



FY18

Annual Report



WATER CENTER
COLORADO STATE UNIVERSITY



Civil and Environmental Engineering professor Timothy Gates and undergraduate student Justin Kattnig collect a water sample from Clear Creek as a part of as a part of Gates' Arkansas River Basin monitoring and modelling research.

THE WATER CENTER AT COLORADO STATE UNIVERSITY

VISION

CSU will become a center for excellence and innovation—a recognized leader in water research, education, and engagement—and attract faculty and students from all areas of the globe.

MISSION

The Water Center catalyzes excellence in water research, teaching, and engagement by fostering interdisciplinary collaboration and creative scholarship.

PURPOSE

The Water Center is a campus-wide resource that serves to add value to the university community working on and studying water resources. Since water is an interdisciplinary subject, the Water Center helps foster CSU's capacity to address a diversity of water-related topics. Through the Water Center's organizational efforts and support resources, CSU's faculty, staff, and students are better equipped to work towards improving water in Colorado, the US, and internationally.



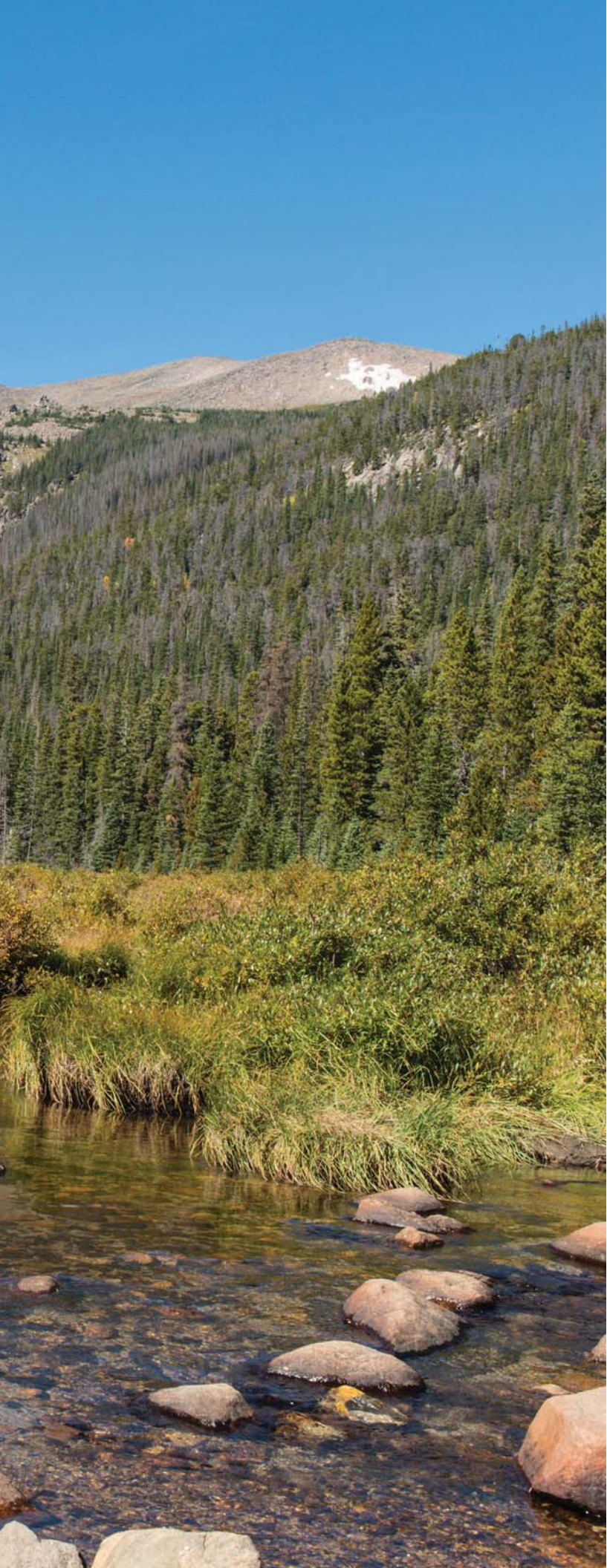
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On the cover: The Black Canyon of the Gunnison has been carved out by the Gunnison River, a tributary of the Colorado River, over the past two million years. The canyon is home to some of the steepest cliffs, oldest rock, and craggiest spires in North America.

During their time at CSU, many students get to experience Mountain Campus, a 1,600-acre university outpost that offers unique learning opportunities to explore and study the natural wonders of the Rocky Mountain ecosystem like Cirque Meadows.





FROM OUR CHAIR

October 1, 2018

Colorado State University continues expanding programs and leadership in water research, education and outreach. New faculty members, new programs, and new course offerings forward our Land Grant University mission and impact. A recent swirl of activity around the development of a new Water Center at the National Western Stock Show brings new excitement in Denver as to what CSU can offer the State and surrounding region. International engagement by faculty working on water issues in Asia, Africa and Latin America continue our legacy of global impact.

Fiscal year 2018 was another successful year for our water faculty and students. In the following pages you will learn about some of the ways they are addressing water challenges through applied research projects, read about water events that bring forward topics for debate and discussion, see how CSU's educational programs are preparing the next generations of water stewards and leaders, and learn how to become informed and involved in water matters.

In the year ahead, our expectation is that CSU will continue to advance as a center of excellence and a leader in water scholarship. This year we plan to unite the CSU Water Center and the Colorado Water Institute under one organizational unit to gain operational efficiencies and reduce any internal or external confusion on how to access CSU expertise, networks or resources. One of the challenges of interdisciplinary research, education, and engagement is the need for practitioners who can work across disciplines to solve complex water problems. To serve this need, the Center will continue to foster collaborations among water faculty, staff, students, and community partners to address the water challenges of today and tomorrow.

Sincerely,

Reagan Waskom
Executive Committee Chair, CSU Water Center

HIGHLIGHTS + IMPACTS

Since 2014, the Center has supported a variety of interdisciplinary projects and innovative fellowships that accelerate research and support the academic and experiential realms of water resources.

Since receiving funding in FY15 to explore catchment retention, **Tim Covino** (Ecosystem Science and Sustainability, Natural Resource Ecology Laboratory) has formed the CSU Biogeochemistry Research Group, established a student research program at Mountain Campus, and secured an additional \$336,000 in external grants. Learn more at cavinocsuwatershed.weebly.com.

Stacy Lynn (Natural Resource Ecology Laboratory, the Africa Center) was awarded funding in FY16 to study water governance in the drylands of Kenya, which resulted in exciting new collaborations with Mount Kenya University and the World Food Programme. At present, her research team continues to partner with locals to better understand water-related issues in Turkana and Tanzania.

In FY17, **Jens Blotevogel** (Civil and Environmental Engineering, Center for Contaminant Hydrology) was funded to investigate how food crops may absorb contaminants from oil and gas wastewater. The doctorate student supported by this grant went on to receive the “New Graduate Student Award” for their work, while the research team forged new partnerships with US EPA and Penn State.

As a FY15 fellow, **Ed Hall** (Natural Resource Ecology Laboratory) undertook a massive effort to connect water-related expertise in Latin America across campus. This work has extended well beyond the grant period, with CSU hosting a student from Zamorano University in Honduras in 2017, and Hall set to present at the 2019 Association for the Science of Limnology and Oceanography meeting in Puerto Rico.

Meagan Schipanski (Soil and Crop Sciences), a FY16 fellow, looked at how to improve efficiency around precipitation use in dryland crop systems. Since then, she has been able to leverage her seed money for an additional \$9.8 million in USDA grant funding to more deeply explore agricultural water management of the Ogallala Aquifer.


37 awards in 5 years
totaling more than

\$600K

40+ external grants
provided additional funding of

\$12.5M



A full-page background image showing several researchers in waders and hats working in a shallow stream. They are using yellow measuring tools. The water is clear, and there are green trees and bushes in the background. The image is overlaid with white dotted lines forming a large 'L' shape in the upper left corner.

135 faculty and
research affiliates funded

80 students engaged in
research projects

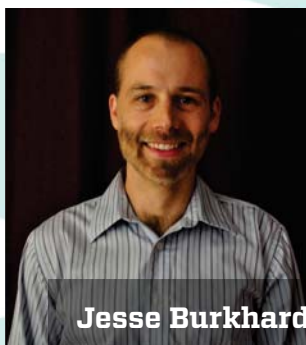
143 collaborative
partners from around the
world

151 presentations given and **36** papers
published, sharing research and fellowship

Dana Winkelman, Unit Leader of the Colorado Cooperative Fish and Wildlife Research Unit conducts research on whirling disease-resistant rainbow trout. The cooperative research program began in 1935, when five units were established at land grant universities, including CSU.

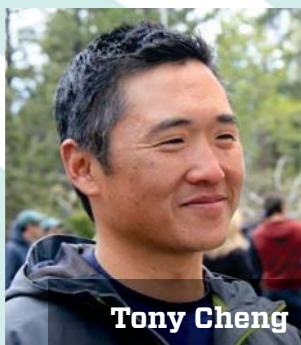
RESEARCH

Each spring, the Center funds a select number of Water Research Teams and Faculty Fellows grants, which catalyze innovative water research, teaching, and engagement through interdisciplinary collaboration and creative scholarship. These awards provide opportunities to accelerate progress in research and enable the academic and experiential realm of water resources. Five research teams and two fellows were awarded a total of \$130,000 in FY18. Led by these seven principal investigators from across the CSU community, projects engaged more than two dozen faculty and affiliated researchers, 13 CSU students from all levels of study, and 21 external partners.



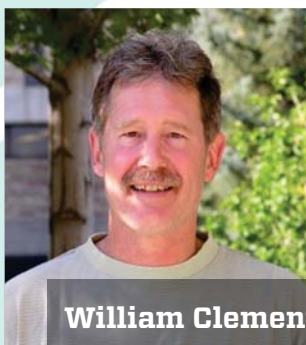
Jesse Burkhardt

Agricultural and
Resource Economics



Tony Cheng

Forest and Rangeland
Stewardship



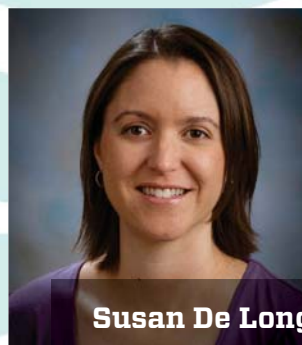
William Clements

Fish, Wildlife, and
Conservation Biology



Kelly Curl

Landscape
Architecture



Susan De Long

Civil and Environmental
Engineering



Michael Falkowski

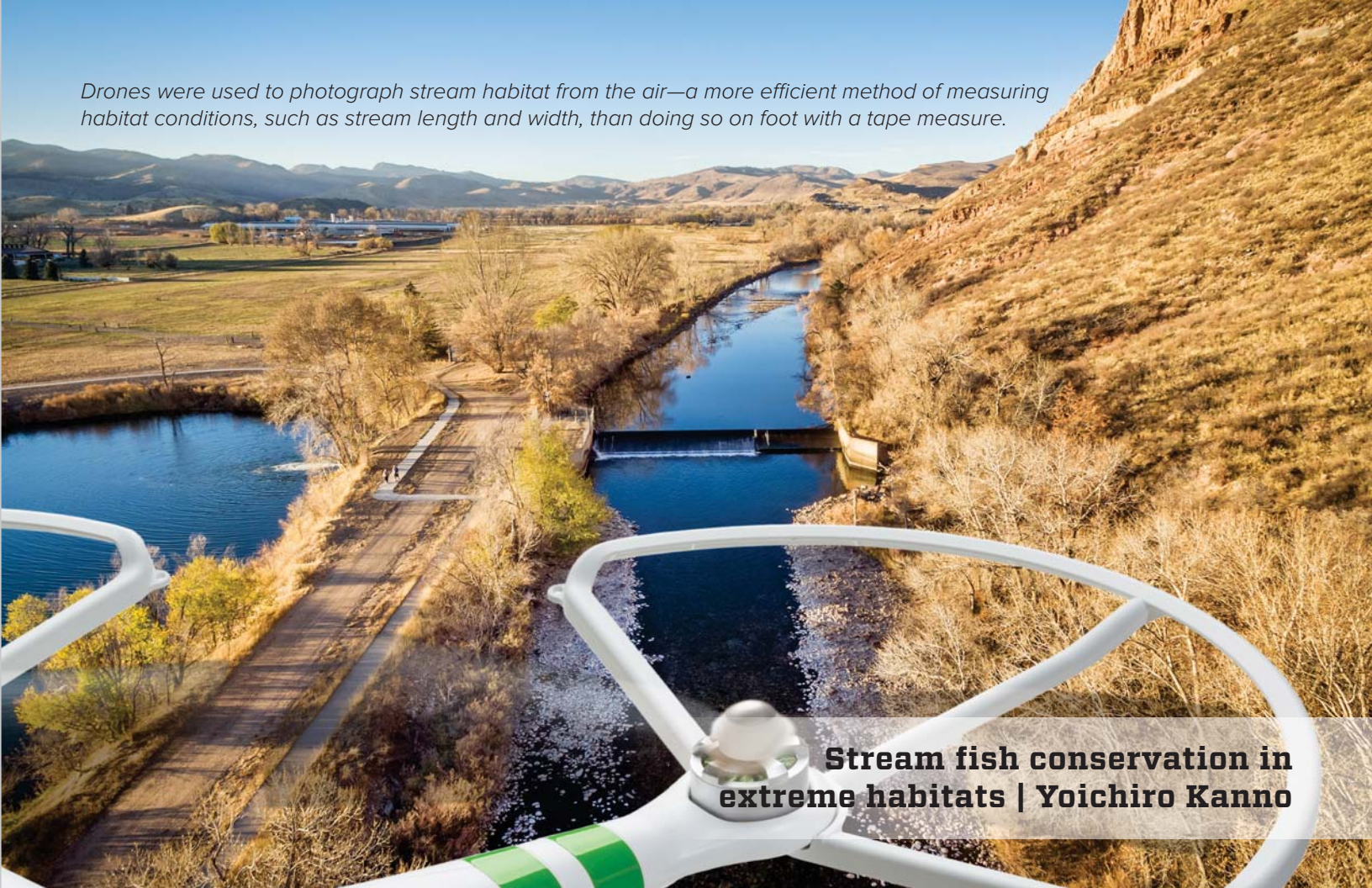
Ecosystem Science
and Sustainability



Yoichiro Kanno

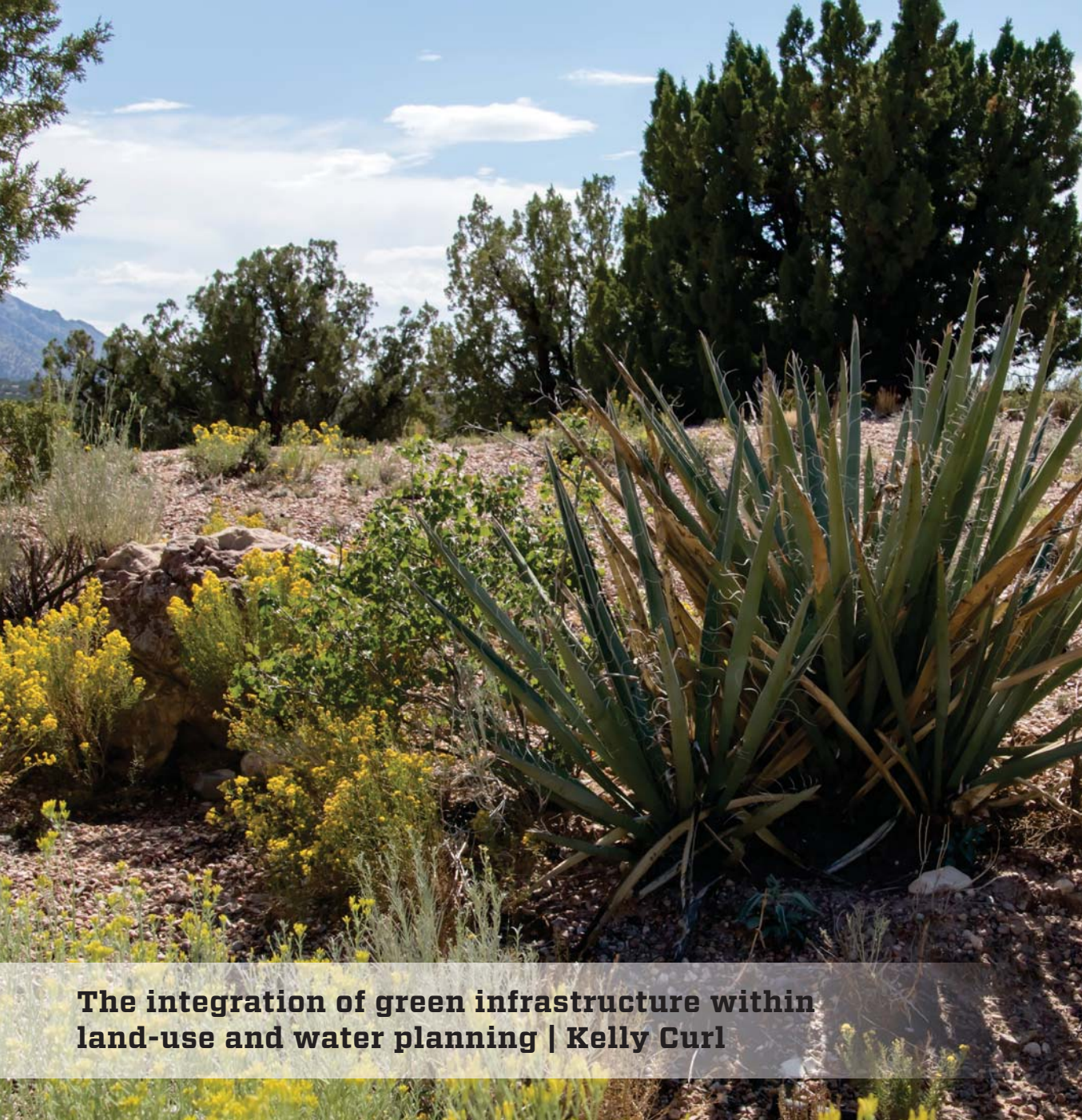
Fish, Wildlife, and
Conservation Biology

Drones were used to photograph stream habitat from the air—a more efficient method of measuring habitat conditions, such as stream length and width, than doing so on foot with a tape measure.



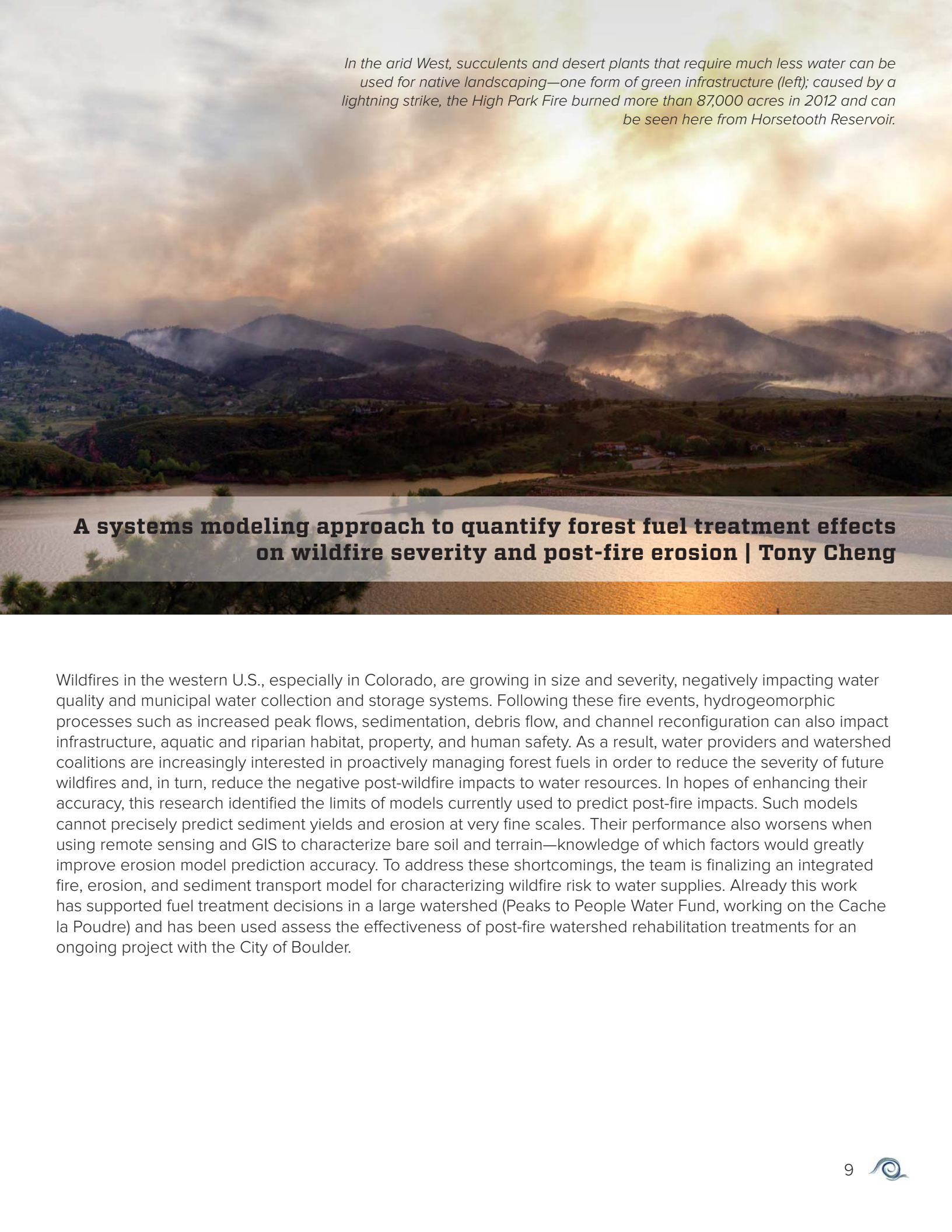
Stream fish conservation in extreme habitats | Yoichiro Kanno

Humans depend on freshwater to live, but our growing demands on water resources have made freshwater conservation a global challenge. Aquatic species like fish, mussels, and crayfish are most threatened in this scenario, and efforts to conserve and restore human-altered landscapes, rather than just “pristine” wilderness, must be expanded to fully address this problem. In particular, stream fish now often live in “extreme habitats”—environments characterized by severe climate events such as drought or flood, small or isolated habitats with limited gene flow, or the presence of non-native species that produce biological interactions not normally generated in a given ecosystem. Scientific understanding of the behavior of animals and ecosystems in these extreme habitats is limited; this in turn may hamper the effectiveness of management activities and interventions in aquatic ecosystems. This research addressed the impacts of habitat degradation, invasive species, and climate change on stream fish conservation. Using aerial drones, the team photographed stream habitats to characterize stream habitat at the channel scale, and studied local adaptations by Colorado River cutthroat trout to varying degrees of habitat fragmentation. With the help of Japanese researchers, they also looked at more than a decade of data on red-spotted masu salmon and white-spotted charr in Sabusawa Creek, the last known stream in the prefecture in which both species co-exist, despite severe habitat fragmentation due to damming. By analyzing the survival and movement of these individually marked fish, it was revealed that two tributaries to the mainstem are critical to maintaining the meta-population of both species—highlighting the importance of maintaining and restoring stream connectivity, a lesson that translates well to stream management in Colorado. These findings are being used to form the foundation of longer-term projects aimed at combatting habitat stresses on freshwater resources.



The integration of green infrastructure within land-use and water planning | Kelly Curl


As human populations and land development continue to grow, integrated land-use and water planning is critical. Green infrastructure presents one such way to improve water quality and quantity through land-use decisions, but its economic benefits—the communication of which is essential to swaying developers to consistently engage with sustainable planning—are poorly understood. This research aimed to strengthen the case for integrated land-use and water planning that results in successful water conservation efforts. Looking at residents of the Bucking Horse neighborhood in Fort Collins, the team explored the perceptions of green infrastructure within the community. They found residents did not favor the native landscaping; most preferred mowed turf lawns, and many admitted they did not know native landscaping reduces the amount of water needed for neighborhood irrigation. These findings provide important insights for the city of Fort Collins and local developers and landscape architects, emphasizing the need to educate the public on the significant hydrological benefits of green infrastructure.



In the arid West, succulents and desert plants that require much less water can be used for native landscaping—one form of green infrastructure (left); caused by a lightning strike, the High Park Fire burned more than 87,000 acres in 2012 and can be seen here from Horsetooth Reservoir.

A systems modeling approach to quantify forest fuel treatment effects on wildfire severity and post-fire erosion | Tony Cheng

Wildfires in the western U.S., especially in Colorado, are growing in size and severity, negatively impacting water quality and municipal water collection and storage systems. Following these fire events, hydrogeomorphic processes such as increased peak flows, sedimentation, debris flow, and channel reconfiguration can also impact infrastructure, aquatic and riparian habitat, property, and human safety. As a result, water providers and watershed coalitions are increasingly interested in proactively managing forest fuels in order to reduce the severity of future wildfires and, in turn, reduce the negative post-wildfire impacts to water resources. In hopes of enhancing their accuracy, this research identified the limits of models currently used to predict post-fire impacts. Such models cannot precisely predict sediment yields and erosion at very fine scales. Their performance also worsens when using remote sensing and GIS to characterize bare soil and terrain—knowledge of which factors would greatly improve erosion model prediction accuracy. To address these shortcomings, the team is finalizing an integrated fire, erosion, and sediment transport model for characterizing wildfire risk to water supplies. Already this work has supported fuel treatment decisions in a large watershed (Peaks to People Water Fund, working on the Cache la Poudre) and has been used to assess the effectiveness of post-fire watershed rehabilitation treatments for an ongoing project with the City of Boulder.

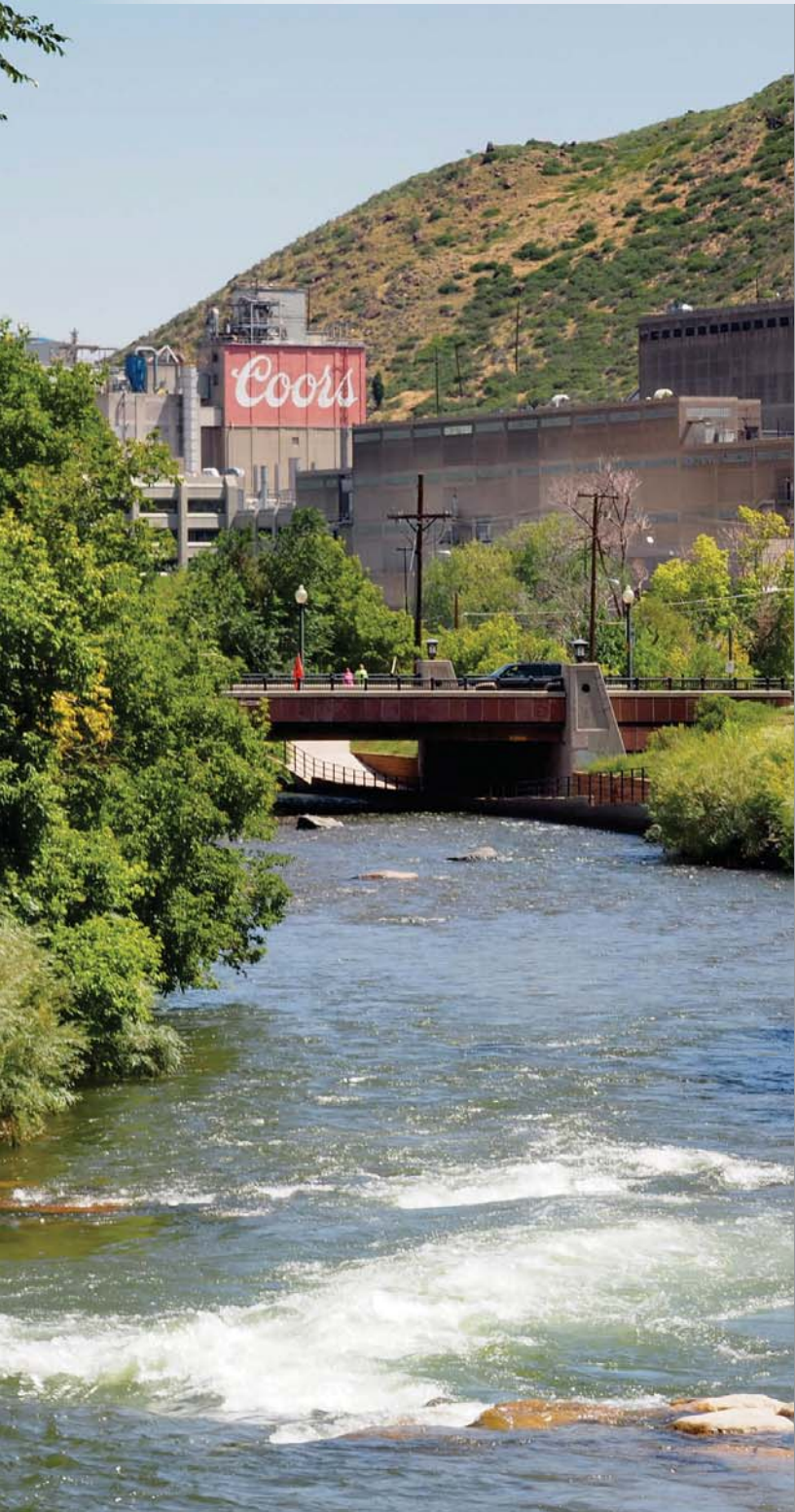


Developing a comprehensive understanding of metal impacts on stream ecosystems in Colorado | William Clements

Recognized as one of the most significant environmental challenges facing the West, metal pollution from historical mining operations is a pervasive problem in Colorado's waterways. Making matters worse, restoration practitioners are often unable to quantify how effective such stream restoration projects actually are. This research explored what factors influence the success of restoration efforts in metal-contaminated streams in the Upper Arkansas River Basin in southern Colorado. The team analyzed water and tissue samples, confirming a continued decline in trace metals—the result of ongoing restoration in the area. They then looked at macroinvertebrate communities (such as crayfish and insects like dragonflies), which are often used as a measure of ecological health in streams. While the status of many species has improved, the team found downstream communities to be significantly different compared to those upstream; the former have shifted to an alternative state of stability. Downstream macroinvertebrate communities had developed—and retained—a substantially higher metal tolerance than their upstream counterparts, despite significant improvements in water quality. This tolerance may have come at a price for these animals: they are much more sensitive to other stressors such as diesel fuel. We do not yet know if they will ever fully recover. This long-term assessment of water quality and macroinvertebrates represents the most comprehensive and continuous record of physical, chemical, and biological data available for a stream ecosystem in North America, and can be used to assess restoration effectiveness and inform treatment guidelines for water managers. Future studies will continue to assess changes in the water quality and ecological integrity of the Arkansas River in response to a large-scale restoration program, with a particular focus on understanding why downstream communities have not fully recovered.

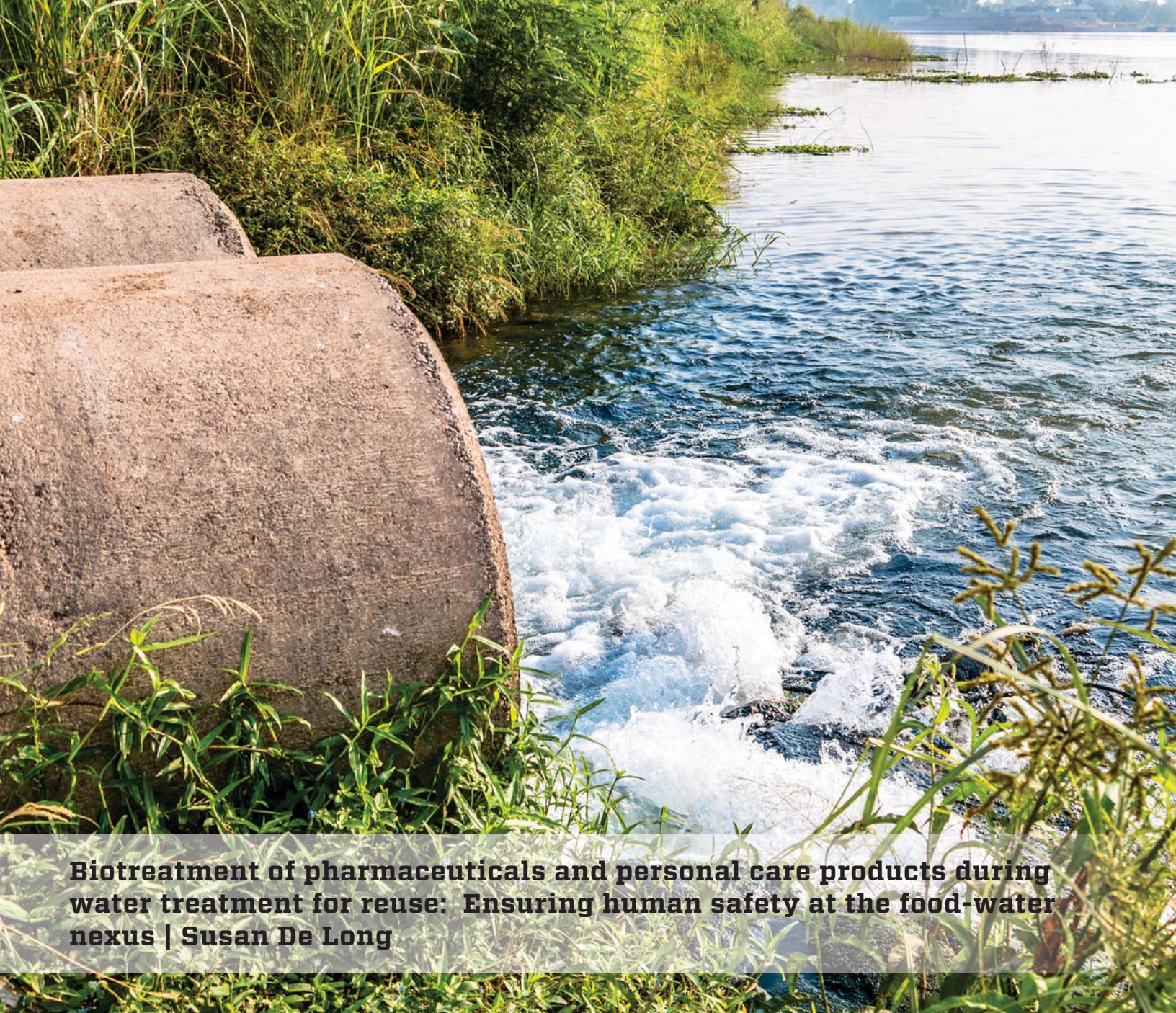


Commercial water demand | Jesse Burkhardt



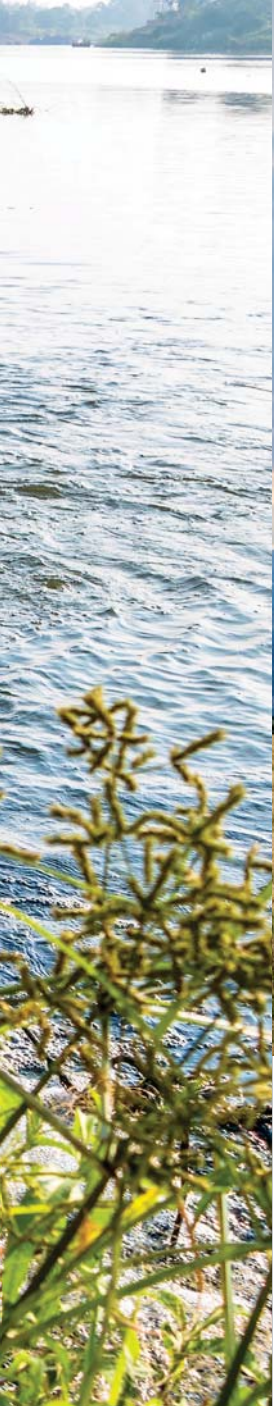
In recent years, droughts in the American West have led to estimated economic losses of \$20 billion. In Colorado alone, industrial and municipal water demands are expected to exceed available water supplies by as much as 630,000 acre-feet by 2050. With climate change-driven drought looming and demand for water resources rising, policymakers have begun to explore a variety of tools to foster more sustainable water use and water conservation across the state. Yet little is known about commercial responsiveness to utility policies, making it difficult for municipal utilities and policymakers to anticipate the effectiveness of pricing policies. In response, this research sought to establish a better understanding of how to motivate more sustainable water use in the commercial sector—which is expected to have the largest demand increase of any sector in Colorado River Basin. Looking at commercial operations in Fort Collins including industrial water users, restaurants, breweries, car washes, business offices, and more, the team found that these firms respond more to previous period (lagged) average prices than to contemporaneous (current period) marginal prices. They also found that price responsiveness varies significantly among different commercial categories. These results have important implications for utilities and policymakers facing the water supply and demand gap. If a municipal entity like Fort Collins Utilities is able to predict which commercial operations will have the greatest increase in water demands, it can utilize water price policies to manage future demand and minimize the gap. If that growth is expected to come primarily from the less price-responsive commercial categories, utilities and policymakers will need to test the effectiveness of non-price conservation policies.

The Arkansas River flows just east of the town of Salida, Colorado, from its headwaters in the Sawatch and Mosquito mountain ranges in the Rockies (left); the Coors brewery in Golden, Colorado, is the largest single brewery facility in the world, placing huge demand on the state's water resources.

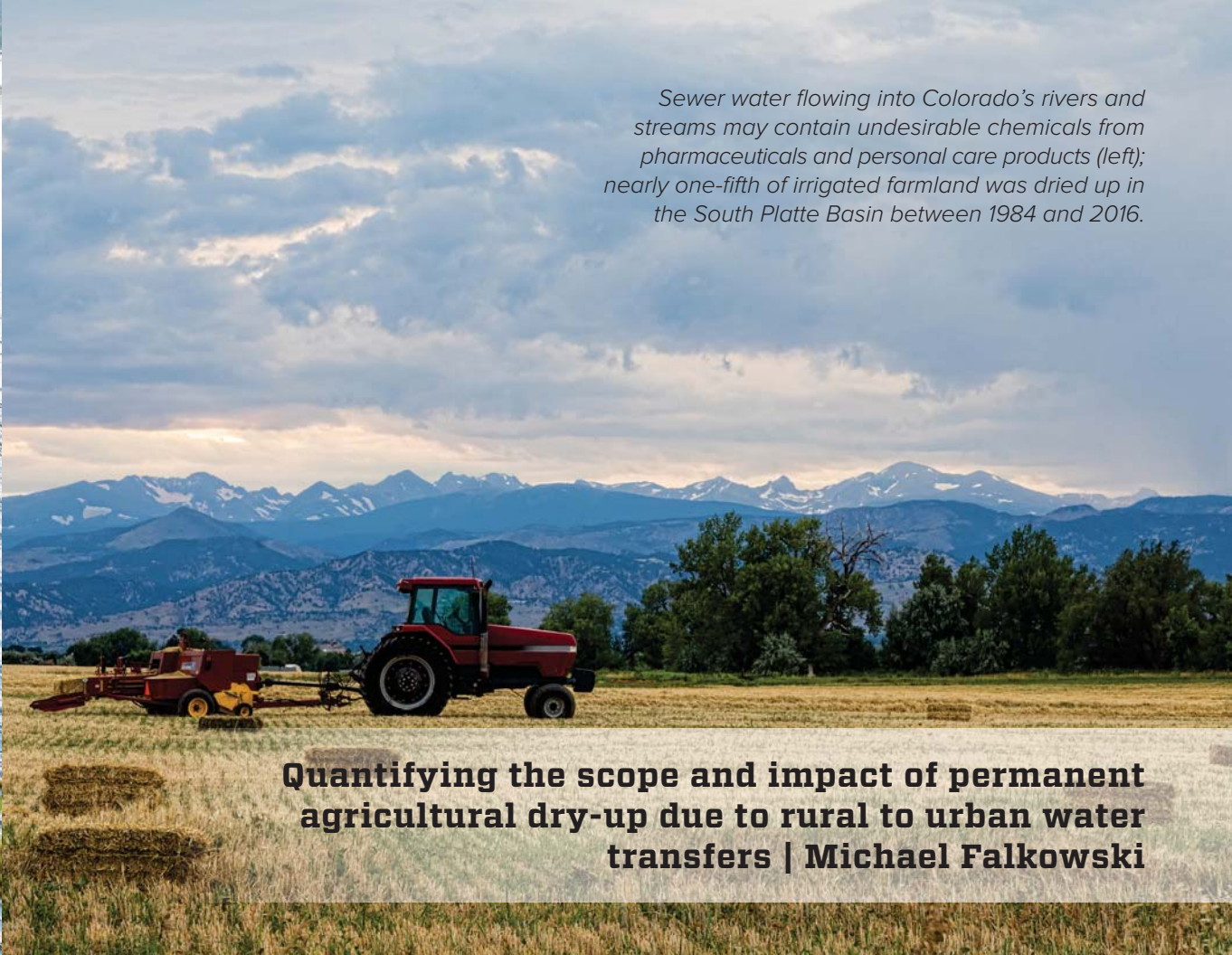


Biotreatment of pharmaceuticals and personal care products during water treatment for reuse: Ensuring human safety at the food-water nexus | Susan De Long

Pharmaceuticals and personal care products (PPCPs) are routinely detected in treated wastewater, surface water, and even sometimes potable water supplies—representing a potential risk to human health if consumed in drinking water or irrigated food supplies. While some physical and chemical treatment technologies exist (advanced oxidation or reverse osmosis, for example), they are expensive and energy-intensive, and can produce problematic waste streams. They are also only implemented for water reuse projects, which typically occur in arid regions. So while Western water managers are left with expensive and wasteful treatment technologies, non-arid regions and ecosystems remain entirely vulnerable. Biological PPCP removal, on the other hand, can use microorganisms to degrade contaminants and can be designed to have a minimal carbon footprint and no problematic waste streams. However, commercially viable options for bio-treatments are not yet available. This research explored which microorganisms are best at transforming or removing a range of PPCP chemicals commonly found in water, and identified the specific biotransformation mechanisms (i.e., genes and enzymes) involved in such processes of biodegradation. Efforts like these are critical to advancing biological PPCP treatment technologies and to ultimately bringing them into widespread practice.



Sewer water flowing into Colorado's rivers and streams may contain undesirable chemicals from pharmaceuticals and personal care products (left); nearly one-fifth of irrigated farmland was dried up in the South Platte Basin between 1984 and 2016.



Quantifying the scope and impact of permanent agricultural dry-up due to rural to urban water transfers | Michael Falkowski

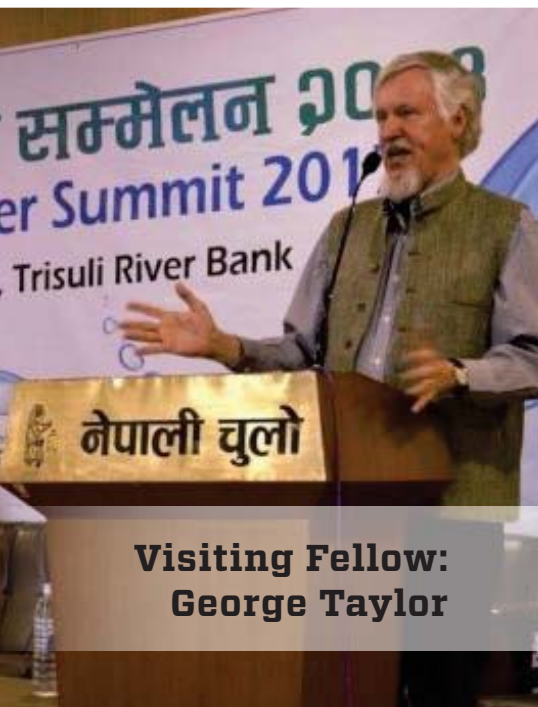
In order to meet growing water demands in urban areas across the American West, water rights are increasingly being transferred from agriculture to municipal uses—a process which typically results in the permanent dry-up of previously irrigated agricultural land. Ultimately, this can have a significant impact on the economic viability of rural communities as well as the ecological integrity of surrounding landscapes. The scale of the agricultural dry-up has not been well documented, and the underlying processes and resulting impacts are not well understood. In response, this research developed an integrated, multidisciplinary approach for understanding the scale of permanent dry-up and how land conversion occurs over time. The team piloted an approach using remote sensing data and an automated data processing method to identify farms that have experienced agricultural dry-up, and found that nearly 100,000 acres of irrigated farmland in the South Platte Basin had dried up between 1984 and 2016. During the same period, water rights historically used to irrigate more than 86,000 acres of farmland in the Basin were transferred from agricultural to municipal uses. As urban water demands rose (and were met via these transfers), regional economy activity increased by \$250 million. Clearly, dry-up has significantly influenced the landscape in the South Platte Basin, but the economic impacts of these changes are small relative to the size of the regional economy. These findings imply dry-up will continue to occur in the western portion of the Basin, but agriculture is likely to persist in the lower portion. The research also supports policies that can facilitate the conversion of dried land to valuable uses (such as recreation) to broaden the benefits to the growing population in the Basin.



ENGAGEMENT + COLLABORATION

The Water Center serves and engages CSU students and various local, regional, national and international stakeholders on water resources issues. It disseminates information on water-related opportunities such as events, jobs, internships, scholarships, and funding, and promotes knowledge about water resources and issues in K-12 schools and educational organizations.

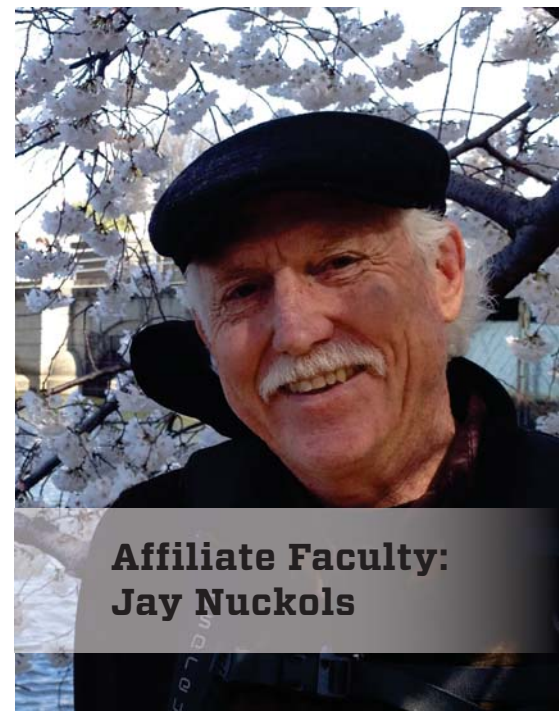
The Center also cultivates strategic partnerships, some of which help translate research into practice, while others raise community awareness or inform water policy. In FY18, the Center brought together communities on campus and off by hosting or supporting more than a dozen seminars, conferences, and events around relevant water topics. It also served as a sponsor and provided funding for CSU students to attend a variety of events, such as the Poudre River Forum and CSU Hydrology Days.



**Visiting Fellow:
George Taylor**

In FY18, the Center welcomed George Taylor as a visiting fellow. Building upon a two-year fellowship at CSU's School of Global Environmental Sustainability during which he explored water resources management issues in High Mountain Asia (also known as the Third Pole), George's research focuses on the Hindu Kush Himalaya. He collaborates with groups in Nepal, India, and Bhutan on river basin management, the multiple values of rivers, aquatic biodiversity, and the development of hydropower. These efforts emphasize inclusivity—engaging diverse stakeholders and considering a full range of perspectives, from seismic risk to the rights of nature. George is the Director of Philanthropy Support Services at PaxTerra Inc., whose mission is to leverage domestic and international private sector investments for prosperity creation, poverty alleviation, and reduction of income inequality. He is also a member of the advisory council of the Center for Asian Studies at CU Boulder and has served as its chair since 2016.

Jay Nuckols, CSU Emeritus Professor of Environmental Health Sciences, joined the Center as an Associate Affiliate Faculty in FY18 to further cross-discipline collaboration between CSU water and health science faculty, primarily through international initiatives. During this time, he represented the Colorado Water Institute (CWI) on the US committee of the UNESCO International Hydrological Programme and led a CWI effort to integrate environmental health sciences into a USAID Egyptian Water Center proposal. He also initiated a memorandum of agreement for interdisciplinary research, teaching, and scholarly exchange with the Oswaldo Cruz Foundation in Brazil—one of the most prominent institutions of science and technology in health in Latin America. Jay's career spans more than 40 years as an engineer, with strong roots in "science for the public interest." He studies environmental contaminants in order to design of intervention strategies for environmental and public health protection.



**Affiliate Faculty:
Jay Nuckols**



World Water Day

World Water Day is observed annually on March 22 to focus global attention on the importance of water. To celebrate, the Center partnered with CSU's Department of Design and Merchandising and the Student Sustainability Center to host a screening of *RiverBlue*, which explores "fast fashion"—one of the world's most polluting industries. The documentary highlights polluted rivers and devastated communities, as well as solutions for a sustainable future. The Student Sustainability Center coordinated a 1,000-pound display of discarded denim to emphasize the importance of reusing and recycling clothing that would otherwise end up in landfills; the articles of clothing were donated to a local Goodwill following the event.



RIVERBLUE

In partnership with the Environmental Justice Working Group (sponsored through the School of Global Environmental Sustainability) and the Colorado Water Institute, the Center hosted a one-day symposium on water equity and environmental justice on October 18. The day included stories and dialogue with authors, academics, and citizens about their experiences with the privatization of water, water as a human right, and access to safe water and sanitation for everyone. David Archambault II, Chairman of the Standing Rock Indian Reservation, delivered the keynote address on the Dakota Access pipeline conflict. More than 175 faculty, staff, students, and interested citizens participated in the event.



Stories of Water Equity and Environmental Justice Symposium



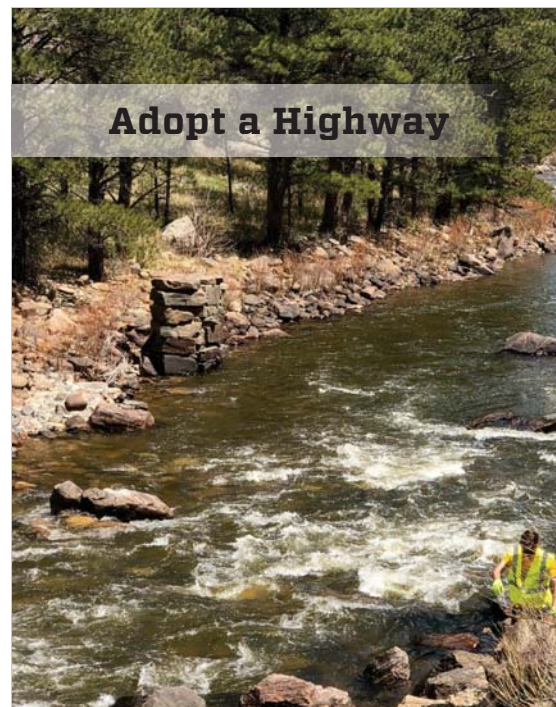
International Water



The Center convenes a 15-member International Water Work Group (IWWG) tasked with creating and supporting a vision of international water research, education, and engagement at CSU. The IWWG includes faculty from various departments, as well as staff from the Office of International Programs and the Office of Vice President for Research.

As part of the Work Group's efforts, the Office of the Vice President for Research and the Water Center co-sponsored a delegation to attend the 2018 World Water Forum in Brasilia, Brazil. The delegation included Melinda Laituri, professor of Ecosystem Science and Sustainability; Jay Nuckols, emeritus professor of Environmental Health Sciences; and Scot Allen, international research strategist in the Office of Vice President for Research. The forum takes place every three years and is organized by the World Water Council. CSU faculty, staff, and administration will continue to attend and participate in future World Water Forums, foster collaborations with US and international universities and partner organizations, and strengthen relationships with CSU alumni working in international water.

Adopt a Highway



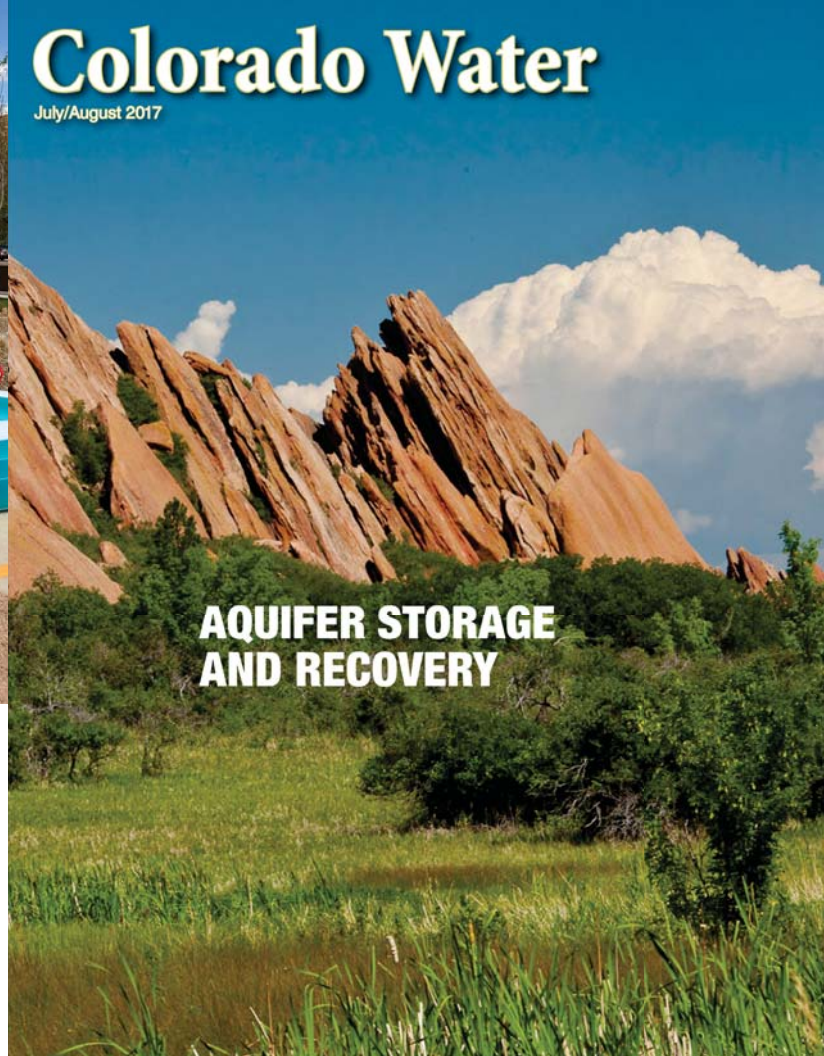


Hach Walk

CSU and the Water Center sponsored the 5th Annual Hach Walk for Water—a campaign to build awareness of global water crises and raise funds for community water treatment systems. The walk simulates the daily miles-long trek millions of women and children must make to retrieve water, shedding light on the challenges people around the world face in search of a resource often taken for granted in the US. On May 5, nearly 400 participants walked and over \$70,000 was raised to provide a clean water pump like the one pictured above for a community in Tanzania.



In Colorado, roadside litter costs millions of dollars each year to control, and it is often impossible to keep up with the trash that gets dumped. To help address this problem along the heavily-trafficked Poudre Canyon Road, the Center adopted the stretch of highway between mile markers 115 and 117 in December. Quarterly clean-ups maintain the scenic beauty and natural habitats for all who enjoy the Poudre River. In April, undergraduate students participated in one such clean-up as part of CSUnity.



AQUIFER STORAGE AND RECOVERY

Published by the Center and Colorado Water Institute, *Colorado Water* is devoted to water-related research and activities at CSU and throughout Colorado. Since 1995, the newsletter has shared in-depth looks at themes such as agricultural water conservation, the Colorado Water Plan, aquifer storage and recovery, and the Colorado River with nearly 2,000 subscribers. It also serves to highlight the research projects and fellowships of the Center's annual grantees and outstanding student research around water. Colorado State Forest Service, the Colorado Climate Center, and CSU's Water Resources Archive often lend their expertise to the publication as well.

SWIM

Offered in partnership with the School of Global Environmental Sustainability and administered through the Water Center, the **Sustainable Water Interdisciplinary Minor (SWIM)** offers undergraduates an opportunity to learn about the many dimensions of water resources and management. In preparation for careers in water or graduate study, SWIM students have access to extensive water expertise and take courses on a variety of subjects, including agriculture, economics, engineering, natural resources, sustainability, and water law and policy.

11 students from 7 different majors were enrolled in SWIM in FY18

GRAD 592

GRAD 592, Interdisciplinary Water Resources Seminar is a one-credit graduate level seminar offered each fall. Seminars focus on different water-related themes and feature guest lectures by prominent water professionals. In 2017, students learned about **Water Management in Colorado**—the roles of various water agencies, the bearing of the political process on water management, and the analytical and data tools used in tracking and managing water in Colorado.

22 students were enrolled and many others from the campus community participated in weekly discussions



My generation has a huge responsibility to do right by people and the environment. We are all working together to find sustainable solutions to the ever-demanding water scarcity issues we are facing as a global community.

Eveline Vega, SWIM student and Spring 2018 graduate in Biology

SWIM gave me a way to apply my studies in agronomy to the relationship between soil and water—which is important if I look for a job in the West. My favorite course was Irrigation Principles because I'll use it all the time.

Rachel Vorwerck, SWIM student and Fall 2017 graduate in Soil and Crop Sciences

CSU faculty teach more than 180 water-related courses at the undergraduate and graduate levels. As water issues and priorities change over time, new courses, degrees and certificates are developed. The university offers nearly 30 undergraduate programs, advanced degrees, and minors around water, including agriculture and resource economics, business administration, civil and environmental engineering, sociology, and watershed science.

The Center also facilitates a variety of ways for students to engage with water, including the Sustainable Water Interdisciplinary Minor (SWIM) and annual graduate-level water resource seminars.

Ecosystem Science and Sustainability associate professor and Water Center Executive Committee member Stephanie Kampf talks with Watershed Science students on a tour of Copper Mountain Resort during a Watershed Field Practicum class (left); SWIM students graduate in Spring 2018, including (from left) Kevin Allen, Zoe Eby, Veronica Travers, and Prashan Gurung, pictured with Executive Committee Chair Reagan Waskom.





NATIONAL WESTERN

POLICY

Data analysis + visualization
Policy research
Decision support

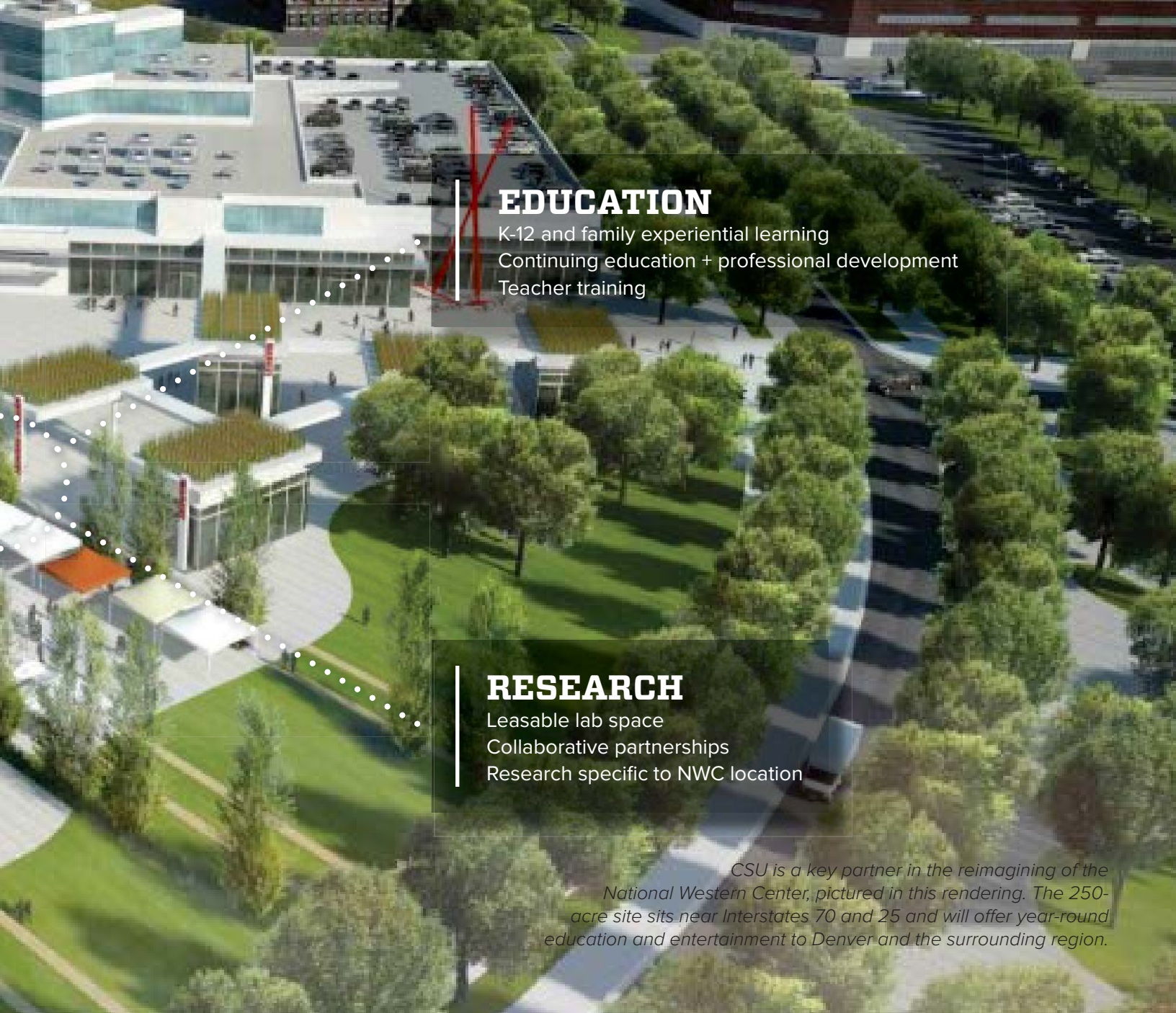
INNOVATION

Support for business incubation + acceleration
Access to CSU researchers
Create solutions to water, food, energy challenges

In FY18, work to expand the influence of the Water Center beyond CSU's Fort Collins campus continued in the form of the university's new CSU Water Building at National Western. This new hub will be a collaborative space in which a variety of stakeholders can engage with water education, research, innovation, and policy. Opening in 2021 as the inaugural facility at the National Western Center, the CSU Water Building will bring together water experts and thought leaders to address the most pressing water issues facing the region, the country, and the world.

The mission of the CSU Water Building is unprecedented: advancing state-of-the-art practices in water, providing a place for water-oriented conversations and conferences, highlighting linkages between water and urban and rural food systems and energy, connecting water users with problem-solvers, showcasing water sustainability, and fostering collaboration across sectors. Located just steps from a restored section of the South Platte River in north Denver, it will also provide a home for community activities and hands-on water education for students and families.





EDUCATION

K-12 and family experiential learning
Continuing education + professional development
Teacher training

RESEARCH

Leasable lab space
Collaborative partnerships
Research specific to NWC location

CSU is a key partner in the reimagining of the National Western Center, pictured in this rendering. The 250-acre site sits near Interstates 70 and 25 and will offer year-round education and entertainment to Denver and the surrounding region.

The CSU Water Building will showcase the pioneering spirit of the West—a place of connection across disciplines, geographies, and eras. It sits within a rich and dynamic community and historical context, with a focus on the future and addressing global challenges in ways that reflect the spirit of Denver, Colorado, and the West. Situated as such, the new outpost will be poised to foster collaboration among recreational groups, municipalities, agricultural businesses, environmental groups, government agencies, nonprofits, startups, educators, and community members with the aim of advancing water innovation in the West and beyond.

In April, the first Water in the West Symposium launched the vision for the CSU Water Building, showcasing diverse perspectives in water. The discussion at the Symposium mirrors what will happen at the new center—efforts to educate, innovate, and engage with policy. CSU President Tony Frank noted the university's unique role as a convener for these conversations around water, emphasizing its capacity to break down boundaries, create new knowledge, and disseminate that knowledge.

LEADERSHIP

Executive Committee



Reagan Waskom

Colorado Water
Institute



Allan Andales

Soil and Crop
Sciences



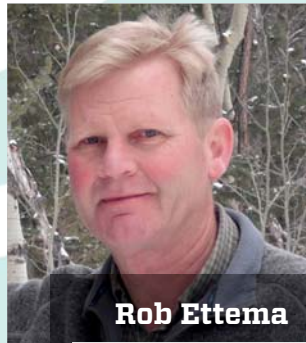
Peter Backlund

Global Environmental
Sustainability



Kevin Bestgen

Fish, Wildlife, and
Conservation Biology



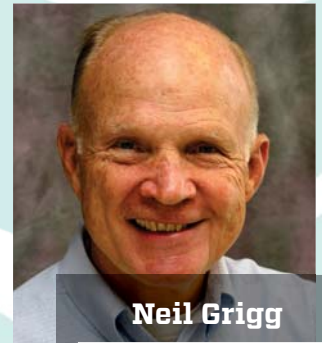
Rob Ettema

Civil and Environmental
Engineering



Chris Goemans

Agricultural and
Resource Economics



Neil Grigg

Civil and Environmental
Engineering



Kelly Jones

Human Dimensions of
Natural Resources



Stephanie Kampf

Ecosystem Science
and Sustainability



Gene Kelly

Soil and Crop
Sciences

The Center's faculty-led Executive Committee represents a broad range of water expertise from across CSU, strengthening the University's commitment to water in the campus community and beyond.





Stephanie Malin

Sociology



LeRoy Poff

Biology



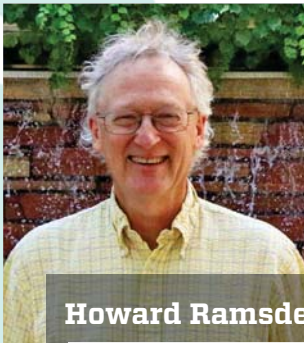
James Pritchett

Agricultural and
Resource Economics



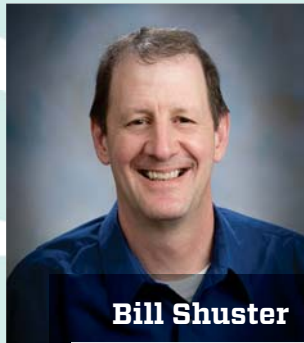
Jorge Ramirez

Civil and Environmental
Engineering



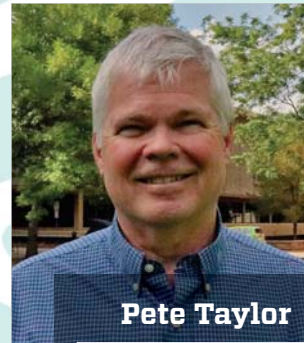
Howard Ramsdell

Environmental and Radio-
logical Health Sciences



Bill Shuster

Business
Management



Pete Taylor

Sociology

Water Center Staff



Julie Kallenberger

Water Education and
Outreach Specialist



Beth Plombon

Student Intern
Sociology

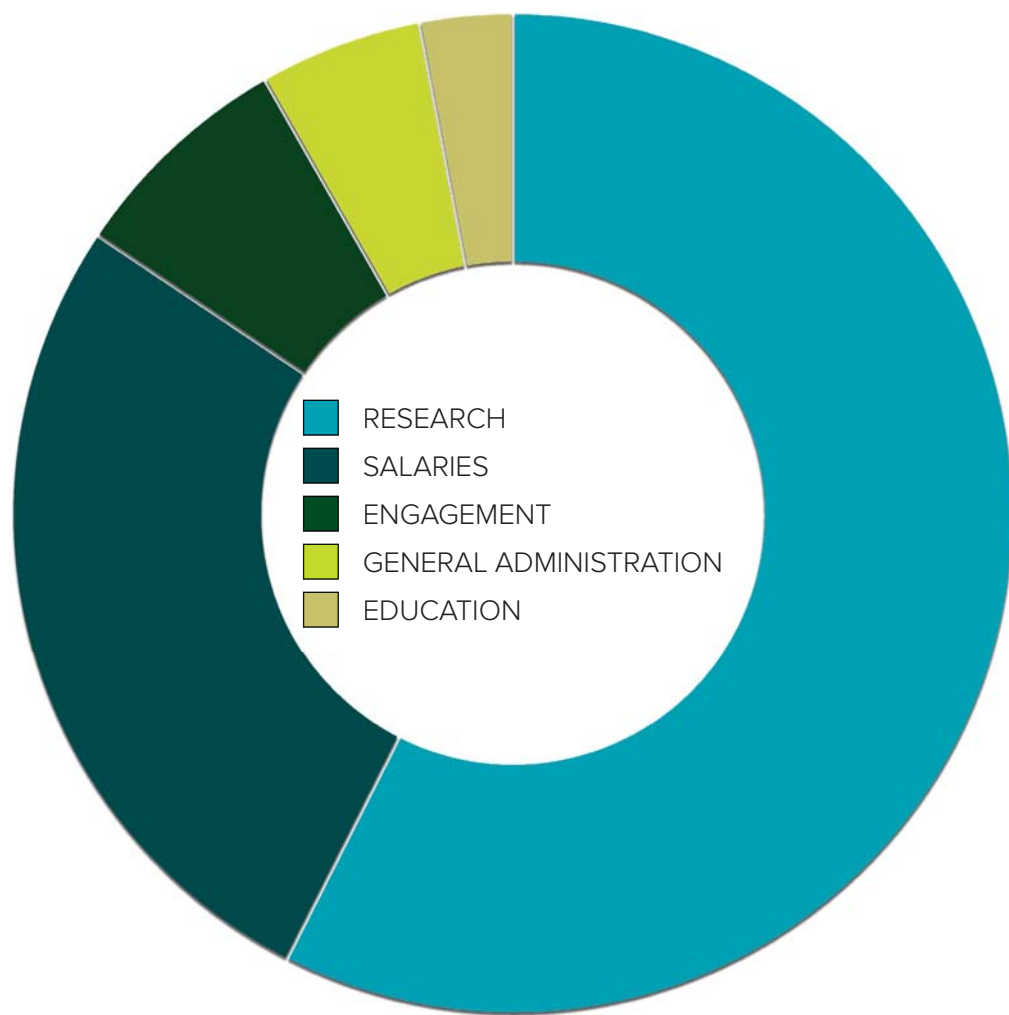


Catie Boehmer

Student Intern
Natural Resources



FINANCIAL SUMMARY



RESEARCH	\$126,775.39
Faculty research teams	\$96,775.54
Faculty fellows	\$29,999.85
EDUCATION	\$6,632.56
Sustainable Water Interdisciplinary Minor, GRAD592, short courses	\$1,567.79
The Current and Colorado Water	\$5,064.77
ENGAGEMENT	\$16,169.23
Conferences, seminars, and workshops	\$12,523.39
Student engagement	\$3,645.84
SALARIES	\$59,368.43
Staff	\$42,280.98
Student Interns	\$17,087.45
GENERAL ADMINISTRATION	\$11,614.39
Materials and supplies	\$3,987.21
Operating expenses (phones, mail, hardware, software)	\$1,157.11
Travel	\$5,086.46
Marketing	\$1,383.61
TOTAL	\$220,560.00



WATER CENTER

COLORADO STATE UNIVERSITY

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FY18 ANNUAL REPORT