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ENGAGING WITH TRIBES

IMPLEMENTING CALIFORNIA'S SUSTAINABLE GROUNDWATER MANAGEMENT ACT REQUIREMENTS, RIGHTS, OPTIONS, AND OPPORTUNITIES AS CONCERNS TRIBES

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Introduction

The State of California's 2014 Sustainable Groundwater Management Act (SGMA) is a comprehensive framework for groundwater management. It provides for multiple implementation phases. The first phase is the formation of Groundwater Sustainability Agencies (GSAs) by June 30, 2017. Next, SGMA relies on these locally-based GSAs to develop and then implement Groundwater Sustainability Plans (GSPs) (*see* Ceppos, et al. *TWR* #162). For critically over drafted high- and medium-priority basins, GSPs must be in place by January 31, 2020. Those high and medium-priority basins that are not in a state of critical overdraft have until January 31, 2022 to develop their GSPs. The third phase is GSP implementation. GSAs are expected to achieve the sustainability objectives contained in GSPs within 20 years, and maintain them over 50 years. Incorporated into SGMA are requirements for GSAs to coordinate across jurisdictional boundaries among various local agencies and to engage beneficial users of groundwater, including Native American Tribes (Tribes). (SGMA, §10723.2(h)).

Cross-jurisdictional coordination on groundwater management is already complicated, and local agency engagement with Tribes involves unique and even more complex requirements.

At the time of this article's publication, GSAs will have begun the second phase of SGMA implementation, wherein GSAs address many of the coordination complexities inherent in groundwater management. Simultaneously, recent Ninth Circuit decisions demonstrate the increasing need for local agencies and states to evaluate how they engage with Tribes in groundwater management. The completed GSA formation phase provides important lessons about establishing relationships that support managing shared groundwater resources with Tribes. While SGMA is a California state statute, its impact and nuances spotlight the concepts and processes that local agencies and states throughout the United States should embrace to have meaningful engagement with Tribes in natural resources management policy sectors (particularly groundwater management).

This article explores the nuances of tribal engagement in groundwater management under SGMA — some of which involve requirements and rights, and some of which involve options. Groundwater management planning under SGMA is inherently complicated. It requires local agencies that historically have operated independently to coordinate with other entities in unfamiliar ways. GSAs struggle with decisions ranging from how they will be formed and governed to the type of data each agency will use to evaluate and develop their GSPs. GSAs are also tasked with actively engaging beneficial users of groundwater. Many groundwater users have not previously dealt with GSA member agencies. Due to a range of variables described below, Tribes are a prominent example of the complexity of such engagement.

Tribal Engagement

Assistance

New Groundwater Regulation

"GSAs"

Tribal Role

Engagement

The Water Report
(ISSN 1946-116X)
is published monthly by
Envirotech Publications, Inc.
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Eugene, OR 97402

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Subscription Rates:
$299 per year
Multiple subscription rates available.

Postmaster: Please send address corrections to
The Water Report,
260 North Polk Street,
Eugene, OR 97402

This article is intended to guide GSA member agencies and Tribes to understand pertinent rights, requirements, and options associated with SGMA implementation and engagement between Tribes and these new local agencies. This article draws on federal case law, literature in collaborative decision-making, and the insights of mediators and facilitators at California State University, Sacramento's Center for Collaborative Policy (CCP). The California Department of Water Resources and their partner agency in SGMA compliance, the State Water Resources Control Board (SWRCB), have generously funded collaborative, facilitative, and meditative assistance to basins throughout the State. CCP has provided these services to twenty basins throughout the State including assistance to state and local agencies, Tribes, and other affected parties regarding tribal engagement under SGMA.

Tribes & SGMA

SGMA is the first piece of legislation in California to formally regulate the extraction and use of groundwater in California and the impacts associated with such extraction. SGMA specifically prevents GSAs from making any binding determinations of groundwater rights, but does impact the management of those rights to ensure sustainability of California's alluvial groundwater basins. (SGMA §10726.8). Therefore, impacts to groundwater rights become an overarching theme in all SGMA discussions.

Only a local public agency that has water supply, water management, or land use responsibilities within a groundwater basin may form a GSA (SGMA §10721(n)). These "local agencies" customarily include counties, water districts, irrigation districts, conservation districts, and other existing agencies with a water management mission. SGMA has specific language that restricts water corporations and mutual water companies from forming as GSAs on their own. Likewise, Tribes are not authorized to form a GSA on their own under SGMA. However, Tribes can join a GSA if invited by one or more local agencies. Likewise, tribal trust lands (lands held in trust by the federal government for Tribes) are specifically excluded from SGMA enforcement. SGMA's limitation on who can form a GSA and "sit at the decision making table" was a significant point of tension in GSA formation. Tribes expressing interest in SGMA felt the tension from this limitation acutely, due to the historic relationships between Tribes, the State of California, and local agencies.

We all feel a need to have our stories heard and our words given due consideration when a decision is being made about something important to us. Establishing a process to ensure that a party is heard and engaged often can satisfy that need. (Neuman, p. 293). Tribes, in particular, value this need and such processes. SGMA facilitates this by requiring robust engagement at all stages of SGMA implementation. GSAs must "consider the interests of all beneficial users of groundwater, as well as those responsible for implementing groundwater sustainability plans." (SGMA § 10723.2). SGMA mandates notice to specific beneficial users, including California Tribes, at all major decision-making milestones (SGMA § 10723.2(h). Additionally, SGMA allows for Federally Recognized Tribes with shared interests in GSPs or the management of groundwater resources within a basin to "voluntarily agree to participate in the preparation or administration of a [GSP] or groundwater management plan…through a joint powers authority (JPA) or other agreement with local agencies in the basin." (SGMA § 107). However, SGMA §10723.2 does not grant Tribes the ability to serve as a signing member of a SGMA JPA. [Editors' Note: Concerning governmental aspects, SGMA references "Federally Recognized Tribes" — however, for outreach and engagement purposes, SGMA interchangeably utilizes the terms "California Native American Tribe" and "Federally Recognized Tribe." "California Native American Tribes" often includes Indian communities, federally recognized Tribes and non-federally recognized Tribes.]

SGMA leaves the implementation of this engagement process to the local agencies to define on their own, based on local needs and experiences. This works to the extent that local agencies are engaging the stakeholders with whom they usually work, but it can cause issues for local agencies and Tribes who are unaccustomed to working closely with one another. Engaging with Tribes may prove particularly problematic because tribal engagement does not have a prescribed set of steps or processes.

Meaningful tribal engagement requires an understanding and respect of tribal sovereignty and a demonstrated commitment to ongoing dialogue and building lasting relationships.

Engaging Tribes Means Respecting Tribal Sovereignty

Federal Indian Law is a diverse and expansive canon of law. This article cannot describe this canon of law or the full legal interplay of tribal sovereignty. However, the following is a brief summary of tribal sovereignty. It is provided as a partial background to help in discussing issues that arise out of SGMA.

Tribes are governments exercising sovereign authority over their people and lands. Tribal nations are defined under US law as Domestic Dependent Nations. (*See Cherokee Nation v. Georgia* (30 U.S. (5 Pet.) 1 (1831)). This means that Tribes maintain their inherent sovereign authority over their people and

Tribal Engagement

Sovereignty

Federal Actions

This article uses the term Tribes generally to address California Native American Tribes and Federally Recognized Tribes. Wherever possible, it is important to identify Tribes by their specific names, versus a generalized term or grouping. This article uses the general term "Tribe" due to the nature of discussion of tribal relations within the West. However, the Authors recommend utilizing the specific names of Tribes to respect their diversity and identities.

their tribal trust lands and some "fee lands" (i.e., lands owned by Tribes, but not held in trust by the federal government and thus not legally under tribal sovereign authority) within reservation boundaries (Mattson, p. 1066). [For more details on tribal lands, see California Department of Water Resources, *Tribal Land Primer*, available at: http://water.ca.gov/tribal/docs/2016/Land%20primer%20for%20GSA's.pdf].

However, as sovereigns existing within US boundaries, Tribes also are subject to federal law. Due to federal trust obligations, relating in part to Tribe's unique sovereign status, federal agencies are required to engage in government-to-government consultation with federally recognized Tribes for federal agency actions or planned actions that may adversely impact tribal rights or resources. The federal trust obligations stem from legal obligations the federal government owes to Tribes as a result of treaties, congressional acts, and case law. The United States "has charged itself with moral obligations of the highest responsibility and trust" toward Indian Tribes (*Seminole Nation v. United States,* 1942). This obligation was first discussed by Chief Justice John Marshall in *Cherokee Nation v. Georgia* (1831).

Tribal Engagement

Some states, including California, have policies requiring government-to-government consultation with Tribes under specific circumstances. Usually, local agencies (counties, cities, water agencies, etc.) are not required under state (or federal) law to engage in government-to-government consultation with Tribes. Tribes' unique role in the American political landscape has lead them to expect (and to have codified at the federal and some state levels) a certain amount of respect for their sovereign status and meaningful engagement in management of shared or common resources. However, those expectations may not always be shared or understood by Tribe's neighboring local agencies.

Ambiguous Context

Numerous factors have created an ambiguous legal context regarding relationships between Tribes and state and local agencies. These include: the primacy of federal jurisdiction over Tribal matters; conflicting legal interpretations and precedent; the lack of well-defined state public policy regarding Tribes; and a checkerboard pattern of Tribal and non-Tribal land ownership on reservation lands that creates jurisdictional confusion.

"Allotment"

Many laws governing Tribal-federal relations were written in a historical context prior to the "allotment era" which occurred around the end of the 19th century. These allotments often fundamentally altered Tribal-state relations by generating a checkerboard land ownership pattern (breaking up tribal trust territories and intermixing fee lands with trust lands) and bringing non-Indians into residence on reservations. Subsequent legal interpretations and court decisions generated a legal and jurisdictional "morass" regarding fundamental governmental functions such as land zoning, law enforcement, and taxation authority. These confused conditions have often increased conflict between Tribes, local and state governments, and non-Indians. (Fletcher, 2006; Getches, 1993).

Participation Issues

As referenced above, SGMA specifically excludes Tribes from forming their own GSAs. Moreover, if Tribes do not join local agencies in a GSA, their tribal trust territories are excluded from SGMA. While SGMA requires and encourages GSAs to engage Tribes, all of the factors referenced above may cause either trepidation or hostility between Tribes and GSAs when they contemplate coordinating on SGMA implementation. Additionally, Tribes may decide not to participate in SGMA for various reasons, which may include: not considering groundwater management a priority issue; not wanting to invite state and local agency jurisdiction onto tribal territories; not having sufficient resources to devote to SGMA implementation; or reluctance to share sensitive data. While state agencies will not penalize GSAs for failure to incorporate tribal perspectives if a Tribe decides not to engage in discussions, the GSA where Tribes are beneficial users will need to demonstrate they attempted "meaningful engagement" — which is an entirely new process for some local agencies.

Meaningful Tribal Engagement

Protocols

Because Tribes are sovereign entities, tribal engagement is more complex than standard stakeholder engagement. Due to their status and history of federal and state relationships, Tribes expect and are entitled to certain protocols. The federal government and some states recognize and affirm these expectations. Likewise, some states require local agencies to follow consultation protocols when working with Tribes on specific issues. For example, California has sought to develop better relationships with tribal governments since 2004, when the State passed Senate Bill 18 requiring local governments to consult with Tribes on County general plans to ensure tribal cultural resources are not placed at risk through plan revisions. Additionally, in 2011, Governor Brown signed Executive Order B-10-11, which requires California agencies to consult with Tribes similarly to Federal agencies, and to develop consultation policies to facilitate doing so. While SGMA does not require government-to-government consultation, the Act considers management of vital shared resources that could have potential cross-jurisdictional impacts.

Local Inexperience

Despite the State of California's actions, there are still many local agencies and counties that are unfamiliar with meaningful tribal engagement. This inexperience, given existing laws and state policies, exacerbates existing intergovernmental tensions and issues when these protocols are not followed. Furthermore, due to the cultural history of Tribes and their interactions with local and state governments, a failed misstep in protocol can have long-lasting impacts on the Tribes' willingness to come to the negotiation table with local agencies. Tribes increasingly recognize their influence with the state governments. Therefore, where Tribes have the resources, they can maintain a very strong and robust political influence within state legislatures and agencies. In the case of SGMA, this can assist a project or cause serious delays if Tribes feel they are not offered an appropriate role in GSP development.

Tribes' Expectations

Recognizing this dynamic and the limited experience of local agencies to work with Tribes, CCP (in coordination with the California Department of Water Resources (DWR)) spoke with Tribes across California regarding SGMA and the protocols Tribes expected during various phases of SGMA. Responses were as varied as the Tribes themselves. However, there are some "universals" in how Tribes define meaningful engagement. Organized according to the main SGMA phases and milestones, the Tribal Engagement Tool (included on pages 9 & 10) describes the variety of engagement methods and

Tribal Engagement

opportunities that Tribes expect when working with GSAs. All of these engagement methods should be carried out in a manner that is respectful of tribal history and sovereignty. The following general principles should also be considered when utilizing the tribal engagement tool:

General Principles

- Respect Tribal sovereignty. This includes:
  - Allowing for interactions similar to government-to-government consultation (leader-to-leader discussions, early engagement in processes, etc.).
  - Respecting the diversity and individuality of Tribes (e.g. in areas with multiple Tribes, ensuring that communications are shared with all Tribes).
  - Ensuring each Tribe speaks for itself. Representation is a major issue for Tribes; engagement should ensure that tribal leaders approve of any representatives identified for decision-making. Tribes do not customarily speak for each other, or approve of those that speak on behalf of a Tribe without the Tribal Council's approval.
- Defer to Tribes regarding how best to communicate with them, including how government-to-government consultation happens. Many Tribes and local agencies with successful relationships have a Memorandum of Understanding (MOU) on engagement principles or methods — if available, these MOUs should be followed in lieu of the Tribal Engagement Tool recommendations.
- Recognize Tribes as integral to sustainable groundwater/resource management.
- Realize that Tribes have limited resources to engage in activities outside their reservation boundaries.
- Acknowledge Tribes' rights and resources (both the extent and the limitations of those resources).
- Respect tribal expertise to manage their resources.
- Provide consistent transparency in communication and commitments.
- Understand that Tribes are hesitant to share confidential data without assurances as to its use and distribution.

Meaningful engagement in natural resource management is vital to most Tribes. Meaningful engagement usually leads to processes, discussions, or agreements through which Tribes can influence resource management decisions and practices.

Transitioning from Tribal Engagement to Tribal Collaborative Management

Motivation Varies

Culturally respectful engagement is an important first step to working with Tribes and ensuring they have a "seat at the groundwater management table." Tribal motivation to engage in SGMA and groundwater management activities varies by Tribe. Some Tribes merely seek an opportunity to track activities and ensure they are consistent with tribal values. These Tribes may not pursue further discussions or integration into decision-making. This limited response could be due to relative proximity and need for groundwater resources, trust in other partners, or limited resources to engage further.

Tribes seeking engagement beyond information sharing will request and need a process to participate in decision-making.

Engagement Models

A brief summary of example tribal engagement models used in California includes:

Tribal Advisory Committees: This approach works best in regions with multiple tribal interests in a groundwater basin. A Tribal Advisory Committee can address tribal issues and offer neighboring Tribes an opportunity to come to consensus and agreement on issues before coordinating with other elements of the GSA governance structure (e.g., GSA Board, Public Advisory Committees, Technical Advisory Committees, etc.). Membership on Tribal Advisory Committees and meeting processes should be developed with tribal leaders. Representation is a very important issue for Tribes. Tribal Advisory Committees will likely need to take discussions back to their leadership councils for affirmation and discussion before rendering a joint opinion or recommendation through a committee.

Appointment to a GSA Board: This approach usually works when the number of seats offered corresponds with the number of Tribes within the basin or when there is a Tribal Advisory Committee to guide and advise the tribal GSA representative(s) on deliberations. (This is another example where representation considerations come into play).

MOAs & MOUs

Governance Agreements between GSAs and Tribes: Tribes may seek to enter into Memorandums of Agreement (MOA) or Memorandums of Understanding (MOU) with GSAs. Likewise, depending on the role of the County in the GSA and pre-existing relationships, Tribes may seek separate agreements directly with the county within a GSA. This is usually based on the extent of county jurisdiction as opposed to other GSA local agencies, and pre-existing interactions with counties. These agreements provide details on how tribal perspectives are incorporated into GSA decisions, including development, enforcement, and implementation of the GSP. California SWRCB guidance provides that a GSA, once established, can invite or appoint a Tribe to join the GSA but that a Tribe may not be an original signatory member of a GSA as created by a JPA, MOU, MOA, or similar legal agreement.

Tribal Engagement

Agreements for Groundwater Management, Enforcement, and Implementation: These agreements may be similar to the agreements referenced above. However, SGMA does provide authority to Tribes to enter into agreements with GSAs specifically for "preparation or administration of a groundwater sustainability plan or groundwater management plan." (SGMA § 10723.2(c)).

Likewise:

> *A participating tribe shall be eligible to participate fully in planning, financing, and management under this part, including eligibility for grants and technical assistance, if any exercise of regulatory authority, enforcement, or imposition and collection of fees is pursuant to the tribe's independent authority and not pursuant to authority granted to a groundwater sustainability agency under this part*. SGMA § 10723.2(c)

Other Strategies

The foregoing demonstrates the range of options Tribes may pursue to engage in groundwater management under SGMA. However, Tribes will turn to litigation, lobbying, or other legal and/or political strategies when they do not feel that communication, consultation, and collaborative management opportunities are truly meaningful (i.e. offer Tribes an opportunity to impact and participate in decisions). An example is the Agua Caliente Band of Cahuilla Indians and their relationships with Coachella Valley Water District and Desert Water Agency. The Agua Caliente Band of Cahuilla Indians had longstanding disagreements with these water agencies about the quality of water used to recharge the groundwater basin. This disagreement, among other things, led to the most recent litigation, *Agua Caliente Band of Cahuilla Indians, et al., v. Coachella Valley Water District* (2017), 2017 WL 894471 (*Agua Caliente*).

Agua Caliente and Reserved Groundwater Rights

Groundwater Dispute

The *Agua Caliente* case stems from failed negotiations in the management of the groundwater basin between the local agencies (Coachella Water District and Desert Water Agency) and the Agua Caliente Band of Cahuilla Indians. *Agua Caliente Band of Cahuilla Indians, et al., v. Coachella Valley Water District*, 849 F.3d 1262 (9th Cir. 2017). *See* Munson & Reeves, *TWR* #161. The result in these situations is often litigation.

Litigation Phases

The parties to *Agua Caliente* agreed to divide the litigation into three phases. The 2017 decision is Phase I, confirming the Agua Caliente Band of Cahuilla Indians' reserved right and denying the Agua Caliente Band of Cahuilla Indians' aboriginal right to groundwater. According to the parties' stipulation, Phase II will address whether the Tribe beneficially owns the "pore space" of the groundwater basin underlying the Agua Caliente Reservation (i.e. the basin's ability to filter groundwater) and therefore whether a tribal right to groundwater includes the right to receive water of a certain quality. Finally, Phase III seeks to quantify any identified groundwater rights.

***Winters* Doctrine**

The Ninth Circuit found in favor of the Agua Caliente Band of Cahuilla Indians on the issue of their reserved rights to groundwater, but did not find an aboriginal right to groundwater. The Court emphasized that the *Winters* Doctrine provides sustainable land for Indian Tribes in arid parts of the country in those reservations that lacked access to, or were unable to effectively capture, a regular supply of surface water (*Id. at 1271*). It held that the *Winters* Doctrine encompasses both surface water and groundwater appurtenant to reserved lands. The *Winters* Doctrine provides that Tribes retained reserved rights to surface water suitable to fulfill the purpose of their reservation (*Winters v. United States*, 207 U.S. 564 (1908)). Therefore, the creation of the Agua Caliente Reservation carried with it an implied right to use water from the Coachella Valley aquifer. (*Id.* at 1273). The Coachella Valley Water District and the Desert Water Agency are pursuing an appeal of *Agua Caliente* to the US Supreme Court (Supreme Court). There is a high likelihood of the Supreme Court hearing that case. In fact, ten states have filed an amicus curiae ("friend of the court") brief supporting the water districts' positions (Nevada, Arizona, Arkansas, Idaho, Nebraska, North Dakota, South Dakota, Texas, Wisconsin, and Wyoming). There is significant legal precedent for the Supreme Court to approve the original Ninth Circuit ruling. However, due to the nature of federal Indian law, there is equally sufficient precedent to limit application of the Ninth Circuit ruling in general or as it applies to the Agua Caliente Band of Cahuilla Indians.

Appeal

Groundwater Rights Impact

The reservation of federal groundwater rights to Tribes has significant precedent in the applicability of SGMA in basins with Tribes. The *Agua Caliente* case will impact ongoing or related discussions between Tribes and state/local agencies regarding groundwater management in and out of California. In California, Tribes' reserved rights to groundwater is likely to have a motivating influence on GSAs to find a way to integrate Tribes into GSA governance. The primary role of these GSAs is to develop, implement, and enforce GSPs. Understanding tribal groundwater needs and coordinating with Tribes on their anticipated groundwater priorities will help facilitate effective GSPs that can achieve sustainable groundwater management.

Tribal Engagement

Sustainability

Thresholds

Groundwater Management

Water Quality

Quantification of Rights

Ancillary Issues

Through the GSPs, GSAs must manage the alluvial groundwater basins sustainably. SGMA defines sustainability as the management and use of groundwater in a manner that can be maintained during the 50-year planning and implementation horizon without causing undesirable results. Undesirable results include the occurrence of one or more of the following:

- chronic lowering of groundwater levels;
- reduction of groundwater storage;
- seawater intrusion;
- degraded water quality, including contaminant plume migration;
- land subsidence that substantially interferes with surface land uses; and
- depletions of interconnected surface water.

The thresholds for these undesirable results are defined as the level of the phenomenon that is significant and unreasonable. The GSPs will rely heavily on technical data to establish the minimum thresholds for each sustainability indicator. That data may be incomplete where tribal groundwater use and rights are involved since Tribes are under no obligation to provide such data to the SGMA process. In addition, the minimum thresholds and sustainability indicators also will involve significant, non-technical input from beneficial users like Tribes in terms of feasibility and perspectives on what constitutes significant and unreasonable.

It is notable that a primary argument in the overall *Agua Caliente* case addresses the management of the groundwater basin and quality of the groundwater. The confirmation of reserved groundwater rights in many ways seems ancillary to the Agua Caliente Band of Cahuilla Indians' primary objective — i.e., a role in managing the basin's groundwater. The second two phases of *Agua Caliente* could have more profound ramifications to groundwater management in general — and in California, in particular — because they can impact the leverage that Tribes may exercise in GSP development and in defining sustainability indicators under SGMA. Current interpretation of water law does not provide Tribes with many opportunities to manage water quality (either surface or groundwater). (Anderson). The possibilities of a favorable decision in Phase 2 of the Agua Caliente Case or a favorable ruling overall could increase opportunities for Tribes to manage for water quality and increase the frequency of water management and water settlement agreements with Tribes.

Tribal Water Settlements and the *Agua Caliente* Case

The issue of tribal water rights is the most notable of discourses involving tribal and non-tribal natural resource management. The *Winters* Doctrine established tribal rights to water, but left the quantification of those rights as a separate determination. Until recently, the quantification process focused on adjudication. (Congressional Hearing on Water Rights (2012)). Adjudications (the judicial quantification of legal water rights) are costly and time consuming with limited success and strong reliance on state courts to adjudicate Tribes' quantified water rights. *Arizona v. California* (373 U.S. 546 (1963)). In California in particular, many Tribes operate under the presumption of reserved water rights under the *Winters* Doctrine, without pushing for the final quantification of those water rights. The reasons for this vary from Tribe to Tribe, however, in most cases Tribes do not have funds to pay for adjudication/quantification of tribal water rights or engage in water settlement negotiations. Likewise, if Tribes do not need the water rights at issue they may chose not to potentially limit their claims to water through a settlement or quantification proceeding. However, as water resources become more scarce relative to increasing demands, Tribes are pursuing tribal water settlements more often, as the more cost effective means of quantifying their water rights.

Previously, water settlement agreements provided the added benefit of allowing Tribes to focus on issues ancillary to quantification of water rights that were not otherwise part of the adjudication discussions (e.g. water quality, data management, etc.). Unlike in adjudications that focus on and are limited to quantifying legal water rights, parties to water settlements can negotiate on whatever matters they have authority to discuss or manage. The *Agua Caliente* case potentially moves both groundwater quantity and quality issues into the forefront of settlement and adjudication discussions. For Tribes looking at SGMA, this may be of particular relevance. A core debate in the literature has been whether quantification through litigation and/or water settlement agreements are, on balance, beneficial for Tribes — including implications for self-determination, sovereignty, and control over Tribal resources. Power disparities have the potential to put Tribes at a disadvantage in developing agreements with local and state governments (Nyquist, 1990; Rosser, 2006). Even with the advantages of the *Agua Caliente* ruling, Tribes may be pressured or coerced into negotiating water rights agreements with short-term monetary benefits that are against their long-term interests as a result of resource needs or a desire to reach settlement before the Phase 2 *Agua Caliente* case ruling (McCool, 1993b).

Tribal Engagement

Cooperative Management

On the other hand, intergovernmental agreements, and Tribal participation in negotiating them, can reinforce the legitimacy of Tribal government, self-determination, and sovereignty (*Intergovernmental Compacts*, 1998; Deloria & Laurence, 1994; Fletcher, 2007). Deloria and Laurence (1994, p. 390) write: "…in tribal-state negotiations, the very act of sitting at the table is an exercise of tribal sovereignty." For states or local governments seeking agreements with Tribes, recognition of Tribal jurisdiction and authority, treaty rights, and sovereignty may be critical for successful negotiations and cooperation (Nyquist, 1990; Webster, 2016). This point of "sitting at the table" is a recurring theme and desire expressed in California by Tribes throughout the state. While many Tribes are still evaluating when they want to "sit at the table," the ability to engage in inter-governmental groundwater management dialogues has significant appeal. This may not lead to an increase in water settlement agreements, but many of the issues, discussions, and factors that arise in water settlement agreements will be reflected in agreements between Tribes and GSAs under SGMA. This next phase of SGMA — GSP development — has the potential to provide greater examples of tribal and local agency cooperative management strategies and models.

Considerations in Developing Groundwater Management Agreements with Tribes

Water Availability

The most common uncertainty relating to state/local agency and tribal relations involves reserved water rights (i.e. those water rights secured to Tribes through the *Winters* Doctrine at the formation of reservations). Tribes are increasingly asserting their reserved rights to surface water. Their assertions impact users and assumptions regarding available water. In the context of groundwater, where the amount of available water is less certain, this tension is more prevalent. Intergovernmental agreements between Tribes and local governments may create benefits for both parties by: providing legal certainty within the often-ambiguous context of Indian law; avoiding costly, adversarial, and inconclusive litigation; generating more comprehensive and creative solutions; and meeting the needs of both Tribal and non-Tribal governments (*Intergovernmental Compacts*, 1998; Fletcher, 2004; Getches, 1993).

Agreement Benefits

Intergovernmental agreements relating to water rights can alleviate some legal uncertainties and avoid costly litigation. However, Tribes and local agencies can and should focus initial efforts on groundwater management agreements related to GSP development, implementation, and enforcement, leaving quantification of water rights to later, more time-intensive discussions.

Core Issues

Initial negotiations can address core issues including:

- Applicability of state or federal laws
- Data sharing
- Scope of management considerations (for example, many Tribes seek a watershed approach to groundwater management)
- Access to and management of facilities
- Roles and responsibilities
- Resolution of disputes between individual water users

See Getches, 1993.

Negotiation Factors

No matter the scope or scale of these intergovernmental agreements, a well-designed negotiation process can help minimize the challenges and concerns regarding tribal vulnerability and their willingness to participate in these discussions. Tribal trust in a negotiation process and willingness to engage in these negotiations is strongly influenced by groundwork laid through relationship-building in initial communications and tribal engagement. Local agencies frequently coordinate MOUs with Tribes in terms of local services affiliated with casinos. However, agreements between Tribes and local or state governments remain an under-utilized tool owing to factors that include adversarial histories and perceptions, lack of trust and working relationships, and state and local agency perceptions that courts will generally be favorable to their interests over Tribes' (Fletcher, 2006).

Practical Insights

GSA formation experience and several case studies offer pragmatic guidance on how to craft negotiated agreements with Tribes regarding water management, water rights, or other related issues (Colby et al., 2005; Folk-Williams, 1988; Getches, 1993; McCool, 1993a, 1993b). Insights include: the necessity for clear goals, motivated parties and consensual participation by all affected parties; clear and accountable representation of each party; recognition of one another's legitimacy; supporting incentives, including the potential for mutual benefits; legal counsel for the Tribe; federal approval if negotiating or quantifying water rights; sufficient funding for implementation; and a negotiation process that is agreed upon and that is preferably guided by a neutral facilitator, mediator, or other third-party (Folk-Williams, 1988; McCool, 1993a). Facilitators and attorneys must ensure a mutual understanding and clarity of agreement terms. (Neumann 1996). Tribes throughout California emphasize similar principles to incorporate in groundwater management agreements. If agreements are reached, contract language must be crafted to reduce the risk of invalidation and address concerns regarding sovereign immunity (Mack & Timms, 1993; Spruhan, 2011).

Agreement Terms

Summary of Tribal Engagement Opportunities and Timeline

The following table offers a detailed approach for engaging Tribes during the GSA formation, GSP development, and GSP implementation processes. For each major phase of SGMA implementation, the table describes statutory requirements for community engagement in compliance with SGMA, and recommendations and approaches specifically for Tribal engagement.[1] This table was prepared by California State University, Sacramento's Center for Collaborative Policy to assist facilitators and local agencies to effectively engage Tribes in SGMA.

Timeframe	Milestone or Stage	SGMA Community Engagement Requirements	Tribal Engagement Recommended Practices[2]
GSA Establishment No Later Than June 30, 2017	**Prior To Establishing GSA**	• Issue public notice regarding intent to form GSA consistent with Government Code § 6066[3] and notice to hold public hearing (CA Water Code §10723(b). • Hold public hearing in county that is overlying groundwater basin/subbasin of interest.[4] • Determine whether there are any federally recognized Tribes with interests in this basin (e.g., See Mapping Tools, See also, Native American Heritage Commission and CASGEM maps) (CA Water Code § 10723.2). • Establish and maintain a list of persons interested in receiving notices (CA Water Code § 10723.4).	• Mail and email Notice of Intent to Tribal Councilmembers and supporting staff. Utilize certified mail, if feasible, to confirm receipt. • Work with Tribal staff to schedule a Tribal meeting to orient attendees to the GSA formation process and receive input. • As feasible, conduct Tribal meeting in addition to and separate from public meetings. Hold Tribal meetings on Tribal lands when possible. • Systematically develop Interested Parties List for Tribes. Sources are as follows: o DWR Water Management Tool[5] https://gis.water.ca.gov/app/boundaries// o DWR Tribal liaisons are available to identify Tribes with interests in basins. o A tribal directory is available to order from Governor's Office of the Tribal Advisor.[6] • In all above communications with the Tribes, include invitation to be added to Interested Parties List. • Notify Tribal Councilmembers (and supporting staff as appropriate): Send paper notice and email 45-60 days in advance; copy to Tribal Administrator and/or appropriate Tribal staff (e.g., subject matter experts e.g. the Tribal Historic Preservation officer); copying to Tribal staff can either be through snail mail or email depending on Tribe's preference. (*Defer to local MOU Tribal communication procedures if applicable*) • Follow-up phone calls to subject matter experts and/or Tribal administrative staff 1-2 weeks after initial notification. • Reminder notifications (1 week, 2 week, and/or 1 month) prior to the meeting via phone call and/or email.
Within 30 Days of Electing to Be (Or Forming) A GSA	**GSA Establishment**	CA Water Code § 10723.8(a)(4) - • Submit to the State and to legislative bodies of any cities and counties located in area to be covered by GSP: a) a list of interested parties; and b) a description of how they will be involved with GSA and GSP at time that GSA informs State of GSA establishment and intent to manage groundwater sustainably.	• Once particular GSA is established, create a Stakeholder Engagement Plan utilizing these recommendations as needed • Ensure ongoing opportunities for Tribes to engage in GSA discussions.

[1] These recommendations are based upon Center for Collaborative Policy staff's experience working with Tribes and local governments. They include recommendations and guidance for meaningful engagement from tribal staff and leaders. These practices do not satisfy Government to Government consultation which is a separate process. They are guiding concepts for reference and should not replace established procedures or protocols established with Tribes, nor should they replace legal advice or guidance.

[2] These recommendations offer a range of options to effectively engage Tribes. Tribes and tribal staff recommend following all of these steps to properly engage Tribes. Some or all of these recommended steps may not be feasible or appropriate for all SGMA projects.

[3] Public notices must be consistent with §6066 of the Government Code - Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

[4] CA Water Code § 10727.8 states that the GSA shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the basin prior to and during the development and implementation of the GSP.

[5] When identifying Tribes, consider utilizing the following layers: tribal lands, CASGEM Basin Prioritization, and county boundaries. Note that the tribal lands identified are only those tribal land holdings held in trust by the federal government on behalf of Tribes or individual allotment holders.

[6] The Governor's Office of the Tribal Advisor Directory only lists comprehensive information about federally recognized Tribes. Non-federally recognized Tribes are listed in a separate section.

Summary of Tribal Engagement Opportunities and Timeline

Timeframe	Milestone or Stage	SGMA Community Engagement Requirements	Tribal Engagement Recommended Practices[1]
After GSA Formation But Before GSP Adoption (which is required by January 31, 2020)	**Prior to Beginning GSP Development**	• Provide to the public and State Notice of intent to begin GSP development and description of opportunities for interested parties to participate in GSP development and implementation. (CA Water Code §10727.8).	• Mail and e-mail notice of intent to Tribal Councilmembers and supporting staff consistent with GSA establishment parameters.
	During GSP Development	• Encourage active involvement of diverse social, cultural, and economic elements of the population within the basin/subbasin. (CA Water Code §10727.8). • GSP development and adoptions is not subject to CEQA. (CA Water Code § 10728.6).	• Continue to conduct meetings with Tribes. • Ensure opportunities for Tribes to engage in GSP planning and review. Tribes are not required to implement SGMA, however coordination and communication with neighboring Tribes will ensure a more robust and sustainable GSP. • Hold Tribal meetings on Tribal lands. • Notify Tribal Councilmembers (and supporting staff as appropriate); conduct follow-up phone calls 1-2 weeks after initial notification; send reminder notifications via e-mail and/or phone (2 weeks and/or 1 month prior). (*Defer to local MOU Tribal communication procedures if applicable*)
GSP adoption no later than January 31, 2020	**Prior to GSP Adoption**	CA Water Code §10728.4 GSP Adoption • Provide notice to cities and counties within area encompassed by the proposed plan or amendment. • Consider comments provided by the cities and counties. • Accommodate requests for consultation received from the cities and counties within 30 days. • No sooner than 90 days following public notice, hold public hearing.	• Hold a Tribal meeting to orient attendees to proposed GSP. • Conduct Tribal meeting in addition to and separate from public meetings (invite Tribes to public meetings). Hold Tribal meetings on Tribal lands whenever possible. • Notify Tribal Councilmembers (and supporting staff as appropriate); conduct follow-up phone calls 1-2 weeks after initial notification; send reminder notifications via e-mail and/or phone (2 weeks and/or 1 month prior). (*Defer to local MOU Tribal communication procedures if applicable*)
Prior to GSA imposing fee or increasing fee	**If GSA Intends to Impose or Increase a Fee**	CA Water Code §§ 10730(b) • Hold at least one public meeting prior to imposing the fee in compliance with Government Code §6066. • At least 10 days prior to the public meeting, provide public with access to the data serving as the basis for the proposed fee, the time and place of explanatory public meeting, and general explanation of topic to be discussed. Post on project website and mail to any interested party who submits written request for mailed notice of meetings on new or increased fees.	• Notify Tribal Councilmembers (and supporting staff as appropriate). (*Defer to local MOU Tribal communication procedures if applicable*)
Quarterly	**Throughout GSP Implementation**	CA Water Code §10728.4 GSP Amendment • Provide notice to cities and counties within area encompassed by the proposed plan or amendment. • Consider comments provided by the cities and counties. • Accommodate requests for consultation received from the cities and counties within 30 days. • No sooner than 90 days following public notice, hold public hearing.	• Establish opportunities for ongoing coordination and communication with Tribe on GSP implementation. • Notify Tribal Councilmembers (and supporting staff as appropriate); conduct follow-up phone calls 1-2 weeks after initial notification; send reminder notifications via e-mail and/or phone (2 weeks and/or 1 month prior). (*Defer to local MOU Tribal communication procedures if applicable*)

[1] These recommendations offer a range of options to effectively engage Tribes. Tribes and tribal staff recommend following all of these steps to properly engage Tribes. Some or all of these recommended steps may not be feasible or appropriate for all SGMA projects.

Tribal Engagement

Developing Trust

Conclusion

A constant in tribal and state/local dynamics is uncertainty. This uncertainty stems from cultural barriers, unsettled and developing law, state policies, lack of data, and/or strained or non-existent relationships. The distinct character of Tribes as Domestic Dependent Nations (sovereigns) within state borders further complicates the uncertainty inherent in groundwater management. That said, as the foregoing article demonstrates, there are opportunities to minimize some of these uncertainties by addressing inter-personal relations and developing trust through effective engagement. SGMA forces some of these interactions and may lead to agreements that remove uncertainties and help chart a path forward for joint tribal and local agency management of groundwater resources. These opportunities, while framed in terms of SGMA, are universal to any local agency sharing resources with neighboring Tribes.

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Washington Water Code

WASHINGTON WATER CODE

PERSPECTIVES ON WASHINGTON STATE'S WATER CODE ON ITS 100TH ANNIVERSARY

by Joe Morrice, LHG, Associate Hydrogeologist, Aspect Consulting, LLC

Introduction

Hirst Limelight

What a year Washington State's Water Code received for its 100th anniversary. Though the influence of water rights is vast — affecting people, farms, hydropower, and fish — it typically flies under the radar of public perception. This year, however, the Washington State Water Code has been thrust into the "limelight" like never before — becoming a key political sticking point. The Washington State Supreme Court's *Whatcom County v. Hirst* decision (*Hirst*: www.ecy.wa.gov/programs/wr/nwro/hirst.html) claimed center stage during this year's legislative session. At the time of this article's publication time, the decision kept Washington State's $4 billion capital construction budget from being approved (www.seattletimes.com/seattle-news/politics/4-billion-construction-bill-tied-up-in-legislature-by-water-rights). [Editors' Note: In *Whatcom County vs. Hirst, Futurewise, et al*., Case No. 91575-3 (Oct. 6, 2016) (usually referred to as the *Hirst* decision), the Washington Supreme Court ruled that the county failed to comply with the Growth Management Act (GMA) requirements to protect water resources. The Court ruled that to do so, a county's review of legal water availability must include permit-exempt wells and their cumulative impact on water rights, including minimum instream flow rights. The ruling requires the county to make an independent decision about legal water availability and cannot approve development by simply relying on the Washington Department of Ecology's instream flow rules to presume that water availability exists — where those rules fail to specifically address the impacts of permit-exempt wells on senior water rights. The result is that the decision applies an instream flow protection to county decisions on individual building permits.] For additional information about *Hirst*, *see* Moon, *TWR* #153; Interview with Christensen, *TWR* #153; and Ecology's website cited above, which includes access to a copy of the decision.

Water Supply Development

In addition to the *Hirst* decision, there have recently been other court decisions affecting major water policy changes and challenges in Washington including *Foster v. Dept. of Ecology, City of Yelm, and WA PCHB*, Case No. 90386-7 (Oct. 8, 2015) (known as either the *Foster or Yelm* decision (*Foster*: www.ecy.wa.gov/programs/wr/swro/fostervecology.html — *see* Moon, *TWR* #141). Finally, there was *Swinomish Indian Tribal Community v. Dept. of Ecology*, Case No. 87672-0 (Oct. 3, 2013) (www.courts.wa.gov/opinions/pdf/876720.pdf — *see* Moon, *TWR* #116 and Water Briefs, *TWR* #117). These recent decisions, with far-reaching consequences to water supply development in Washington State, all hinged in some way on a common underlying concept — i.e., the Prior Appropriation Doctrine ("first in time, first in right"). Washington State's 1917 Water Code established that prior appropriation was the only way to create a water right — as opposed to the "riparian doctrine" (tying water use to adjoining land) that predominated in the territorial era and early statehood in Washington and which continues to be typical in the eastern United States.

Survey of Perspectives

With the spotlight bright on water law, Aspect Consulting, LCC (Aspect) reached out to a range of water purveyors, resource managers, and attorneys in Washington State to gain their perspectives on: how their work intersects with the water code; what is and isn't working; and how they anticipate management and development of water resources in Washington will (or should) change in the future.

This article was prepared to complement efforts to publicize the centennial of the water code and generate discussion about the future of water use and management in the Washington State. Other efforts focused on the 100th anniversary of the water code include a story map and video series by the Washington State Department of Ecology (*see* www.ecy.wa.gov/programs/wr/hq/waterlaw-100.html) and the upcoming American Water Resources Association – Washington Section (AWRA-WA) State Conference, scheduled for October 3, 2017 in Seattle, Washington (see Agenda, page 20 — further information and registration available at www.waawra.org).

The Pre-Water Code Era was Truly the Wild West

Water Rights Development

The Oregon Territory, which included the current State of Washington, was incorporated by the federal government in 1848. Although generally recognizing existing property rights, water and water rights were not specifically addressed in the enacting legislation. Resolution of conflicts over water use was left to the courts. Washington Territory was created from portions of the Oregon Territory in 1853. In 1856, the Washington Territorial Legislature recognized common law in all civil cases not otherwise addressed under the law, setting Washington on its own path for developing and implementing water law.

Riparian Doctrine

Early courts in Washington applied the riparian doctrine, which was based originally on European and English common law. The American model of the riparian doctrine developed further in the eastern United States. Under the riparian doctrine, a water right is established by the presence of a (surface) water body

Washington Water Code

Riparian Rights

Appropriation System

abutting a landholder's property. The riparian doctrine differs from the Prior Appropriation Doctrine in two principle ways:

1) Riparian rights attach only to the land bordering a stream and cannot be obtained for use on more distant, non-riparian lands; and
2) Riparian owners diverting from the same source all have equal rights to the source.

The Washington Territorial Legislature passed two statutes that contained elements of the Prior Appropriation Doctrine. The first statute, enacted in 1873, allowed appropriative (as opposed to riparian-only) use of surface water in Yakima County without regard for riparian statutes. The statute further declared that conflicts between water users shall be determined by dates of appropriation. This appropriative system was extended to Kittitas County in 1885; however, the riparian doctrine continued to apply in the rest of the state.

Following statehood in 1889, the state legislature enacted legislation authorizing non-riparian appropriation of surface water for irrigation and later for mining, manufacturing, and for supply to cities, towns and villages. This legislation included requirements to post notice of the intent to appropriate water at the point of diversion and to record the notice with the county in which it was posted. Critically, this legislation also established that, between appropriative rights, the first-in-time is the first-in-right.

Mixed System Conflicts

The mixed system of riparian rights, appropriative rights, and lack of a comprehensive permitting system — combined with a growing population and demands for water supplies for irrigation, mining, and municipal uses — increasingly led to conflicts between water users. Most disputes were resolved civilly, while some resorted to other tactics. Two examples of less-than-civil dispute resolution from the pre-water code era illustrate the hazards of water conflicts in those days. As reported in *The Ellensburg Dawn* of August 24, 1905, in Kittitas County dynamite was used by a rival irrigation company to try to blow up a dam at Cle Elum Lake in an effort to free up more water for downstream users.

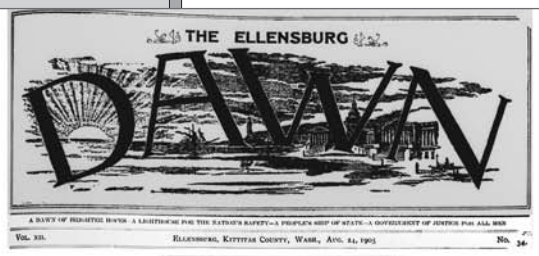
Dynamite Attempts

> "As the result of an attempt to blow up the dam of the Union Gap Irrigation company across the outlet of Lake Cle Elum… [an] engineer of the Washington Irrigation company, and five other men who, it is charged, were caught in the act of setting off dynamite under the dam were arrested and placed in the Cle Elum jail…[Upon hearing of the plan] Officers at Cle Elum were sent to the lake and lay in ambush and when the first charge of dynamite was set off Tiffany [the engineer] and his party were placed under arrest."

The sub-headline for the article noted, "Liable to be Hot Time in Court."

Meanwhile, in Chelan County, a rancher named Beecher attempted to blow up the Gibb's Ditch Company flume in 1908. A dispute between the rancher and the ditch company was brewing over a right-of-way dispute to enlarge the flume across Beecher's land, which resulted in a successful condemnation action by the ditch company to do so. The *Wenatchee Daily World* on May 8, 1908 reported that:

> "…the ditch walker of the company [claimed] …that he found dynamite sticks under the flume and sticks already lighted. He found Mr. Beecher there, and they indulged in an encounter which resulted in the ditch walker hitting Beecher over the head with a hammer. Beecher was arrested the next day… ."


THE ELLENSBURG DAWN

Vol. XII. Ellensburg, Kittitas County, Wash., Aug. 24, 1905 No. 34

ATTEMPT TO BLOW

OUT DAM AT CLE-ELUM LALE

Engineer of Washington Irrigation Company and Five Others Held to Answer

IN TWO THOUSAND AND FIVE HUNDRED

Bonds—Dynamite used—E. F. Blaine of Seattle, Counsel for Washington Company is Threatened With Arrest Liable to be Hot Time in Court.

From The Ellensburg Dawn August 24, 1905


Wenatchee Daily World

THE WENATCHEE DAILY WORLD, WENATCHEE, WASHINGT. N, FRIDAY, MAY 8, 1908. FIVE C

RANCHER ARRESTED

S. P. Beecher Charged with Blowing Up Flume with Dynamite.— Placed Under Bond.

S. P. Beecher, a prominent resident of Peshastin, was arrested Wednesday, charged with blowing up the flume of the Gibb's Ditch Co., near Peshastin, with dynamite, and is now under a $2,500 bond.

The Gibbs Ditch Company brought an action against Beecher some time ago to secure a right of way across his land, so that they could enlarge the present flume which they now have, and which runs across Beecher's land. The case was tried at the last term of court and Beecher resisted the condemnation proceedings strenuously.

After a trial lasting a couple of days, and the jury being taken up to the locus operandi, a verdict was brought in allowing the company to

From Wenatchee Daily World May 8, 1908

Washington Water Code

States' Codes

Commission Formed

Issues Faced

Certainty Needed

Riparian v. Beneficial Use

Comprehensive System

1917 Water Code Principles

Adoption of 1917 Water Code

While Washington State continued to develop under a mixed system of riparian and appropriative water rights, other western states were establishing comprehensive water codes to permit, allocate, and manage competing water uses. Idaho, in 1903, was among the first western states to adopt a comprehensive water code, followed by Nevada in 1905, Oregon in 1909, and California in 1914. [Editor's Note: Montana, on the other hand, didn't adopt a water code until 1973.]

In 1913, Governor Ernest Lister formed the Washington Water Code Commission (Commission) to study problems with the state's water management system and develop recommendations for the legislature. The work of this commission culminated in the enactment of the 1917 Water Code, the first comprehensive water code in the state.

The need for and goals of reforming the water rights system in the state, as described in reports from the Commission and newspaper reporting at that time, included:

- Much of the state's surface water had already been appropriated;
- The different water uses and needs in eastern and western Washington;
- Uncertainty over ownership and validity of pre-code water rights; and
- Whether and to what extent to recognize undeveloped riparian rights.

The following excerpt provides a flavor of the public discussion leading up to adoption of the water code. A 1914 *Report of the Washington Water Code Commission*, in reference to riparian water rights and over-appropriated surface waters, stated:

> The appropriator's rights to use the water of this state are open to attack…There is no law limiting the amount of water that may be filed on from any stream. On some streams the appropriations now on file call for many times the amount of water in the stream and available for use, and yet, there is no law prohibiting further appropriations, and no officer whose duty it is to eliminate excess appropriations and protect water users against future encroachments upon their rights.

Ira Englehart, a member of the Commission, gave a speech in Yakima, reprinted in the 1915 *Pullman Herald*. This speech addressed some of the key goals and challenges for the Commission in recommending a new, comprehensive management code. In addressing certainty in water rights ownership, Mr. Englehart stated the goal of the Commission "...is some system whereby you will know what your water right is just the same as you know what the title to your land is, so that a stranger won't be buncoed, and when you say to a man, I have so much land and so much water …, you can go to the records and show him, that it is so."

Mr. Englehart described the consequences of this uncertainty, noting "…in fact, already some of the mortgage companies can not show them what water rights belong to the land upon which the loan is desired. They say if we have to foreclose this we want something of record to show what the water right is, like they have in Wyoming and Utah and other states. The land is worthless without the water, and we want to know what water rights belong to the land."

Mr. Englehart also discussed issues surrounding undeveloped riparian rights:

> There are a lot of people who settle down on a stream and won't use the water themselves nor let anybody else use it. They claim the riparian rights. They say, the old common law that we brought from England provides that the water flowing over our land is as much a part of our land as the stones on the land. If that theory is correct, of course they are correct. But in this western country we have claimed the proper use of water is what a man's rights should be based on. He should not be permitted to let it run by just because it is pretty to look at or to let ducks swim in it, but some beneficial use should be made of it. Without that use this country would be a desert.

Other reporting on consideration of the water code reinforces the emphasis on the economic benefits of a comprehensive water management system. The May 15, 1916 *Seattle Daily Times* reported on a meeting in Seattle of Commission members and other prominent citizens to discuss the water code. This reporting noted that "because it is impossible under present state law to give title to water in an abstract of sale…it is virtually impossible to sell irrigation bonds" — going on to identify storage and irrigation projects to serve more than one million acres throughout eastern Washington that were held up as a result of this problem. The reporting also noted the sense that "Idaho and Oregon, each with a water code, are making much more progress with irrigation matters than Washington."

In 1917, approximately four years after the Water Code Commission was established, the state legislature passed the Water Code (Session Laws, 1917, Chapter 117); this legislation is currently codified as Chapter 90.03 Revised Code of Washington (RCW). The 1917 Water Code addressed many of the deficiencies in the pre-code system and established that:

- All waters in the state belongs to the public, subject to existing rights;
- Prior appropriation is the only way to create a new water right;
- Unperfected riparian water rights were no longer valid. This was later modified by the Washington State Supreme Court to allow water users until 1931 to put to use riparian rights established before adoption of the water code;

Washington Water Code

Evolving Law

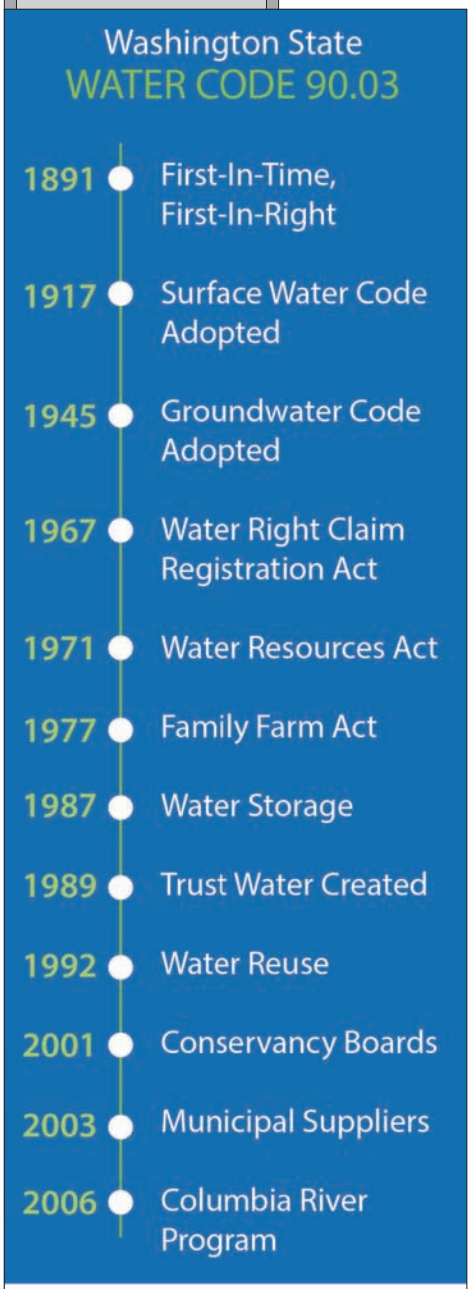
- Established a permitting system for water appropriation; and
- Established a system for adjudicating vested, pre-code rights to clear up ownership and validity uncertainties.

Post-1917 Water Code Legislation

Principles established in the 1917 Water Code continue to form the foundation for Washington State's evolving water administrative system. The Water Code's precedence can be seen from adoption of the 1945 Groundwater Code, establishment of instream flows as water rights, through the 2003 municipal water law and the 2006 Columbia River Program. Significant laws that have built on the 1917 Water Code are briefly described below.

Chapter 90.44 RCW – Regulation of Public Groundwaters, adopted in 1945. This legislation extended the surface water statutes of the 1917 Water Code to the appropriation and beneficial use of groundwater.

Chapter 90.14 RCW – Water Rights – Registration – Waiver and Relinquishment, adopted in 1967. Established system and filing period for registering pre-code claims to surface water and groundwater uses.



A Timeline of Water Policy in Washington State

Chapter 90.22 RCW – Minimum Water Flows and Levels, adopted in 1969. Grants the Washington State Department of Ecology (Ecology) rulemaking authority to establish minimum flows or water levels for lakes, streams, and other public waters for the purposes of protecting fish, game, birds or other wildlife resources, or recreational or aesthetic values. Adopted minimum flows represent appropriative water rights for instream flow purposes with priority dates equal to the date of rule adoption.

Chapter 90.54 RCW – Water Resources Act of 1971, adopted in 1971. Sets forth the fundamentals of water resource policy to ensure that waters of the state are protected and fully utilized for the greatest benefit to the people of the State of Washington.

Chapter 5, Laws of 2003 – Municipal Water Supply, codified primarily in Chapter 90.03 RCW, defines previously undefined "municipal" purpose of water use and confirms protection from relinquishment for nonuse of municipal water rights. This legislation was challenged twice in the Washington State Supreme Court (*Lummi Nation, et al. v. Ecology*, 2010 and *Cornelius v. Ecology*, 2015). In both instances, the legislation was affirmed by the Court and remains in effect.

Chapter 90.90 RCW – Columbia River Basin Water Supply, adopted in 2006, established funding sources and directed Ecology to aggressively pursue the development of water supplies to benefit both instream and out-of-stream uses in the Columbia River basin in order to meet the economic and community development needs of people and the instream flow needs of fish. This law allowed for creation of Ecology's Office of Columbia River (OCR) to enact this mandate.

The Water Code Today: A Complex Tool for Complex Times

We asked our respondents — representing both eastern and western Washington water managers, purveyors, regulators, and attorneys — a range of questions covering how the water code affects their organizations and customers; the biggest challenges and strengths of the water code; and where they see it heading in the next 100 years in the state. Several common themes emerged out of the discussion. The themes include a hunger for bigger, regional solutions to water resources issues. There is also an acknowledgment of the increased attention fish and habitat receive in the code since minimum instream flow rules have been adopted over the last several decades. Programs with a mandate to innovate and find solutions, like Ecology's OCR, were also pointed out as positive examples of trying to solve tricky water code problems with often adverserial stakeholders.

Our questions and some representative responses are now presented. Responses have been lightly edited for length and clarity.

How does the water code affect your organization?
How have you seen implementation and interpretation of the code evolve?

"Prior to the *Hirst* decision, Spokane County relied on Ecology to tell us if water was not legally available, and from our perspective no news was good news. *Hirst* has put the onus directly on the County to evaluate legal water availability for every building permit, an entirely new and often complicated inquiry for county staff at the permit counter."

Mike Hermanson – Water Resources Manager
Spokane County Water Resources

Washington Water Code

Availability Tightened

Municipal Rights

Climate Change

Instream Flows

Maximize Flexibility

Fish Habitat

Regional Solutions

Funding Issues

Simplification Sought

"[We're seeing] changing roles in County government to take on responsibilities that were traditionally held by the State."
Paul Jewell, County Commissioner
Kittitas County

"I have worked in water resource management for over 30 years, with SPU for more than 20 years, and have been involved with WWUC for many years. SPU has a portfolio of water rights that includes applications yet to be processed, permits, claims and certificates — both surface and groundwaters. For the most part, these pre-date instream flow rules. I've seen a tightening of water availability and the loss of new sources to tap into as the state grows and needs change. An important addition was the 2003 Municipal Water Law that provided more certainty for muni's to grow into their water rights, allow for easier changes in places of use tied to service areas, and furthering of water use efficiency."
Joan Kersnar, Manager of Drinking Water Planning for Seattle Public Utilities and Washington Water Utilities Council Chair

"As an attorney, the water code, and in particular the interpretation of the water code by the courts, requires the continued need of educating and counseling those who rely on the water resources for their businesses, development projects, fisheries needs, and recreational enjoyment. Our firm is also involved in climate change issues, which will I believe have an impact on implementing the water code to meet the changing cycle of water supply throughout the year, such as snowpack, earlier growing seasons and different seasonal stream flows.
Tom McDonald, Attorney
Cascadia Law Group

"Trout Unlimited has effectively used the Trust Water Rights Program to protect water rights as instream flow since the early 2000s. Most other western states cannot effectively protect water rights as instream flow so it has made Washington a leader in moving these types of projects forward. It has been challenging for many water right holders to understand paper water rights versus what is actually available under a water right due to historical use but it is helpful to us and our funders to know exactly what is being purchased or acquired for instream flow so that we can protect it."
Lisa Pelly, Director
Trout Unlimited

"The code both helps and hinders our ability to serve. It requires a full understanding of the code to maximize flexibility to meet the needs of our community. The code is long and complicated and case law further complicates things."
Dave Brown, Water/Irrigation Division Manager
City of Yakima

"We need water to serve over 600,000 people in Snohomish County. We have a multitude of water rights on the Sultan River. The implementation of the water code has evolved to be much more protective of fish habitat."
Jim Miller, Engineering Superintendent
City of Everett

What's the biggest challenge (s) to the Water Code? What are its greatest strengths/successes?

"It takes a long time to see progress with the current tools in the water code. Global solutions tend to be much more effective than one-off, small-scale solutions, but it is hard to keep people at the table often for a decade or longer to achieve the end result. It takes a lot of effort to develop the personal relationships, build coalitions, and secure diverse funding to accomplish results. The final product is often very rewarding, but there is a societal cost that acts as a depressant for the next effort. Elected officials, funders, and the public only have a finite amount of bandwidth for regional solutions — even if the upside is huge. It's easier to play small-ball with targeted projects, even if their benefit is marginal relative to the bigger problems we're trying to solve.
It can also be difficult finding entities with a broad enough mission and funding to carry the global solution to fruition. For example, many funding programs exist at the state, local, and federal levels. However, fitting a global solution into each program's requirements often leaves key project elements out that are critical to retain in order to keep the local coalition together. Someone still needs to fund project elements that may not have the optimal benefits, or be more expensive than other options, so the best project for the most people can move forward."
Mike Kaputa, Director
Chelan County Department of Natural Resources

"Simplification would be great. But it's hard to build the coalitions to gain traction on it. The Legislative process isn't often conducive to understanding all of the ramifications of changes."
Paul Jewell, County Commissioner
Kittitas County

"On one hand, the water code provides for permanency and certainty in exchange for flexibility under

Washington Water Code

Flexibility Loss

changing conditions — either how we're growing and changing economically or with climate change. Some tools that do exist include the MWL [municipal water law], change applications, trust water rights donations, etc. However, the flexibility that was once there isn't there anymore given the *Foster* decision, loss of OCPI [overriding consideration of public interest] and so on.
Some utilities are finding it difficult to take on the role of running smaller, failing water systems through system consolidations because of the water rights changes that are needed. They are finding that water that was associated with the smaller system is not legally available once the system is consolidated."

Joan Kersnar, Manager of Drinking Water Planning for Seattle Public Utilities and Washington Water Utilities Council Chair

Interpretation

"It can be challenging as folks interpret language in the water code differently at times. Part of this is due to language derived from actual statute language but different regional staff sometimes have a different interpretation. The water code's strength is that it does not leave anyone or any user out."

Lisa Pelly, Director
Trout Unlimited

Outdated Code

"Accomplishing meaningful progress on OCR's mission given the increasing complexity in the water code and case law is like shooting a basket with a smaller rim each year. The biggest challenge today is using a code intended for a different time to meet today's challenges. Additionally, it feels like our business needs to meet population growth, agricultural needs, and fisheries needs are always 10 to 20 years ahead of the tools in the water code we have to work with. The water code is not very nimble and does not change very fast in response to crises."

Tom Tebb, Director
Office of Columbia River (OCR)

Water Supply Uncertainty

"The biggest challenges to the water code are addressing the water supply for the growing population while still protecting the natural environment and fishery resource. This is against a backdrop of uncertainty of the future water supply because of the inability to predict with a great level of certainty the available water supply both seasonally and annually and the lack of clear understanding of the existing water rights in most of the state due to the limited number of general adjudications and quantification of tribal rights. Without the certainty, the state will continue to have difficulty achieving consistent application of the requirements in the water code and appropriate implementation of the code to provide greater certainty regarding existing water use and future supplies."

Tom McDonald, Attorney
Cascadia Law Group

Legislative Inertia

"Lots of different entities want changes to the law: environmentalists, cities, irrigation districts and others and we seldom agree on what change is needed. As we all lobby for a particular change it usually does not get through the legislative process."

Dave Brown, Water/Irrigation Division Manager
City of Yakima

Instream Flow Imbalance

"The biggest challenge is balancing the instream and out-of-stream needs. Where instream flows have been set, they are so high that Mother Nature cannot meet them a large portion of the time. This means that virtually no water is available for any out-of-stream needs because meeting these needs would 'impair' the instream flows. This is what led to the *Hirst* decision essentially shutting down all exempt well drilling."

Jim Miller, Engineering Superintendent
City of Everett

What does the increasing shift towards groundwater (or mitigated rights or changes over new rights) mean?

Groundwater Issues

"Groundwater has some inherent issues including having the information available on the amount, as well as understanding well how groundwater is connected to surface water. Washington state lacks a network of groundwater level data, comprehensive metering and reporting of groundwater withdrawals, and other things important to water management. Given that, it's difficult to have a comprehensive strategy for groundwater use. Because of this, studying groundwater is expensive and pumping of groundwater is energy intensive, so I see its use as costly."

Joan Kersnar, Manager of Drinking Water Planning for Seattle Public Utilities and Washington Water Utilities Council (WWUC) Chair

Supply Audit

"OCR just completed a recent audit of groundwater supplies that are declining in the state and is working with partner agencies to take steps to protect the resource."

Tom Tebb, Director
Office of Columbia River

Aquifer Recharge

"Shifting to groundwater without firm aquifer recharge (either artificially or natural) is not the solution. Surface water is more readily replenished."

Dave Brown, Water/Irrigation Division Manager
City of Yakima

Washington Water Code

Mitigation Need

Ownership

Public Perceptions

Fairness & Complexity

Public Response

Courts' Role

Public Focus Needed

Environmental Protection

Global Solutions

Regional Tools Needed

"[It means] that most new rights will require mitigation either with other water or habitat improvements."
Jim Miller, Engineering Superintendent
City of Everett

"We need to understand groundwater and the effects of groundwater withdrawals on instream flows."
Lisa Pelly, Director
Trout Unlimited

What would you like the broader public to know about the water code and water resource management in Washington?

"We take many calls from property owners that have the perception that they 'own' the water on their property, and then explain to them that the Washington Legislature established that the waters of the state belong to the public, and the right to use the water can be granted for a beneficial use, subject to the doctrine of prior appropriation."
Mike Hermanson – Water Resources Manager
Spokane County Water Resources

"Utilities, especially larger public water systems, struggle with the fact that many of our customers don't know where their water comes from, and may take it for granted that clean and ample amounts of water will flow from their faucets. Even so, customers in the Seattle and greater Puget Sound area do connect their water use with salmon.
I don't think the general public knows about the water code. I think that property owners believe that use of water, either from wells or from streams next to their property, is a right attached to the property just by the fact of ownership."
Joan Kersnar, Manager of Drinking Water Planning for Seattle Public Utilities and Washington Water Utilities Council Chair

"The public struggles with the fairness of the water code at times. With increasing times of shortage, the conflict around perceived hierarchies in beneficial uses in the state that don't exist under the prior appropriation system can be tough to communicate. Similarly, the complexity of the code does not lend itself to easy messaging."
Tom Tebb, Director
Office of Columbia River

"The water code broadly sets out a management program and general policies for the use of state waters, which is a public resource. The source of many conflicts is in how the water code is interpreted and implemented. The water code is not applied in isolation. The management of the water resources requires more than a knowledge and application of the water code itself. The Department of Health regulations on public water systems, the local planning under the Growth Management Act, and the federal and tribal rights and roles, among many other state and federal laws, impact the implementation of the water code. The courts will therefore continue to have a very important role in the implementation of the law."
Tom McDonald, Attorney
Cascadia Law Group

"I think the public could better understand water resource management. However, with all the other competing issues we face I am afraid the public will not focus on it until it is too late and the water is in very short supply. Water folks usually work to keep the supply in place without much fanfare."
Dave Brown, Water/Irrigation Division Manager
City of Yakima

"It is very complex and, in general, is set up to protect the environment."
Jim Miller, Engineering Superintendent
City of Everett

What will the next 100 water code years look like?

"The Office of Columbia River is an example of a program with the mission and funding 'glue' that can bridge the gap between other programs and therefore break political stalemates and achieve global solutions. More programs with this kind of leadership that can transcend individual mandates would be helpful."
Mike Kaputa, Director
Chelan County Department of Natural Resources

"Regional tools are much more efficient and have to be more of the future (instead of case-by-case self-solving). [For example,] global back-mitigation of a region (Kittitas County settlement); Teanaway River mitigation as a regional no-impairment tool (to deal with out-of-season impacts); or State-sponsored water supplies like Office of Columbia River.
Paul Jewell, County Commissioner
Kittitas County

Washington Water Code

Constraints & Crisis

Transfers Required

Overhaul Needed

Evolving Code Issues

Value Increases

"If climate change is going to change the hydrologic patterns, then the basis for setting many instream flows rules and the reliability of water supplies will change, yet the water code has constraints around what it can do."

Joan Kersnar, Manager of Drinking Water Planning for Seattle Public Utilities and Washington Water Utilities Council Chair

"We end up managing by crisis and flashpoints a lot of the time. The recent Supreme Court cases like *Swinomish*, *Foster/Yelm*, and *Hirst* are good examples of the latest crisis. We could benefit from greater long-term visioning and state water planning."

Tom Tebb, Director
Office of Columbia River

"The water code will need continued refinement to address the fact that future water use will necessarily require the transfers of existing water rights. Water will become an even more expensive commodity and as they have said for many years, 'water flows up to money.' The localized impacts from water right transfers from agriculture to domestic and commercial will permanently affect the rural communities. Without an unlikely monumental movement to edit the water code to address adjudications, provide greater consistency throughout the many chapters in the RCW, and provide for greater certainty for addressing instream resources, among other issues, the existing water code will still be here in 100 years with the same patchwork amendments that solve isolated issues."

Tom McDonald, Attorney
Cascadia Law Group

"The code both evolves through changes in the law, and not always for the better. The legislative process is not always the most efficient (straight forward) way to change the law. [The] next 100 years will see even more complications as climate change makes water even more difficult to manage."

Dave Brown, Water/Irrigation Division Manager
City of Yakima

"It will become much more contentious between instream and out-of-stream needs. There will be much more water right sales as the value of water increases. *Hirst* will expand to apply to most all users. Since Agriculture holds the highest percentage of water in the State, they will be in position to sell off some of this water as the water becomes more valuable to sell than to raise crops."

Jim Miller, Engineering Superintendent
City of Everett

CONCLUSION

Adoption of the 1917 Water Code moved Washington state away from a riparian doctrine system of water rights ill-suited to a largely arid western state into a system based on prior appropriation. One hundred years later, the fundamental concepts of the water code continue to form the base for the state's water rights water administrative system. However, as we heard from our respondents, increasing demands on a limited resource for the needs of people and the environment, combined with evolving legal interpretation of the 1917 Water Code and subsequent legislation, have led to an increasingly complex and uncertain system for securing or transferring water rights. Continued state leadership through programs like the Office of the Columbia River (OCR) will be critical for addressing the next 100 years of water rights management in Washington. As the impacts of major legal cases, like *Hirst*, continue to ripple throughout the state, public outreach and education on important water resources issues will continue to be a pressing need for water system managers, purveyors, regulators, consultants, and attorneys.

For Additional Information:

Joe Morrice, Aspect Consulting, 206/ 838-6581 or jmorrice@aspectconsulting.com

Washington State Department of Ecology website on "*100 Years of Water Law*" at:
www.ecy.wa.gov/programs/wr/hq/waterlaw-100.html
Washington State Department of Ecology website on "*Water Resources - Related Case Law*" at:
www.ecy.wa.gov/programs/wr/caselaw/cl-home.html

Joe Morrice, LGH, CWRE, Aspect Consulting, is a licensed hydrogeologist and certified water rights examiner with 20 years of experience in water resources planning and development and water supply investigations. Joe performs design and implementation of drilling and aquifer testing programs, hydrogeologic characterization, evaluation of groundwater-surface water interaction, and water rights permitting. He earned his B.S. in Geology from the University of Wisconsin and his M.S. in Hydrology and Hydrogeology from the University of Nevada-Reno.

Washington Water Code

American Water Resources Association Washington Section

2017 Annual Washington State Conference
October 3rd, 2017 - Seattle, Washington

"The 100 Year Anniversary of the Washington Water Code: Where We Came From and Where We're Going"

Mountaineers Seattle Program Center, 7700 Sand Point Way NE
8:00 AM to 5:00 PM (Reception 5:00 to 7:00 PM)

The AWRA-WA welcomes you to join us for an interdisciplinary investigation of Washington water from adjudication to technical analysis. This year's conference includes an intriguing reflection of the past 100 years of the Washington Water Code, its implementation, and a look forward to the next 100 years. Stresses from population growth and increasing uncertainty from climate change will test the state's ability to manage an over allocated resource. How will we adapt? Do we have the technical and policy tools to meet the challenges ahead?

AWRA-WA is proud to announce keynote speaker Charles Wilkinson – Distinguished Professor, Moses Lasky Professor of Law at the University of Colorado School of Law, entitled: *Western Water Law and Policy in the Modern Era: Has Washington Made the Needed Changes?*

Agenda

Keynote Speaker: *Charles Wilkinson- Distinguished Professor, Moses Lasky Professor of Law at the University of Colorado School of Law.*

Session 1: Early Water Code History
Moderator: Andy Dunn, RH2
From Time Immemorial to 1917 - Tom Ring, Yakama Nation
The Codification of Water Law in Washington - Tom McDonald, Cascadia Law Group

Session 2: Contemporary Water Code History
Moderator: Dave Christensen, Department of Ecology
Water Management and Instream Flow - Ken Slattery, retired from Department of Ecology
Protecting Instream Flow - Hal Beecher, retired from Department of Fish and Wildlife
Adjudication and Reallocation - Bob Barwin, retired from Department of Ecology

Session 3: Defining Future Risks
Moderator: Steve Hirschey, King County
Water Availability and Reliability - Legal Perspective - Peter Dykstra, Plauche & Carr LLP
The Public Interest and the Future of Water Law - Rachael Osborn, Public Interest Water Lawyer
Future Out of Stream Supply and Demand - Jenny Adam, Washington State University

Session 4: Identifying Possible Solutions
Moderator: Tyson Carlson, Aspect Consulting
Conflict Resolution - Lynette de Silva, Oregon State University
Achieving Legal Certainty - Alan M. Reichman, Washington State Attorney General's Office
Storage - J. Ryan Brownlee, Aspect Consulting, LLC
Methow Valley Irrigation District - Lisa Pelly, Trout Unlimited

Session 5: Future Direction and Legislative Change
Moderator: Adam Gravley, Van Ness Feldman LLP
Charles Wilkinson, University of Colorado
Scott Revell, Roza Irrigation District
Derek Stanford, Representative of 1st Legislative District
Jaime Pinkham, Columbia River Intertribal Fish Commission

Green Infrastructure Financing

FINANCING GREEN STORMWATER INFRASTUCTURE

Adapted from
"Working with the Market:
Economic Instruments to Support Investment in Green Stormwater Infrastucture" (2017)

by Seth Brown, Storm and Stream Solutions, LLC (Springfield, VA)
and Carrie Sanneman, Willamette Partnership (Portland, OR)

The Water Report has prepared this compilation of information from the report "*Working with the Market: Economic Instruments to Support Investment in Green Stormwater Infrastucture*" and has modified the information to fit our format. The content consists of the report's Introduction and Conclusion, with additional excerpts from the Executive Summary. None of the wording has been modified. The compilation was accumulated on September 4, 2017. The full report is available online (see below).

INTRODUCTION

Increasing Pollution

Intensified Flooding

The impacts of stormwater are significant and rising. Stormwater pollution is the only major increasing source of water pollution across much of the United States (U.S. EPA, 2012). Impervious areas effectively store pollutants, such as heavy metals, oils and grease, and bacteria, all of which get washed into storm drain systems and then out to rivers, streams, and estuaries, often without any treatment. Urban stormwater runoff can increase the intensity of localized flooding and major flood events, which have the potential to cause massive property damage and even loss of life. These effects will likely be exacerbated in the future as urban areas continue to expand, new areas are developed, and the effects of sea level rise and climate change place more pressure on our infrastructure through increased episodic periods of drought and intense precipitation.

"Economic Instruments"

Communities are in need of cost-effective and innovative ways to drive investment and implementation for stormwater management. This report, based upon input provided by professionals in the water quality trading and stormwater management fields, focuses on how policies that recognize and utilize economic forces, known as "economic instruments," can support the voluntary implementation of green infrastructure on private property, improve effectiveness and efficiency of green infrastructure practices, and provide new streams of financing for the installation and maintenance of stormwater infrastructure.

Green Infrastructure for Stormwater

Benefits

Green infrastructure has emerged as one way to manage stormwater that can be highly cost effective, resilient, and support multiple community benefits. Green infrastructure (GI) is an approach to water management that protects, restores, or mimics the natural water cycle (American Rivers, 2016). GI practices include green roofs, bioretention facilities, permeable pavements, street trees, planter boxes, bioswales, downspout disconnections, and rainwater harvesting. Beyond reducing runoff through infiltration, GI practices have been shown to mitigate other effects of urbanization, such as reducing airborne particulates, reducing energy costs, lowering ambient air temperatures, enhancing community health and safety, and increasing the social and economic value of urban areas (Miller 2007, Wise 2007, Currie and Bass, 2008, Wise et al. 2010, American Rivers, 2016).

Voluntary Installation

GI restores the watershed's capacity to capture rain where it falls, infiltrating or intercepting it before it can become runoff. However, implementing GI across the landscape means working on private property and retrofitting existing development, both of which are outside the jurisdiction of utility managers or local governments. This report describes how stormwater program managers can overcome this challenge by using economic instruments to encourage voluntary installation of GI on private property.

Funding and Financing Infrastructure Investment

Funding Gap

There is a funding gap in the stormwater sector that is pushing communities to seek new resources and financing for infrastructure investment. Existing data suggest that as much as $150 billion in investment is needed for communities to meet their stormwater management needs over the next 20 years (U.S. EPA, 2012c). Yet most communities lack sustainable and adequate revenue for stormwater infrastructure investments. Of the 7,500+ communities regulated for stormwater runoff, it is estimated that less 1,500 have developed a user-based fee program specifically for stormwater infrastructure (these are often referred to as "stormwater utilities" or "stormwater authorities") (GILE, 2016). Most other programs rely on general funds, which are inconsistent in availability and amount. This lack of reliable revenue causes those same communities to struggle to access public and private financing (e.g., municipal bonds, State Revolving Fund loans) and hinders long-term capital planning efforts (GILE, 2016).

Drivers

This report covers the drivers that motivate entities to invest and participate in stormwater management programs, evaluates the range of economic instruments from which stormwater managers can draw,

Incentive-Based Approaches

Cost Avoidance

- Fee Reduction Vehicles Rewarding of onsite adoption of GI through cost avoidance associated with stormwater fees.
- Insurance Premium Discounts / Risk Reduction: Cost avoidance for property owners who adopt GI practices onsite through reduced flood insurance premiums.

Financial Gain

- Subsidies: Direct payment to a property owner who wishes to adopt onsite stormwater infrastructure.

Program/Project Support

- Land Development Project Support: Incentives for land developers in the form of reduced plan review time and dedicated informed technical plan reviewers among other administrative efforts.

Mitigation- and Credit-Based Approaches

Market-style approaches that create efficiencies by taking advantage of cost heterogeneities in generating stormwater benefits.

- Permittee-Responsible Mitigation: Scenario in which the same party is responsible for both the impact and mitigation actions.
- Credit Trading: Multiple parties buy and sell credits. Credits are generated by going above and beyond one's own regulatory requirements.
  - Water Quality Trading: Trading for compliance by an NPDES permit holder, subject to U.S. EPA WQT Policy of 2003.
  - Stormwater Trading: Trading programs that provide flexibility for those covered by local development regulations and/or permits. Credits are not used by an NPDES permit holder.
- Mitigation: Approach where a site or suite of sites is conserved and managed over a set period of time for the purpose of providing ecological functions and services (e.g., flow retention, pollutant reduction, expressed as credits). The bank acts like a bank account from multiple buyers can purchase credits to meet regulatory obligations.
- In-Lieu Fees: Programs wherein the permittee can choose to pay a fee to compensate for some or all of the regulatory obligation associated with the proposed project.

and the highlights policy barriers that complicate the use of economic instruments to drive finance and installation of stormwater infrastructure. The report focuses on GI, but the same concepts and approaches are highly applicable to other forms of stormwater management as well (e.g., engineered retention or onsite treatment facilities).

[Excerpts from Executive Summary]:

Economic instruments recognize and deliberately work within the economic system to create action or drive investment that meets environmental goals. They include the use of rebates, subsides, trading, and mitigation. Economic instruments are a useful tool for stormwater managers because they can:

- Increase the coverage of green infrastructure on both public and private lands, for new development and urban retrofits;
- Provide flexibility for regulated entities trying to meet stormwater requirements;
- Provide a vehicle for both public and private investments; and
- Enhance the efficiency of delivering benefits associated with stormwater infrastructure.

Incentives-based approaches motivate the installation of stormwater controls by offering cost avoidance, financial gain, or program/project support. Stormwater programs often use rebates, subsidies, or project/logistical support as an incentive for private parties to install green infrastructure. Mitigation or credit-based approaches are those in which stormwater benefits are quantified as a currency or "credit" and traded between parties to mitigate or offset regulatory requirements. This creates an incentive for pollution controls to occur where it is most cost-effective to do so. These programs provide flexibility for regulated parties and create an incentive to develop new, more cost effective methods to reduce pollution and/or control stormwater volume.

While economic instruments have the potential to attain greater cost-efficiencies and performance in green infrastructure investment, policy and programmatic barriers limit their widespread use. These barriers include:

- Technical Capacity: The development of a trading or mitigation framework requires specialized skills that many communities may not have. Off-the-shelf tools and resources, such as "road map" guides, templates, or workshops could help smaller and mid-sized communities apply economic instruments within their stormwater programs.
- Market Size: Trading areas and units of currency constrict potential market size. Where appropriate, permits with consistent pollutants and units can open market opportunities.
- Quantification: Quantifying pollutant reductions to use as units of trade is challenging. Standard assessment methods and performance-based investment vehicles can help.

The National Network on Water Quality Trading, Storm and Stream Solultions LLC, Green Infrastructure Leadership Exchange, Oregon Solutions, and the Water Environment Federation engaged over 50 experts in stormwater management and trading to explore these nascent and evolving approaches. This report summarizes the content and take aways from that process: the motivations that drive investment in stormwater infrastructure; a set of program options that work with market forces for more effective and efficient investment in stormwater infrastructure; the issues that limit these approaches and ways to get beyond these hurdles. If proven effective, we expect economic instruments to become more common elements in stormwater programs across the country.

Green Infrastructure Financing

Increasing Impacts

Incentives & Markets

Trading Programs

Challenges

Barriers

Program Options

CONCLUSION

Urban stormwater runoff is one of the most significant environmental issues facing communities today. Flooding, water supply, water quality, habitat degradation, and other impacts associated with stormwater runoff are increasing due to ongoing urbanization, a more episodic climatic regime, and rising global temperatures.

The challenges associated with stormwater are complex and require sophisticated solutions. Stormwater flows are chaotic and unpredictable because they are driven by weather and tied to land use. Management needs to operate across public and private properties. The current funding gap in this sector necessitates addressing these challenges in a highly cost-effective manner.

As Ben Franklin stated, "necessity is the mother of invention." Daunting problems force us to develop innovative solutions. Economic instruments that harness the power of incentives and markets, such as rebates, trading, and offsets, are among these solutions. Economic instruments can incentivize GI on private land, create opportunities for private infrastructure investment, and drive innovation of more efficient and effective practices. Through programs that reward private property owners for onsite adoption of GI practices, stormwater managers may be able to greatly increase needed infrastructure in urban areas without the use of command-and-control methods. By providing flexible options to land developers and landowners, such as the use of project offsets and in-lieu fees, infrastructure may be installed where it can have the greatest effect at the lowest cost. By allowing regulated entities to utilize trading programs to responsibly and more cost-effectively meet NPDES requirements, they have the opportunity to save money and work within the holistic nature of watersheds.

The use of economic instruments for stormwater infrastructure investments are relatively nascent and evolving, so many programmatic and policy challenges remain. Stormwater program managers are struggling to create a subsidy or fee reduction program that effectively incentivizes property owners to change their behavior while being financially sustainable, trading program developers struggle to define credit life and currencies that engage a sufficiently large market while protecting local water quality. These challenges highlight the need for ongoing efforts and research to refine these approaches and meet these challenges head-on with clear and effective solutions.

We expect that collaborative groups, such as the National Network on Water Quality Trading, the Water Environment Federation, and others in the water sector, will continue to explore these issues in order to highlight the technical and policy barriers that limit new and innovative approaches, discuss the potential benefits these approaches can provide, and generate ideas on how to best tap into the opportunities that emerging frameworks can provide.

This document has laid out the issues currently facing stormwater managers today and the motivation for investment in stormwater infrastructure; presented a set of program options that employ incentives and mitigation- or credit-based approaches for more, more effective, and more efficient investment in stormwater infrastructure; and highlighted the current status of issues that limit these approaches. The future will hopefully see more discussion and new examples to further these approaches. If proven effective, we expect economic instruments to become more mainstream and common elements of stormwater programs across the country.

For Additional Information:
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Carrie Sanneman, Willamette Partnership, 503/ 946-8350 or sanneman@willamettepartnership.org

Full Report available from the Willamette Partnership website: www.willamettepartnership.org

The preceding content was created in part through the adaptation of material developed by Storm and Stream Solutions, LLC and Willamette Partnership but is not the responsibility or property of Storm and Stream Solutions, LLC or Willamette Partnership.

Citation: Brown, S. and Sanneman, C, 2017. *Working with the Market: Economic Instruments to Support Investment in Green Stormwater Infrastructure*

WATER BRIEFS

WATERSENSE PROGRAM US
REVIEW FINDS SUCCESS

On August 1, the Office of the Inspector General (OIG) of the US Environmental Protection Agency (EPA) issued Report #17-P-0352, entitled "*EPA's Voluntary WaterSense Program Demonstrated Success*." Notably, EPA estimated that consumers saved over 1.5 trillion gallons of water through use of WaterSense-labeled products. Consumers saved an estimated $1,100 for every federal dollar spent.

OIG found that EPA's WaterSense program demonstrated adequate controls for ensuring that its estimated water and energy savings were reasonable. The program established goals, measured performance, and established controls for reducing program risk. However, the program lacked effective control over one performance measure: the number of partners working to improve water efficiency.

EPA launched WaterSense in 2006, in part, to ensure the performance of water-efficient products. EPA estimated that through 2015, the use of WaterSense-labeled products saved 1.5 trillion gallons of water and reduced the amount of energy needed to heat, pump, and treat water by 212 billion kilowatt hours. As a result, consumers saved an estimated $32.6 billion. More than 1,738 partners have joined the WaterSense program through 2015.
For info: EPA OIG, www.epa.gov/oig or 202/ 566-2391

"BIG PIPE" SUCCESS OR
SEWER OVERFLOWS PROJECT

The City of Portland, Oregon, is touting its success in cleaning up the Willamette River. The City's Bureau of Environmental Services (BES) recently stated that the Willamette River through Portland is cleaner than it's been in decades, thanks in large part to ratepayers' investment in the $1.4 billion "Big Pipe" project that dramatically reduced **c**ombined **s**ewer **o**verflows (CSOs). Construction of large, complex facilities to convey and treat combined sewage began with the 3.5-mile long Columbia Slough Consolidation Conduit, which went into service in 2000, followed by the 3.5-mile, 14-foot diameter West Side CSO Tunnel and the Swan Island CSO Pump Station in 2006, and finally the six-mile long, 22-foot diameter East Side Big Pipe in 2011.

Each week during summer months, BES tests for the presence of bacteria as well as water temperature at five popular public recreation spots. More than 98% of test results taken since the Big Pipe's completion in 2011 have shown bacteria levels well within the Oregon's health standards, meaning the water is clean enough for swimming, boating and other summer recreation.

Before the Big Pipe project, also known as Portland's CSO Control Program, stormwater mixed with sewage would overflow into the river almost every time it rained, triggered by storms with one-tenth of an inch of precipitation or more. That meant more than 50 overflows a year, with some events lasting several days. Now the system is designed to limit overflows to an average of four times per winter, occurring during periods of exceptionally heavy rains. Overflows occur even less often — on average once every three years. There have been no overflows in July and August in the years since the Big Pipe's completion.
For info: BES website: www.portlandoregon.gov/bes/31000 >> Combined Sewer Overflow Control

AG CONSERVATION TX
GRANTS PROMOTING CONVERSATION

On July 20, the Texas Water Development Board (TWDB) approved $629,730 in grants through the TWDB's Agricultural Water Conservation Grants Program. The program offers grant funding to state agencies and political subdivisions for activities that promote water conservation in Texas.

The grant funding was made available for the purchase of agricultural water conservation equipment designed to monitor irrigation water use, implement irrigation scheduling, and/or improve upon irrigation efficiency. To learn more about this program and see examples of projects previously funded through the TWDB Agricultural Water Conservation Grants Program see the website listed below.
For info: TWDB Agricultural Conservation webpage at: www.twdb.texas.gov/conservation/Agriculture/

URBAN SUPPLY PLANS US
INCREMENTAL ADDITIONS

On August 14th, an MIT-based research team released a new paper that evaluated global warming, drought conditions, and population growth that are ushering in an era of uncertain access to water. The paper made a strong case for an alternate approach to water planning — relying on building relatively modest, incremental additions to water infrastructure rather than expensive larger-scale projects that may be needed only rarely.

The study looks at Melbourne, where a 12-year drought from 1997 to 2009 led to construction of a $5 billion facility, the Victorian Desalination Plant. It was approved in 2007 and opened in 2012 — at a time when the drought had already receded. As a result, the plant has barely been used, and its inactivity, combined with its hefty price tag, has generated considerable controversy. As an alternative, the study suggests smaller, modular desalination plants could have met Melbourne's needs at a lower price.

"*Water Supply Infrastructure Planning: Decision-Making Framework to Classify Multiple Uncertainties and Evaluate Flexible Design*" — was recently published online in the Journal of Water Resources Planning and Management, and will appear in the October 2017 print volume.

The MIT team's new framework for water supply analysis incorporates several uncertainties that policymakers must confront in these cases, and runs large numbers of simulations of water availability over a 30-year period. It then presents planners with a decision tree about which infrastructure options are best calibrated to their needs. The significant uncertainties include climate change and its effects on rainfall, as well as the impact of water shortages and population growth.

The results highlight a vexing problem in water-access planning: shortages can be acute, but they may last for relatively short periods of time. The team ran 100,000 simulations of 30-year conditions in Melbourne and found that in 80% of all years, there would be no water shortages. Yet, for the years where drought conditions did hold, large water shortages were more common than minor water shortages.
For info: Report available for purchase at: http://ascelibrary.org/doi/10.1061/%28ASCE%29WR.1943-5452.0000823

GROUNDWATER CA
SGMA EXTRACTION INFORMATION

On July 28, the State Water Resources Control Board (SWRCB)

WATER BRIEFS

issued information dealing with groundwater extraction and upcoming Sustainable Groundwater Management Act requirements. The information includes identification mapping, extraction reports and reporting, and guidance documents. SWRCB has developed an interactive Unmanaged Area Identification map that shows the location of unmanaged areas as of July 26, 2017. The map is intended as a resource for extractors that may be located in unmanaged areas: *see* www.waterboards.ca.gov/gmp.

SWRCB is responsible for collecting and reviewing the extraction reports required by SGMA. Any person that extracts groundwater from an unmanaged area, with the exception of small domestic well users, must file an extraction report with the State Water Board each year for extractions made during the previous water year. Extraction reports for Water Year 2017 are due by December 15, 2017. Groundwater extraction reports must be filed online through SWRCB's Groundwater Extraction Report website. A draft version of the Groundwater Extraction Report website is available for testing purposes. Any information submitted to the draft website before August 15th will be deleted. Please send questions or comments on the draft website to: groundwater_management@waterboards.ca.gov.

SWRCB has also developed guidance documents to assist with the reporting process. The following draft documents are available for review: User's Guide for Water Year 2017; Interactive Map Guide; Sample User Form; and Sample Well Form.

For info: SGMA website: www.waterboards.ca.gov/water_issues/programs/gmp/sgma.shtml

GROUNDWATER MARKETS CA

UNDER SGMA

Decades of unfettered pumping have depleted many of California's groundwater basins, causing dry wells, deteriorating water quality, stream depletion, and damaged infrastructure. State and local actors are working to address these problems. More than 200 local groundwater agencies have formed around California and are beginning to chart paths forward under the Sustainable Groundwater Management Act (SGMA). Many are wondering about the potential for market mechanisms to be part of local sustainability solutions.

The Wheeler Water Institute (Institute) at the Center for Law, Energy & the Environment (UC Berkeley School of Law) recently released a new report, in partnership with UC Water and in collaboration with researchers from UC Merced, that provides guidance about when a local groundwater market might be a useful and appropriate management tool. "*Trading Sustainably: Critical Considerations for Local Groundwater Markets Under the Sustainable Groundwater Management Act*" (Report) outlines a set of considerations designed to help groundwater agencies, the stakeholders they serve, and state agencies with oversight and intervention responsibilities evaluate whether markets might be viable tools for sustainably managing particular groundwater basins and, if so, how to effectively implement them.

Critical considerations for local groundwater markets span several categories: (1) foundational considerations, which markets share in common with non-market programs that limit groundwater pumping; (2) market-specific considerations; and (3) general considerations that are important for all groundwater sustainability programs.

Whether a local groundwater market might be a viable tool will depend on a host of factors that may vary significantly from basin to basin as well as within a single basin. Markets that lack well-defined goals, appropriate rules, or effective oversight run real risks of generating unintended consequences. The Report makes clear that, where groundwater agencies plan to rely on markets to help reach sustainability goals, foresight and diligent preparation will be essential ingredients for success.

For info: Nell Green Nylen, Wheeler Water Institute, ngreennylen@berkeley.edu; Full Report at: www.law.berkeley.edu/research/clee/research/wheeler/trading-sustainably/

WASTEWATER SPILL MT

FINES, REIMBURSE & PROJECTS

On August 22, Montana's Department of Environmental Quality (DEQ) announced an executed Administrative Order on Consent (Consent Order) in regard to a wastewater effluent spill of approximately 30 million gallons of effluent from the system of the Yellowstone Club, a private members-only ski area near Big Sky, Montana. The failure of a wastewater effluent holding pond at the "private, luxury mountain resort" lasted from March 3 through 7, 2016, with the effluent flowing through tributaries that eventually flowed into the Gallatin River. Consent Order at 1-2. The Violations listed in the Consent Order were discharging without a permit and causing pollution of state waters. *See* Water Briefs, *TWR* #146 for additional information.

On August 22, DEQ received a check for $93,739, which is comprised of a penalty payment of $64,175 and reimbursement for DEQ's costs of $29, 564. The parties to the Consent Order were DEQ and the Yellowstone Mountain Club, LLC and Yellowstone Development, LLC (collectively Yellowstone Club).

The Consent Order also contained requirements for additional corrective actions. As noted in the Consent Order, DEQ assessed an administrative penalty of $256,700 for the violations and assessed $29,564 for DEQ's investigation and monitoring costs conducted in response to the Discharge. The Yellowstone Club agreed to conduct a Supplemental Environmental Project (SEP) to mitigate a portion of the assessed penalty, paying 25% of the penalty ($64,175) as a cash penalty. "The remainder of the assessed penalty or $192,525, shall be mitigated by a SEP at a 1:1.5 ratio or SEP value of $288,788." *Id*. at 7.

The Yellowstone Club must submit an SEP proposal and preliminary budget to DEQ for review; if DEQ approves the proposal, a detailed SEP Plan is then required. That SEP Plan is subject to review and approval by DEQ; upon approval, implementation of the SEP must begin by the deadline provided in the approved SEP Plan. "If within one year of the effective date of this Consent Order, the Department and YMC/YD are unable to agree on SEPs with a value of $288,788, then the Department may require and YMC/YD shall pay to the Department all or a pro-rated portion of the remaining $192,525 penalty as a cash payment." *Id*. at 8.

For info: Consent Order available upon request from *The Water Report* — TheWaterReport@yahoo.com

WATER BRIEFS

MERCURY LIMITS CA

WATER QUALITY CRITERIA

On July 18, EPA announced the approval of new water quality criteria for mercury in California waters. The new rules, developed by the State Water Resources Control Board (SWRCB), set mercury limits in fish tissue to protect human health and aquatic-dependent wildlife. New protections also have been added for tribal cultural use and subsistence fishing.

In California, Gold Rush-era mining operations released millions of pounds of naturally occurring mercury, a potent neurotoxin, into state waterways. Once there, the toxic metal builds up in fish tissue and is consumed by people and wildlife. To address that risk, the state's new criteria set maximum mercury limits in fish tissue for various species caught for sport, subsistence, and cultural practices.

The state's new rules set five new water quality criteria for mercury in fish tissue for tribal subsistence fishing, general subsistence fishing, prey fish, sport fish, and for fish commonly consumed by the protected California Least Tern.

For info: EPA website for Mercury information: www.epa.gov/mercury/health-effects-exposures-mercury; Approval letter & standards available at: www.waterboards.ca.gov/water_issues/programs/mercury/

PESTICIDES IMPACT US

USGS MIDWEST STUDY

On August 9, United States Geological Survey (USGS) released a study on the impact of pesticides on streams in the Midwest. The study — *"Complex Mixtures of Dissolved Pesticides Show Potential Aquatic Toxicity in a Synoptic Study of Midwestern U.S. Streams*" — was published in the journal Science of the Total Environment.

One hundred small streams in the Midwest were tested for pesticides during the 2013 growing season and found to contain, on average, 52 pesticides per stream. More than 180 pesticides and their by-products were detected in small streams throughout 11 Midwestern states, some at concentrations likely to harm aquatic insects, according to USGS. The mixtures of pesticides are more complex than previously reported by the USGS — 94 pesticides and 89 pesticide byproducts were detected.

At least one pesticide in at least half of the 100 streams sampled exceeded a threshold predicted to cause harm to aquatic insects and other stream organisms, ranging from acute effects (e.g., death after a short-term exposure) to chronic effects (e.g., longer-term impairments to reproduction and development). Two-to-four pesticides exceeded that threshold in more than a quarter of the streams. Aquatic insects, like mayfly and stonefly larvae, are critical to stream health because they are an essential link in the aquatic food web. Pesticides were not measured at levels predicted to be toxic to fish in 95 of the 100 streams tested. Potential impacts on human health were not assessed because the small streams sampled in agricultural and urban areas are unlikely to be used as sources of drinking water.

"About 150 million pounds of pesticides are applied annually in the Midwestern U.S.," said Lisa Nowell, USGS research chemist and lead scientist for the study. "Understanding which pesticides are occurring at levels potentially toxic to aquatic life, and where they occur, is crucial to informing management decisions." While numerous pesticides were detected at low levels, only a few — atrazine, acetochlor, metolachlor, imidacloprid, fipronil, and organophosphate insecticides — were predicted to be major contributors to toxicity. The first three are widely used agricultural herbicides, and the latter three are insecticides used in both residential and agricultural settings.

This is one of the most extensive assessments of pesticides in streams to date: 1,200 samples were collected at 100 Midwest streams over a 12-week period during the 2013 growing season and analyzed for 228 pesticide compounds. Numbers of streams tested in each state include: Illinois (19 sites), Indiana (15), Iowa (17), Kansas (3), Kentucky (3), Minnesota (7), Missouri (14), Nebraska (8), Ohio (7), South Dakota (1), and Wisconsin (6).

This study is the first in a series of five **r**egional **s**tream **q**uality **a**ssessments (RSQA) that also includes the Southeast, Pacific Northwest, Northeast, and California.

For info: Lisa Nowell, California Water Science Center, 916/ 278-3096 or lhnowell@usgs.gov; Study at: www.usgs.gov/news/pesticides-prevalent-midwestern-streams

YAKIMA ADJUDICATION WA

SURFACE RIGHTS CONFIRMED

The historic *Ecology v. James Acquavella, et al.* adjudication determining and confirming all surface water rights in the Yakima River Basin will soon be final, announced the Washington State Department of Ecology (Ecology) on August 17. After 40 years of court proceedings and deliberation, Yakima Superior Court Judge F. James Gavin entered a proposed final decree for the case on August 10, 2017, including a draft schedule of rights set to be confirmed over the next eight months. Information is now being mailed to water right holders, beginning a review process after which the court will enter a final judgment concluding the case.

Under the threat of drought in 1977, Ecology filed a petition for an adjudication to determine the legality of all claims for use of surface water in the Yakima River Basin. The resulting court case began a thorough and binding review of all historical facts and evidence associated with each claim for rights to surface water use in the basin.

Nearly 2,500 water rights in 31 subbasins (tributary watersheds) for individuals and about 30 major claimants, including irrigation districts, cities, federal projects (US Reclamation and US Forest Service) and the Yakama Indian Nation, have been meticulously substantiated. "Now water users have clarity about their water rights and stability on what they can expect going forward," said Ecology's deputy director Polly Zehm. "This process brought parties to the courtroom to settle claims, and over the long years laid the foundation for a more collaborative approach to meet all our water needs through adoption of the Yakima Integrated Water Management Plan."

The draft schedule of rights is available for review on Ecology's website. Anyone may file written objections with the court until November 15, 2017. A schedule for court review and responses to objections will follow as needed until April 14, 2018.

For info: Leigh Bedell, Ecology, 360/ 407-6017 or leigh.bedell@ecy.wa.gov; Ecology's website at: ecy.wa.gov

CALENDAR

September 15 CA
California Environmental Quality Act (CEQA) Seminar, Santa Monica. DoubleTree Guest Suites Santa Monica Hotel. For info: Law Seminars Int'l, 206/ 567-4490 or www.lawseminars.com

September 17 WA
Washington Environmental Cleanup: CERCLA & MTCA, Seattle. Washington State Convention Ctr. For info: Environmental Law Education Center, www.elecenter.com/

September 17-21 TX
EPA Region 6 Stormwater Conference and LID Competition, San Antonio. Hilton Palacio. Organized by EPA Region 6, in partnership with San Antonio, Texas, Texas A&M University Kingsville, Municipal Separate Storm Sewer Systems (MS4s), and States in Region 6. For info: Nelly Smith, EPA, smith.nelly@epa.gov

September 18 WA
Environmental Contamination & Cleanup Conference: CERCLA + MTCA + Sediments, Seattle. Washington State Convention Ctr. For info: Environmental Law Education Center, www.elecenter.com/

September 18-19 CA
California Coastal Law Conference: Legal, Policy & Commission Updates, Los Angeles. Los Angeles Athletic Club. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

September 18-20 AUST
10th International Riversymposium and Environmental Flows Conference: Sustainable River Basin Management, Brisbane, Australia. Presented by International River Foundation. For info: http://riversymposium.com/

September 18-20 NV
WaterPro Conference - Annual Conference of the National Rural Water Assoc., Reno. Grand Sierra Resort. For info: http://waterproconference.org/

September 19 WEB
The Digital Water Utility Webinar, 11 am - 12 pm PST. Hosted by WaterSmart Software. For info: www.watersmart.com/events/waterside-chat-digital-utility/

September 20 TX
Pollution Prevention Waste Management Workshop, Austin. J.J. Pickle Research Campus, University of Texas at Austin. Presented by Texas Commission on Environmental Quality. For info: www.tceq.texas.gov/p2/events

September 20 CO
Getches-Wilkinson Center Distinguished Lecture Featuring Professor Mary Wood, Boulder. University of Colorado School of Law, Wolf Law Bldg., Wittemyer Courtroom. For info: gwc@colorado.edu

September 21 CA
Finance for Energy Efficiency Retrofits Event: Doulbling Energy Efficiency in California's Existing Buildings: How Will We Finance It?, Berkeley. UC Berkeley School of Law, Warren Room (295 Boalt), 5-7:30 PM PDT. Presented by Center for Law, Energy & the Environment. For info: https://docs.google.com/forms/d/e/1FAIpQLScHcmuj1RKqhjHWYpnVwkA5ABKD8nMdKtwKMHehSfIF6zPhtg/viewform

September 25-26 CA
Endangered Species Act Conference, San Francisco. BASF Conference Center. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

September 25-27 CA
CASQA in the Capital: Building Bridges for Water: California Stormwater Quality Association (CASQA) Annual Conference, Sacramento. Sacramento Convention Center. For info: www.casqa.org/events/annual-conference/hotel-and-travel

September 26-27 CO
Indian Law & Natural Resources: The Basics & Beyond Institute, Westminster. Marriott Hotel. For info: Rocky Mt. Mineral Law Foundation, 303/ 321-8100, info@rmmlf.org or www.rmmlf.org

September 28-29 MT & WEB
Montana Water Law - 17th Annual Seminar, Helena. Great Northern Hotel. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

September 30-Oct. 4 IL
WEFTEC 2017: The Water Quality Event & Exhibition, Chicago. McCormick Place North & South. Presented by Water Education Foundation. For info: www.weftec.org/future-weftec-schedule/

October 3 WA
2017 AWRA Washington State Conference: "The 100 Year Anniversary of the Washington Water Code: Where We Came From & Where We're Going", Seattle. Mountaineers Seattle Program Center, 7700 Sand Point Way NE, 7 am - 7 pm. Presented by Washington Section of the American Water Resources Assoc. For info: http://waawra.org/event-2504575

October 3 NV
Alliance for Water Efficiency Annual Meeting & Reception, Las Vegas. South Point Hotel & Conference. Sonoma C Room. Includes AWE Groundhog Days Music Night. For info: http://www.allianceforwaterefficiency.org/AMM2017.aspx

October 3 TX
Texas Water Law Conference: A Look at Today & Planning for Tomorrow, San Antonio. Witte Museum. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

October 3-5 MD
Interstate Council on Water Policy Annual Meeting, Baltimore. Fell's Point - Admiral Fell Inn. For info: www.icwp.org

October 4-6 NV
10th Annual WaterSmart Innovations Conference & Exposition 2017, Las Vegas. South Point Hotel & Conference. Presented by WaterSmart Innovations, Southern Nevada Water Authority, Alliance for Water Efficiency & the EPA WaterSense Program. For info: www.watersmartinnovations.com

October 5 OR
Oregon Water Resources Congress Water Law Seminar, Redmond. Eagle Crest Resort. For info: http://owrc.org/event/owrc-water-law-seminar?instance_id=127

October 6 NE
Nebraska Water Law Conference, Lincoln. University of Nebraska College of Law. McCollum Hall, 8 am - 5 pm. For info: Anthony Schutz, 472-1248 or anthony@unl.edu; https://events.unl.edu/law/2017/10/06/120793/

October 10 WY
Wyoming Water Forum: Sara Larsen, Western States Water Council. "WSWC's Water Data Exchange (WaDE)", Cheyenne. Herschler Bldg., Room #1699, 122 W. 25th Street. Presented by Wyoming State Engineer's Office. For info: http://seo.wyo.gov/interstate-streams/water-forum

October 10-11 ID
Water & Real Estate Development in Idaho Seminar, Boise. The Owyhee. For info: Law Seminars Int'l, 206/ 567-4490 or www.lawseminars.com

October 11 UT
Utah Water Law Conference: Protecting & Managing Resources, Salt Lake City. Marriott Downtown at City Creek. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

October 11-12 TX
Water Quality/ Stormwater Seminar: Autumn Environmental Conference & Expo, Austin. Palmer Events Center, 900 Barton Springs Road. Presented by Texas Commission on Environmental Quality. For info: www.tceq.texas.gov/p2/events/autumn-environmental-conference-and-expo

October 12 WA
Environmental Litigation in the Trump Era Seminar, Seattle. TBA. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

October 12-13 MT
Bridging Divides: Energy, Environment, and Empowerment in a New Era: 37th Biennial Public Land Law Conference, Missoula. University of Montana Alexander Blewett III School of Law. For info: http://scholarship.law.umt.edu/pllsymposium/

October 12-13 TX
Supply Chain Management for Utilities Conference, Dallas. Omni Dallas Hotel. For info: www.euci.com/event

October 12-13 NV
Tribal Water Law Conference: "Cutting Edge Insights from Practitioners in Indian Country", Las Vegas. Caesars Palace. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

October 13 OR
2017 Environmental Law: Year in Review CLE, Troutdale. McMenamins Edgefield. Presented by the Environmental & Natural Resources Section - Oregon BAR. For info: Tiffany Johnson, 503/ 229-6258 or Tiffany.Johnson@state.or.us or

October 16-17 DC
Environmental Trials Seminar, Washington. Arnold & Porter Kaye Scholer LLP Conference Center. For info: Law Seminars Int'l, 206/ 567-4490 or www.lawseminars.com

October 18 NM
Western States Water Council / WestFAST Workshop on Federal Non-Tribal Water Claims: Continuing State-Federal Relationships Through the Implementation Phase of Decreed & Adjudicated Water Rights, Albuquerque. Marriott Pyramid North. 8 am - 11:30 am. For info: www.westernstateswater.org

October 18-20 NM
Western States Water Council Meeting - Fall 2017 (185th), Albuquerque. Marriott Pyramid North. For info: www.westernstateswater.org

October 18-21 MD
25th Fall Conference of the Section of Environment, Energy & Resources (ABA), Baltimore. Baltimore Waterfront Marriott. Presented by ABA SEER. For info: http://www.americanbar.org/groups/environment_energy_resources/events_cle.html

October 20-23 CA
National Bioneers Conference 2017: Uprising, San Rafael. Marin Center. For info: http://conference.bioneers.org/

October 24-25 CA
Water & Long-Term Value Conference, San Francisco. Fort Mason Center. Presented by Skytop Strategies. For info: https://skytopstrategies.com/water-long-term-value-2/

October 24-27 CA
USCID Conference - 10th International Conference on Irrigation & Drainage, Sacramento. Lions Gate Hotel. For info: http://www.uscid.org/17caconf.html

October 26-27 CA & Web
Tribal Water Law in California Conference, Valley Center. Harrah's Resort Southern California. For info: Law Seminars Int'l, 206/ 567-4490 or www.lawseminars.com

October 31 OR
Sediments Conference: Contamination, Remediation, Dredging & Disposal, Portland. World Trade Center Two. For info: Environmental Law Education Center, www.elecenter.com/

October 30-Nov. 3 Netherlands
Amsterdam International Water Week, Amsterdam. RAI Amsterdam Convention Centre. For info: http://internationalwaterweek.com/

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Water Rights, Water Quality & Water Solutions in the West
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CALENDAR

(continued from previous page)

November 1-3 DC
26th Annual ELI Eastern Boot Camp on Environmental Law, Washington. Arnold Porter Kaye Scholer LLP, 601 Massachusetts Avenue, NW. Presented by Environmental Law Institute; Must Register by 10/13/17. For info: www.eli.org/boot-camp/eastern-bootcamp-environmental-law

November 2-3 OR
26th Annual Oregon Water Law Conference, Portland. Embassy Suites Downtown. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

November 2-3 CO
The National Environmental Policy Act Institute, Denver. Grand Hyatt Hotel. Presented by the Rocky Mountain Mineral Law Foundation. For info: www.rmmlf.org/

November 4 OR
14th Annual Celebration of Oregon Rivers, Portland. Tiffany Center. Presented by WaterWatch of Oregon. For info: www.waterwatch.org

November 5-9 OR
American Water Resources Association (AWRA) Annual Conference, Portland. Red Lion Inn at Jantzen Beach. Addressing Infrastructure, Climate Change, Drinking Water Quality, Environmental Alteration, Endangered Species, Water Conflicts and More. For info: www.awra.org/meetings/Portland2017/index.html

November 7-9 IL
First Annual Storm Water Solutions Conference & Exhibition: Stormwater & Erosion Control, Chicago. Tinley Park Convention Center. For info: http://swsconferenceexpo.com/

November 8-9 WA
10th Annual Water Rights Transfers Seminar, Seattle. Courtyard Marriott Downtown/Pioneer Square. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

November 8-9 KS
Governor's Conference on the Future of Water in Kansas, Manhattan. Hilton Garden Inn & Conference Center. For info: www.kwo.org/Projects/Governors-Conference.html

November 9-10 ID
IWUA 34th Annual Water Law Seminar, Boise. Riverside Hotel. Presented by Idaho Water Users Assoc. For info: IWUA, 208/ 344-6690 or www.iwua.org/

November 11-17 MD
9th US Symposium on Harmful Algae, Baltimore. Sheraton Inner Harbor Hotel. For info: www.9thushab.com

November 13-14 CA & Web
Local Climate Change Planning Conference: Strategies for Developing Plans & Adapting to Major 2017 Legislative Actions, Sacramento. For info: Law Seminars Int'l, 206/ 567-4490 or www.lawseminars.com

November 13-14 CA
California Water Law Conference, San Francisco. BASF Conference Center. For info: CLE Int'l, 800/ 873-7130 or www.cle.com