minor</i> —Middle Des Moines; North Raccoon	Wetland restoration and creation	10	2023/2025	1,404,980
Protecting vulnerable bird species through wetland restoration in Madrid	Bonneville Environmental Foundation,* Fundación Global Nature (FGN)	Madrid	<i>Major</i> —Tagus <i>Minor</i> —Tagus 2	Wetland restoration and creation	10	2023/2024	375,000

Footnotes:

† VWBA—Volumetric Water Benefit Accounting; the activity classification is based on [Volumetric Water Benefit Accounting \(VWBA\) methodology](#). Classification may change based on third-party quantification.

‡ Benefit duration is based on third-party quantification, where applicable. While for some of the projects, the actual benefit duration can be much longer than reported in this table, considering the various environmental/social factors that may affect the longevity of a project, we claim the benefits only for the duration for which we have assurance from implementation parties (usually 10 years, unless suggested otherwise in third-party quantification).

§ Estimated volumetric benefits to be third-party quantified at a later date.

¶ Retired projects are those for which the benefit duration is over, and we are no longer claiming the benefits.

* Project scoping partner

This is a first-of-its-kind leak detection project with large potential variation in volumetric benefit depending on the number and size of leaks identified. As such, we are waiting until we have validated benefits from the first year of the project before sharing estimated annual volumetric benefits.

Detailed overview of Microsoft-funded water replenishment projects

Ducks Unlimited: Restoring wetlands to improve water quality in Iowa's agricultural landscape

In partnership with the Iowa Department of Agriculture and Land Stewardship (IDALS), Ducks Unlimited has restored three sites in Des Moines, Iowa through the Conservation Reserve Enhancement Program, a federal-state program between IDALS and the US Department of Agriculture. Through this project, Microsoft supported the establishment of three conservation easements totaling 91 acres and 34 acres of wetlands. These wetlands will reduce nitrogen from 1,664 acres of agricultural land, and each year will remove more than 17,470 tons of nitrogen from the drainage tile in the watershed.

Audubon Great Plains: Restoring and enhancing prairie sites for improved water storage and filtration

The Urban Woods and Prairies (UWP) Initiative is a partnership between Audubon Great Plains and multiple local landowning entities aimed at restoring and enhancing riparian grassland, wetland, and woodland habitats in the Saskatchewan-Nelson basin, located in the Fargo-Moorland area of North Dakota. Many UWP sites contain small wetlands that provide some of the only filtration and storage of water in the area. Through the UWP Initiative, prairie sites are restored with native vegetation, positively affecting water storage and filtration. Microsoft also supports the Heritage Hills Park Restoration, the Oakport Wetland Restoration, and a revegetation volunteer event in the Fargo area.

Bonneville Environmental Foundation,^{*} Gila River Water Storage: Bringing renewable water supplies to cities in central Arizona

Together with Bonneville Environmental Foundation, this project supports Gila River Water Storage (GRWS), co-created by the Gila River Indian Community and Salt River Project, in response to mounting challenges to secure dependable, renewable water supplies. The GRWS is bringing 5 million acre-feet of additional, dependable, renewable water supplies to residential and industrial developments and municipalities seeking additional supplies. Microsoft purchased long-term storage credits from GRWS and donated them to the cities of Goodyear and El Mirage.

Bonneville Environmental Foundation,* Colorado River Indian Tribes, Arizona Department of Water Resources: Partnering to achieve water security outcomes for Lake Mead and the lower Colorado River Basin

In partnership with Bonneville Environmental Foundation and supporting Arizona's [Drought Contingency Plan](#), this project compensates the Colorado River Indian Tribes (CRIT) that have lands along 56 miles of the lower Colorado River for up to 150,000 acre-feet of water saved—helping reduce demand and stabilize water levels in Lake Mead. In exchange for monetary compensation from stakeholders, including Microsoft, the CRIT have pledged to forgo irrigation water deliveries and fallow approximately 10,000 acres of farmland, contributing to an approximately two-foot increase in depth to Lake Mead and helping shore up water supplies for Lake Mead, Arizona, and the lower Colorado River Basin.

Bonneville Environmental Foundation,* Cascade Conservation District, Trout Unlimited: Improving water supply reliability and restoring aquatic habitat in the Columbia Basin

Bonneville Environmental Foundation partnered with several organizations, including Cascade Conservation District, Trout Unlimited, and Microsoft, on three water restoration projects that collectively replenish 25.6 million gallons of water annually in the Columbia River Basin in central Washington state. One project removed two diversions from Roaring Creek, improving irrigation efficiency and reliability while also improving habitat for several ESA-listed salmon and trout species. An aquatic habitat restoration project in the Wenatchee and Entiat sub-basins is installing up to 60 beaver dam analogs, which help mitigate against destructive effects of flooding, drought, and wildfire. And another project in the Wenatchee and Entiat sub-basins helps pear orchards to improve water use through irrigation upgrades and efficiency strategies.

The Nature Conservancy: Restoring Sembakkam Lake and wetlands to improve water quality, storage capacity, and groundwater recharge potential

The Nature Conservancy India launched a model restoration of Sembakkam Lake in the city of Chennai, which aims to improve water quality, storage capacity, and groundwater recharge potential of the lake that will, in turn, contribute to improvement in groundwater quality and quantity in the surrounding areas. The restoration plan includes establishing an in-situ nature-based wastewater treatment system at the lake (using a constructed wetland system) that will treat nearly 6 to 7 million liters of wastewater entering the lake per day. Supported by Microsoft, the project will also lead to improved biodiversity habitat at the lake and build a connection between community and the wetland by creating a waterfront that offers a natural recreation place.

The Nature Conservancy: Acquiring additional land to help ensure ongoing protection and ecological functioning of a preserve

The Edwards Aquifer is one of the most important water resources in Texas, providing 80 percent of the freshwater for over 2 million people as well as industry, recreation, and aquatic biodiversity. In 2014, The Nature Conservancy expanded the protected Cibolo Bluffs Preserve by acquiring a 1,521-acre tract of land just northeast of San Antonio, located within the Edwards Aquifer recharge zone. The land is now owned and managed by The Nature Conservancy as part of the permanently protected nature preserve. Funding from Microsoft as part of this project was directly applied toward the \$2.8 million Land Preservation Fund loan that has now been paid off, which helps ensure the ongoing protection and ecological functioning of 11.5 acres of purchased land within the Cibolo Bluffs Preserve.

The Nature Conservancy: Improving water quality and reducing flooding by restoring oxbows

Since 2004, The Nature Conservancy and its partners have been working to improve the hydrology, biodiversity, and quality of the Boone River watershed north of Des Moines, Iowa. This work includes restoring oxbows, former stream meanders cut off from the main flow of water, which can absorb flooding, filter out nitrates from agricultural runoff, and provide valuable habitat for wildlife such as the endangered Topeka shiner minnow. Supported by Microsoft, this project is restoring 10 oxbows in the watershed and will create an oxbow restoration toolkit and training for other conservation providers across the state. The benefits include reducing flood risk and improving drinking water quality for downstream communities in the Greater Des Moines metro area and beyond.

Plumas Corporation: Restoring channel-floodplain connectivity to attenuate flood waters and maintain healthy ecosystems

With support from Microsoft, Plumas Corporation is restoring the channel-floodplain connectivity within East Creek meadow, part of the 7,500-acre Mountain Meadows complex in Lassen County, California, at the headwaters of the North Fork Feather River. By mostly filling the creek's main channel and two side channels, this project allows spring runoff to spread out over the surface of the meadow, increasing groundwater retention and reducing the effects of flooding and erosion. Increasing the environmental water will help maintain healthy ecosystems and is expected to improve species richness, increasing native riparian vegetation and fauna that depend on the meadow habitat.

The Nature Conservancy: Enhancing river flows and supporting fish and wildlife habitats by reducing water diversion

The Verde River in Arizona is highly affected by water withdrawals for irrigation, groundwater pumping for drinking water, and the insidious effects of long-term drought. Microsoft supported The Nature Conservancy on a project to reduce the amount of water diverted from the Verde River in

order to enhance river flows and support fish and wildlife habitat benefits. This project involved installation of 2,650 feet of HDPE pipe in the leakiest section of Eureka Ditch, an eight-mile earthen irrigation ditch that serves 375 acres in the Verde Valley. As a result of this piping project, water is more efficiently conveyed to farms and diversions from the Verde River have been reduced.

US Forest Service: Deploying erosion control methods for wetland habitats restoration

This US Forest Service project was designed to decrease erosion and sedimentation to better protect sensitive wetland habitats and watersheds downstream of the Pole Mountain Area, a 55,000-acre high elevation recreation area located in the Medicine Bow-Routt National Forest of southeastern Wyoming. A two-year project supported by Microsoft, the US Forest Service and National Forest Foundation contractors and partners removed and decommissioned several road segments, restoring the acres by reseeding with native seed mix, hand-planting trees, and placing erosion control matting and straw mulch.

Trout Unlimited: Using beaver dam analogs to increase wetland area and extent and groundwater infiltration

Trout Unlimited, in partnership with Microsoft, the US Fish and Wildlife Service, and the Natural Resource Conservation Service, is building and installing low-tech restoration structures, including beaver dam analogs and post assisted log structures, at two primary sites in Rock Island Creek in Douglas County, Washington. Each structure will increase wetland area and extent and also groundwater infiltration in the wetted area behind each structure. Trout Unlimited estimates there will be approximately 0.8 acre-feet per year of total water benefits associated with increased infiltration from the construction of the 24 structures. The enhancements will increase habitat and benefit a variety of native fish, wildlife, and vegetation, especially Upper Columbia summer steelhead trout and greater sage-grouse.

WaterAid: Restoring ponds and establishing pond injection wells to harvest and recharge groundwater

With support from Microsoft, WaterAid enhanced the availability of safe drinking water throughout the year in water-scarce Gulbarga and Raichur districts, Karnataka state, India. Partnering with 30 villages in the districts, WaterAid demonstrated solutions to ensure community-led drinking water security through groundwater recharge replenishment and effective management of available water sources. The project included building rainwater harvesting and groundwater recharge structures and restoring additional drinking water sources, such as dug wells, to enhance water sustainability, as well as a pilot on managed aquifer recharge. Additional training of village councils and individuals has helped to inform and guide the local administration in future groundwater replenishment efforts.

The Nature Conservancy: Reducing irrigation consumption using a 30-acre center pivot

The Nature Conservancy is working with the Yavapai-Apache Nation (YAN) to improve its agricultural irrigation efficiency in the Verde Valley of central Arizona. With support from Microsoft, the project is installing a 30-acre center pivot irrigation system on the YAN's Upper Cloverleaf Fields. Replacing the very inefficient flood irrigation method with a center pivot will reduce consumptive water use by nearly 25 percent, helping to preserve flows for municipal water supplies in the Phoenix area. The irrigation infrastructure improvements will also help the success of the YAN's agricultural operations, improving sustainability in their water use and allowing them to produce crops with less labor.

Bonneville Environmental Foundation,* Gila River Indian Community: Delivering water to managed aquifer recharge sites

Bonneville Environmental Foundation and Microsoft are partnering with the Gila River Indian Community (GRIC) in central Arizona on water replenishment in the lower Colorado River watershed. GRIC has developed managed aquifer recharge (MAR) sites to achieve riparian restoration, wetland habitat, and aquifer recharge benefits on the Community's Reservation. The project delivered 1,000 acre-feet of Central Arizona Project water to GRIC's MAR 1B site. The water recharged at the MAR sites generates long term storage credits which GRIC is able to retire, ensuring that the water would benefit the aquifer.

Bonneville Environmental Foundation,* Chico State Enterprises: Restoring flow in the Sacramento River to restore spawning and rearing habitat

Bonneville Environmental Foundation and Microsoft are partnering with Chico State Enterprises (CSE), a non-profit auxiliary of California State University which has designed and implemented habitat restoration projects on the Sacramento River and its tributaries since 2001. CSE has collaborated with the Sacramento River Forum and the U.S. Bureau of Reclamation to restore spawning and rearing habitat through the Upper Sacramento River Anadromous Fish Habitat Restoration Program. The primary objective of this project is to restore flow to the East Sand Slough side channel of the Sacramento River by excavating the current channel. Excavation will allow for the channel to be inundated even under the Shasta Dam winter low flow regime, forming habitat for critically endangered winter run Chinook salmon juveniles during rearing.

Edwards Aquifer Conservancy: Enhancing recharge through conservation easements

The Edwards Aquifer Conservancy works to protect and enhance historic recharge of the Edwards Aquifer, the primary water source for residential, agricultural, commercial, and industrial use in eight counties of south-central Texas. With support from Microsoft, the project is acquiring conservation easements over 1,186 acres within the Edwards Aquifer Recharge zone, with a targeted emphasis on lands that are most likely

threatened by rapid development or negative management practices. This acquisition will protect, on average, 0.6 acre-feet of recharge per acre protected, with the potential to increase average recharge rates over time through the establishment of beneficial land management practices.

Columbia Basin Conservation District: Supporting farmers by switching to a new surface irrigation water supply

With support from Microsoft among others, the Columbia Basin Conservation District is planning, designing, and implementing irrigation infrastructure in the Columbia River Basin of central Washington State. Farmers in the Odessa subarea are currently relying on a rapidly declining aquifer with poor water quality making it not only expensive but also threatening reliable irrigation water for approximately 80,000 acres. The Odessa Groundwater Replacement Program, when completed, will deliver surface water from the Columbia River replacing the existing unsustainable groundwater source. In addition to conserving 240,000 acre-feet of groundwater from withdrawals annually, the project will provide a 10 percent increase in irrigation efficiency, reliable groundwater to municipal and Industrial users, and will help the region become more water resilient.

Bonneville Environmental Foundation,* Kilimo: Embracing technology to reduce agricultural water use

With support from a partnership between Bonneville Environmental Foundation and Microsoft, Kilimo is engaging with local farmers in the Maipo Basin near Santiago, Chile, to improve their water use efficiency. Kilimo supplies precision agriculture technology that supports real-time moisture and irrigation management for farmers with high-value crops. The project will decrease the amount of water pumped or diverted to irrigate those farms, conserving use in the watershed of Santiago.

Edwards Aquifer Conservancy: Improving springflow and aquifer storage by leasing groundwater rights

Under the auspices of the Edwards Aquifer Authority, the Edwards Aquifer Conservancy (EAC) works to protect and enhance historic recharge of the Edwards Aquifer, the primary water source for residential, agricultural, commercial, and industrial use in eight counties of south-central Texas. In partnership with Microsoft, the EAC has leased groundwater rights to forbear pumping of 400 acre-feet annually for 10 years. This project enhances San Antonio's water resilience by improving springflow and aquifer storage and also benefits freshwater ecosystems associated with the aquifer.

Washington Water Trust: Restoring critical stream flows in Icicle Creek

Together with Washington Water Trust, Microsoft is supporting restoration of critical stream flows in Icicle Creek, a priority tributary to the Wenatchee River in central Washington state. Washington Water Trust is working with Cascade Orchards Irrigation Company to modernize their

delivery system with a new intake point, pumping facilities, and buried pipelines replacing an open-ditch network. The project will restore 2,698 acre-feet of permanent annual flow to Icicle Creek, a top-tier restoration priority for threatened salmon and steelhead populations, and help improve sustainability at the Leavenworth National Fish Hatchery.

Chelan County: Restoring the hydrologic function of the Camas Meadows ecosystem

The Chelan County Natural Resource Department is partnering with Microsoft to restore the hydrologic function of Camas Meadows, located in the Wenatchee River watershed in north-central Washington state. This meadow habitat has lost much of its natural water storage capacity due to various historical human activities such as channel incision and livestock grazing. This project restores the natural processes that form and maintain seasonally wetted meadow habitat that supports sensitive plant species, provides water storage and delivery of cold water to downstream areas at critical periods in the water year, and is resilient to disturbances from a changing climate. Camas Meadows is critical habitat to two state and federally endangered plant species: the Wenatchee Mountains checkermallow and the Wenatchee larkspur.

Laramie County Conservation District: Enhancing stormwater capture by expanding an existing pond

With support from its partners including Microsoft, the Laramie County Conservation District is improving the drainage capability of Dry Creek in Cheyenne, Wyoming. By enlarging an existing shallow wetland pond in the Cheyenne Business Park Natural Area, the project increases the pond's capacity for holding erosive stormwater runoff and capturing sediments and urban pollutants. Benefits from the project include improved water quality and carbon sequestration, aquatic and riparian habitat improvements, and more recreational opportunities.

Bonneville Environmental Foundation,* Colorado River Indian Tribes (CRIT): Using precision drip installation to enhance agricultural water use efficiency

In collaboration with Bonneville Environmental Foundation and Microsoft, the Colorado River Indian Tribes (CRIT) and N-Drip are installing precision drip irrigation on 1,600 acres of CRIT agricultural land along the lower Colorado River in Arizona. Compared to conventional flood irrigation, drip irrigation is a very efficient method that provides a slow-moving supply of water directly to the soil, significantly reducing evaporation and runoff. By assisting CRIT with conversion to drip irrigation, this project will increase resilience for tribal farm operations while improving surface water management and storage and improving climate adaptation and sustainability.

Bonneville Environmental Foundation,* Kilimo: Using AI and site-specific data to improve irrigation management

With support from a partnership between Bonneville Environmental Foundation and Microsoft, Kilimo is engaging with local farmers in the Maipo Basin near Santiago, Chile, to improve their water use efficiency. Expanding upon an existing drip irrigation project with Kilimo, this project will support the use of AI and site-specific data to improve irrigation management on 200 hectares per year of private irrigated family farms. The system can provide tailored irrigation schedules for a variety of high-value crops, helping farmers to decrease groundwater pumping and diversion of surface water.

Texas Longleaf Team: Restoring longleaf pine ecosystem using invasive brush species removal and prescribed fire

Texas Longleaf Team, with the support of Texan by Nature and funding from Microsoft and four other funders, is partnering to restore longleaf pine forest in the Trinity River Basin in Texas. The native longleaf pine is essential to the ecosystem of East Texas because it filters and stores freshwater, sequesters carbon, supports biodiversity, and benefits the community. This project uses strategic land management with invasive brush species removal and prescribed fire to restore 2,000 acres of longleaf pine ecosystem to optimal condition. Additionally, approximately 100,000 longleaf pine seedlings will be planted, and a diverse understory of plants will be seeded and developed.

Bonneville Environmental Foundation,* Sensor Industries, Pacific Institute, and local housing authorities: Identifying leaks with leak detection hardware on toilets

With support from Microsoft, Bonneville Environmental Foundation is working to improve water resiliency in the Dallas-Fort Worth area, Texas. A partnership between the Foundation's Business for Water Stewardship, Sensor Industries, Pacific Institute, and local housing authorities is installing 441 leak detection sensors for toilets in multi-family, low-income housing developments. The sensors have a 10-year lifetime and will allow for real-time monitoring of leaks, enabling prompt response from maintenance to minimize water loss.

Bonneville Environmental Foundation,* BlueCommons, and the City of Phoenix: Conserving water in hospitals through retrofitting industrial cooling systems

Bonneville Environmental Foundation is partnering with BlueCommons and the City of Phoenix to conserve water in the Phoenix, Arizona metro area. For health and safety reasons, hospitals have "hardened demand" for water, meaning they are unable to quickly reduce their need for water even in shortage conditions. With support from Microsoft and the Foundation, BlueCommons is providing revolving loans to hospitals in Phoenix to cover the cost of retrofitting industrial cooling systems. The upgraded systems will significantly reduce water use and costs for the hospitals, supporting municipal water conservation efforts in Arizona in the face of continued water shortage in the lower Colorado River Basin.

Bonneville Environmental Foundation,* BlueCommons, Restauremos El Colorado: Leasing water rights to conserve water and support water resilience

Bonneville Environmental Foundation is partnering with organizations including BlueCommons, Restauremos El Colorado, and Microsoft on its Lower Colorado River Resilience project to conserve water in Lake Mead and support water resilience in Arizona and the lower Colorado River Basin. The project includes a revolving suite of interventions that bring together water leasing, habitat restoration, environmental flows, and private and public sector investment to increase water resilience in the lower Colorado River. The initial phase aims to secure over 10,000 acre-feet of water for Lake Mead within three years through leases with water rights holders. This project will help maintain necessary reservoir levels in Lake Mead in the near term while laying the foundation for long-term resilience solutions.

Fundación Chile: Rehabilitating effluent treatment for water reuse

Fundación Chile is partnering with Microsoft on water sustainability and resiliency in the Maipo River Basin near Santiago, Chile. This project is rehabilitating a system to treat effluent from the Curacaví community wastewater treatment plant, which is not meeting legislative standards. The rehabilitated system will produce treated water with sufficient quality for safe use by farmers, ranchers, and the area's ecosystem. This project will increase available water in a highly stressed location, aid in ecological conservation, and serve as a replicable project that can be adopted in other parts of Chile.

Fundación Chile: Installing oxbow lakes to help recharge the Maipo aquifer

Fundación Chile is partnering with Microsoft on water sustainability and resiliency in the Maipo River Basin near Santiago, Chile. This project is creating oxbow lakes in strategic topographic areas particularly exposed to flooding. The lakes will prevent the immediate loss of water either by runoff or evaporation, improving the recharge of the Maipo aquifer, which supports drinking water for more than 670,000 people. By facilitating the collection, storage, and infiltration of rainwater, this project improves water supply and ecosystem services, and helps increase biodiversity.

Fundación Chile: Using infiltration ditches to help recharge aquifers and prevent soil erosion in flood-prone areas

Fundación Chile is partnering with Microsoft on water sustainability and resiliency in the Maipo River Basin near Santiago, Chile. This project is installing infiltration ditches in strategic topographic areas particularly exposed to flooding, recharging the Maipo aquifer with the collected water. This project avoids the mechanical dragging effect of rainwater that can affect growing crops, reducing soil loss due to erosion. It helps to control loss of water, establish native vegetation, and above all allow for additional infiltration of water into local aquifer systems that supply more than 670,000 people with drinking water.

The Nature Conservancy: Helping threatened, endangered, and sensitive fish and increasing water security with a water sharing agreement

The Nature Conservancy is partnering with the Jicarilla Apache Nation and the New Mexico Interstate Stream Commission (NMISC) on water security and aquatic habitat protection along the San Juan River in New Mexico. With support from Microsoft, the partnership has designed a first-of-its-kind water sharing agreement that allows the NMISC to lease up to 20,000 acre-feet of water per year from the Nation to benefit threatened, endangered, and sensitive fish species and increase water security for New Mexico. This project demonstrates that Tribal water sharing agreements can enhance the economic and social resilience of Tribal communities, help resolve water scarcity in the Colorado River Basin, and improve the health of the San Juan River at the same time. Water contracted by the NMISC under the agreement will be used in the New Mexico Strategic Water Reserve (which allows for ecological and compact compliance uses) and will be released from Navajo Reservoir into the San Juan River.

The Nature Conservancy: Establishing inlet-lake wetland restoration pilot sites and exploring nature-modelling restoration methods

The Nature Conservancy launched the Qiandao Lake Water Fund in 2018 to provide systematic solutions for water stress of Qiandao Lake in Zhejiang Province, China. With support from Microsoft, The Nature Conservancy is collaborating with the local community, NGOs, and research institutes to establish inlet-lake wetland restoration pilot sites and to explore nature-modelling restoration methods, laying the foundation for large-scale application. The project promotes agricultural best management practices targeting non-point source pollution (from pesticides/herbicides and fertilizers) and soil erosion through the three most widely cultivated crops—hickory, tea, and citrus. Additionally, up to two hectares of wetland treatment systems are being restored and constructed in one key sub-watershed of Qiandao Lake.

The Nature Conservancy: Improving water quality and ecology using agriculture best management practices

The Nature Conservancy is promoting water stewardship in the Yangtze River delta region of Lake Taihu Watershed in China. With support from Microsoft, The Nature Conservancy is developing source water pollutant reduction and wetland systems interception approaches, which have been explored by its Qiandao Lake Water Fund in the past few years. The project plans to control non-point source pollution and runoff in rural farming areas by advancing regenerative agriculture, and to reduce nitrogen and phosphorus pollution by constructing eco-buffering infrastructure such as wetland systems as a nature-based solution. In the long term, the project will systematically improve the water quality, aquatic ecosystem, biodiversity, and ecology by scaling up agriculture best management practices and eco-buffering infrastructure.

The Nature Conservancy: Driving wetland restoration through on-the-ground efforts, public policy advocacy, collective action, and scientific research

The Nature Conservancy has partnered with key stakeholders in Chile to drive a holistic effort for water sustainability in the Maipo River Basin and High Andean wetlands around Santiago. With support from Microsoft, this project includes on-the-ground wetland conservation efforts, the promotion of public policy to protect these key ecosystems, strengthening collective action, and driving scientific research. Working with local organizations and scientific partners, The Nature Conservancy will select 30 hectares of wetlands to conduct scientific studies and restoration activities as a demonstration project. From this project, The Nature Conservancy will develop a best practices handbook to share among landowners, encouraging their engagement in conservation activities and long-term management.

The Nature Conservancy: Clearing invasive species in priority sub-catchments for the Western Cape Water Supply System

The Nature Conservancy partnered with CapeNature and the City of Cape Town to create the Greater Cape Town Water Fund, which aims to restore biodiversity and secure the long-term water supply for people and nature in the Greater Cape Town region of South Africa. A key goal of the Fund is to increase the amount of water collected in the region's water supply by removing water-guzzling invasive plant species. As of June 2023, the project has cleared a total of 43,191 hectares: 29,822 new hectares towards the 2026 target, of which 13,369 hectares were followed up at least once. Microsoft's support will go towards clearing invasive species on 150 hectares in priority sub-catchments of the Theewaterskloof dam in the Western Cape Water Supply System.

FIDO: Reducing water loss from London's aging water distribution network

Microsoft is partnering with FIDO Tech to reduce water loss from leaks in the aging water distribution network of London, England. The project uses FIDO's AI-enabled acoustic leak analysis to identify and track leaks over a distance of 350 km within the Thames Water network. Once leaks are identified, the local water utility, Thames Water, will conduct repairs. Over a 10-year period, FIDO will track volumetric benefits alongside other complementary benefits, including greenhouse gas reductions.

Trout Unlimited: Using beaver-powered analogs structures to restore Rock Island Creek

Working with the National Resources Conservation Service and the US Fish & Wildlife Service, Trout Unlimited is expanding its watershed restoration work in Rock Island Creek in Douglas County, Washington. In partnership with Microsoft, the project is installing up to 105 beaver dam analogue structures throughout 1 mile of Rock Island Creek. These structures help to restore aquatic habitat, create pools and ponds, induce

channel meandering, reduce channel incision, and expand floodplain and wet meadow habitat using low-tech process-based restoration practices. Beyond the habitat enhancement, an estimated range of 3-4 acre-feet of groundwater will be stored annually following implementation.

Conservation International: Restoring traditional wetland agriculture methods to conserve Lake Xochimilco

Conservation International is working to conserve and restore the Lake Xochimilco wetlands in Mexico City, Mexico. The Lake Xochimilco ecosystem is the last natural remnant of the Valley of Mexico lagoon system, which has been severely modified by urbanization, resulting in water pollution and endangering biodiversity. This project implements a model called Refugio-Chinampa, which has been designed to protect this ecosystem through various conservation measures, such as restoration of the traditional *chinampa* wetland agricultural technique, planting of native species, and employing biofilters to improve water quality. The Xochimilco wetland is home to 11 percent of Mexico's biodiversity—including the endemic Mexican axolotl salamander, an emblematic amphibian species that is critically endangered. Axolotls function as environmental biomarkers, since an increase in their population is a sign of improved water quality. Already in effect for five years, the project is expanding its reach through support from Microsoft to incorporate more local farmers and a larger wetland restoration area.

Conservation International: Improving water quality for Shanghai by restoring naturally filtering wetlands

Conservation International is working to improve water quality for Shanghai, China. Built to control, retain, and store freshwater from the Huangpu River, the Jinze Reservoir on Shanghai's western edge is facing challenges in pollution from agricultural activities and insufficient treatment of domestic wastewater in the surrounding area. With support from Microsoft, this project aims to improve Jinze Reservoir's water quality by demonstrating and promoting practical on-the-ground solutions to reduce pollution. The project's solutions include a restored/artificial wetland system that can treat 100,000 cubic meters of water annually.

Conservation International: Restoring and protecting freshwater ecosystems in São Paulo

Conservation International is working to conserve and restore freshwater ecosystems in the micro-basins of the municipality of Campinas, covering the metropolitan region and the headwaters of the micro-basins in the state of São Paulo, Brazil. The micro-basin is an important source of water for São Paulo but extreme drought events in recent years (such as in 2014 and 2015) have significantly reduced available water in this basin. With support from Microsoft, this project involves direct improvements in public control and enforcement capacity, the creation of at least 500 hectares of new protected areas, restoration in at least 500 hectares through inputs and technical assistance, and monitoring of the areas to evaluate water and other benefits.

WaterAid: Ensuring water supply reliability in Hyderabad and North Karnataka

WaterAid is partnering with Microsoft to ensure the sustainable availability of groundwater while adapting to climate change in the Deccan region of India. This project will harvest rainwater and enhance the availability of groundwater in water-starved regions through artificial groundwater recharge. Envisioned as a three-year program that follows up on previous work in Karnataka that demonstrated significant volumetric benefits, WaterAid will scale this project into the Hyderabad district of Telangana state and expand its work in Raichur and Gulbarga districts of North Karnataka. In Hyderabad, this project will cover 25 residential welfare associations and create profound impact at the district level.

Bonneville Environmental Foundation,* Thames21: Creating new wetlands to serve people and nature in London

Bonneville Environmental Foundation and Thames21 are partnering to deliver high-impact nature-based solutions to the climate and biodiversity crisis through river restoration across London and the Thames River Basin in England. With support from Microsoft, the project is creating new wetlands in Watling Park in the London Borough of Barnet that will reconnect Burnt Oak Brook to the surrounding landscape, creating a thriving blue/green space with a network of paths that will provide opportunities for nature-connection and learning. The project helps to meet a demand for good quality biodiverse green space and serves a densely populated urban area. A wetland on this site will reduce flood risk in a heavily urbanized (and highly deprived) area of London in the Silk Stream catchment.

FIDO: Reducing water loss from Mexico's aging water distribution network

Microsoft is partnering with FIDO Tech to reduce water loss from leaks in the aging water distribution network of Querétaro, Mexico. The project uses FIDO's AI-enabled acoustic leak analysis to identify and track leaks over a distance of 350 km within the network. Once leaks are identified, the local water utility, CEA Querétaro, will conduct repairs. Over a 10-year period, FIDO will track volumetric benefits alongside other complementary benefits, including greenhouse gas reductions.

FIDO: Reducing water loss from Phoenix's aging water distribution network

Microsoft is partnering with FIDO Tech to reduce water loss from leaks in the aging water distribution network of the south metropolitan area of Phoenix, Arizona. The project uses FIDO's AI-enabled acoustic leak analysis to identify and track leaks over a distance of 350 km within the network. Once leaks are identified, the local water utility, EPCOR Water, will conduct repairs. Over a 10-year period, FIDO will track volumetric benefits alongside other complementary benefits, including greenhouse gas reductions.

Ducks Unlimited: Reducing nitrate pollution in Iowa watersheds

Ducks Unlimited is working with the Iowa Department of Agriculture and Land Stewardship (IDALS) to restore water quality wetlands in Iowa. To meet Iowa's Nutrient Reduction Strategy goal of 45 percent nitrate reduction in rivers and streams, IDALS estimates the need for at least 5,000 Conservation Reserve Enhancement Program (CREP) wetlands capable of treating runoff from 5–10 million acres of agricultural lands in the Des Moines Lobe. With support from Microsoft, Ducks Unlimited is delivering 3–8 CREP wetlands restorations over up to a three-year period, which includes constructing approximately 45 to 55 acres of wetlands supporting a drainage basin of more than 6,000 acres.

Bonneville Environmental Foundation,* Fundación Global Nature (FGN): Protecting vulnerable bird species through wetland restoration in Madrid

Bonneville Environmental Foundation and Fundación Global Nature (FGN) are partnering to restore and conserve the wetlands of Soto Gutiérrez in the municipality of Ciempozuelos, Spain, near the Jarama River. This wetland is a breeding, feeding, migratory stop and sanctuary for at least 224 bird species, all of which are classified as vulnerable or in danger of extinction. Through this project, with the support of Microsoft, FGN is acquiring and enhancing an 11-hectare wetland to maximize biodiversity, improve the water quality, and create public benefits. The benefits will include fencing and walkways to control access and protect the habitats, and interpretive signage for public education.