



The Water Report™

Water Rights, Water Quality & Water Solutions in the West

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Klamath Hydro Settlement

Irrigation District Upgrading

& More!

WATER RIGHTS TRADING

MARKET PERFORMANCE AND METRICS OF WATER RIGHTS TRADING ACROSS THE WEST

by Clay Landry, Managing Director; Harry Seely, Principal; Matt Payne, Principal; Bill Mennell, Research Associate; and Audrey Arnao, Research Analyst
WestWater Research, LLC (Boise, ID; Phoenix, AZ; Brush Prairie, WA; Fort Collins, CO)

Introduction

Throughout the western United States, regulatory, technical, and financial challenges have slowed the development of new water supplies. Reallocation of existing water supplies is increasingly relied upon to address changing water needs. Reallocation of water is largely occurring through market-based transactions of water rights and other types of water entitlements. These market-based transactions are concentrated in areas where economic growth, drought, and regulation have shaped robust water rights markets.

This article provides an overview of water market activity across the western United States, beginning with a description of several events over the last 30 years that influenced the establishment of regional markets. Data is presented on the overall market size measured in total volume and value as well as the distribution of market activity across western states. The article reviews active sectors buying and selling water and discusses commonly traded types of water entitlements and transaction structures. It concludes with an analysis of three regional markets to examine how factors such as growth, drought, and regulation influence trading and price performance. Data presented in the article is from Waterlitix, a database of water right price and sales information for western water markets that WestWater Research developed and actively updates.

The Arrival of Water Markets

Water markets are often described as a relatively new arrival in the western United States. The reality is that water trading has been occurring in nearly every western state on a regular basis for at least the past three decades. Prior to the 1990s, market activity was relatively sporadic with only a few established market regions where trading routinely occurred. The market for water began to take shape in an organized way in the early 1990s when the State of California established drought emergency water banks that were intended to ease supply constraints by facilitating temporary transfers of water from agricultural to urban water uses. That program became the foundation for the California single-year lease or “spot” market, which is now the largest and most significant part of the western US water market.

Market activity continued to expand across the West during the 2000s, initially spurred by power generation development seeking to capitalize on cheap natural gas and a deregulating power market. The siting process for new gas-fired plants focused on access to fuel sources and transmission but often overlooked water supplies needed for cooling purposes. Realizing their oversight, project developers quickly turned to the marketplace and began buying water rights from neighboring agricultural lands. In several locations, these initial trades provided the catalyst for current market activity.

Water Markets

Dedicated Water Rights

Investment Funds

Limited Supplies

Market Regions

Transaction Density

The market coalesced in the mid-2000s as the housing market heated up in response to liberal lending practices and the rise of new mortgage-backed financial products. Projected housing growth pushed many western communities to the limits of their water rights portfolios. Growth prompted some cities and municipal water districts to enter the market, while others enacted or updated policies that required land developers to dedicate water rights as part of the real estate developments entitlement process. Water market prices across the western US went through a significant period of price appreciation and price discovery during the runup of the housing market. Several regional water markets recorded some of the highest prices paid to date for water during that time.

During this period, the market also saw the formation of several dedicated water investment funds that were seeking to deploy capital in water rights and other related assets. The majority of these funds were focused on capital appreciation strategies, believing that water rights were inherently underpriced and would be worth more in the future once market activity and demand matured. This was the first time that institutional capital began viewing water as an asset class and investment opportunity.

Water trading activity slowed, and prices softened, immediately following the housing crisis of 2008. However, the market slump was short-lived. An agricultural boom and shift to high-valued irrigated crops were in full swing just as much of the western US entered severe drought conditions. An expanding fruit and nut industry prompted significant acreage expansion in places like California and central Washington where limited water supplies were further exacerbated by continued drought conditions from 2012 through 2016. With valuable crops in the ground, the agricultural sector began leasing water to survive the drought.

Since the drought, market activity has stabilized and there are now 20 distinct market regions across the West where trading activity routinely occurs. These markets have formed at a local and regional level in response to a variety of market conditions, public policy, and ultimately the need to supply water for growing and changing demands. Some markets have distinct trading boundaries defined by geographic features such as river and groundwater basins. Others are defined by court decrees or local and state jurisdictions. Some emerging markets have boundaries yet to be delineated.

Figure 1 provides an illustration based on transaction density to help define where these market regions are located within the western United States. As shown by the figure, several of the more active markets are in regions experiencing significant population growth such as southern California, the Front Range of Colorado, and central Texas near Austin and San Antonio.

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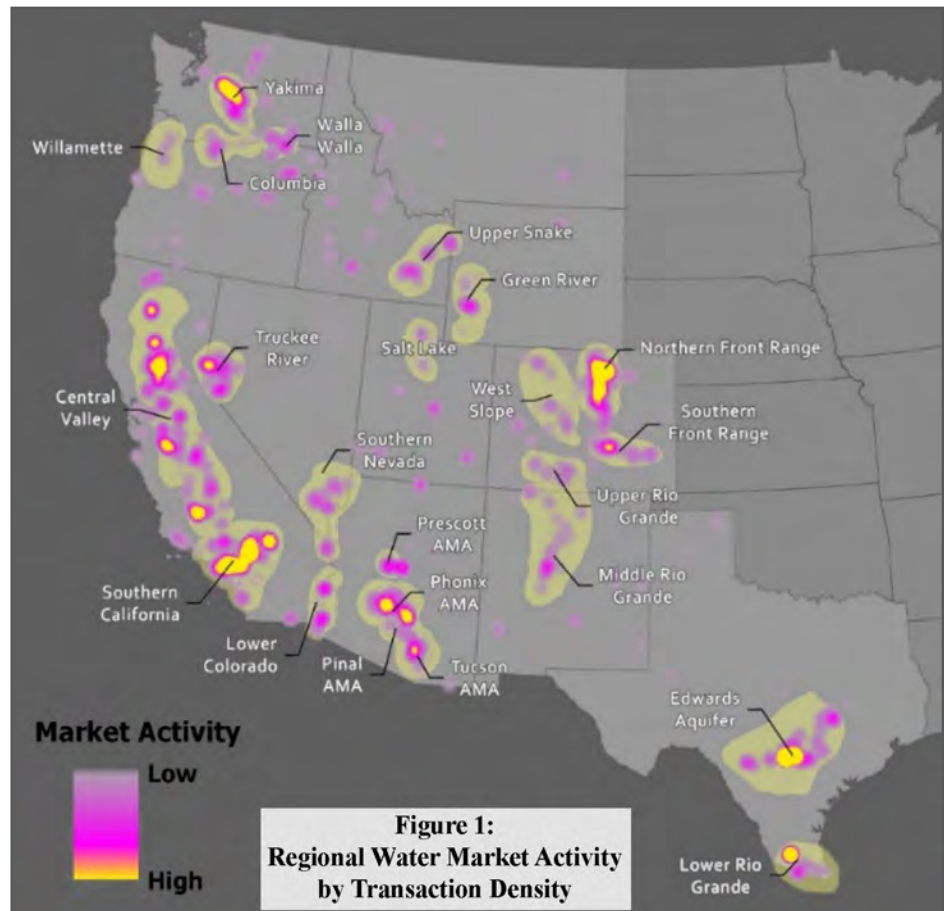
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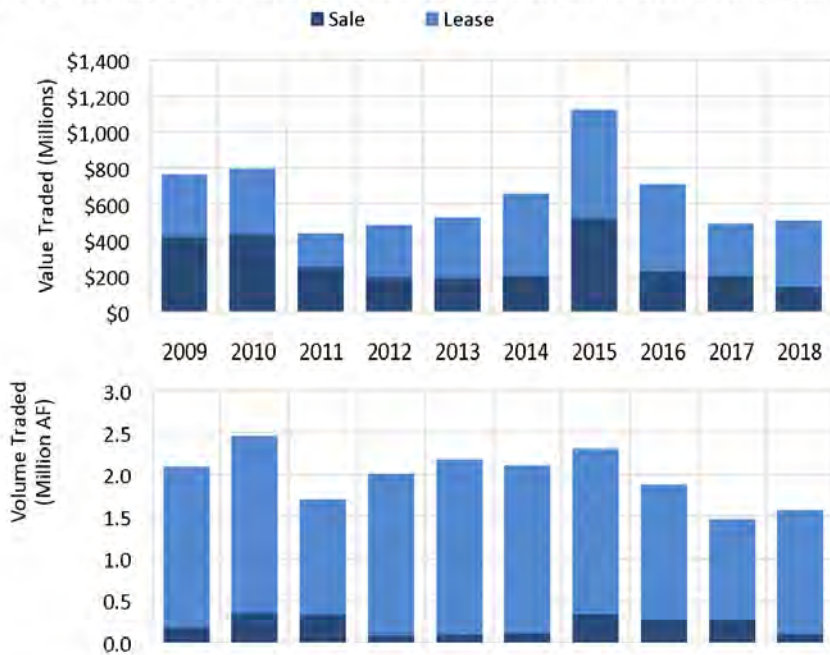
**Figure 1:
Regional Water Market Activity
by Transaction Density**

Water Market Size and Activity

The overall size of the western US water market is relatively small when compared to other natural resources that are more commonly traded. The market size in 2018 was 1.8 million (M) acre-feet traded through leases and sales with a total market value of \$513M. Figure 2 shows the total volume and valued traded over the last ten years across the western United States. Market activity has been relatively stable and flat since the drought broke in 2016.

The market has proven to be an important source of water during drought conditions. At the peak of the drought in 2015, it reached a record high of \$1.1 billion (B) in valued traded. The total value traded in that year was at near record levels of 2.3M acre-feet. Nearly half of the total value traded in 2015 came in the form of permanent purchases with approximately 57% traded in California followed by Colorado at 20% and Nevada at 10%.

Figure 2: Volume & Value Traded Across the Western United States, 2009-2018



Market Activity

Regional Market Share

The largest markets by volume and value occur in California followed by Colorado, Arizona, and Texas. The value and volume of water traded annually in California is nearly four times that of other states. Over the last decade, a total of \$3.9B of water has traded throughout California. Colorado is the next closest state at \$1.0B. Figures 3 and 4 illustrate the level of market activity in each western state.

Figure 3: Total Value Traded by State 2009-2018 (\$Millions)

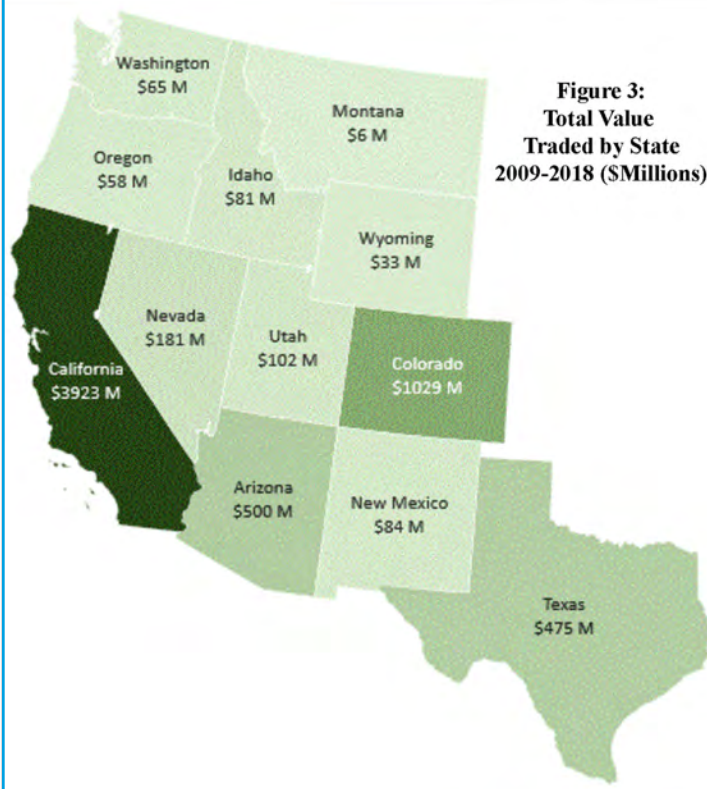


Figure 4: Total Volume Traded by State 2009-2018 (Thousands of Acre Feet)

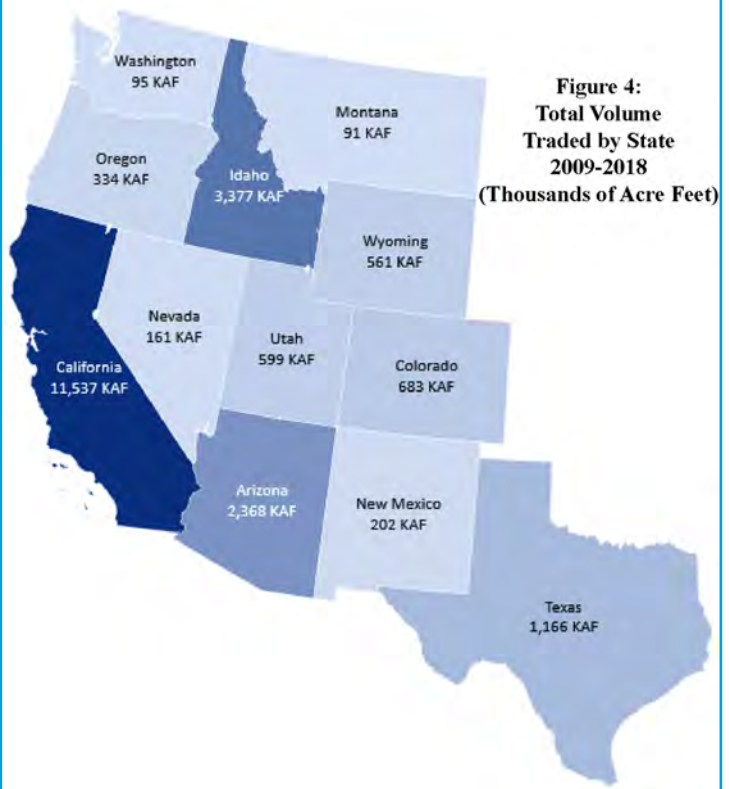


Figure 5: Western Water Supply Sectors, 2009-2018

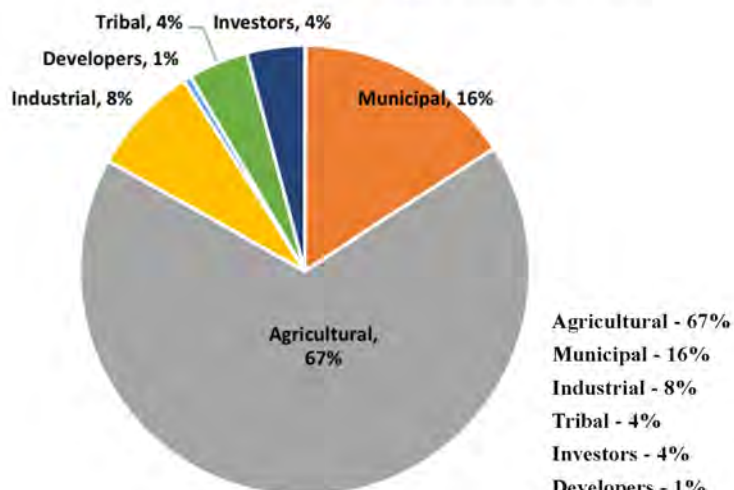
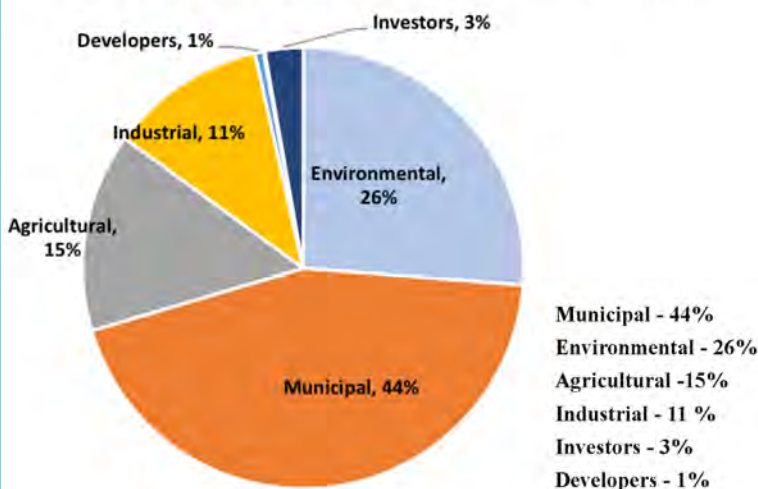


Figure 6: Western Water Market Demand Sectors, 2009-2018



Market Participation: Agricultural Sector

The agricultural sector is the main source of water in many of the regional markets. Figure 5 presents the share of market transactions by volume for each sector supplying the market over the past 10 years. Approximately 67% of total volume transacted in this timeframe originated from the agricultural sector. Agriculture’s market share as a supplier has fallen over the last ten years by around 8%. The industrial sector, investors, and Tribes are starting to capture more market share and have each increased market participation by 4 to 6% over the last ten years.

On the demand side, participation remains relatively stable with municipalities continuing to represent the largest buyer category with 44% of total market share over the last ten years. Figure 6 presents the share of market transactions by volume for each sector on the demand side of the market. Environmental buyers also play a significant role in western water markets comprising approximately 26% of total transactions by volume traded. However, this percentage is much lower by value traded, totaling just 6%, as environmental transactions tend to be focused on regions with less active markets and lower priced water. Water supply firming for agriculture associated with the increase in permanent cropping, especially in California, has prompted agriculture to participate on the demand side in greater proportions. For example, in California, agriculture’s demand side market participation has increased by 6% and 15% by value and volume traded, respectively, over the last ten years.

Commonly Traded Water Entitlements

Surface and groundwater rights are the mostly commonly traded asset class within the market. However, there is range of other types of ownership interests in water that are also traded. These ownership interests are highly regionalized based on local legal and regulatory institutions.

Table 1 provides a summary of the water entitlement types that are commonly traded across the West.

Table 1: Commonly Traded Water Entitlements

Entitlement	Description	Active Markets
Surface Water Rights	Appropriative rights and contracts to streamflow typically based on priority.	West-Wide
Water District or Company Shares	Ownership interest in a water district or company that holds a surface water right	Colorado
Groundwater Rights	Appropriative and correlative rights to groundwater	Arizona California Colorado Texas
Groundwater Storage & Recovery (Groundwater Banking)	Surface water and effluent stored underground in aquifers	Arizona California
Effluent	Entitlement to use treated wastewater	Arizona California Colorado
Storage Water Rights	Entitlement to store water for use in a surface reservoir	California Colorado
Withdrawal Offset Credits	Credits created through retirement of surface or groundwater rights to offset withdrawal impacts	Washington Oregon Idaho

Asset Classes

Water Markets

Leases

Types of Trades

Buyers and sellers use a variety of transaction structures to complete water trades. The most commonly used structure is a single year lease or “spot market” trade that entitles the buyer to a one-time use of water. For example, the California surface water market primarily uses annual or spot market agreements with nearly 90% of all volume traded through one-time use contracts. Environmental transactions within the Pacific Northwest markets also frequently utilize single and multi-year lease agreements for flow augmentation.

Table 2: Commonly Used Transaction Structures by Entitlement

Table 2		Surface Water	Groundwater	Groundwater Storage	Effluent	Storage Water
Traditional	Permanent Sale	•	•	•	•	•
	Spot Market (1-Year Lease)	•	•			•
	Multi-Year Lease	•	•		•	•
	Take or Pay Contract	•	•		•	
Unconventional	Dry Year Option	•		•		•
	Rotational Fallowing	•				
	Conserved Water Project	•	•			
	Partial Season Lease	•				

Municipalities historically have preferred out-right purchases of water rights over other transaction types. However, these type of “buy and dry” trades — where agricultural water rights are transferred to cities — are falling out of favor due to concerns over the impacts to rural economies. Alternative trading structures, such as rotational fallowing agreements and dry year option contracts, are becoming more frequent but are still not widely used. These alternatives keep the water right ownership in agriculture but provide water to urban uses through a variety of conservation and temporary fallowing strategies. The objective is to introduce a new source of income for the

Trading Options

agricultural water right holder while freeing up water to meet demands in cities. Municipalities have been slow to embrace these new types of trades as they are temporary agreements that require management and need to be renegotiated in the future. Table 2 provides a summary of the variety of trading arrangements commonly used for the various entitlements traded across the West.

Market Influences

Major Factors Influencing Market Activity

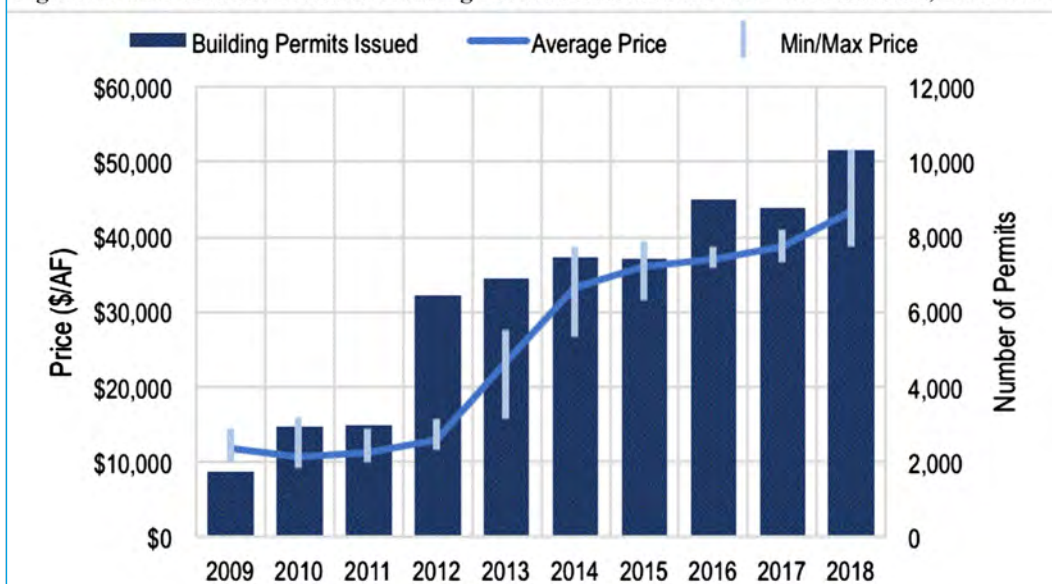
The development and formation of water markets are highly influenced by economic growth, drought, and regulation. The following sections examine how each of these factors have impacted market activity, price performance, or both through regional market examples.

Economic Growth Propels Price and Trading Volume

Economic development stimulates water market trading activity and prices. Municipal water demand is positively correlated with population and economic growth. During the last recession for example, as new housing developments faltered, overall water demand fell in many western municipalities and remained stagnant for several years after the recession. Demand has only recently begun to rebound.

The Northern Front Range of Colorado has experienced substantial new housing development during the past ten years resulting in a significant increase in water pricing (see Figure 7). The region has limited water supply and rigorous regulatory requirements that require real estate developers to secure water entitlements to support their projects. The region features the Colorado Big Thompson (CBT) Project market, which has the highest priced water entitlements in the West and the fastest price appreciation of any water market with a Compound Annual Growth Rate of 15.7% since 2009.

Figure 7: CBT Market Prices & Housing Permits Issued in the CBT Service Area, 2009-2018

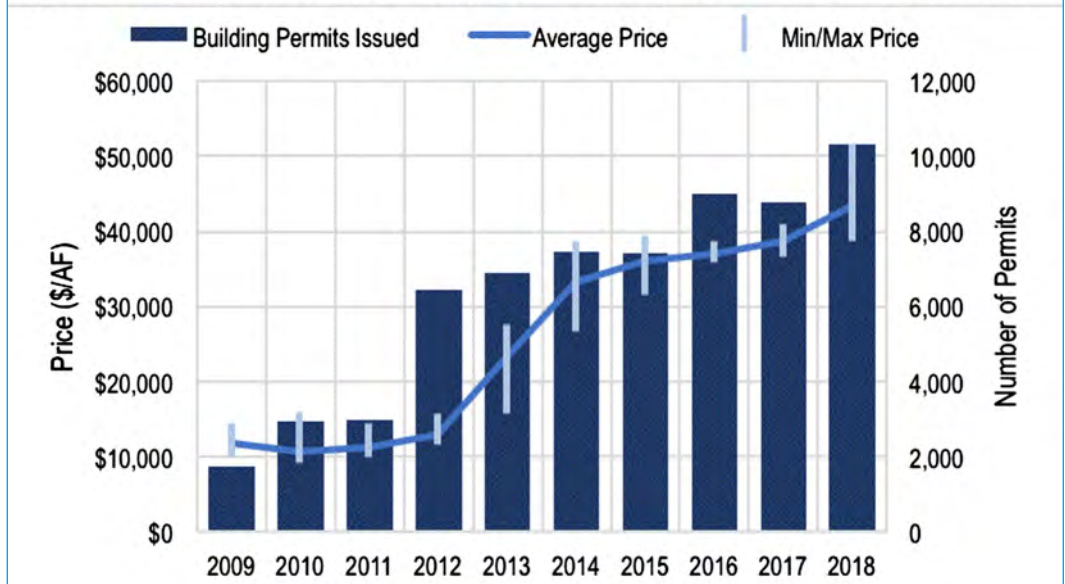


Water Markets

CBT Factors

The CBT market covers a large portion of the Northern Front Range including Boulder and Fort Collins and consists of entitlements to the CBT Project. The CBT Project is comprised of water management and infrastructure that stores and delivers water from the Colorado River west of the Rockies to the Northern Front Range. There are a limited number of units and no feasible project expansion on the horizon. Most of the historically agricultural units have been converted to municipal use leaving little available supply for new development. Some alternatives to CBT units are available in the region but are generally less desirable because they must undergo a lengthy regulatory change process that CBT units do not require. In addition, a number of smaller and younger municipalities in the service area mandate dedication of CBT units for new development projects, since those municipalities lack infrastructure to physically access other supplies.

Figure 7: CBT Market Prices & Housing Permits Issued in the CBT Service Area, 2009-2018



Price Appreciation

Rapid development in the CBT service area has fostered significant market activity and price appreciation. The market price for CBT units has risen from an average of \$9,140/acre-foot (AF) in 2009 to \$43,400/AF in 2018, while building permits have jumped from less than 2,000 to more than 10,000 annually in 2018. Prices in 2019 have continued to rise, with an average price above \$50,000/AF and several transactions exceeding \$57,000/AF.

Drought Drives Trading

Water markets have become an important water management tool during drought conditions. This is particularly true for California’s spot market for single-year surface water transfers within the State Water Project (SWP) and Central Valley Project (CVP).

Drought Tool

California has experienced two major droughts in recent history. The first extended from 2007 through

Figure 8: California Spot Market Trading



2009 and the second and most recent from 2013 through 2015. During both of those drought periods, the spot water market played a critical role in efficiently reallocating water to alleviate shortages. That period also marked the highest spot market prices in California’s history of water trading. Figure 8 shows trading volume during the last two drought cycles. During the first drought cycle, trading volume ramped up each year, peaking in 2009 at 360,000 acre-feet. More recently, trading volume followed a similar pattern as the previous drought but at higher levels. Trading volume in 2013 was 390,000 acre-feet and increased to more than 480,000 acre-feet by the third year of the drought.

Water Markets

Agricultural Buyers

Move Away From Leasing

Dry-Year Option

Regulation Driven

Groundwater Trading

Prices also responded to water supply conditions during each drought with average prices increasing during each consecutive dry year. During the most recent drought, average prices at the beginning of the drought were \$150 per acre-foot and by the peak of the drought were \$475 per acre-foot, a 316% increase over the three-year period.

The spot market also experienced an important change in competition with high-valued agricultural buyers outbidding municipal interests for the first time. Historically, urban buyers have been the source of the largest demand in the spot water market. This was particularly true during the last drought cycle when urban buyers made up nearly half of all spot market purchases. However, the demand base and market participation changed significantly during the most recent drought when municipal buyers were largely absent with agricultural water users filling in to buy up available water supplies. Agricultural water users have been the dominant buyers during the current drought making up more than half of total volume traded and paying unprecedented prices for water. During one water auction, record high prices in excess of \$2,000 per acre-foot were paid by agricultural growers securing emergency supplies for new tree plantings.

Drought will likely drive continued market change. As a result of spot market pricing and competition, several municipal water supplies are shifting away from reliance on the spot market and have been pursuing multi-year agreements, groundwater banking, recycled water, and purchases of local water supplies.

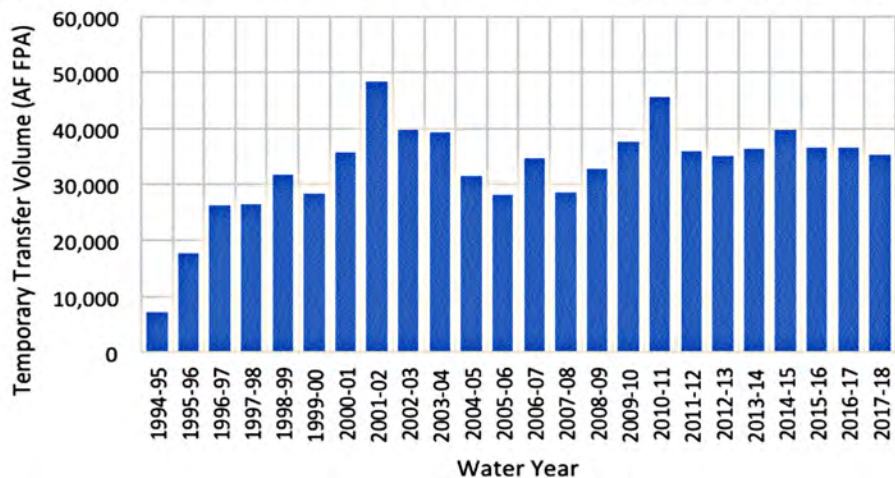
Across the western US, the experience of recent droughts has prompted renewed interest in alternative trading structures such as dry-year options. A dry-year option is an agreement in which water is only called upon when supplies are low (such as during a dry-year). During the agreement period, an annual payment is made to the suppliers whether or not water is called upon and additional payments are made during the call periods. One example is in Texas where the Edwards Aquifer Authority — which oversees groundwater pumping and protects the Edwards Aquifer near San Antonio from overdraft — uses its Voluntary Irrigation Suspension Program Option (VISPO) program to option water from farmers. Farmers enrolled in the program receive \$54/AF during all years of the five-year program and may continue irrigating during wet and average years (EEA, 2019). During dry years, farmers must suspend irrigation and receive a total of \$214/AF. Based on historical averages, it is estimated that irrigation suspension will be required in one out of every fourteen years, on average. Similar or additional innovative alternative trading structures are likely to emerge as a way to address future drought water supply risk.

Regulatory Changes

Water market development and activity is often preceded by new regulation designed to protect water resources, existing water rights, and/or the environment. For example, regulation affecting groundwater supplies in California and Washington have resulted in new or expanded water markets. Market development is likely to continue as similar regulations are applied in other locations.

Groundwater rights have been adjudicated in 22 (and counting) basins in California (WEF, 2019). Many adjudications have defined and quantified individual groundwater rights, authorized transfers of groundwater rights, and constrained pumping. Defined and transferable water rights alongside water scarcity are enabling conditions for water market development, and active trading of groundwater rights closely followed the adjudication in several basins. For example, the Mojave Basin adjudication drove temporary water rights trading in the Basin to grow from 7,128 AF in the 1994-95 water year to more than 48,000 AF annually in 2001-02. More recently, annual trading in the Basin has stabilized at between 30,000 AF and 40,000 AF. (see Figure 9).

Figure 9: Mojave Basin Annual Temporary Transfer Volume, Water Years 1994/95 - 2017/18



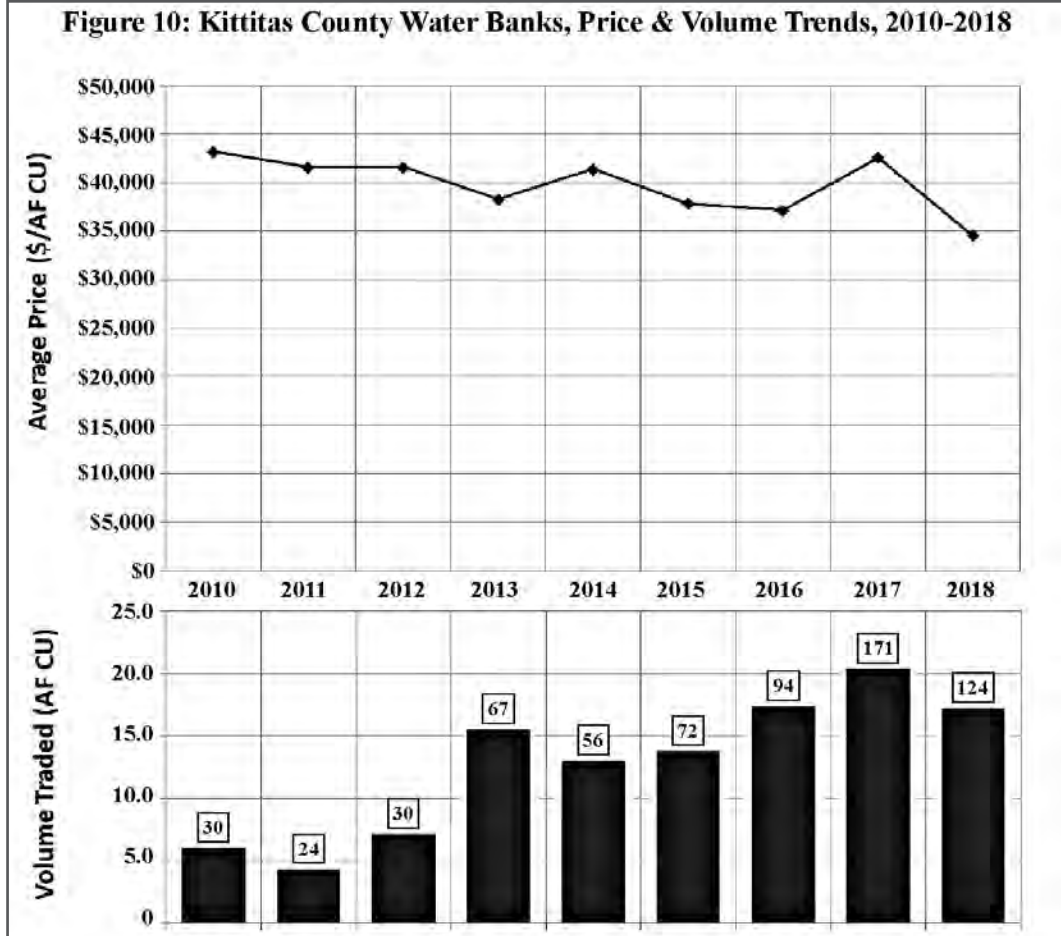
- Water Markets**
- Groundwater Solutions**
- Groundwater Replenishment**
- Exempt Wells Moratorium**
- Mitigation**
- Water Banks**

In 2014, California passed the Sustainable Groundwater Management Act (SGMA) requiring groundwater basins throughout the state to halt overdraft. Drawing upon lessons learned from adjudicated areas, several basins are considering market-based solutions for addressing overdraft. Common elements of these market-based programs include limiting pumping in areas that were previously exempt from regulation and establishing tradeable groundwater allocations. Basins evaluating groundwater market development include the Kern County Subbasin, Tule Subbasin, Kings Basin, and Westside Subbasin in the San Joaquin Valley, among others. Implementation of such programs is anticipated to prompt the emergence of localized groundwater markets. Further, water agencies and agricultural producers in overdrafted basins are beginning to compete for acquisition of surface water for groundwater replenishment purposes, catalyzing growth of the surface water market.

In 2009, the Washington Department of Ecology placed a moratorium on exempt well development in Upper Kittitas County in response to concerns from senior surface water right holders on the effect that the continued expansion of rural exempt wells was having on stream flows. In response, a number of private and public water banks have been developed that sell mitigation certificates to property owners. Today, more than fifteen water banks are offering mitigation throughout the county.

Mitigation volume is based upon the estimated consumptive use associated with proposed indoor and outdoor uses. Water users are not allowed to increase overall water usage in the basin, even by amounts formerly considered to be “exempt.” As such, in order to pursue new projects that consumptively use water, it is required that landowners and developers purchase portions of senior rights that have been retired. [Editor’s Note: domestic groundwater use is “exempt” from permitting requirements, but is still subject to regulation under the priority system].

More than 600 mitigation sales have been recorded from 2010 through 2018. The average unit price over all transactions is \$38,971/AF with a median of \$32,847/AF and a wide range of \$10,821/AF through \$223,684/AF. Individual transaction volumes tend to be small with an average transacted volume of 0.187 AF, median of 0.137 AF and a range of 0.03 AF to 3.35 AF. Figure 10 shows the price and volume trends for all Kittitas County water banks from 2010 through 2018. Values represent the purchase price of the mitigation water and do not include fees, taxes, and other charges that often are required in a mitigation certificate transaction.



Water Markets

Reallocation Tool

Conclusion

Water markets continue to play an important role in water reallocation throughout the western United States. As shown in this article, water markets have evolved to address stress on regional water supplies emanating from economic growth, drought, and regulation. Market developers, regulators, and participants are finding innovative ways to use markets as an important water management tool. Continuing this innovation will be increasingly important as the need to create flexible and equitable methods of water reallocation grows.

FOR ADDITIONAL INFORMATION:

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Matt Payne leads the Southwest office of WWR in Phoenix, Arizona. His areas of expertise are water resource economics, water asset valuation, water supply planning and implementation, and water asset transactions. Recently, Matt has been engaged by a California wholesale water agency to support development of a water banking enterprise. Matt also leads water rights acquisition programs for California's largest investor-owned utility, and Arizona's largest wholesale water agency. Matt holds an M.B.A. from Arizona State University, and is a certified Project Management Professional (P.M.P.). He also earned a degree in economics from Colorado College. Matt is developing the first-ever price index for water rights in the American West.

Harry Seely has more than twenty years of experience in agricultural and water resource economic analysis. He holds a M.S. in natural resource and agricultural economics from Oregon State University and a B.S. in economics from Pacific Lutheran University. Over the last decade, Harry has applied mathematical programming and econometric analysis techniques to estimate the value of water. He has also developed a variety of economic models as part of interdisciplinary teams to assess the regional economic costs and benefits of water quality, development, and reallocation projects throughout the West. Harry is currently applying economic analysis approaches to estimate the economic value of water for storage feasibility studies in California.

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Audrey Arnao is a research analyst with a focus on California water markets. She is responsible for tracking water rights transactions, analyzing market trends, and updating WWR data with market activity. Audrey conducts research by reviewing notices from regulatory agencies and board meeting agendas of various agencies known to be actively transacting. She also conducts interviews with buyers, sellers, attorneys, and brokers to fill in data gaps and request supporting documents pertaining to water transfers. Audrey received her BS in Economics from Arizona State University. In 2018, she completed her honors thesis on the effects of water right heterogeneity on price in California water markets using WWR transaction data.

Crowfoot



Wade Crowfoot

“One California”



Lisa Beutler

Local & Voluntary

Supply Reliability

Zero-Sum Limits

WADE CROWFOOT INTERVIEWED

INTERVIEW WITH CALIFORNIA’S SECRETARY FOR NATURAL RESOURCES

Conducted by Lisa Beutler (Stantec, Sacramento, CA)

Introduction

On April 24th, we had the much-appreciated opportunity to interview Wade Crowfoot, the Secretary for Natural Resources for the State of California. California Governor Gavin Newsom appointed Secretary Crowfoot to this position on January 11, 2019.

When asked about his priorities, California’s recently appointed Natural Resources Secretary quickly rattles off a range of topics: climate change; strengthening water supply resilience; and building water capacity for communities, agriculture, and the environment, among them.

We caught up with Crowfoot just days before issuance of the Governor’s Executive Order on water (see next page) and he enthusiastically explained that the Governor’s priorities were his priorities. He noted that even while California faces a plethora of pressing issues, Governor Gavin Newsom has made water management a high priority. As evidence he offered that Newsom made time on multiple occasions to convene the Secretaries of Natural Resources, Environmental Protection, and the Department of Food and Agricultural to meet with him personally and explore and define a course of action. Crowfoot found the Governor’s knowledge and commitment to water resiliency during these sessions impressive.

Talking about water is part of Wade Crowfoot’s DNA. A native son of the Great Lakes region he proudly recounts that his most formative years were spent exploring its vast reaches that encompass 20 percent of the world’s surface fresh water. These early years along with his extensive work experiences in planning and natural resources positions (and many subsequent hiking adventures) provide him with a solid integrated resource management framework. This makes serving as California’s Natural Resources Secretary an easy fit.

Crowfoot sees integration as the organizing principle for his approach to water management. He describes this as a “One California” portfolio approach that incorporates: conservation; continued improvements in water use efficiency; stormwater capture; recycling; and smart conjunctive water use. It also includes smart investment in green and built infrastructure and the full and fair implementation of California’s Sustainable Groundwater Management Act (SGMA).

In addition to leveraging a full toolkit of water management options, a portfolio approach embraces multiple time scales and plans for short, mid, and long-term actions and returns. He defined the longer term timeframe as generational investments that look out 80 years and beyond. As an example he noted that planning documents like the previous Governor’s Water Action Plan are directed more to immediate needs while other required planning processes — like the current California Water Plan — are focused on mid and long-term actions.

When asked how the state’s Integrated Regional Water Management (IRWM) Plans fit into this planning framework, Crowfoot saw an IRWM 2.0 in the future. He noted this was contingent on securing additional funding. Given 85% of water investment happens locally, Crowfoot felt the state could play a role in enhancing what is already happening.

Sacramento-San Joaquin Delta Voluntary Agreement Process

Crowfoot offered several examples of how encouraging local and voluntary action was working. Local and voluntary is his preferred option for addressing many water management issues. Foremost was the voluntary agreement process taking place as part of planning for the Sacramento-San Joaquin Delta.

Crowfoot explained how the State Water Resources Control Board (State Water Board) is in the process of updating its regulatory framework for protecting beneficial uses of water in the Delta and its key watersheds. At the same time, the California Natural Resources Agency in leading a separate but related effort to negotiate voluntary agreements with water users to support environmental objectives through a broad set of tools, while protecting water supply reliability. Further work and analysis is needed to determine whether the agreements can meet environmental objectives required by law and identified in the State Water Board’s update to the Bay-Delta Water Quality Control Plan. However, he felt the voluntary agreements could be a game changer in the overall approach for Delta Management and that significant progress had been made since January under the Newsom administration’s renewed focus.

In describing this process he reemphasized the importance of the “One State” ethos in water management planning. He believed that narratives pitting “North against South” or “Agriculture against Fish” are false and counterproductive. He pointed to the voluntary agreement process as an important step forward in reducing zero-sum thinking and bringing together diverse California water interests. To that end he was very complimentary of all the Delta parties at the table and their sense of urgency in addressing the state’s compelling needs.

Crowfoot

Broader Approach

Water Resilience Portfolio Elements

Regulators Working Group

Stakeholders Working Group

Integration

Delta Tunnel

Regional Investments

California Executive Order on Water

On April 29, 2019, California’s Governor Gavin Newsom signed an executive order directing his administration to think differently and act boldly by developing a comprehensive strategy to build a climate-resilient water system. The order seeks to broaden California’s approach on water as the state faces a range of existing challenges, including: unsafe drinking water, major flood risks that threaten public safety, severely depleted groundwater aquifers, agricultural communities coping with uncertain water supplies and native fish populations threatened with extinction. The Governor also explained that, “To meet these challenges, we need to harness the best in science, engineering and innovation to prepare for what’s ahead and ensure long-term water resilience and ecosystem health. We’ll need an all-of-above approach to get there.”

The Order directs the secretaries of the California Natural Resources Agency, the California Environmental Protection Agency and the California Department of Food and Agriculture to prepare a water resilience portfolio.

Highlights of the Order include:

The Portfolio:

- Must meet the needs of California’s communities, economy and environment through the 21st century.
- Will integrate and build on programs, policies, and investments already in place to build a climate-resilient water system.
- Will likely (details to be negotiated) include elements such as:
 - Approaches to fully leverage recycling and conservation programs;
 - Expanding stormwater capture and groundwater recharge to their full potential;
 - Modernizing water infrastructure — including in the Delta — to withstand climate pressures
 - Advancing multi-benefit projects such as floodplains that improve flood protection, enhance habitat, and recharge groundwater basins
- Emphasizes the need for:
 - Innovation and new technologies
 - Strengthened partnerships and regional approaches

The Process:

- The California Natural Resources Agency, the California Environmental Protection Agency and the California Department of Food and Agriculture will establish a working group to develop the water resilience portfolio.
- The working group will:
 - Inventory and assess current water supplies and the health of waterways
 - Assess projected future water needs
 - Anticipate climate-driven impacts on water systems, including more severe droughts and floods
 - Consider other known and potential challenges
 - Develop a water resilience portfolio to recommend to the Governor

The Stakeholders:

- The working group will:
 - Gather input through a variety of public workshops and listening sessions
 - Hold regular meetings to review work in progress
 - Consider public comment

Previous Work & Other Plans:

- The portfolio initiative will:
 - Build on previous work, including the California Water Action Plan released by the Brown Administration in 2014 and updated in 2016
 - Take advantage of new data and lessons learned since then to reassess priorities in the Water Action Plan
 - Identify potential new priorities for the Newsom Administration
 - Identify ways to improve integration across state agencies to implement those priorities

The Delta Tunnels:

- Modernized Delta conveyance is needed as part of a water resilience portfolio for California
- Executive Branch to take steps to advance a smaller capacity, strategically designed single tunnel to deliver water through the Delta
- The Department of Water Resources will begin taking those steps in the coming days and weeks.

Next Steps

- Agencies will establish the portfolio working group to begin to inventory and assess current supplies and conditions.
- Public input will be gathered through workshops and other venues.
- A draft portfolio is expected to be submitted to the Governor later this year.

In making this order the Governor has found there is widespread agreement that a coordinated portfolio of complementary actions is needed to build water resilience, ensure healthy waterways and meet long-term water needs. Five years of historic drought showed the importance of regional investments in a diverse water supply portfolio, including conservation, water recycling, groundwater storage and cleanup, and more. Pursuing a statewide portfolio of actions creates opportunities to build resilience, leverage past investments, and meet multiple objectives.

For Info: Executive Order at: www.gov.ca.gov/wp-content/uploads/2019/04/4.29.19-EO-N-10-19-Attested.pdf

Crowfoot**Sea Level Rise**

Also central to the voluntary agreement discussions is the need to acknowledge requirements for a modernized Delta water conveyance system that will provide water security and protect drinking water for millions of Californians and restore and maintain health of the system. Crowfoot pointed out that sea level rise of five to ten feet is now expected and the potential for an earthquake to create catastrophic damage had to be acknowledged and included in plans. Specific details regarding the size and capacity of a conveyance project will be developed in the coming months. There is widespread agreement the status quo is not an option in the Delta.

Flexible Infrastructure**Infrastructure**

The need for modernized infrastructure extends to the entire state. Crowfoot noted that the most of the state was operating with aging infrastructure, some well past its design lifecycle. He felt there was a need for new thinking about infrastructure investment. Such investment should not just target fixing known problems or replicating the current system. Instead, he emphasized that investment should be strategic and generational. In contrast to investments in large centralized structures as in the past, future infrastructure improvements will require building more flexible and de-centralized facilities. Investments in headwaters and floodplains to leverage natural or green infrastructure will be a priority. He also saw a need for better intra-regional systems that support water conveyance among neighbors — again creating more flexibility. As with other topics, he found the state could have a role in developing frameworks and incentivizing action.

State Roll in Local Planning**Regional Jurisdictions**

We asked how climate adapted land use might fall into this framework given the state's experience with catastrophic fires in the headwaters and regularly occurring flood episodes. As a planner, he was well aware of the importance of allowing communities to direct their own land use. At the same time, he offered that it was unrealistic to think communities could build their way out of flooding and fire. He believed the state may have a role in setting some standards and offering incentives. As an example he pointed to the state's General Plan Guidelines and the "show me the water" laws that require new developments to prove adequate future water supply for residents.

SGMA Parameters

He noted that, in many respects, SGMA is one strong example of how allowing local jurisdictions to have control over their own destinies was working. While it is important for the state to set parameters for action and have the backstop of regulatory action by the State Water Board if necessary, the actual groundwater users have the tools and authority to make decisions for their own communities.

Conjunctive Management

During this discussion he also noted that the legal separation of surface and groundwater management would have to somehow be addressed. This would require reducing barriers to water trading and rethinking recharge as a beneficial use. Crowfoot was well aware that these issues raise some sticky issues related to water rights. He did not think it would be a good use of time to discuss fundamental change to the water rights system. However, he felt that some limited, negotiated, useful options might be possible.

Administrative "Silos"**Institutional Fragmentation**

Crowfoot pointed out that much of our earlier discussion pointed to the need to break down administrative "silos" and move beyond compartmentalized approaches. He said this fragmentation extended beyond just the water world. The nexus between energy and water needs better integration as does the management of the wildland-urban interface. Fragmentation occurs at multiple scales of governance from federal and tribal to the multiplicity of very small water and resources districts. Simply bringing every one of these institutions into a single conversation would be a monumental task. He offered that most other states and even countries did not have such a complexity of institutional issues.

In addressing fragmentation, Crowfoot felt an important state role is the articulation of a working water management framework that would allow the institutions to align actions. He did not see massive consolidations of small districts as a preferred overall approach, though the type of consolidations being directed by the State Water Board to ensure safe and reliable water for communities obviously served a purpose. He stressed the need for self-destiny and for regional planning scales.

Human Right to Water**Conclusion**

The importance of fair and equitable water security for all Californians was threaded throughout Crowfoot's entire discussion. He noted the state's policy on the human right to water and touched on the need to consider this in every water management decision. This means: addressing existing adverse impacts; preventing unnecessary impacts; and minimizing economic disruption. He also felt that accomplishing these goals would require ensuring some form of representation of impacted communities.

Crowfoot**Integrated
Approach**

Crowfoot was sober in understanding that the Resources Agency and state government alone could not address every water management need. In considering topics like water security and public health for the homeless population, he pointed to the need for integrated approaches led by social service agencies and a continuum of responses. Even so, he felt the state did have a role in defining standards, providing technical assistance, and incentivizing actions.

In closing Crowfoot offered his optimism and excitement in working to address the state's water management challenges. He was fully aware of the magnitude and breadth of work undertaken by the California Department of Natural Resources and expressed appreciation of the hour we had to focus just on state water management.

FOR ADDITIONAL INFORMATION:

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Lisa Beutler specializes in helping organizations and communities reach decisions and create effective public policy. After a decade as the Associate Director of the Sacramento State University Center for Collaborative Policy she moved to Stantec, a global design and engineering firm. At Stantec she helps clients with strategic thinking, collaborative policy, and water resources and other planning. Earlier in her career she was a state park ranger and served in special offices of two governors. As an elected leader for the American Water Resources Association, her water management expertise and passion for excellence is well known. In addition to being the California Water Plan Executive Facilitator, she is also a nationally recognized practitioner in large group processes and continues to explore the use of technology to improve collaboration, transparency, and decision making. Her expertise has also led to key roles in California's implementation of the Sustainable Groundwater Management Act. Internationally, she helped lead the team that engaged 400 global leaders of religious and spiritual communities to address the obligations of the faith community in providing clean, safe water to the people of the world at the 2004 Parliament of World's Religions in Barcelona, Spain. A popular presenter at professional conferences, her work is and has been studied extensively and as far back as reviews in the *Public Productivity & Management Review* (1996). She has also been featured in a variety of publications and books including *Planning in the Face of Conflict* by John Forester. With a proven track record leading numerous complex, high profile projects ranging from water, land-use, and energy planning to off-highway vehicles, technology, substance abuse, and religious conflict resolution, she is a go-to resource for agencies with wicked problems.

**American Water Resources Association
2019 Summer Specialty Conference
Improving Water Infrastructure through Resilient Adaptation
June 16-19, 2019
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**Keynote Speaker: Wade Crowfoot
California Secretary of Natural Resources**

Agenda includes:

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- **Natural Hazards and Climate Risks**
- **Food-Energy-Water Nexus**
- **Water and Society**
- **Regional Themes:**
 - Colorado River Management
 - California Delta
 - Western US Drought Management Plans
 - Transboundary Water Governance
 - Sustainable Groundwater Management Act

For information: www.awra.org

Power Development

New Challenges

Baseload Capacity Demand

Spinning & Non-Spinning Reserves

Spinning Reserve: online generation that is reserved to quickly respond to system events (*i.e.*, the loss of a generator) by increasing or decreasing output. See Dep't of Energy's Wind and Water Power Technologies Office, *Hydropower Vision Report* at 101 (2016).

Non-Spinning Reserve: offline generation that is capable of being connected within a specified period (usually 10 minutes) in response to an event in the system. *Id.*

POWER DEVELOPMENT AT NON-POWERED DAMS

REMOVING HURDLES TO HYDROPOWER DEVELOPMENT AT NON-POWERED DAMS

by Charles Sensiba and Elizabeth McCormick, Troutman Sanders (Washington, DC)

Introduction

For many, the mention of a hydropower facility evokes the image of the major dams of the Pacific Northwest. These massive structures were built — in some cases, over 100 years ago or following World War II — to spur economic development and keep up with a modernizing society. These dams constituted impressive feats of engineering that provided plentiful jobs, low-cost reliable electricity, and other public benefits such as flood control, water supply, irrigation, and public recreation.

The emergence of environmental policy and programs, starting in the 1960s, created new challenges and opportunities for hydropower. Project owners and developers faced more demanding inquiries related to the effects of their projects on water quality, fisheries, endangered species, cultural resources, and other values. Those same challenges were met with increased scientific understanding of environmental systems, technological advances in mitigative efforts such as fish passage, and improved collaboration among regulators and stakeholders to problem-solve and reach solutions to meet a myriad of often competing, public interest considerations. *See, e.g.*, Charles R. Sensiba and Sharon L. White, *Hydropower Licensing under the Federal Power Act: A Century of Resource Conflict Resolution in the Public Interest*, Natural Resources & Environment, Sept. 28, 2016.

These challenges and opportunities continue today. Our efforts to address a changing climate have resulted in the swift development of wind, solar, and other renewable resources. Although these resources curtail carbon emissions in our electric generation resources, the proliferation of variable renewables has increased the need for reliable baseload capacity to maintain grid stability. Hydropower is a proven, renewable resource that can meet this demand. It provides flexibility and reliability to our grid system and has the potential to substantially expand the nation's renewable energy supply. It provides zero-emission baseload and peaking power, as well as a host of ancillary grid services including spinning and non-spinning reserve, regulation or load following, or replacement reserve, making it critical to our “all of the above” energy strategy (*see* Sidebar). The US Department of Energy (DOE) estimates that between 2017 and 2050 the nation's existing hydropower fleet has the potential to result in the avoidance of 4.9 billion metric tons of carbon dioxide emissions and savings of \$184.5 billion. *See* Dep't of Energy's Wind and Water Power Technologies Office, *Hydropower Vision Report* at 23 (2016). Though often capital intensive to develop, hydropower projects have long, useful lives stretching decades and their fuel is renewable and free.

Despite these attributes, preserving the existing hydropower system and promoting new projects has proven challenging over the last several decades. This is due, in large part, to the complicated, fragmented, and lengthy federal regulatory processes that ultimately result in uncertainty for project proponents, while making it nearly impossible to obtain long-term, low-cost financing. *See, e.g.*, Charles R. Sensiba, *Hydropower*, in *The Law of Clean Energy: Efficiency and Renewables* (Michael B. Gerrard, ed., 2011). Additionally, the country's hydropower fleet is aging. According to the US Energy Information Administration, the average hydropower facility has been operating for 64 years, and the 50 oldest electric generating plants in the US are all hydropower. *See Modernizing Energy Infrastructure: Challenges and Opportunities to Expanding Hydropower Generation: Hearing before the Subcomm. on Energy of the H. Comm. on Energy and Commerce* at 12, 115th. Cong. (2017) (statement of Rep. Fred Upton). When a combined cycle natural gas facility can be built in downtown Manhattan in two to three years — less than one fourth the time it takes to relicense an existing hydropower plant in far less developed areas — the challenges for hydropower become strikingly apparent. *See Discussion Drafts Addressing Hydropower Regulatory Modernization and FERC Process Coordination under the Natural Gas Act: Hearing before the Subcomm. on Energy and Power of the H. Comm. on Energy and Commerce* at 9, 114th. Cong. (2015) (statement of John Suloway, on behalf of the National Hydropower Association (NHA)).

For all of these reasons, there is a great interest and need to consider developing hydropower at existing infrastructure. Adding generation capabilities to the country's many existing non-powered dams is one way to achieve growth in the power sector that is both economically and environmentally sustainable. Of the 80,000 dams in the US, only 3% (2,400 dams) have hydropower-generating facilities. *Hydropower Vision Report* at 146. DOE estimates that between now and 2030, growth in hydropower generation will be driven both by upgrades to existing facilities and by adding hydropower generation to existing, non-powered dams. *Id.* at 17.

Power Development

Regulation Initiatives

Potential Power

FERC License & Corps Permit

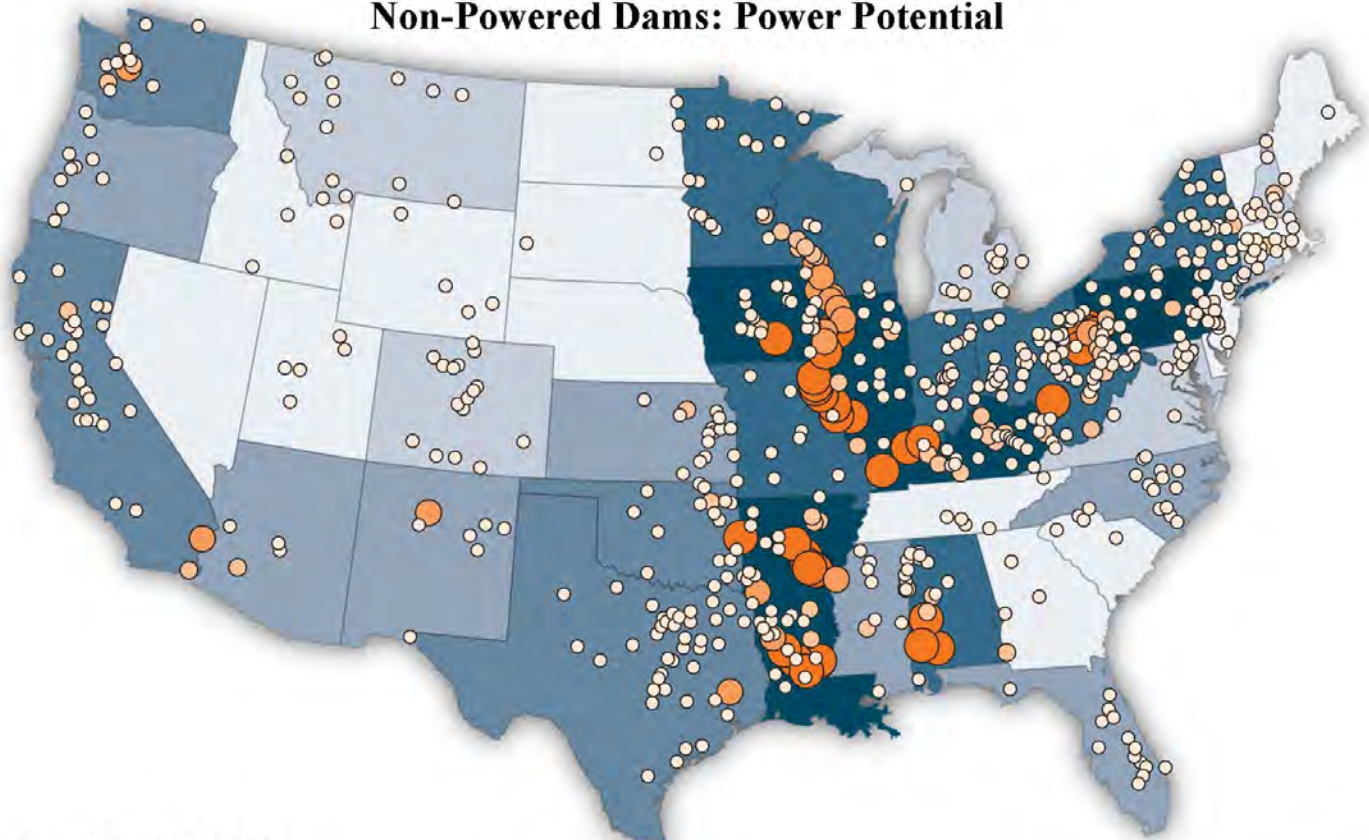
In recent years, Congress and both the Obama and Trump Administrations have taken steps to reduce the regulatory burdens of hydro development at non-powered dams. These include the following initiatives, which are discussed below:

- Memorandum of Understanding between FERC and the US Army Corps of Engineers (Corps) to address redundancy and delay in hydropower licensing at Corps dams;
- America’s Water Infrastructure Act of 2018, which adds a new section to the Federal Power Act establishing an expedited licensing process for hydropower projects at non-powered dams;
- Corps guidance pertaining to Section 408 permits under the Rivers and Harbors Act for projects that would occupy or use a Corps facility, including hydropower projects; and
- Executive Order on Section 401 of the Clean Water Act, which will also have implications for hydropower projects at non-powered dams.

FERC-Corps Memorandum of Understanding

In 2012, the DOE released its Assessment of Energy Potential at Non-Powered Dams in the United States, which identified approximately 12,000 megawatts (MW) of potential hydropower capacity at 80,000 non-powered dams, including 6,900 MW of capacity at non-powered federal dams operated by the Corps. U.S. Dep’t of Energy, *An Assessment of Energy Potential at Non-Powered Dams in the United States*, at vii (2012). Both FERC and the Corps have statutory and regulatory authority over hydropower development at Corps-operated dams. Section 4(e) of the Federal Power Act (FPA), 16 U.S.C. § 797(e), requires a FERC license for any hydropower project that would be located at a government dam, while Section 404 of the Clean Water Act (CWA), 33 U.S.C. § 1344, requires a Corps permit for projects that would discharge dredged or fill material into the waters of the United States. Moreover, section 14 of the Rivers and Harbors Act, 33 U.S.C. § 408, requires what is known as a Section 408 permit for projects that would occupy or require alteration of a Corps facility.

Non-Powered Dams: Power Potential



NPD Potential (MW):

NPD ○ ≤ 10 ● 10 - 25 ● 25 - 50 ● 50+

State □ ≤ 15 □ 15 - 30 □ 30 - 60 □ 60 - 150 □ 150 - 300 □ 300+

0 125 250 500 750 1,000 Km

<p>Power Development</p> <p>Non-Federal Projects</p> <p>Environmental Analysis</p> <p>Redundant Processes</p> <p>Water Quality Certification</p> <p>Licensing in Two Years?</p> <p>Hydro Development</p> <p>Non-Powered Dams</p>
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In 2016, FERC and the Corps entered into a Memorandum of Understanding on Non-Federal Hydropower Projects (2016 MOU) to establish a process for the timely licensing and permitting of hydropower projects at Corps facilities. The 2016 MOU updates a previous MOU signed by FERC and the Corps in 2011 and provides for a two-phased approach to improve efficiency within the FERC and Corps processes for licensing non-federal hydropower at Corps facilities. The 2016 MOU provides for a consolidated environmental review process and a reduction in the amount of time required to permit such facilities. *Memorandum of Understanding between U.S. Army Corps of Eng'rs and the Fed. Energy Regulatory Comm'n.* (July 21, 2016).

The first phase of the two-phase review includes the environmental analysis, during which the project developer works with both FERC and Corps staff to discuss the proposal, identify information gaps, and prepare applications for a FERC license and Corps Section 404 permit. *See* 2016 MOU at Attachment A. Following the filing of the applications, FERC and Corps staff coordinate to develop a single environmental document (Environmental Assessment or Environmental Impact Statement), for which FERC serves as the lead agency. Phase one concludes with a licensing decision by FERC and status letters from the Corps on its Section 404 permit application and 408 environmental review. *Id.* During Phase two, the developer works with FERC and Corps staff to prepare project designs, and the developer files its application for a Section 408 permit with the Corps. When all environmental and design reviews are complete, the Corps issues its 404 and 408 permits and FERC authorizes construction. Through early engagement of FERC and Corps staff, a single National Environmental Policy Act (NEPA) document, and concurrent review by FERC and the Corps, the MOU is intended to increase process efficiencies and the likelihood that the Corps' environmental review is nearly complete by the time FERC issues its licensing decision.

However, despite the improvements contemplated in the 2016 MOU, there remain redundancies between the FERC and Corps permitting processes. For example, permitting non-federal hydropower at a Corps facility may still require duplicative NEPA review — initially by FERC during the licensing phase, with the possibility of later updates or modifications by the Corps during its Section 404 process. *See Modernizing Energy Infrastructure: Challenges and Opportunities to Expanding Hydropower Generation: Hearing Before the Subcomm. On Energy of the H. Comm. On Energy and Commerce* at 10, 115th Cong. (2017) (statement of Ramya Swaminathan, on behalf of NHA). This is particularly problematic because under Section 401 of the CWA, FERC may not grant a license for a project unless the appropriate state agency has either issued or waived water quality certification for the project, which sets the water quality standard, determining the amount of water that will be available to generate power at a project. *See* 33 U.S.C. § 1341. Once a developer has its FERC license, the Corps may initiate a separate analysis for issuance of its Section 404 permit, which may require additional studies and may result in the Corps prescribing a different water quality standard than the state. *See* Swaminathan testimony, *supra* at 10.

America's Water Infrastructure Act of 2018

In 2013, Congress passed the Hydropower Regulatory Act of 2013 (HREA), which, among other things, directed FERC to study the feasibility of issuing licenses for projects at non-powered dams in a two-year period. Pub. L. No. 113-23, 127 Stat. 493 (2013). Pursuant to this directive, FERC convened a workshop and pilot program, followed by another workshop to evaluate the effectiveness of the pilot program. In May 2017, FERC submitted a report to Congress, concluding that a two-year licensing process is possible in certain situations, particularly where applications reflect careful site-selection, a well-defined project proposal, thorough pre-filing consultation, and a complete application. Federal Energy Regulatory Commission, *Report on the Pilot Two-Year Hydroelectric Licensing Process for Non-Powered Dams and Closed-Loop Pumped Storage Projects and Recommendations Pursuant to Section 6 of the Hydropower Regulatory Efficiency Act of 2013* (submitted to the United States Congress on May 26, 2017).

Building on the progress made in the HREA, on October 23, 2018, America's Water Infrastructure Act of 2018 (AWIA) was signed by the President. Pub. L. No. 115-720, 132 Stat. 3765 (2018). AWIA addresses hydropower development through five provisions pertaining to:

- (1) preliminary permit terms and statutory deadlines applicable to newly-licensed projects;
- (2) proposed projects along water supply conduits;
- (3) project development at existing non-powered dams;
- (4) closed-loop pumped storage projects; and
- (5) infrastructure, environmental, and recreational investments at existing hydropower facilities.

With respect to non-powered dams, AWIA adds a new section 34 to the FPA to promote the expeditious development of new hydroelectric projects at existing nonpowered dams, which the AWIA defines as: [A]ny dam, dike, embankment, or other barrier, constructed on or before October 23, 2018 that is or was operated for the control, release, or distribution of water for agricultural,

<p>Power Development</p>	<p>municipal, navigational, industrial, commercial, environmental, recreational, aesthetic, drinking water, or flood control purposes, and that, as of October 23, 2018, is not generating electricity with hydropower works licensed under, or exempted from the license requirements of Part 1 of the FPA.</p>
<p>Facility Criteria</p>	<p>16 U.S.C. § 823e(e)(3). Under Section 34(e), the criteria for a facility to be located at a nonpowered dam are: (1) that as of October 23, 2018, the facility is not licensed under, or exempted from, the license requirements of Part I of the FPA; (2) the facility is associated with a qualifying nonpowered dam; (3) the facility will generate electricity using withdrawals, diversions, releases, or flows from the associated qualifying nonpowered dam; and (4) the operation of the facility will not result in any material change to the storage, release, or flow operations of the associated qualifying nonpowered dam. <i>Id.</i></p>
<p>Expedited Process</p>	<p>Section 34 also required FERC to initiate a rulemaking within 180 days of enactment of the AWIA, establishing an expedited process to issue and amend hydropower licenses at existing, non-powered dams within two years of filing a completed application. In developing this rule, FERC would be required to convene an “Interagency Task Force” with federal and state regulators and Native American Tribes to coordinate the process and to ensure that regulatory authorities will not result in a material change to the storage, release, or flow operations of the existing dam, to the extent practicable. This section would also require FERC and the Secretaries of the Interior, Army, and Agriculture to develop a list of existing non-powered federal dams that have the greatest potential for non-federal hydropower development.</p>
<p>List of Potential Dams</p>	<p>Pursuant to the newly-enacted Section 34, on November 13, 2018, FERC issued a notice providing a schedule for implementing the AWIA to meet the 180-day deadlines and inviting federal and state agencies and interested Native American Tribes to participate in the interagency task force. On January 31, 2019 FERC issued a notice soliciting comments on proposed rules to establish expedited licensing processes for qualifying projects at existing nonpowered dams and closed-loop pumped storage facilities.</p>
<p>Consultation Requirements</p>	<p>In addition to the statutory requirements, FERC developed additional criteria that applicants under the amended Section 34 must comply with, including documentation of consultation pursuant to other statutes — including the CWA, Endangered Species Act (ESA), and National Historic Preservation Act (NHPA) — to ensure that FERC will be able to act on a completed license application within two years. FERC also proposed to require that an applicant provide documentation verifying consultation with the dam owner or federal entity that non-federal hydropower development is not precluded at the site, and that the owner or federal entity does not oppose project development. Finally, if a proposed project would use any public park, recreation area, or wildlife refuge established under state or local law, FERC proposed to require an applicant to provide documentation from the managing entity demonstrating that it does not oppose use of the park, recreation area, or wildlife refuge. <i>See Hydroelectric Licensing Regulations Under the America’s Water Infrastructure Act of 2018</i>, 84 Fed. Reg. 2469 (proposed Feb. 7, 2019).</p>
<p>Pre-Filing Period</p>	<p style="text-align: center;">Stakeholder Comments - Proposed Rule</p> <p>A number of parties filed comments on the proposed rule, including NHA, along with the Edison Electric Institute, the National Rural Electric Cooperative Association, the American Public Power Association, and the Northwest Hydropower Association (collectively, NHA), Rye Development (Rye), the US Forest Service (USFS), and the Nature Conservancy. In its comments, NHA opined that the rule is unlikely to result in a material reduction in the overall time required to obtain a license because it does not include measures to streamline the three-to-five-year pre-filing period, during which a license applicant must spend considerable time and resources to prepare a complete license application. NHA points out that FERC’s existing Integrated Licensing Process (ILP) regulations anticipate that even a license for a complex project requiring an EIS (as opposed to an EA) can be issued within two years from the filing of an application, if a licensee takes certain steps during the pre-filing period to develop a complete license application. <i>See NHA’s Comments on Proposed Hydroelectric Licensing Regulations under the AWIA of 2018</i>, Docket No. RM19-6-000, at 4-5.</p>
<p>Statutory Qualifications</p>	<p>NHA recommended that the final rule incorporate a two-step process enabling FERC to determine much earlier in the licensing process — in the pre-filing stage — whether expedited processing is warranted. <i>Id.</i> at 5-6. The first step would be for FERC to determine whether a proposed project satisfies the statutory qualifications for the expedited process. If so, the NHA-recommended second step would be for FERC to determine whether to approve the request to use the expedited process. According to NHA, the final rule should not preclude an applicant whose request for expedited treatment is denied from renewing its request for expedited processing later in the pre-filing process.</p>

Power Development
“Material Change”
Federal Approvals
Due Diligence
Pre-Filing Process Improvements
Two-Year Process
Federal Dam Owner
Limited Environmental Impacts
EIS Distinction
Water Quality Change

With respect to nonpowered dams, NHA requested that FERC define the criterion that the project “not result in any material change” to the existing water regime in a manner that would not be narrow as to disqualify projects from the expedited process which only have minor effects on existing dam operations. *Id.* at 10.

NHA’s comments also discuss the section of FERC’s proposed rule requiring that applicants make certain showings regarding the status of certain federal approvals.

Such approvals include:

- CWA water quality certification;
- effects on federally-listed species under the ESA;
- consultation with Native American Tribes and State Historic Preservation Officers under the NHPA;
- concurrence from the dam owner — whether federal or non-federal — that it does not oppose the project; and
- documentation that the managing entity of a state or local park, recreation area, or wildlife refuge does not oppose the project.

Id. at 15.

In NHA’s view, if FERC ultimately decides that an eligibility determination can and should be made early in the pre-filing process, as NHA urged, then these additional qualifiers should not be required at that stage. NHA proposed that, at most, a license applicant should be required to show that it has exercised due diligence with regard to these approvals in developing the early licensing consultation materials (i.e., Notice of Intent and Pre-Application Document) and has initiated early consultation with the relevant resource agencies and Tribes. Finally, NHA opposed the requirement that a license applicant obtain approval from a federal dam owner, on the basis that Congress (not the federal agency that operates the dam) dictates which projects are available for non-federal power development and those that are reserved for development of power by the federal government.

Rye Development Co. (Rye) — the only hydropower developer to participate in FERC’s expedited licensing process under the HREA and receive a license within two years — echoed NHA’s concerns about the proposed rule’s lack of improvements to the pre-filing process. Rye Development’s Comments on Proposed Hydroelectric Licensing Regulations under the AWIA of 2018, Docket No. RM19-6-000, at 1. Rye explained, however, that other applicants should be able to receive licenses within two years, particularly at existing, non-powered dams, where “environmental impacts are generally more manageable” because of existing infrastructure and naturally-flowing water bodies. *Id.* at 2. Rye encouraged FERC to develop a formal two-year process for adding hydropower capacity to existing nonpowered dams that is transparent and dependable, and argued that doing so will enable developers to attract the private investment that is critical to developing these types of projects. *Id.*

The USFS recommended that FERC provide additional guidance on the requirement that a developer demonstrate that it has discussed with a federal dam-owner any license conditions that the federal owner may require and that the confirmation from a federal owner reflects a “discussion of planning, permitting, and management issues related to all aspects of the development and operations of a hydropower facility, not only the location.” USFS Comments on Proposed Hydroelectric Licensing Regulations under the AWIA of 2018, Docket No. RM19-6-000 at 3. The USFS also recommended that the expedited process only apply to projects that require an EA because, as it explains, an EIS is typically required for projects that “may significantly affect the quality of the human environment,” which it stated is counter to the purpose of the proposed rule to establish an expedited licensing process for projects that have only limited environmental impacts. *Id.* at 4. The USFS also recommended that amendments to a license application filed under the proposed rule only be permitted before FERC issues a notice of acceptance of the application.

The Nature Conservancy echoed USFS’s comment that the expedited licensing process should not be permitted for projects requiring an EIS. The Nature Conservancy’s Comments on Proposed Hydroelectric Licensing Regulations under the AWIA of 2018, Docket No. RM19-6-000, at 2. The Nature Conservancy also recommended that FERC add a requirement that any nonpowered dam where a developer proposes to add capacity is “actively serving a public purpose,” in order to ensure that it is well-maintained and less likely to fail during a flood event. *Id.* at 3. Additionally, the Nature Conservancy suggested that FERC revise its proposed rules to provide that the addition of hydropower to a nonpowered dam will not result in a material change to the water quality of the project area, including upstream and downstream reaches. *Id.*

Power Development

FERC Decisions

Rule Changes

Application Amendments

Section 408 Process

Final Rule

On April 18, 2019, FERC issued its final rule, in which it generally declined to make most of the changes requested by commenters — instead largely adopting its proposed rule. In declining to make any changes to the pre-filing process, as suggested by several commenters, FERC relied on the language of the statute, which provides that FERC must issue a rule that begins from the receipt of a completed license application. *Hydroelectric Licensing Regulations Under the America’s Water Infrastructure Act of 2018*, 167 FERC ¶ 61,050, at P 13. In response to NHA’s comment that the final rule should not preclude an applicant, whose request for expedited treatment has been denied, from renewing its request for expedited treatment, FERC deferred to the language of the proposed rule — which provides for a Commission determination on eligibility for the expedited process within 180 days of receiving an application. FERC provided that, if an applicant is able to correct any deficiencies within 180 days, then it will still be eligible for the expedited process. If it is not able to do so within 180 days, it will be processed under one of the Commission’s standard licensing schedules. *Id.* at 92-93. FERC also declined to modify its proposed definition of “material change” with regard to changes to the existing water regime. *Id.* at 37.

With respect to the documentation of consultation, FERC removed the requirement of the proposed rule that an applicant submit documentation from a state certifying agency that the water quality certification application is “complete.” *Id.* at 53. Regarding ESA regulations, the final rule replaces “at the proposed project site” with “in the action area,” to more thoroughly consider all aspects of the project, including staging and construction laydown areas, roads, and other conduits and/or transmission lines or interconnections. *Id.* at 58-59.


Recognizing that a significant amendment to a license application may interfere with staff’s ability to act on a license application within two years, the final rule adopted the USFS’s recommendation to allow FERC staff to remove an application from the expedited process if an applicant files a significant amendment to its application. *Id.* at 100.

Corps 408 Guidance - Final Guidance


Section 408 (section 14 of the Rivers and Harbors Act, codified at 33 U.S.C. § 408) requires that any proposed occupation or use of an existing Corps civil works project be authorized by the Secretary of the Army. On September 10, 2018, the Corps issued Engineering Circular (EC) 1165-2-220, *Policy and Procedural Guidance for Processing Requests to Alter U.S. Army Corps of Engineers Civil Works Projects Pursuant to 33 U.S.C. § 408 (the Final Guidance)*. The *Final Guidance* includes a number of changes to the Section 408 process that were first presented in a draft guidance issued in January 2018 (Draft Guidance) and implements new procedures in an effort to simplify and streamline the Section 408 review process.

Section 408 Request


If you want to make alterations or use property federally authorized by the US Army Corps, you need to gain permission by filing a “Section 408” request.



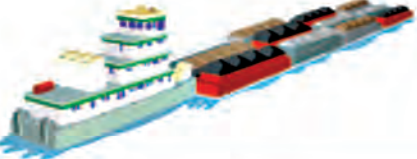
If Oregon and Washington decided to build the Columbia River Crossing, the states would have to submit an application for Section 408 review.



Is the proposed project on or through a federally authorized levee?
Visit <https://levees.sec.usace.army.mil/#/> to find out.



Is the proposed project on or through a US Army Corps dam?
Visit http://nid.usace.army.mil/cm_apex/f?p=838:12 to find out.



Is the proposed project within a federally authorized navigation channel or structure?
Visit <http://navigation.usace.army.mil/Survey/Hydro> to find out.

Adapted from US Army Corps of Engineers Seattle Office Infographic

Power Development
Scope of Alterations
O&M Exception
Section 408 Changes
Tribal Coordination
Permit Overlap
Multi-Phased Review
New Timelines

The *Final Guidance* requires that any occupation or use of Corps civil works projects be authorized by the Secretary of the Army, and that any alterations to those civil works not harm the public interest or impair the usefulness of the Corps project. *Final Guidance* at 1. The *Final Guidance* applies to a wide variety of Corps projects, including dams, levees, navigation channels, harbors, locks, jetties, bridges, and hydropower facilities, among others. It also applies to a broad range of development scenarios — not just alterations to existing infrastructure. For example, the *Final Guidance* provides that authorization is required for alterations within the real property of the Corps project, alterations to submerged lands occupied or used by a Corps project, alterations that cross over or under a federal navigation channel when the alteration is also subject to Sections 9 or 10 of the Rivers and Harbors Act, or to alterations in an area subject to the navigation servitude, when the alteration may impair the usefulness of the Corps project. *Final Guidance* at 9.

The *Final Guidance* provides that a Section 408 process is not required for repair or maintenance activities conducted by non-federal sponsors on Corps projects, where the non-federal sponsor is responsible for operation and maintenance. *Id.* at 9(c). It also incorporates the provision of the Draft Guidance exempting the Section 408 process emergency alterations or activities performed on Corps projects pursuant to Public Law (PL) 84-99, the Corps’ procedures for the Civil Emergency Management Program. PL 84-99 permits the Corps to provide emergency response and disaster assistance, including flood control, shore protection, and other disaster-response activities.

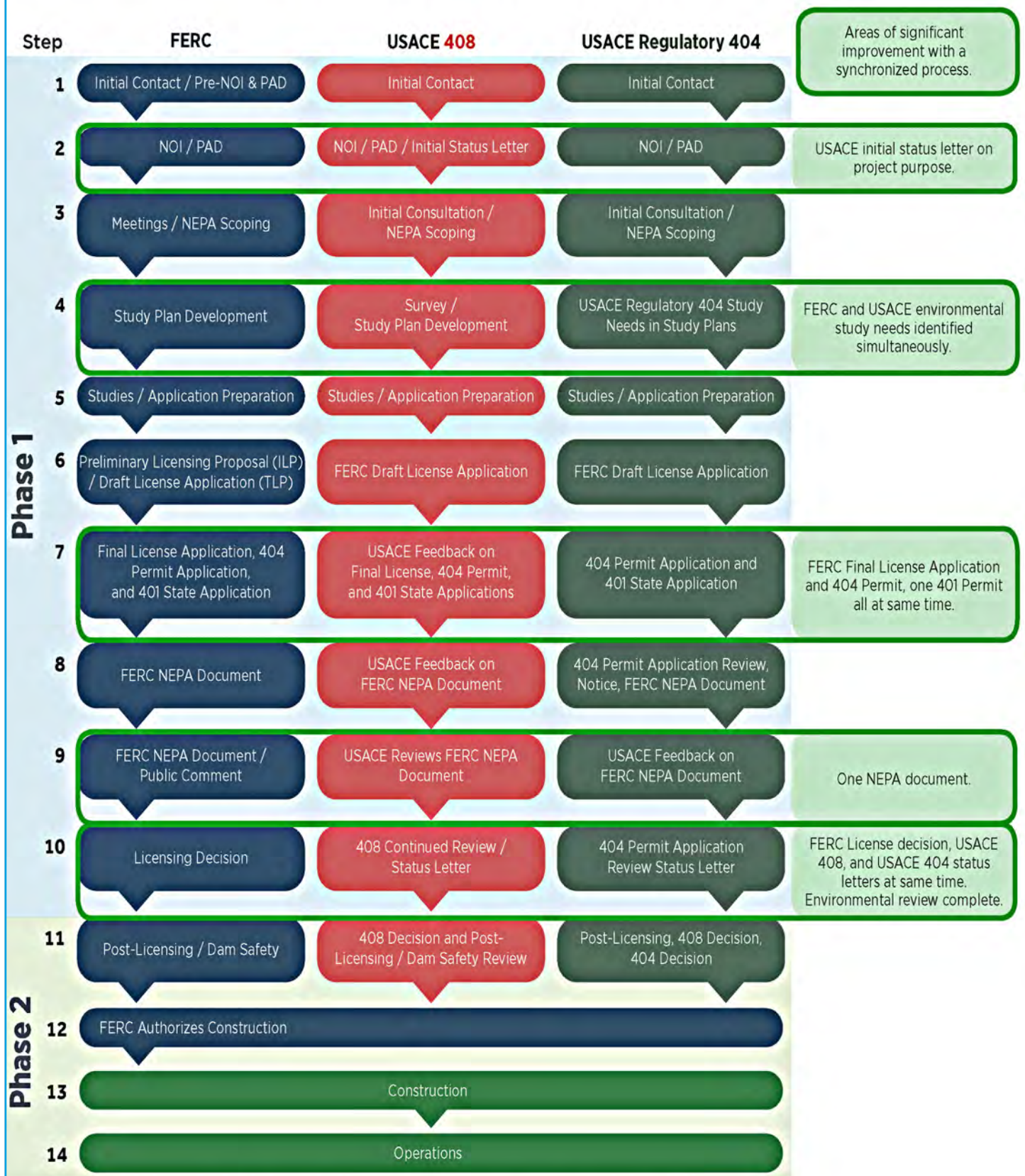
The *Final Guidance* includes a number of changes designed to improve its Section 408 program governance. These changes include the implementation of a database and webpage to maintain a record of all Section 408 requests and provide transparency and information to the public, and coordination between the Section 408 process and other internal Corps procedures. *Id.* at 7(a)–(e). It also provides for coordination, including the designation of a lead office and development of a single decision document, in the case of non-Corps projects that cross district or state boundaries (*i.e.*, pipelines, highways, or electric transmission lines) and require review under either Section 10 of the Rivers and Harbors Act, Section 404 of the Clean Water Act, or Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972. *Id.* at 7(h)(3). The *Final Guidance* also emphasizes the importance of early coordination with Native American Tribes via government-to-government consultation and provides that such consultation should occur as early as possible, either prior to or concurrent with consultation with State Historic Preservation Officers (SHPOs). *Id.* at 7(h)(1). For Corps projects with a non-federal sponsor, Corps districts must coordinate with the non-federal sponsor throughout the review process, and the non-federal sponsor must provide a Statement of No Objection, indicating that it is aware of the scope of the Section 408 request.

Finally, the *Final Guidance* provides that, when another federal agency is responsible for issuing a permit or other approval authorizing a proposed alteration that will be carried out “within the boundaries of real property of the United States or reservoirs managed by the [Corps],” a separate Section 408 approval is not required, as long as the Corps provides the other agency with a Report and Determination of Availability or other confirmation of consistency with an approved project master plan, prior to the other agency’s issuance of its own approval. *Id.* at 9(e).

Under the previous guidance, the Corps provided two options for Section 408 review — a single phase review, in which all information for a Section 408 approval was submitted at the same time, and a categorical review, in which the Corps analyzed the impacts and environmental record for a common category of activities and issued approvals under a streamlined process for qualifying projects. The *Final Guidance* implements a multi-phased review, pursuant to which a project proponent submits information to the Corps at a number of design milestones, with the final milestone resulting in a complete request for Section 408 approval. The *Final Guidance* also does away with the requirement that plans and specifications be 60% complete before Section 408 review can commence.

The *Final Guidance* also implements new timelines for the Section 408 review process, providing that a Corps district has 30 days to respond to a request for Section 408 approval, indicating either that the submission is complete or that additional information is required. It also provides guidance on what information a request for Section 408 approval must include to be considered under the categorical, single-phase, or multi-phase processes. Once a district has made a completeness determination, the *Final Guidance* provides that the Corps district must render a decision within 90 days. If it cannot meet the 90-day deadline, it may provide an estimated date of a final decision but must report to Congress if a final decision cannot be reached within 120 days.

FERC-USACE Two-Phased Process, Synchronized Environmental Review



Adapted from US Dept of Energy, Office of Water & Power Technologies Fact Sheet: [See Water.Energy.gov](http://www.Water.Energy.gov)

**Power
Development**

**State
Water Quality
Conditions**

**Executive Order
to Review**

**State
Regulations**

**Licensing
Improvements**

**Evaluation
Needed**

**Modernization
Needs**

Section 401 Executive Order

Section 401 of the Clean Water Act requires that, prior to issuance of a federal license or permit “which may result in a discharge” into navigable waters, the state in which such discharge originates be given an opportunity to certify that the licensed or permitted activity complies with state water quality requirements. 33 U.S.C. § 1341(a)(1). Section 401 extends broad authority for the state to condition its certification — such as effluent limitations, monitoring requirements necessary to assure that the permitted activity will comply with state water standards, pretreatment standards “and with any other appropriate requirement of State law”— and requires such conditions to become a condition of the license or permit. *Id.* § 1341(d). *See generally Pub. Util. Dist. No. 1 of Jefferson County v. Wash. Dep’t of Ecology*, 511 U.S. 700 (1994).

On April 10, 2019, President Trump issued an Executive Order on Promoting Energy Infrastructure and Economic Growth, which aims to update Federal guidance and regulations pertaining to Section 401 of the CWA that are “causing confusion and uncertainty and are hindering the development of energy infrastructure.” Exec. Order No. 13,868 (April 10, 2019). The Executive Order directs the US Environmental Protection Agency (EPA) to review existing Section 401 regulations and interim guidance and determine whether they should be revised or clarified to improve efficiency and consistency in federal permitting processes, and to issue new guidance “as appropriate” within 60 days. The Executive Order also directs the EPA to review the appropriate scope of water quality reviews and its regulations implementing Section 401 for consistency with the Executive Order and publish and finalize rules revising those regulations within 13 months. Finally, the Executive Order directs the EPA to lead an interagency review with the head of agencies that issue permits or licenses subject to Section 401 to update each agency’s guidance for consistency with any new EPA rules.

As of the date of this article, the impact of this Executive Order is not immediately clear. However, any changes to EPA or state regulations or guidance that may result from the reviews directed by the Executive Order would likely have a greater impact on hydropower applicants and licensees. To the extent the EPA or a state revises its regulations, the revisions would be accomplished through formal rulemaking with an opportunity for interested parties to file comments and challenge any proposed rule changes. (*See* www.epa.gov/cwa-401/outreach-and-engagement-section-401-certification).

Conclusions

The recent legislation and Executive Branch activity discussed above underscore several important points about hydropower licensing. This includes the need to eliminate redundancies in the environmental review process, to improve the timeliness of agency decision-making, and facilitate coordination between agencies with statutory or regulatory authority over various aspects of the hydropower licensing process. While the initiatives described above promise to be helpful, they are still only marginal solutions. Rather, what is needed is a full-scale evaluation of federal licensing and permitting to develop integrated procedures that will allow for more efficient and effective decision-making. In recent years, Congress has taken steps in this direction, including two 2017 bills — H.R. 3043 and S. 1460 — which proposed, among other things, to designate FERC the lead agency for coordinating all federal authorizations related to hydropower license applications; to expand the definition of “renewable energy” to include electric energy generated from hydropower facilities; and to amend the federal purchasing requirement in the Energy Policy Act of 2005 to include all forms of hydropower. While neither bill went on to become law, they were models of the type of wide-reaching reform that is needed.

The challenges to hydropower licensing are substantial and therefore require a substantial resolution that only Congress can provide. Such a resolution will help modernize the hydropower licensing process, to maintain grid reliability and integrate renewables and move away from fossil fuels, both of which are critically important in order to address the ongoing threat of climate change. While the recent legislative and executive developments described above move regulators and the industry incrementally in the right direction, advocates of hydropower and other sources of renewable energy should continue to advocate for broader and more substantial improvements, which are likely to have a more far-reaching effect.

FOR ADDITIONAL INFORMATION:

CHUCK SENSIBA, Troutman Sanders, 202/ 274-2850 or Charles.Sensiba@troutman.com

**Power
Development**

Chuck Sensiba is a partner in the Washington, D.C. office of Troutman Sanders, LLP. Chuck's practice focuses exclusively on licensing, relicensing, regulatory, and policy issues affecting the hydropower industry. He handles a full spectrum of matters, including licensing and relicensing, as well as natural resources and environmental issues, related to the regulation of hydropower operation and development. Chuck's clients include investor-owned utilities, public power, electric cooperatives, government entities, water districts, and independent power producers. Chuck handles matters under the Federal Power Act, National Environmental Policy Act, Endangered Species Act, Clean Water Act, National Historic Preservation Act, Federal Land Policy and Management Act, and Coastal Zone Management Act. His work includes successful representation in hydroelectric relicensing proceedings before the Federal Energy Regulatory Commission, as well as matters pertaining to license implementation and compliance; administrative and appellate litigation before the US Courts of Appeal on hydropower licensing and administrative matters; and policy work before Congress. Chuck currently serves on the board of directors of the National Hydropower Association.

Elizabeth McCormick is an associate in the Washington, D.C. office of Troutman Sanders, LLP. Elizabeth helps clients navigate complex energy infrastructure proceedings before FERC. Her practice focuses on hydropower and natural gas proceedings, where she advises clients on a wide range of federal energy and environmental statutes, including the Federal Power Act, the Natural Gas Act, the Clean Water Act, the Endangered Species Act and the National Historic Preservation Act. Elizabeth draws on her nearly six years of experience in FERC's Office of the General Counsel, where she worked on a number of hydropower license and natural gas certificate proceedings. While at the Commission, she gained experience working with a variety of federal and state environmental and natural resources agencies, Native American tribes, community and landowner groups, and NGOs.

**Tribal
Groundwater**



TRIBAL GROUNDWATER



AGUA CALIENTE UPDATE: "STANDING" RULINGS FAVOR IRRIGATION DISTRICTS

by David Moon, Editor

**"Standing"
Findings**

On April 19th, the U.S. District Court for the Central District of California (Court), Judge Jesus Bernal, issued rulings on several summary judgment motions that amount to a victory for the local water districts opposing tribal groundwater claims. *Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water District, et al.*, Case No. EDCV 13-00883 JGB (SPx) (April 19, 2019). Under Phase II of the trifurcated litigation, Judge Bernal ruled in favor of the Coachella Valley Water District (CVWD) and the Desert Water Agency (DWA) on two of the issues and in favor of the Agua Caliente Band of Cahuilla Indians (Tribe) on one issue, holding that "...the Court finds the Tribe has standing to pursue the declaratory relief it seeks in its pore space claim but does not have standing to pursue its quantification and quality claims." *Slip Op.* at 1.

**Groundwater
Right**

In Phase I of the case, the Court held, and the Ninth Circuit confirmed, that the Tribe has a federal reserved water right to groundwater underlying its reservation. *Agua Caliente*, 849 F.3d at 1265. [This landmark decision was covered in detail in Munson & Reeves, *TWR* #161.] "Phase II seeks to resolve (1) whether the Tribe owns the pore space underlying its reservation; (2) whether there is a water quality component to the Tribe's federal reserved water right; and (3) the appropriate legal standard to quantify the Tribe's reserved water right." *Slip Op.* at 2.

**Pertinent
Facts**

Certain facts weighed heavily in Judge Bernal's decision. "The Tribe utilizes water supplied by CVWD and DWA. In 2016, CVWD's and DWA's public water systems covering the Reservation served a total population of 340,000 people. Today, the Tribe does not pump groundwater from its Reservation. The Tribe currently does not use water for agricultural purposes to any significant degree. Portions of the aquifer underlying the Coachella Valley are in overdraft. ...DWA and CVWD have spread imported Colorado River water to recharge the aquifer. Water imported by DWA is mixed with native groundwater. This dilutes concentrations of total dissolved solids ('TDS') in the imported water." *Slip Op.* at 8 (citations omitted).

Ultimately, the deciding issue for all three claims of Phase II was whether or not the Tribe had "standing" to seek adjudication of its claims.

<p>Tribal Groundwater</p>	<p>Judge Bernal set forth the elements of standing as follows: “[T]he irreducible constitutional minimum of standing” is comprised of three elements: (1) an injury-in-fact; (2) a causal connection between the injury and challenged conduct such that the injury is “fairly traceable” to the challenged action; and (3) it must be “likely,” not merely “speculative” that the injury can be redressed by a favorable decision. <i>Lujan v. Defenders of Wildlife</i>, 504 U.S. 555, 560–61 (1992). The injury-in-fact must be “concrete and particularized” and “actual or imminent, not conjectural or hypothetical.” <i>Id.</i> at 560. “The party invoking federal jurisdiction bears the burden of establishing these elements.” <i>Id.</i> at 561.</p>
<p>“Standing” Elements</p>	<p><i>Slip Op.</i> at 9.</p>
<p>Quantification Claim</p>	<p>Of the three claims in Phase II — pore space ownership, water quality component, and quantification of the right — the quantification issue was addressed first. After a lengthy discussion, the Court ruled in favor of the irrigation districts. “Thus, the Tribe does not present evidence it is currently unable to use sufficient water to fulfill the purposes of the reservation nor does it present evidence that its need for water will increase in the future such that its use will conflict with Defendants’ use. Thus, the Tribe has not provided any evidence of actual or imminent injury such that it has standing for this Court to adjudicate its quantification claim.” <i>Slip Op.</i> at 16. The Court based its conclusion on its finding that even though the aquifer is in the state of overdraft, by itself that was not sufficient to satisfy the “injury-in-fact” requirement of standing. “The Court finds that an overdraft condition — whether currently or cumulatively over many years — is not enough to satisfy the Tribe’s burden to provide evidence of injury related to its quantification claim.” <i>Id.</i> at 15.</p>
<p>“Injury-in-Fact” Unsatisfied</p>	<p>For the water quality component of the reserved right, the Court held that the Tribe must “provide evidence of an invasion to a legally protected interest. ... Thus, assuming the <i>Winters</i> right contains a water quality component, the Tribe must provide evidence that recharging the water table with Colorado River water actually or imminently impairs the Tribe’s ability to use water of a sufficient quality to fulfill the purposes of the reservation.” <i>Id.</i> at 17 (citations omitted). The Tribe provided evidence that recharge of the aquifer with Colorado River water would raise the level of total dissolved solids and thereby lower the water quality of the groundwater. The Court, though, found that the evidence provided by the Tribe may have shown injury to water quality, but not injury to the plaintiff (Tribe). “This evidence, however, does not indicate that the Tribe cannot use the water to fulfill the purposes of the reservation. Like with its quantification claim, the Tribe focuses on changes to the water but does not provide evidence that these changes preclude the Tribe, either currently or imminently, from being able to use its reserved water for any purpose.” <i>Id.</i> at 18. Based on this finding, the injury-in-fact standard again led to the decision that the Tribe lacked standing for the claim. “Because the Tribe fails to provide evidence of harm, actual or imminent, to the its ability to use water of a sufficient quality to fulfill the purposes of the reservation, the Tribe lacks standing for its water quality claim.” <i>Id.</i> at 19.</p>
<p>Water Quality Component</p>	<p>Ownership of pore space by the Tribe in the aquifer underlying the reservation was the final issue addressed. The Court accepted the Tribe’s definition of “pore space” as “...the void or open subterranean spaces that are not filled by solid material; the empty space between the rocks, sand, and other solid soil where water can be stored.” <i>Id.</i>, footnote 15.</p>
<p>Evidence Lack</p>	<p>The Court found: ...the Tribe has standing to seek a declaration that it has an ownership interest in sufficient pore space to store its federally reserved water. However, like with the quantification claim, the Tribe presents no evidence of any actual or imminent threat to its ability to store water of any quantity — much less its ability to store an amount necessary to fulfill the purposes of the reservation. Thus, the Tribe presents no evidence of actual or imminent injury to its ownership interest in sufficient pore space to store its federally reserved water. Accordingly, the Tribe lacks standing to seek its requested injunctive relief concerning pore space.</p>
<p>Pore Space Ownership</p>	<p><i>Id.</i> at 20-21.</p>
<p>Appeal?</p>	<p>The Court deferred to Phase III of the litigation the “...narrow issue of whether the Tribe owns sufficient pore space to store its federally reserved water right.” <i>Id.</i> at 21. It remains to be seen if the Tribe will appeal the rulings to the Ninth Circuit on the quantification and quality claims. For now, the summary judgment orders mean that the Tribe “currently lacks standing as to those claims” and thus cannot pursue the claims further at this time. <i>Id.</i> at 22.</p>

FOR ADDITIONAL INFORMATION: Order available upon request from TWR at: TheWaterReport@yahoo.com

WATER BRIEFS

**EXCHANGE OF WATER UT
RECLAMATION & UTAH RIGHTS**

The Bureau of Reclamation (Reclamation) and the State of Utah held a ceremony on March 20 to sign the Green River Water Rights Exchange contract. Under the terms of the contract, Utah agrees to forbear its right to deplete water from the Green River and its tributaries, enabling Reclamation to meet federal Endangered Species Act flow requirements. In exchange, Utah will receive an equal amount of water released from Flaming Gorge Dam. The contract provides assistance in meeting flow and temperature requirements for the recovery of endangered fish, and allows Reclamation to continue operations in compliance with the 2006 Record of Decision. The Green River Block consists of 72,641 acre-feet.

Representatives from Reclamation and Utah completed negotiations on the proposed agreement last year, and Reclamation recently completed a subsequent National Environmental Policy Act review, which resulted in a Finding of No Significant Impact (FONSI). This agreement is specific to the Green River Block of the State's previously-assigned Central Utah Project Ultimate Phase water right. It is not related to the State's proposed Lake Powell Pipeline project.

The contract between Reclamation and Utah permits the state to put a portion of their water right to beneficial use and provides a more reliable water source for Utah during dry years, while avoiding the need to construct costly new water storage facilities.

For info: Marlon Duke, Reclamation, 801/ 524-3774 or MDuke@usbr.gov; Documents at: www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=65203; Contract copy available upon request from TheWaterReport@yahoo.com

**DESAL & PURIFICATION US
FUNDING OPPORTUNITY**

On April 30, Reclamation announced it is launching a novel "pitch to pilot" funding opportunity seeking new innovative technologies or processes for desalination and water purification. Top applicants will pitch their ideas for innovative technologies to reviewers for the chance to test through a pilot demonstration.

Specifically, Reclamation is

seeking a less energy-intensive way than current processes and technologies to treat brackish groundwater at the pilot scale; to reduce the high cost, energy usage and/or environmental impacts of concentrate management for inland desalination at the pilot scale; to improve efficiency of treatment without increasing the total cost and energy usage of current systems for desalination pretreatment; and to address costs, energy usage and/or environmental impacts of seawater desalination, including intakes and/or outfalls.

Reclamation anticipates awarding four to six agreements with up to \$150,000 available per agreement through its Desalination and Water Purification Research Program. Applications are due June 25, 2019.

The funding opportunity is available at www.grants.gov by searching funding opportunity number BOR-DO-19-F017.

For info: Peter Soeth, 303/ 445-3615, psoeth@usbr.gov or www.usbr.gov/research/dwpr

**ADJUDICATION FILING ID
DOMESTIC & STOCKWATER**

On April 10, the Idaho Department of Water Resources (IDWR) mailed commencement notices to all property owners within the Palouse River Basin Adjudication (PRBA) boundary in Idaho's panhandle. Owners of small domestic and/or stockwater water rights may choose to file now or wait until a later date. IDWR will open a temporary office at the Latah County Fairgrounds in Moscow, Idaho to assist with claim filing. The deadline to file claims without a late fee is August 30, 2019.

The PRBA is one of three phases of the Northern Idaho Adjudication. Discovering the value of certainty in water right decrees, the State instructed IDWR to move forward with an administrative and legal process to determine the water rights in Idaho's panhandle in three separate adjudications, creating the Northern Idaho Adjudications. The 2006 Legislature authorized IDWR to proceed with planning and designing the administrative mechanisms for commencing the first of three water right adjudications in Northern Idaho beginning with the Coeur d'Alene-Spokane River Basin Adjudication (CSRBA). Adjudication staff for the

Northern Idaho Adjudications will work in the Coeur d'Alene office with support staff in Boise. The Northern Idaho Adjudication is designed to proceed in three phases: Phase 1 - Coeur d'Alene-Spokane River Basin Adjudication (CSRBA), Basins 91-95; Phase 2: Palouse River Basin Adjudication (PRBA), Basin 87; and Phase 3: Clark Fork-Pend Oreille River Basins (CFPRBA), Basins 96-97.

For info: IDWR Adjudication website at: <https://idwr.idaho.gov/> >> Water Rights >> Adjudication

**GROUNDWATER TRANSFER ID
CUMULATIVE EFFECTS MEMO**

On March 28, the Idaho Department of Water Resources (IDWR) released a Memorandum, "Review of ESPA Transfers between 2012 and 2018." This review of transfers within the Eastern Snake Plain Aquifer (ESPA) was designed to estimate the cumulative effects of those transfers on the Snake River's surface flows. IDWR used ESPAM version 2.1 to review 6.5 years of ESPA transfers (426 total between 2012 and 2018) to estimate the cumulative effects. "The Water Allocations Bureau identified 426 transfers between 1/1/2012 and 8/31/2018 involving pumping from the Eastern Snake Plain Aquifer (ESPA). 'TO' and 'FROM' wells were assigned a model row and column and average annual consumptive use determined by location." Memo at 1.

The Memorandum noted the net effect on the aquifer (ESPA) itself. "The FROM wells are simulated as inputs (cessation of pumping is a positive impact) and the TO wells are simulated as a depletion. The FROM wells total about 412,728 AF of positive impact to the aquifer and the TO wells total about 412,210 AF of depletion to the aquifer. This indicates that the transfers do not inadvertently result in a net increase in aquifer depletions." *Id.* at 4.

The impact on the Snake River varied depending on the reach of the river involved. For example: "The maximum annual gain is to the near Blackfoot-Neeley reach at about 850 AF/yr and the maximum annual loss is to the Neeley-Minidoka reach at about 300 AF/yr." *Id.*

For info: IDWR website: <https://idwr.idaho.gov/> >> Report on the Cumulative Impacts of ESPA Transfers

WATER BRIEFS

**HYDRO SETTLEMENT ID/OR
REAUTHORIZATION TIE-IN**

On April 22, Governor Kate Brown of Oregon and Governor Brad Little of Idaho announced that a settlement agreement by the states of Oregon and Idaho regarding the operation of the Hells Canyon Complex had been reached that benefits water quality, habitat, and Columbia Basin fish. Coupled with other commitments from Idaho Power Company (IPC), the agreement requires IPC to spend over \$312 million toward water quality and habitat improvements, and includes investments in additional fish production, monitoring, and study. This research will aid future review of water quality, including an assessment of fisheries and habitat, scheduled for 20 years into the license term.

The agreement is a monumental step toward Idaho Power's reauthorization to operate three Snake River dams. The parties have been working since 2005 to resolve disagreements on state sovereignty, water quality, and fish passage along the portion of the Snake River that is shared by Idaho and Oregon.

The settlement agreement includes \$12 million of direct investment in water quality and habitat improvement projects in Oregon tributaries and it advances the Snake River Stewardship Program of Idaho Power, which will implement \$300 million worth of water quality projects, resulting in cleaner, colder water flowing downstream. In addition, the company will increase production at their Rapid River Hatchery. The states will revisit the question of fish passage at twenty years into the license period.

The combined water quality measures are expected to result in:

- Improvements in habitat and water quality in Snake River tributaries
- Placement of fish in Pine Creek and research on the viability of salmonid populations
- Reductions in the sources of mercury and other pollutants which impact human and ecological health
- In-stream habitat restoration projects along a 30-mile reach of the Snake River, including floodplain enhancement projects, island creation projects, inset floodplain creation, emergent wetland creation, and riparian revegetation projects along 150 miles or more of tributaries of the Snake River that will increase shade

and reduce warming from the sun. In December 2018, the Oregon and Idaho Departments of Environmental Quality (DEQs) solicited comments on the draft water quality certification for the continued operation of the dams (Section 401 certifications), which included a draft settlement agreement. The DEQs reviewed and considered all submitted public comments, and made modifications as deemed appropriate. The DEQs are currently finalizing the water quality certifications and will provide formal responses to public comments received. The settlement agreement is dependent on the successful issuance of state water quality certifications.

The Water Report is planning on publishing a detailed article on the specifics of the settlement agreement in a later issue.

For info: Chris Pair, Oregon Governor's Office, 503/ 378-8197, chris.pair@oregon.gov or www.oregon.gov/

**WETLANDS RULES CA
LAWSUIT FILED TO STOP**

On April 2, the California State Water Resources Control Board (SWRCB) adopted rules to protect wetlands and other environmentally sensitive waterways throughout the state (*see* www.waterboards.ca.gov/water_issues/programs/cwa401/wrapp.html). More than 90% of California's historic wetlands have been lost to development and other human activity. Wetlands are a critical natural resource that protect and improve water quality, provide habitat for fish and wildlife, and buffer developed areas from flooding and sea-level rise. The adopted rules are known as the "State Wetland Definition and Procedures for Dischargers of Dredged or Fill Material to Waters of the State."

The newly adopted rules provide a common, statewide definition of what constitutes a wetland — after 11 years of controversy on the subject. They also provide consistency in the way SWRCB and nine regional water boards regulate activities to protect wetlands and other waterways, such as rivers and streams, and bays and estuaries. The rules have two components that support each other. First, the rules define what is considered a wetland and include a framework for determining if a feature defined as a wetland is a "water of the state" subject to regulation. Second, the rules clarify requirements for permit applications to discharge dredged or fill material to any

water of the state.

Waters of the state are, by definition, broader than "waters of the United States" covered by federal regulation. The newly adopted rules do not change that and will ensure that waters of the state will continue to be protected even if protections for federal waters are narrowed by administrative actions or the courts.

The rules, however, have already been challenged by a complaint filed in Sacramento Superior Court by the San Joaquin Tributaries Authority (Authority), a coalition of water agencies composed of several Central Valley water suppliers such as Modesto Irrigation District, South San Joaquin Irrigation District and both the City and County of San Francisco.

For info: SWRCB website at: www.waterboards.ca.gov; Authority's website at: <https://calsmartwater.org/>

**PFAS ACTIONS US
GUIDANCE & RESEARCH**

On April 25, the US Environmental Protection Agency (EPA) released draft interim guidance for addressing groundwater contaminated with **perfluorooctanoic acid (PFOA)** and/or **perfluorooctane sulfonate (PFOS)** for public review and comment. The interim guidance will support actions to protect the health of communities impacted by groundwater that contains PFOA and PFOS above the 70 parts per trillion.

EPA developed this guidance based on the agency's *current* scientific understanding of PFAS toxicity, including the agency's PFOA and PFOS health advisories. The recommendations may be revised as new information becomes available. EPA has opened a docket for a 45-day public comment period.

On May 1, EPA awarded approximately \$3.9 million through two grants for research that improves understanding of human and ecological exposure to **per-** and **polyfluoroalkyl** substances (PFAS). Two universities are receiving the grants: Colorado School of Mines, to research the fate, transport, bioaccumulation, and exposure of a diverse suite of PFAS; and Oregon State University to study the toxicity of a large collection of PFAS and PFAS to identify toxic PFAS that require prioritization for risk management. **For info:** PFAS website at: www.epa.gov/pfas

- May 15** **LA**
Hypoxia Task Force Networking Reception, Baton Rouge. Louisiana State University/ Coastal Protection & Restoration Authority Center for River Studies; 5:30-7:30 pm Central Time. Presented by the EPA Mississippi River Gulf of Mexico Hypoxia Task Force. For info: <https://water-meetings.tetrattech.com/Hypoxia/StaticPublic/index.htm>
- May 16** **LA**
Hypoxia Task Force Public Meeting & WEBCAST, Baton Rouge. Hilton Baton Rouge Capitol Center; 8:30 am - Noon. Presented by the EPA Mississippi River Gulf of Mexico Hypoxia Task Force. For info: <https://water-meetings.tetrattech.com/Hypoxia/StaticPublic/index.htm>
- May 16** **TX & WEB**
Just Good Business: Mitigating Environmental Liability & Responding to Environmental Inspection & Enforcement Actions - Master Class, Washington. Akin Gump Strauss Hauer & Feld, 2300 N. Field Street, Ste. 1800. Presented by Environmental Law Institute. For info: www.eli.org
- May 17** **OR**
Agricultural Law Section Annual "Round-Up" CLE Program, The Dalles. The Columbia Gorge Discovery Center. Presented by the Agricultural Law Section - Oregon State BAR; Register by May 10 - Limited to first 40 Registrants. For info: Janine Hume, 503/ 227-1111 or jhume@sussmanshank.com
- May 17** **OR**
Portland Harbor: Remediation + Revitalization + Redevelopment Conference, Portland. World Trade Center Two. For info: Environmental Law Education Center, 503/ 282-5220 or www.elecenter.com
- May 22** **WEB**
Sustainable Investment in Agriculture, WEB. Presented by Environmental Law Institute. For info: www.eli.org
- May 22-24** **CA**
WSWC/CDWR Sub-Seasonal to Seasonal (S2S) Precipitation Forecasting Workshop, San Diego. DoubleTree San Diego Downtown Hotel. Presented by Western States Water Council & California Dept. Of Water Resources. For info: <http://www.westernstateswater.org/upcoming-meetings/>
- May 23-24** **NV**
Tribal Natural Resource Damage Assessments Seminar, Las Vegas. Embassy Suites by Hilton Las Vegas. RE: Best Practices to Establish Impacts of Proposed Projects. For info: Law Seminars International, 206/ 567-4490 or www.lawseminars.com/
- May 21-23** **ID**
2019 Idaho Reuse & Operators Conference (IROC): Water Reuse, Wastewater, Pretreatment, Laboratory, Collections, Drinking Water & Land Application, Boise. The Riverside Hotel. Presented by Pacific Northwest Water Reuse Assoc., Idaho Operators Conference & Idaho Dept. of Environmental Quality. For info: <http://www.deq.idaho.gov/2019-water-reuse-conference>
- May 29-30** **WA**
Washington State Brownfields Conference, Spokane. DoubleTree by Spokane City Center. Presented by WA Dept. of Ecology & Northwest Environmental Business Council. For info: <https://ecology.wa.gov/Brownfields-Conference>
- May 29-31** **MT**
19th Institute for Natural Resources Law Teachers, Missoula. DoubleTree by Hilton Hotel Missoula-Edgewater. Presented by Rocky Mountain Mineral Law Foundation. For info: www.rmmf.org/
- June 5** **WA & WEB**
Women and Environmental Law Seminar & Webinar, Seattle. Beverage & Diamond, 600 University Street, Suite 1601. Presented by Environmental Law Institute. For info: www.eli.org
- June 5-7** **India**
World Environment Conference & Expo: Exhibition, Conference & Awards, New Delhi. Pragati Maidan. For info: www.worldenvironment.in
- June 6-7** **WA**
Tribal Consultations Conference, Seattle. 901 5th Avenue Bldg. RE: Requirements to Establish Impacts of Proposed Projects. For info: Law Seminars International, 206/ 567-4490 or www.lawseminars.com/
- June 6-7** **CO**
Charting a Better Course for the Colorado River: Identifying the Data & Concepts to Shape the Interim Guidelines Renegotiation - 2019 Getches-Wilkinson Center Summer Conference, Boulder. University of Colorado, Wolf Law Building. For info: www.getches-wilkinsoncenter.cu.law/events/2019-gwc-summer-conference/
- June 9-12** **CO**
"Innovating for the Future of Water"- New Technologies & Water Sector Innovations: ACE19-American Water Works Association Annual Conference, Denver. Colorado Conference Center. For info: <https://events.awwa.org>
- June 10-12** **CO**
Western Governors' Association 2019 Annual Meeting, Vail. Hotel Talisa. For info: <http://www.westgov.org/>
- June 11** **CO**
2019 Annual RiverBank Celebration - Colorado Water Trust Gathering, Denver. Denver Botanic Gardens, 1007 York Street, 5:30 - 8:30 pm. For info: www.ColoradoWaterTrust.org/
- June 11** **DC & WEB**
NEPA, ESA & Fundamentals of Environmental Law (ELI Summer School 2019), Washington. Environmental Law Institute, 1730 M Street, NW, Ste. 700. Presented by Environmental Law Institute. For info: www.eli.org
- June 12** **OR**
Portland Harbor Public Forum, Portland. TBA. Presented by EPA, with DEQ & CAG Support. For info: Laura Knudsen, 206/ 553-1838 or knudsen.laura@epa.gov
- June 13-14** **CA**
Land Use Law Conference, San Francisco. BASF Conference Center. For info: CLE Int'l, 800/ 873-7130, live@cle.com or www.cle.com
- June 13-14** **WA**
Energy Storage Seminar, Seattle. 1201 Third Avenue Building. For info: Law Seminars International, 206/ 567-4490 or www.lawseminars.com/
- June 16-19** **NV**
2019 AWRA Summer Specialty Conference - Improving Water Infrastructure Through Resilient Adaptation, Sparks. Nugget Casino Resort. Presented by American Water Resources Association. For info: www.awra.org
- June 18** **DC & WEB**
Basics of the Clean Water Act (ELI Summer School 2019), Washington. Environmental Law Institute, 1730 M Street, NW, Ste. 700. Presented by Environmental Law Institute. For info: www.eli.org
- June 19** **OR**
Managing Stormwater in Oregon Conference, Salem. Salem Convention Center. Northwest Environmental Business Council (NEBC) Event. For info: www.nebc.org



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CALENDAR

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June 26 TX
Dam Safety Workshop, Conroe.
Lone Star Convention & Expo Center. Presented by TCEQ. For info: www.tceq.texas.gov/p2/events/dam-safety.html

June 27-28 WA
Washington Water Law & Resource Management Conference, Seattle, Seattle Hilton. For info: Law Seminars International, 206/ 567-4490 or www.lawseminars.com/

July 1-2 CA
Open Water CA 2019: 4th Annual Water Data Science Symposium, Sacramento & WEB. CalEPA Headquarters Bldg. Presentd by the Surface Water Ambient Monitoring Program, the California Water Quality Monitoring Council & the San Francisco Estuary Institute. For info: Nick Martorano at: SB1070Coordinator@waterboards.ca.gov

July 10 TX
Dam Safety Workshop, Austin.
J.J. Pickle Research Campus, The University of Texas at Austin, 10100 Burnet Road, Bldg. #137. Presented by TCEQ. For info: www.tceq.texas.gov/p2/events/dam-safety.html

July 10-11 CO
Endangered Species Act, Wetlands, Stormwater & Floodplain Regulatory Compliance for Energy & Utilities Seminar, Denver. EUCI Office Bldg. Conference Center, 4601 DTC Blvd., B-100. For info: www.euci.com

July 11 ON
Introduction to FERC Hydropower Course, Toronto.
Hilton Garden Inn - Toronto/Ajax. For info: www.euci.com

July 12 ON
FERC Hydropower Licensing, Toronto. Hilton Garden Inn - Toronto/Ajax. For info: www.euci.com

July 16 DC & WEB
Hazardous Waste & Sites (ELI Summer School 2019), Washington. Environmental Law Institute, 1730 M Street, NW, Ste. 700. Presented by Environmental Law Institute. For info: www.eli.org

July 17 NM
Hydrology in Water Law Proceeding Seminar, Santa Fe, La Fonda Santa Fe Hotel. For info: Law Seminars International, 206/ 567-4490 or www.lawseminars.com/

July 17-19 WA
Western States Water Council Summer (190th) Council Meeting, Leavenworth.
Icicle Village Resort. For info: <http://www.westernstateswater.org/upcoming-meetings/>

July 18-20 CA
65th Annual Rocky Mountain Mineral Law Institute, Monterey. Monterey Conference Center. For info: www.rmmlf.org/

July 24 TX
Dam Safety Workshop, Decatur.
Decatur Civic Center, 2010 W. US 380. Presented by TCEQ. For info: www.tceq.texas.gov/p2/events/dam-safety.html

July 25-26 OR
2nd Annual Agriculture Law Seminar, Bend. McMenamins Old St. Francis School, 700 NW Bond Street. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

July 25-26 CA
Sustainable Groundwater Planning in California Seminar, Sacramento, Sutter Square Galleria. . For info: Law Seminars International, 206/ 567-4490 or www.lawseminars.com/