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Water Rights, Water Quality & Water Solutions in the West

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NATIONAL FLOOD INSURANCE PROGRAM

OREGON COMMUNITIES AND DEVELOPERS FACE SIGNIFICANTLY HEIGHTENED STANDARDS FOLLOWING ESA CONSULTATION ON NATIONAL FLOOD INSURANCE PROGRAM NATIONAL IMPACTS PROBABLE

by Molly Lawrence and Jenna Mandell-Rice, Van Ness Feldman LLP (Seattle, WA)

INTRODUCTION

In the latest in a series of Biological Opinions regarding the effects of the National Flood Insurance Program (NFIP) on endangered species, the National Marine Fisheries Service (NMFS) released its Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion regarding the Federal Emergency Management Agency's (FEMA's) implementation of the NFIP in Oregon (Oregon BiOp) on April 14, 2016. [Oregon BiOp at: www.westcoast.fisheries.noaa.gov/publications/habitat/2016_04-14_fema_nfip_nwr-2011-3197.pdf]. The Oregon BiOp concluded that the Oregon NFIP allows and encourages floodplain development that jeopardizes the continued existence of 16 ESA-listed anadromous fish species and Southern Resident killer whales, and results in the destruction or adverse modification of critical habitat for the fish species.

The Oregon BiOp includes a **r**easonable and **p**rudent **a**lternative (RPA) that, if implemented as NMFS proposes, will significantly tighten the development regulations applicable to floodplains. Most notably, NMFS calls for FEMA to change how it maps the Special Flood Hazard Area (SFHA), including mapping an entirely new area (known as the "erosion zone") not previously mapped by FEMA. It also directs FEMA to restrict significantly, and in some cases prohibit, development in these areas. Further, NMFS directs FEMA to adopt a new "ESA performance standard" as part of the minimum flood hazard regulations that local jurisdictions must adopt and enforce to participate in the NFIP.

As proposed by NMFS, these changes would apply not only in Oregon, but to all 22,000 jurisdictions participating in the NFIP across the fifty states in the US. This is because the RPA directs FEMA not only to change its operations in Oregon, but to change its floodplain mapping procedures and minimum standards for community participation in the NFIP (44 C.F.R. §59, *et seq.*) *nationwide*. If implemented by FEMA, this new NFIP would completely overhaul the face of floodplains nationwide, putting significant portions of the landscape long available for all stripes of development (commercial, industrial, residential, forestry, and agriculture) off limits to future development and redevelopment other than habitat improvement projects. For jurisdictions with significant portions of their landscape within the floodplain (e.g., California, Oregon, Florida, Louisiana), this is likely to trigger a titanic shift in development patterns and opportunities.

NATIONAL FLOOD INSURANCE PROGRAM BACKGROUND

The NFIP is a Federal program that is intended to reduce Federal expenditures for flood losses and disaster assistance by providing flood insurance at reasonable rates within communities that choose to participate in the program. 42 U.S.C. § 4001(a). To participate in the NFIP, communities are required to adopt development regulations for

Flood Insurance

NFIP Components

Flood Risk Study

Local Maps

Hazard Delineation

"No Build" Zone

floodplain areas at least as restrictive as FEMA's minimum development standards. 42 U.S.C. § 4001(e); 44 C.F.R. §60.3. To encourage communities to participate, the National Flood Insurance Act, which governs the NFIP, prohibits Federally-regulated banks or lenders, and Federal agencies from providing loans or financial assistance for acquisition or development of properties within floodplains of non-participating communities. 42 U.S.C. § 4012(a)(2).

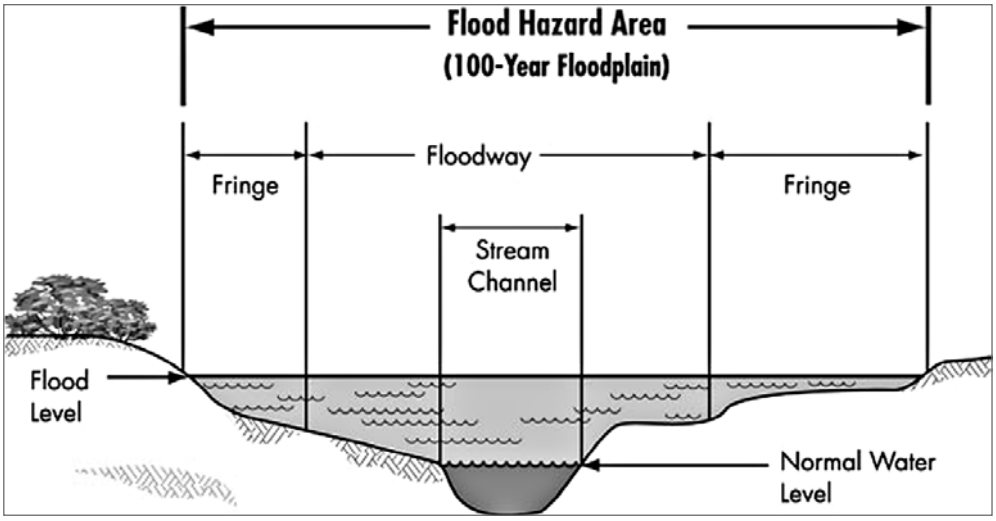
There are four basic components to the NFIP:

1) the identification and mapping of flood-prone communities
2) the development of minimum regulatory floodplain management criteria applicable within the floodplain that local jurisdictions must adopt and enforce to qualify to participate in the NFIP (also known as FEMA's minimum development standards)
3) the provision of flood insurances
4) the development of a community rating system that offers communities discounted flood insurance premiums if they adopt flood management regulations that exceed FEMA's minimum criteria

See Lawrence, *TWR* #131 for additional discussion of these components.

To implement the NFIP, FEMA periodically conducts a Flood Insurance Study (FIS) — an assessment of the flood risk within each flood-prone community — to determine which properties are within the designated floodplain. By regulation, FEMA is to evaluate the need to update each jurisdiction's study once every five years. FEMA converts the results of each local FIS onto a map referred to as a Flood Insurance Rate Map (FIRM), which is subject to public review and administrative and judicial appeal processes. The flood risk information contained in the FIS and the resulting FIRM form the technical basis for the administration of the NFIP.

The primary area delineated on a FIRM is known as the Special Flood Hazard Area (SFHA), which is the area anticipated to be inundated by flood water in a 100-year flood event. Identification of a property as within a SFHA triggers mandatory flood insurance purchase requirements under the NFIP, as well as the application of additional layers of development regulations. In many regions, FEMA also uses the FIS to establish the "regulatory floodway" — i.e., "the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height." 44 C.F.R. § 59.1. Historically, the development regulations applicable within the floodway have been significantly more restrictive than those applicable in the balance of the floodplain with the intent of making it effectively a "no build" zone.



Under Section 7 of the ESA, a federal agency is required to consult with either NMFS or the US Fish and Wildlife Service (USFWS) to insure that any action authorized, funded or carried out is not likely to jeopardize the continued existence of any ESA-listed species or result in the destruction or adverse modification of critical habitat. 16 U.S.C. § 1536(a)(2). Generally, USFWS provides oversight for terrestrial and freshwater species; NMFS provides oversight for anadromous (ocean-going) fish and sea mammals. For those actions which are likely to adversely affect a listed species or its critical habitat, NMFS or USFWS will prepare a biological opinion examining the effects of the proposed action. If the biological opinion results in a jeopardy or adverse modification determination, NMFS or USFWS will identify an RPA that is: consistent with the purpose of the action; within the scope of the federal agency's legal authority and jurisdiction; economically and technologically feasible; and avoids the likelihood of jeopardy or adverse modification. 50 C.F.R. § 402.02.

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Flood Insurance

FEMA Consultation

To date, FEMA has not completed a comprehensive consultation regarding the NFIP at the national programmatic level to determine whether the overall program is likely to adversely affect or jeopardize listed species. FEMA's lack of such consultation has spurred more than a dozen lawsuits in various states around the country beginning in the 1990's by environmental groups who sought to require FEMA to consult with the USFWS or NMFS regarding the impacts of the NFIP on threatened and endangered species. As a result of these lawsuits, FEMA has been required to consult with NMFS on its implementation of the NFIP in a number of other states, including the NFIP in Puget Sound, Washington, which resulted in a biological opinion in 2008. The Puget Sound consultation spurred a lawsuit with respect to the Oregon NFIP in 2009, *Audubon Society v. FEMA*, 3:2009cv00729 (June 25, 2009), which triggered FEMA to initiate consultation with NMFS on July 18, 2011. *See* Pearson & Lynch, *TWR* #145 for further discussion of EPA/FEMA litigation nationally.

THE OREGON BIOP AND REASONABLE AND PRUDENT ALTERNATIVE IN OREGON

NFIP Consultation

In accordance with the settlement in *Audubon Society v. FEMA*, FEMA requested formal consultation with NMFS on three aspects of the NFIP in Oregon:

1) floodplain mapping;
2) FEMA's regulatory floodplain management criteria; and
3) the community rating system.

NMFS determined that these aspects of the NFIP may cause floodplain development because: (i) the mapping process and minimum development standards allow and incentivize fill and development within the floodplain; (ii) conservation measures are inadequate to prevent or offset floodplain development; and (iii) the community rating program does not prevent floodplain development and may encourage adverse effects by providing credits to communities that pursue structural means of reducing flood risk. In turn, NMFS concluded that the NFIP may affect habitat function relied upon by endangered and threatened species, resulting in jeopardy to the continued existence of 17 marine and anadromous species, including Southern Resident killer whales and salmon and steelhead species.

Habitat Function

Avoiding Jeopardy

Whenever NMFS issues a jeopardy or adverse modification opinion, the agency also provides an RPA. An RPA provides the action agency (in this case FEMA) a road map identifying *one way* it could change its program to avoid jeopardy or adverse modification. In the case of the Oregon BiOp, NMFS offered FEMA a six element RPA to be phased in over time (including immediate, intermediate, and long-term steps).

National Impacts

If implemented as written, the Oregon BiOp's RPA will fundamentally change how FEMA, and in turn local communities, regulate floodplains and floodplain development in Oregon and ultimately across the United States. The RPA not only calls for changes to FEMA's implementation of the NFIP in Oregon, but also for national regulatory changes that will significantly change how FEMA maps floodplains (to include much larger areas) and require ESA-compliance from all local communities as a condition of NFIP participation.

In brief, the six elements of the Oregon BiOp's RPA include:

Outreach

RPA Element 1

Element 1 of the RPA directed FEMA to develop, in consultation with NMFS, an education and outreach strategy to provide notice to NFIP participating communities in Oregon regarding the outcome of the ESA consultation, and to assist the Oregon DLCD and NFIP participating communities in Oregon in implementing the various measures contained in the RPA. NMFS set a deadline for compliance with this element of September 15, 2016. FEMA sent out the required letters on June 13, 2016.

"Interim Measures"

RPA Element 2

Recognizing that it will likely take FEMA several years to implement Elements 3 and 4 of the RPA, Element 2 sets forth a number of "Interim Measures" intended to ensure that existing natural floodplain functions are maintained pending full RPA implementation. The Oregon BiOp notes that these interim measures "are a subset of, and less protective of important habitat features and processes than, the full RPA and are insufficient by themselves to avoid jeopardy or adverse modification over time."

Required Mitigation

The Element 2 Interim Measures require that all development in the 100-year floodplain be mitigated to achieve "no net loss of natural floodplain functions" through a combination of compensatory flood storage (at ratios higher than 1:1) and mitigation for all vegetation removal (at ratios between 2:1 and 3:1), and eliminating or mitigating the use of impervious surfaces (roofs, driveways, sidewalks, etc.) in the floodplain.

Flood Insurance

Riparian Buffer

Fill Provisions

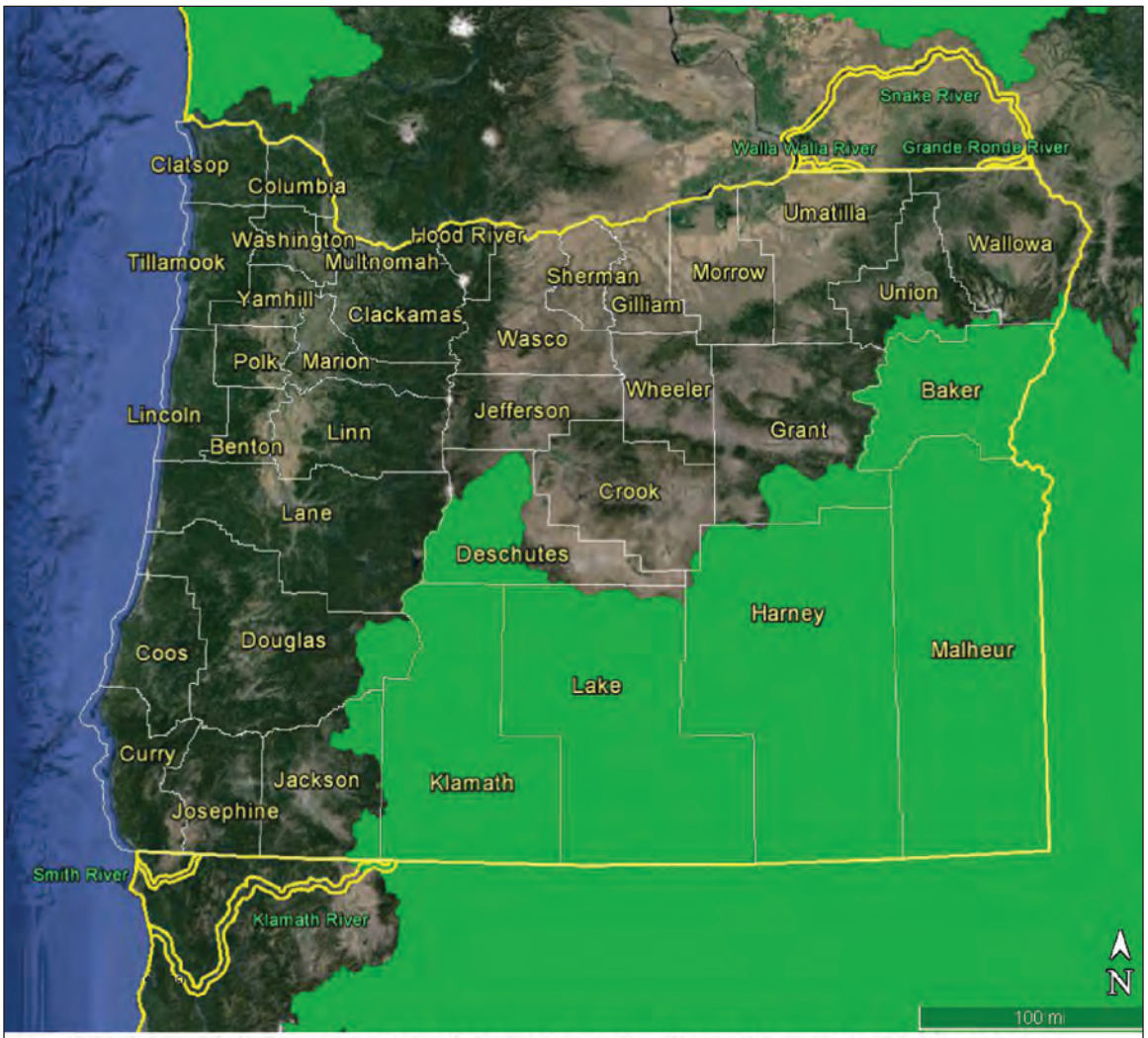
Prioritized Buyouts

In addition, Element 2 directs FEMA to identify a "riparian buffer zone" (RBZ) measured 170 feet horizontally from the ordinary high water mark of perennial or intermittent streams, and limit the types of development allowed in the RBZ to: (1) water dependent uses; (2) habitat restoration activities; (3) activities that result in a beneficial gain for the listed species or habitat; and (4) activities that will have no adverse effects on listed species or habitat, i.e., activities that will not degrade or limit natural floodplain functions in any way. The Oregon BiOp sets forth a narrow definition for "water dependent uses": "a use that cannot perform its intended purpose unless located or carried out in proximity to water." (*See* Oregon BiOp., p. 301, for the complete definition).

Further, with regard to floodplain map revisions, Element 2 directs FEMA to deny or decline to process requests to revise flood insurance rate maps where the applicant used fill to elevate the property above the floodplain unless the applicant demonstrates that all impacts of development to natural floodplain functions were avoided or mitigated. Further Element 2 directs FEMA to review all requests for conditional map revisions to determine if they may adversely affect floodplain function and, if so, to consult with NMFS to identify appropriate mitigation.

Finally, Element 2 directs FEMA to track all permitted development activities within the floodplain and associated mitigation, and to work with the state to prioritize floodplain development buyouts based on presence of high priority salmonid populations.

The Oregon BiOp provides that FEMA must implement these changes by March 15, 2018. Thereafter, they will sunset when Elements 3 through 6 are fully implemented.



The State of Oregon portion of the action area. The yellow outline indicates the action area, including major mainstem rivers located downstream. The green field indicates areas without ESA-listed species under NMFS jurisdiction. White lines and labels indicate counties in Oregon. Green labels indicate major mainstem rivers downstream of Oregon. **Adapted from NMFS Oregon BiOp**

Flood Insurance

Mapping Protocols

Floodway Depiction

Erosion Zone

Climate Change

Mapping Updates

Residual Hazards

FIRMS Schedule

Habitat Protection

High Hazard Areas

Erosion Buffer

Footprint Standards

Pervious Surface

RPA Element 3

RPA Element 3 directs FEMA to make significant nationwide changes to its floodplain mapping protocols and Flood Insurance Rate Maps (FIRMS).

Specifically, this element directs fema to:

(1) Modify its flood hazard mapping protocols to ensure that flood maps are based on "best available science," including using unsteady state and multi-dimensional hydraulic modeling, and higher factors of safety.

(2) Depict a larger regulatory floodway, defined as either: (a) the 1 foot rise floodway expended to include all locations where depth of flood water reach or exceed 3 feet, and all locations where the velocity of flood water reaches or exceeds 3 cubic feet per second (cfs); or (b) the 6-inch rise floodway.

(3) Map a new zone, known as the riverine erosion zone or "E Zone," on FIRMS. (Areas that are disconnected from the channel migration zone (CMZ) by existing infrastructure and development may be excluded.)

(4) Depict "High Hazard Areas" (HHAs) on all FIRMS. The RPA defines HHA as the furthest landward extent of: (a) the floodway (as defined in the RPA); and (b) E Zones.

(5) Depict the "Area of Future Conditions Flood Hazard" (AFCFH) on all FIRMS. The RPA provides that the AFCFH shall be based upon the best available science, including projections for the year 2050 updated to incorporate new data every 10 years, and shall include: (a) climate change in both coastal and riverine areas, and sea level rise in coastal areas; and (b) build out/land cover changes. If available data are inadequate to estimate future conditions, the RPA provides that a 2-foot freeboard or a 0.2 percent change floodplain (500 year) are acceptable proxies.

(6) Revise map adoption procedures to accelerate the rate at which FEMA updates FIRMS.

(7) Map residual flood hazards and risks behind levees, dams and other flood control structures. In particular, the RPA directs FEMA: (a) not to omit areas from the SFHA based on non-accredited levees; (b) not to delay finalization of FIRMS due to non-accredited levees; (c) to depict residual risk landward of accredited levees; and (d) to ensure coordination with NMFS before depicting new or repaired levees as accredited on a FIRM.

(8) Develop a schedule for producing updated FIRMS for all NFIP participating communities in Oregon. The RPA directs that, at a minimum, the schedule will provide for 10 new or updated maps per year until all required mapping has been completed.

The RPA directs that FEMA implement (1), (2) and (6) above by March 15, 2018, and other parts by September 15, 2019.

RPA Element 4

Element 4 of the RPA directs FEMA to revise its regulatory floodplain management criteria to avoid, minimize, and mitigate the adverse effects of floodplain developments on habitat functions. Element 4 directs FEMA to require communities to adopt certain criteria as a condition of participation in the NFIP and provides that FEMA must enforce compliance with such criteria, including:

(1) Incorporating an "esa performance standard" into the regulatory floodplain management criteria required as a condition of NFIP eligibility (44 C.F.R. part 60).

(2) Prohibiting new development or substantial improvements in high hazard areas (HHAs) except: (a) open space uses; (b) habitat restoration activities; (c) low intensity recreational uses; (d) water dependent uses; and (e) bioengineered bank protection, subject to appropriate mitigation. Low intensity recreational uses, water dependent uses, and bioengineered bank protection are all defined terms. Oregon BiOp, pp. 297, 299, 301.

(3) Prohibiting redrawing of designated floodways for purposes of accommodating new structures.

(4) Designating an e zone set back area to create a safety buffer.

(5) Developing "clear and measurable spatial standards" for the division and development of properties including SFHAs, including limiting the footprint of new structures to 10% or less of the total lot size for both residential and commercial development. For properties within urban growth boundaries as of January 1, 2019, the RPA allows alternative methods that preserve hyporheic function, riparian vegetation, and flood refugia for listed fish, together with conservation easements or deed restrictions to preserve unimpaired flood processes in the undeveloped area.

(6) In areas without mapped floodways, requiring an encroachment analysis prior to authorizing development in the floodplain to ensure that the development does not encroach into the "de facto floodway."

(7) Requiring the use of pervious surface to the maximum extent feasible, or, where infeasible, requiring removal of existing impervious surface to offset new impervious surface.

Flood Insurance

"No Net Loss" Factors

Grandfathering

Ensuring Compliance

Further, Element 4 directs FEMA to work with NMFS to develop detailed mitigation standards with the objective of achieving "no net loss or beneficial gain" of natural floodplain functions. These mitigation standards are to take into consideration: the likelihood of underperformance; the relative timing of the floodplain impact and mitigation performance; the relative value of on-site and off-site and in-kind and out-of-kind mitigation; and the need for assurances and performance monitoring to ensure that mitigation will function in perpetuity.

Element 4 provides a limited allowance for grandfathering. Development for which the start of construction occurs on or before September 15, 2016 need not comply with the new development criteria, but substantially improving grandfathered structures requires mitigation.

The RPA directs FEMA to implement those changes that do not require regulatory revisions by January 1, 2019, and those that do require regulatory changes by January 1, 2021.

RPA Elements 5 and 6

The fifth and sixth elements of the RPA direct FEMA to monitor and ensure compliance with the other RPA elements. Element 5 directs FEMA to require participating communities to report to FEMA each permit issued for development within the floodplain, and directs FEMA to provide an annual report to NMFS summarizing the status of community implementation of the RPAs. The RPA directs FEMA to implement this monitoring and reporting by March 15, 2018.

Element 6 directs FEMA to ensure that NFIP participating communities in Oregon have adopted the floodplain management criteria as amended by Elements 2, 3, and 4 and to take enforcement steps when local communities fail to do so. Element 6 directs FEMA to modify the community rating system to give participating communities additional credits for early implementation of particular provisions from the RPAs (e.g., adopting a regulatory floodway or erosion zone consistent with Element 3).

While there are several interim benchmarks, ultimately Element 6 concludes that "[b]y September 1, 2024, FEMA must demonstrate that all NFIP participating jurisdictions in Oregon subject to this consultation have adopted and implemented all requirements from Elements 3 and 4 of this RPA." To ensure and document compliance with this directive, Element 6 further provides that FEMA must conduct compliance audits in 25 communities each year beginning in 2023.

Incidental Take Statement

Even with the RPA measures outlined in the Oregon BiOp, NMFS concluded that the Oregon NFIP will likely result in incidental take of ESA-listed species. Based on this conclusion, NMFS included an Incidental Take Statement in the Oregon BiOp, which authorizes a certain amount of take of the listed species, sets forth reasonable and prudent measures to minimize the take, and terms and conditions that must be observed when implementing those measures.

Incidental Take

Section 9 of the [ESA] prohibits the "take" of any fish or wildlife species listed under the ESA as endangered; under Federal regulation, take of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. Take, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

In the 1982 amendments to the ESA, Congress established a provision in section 10 that allows for the "incidental take" of endangered and threatened species of wildlife by non-Federal entities. Incidental take is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."

From USFWS ESA Handbook, *see* www.fws.gov/endangered/esa-library/pdf/HCPBK1.PDF

National Assessment of NFIP

Under the ESA, Federal agencies must utilize their legal authorities for the benefit of endangered species. As such, FEMA is looking comprehensively at the NFIP to determine how to ensure continued compliance with the ESA. FEMA will work to implement all the RPA requirements that it has the legal authority to implement. To the extent we determine that particular RPA requirements are outside the scope of FEMA's authority to implement, we will explore and implement alternatives to accomplish the purposes of those RPA provisions.

…FEMA is concerned about our ability to maintain uniform implementation of the NFIP nationwide amid multiple RPAs in different areas of the country. The combination of the five concluded consultations (Monroe County, New Mexico, Puget Sound, Oregon, and Arizona) with the two consultations in process (San Joaquin/Sacramento Delta, California, and Florida) means that there [is] inconsistent national implementation of the NFIP across the nation instead of a unified and consistent national program. The outcome of each consultation brings changes to the implementation of the NFIP.

FEMA will do everything within our authorities granted by Congress to administer the NFIP to reduce flood risks, first and foremost, while supporting the complementary responsibility of environmental stewardship. To that end, FEMA has undertaken a national assessment of the NFIP to consider its potential environmental impacts as modified by recent legislation and other proposed program modifications.

Testimony of Michael Grimm, FEMA NFIP Administrator
before the US House Committee on Transportation & Infrastructure
September 21, 2014

Flood Insurance

Incidental Take Levels

Permitted Development

FEMA Authority

Flexible Implementation

Development Uncertainty

In the case of the Oregon BiOp, "[b]ecause take under the RPA will occur primarily in the form of habitat degradation as the cause of harm, and because the numbers of fish within the various cohorts and populations is not a static number, varying over time and influenced by a variety of environmental conditions, NMFS is unable to articulate a number of fish that may be injured or killed." Instead, NMFS described "expected levels of floodplain development as the source of harm, measured in acres, by county," and set incidental take levels as a percentage of development in each affected county. Incidental take level percentages include:

- for mitigated development – limited to 1.25% of the total SFHA
- for mitigation activities – limited to 1.875% of the total SFHA (measured at the 1.25% rate of development with an expected mitigation ratio of 1.5 to one)
- for restoration activities – limited to 1.25% of the total SFHA, but the acreage "limit" on restoration will renew every 2 years

If these thresholds are exceeded, a re-initiation of ESA consultation with NMFS is stipulated. Specifically, if three counties within any geographic region, or any six counties irrespective of their geographic region, exceed the permitted amount of development, the Oregon BiOp provides that re-initiation would be required. Further, these take authorizations are subject to a series of **r**easonable and **p**rudent **m**easures (RPMs). If FEMA fails to implement the RPMs, the Oregon BiOp provides that the protective coverage from the Incidental Take Statement would likely lapse. The RPMs relate back to monitoring implementation and ensuring compliance with RPA Elements 2 through 5 (outlined above).

WHAT'S NEXT?

FEMA has sent letters to each affected city and county in Oregon, as well as to NMFS, explaining its plans for implementing the RPAs. Notably, in its letter to local jurisdictions, FEMA wrote that those jurisdictions must comply with the RPAs or risk removal from the NFIP. To NMFS, by comparison, FEMA reiterated its ongoing disagreement with NMFS regarding the scope of FEMA's authority and the scope of the RPA from the NFIP. FEMA explained to NMFS its continuing position that FEMA lacks authority to implement several components of the RPA. Unfortunately, to date, FEMA has not specified which components it believes are out of bounds.

FEMA, NMFS and Oregon's Department of Land Conservation and Department (DLCD) have held more than a dozen meetings across the state to explain the implications of the RPA Element 2, the interim measures. FEMA's and NMFS's presentations during those meetings have signaled that they do *not* intend to strictly interpret the terms of Element 2, but rather plan to work with DLCD and local jurisdictions to identify a ways that the RPA could be softened in implementation to assuage initial strong negative reactions from many local jurisdictions and property owners to the RPA's components. Yet while FEMA and NMFS appear poised to permit a softened implementation of RPA Element 2 in response to local input, history signals that we can expect another lawsuit from the Audubon Society and the National Wildlife Federation to attempt to enforce the express terms of the BiOp. This posture leaves the state, local governments and property owners in the uncomfortable position of not knowing exactly what will be required for some years.

Climate of Uncertainty Creates Development Concerns

Uncertainty caused by changing rules and maps and unclear implementation timelines continue to be raised as an issue. Many local governments have — consistent with Oregon's land use planning program — created and received public approval for plans to redevelop lands near rivers within their existing city limits rather than expand onto greenfields and rural areas. Cities and special districts such as Springfield, Beaverton, and Enterprise, and the Port of Coos Bay have expressed significant concern that their existing redevelopment plans could be undermined if there is a new requirement to set aside large areas of urban-zoned land adjacent to rivers as riparian buffer zones; plans that, incidentally, encourage density within urban growth boundaries, improve existing riparian function, and discourage sprawl outside of urban growth boundaries. We also heard and appreciate concerns of developers, homebuilders, and cities that poorly thought out implementation and perhaps onerous standards set forth in the RPA could undermine our system of containing most new development within urban growth boundaries. Many locals are fearful that investors will not undertake development in this climate of uncertainty.

Testimony of Christine Shirley, State of Oregon NFIP Coordinator
before the US House Committee on Transportation & Infrastructure
September 21, 2014

Flood Insurance

Nationwide Changes

Expanded Floodplain Boundaries

Upcoming Evaluations

CONCLUSIONS

The Oregon BiOp is the third in an expanding group of biological opinions — that currently also includes the Puget Sound region and Florida — which direct FEMA to change how it operates the NFIP to protect threatened and endangered species and their critical habitat. The RPA set forth in Oregon BiOp is markedly different from that in the Puget Sound NFIP BiOp. Discouraged by FEMA's reliance on local communities to implement the RPA from the Puget Sound NFIP BiOp in Washington, NMFS opted in the Oregon BiOp to direct FEMA to make *nationwide* changes to the regulations that implement the NFIP. These changes will apply across and affect jurisdictions all 50 states. Specifically, Elements 3 and 4 from the Oregon BiOp mandate changes to how FEMA maps floodplains, generally rendering them larger, and to the development regulation that apply within floodplains, making development significantly more difficult.

If adopted in the Code of Federal Regulations, every NFIP participating community will have to comply with expanded flooded boundaries and ESA-based development standards. This will undoubtedly leave many jurisdictions in the precarious position of having to decide whether to abandon or forego development in many floodplain areas that were previously considered high value (as a result of the new more stringent standards) or to drop out of the NFIP, risking default by its constituents on their federally backed mortgages which require flood insurance. This a precarious spot for any local jurisdiction, and one that neither FEMA nor NMFS seem willing or able to address.

At the same time, this fight is poised to move to the east. FEMA has initiated consultation in Florida, where there are more than two million existing flood insurance policies. Also, FEMA is in the midst of a Programmatic Environmental Impact Statement pursuant to NEPA, allegedly evaluating the environmental impacts of potential rule changes at the national level. FEMA has not yet disclosed details of either effort.

For Additional Information:
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Oregon BiOp at:
www.westcoast.fisheries.noaa.gov/publications/habitat/2016_04-14_fema_nfip_nwr-2011-3197.pdf

US House of Representatives Committee Hearing

On September 21st, 2016, the full US House of Representatives Committee on Transportation and Infrastructure held a hearing on "An Examination of FEMA's Limited Role in Local Land Use Development Decisions" focusing on FEMA's implementation of NFIP. Testimony from federal, state, county and municipal stakeholders provided a range of informed perspectives.
A video of the hearing and access to written testimony is available at:
http://transportation.house.gov/calendar/eventsingle.aspx?EventID=400684

Molly Lawrence, Van Ness Feldman LLP, counsels public and private clients in all facets of land use law. Her practice includes: helping clients navigate divergent federal, state, and local requirements; drafting new and revised development regulations and development agreements; and advising clients through the legislative process. Over the last decade, Molly has developed a specialty helping both public and private clients address the ongoing changes in the regulations affecting development within floodplains. She consults with local and national organizations, including the National Association of Homebuilders and the National Association of Counties and their regional counterparts, on legislative and legal strategies related to the interface between the National Flood Insurance Program and the Endangered Species Act.

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New Mexico Aquifers

Depletion Dangers

Pumping Impacts

NEW MEXICO'S INTERSTATE AQUIFERS

ARE THEY IN DANGER OF DEPLETION?

by John W. Shomaker, Ph.D., John Shomaker & Associates, Inc. (Albuquerque, NM)

INTRODUCTION

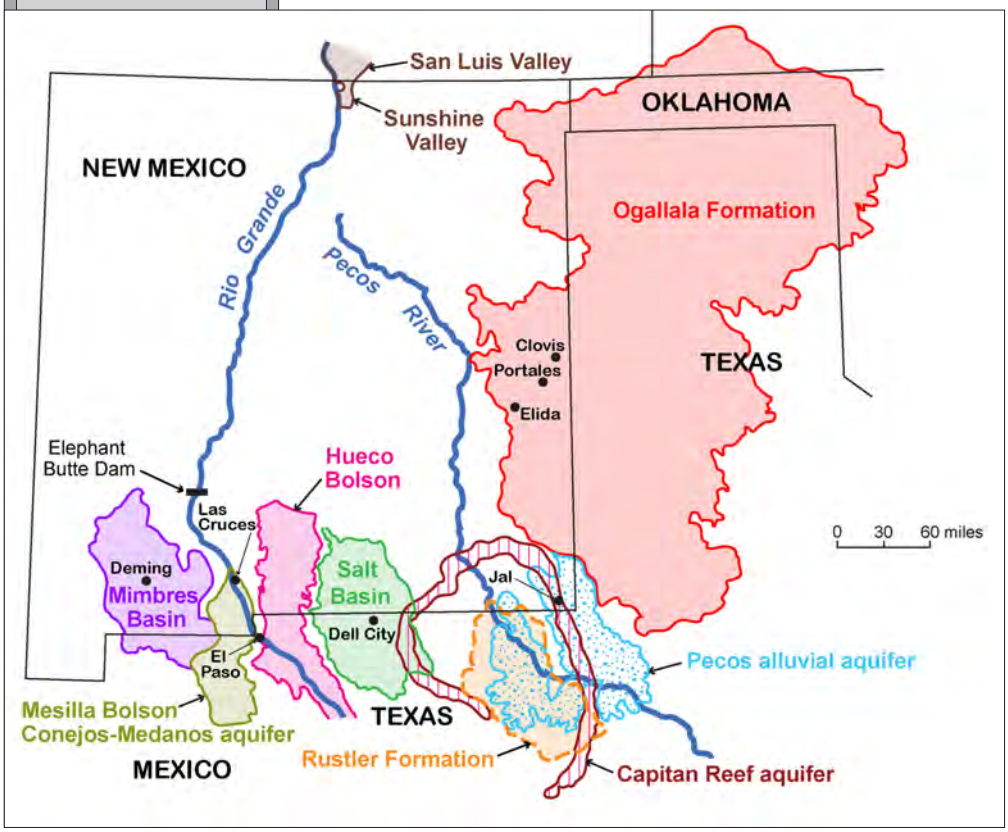
The old adage "it's better to be upstream with a shovel than downstream with a Supreme Court decree" would seem to favor New Mexico, because the groundwater in New Mexico's important interstate aquifers is generally "upstream," or up-gradient from adjoining states. Unfortunately the adage really doesn't apply to groundwater. This, of course, is because pumping on either side of the state line lowers water levels on both sides — which frequently leads to conflict.

On the other hand, we must remember that the danger of depletion to an interstate aquifer is by no means always because it is "interstate." In some instances, the evident danger can be blamed at least in part on the neighbors, but in other cases the danger and potential problems are caused by New Mexico's own pumping.

New Mexico does not appear to be party to interstate or international agreements that regulate the pumping of groundwater so as to limit the effects in another state. Changes to existing agreements or other avenues of conflict resolution may prove necessary.

This article is an overview which highlights a number of situations in which pumping in Texas or Mexico may lead to water access and delivery difficulties in New Mexico. Accelerated water-level drawdown, resulting in decreased well yields and constrained groundwater supply for municipalities and agriculture, presents the principal danger. However, in some cases, pumping outside New Mexico may lead to decreased streamflow within the state, which in turn would affect New Mexico's deliveries required under interstate compacts. Because groundwater has not been dealt with in interstate compacts between New Mexico and its neighbors, pumping from aquifers shared with Texas and Mexico may become the focus of conflict.

The article is based on recent published reports and does not reflect original research. It relies largely on Texas Water Development Board Groundwater Availability Model (GAM) reports; and reports by the US Geological Survey (USGS), John Shomaker & Associates, and others, listed in the References, below. It also uses water-level records available on the USGS National Water Information System (NWIS) website.



The aquifers discussed are the Ogallala Formation (the principal geologic unit of the High Plains aquifer), the Pecos Alluvial Aquifer, the Rustler Formation, the Capitan Reef, the Salt Basin aquifers, the Tularosa Basin-Hueco Bolson aquifer, the Mesilla Bolson and Conejos-Medanos aquifer, the Mimbres Basin, and the Sunshine Valley aquifer (see map). There are other interstate aquifers, not shown on the map and probably not in much danger in a general sense — these include bedrock aquifers that lie across the north, east and western boundaries of the state —although there may be local impacts attributable to pumping from individual wells across the state line.

This article is based on a presentation made at the 24th Annual New Mexico Water Law Conference by CLE International, September 15, 2016 in Santa Fe, New Mexico.

New Mexico Aquifers

SOME POTENTIALLY ENDANGERED AQUIFERS

Ogallala Formation - Rapid Declines

Water Level Declines

The High Plains aquifer, comprised primarily of the Ogallala Formation, is a world-class source of irrigation water. It is a veneer of Tertiary-age and younger sands and gravels, at most only a few hundred feet thick, derived from the erosion of the ancestral Rocky Mountains. Pumping from it has supported intensive agriculture, but pumping dramatically exceeds the annual recharge and water levels in wells (and individual well yields) have declined rapidly. Only the western fringe of the aquifer lies in New Mexico (the area of the Ogallala as shown on Figure 1 is not the full extent of the aquifer, which includes parts of Kansas, Colorado, Wyoming, South Dakota and Nebraska — only the southern section as defined by Deeds and Jigmond, 2015, is depicted).

State Line Proximity

A glance at a recent Google Earth photo of the area of intensive agriculture around Clovis, New Mexico, and Farwell, Texas, might lead one to believe that both New Mexico and Texas are pumping about the maximum amounts they can, and therefore that we may be drawing the water levels down about equally. However, drawdowns in Texas have been much greater and more extensive than in New Mexico. Pumping in Texas greatly exceeds that in New Mexico and the reason for their large drawdowns is clear. Texas continues to develop groundwater supplies close to the state line. One notable example is the expansion of Lubbock's municipal well fields. Lubbock itself is about 70 miles east of the state line, but its Bailey County well field near Muleshoe included 175 wells by 2013, of which 20 are within three miles of the state line. More wells, several within a mile of the state line, have been proposed.

It's important to remember that, although Texas and New Mexico share the resource to a significant degree, the water-level declines in New Mexico would have occurred with or without Texas pumping. Only the timing of the declines would have been different.

Hydraulic Gradient

The hydraulic gradient, i.e. the slope of the water table toward Texas, has increased over time at the state line. Although this does not necessarily mean that the rate of flow across the border has increased — because the flow depends on both the gradient and the remaining saturated thickness — it does mean that the rate of flow into Texas is greater than it would be if New Mexico and Texas were drawing the aquifer down equally.

Texas Conservation

Texas communities and farmers are recognizing the need for conservation. The groundwater conservation districts in Texas are working to reduce pumping by making water-use more efficient. Of course, the declining well yields themselves are influencing the economics of agricultural production. Typically, the Texas districts do not impose rationing.

Pumping Limits (New Mexico)

The New Mexico State Engineer (State Engineer) appears to have started down the path of limiting pumping on the New Mexico side of the border to conserve the resource over eighty years ago. The State Engineer "declared" the Lea County Underground Water Basin ("declaring" means that the State Engineer has establishes administrative jurisdiction over the groundwater in the basin) and set pumping limits in 1931. The Portales Valley Basin was "declared" in 1950. However, the State Engineer seems to have decided to let New Mexicans capture the water while they could in Curry County (the Clovis area), unconstrained by any regulations, until that basin was declared in 1989. The State Engineer may have declared the basins primarily to protect New Mexicans from each other, by holding pumping to the amounts actually required for irrigation and limiting new appropriations to amounts that would not impair existing rights.

M & I Water Development

Anticipated impacts to the Ogallala formation in New Mexico include impact from the proposed Eastern New Mexico Rural Water System project. This system will provide municipal and industrial water, but not irrigation water, from the Canadian River at Ute Lake through a 151-mile pipeline, to communities as far south as Portales and Elida. However, the 24,000 acre-ft/year nominal capacity is less than ten percent of the total water use in the service area. Agriculture will continue to be on its own. Construction has begun, but the project may not be complete for another decade or more.

Draft Water Plan

The draft Lea County Regional Water Plan update (for New Mexico's southeastern-most county) predicts that even under their low-demand projection, demand will exceed supply after about 2040. The plan includes a long list of conservation measures and projects to improve efficiency, but really does not provide an alternate source for irrigation water (*see*: www.ose.state.nm.us/Planning/RWP/region_16.php). The Eastern New Mexico Rural Water System would not reach as far south as Lea County.

Comprehensive Solution?

The water-level declines in the Ogallala are rapid enough, and attributable to such widespread and established water use in both states, that it is difficult to imagine any comprehensive solution. An effort to delay the inevitable may be possible, but is unlikely to be in place before it's too late, given the time that such an intricate and controversial legal process would require. Negotiated agreements to deal with the more acute local problems appear much more viable.

New Mexico Aquifers

Other interstate aquifers underlie the Ogallala, with perhaps the most important being the Triassic-age Dockum Formation. Unfortunately, it is a bedrock sandstone aquifer at much greater depth. Permeability and well yields are relatively low, and water quality is poor in most areas of New Mexico. Although Texans are increasing their use of Dockum Formation water, there has been little development in New Mexico, and it would probably not be an economically viable substitute for Ogallala irrigation water.

Pecos Alluvial Aquifer - Competing Municipalities in Texas & New Mexico

Municipal Supplies

On the map, the Jal Basin is one of two small extensions into New Mexico of what's known in Texas as the Pecos Valley Alluvial Aquifer. The draft Lea County Regional Water Plan says that the "Jal Basin extends into Texas," which reminds us of an old story about a period of very heavy fog that paralyzed shipping in the English Channel. The London Times headline read "Fog in Channel; Continent Isolated." The town of Jal depends for its water supply on pumping from the aquifer, and its wells are close to the state line. Recently, the City of Midland has developed a new supply, the T-Bar Well Field, just across the state line in Texas.

Drawdown Increasing

The capacity of the 44-well T-Bar field is equivalent to about 22,400 acre-feet/year (ac-ft/yr), and they pumped about 6,800 acre-feet in 2014. Reportedly, this pumping increased the rate of drawdown in the area from 2.4 feet/year or less, to about 6.6 feet/year. With a remaining saturated thickness in New Mexico of only a few hundred feet, things could become difficult. (Saturated thickness is measured from the water table to the base of the aquifer, based on water-level measurements in wells, and well logs). The impact of Midland's pumping is evident in the hydrographs of wells close to the state line. The State Engineer declared the Jal Underground Water Basin, and closed it to new appropriations, in 2013. New Mexico has done about all it can do administratively on its side of the border to protect the aquifer. Jal has been in negotiations with Midland but, so far, has not achieved resolution.

Basin Closure (New Mexico)

Surface Flow Impact

Compact Compliance

The second little extension of the Pecos Alluvial Aquifer into New Mexico, to the west of the Jal area, presents an interesting variation on the "danger" theme. Here the question is not so much about water-level decline in the aquifer, because it has thus far been almost completely unused in New Mexico. Rather, the questions revolve around the degree of connection with the Pecos River and the depletion of streamflow, or lack of it, that would result from pumping in either New Mexico or Texas. The New Mexico Interstate Stream Commission (NMISC) has a lively interest in depletions that might affect New Mexico's deliveries of surface water to Texas at the Red Bluff gage, just above the state line, as required for Pecos River Compact compliance. A recent groundwater application to the State Engineer to appropriate 2,000 ac-ft/yr has been analyzed by consultants for the applicant and for the NMISC. Although they didn't agree as to the amount, there is no doubt that there would be some depletion of Pecos River flows and that it must be offset in order to receive approval for the new appropriation. How to deal with the Pecos River depletions in New Mexico — caused by some future heavy groundwater pumping in Texas — has not been established.

An interesting aside: although this little speck of Pecos Alluvial Aquifer hasn't been developed except for a few stock wells and the supply for a gas compressor station, it appears to have been the site of the first drilled well in New Mexico, a project of the US Army under Captain John Pope in 1856 and 1857.

Desalination

As demand for water increases in West Texas — in addition to the fresh water of the T-Bar supply for Midland — we may see development of brackish groundwater from the Pecos Alluvial Aquifer. Such development may lead to further drawdown stress in the Jal Basin. Texas has completed a study of the brackish water resources in the aquifer. The combined capacity of installed desalination facilities in Texas as of 2012 was about 60,000 ac-ft/yr, and the annual production of desalination plants in Texas rose from almost nothing in the early 1990s to more than 30,000 ac-ft/yr in 2012. Of the 46 current desalination plants, 34 are supplied by brackish groundwater, the largest of them in El Paso (Khan, 2015), and Texas "is moving forward to facilitate development, streamlining the approval processes for brackish groundwater desalination facilities (Buono et al., 2015, p. 5)."

Rustler Formation

Brackish Development

The Permian-age Rustler Formation is also designated, in Texas's Brackish Resources Aquifer Characterization System (BRACS) program, as a target for brackish water development. Some or much of this water may be destined to meet demands of the petroleum industry and therefore may not require desalination.

Hydraulic Connection

The Rustler is a minor aquifer in Texas, and even less important near the state line in New Mexico. However, development in Texas has an important implication for New Mexico in that the aquifer is in hydraulic connection with the Pecos River, both below and above the Red Bluff compact-accounting gage. Pumping in Texas near the state line would presumably lead to stream depletion above the Red Bluff gage in New Mexico and reduce the amounts delivered to Texas by New Mexico under the terms of the Pecos

New Mexico Aquifers

River Compact. Such a situation would thus affect New Mexico in two ways: first, Texas groundwater pumping would lead to drawdown effects in New Mexico, and second, the impact of their pumping would affect New Mexico's ability to meet its Compact obligations to Texas by impacting surface flow. Some adjustment in Compact accounting may become necessary, but the depletions are not likely to be great enough to justify any solution beyond that.

Capitan Reef

The Capitan Reef, as the name indicates, is a Permian-age reef, much like the Great Barrier Reef off the eastern coast of Australia, but long buried beneath younger strata. The depth to the top of the reef ranges up to around 3,000 feet, and it is typically around 1,000 feet thick. It is made up of very permeable limestone, and provides large well yields, although the quality ranges from brackish to oilfield brine. It has been developed in both states, almost entirely for oilfield use. Because of the confined-aquifer conditions, the high permeability, and the narrowness of the body of aquifer material, drawdown effects from groundwater pumping are large and extend for great distances.

Oilfield Use

There was large-scale pumping for oilfield secondary recovery in the 1960s and 1970s, and there has been a resurgence in oilfield use. Some large-scale municipal development has been proposed by Fort Stockton and Odessa in Texas. A development by Odessa, if realized, might be close enough to cause significant effects to the aquifer in New Mexico.

Future Drawdown

Water-level change in the Capitan Reef from pre-development through 2005 has been fairly minor according to the latest Texas modeling study, although water-level changes in some New Mexico wells were much greater during the period of significant pumping up to 1973. As demand for Capitan Reef water increases in both states, local drawdown problems may arise.

Salt Basin

The Salt Basin straddles the state line west of Carlsbad, and the aquifer consists primarily of Permian-age limestone units. Estimates of recharge range from about 55,000 to 100,000 ac-ft/yr, with a likely value around 60,000 ac-ft/yr, mostly in New Mexico for the area shown on the map. Although most of the recharge occurs in New Mexico, almost all of the water use is in Texas, for irrigation in the Dell City area. El Paso controls a large amount of the water developed for irrigation on the Texas side, and may control some in New Mexico as well.

Recharge

Water levels have declined steadily on the New Mexico side. The State Engineer declared the Salt Basin in 2000, and the New Mexico Interstate Stream Commission has filed applications to appropriate 90,000 ac-ft/yr, presumably to establish a priority date for water rights to be established in the basin, and possibly as a source of water for interstate-compact compliance in either the Pecos or the Rio Grande. Private entities have either declared or applied for a total of 117,000 ac-ft/yr, presumably for sale outside the basin. The status of these declarations and applications is unclear at this point.

Steady Decline

Applications Pending

A serious hurdle to Salt Basin groundwater development in New Mexico, other than the expansion of local agriculture if it proved to be economic, would be the cost of conveying the water out of the basin. There currently isn't much economic activity needing water within the basin. Even so, New Mexico as a state might consider whether it should develop Salt Basin water as a substitute for other supplies so that it can be used, rather than being allowed to pass across the state line. At least one New Mexico city includes the Salt Basin among its future alternative sources of supply.

Conveyance Costs

Tularosa-Hueco Basin

The southern end of the Tularosa Basin and the Hueco Bolson contains a thick alluvial aquifer, already extensively developed on both sides of the state line, largely by White Sands Missile Range and rural water companies in New Mexico, and by El Paso and Fort Bliss in Texas. The range in saturated thickness at the state line is from about 1,000 to nearly 9,000 feet. However, as is often the case, much of the water at depth is of poor quality.

El Paso has been very aggressive in water conservation, desalination, and re-use. El Paso Utilities' Kay Bailey Hutchinson desalination plant is the largest inland plant in the country, and discharges the brine concentrate to deep disposal wells so that there is minimal loss. The city has already reached its goal of water use for year 2020 of 130 gallons per capita per day (about on a par with Albuquerque, although El Paso has higher annual evaporation), and continues to make progress in reducing water use.

El Paso Uses

Water-level declines in wells in Ciudad Juarez in Mexico, at the southern end of the Hueco Bolson system across the Rio Grande from El Paso, had reached 150 feet or more by 1996. Although El Paso is doing about as much as could be expected to minimize drawdown effects, and danger to New Mexico, stress in New Mexico from continued Juarez pumping could eventually become significant to the aquifer.

Mexican Well Declines

New Mexico Aquifers

Brackish Water Potential

DESALINATION / BRACKISH WATER POTENTIAL

"Desalination technology is proving to be very promising as a means to finding new sources of water. There is potential for potable water to be created from the state's estimated supplies of about 15 billion acre-feet of brackish water. Since about 4 million acre-feet is the amount of water used annually by current water users, this could provide an abundant water supply for the future when the cost of such technology becomes more affordable. An expansive desalination demonstration pilot program is already in the planning stages for the Tularosa Basin in southern New Mexico. It can only be accomplished by working in partnership with our national laboratories, universities, and congressional delegation."

From the New Mexico State Engineer Office's website

Mexican Well Field

Mesilla Bolson and Conejos-Medanos Basin

Ciudad Juarez is in a difficult situation for water supply, and has developed the Conejos-Medanos well field just across the border in the extension into Mexico of the Mesilla Bolson. The capacity of the system is said to be about 16,000 ac-ft/yr. Recent production is said to have been about 500 gallons per minute from 20 wells, or about 16,000 ac-ft/yr (information from John Hawley, Geomatters, Inc., Albuquerque).

Decline Factors

The effect on water levels on the New Mexico side due to pumping by Ciudad Juarez, Mexico from Conejos-Medanos did not take long to appear. As pumping continues the water level will continue to decline, though at a slower rate. This change of rate has to do with the difference between the large drawdown required to release a particular volume of water from the pressurized system of a confined aquifer — the condition early in the life of the well fields — and the much smaller drawdown necessary to drain the same volume from the aquifer once the water level has dropped below the confining "cap" of impermeable strata. The effective "storage coefficient" [water release-ability relative to hydraulic pressure] of the aquifer will thus rise from the early semi-confined value to something close to the "specific yield" [where hydraulic pressure is not significant] of an unconfined, or water-table, aquifer after pumping has continued for a number of years. There will be additional drawdown in the aquifer, and there may also be additional depletion of the Rio Grande within the Rio Grande Project (the federal project that supplies the irrigation districts in Texas and New Mexico below Elephant Butte Dam). This may complicate things in the context of *Texas v. New Mexico and Colorado*, in which the US Supreme Court is likely to decide the future management of Rio Grande Basin waters below Elephant Butte. *See* Stein, TWR #151, regarding the issues in *Texas v. New Mexico and Colorado.*

Rio Grande Depletions

New Mexico makes its Rio Grande Compact deliveries at Elephant Butte Dam, roughly 100 miles upstream from the point at which the river becomes the Texas-New Mexico state line — which leads to a complicated situation relating to river-connected groundwater in the aquifer downstream from the dam. Several of the possible outcomes of the Texas litigation might be construed as dangers to the aquifer in New Mexico, depending on one's point of view. If the river is "federalized" and groundwater is treated simply as though it were Rio Grande Project surface water, New Mexico may be severely limited in the use of groundwater. On the other hand, if a 2008 Operating Agreement among the irrigation districts served by the Rio Grande Project and the US Bureau of Reclamation is confirmed, heavy groundwater pumping may continue, leading to accelerated long-term water-level declines and big problems later.

Possible Litigation Outcomes

Mimbres Basin

There has been only a small amount of pumping on the Mexican side in the Mimbres Basin, concentrated in a small area of around 1,200 acres right on the border south of Deming and near the western edge of the basin. Water levels on the New Mexico side appear to have varied according to pumping in New Mexico.

Sunshine Valley

Although the Sunshine Valley represents a small extension of the heavily developed San Luis Valley aquifer system in Colorado, it lies in a narrow band between mountain-front recharge on the east and natural discharge to the Rio Grande on the west and may function somewhat independently of pumping on the Colorado side, at least at current and foreseeable levels. The water-level records do not appear to indicate a clear influence by Colorado pumping.

New Mexico Aquifers

Interstate Impacts

Ogallala Demands

Local Agreements

Streamflow Depletions

Future Use

CONCLUSIONS

Interstate and international agreements to apportion groundwater as between New Mexico and its neighbors Texas and Mexico have been much discussed in the legal and public-policy literature, but as yet no such agreements exist. In the absence of agreement(s) to limit the impacts on water levels or streamflow in New Mexico that would be attributable to pumping of groundwater outside the state, several kinds of conflict are coming into focus.

Pumping in Texas has accelerated the decline of water levels in wells, and therefore in well yields, in the Ogallala aquifer in New Mexico. Conservation measures are generally in place in both states, and alternative supplies are being developed to meet municipal demands in part of the Ogallala area in New Mexico, but loss of well-yield has already been occurring and will be worse as time goes on. It seems likely that any aquifer-wide mitigating solution would develop on about the same time scale as that of the depletion of the aquifer — and therefore be futile. In any case, the transition to dramatically less reliance on the aquifer is inevitable. Any efforts to address a particularly acute situation would probably have to be on the local level. Local problems, such as that relating to Jal, New Mexico, and Midland, Texas, cities in direct local competition for the same groundwater in the Pecos Alluvial Aquifer, do seem amenable to local agreement. Similarly, in the Capitan Reef and the Tularosa-Hueco Basin, the balance of pumping as between the two states has changed over time and is likely to continue to do so. No shortage has appeared yet, but local impacts near the state line may arise, and require local settlements.

Where pumping in Texas or Mexico might lead to streamflow depletion in New Mexico, and thus to potential shortage in New Mexico's state-line deliveries under an interstate compact — as in the cases of the Pecos Alluvial Aquifer, the Rustler Formation, and the Mesilla Bolson and Conejos-Medanos Basin aquifer — it would seem possible to agree on an adjustment in compact accounting rather than to re-negotiate the compact. In the Mesilla Bolson, some resolution might reasonably be expected from a Supreme Court decision in *Texas v. New Mexico and Colorado*.

In the Salt Basin, New Mexico provides most of the recharge but pumps very little water for use. New Mexico has taken the step of applying to appropriate water for future use, but that position may lose its value over time, and meanwhile the groundwater continues to flow into and be used in Texas. New Mexico may decide as a matter of public policy to develop the Salt Basin groundwater.

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Exempt Wells

Exemption From Permitting

Priority Regulation

Intent of Exemption

Advantage

"Exception" to the Exemption

"Combined Appropriation"

Physical Connection Requirement

EXEMPT WELLS IN MONTANA

EXEMPT WELL LOOPHOLE HELD INVALID BY MONTANA SUPREME COURT

by David Moon, Editor

INTRODUCTION

Most of the western states have been struggling with various issues surrounding "exempt wells" over the last few decades. "Exempt wells" are groundwater wells that under state laws are "exempt" from permitting requirements that normally apply to new appropriations of water. In other words, water users are able to simply drill a well and begin their proposed use, without the need to first obtain a permit from the governing state agency. Exempt wells are usually allowed for limited amounts of use, including domestic, stockwater, or limited commercial use.

Under the Prior Appropriation Doctrine, water law in the western United States grants prioritized access to water based on how early the water users put the water to an accepted beneficial use. The "senior appropriators" may "call" to have junior water rights curtailed in times of water shortage. Although most states have passed laws granting limited exemptions from water rights permitting requirements, that does not mean the use is exempt from potential regulation under the priority system. Wells could still be subject to curtailment (regulation) in order to satisfy the needs of senior appropriators should states decide to regulate in this fashion. Despite this accepted view, however, states have been extremely reluctant to regulate exempt users or enforce a "call" for water from senior users, especially where the use is for domestic purposes. Thus, once use has begun via the exemption, domestic uses in particular have proven to be extremely difficult to regulate due to the political fallout from cutting off one's domestic or "human consumption" use.

Generally, the intent of the exemption was to allow the use of small amounts of water without the need to go through a potentially arduous permitting process with the state, based on the assumption that the small amounts of water involved would not impact existing water users. The cumulative impacts of exempt wells, however, are increasingly being viewed as a substantial problem that is becoming increasingly pronounced throughout the West. Proliferation of "exempt wells" has been running up against drought and water supply concerns, increasing demand, senior water rights, and instream flows.

Being exempted from the permitting process provides a huge advantage. Contrary to usual permitting administration, the prospective exempt groundwater user is *not required* to show that water is legally and physically available, or prove whether-or-not surface flow will be depleted (to the harm of instream flows), or prove that the use of water will not interfere with senior water rights (surface or groundwater). No opportunity is provided for senior water users to object. Limitations that would otherwise restrict a new use — even in a "closed basin" where the granting of new water rights has ceased — are not applicable to an exempt well.

In the Montana Supreme Court decision discussed in this article, exempt wells intended for domestic purposes were at issue. As noted, exempt wells are exempt from permitting requirements for a new water right. However, in Montana there is an "*exception* to the exemption" for a "combined appropriation." Under this exception, an exemption is not available (and a permit is required) *if* the proposed use is determined to be a "combined appropriation" where more than 10 acre-feet of water per year is used by two or more users from the same source. The revised administrative rule at the heart of the case, however, required a physical connection between the wells for the "combined appropriation" exception to be applicable. Without a physical connection, there was no "combined appropriation" under the rule's definition and, therefore, no requirement to obtain a permit.

The Montana case revolved around developers using this loophole in the exempt well statute to avoid the permitting process for new water right rights when converting agricultural land into subdivisions. The developers created subdivisions by dividing land and then having each purchaser of an individual parcel simply drill their own domestic well as an exempt well. The question was whether such a development is actually a "combined appropriation" from the same source under Montana's statute — which would require a permit from the state if the total use exceeds ten acre-feet per year in volume. *Clark Fork Coalition, et al. v. Montana Dept. of Natural Resources, et al.*, Case No. DA 14-0813, 2016 MT 229 (Sept. 13, 2016). The Montana Department of Natural Resources and Conservation (DNRC) had issued contradictory administrative rules defining a "combined appropriation" — one in 1987 and another in 1993. The 1993 rule created the "loophole" by limiting combined appropriations to instances where the system is physically connected. In other words, under the 1993 rule 100 separate wells were, by definition, not considered to be from the same source unless they were physically connected to one another.

Exempt Wells

Decision Closes Loophole

Ultimately, Montana's Supreme Court (Supreme Court) in a 6-1 decision upheld the lower court's ruling that DNRC's 1993 administrative rule concerning the definition of a "combined appropriation" was invalid. The result is that the loophole has been closed and developers in Montana must now obtain a permit when the "combined appropriation" of the development exceeds 10 acre-feet per year. The Supreme Court's decision reinstates DNRC's 1987 rule which provided that "[g]roundwater developments need not be physically connected nor have a common distribution system to be considered a 'combined appropriation.'" Admin. R. M. 36.12.101(7) (1987). The DNRC, under the Supreme Court decision, can either keep the 1987 rule in place or determine if rulemaking is appropriate to change the 1987 rule. *Slip Op*. at 24.

MONTANA'S EXEMPT WELL LAWS AND ADMININSTRATIVE RULES

Permit System

Montana passed its Water Use Act (Act) in 1973, which provided a comprehensive permit-based system for new appropriations of water. Under the Act, certain groundwater appropriations are exempt from the permitting process. For the case being reviewed in this article, the relevant part of § 85-2-306(3)(a)(iii) provides an exemption from the need to obtain a permit for a new water right, when a groundwater appropriation does not exceed 35 gallons per minute and 10 acre-feet per year. "However, the subsection also provides an 'except[ion]' to the exemption when a 'combined appropriation' from the same source by two or more wells or developed springs exceeds 10 acre-feet per year, regardless of flow rate." *Id*. at 3.

De Minimus Use

As noted by the Supreme Court, the exemption was provided "for groundwater appropriations considered de minimis; that is, those appropriations that do not exceed 35 gallons a minute and 10 acre-feet per year." *Id*. at 6. The Montana Legislature did not define the term "combined appropriation" in the Act in 1973. The Legislature incorporated the term "combined appropriation" into the de minimis groundwater exemption in 1987. Section 85-2-306(3)(a)(iii), MCA (1987), provided:

> a permit is not required before appropriating groundwater by means of a well or developed spring with a maximum appropriation of less than 100 gallons per minute, except that a combined appropriation from the same source by two or more wells or developed springs exceeding this limitation requires a permit.

1987 Rule "Combined Appropriation" Defined

DNRC then passed the 1987 administrative rule that defined a combined appropriation. "Shortly after the incorporation of the "combined appropriation" language into the statute, the DNRC promulgated Admin. R. M. 36.12.101(7) (1987) (hereinafter, the 1987 rule). The 1987 rule provided that wells or developed springs 'need not be physically connected nor have a common distribution system to be considered a "combined appropriation."' Instead, the 1987 rule instructed that two or more groundwater developments constitute a "combined appropriation" if used together for a single 'project or development.'" *Id*. at 7.

In 1991, the exemption statute was amended. The permissible flow rate was reduced to 35 gallons per minute and a new volume limit of 10 acre-feet per year was imposed. The statute retained the term "combined appropriation" but again the Legislature did not define the term in the statute.

1993 Rule Definition Altered

DNRC reversed its position on "combined appropriations" and promulgated a new administrative rule in 1993 that contradicted its 1987 rule. With the 1993 rule (Admin. R. M. 36.12.101(13)), DNRC was "significantly altering the administrative definition of the term 'combined appropriation.' The 1993 rule defines 'combined appropriation' as 'two or more groundwater developments, that are physically manifold into the same system.'" *Id*. at 7. The Supreme Court explained the effect of the new rule: "Under the 1993 rule, appropriations from the same source are exempt from the permitting process as long as the groundwater developments making up the appropriations remain physically unconnected and do not exceed 10 acre-feet per year. Thus, the current rule allows an appropriator to avoid the permitting process for an infinite number of appropriations from the same source — with each appropriation consuming up to 10 acre-feet per year — so long as the appropriator does not physically connect the groundwater developments." *Id*. at 7-8.

Permitting Avoided

District Court Decision

A group of four senior water users and the Clark Fork Coalition (collectively, the Coalition) asserted that the 1993 rule was invalid and challenged the rule in District Court. The Coalition is the Petitioner and Appellant in the litigation. Their challenge to the 1993 rule maintained that DNRC's definition of "combined appropriation" was inconsistent with the applicable statute, specifically arguing that the statute does not require physical connection for the limitation to be applicable. In 2014, the District Court agreed with that position, invalidated the 1993 rule and reinstated the 1987 rule; that court also directed DNRC to "formulate a new administrative rule consistent with the court's order." *Id*. at 4.

Exempt Wells

Impacts From Exemption

Closed Basins

Cumulative Impact

Development Loophole

Priority System Protection

Water Rights Protection "Primary"

Closed Basin Protection

PROLIFERATION OF EXEMPT WELLS - IMPACT ON SENIOR USERS

The issues surrounding exempt wells in the western US are influenced by the actual impact one can expect from use of the wells. It is commonly accepted that the original intent of various exemption statutes was to allow small or de minimus uses without requiring a permit from the state agency. The Supreme Court, however, pointedly discussed the expected impact if the status quo remained in place, with the 1993 rule providing a loophole for a proliferation of exempt wells to continue.

> The Coalition cites data compiled by the DNRC that, since the DNRC's promulgation of the 1993 rule, exempt appropriations under § 85-2-306(3)(a)(iii), MCA, have grown steadily by approximately 3,000 each year. The DNRC estimates that there are now 113,000 exempt appropriations in Montana, consuming significant amounts of water. The DNRC anticipates that exempt appropriations will continue to grow rapidly. By the year 2020, the DNRC projects that there could be an additional 78,000 exempt appropriations in Montana. Closed basins have not been immune from this trend. The DNRC estimates that 30,000 new exempt appropriations will be added in the next two decades in closed basins alone, resulting in an additional 20,000 acre-feet per year of water consumed in these already over-appropriated basins. The DNRC has recently acknowledged the concerns of senior users that the cumulative effects of these exempt appropriations are having a significant impact in terms of reducing groundwater levels and surface water flows and that the cumulative impact of the appropriations may be harming senior water users' existing rights.

Id. at 8-9

The Coalition pointed to the established, historical practice in Montana regarding exempt wells in their September 14, 2016 press release. "Rural homeowners, ranchers, and farmers in Montana have long relied on the 'exempt well' provision of the law that affords them the opportunity to drill a small well without obtaining a permit. It's an approach that was intended for small, dispersed uses of water with little potential to impact existing rights."

The Coalition press release went on to assert the crux of the issues before the Supreme Court. "But during Montana's residential housing boom of the last two decades, developers seized on the loophole to avoid obtaining permits for drilling water wells when converting agricultural lands into subdivisions. The effect on a groundwater aquifer is immense; just one subdivision can drill hundreds of new water wells. In Gallatin County, where sprawl and conversion of agricultural land into subdivisions has increased significantly, DNRC issued 11,409 exempt well certificates between 1993 and 2010." Bozeman is the most prominent town in Gallatin County and has borne the brunt of this expansion outside its boundaries.

PROTECTION FOR SENIOR WATER RIGHTS

The priority system, which is the fundamental principle of the Prior Appropriation Doctrine, is designed to protect the water user that first used water for a beneficial use. "First in time is first in right" is the foundation of the system and it grants the senior water right owner the ability to use his/her entire water right in times of shortage, curtailing junior water users based on each user's priority date as necessary to achieve that protection.

As noted by the Supreme Court, the permit system likewise is designed to protect senior water users when new appropriations of water are applied for.

> The primary function of this permit based system is the protection of senior water rights from encroachment by prospective junior appropriators adversely affecting those rights. Section 85-2-101(4), MCA.
>
> Consistent with this purpose, the Act imposes both substantive and procedural protections for water right users. Substantively, before the issuance of a new water appropriation, the Act requires that a prospective junior appropriator show that water is legally and physically available, the proposed use of water is for a beneficial use, and the new appropriation will not adversely affect existing water rights of senior prior appropriators. Section 85-2-311(1)-(2), MCA.
>
> Senior users are afforded even more protection in highly appropriated basins in Montana that have been closed from further surface water appropriations. In these "closed basins," where water claims often exceed water availability, the DNRC may not issue new surface water permits. Section 85-2-360(1)-(3), MCA. The DNRC may consider groundwater permits, but the process for obtaining a groundwater permit in a closed basin is demanding.

Exempt Wells

> In addition to the general requirements for obtaining a permit, the appropriator must commission a hydrogeological report to determine if the proposed appropriation could result in a net depletion of surface water. Section 85-2-360(2), MCA. If the report indicates a hydrogeological connection, then the appropriator must show that there will be no net depletion of water. Section 85-2-360(3)(b), MCA.

Id. at 5-6.

SUPREME COURT'S DECISION - "COMBINED APPROPRIATION" DEFINITION

Statutory Interpretation

The Supreme Court's decision is based on its interpretation of the statute governing the permit exemption and the "exception to the exemption" — to determine the validity of DNRC's administrative rule that defined "combined appropriation." Much of the decision addresses case law concerning "statutory interpretation" and the reader should look to the court opinion for more details on the Supreme Court's reasoning concerning statutory interpretation. This article concentrates on the water law aspects of the decision.

The Supreme Court opinion, written by Justice Laurie McKinnon, is concise and comprehensively describes the issues, the underlying statutes and rules, and the rational of the court in arriving at its decision. It is highly recommended reading for any water professional dealing with exempt well/ groundwater issues.

Legislative Intent

Justice McKinnon's discussion of the issue of the validity of the 1993 rule begins by examining the exemption statute involved, with the "objective in interpreting a statute" to find out "the objectives the Legislature sought to achieve…The legislative intent is to be ascertained, in the first instance, from the plain meaning of the words used." *Id*. at 11. Section 85-2-306(3)(a)(iii), MCA, provides: "When the appropriation is outside a stream depletion zone, is 35 gallons a minute or less, and does not exceed 10 acre-feet a year, except that a combined appropriation from the same source by two or more wells or developed springs exceeding 10 acre-feet, regardless of flow rate, requires a permit;"

Statute's Purpose

Following the quotation of the statute, the Supreme Court details the statute's purpose and concisely explains the "exception" to the exemption:

> The statute thus allows an exemption from the permitting process and provides for a lawful appropriation when the amount of appropriation does not exceed 35 gallons per minute and 10 acre-feet per year. However, even if this criterion is satisfied, a combined appropriation from the same source of two or more wells or developed springs is "except[ed]" from the exemption if the combined appropriation exceeds 10 acre-feet per year, regardless of flow rate. The exception applies when (1) there are two or more wells or developed springs, (2) that are from the same source, (3) where the combined appropriation exceeds 10 acre-feet per year. The exception removes any consideration of flow rate, but adds volume considerations when appropriations are from the same source, thus expressing the Legislature's intent to limit the impact of the appropriation that would occur on any particular source of water to less than 10 acre-feet per year.

Limiting Impact

Id. at 12-13.

"Combined Appropriation"

Next, the Supreme Court turned to the plain meaning of the term "combined appropriation." "Consistent with these common sense meanings and statutory definitions, § 85-2-306(3)(a)(iii), MCA, provides that a 'combined appropriation' may not exceed the combined quantity of 10 acre-feet per year, when there is more than one well or developed spring." *Id*. at 13-14. The Supreme Court concluded that, "[W]e accordingly reject the Well Drillers' interpretation that 'combined' modifies wells or developed springs; combined modifies appropriation, which speaks specifically to the quantity of water which may be withdrawn for a beneficial use." *Id*. at 14.

Washington State Exempt Wells Decision

Washington state recently went through its own battle to determine if their exemption statute limited stockwater use to 5,000 gallons per day or whether the statute allowed *unlimited* stockwater use without any permit being required. The case centered around a cattle feedlot with 30,000 head of livestock with an estimated use of 450,000 to 600,000 gallons per day. Like the Montana decision, the Washington Supreme Court decision was based on statutory interpretation. The Washington court held that their statute was unambiguous in allowing *unlimited* stockwater use, while limiting commercial use under the statute to 5,000 gallons per day. The Washington decision was based on what the court viewed as the "clear language" of the pertinent statute. *See* Water Briefs, *TWR* #95. The argument that the exemption statute was intended to apply to small or de minimus uses of water was not persuasive given the court's strict interpretation of the statute's language.

See: Five Corners Family Farmers, et al. v. State of Washington, et al., No. 84623-4 (December 22, 2011)

Exempt Wells

Senior Use Protection

Quantity Exemption

Core Purpose

Maximum Quantity v. Connection

Expansion Contrary to Intent

Statute v. Rule

Rulemaking Not Required

As part of the discussion of its rationale concerning statutory interpretation, Justice McKinnon's opinion relied heavily on the underlying intent of the Montana Legislature when it passed the exemption statute as part of the Water Use Act. The importance of protecting senior water users, while allowing de minimus uses of water where possible, was clearly a strong influence on the Supreme Court's decision. The Supreme Court also expressed its overall support of the Prior Appropriation Doctrine.

> Based upon the plain language of the statute, it is evident that the intent of the Legislature in enacting subsection (3)(a)(iii) was to ensure that, when appropriating from the same source, only a de minimus *quantity* of water, determined by the Legislature to be 10 acre-feet per year, could be lawfully appropriated without going through the rigors of the permitting process. An exception to the exemption for quantities exceeding 10 acre feet per year, regardless of flow rate and number of wells or developed springs utilized for the appropriation, protects other water rights utilizing the same water source. This is consistent with the purpose of the Act as a remedial statute designed to strictly adhere to the prior appropriation doctrine and to provide for the "administration, control, and regulation of water rights...and confirm all existing water rights... ." Section 85-2-101(2)(4), MCA. We have explained that "the Water Use Act was designed to protect senior water rights holders from encroachment by junior appropriators adversely affecting those senior rights." *Mont. Power Co. v. Carey*, 211 Mont. 91, 98, 685 P.2d 336, 340 (1984). This fundamental purpose is reflected throughout the Act and many of the subsections of the Act begin with a policy declaration stating that the protection of senior water rights and the prior appropriation doctrine is the Act's core purpose.

Id. at 14-15 (emphasis in original).

Following the above quotation, the Supreme Court summarized its decision on the key question in the case: the intended meaning of the term "combined appropriation." "Accordingly, based upon the plain language of the statute and the stated purpose of the Act, we conclude that 'combined appropriation' refers to the total amount or maximum quantity of water that may be appropriated without a permit and not to the manner in which wells or developed springs may be physically connected." *Id*. at 15.

After "interpreting the plain language" of the exemption statute, the Supreme Court then turned its attention to the "validity of the 1993 rule in light of the statute's plain meaning." This section discusses the requirements of rule validity, as codified under the Montana Administrative Procedures Act. *Id*. at 15. Justice McKinnon explained how the 1993 rule expanded the exemption tremendously, directly contradicting the plain language of the statute and thereby betraying the intent of the Legislature to protect senior water users.

> As the District Court correctly observed, the 1993 rule allows an unlimited quantity of water to be appropriated from the same source as long as the ground water developments are not physically manifold or connected. The 1993 rule, therefore, unquestionably expands the exemption by limiting the number of appropriations which must be excepted, rendering meaningless the underlying limit on volume or quantity of 10 acre-feet per year from the same source. That portion of § 85-2-306(3)(a)(iii), MCA, allowing for an exemption — a well or developed spring appropriating no more than 35 gallons per minute and 10 acre-feet per year — has no qualifying language relating to the same source. However, the exception to the exemption does; that is, regardless of flow rate and the number of wells or developed springs no combined quantity of water may exceed 10 acre-feet when it is from the same source. The 1993 rule directly contradicts this plain language by adding a connectivity requirement to the wells or developed springs, effectively swallowing up the underlying exception that the Legislature created.

Id. at 17.

Immediately after the above quotation, the opinion goes on to sum up the finding of the Supreme Court. "We conclude that the 1993 rule was inconsistent with the plain language of § 85-2-306(3)(a)(iii), MCA, and that it engrafted an additional requirement on the exempt well statute that wells or developed springs be 'physically manifold into the same system.' By narrowing the exception to only those wells or developed springs physically connected, the 1993 rule expanded the narrow exemption to the permitting process provided by § 85-2-306(3)(a)(iii), MCA, and was inconsistent with the stated statutory purpose of the Act." *Id*. at 17.

The Supreme Court did reverse the District Court regarding its ruling that the DNRC be mandated to initiate rulemaking on a new rule regarding "combined appropriation." The Supreme Court ordered that the District Court's mandate be removed. DNRC can either maintain the 1987 rule as reinstated or initiate rulemaking to change the rule in accordance with the Supreme Court's decision. "It is up to the DNRC to determine whether initiating rulemaking to change the reinstated 1987 rule is appropriate…The 1987 rule is reinstated until further action implementing a new rule is initiated by the DNRC." *Id*. at 24.

Exempt Wells

Permitting Requirements

Senior Uses Protected

Protection Fundamental

CONCLUSION

"We are thrilled with the court's decision," said Laura King, the Western Environmental Law Center attorney representing the plaintiffs. "The Montana legislature never intended to allow large consumptive water users to by-pass the water permitting requirements simply by drilling multiple, unconnected wells. The court recognized that today."

The decision by the Montana Supreme Court to close the loophole — which had allowed a massive proliferation of exempt wells that did not go through the normal permitting process for new appropriations of water — protects senior water right owners and the water resource itself as intended by both the Prior Appropriation Doctrine and the Montana Water Use Act. Instead of an extremely loose interpretation of a statute that allowed unlimited groundwater use without any review, developers will now be faced with properly addressing water resource questions in the permitting process that any substantial new appropriation of water should address.

Justice McKinnon's opinion on behalf of a 6-1 majority is a well-reasoned examination of the underlying principles of western water law and the need for following the fundamental concept of protection for senior water users. Neither Montana nor any western state should be subjected to a system of "drill, baby, drill" by developers that fails to address the basic questions of water availability, impacts on existing users, and necessary controls over new appropriations. Even though the State of Montana didn't adopt its permit system until 1973, the intent of the Prior Appropriation Doctrine and the intent of the Montana Water Use Act both support a reasoned approach to new groundwater appropriations as opposed to a complete lack of control over growth and development via the use of the (now closed) exempt well loophole.

For Additional Information:
Decision available at: http://clarkfork.org/our-work/what-we-do/current-campaigns/exempt-wells/
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Interview

INTERVIEW with DIRECTOR JOHN E. TUBBS

DNRC DIRECTOR ON THE EXEMPT WELLS DECISION

by David Moon, Editor

INTRODUCTION

The Water Report spoke with DNRC Director John E. Tubbs regarding the Montana Supreme Court's decision in *Clark Fork Coalition, et al. v. Montana Dept. of Natural Resources, et al.*, Case No. DA 14-0813, 2016 MT 229 (Sept. 13, 2016). The Montana Supreme Court (Supreme Court) decision was made on appeal from the First Judicial District Court (Judge Jeffrey Sherlock) in October 2014. The Montana Well Drillers Association, the Montana Association of Realtors, and the Montana Building Industry Association (collectively, the Well Drillers) appealed Judge Sherlock's order to the Supreme Court. The Montana Department of Natural Resources and Conservation (DNRC) chose not to appeal the District Court's decision, but was still listed as the Respondent as it was a DNRC rule that was at issue. This interview took place three weeks after the Supreme Court decision was handed down. *See* the previous article (Moon, *TWR* #152) for details about the Supreme Court's decision.

BACKGROUND & CONTEXT

DNRC Position

Director Tubbs provided some additional background to the court case, noting the DNRC's frustration with the situation leading up to the litigation. "DNRC tried to change the statute and the rule, over several years, in the face of massive development. We agreed that existing users were not being protected under the 1993 rule. But the opposition — the realtors, builders, and well drillers — prevented any law or rule from being passed." DNRC's position explains the agency not appealing the lower case decision, even though it was a DNRC rule that had been invalidated.

1987 Rule Reinstated

Tubbs pointed out that "DNRC has been operating under the 1987 rule since the District Court's decision in 2014." [Editor's note: District Judge Sherlock's ruling against the 1993 rule on combined appropriations also reinstated the earlier (1987) rule in October 2014. It was this decision that was appealed to the Supreme Court.]

Interview

Protecting Senior Rights

Loophole

De Minimus Use

Permitting Intent

No Rulemaking Planned

New Legislative Dynamic

Existing Developments Unaffected

Protection Upheld

Director Tubbs explained the DNRC's basic position regarding the issues using some pertinent examples. "The opposition has talked about using water issues to stop growth. For the DNRC, we stand behind processes that protect senior water rights. It's important to remember that there is not a problem where a ranch family wants to create a place for their son's family and drill a single well for domestic use. That isn't prevented by this decision. That has always been possible and still is possible. The situation was a problem because an irrigator can't put in a new center pivot for irrigation use without obtaining a permit, but a developer right next door could subdivide the land into 100 lots and then have 100 new wells drilled — and not go through the permitting process."

SUPREME COURT DECISION

PROTECTING EXISTING WATER USERS

Director Tubbs informed *TWR* about earlier proposals for legislation before the Supreme Court decision. "Previously, legislation was discussed that would simply have passed a law [as opposed to an administrative rule] defining 'combined appropriation' to require a physical connection. Now — with the Supreme Court holding that was based on protection of senior water rights — I don't think that the Legislature can simply pass such a law. The Supreme Court decision is based on a de minimus use of exempt wells, limited to 10 acre-feet per year volume, as protecting senior water right holders. If the Legislature wants to legalize the requirement of physical manifold, they would have to address the protections the court specifically expressed for existing water users. The Supreme Court specifically found that the permitting process is designed to protect existing water users."

The Supreme Court decision did eliminate the mandate of the District Court, which had required DNRC to initiate new rulemaking to define "combined appropriations." Tubbs noted the discretion which DNRC has under the Supreme Court decision. "The Supreme Court left it up to the agency. It's our decision to either use the 1987 rule or initiate rulemaking. Right now, it is not our plan to start rulemaking. We are functioning under the 1987 rule. More appropriately, it is up to the Legislature if they want to change from the Supreme Court's ruling. Next week [week of October 10th], the Water Policy Committee will be meeting and I'm sure that will be a big topic of discussion."

Director Tubbs also explained how the dynamic has changed in Montana following the decision. "Given the Supreme Court decision, to open the statute back up, you would have to pass affirmative legislation. You can't just stop legislation as was done previously. This presents a different dynamic politically. In order to pass new legislation, the question becomes: is there any change that the senior water users would go along with?"

IMPACT ON EXISTING SUBDIVIDED PROPERTY

Director Tubbs told *The Water Report* that although DNRC has been operating under the 1987 rule since the District Court decision — and not requiring that a system be physically connected together (manifold) in order to be considered a "combined appropriation" — properties that were subdivided previous to that decision would not be subject to that rule. "Existing subdivided properties divided prior to the District Court's decision in 2014 don't come before the DNRC and would be considered legal. Each individual well is still subject to the usual statutory constraints of 35 gallons per minute and 10 acre-feet per year. There are no doubt older subdivisions, including pre-1993 subdivisions, that exist — but DNRC would only see well completion forms submitted for the individual wells [Notice of Completion of Groundwater Development] and then we would issue water right certificates. No state action is required if they stay within the statutory limits."

CONCLUSION - GOING FORWARD

"After the Supreme Court's decision, the volume limit of 10 acre-feet per year applies to combined appropriations, and no physical connection of the system is required," Director Tubbs said. DNRC is no longer mandated (required) to initiate new rulemaking under the Surpeme Court decision and DNRC is functioning under the 1987 rule. The Montana Legislature now has the issue on its plate, but as noted by Tubbs the situation has changed dramatically with the Supreme Court's decision and its express pronouncements regarding protections afforded to existing (senior) water right holders by both the Prior Appropriation Doctrine and the statutes that make up the Montana Water Use Act. While the issue may not yet be settled, the days of unlimited well drilling of exempt wells could be a thing of the past in Montana.

For Additional Information:
DNRC Water Resources website: http://dnrc.mt.gov/divisions/water

WATER BRIEFS

EARTHQUAKES / FRACKING US

HUMAN INDUCED EARTHQUAKES — CRS REPORT

On September 30th, the Congressional Research Service (CRS) released the 34-page report: "*Human-Induced Earthquakes from Deep-Well Injection: A Brief Overview*."

From the Report's Summary:

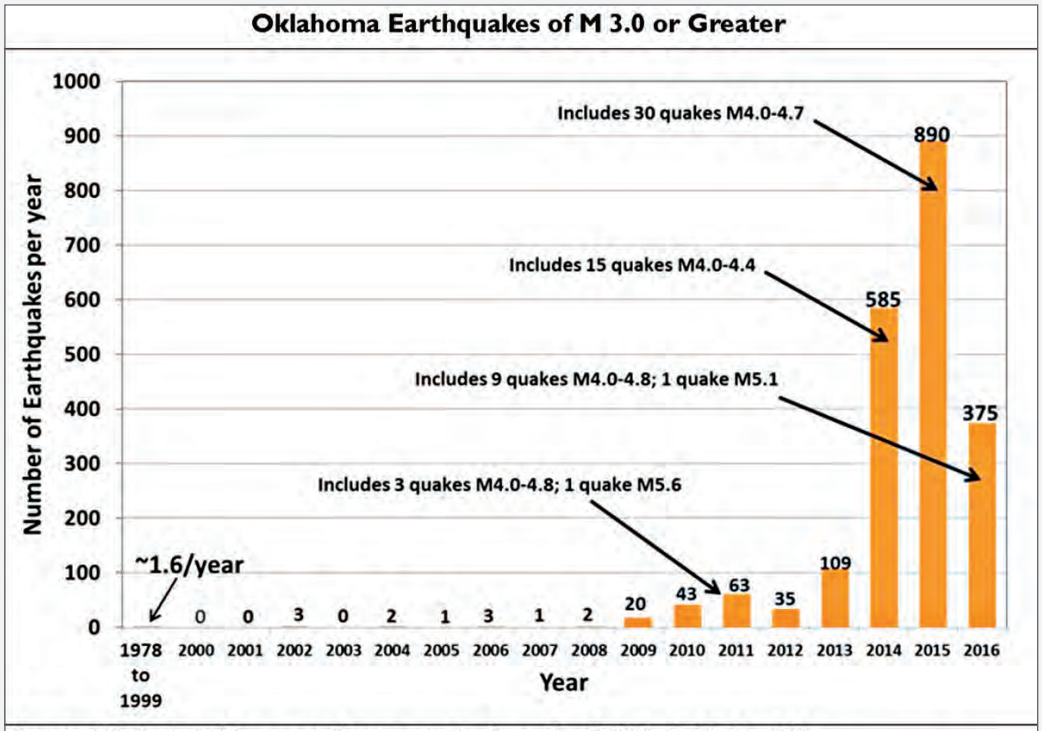
The development of unconventional oil and natural gas resources using horizontal drilling and hydraulic fracturing has created new demand for disposal wells that inject waste fluids into deep geologic formations. Deep-well injection has long been the environmentally preferred method for managing produced brine and other wastewater associated with oil and gas production. However, an increasing concern in the United States is that injection of these fluids may be responsible for increasing rates of seismic activity. The number of earthquakes of magnitude 3.0 or greater in the central and eastern United States, where there are many injection wells, has increased dramatically since about 2009. For example, over 60 earthquakes of magnitudes 4.0 to 4.8 have occurred in central Oklahoma from 2009 to mid-year 2016…The largest earthquake in Oklahoma history (magnitude 5.8) occurred on September 3, 2016, near Pawnee, causing damage to several structures. Central and northern Oklahoma were seismically active regions before the recent increase in the volume of waste fluid injection. However, the sharp uptick in earthquake activity does not seem to be due to typical, random changes in the rate of seismicity, according to several studies.

…The potential for damaging earthquakes caused by hydraulic fracturing, as opposed to deep-well injection of wastewater from oil and gas activities, appears to be much smaller. Hydraulic fracturing intentionally creates fractures in rocks to increase the flow of oil and gas. The technique induces microseismicity, mostly of less than magnitude 1.0 — too small to feel or cause damage at the surface. In a few cases, however, hydraulic fracturing has led directly to earthquakes larger than magnitude 2.0, including at sites in Oklahoma, Ohio, and England. In western Canada, earthquakes greater than magnitude 3.0 have been associated with hydraulic fracturing activities, although only from a very small percentage of hydraulic fracturing wells.

[EPA's] Underground Injection Control (UIC) program under the Safe Drinking Water Act (SDWA) regulates the subsurface injection of fluids to protect underground drinking water sources. EPA has issued regulations for six classes of injection wells, including Class II wells used for oil and gas wastewater disposal and enhanced recovery. Most oil and gas producing states administer the Class II program. Although the SDWA does not address seismicity, EPA rules for certain well classes require evaluation of seismic risk. Such requirements do not apply to Class II wells; however, EPA has developed a framework for evaluating seismic risk when reviewing Class II permit applications in states where EPA administers this program.

…In response to induced seismicity concerns, both EPA and state work groups have issued recommendations for best practices to minimize and manage such risks. Several states have increased regulation and oversight of Class II disposal wells. Congress may be interested in oversight of EPA's UIC program or in federally sponsored research on the relationship between energy development activities and induced seismicity.

For Info: Peter Folger, CRS Research Manager, pfolger@crs.loc.gov; Report at: www.fas.org/sgp/crs/misc/R43836.pdf



Source: U.S. Geological Survey, email communication September 7, 2016. Modified by CRS.

Notes: The bar representing 2016 includes earthquakes through June 22, 2016. The M 5.6 event noted for 2011 has been modified to an M 5.7 earthquake by the USGS. The M 5.8 earthquake of September 3, 2016, is not included.

Adapted from CRS Report

WATER BRIEFS

TRIBAL SETTLEMENT KS
STATE & KICKAPOO TRIBE

On September 9, the Kickapoo Tribe (Tribe) in Kansas announced a water Settlement Agreement with the State of Kansas to quantify the Tribe's water right. The Tribe worked with a variety of interested parties, including the State of Kansas, private landowners, and others, to reach a viable arrangement. The Agreement grew out of the need to quantify the Tribe's water right so that it could pursue an effort, which began in 1983, to construct a water storage project known as the Plum Creek Project. After considerable work on the project to design, plan, and seek congressional approval of the water storage project for over a decade, the effort stalled due to the Tribe's inability to persuade all landowners in the proposed Plum Creek Project area to agree to sell their land to the Tribe.

The Tribe has acquired from willing sellers a substantial portion of the remaining land in the project area and is committed to continuing to work with the landowners in the Plum Creek drainage to secure the remaining lands necessary for the project. The Tribe also intends to work with the federal Natural Resources Conservation Service (NRCS) and the Congress to re-evaluate the proper size and purposes for the Plum Creek Project.

In order to construct a storage project on Plum Creek or anywhere else on the Kickapoo Reservation, the Tribe must first have its water right quantified. In the years since the filing of the lawsuit in 2006, the Tribe, the State of Kansas, and the US (Interior and Justice Departments), with the assistance of technical staff and consultants, have negotiated a water right for the Tribe, and its constituent elements and associated details that will enable the State to administer State law-based water rights in the Delaware River watershed respecting the Tribal water right as the senior right. Legal counsel for the Tribe, the State and the United States over the past two and a half years negotiated a comprehensive Settlement Agreement for submission to the federal court in Kansas for preliminary review. The Tribe was represented by the Native American Rights Fund, based in Boulder, Colorado.

The water Settlement Agreement will require congressional approval. The Interior Department also needs Congress to approve it and to direct Interior to carry out the obligations of the United States. The Tribe has a federal water right linked to establishment of its reservation in 1832, as a Federal reserved water right recognized by the US Supreme Court in *Winters v. United States* (1908).

Some of the main components of the Settlement Agreement are:

- Delaware River Basin has sufficient water supplies to satisfy the rights of the Tribe without reducing established water rights of Kansas water right holders;
- Tribal Water Right (Right) consists of annual direct use amount plus maximum amount in storage: direct use of 4,705 acre feet for all present and future uses and annual indirect use – defined as evaporate and seepage values;
- Metering of Tribal consumption and annual water use reporting by Tribe to Kansas Division of Water Resources (DWR);
- Agreement specifies who may use the Right, where and under what conditions;
- DWR protects the Right in times of shortage, when non-domestic junior water users are impairing the Right (if DWR finds impairment, it curtails junior upstream rights to protect tribal usage);
- Tribe, State (and eventually the US) enter into a Memorandum of Agreement (MOA) setting out the specific administrative details for the Right and junior State water rights;
- Reporting, Cooperation and Communication between State and Tribe for access to Tribal property where/when necessary;
- Tribe will adopt a Tribal Water Code to govern tribal members' water use;
- Judicial enforcement in case of disputes concerning the interpretation and implementation of the Settlement Agreement and MOA.

For info: Steve Moore, NARF, 303/447-8760 or www.narf.org/our-work/protection-tribal-natural-resources/

STORMWATER RETENTION US
RECHARGE BENEFITS

EPA has released a new study that supports the long-term benefits of green infrastructure, entitled "*Estimating Monetized Benefits of Groundwater Recharge from Stormwater Retention Practices*." EPA encourages green infrastructure for urban areas because of their benefits to water quality and stream channel protection. Groundwater recharge is a co-benefit of reducing excess stormwater runoff volume associated with impervious areas.

This study was commissioned to estimate the groundwater recharge benefits from application of small storm retention practices on new development and redevelopment nationwide. Broad assumptions, national datasets, and simplified recharge calculation and monetization approaches were used to provide general insight into the monetary benefits of small storm retention practices. The assumptions and limitations are listed in the study to facilitate future researchers' efforts. The study focuses on areas in the US where groundwater is a significant contributor to urban and agricultural uses and where water shortages may occur in the future under different climate change scenarios.

The approach was vetted by a panel of experts from government, academia, and industry, with recommendations for improved methodologies for future studies. The results suggest that over time the use of green infrastructure can save hundreds of millions of dollars in groundwater resources even when one only applies the practices to new development and redevelopment. If retrofitting or increased retention were to occur, the groundwater benefits would be even more significant.

For info: Study available at: www.epa.gov/green-infrastructure/estimating-monetized-benefits-groundwater-recharge-stormwater-retention

FLOW REQUIREMENTS CA
SALINITY AND FISHERY

On September 15, the State Water Resources Control Board (SWRCB) staff released a draft proposal to update water quality requirements for salinity in the southern Delta and water flows in major tributaries to the San Joaquin River (the Stanislaus, Tuolumne, and Merced Rivers), which drain into the southern Delta. The refined salinity requirements reflect updated scientific information about salt levels that reasonably protect farming in the southern Delta. The new flow requirements for the San Joaquin

WATER BRIEFS

River's major tributaries recognize the vital role upstream water flows provide for habitat and migratory signals for native fish species. The proposed flow objective for the Lower San Joaquin River and its tributaries is designed to reasonably protect at-risk native fish species by leaving more water in the rivers during the critical February-June time period. In summary, the draft proposes increasing flows for fish and wildlife and adjusts the salinity requirements to a slightly higher level to reflect updated scientific knowledge, according to SWRCB. Flow objectives on the San Joaquin River have not been updated since 1995.

The Bay-Delta Plan lays out water quality protections to ensure that various water uses — drinking, irrigation, fisheries — are protected. In establishing these objectives, SWRCB must consider all beneficial uses of water in determining how to reasonably protect any particular use, and must balance those interests. Accompanying the proposed Bay-Delta Plan update is a staff report, known as a Substitute Environmental Document (SED), which analyzes the impacts, benefits, and costs of the proposed revisions.

Currently, flows left in some of these tributaries after human diversions are frequently less than 20% of natural, or unimpaired, flows. Unimpaired flow is a measure of the total amount of water that would flow down a river if it was not diverted or stored in a reservoir. SWRCB's 2010 flow criteria report concluded that 60% of unimpaired flow should be left in the river for the benefit of fish species if balancing other uses were not considered. After balancing other uses of water, the staff proposal recommends a range of between 30-50% of unimpaired flow, with a starting point of 40%. SWRCB's analysis shows that this range will provide reasonable protection of fish and wildlife while moderating impacts to water supply for agriculture, drinking water and other uses. The proposal recognizes that although flow levels are unsustainably low at significant times on the tributaries, flow level is not the only factor affecting fish survival, and that a number of other factors degrade conditions for native fish, such as non-native species, predation, high water temperatures, barriers to fish passage, and habitat loss.

Stakeholders are encouraged to work together to present SWRCB with voluntary agreements that would implement Bay-Delta Plan objectives for fish and wildlife beneficial uses. Voluntary agreements to implement non-flow actions that improve conditions for fish and wildlife may reduce flows needed within the 30-50% range.

Comments on the draft SED are due on November 15. A public hearing will be held over three days beginning on November 2 in Sacramento, continuing November 4 in the Modesto area, and concluding November 10 in Sacramento. SWRCB will then hold an additional public meeting to consider the proposed Bay-Delta Plan amendments in early 2017.

For info: www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/

CHROMIUM 6 POLLUTION US DRINKING WATER CONCERNS

On September 21, the Environmental Working Group (EWG) released an analysis of more than 60,000 tap water tests conducted nationwide, finding that chromium-6, or hexavalent chromium, is in the tap water of more than 218 million Americans. That's two-thirds of the US being served water with chromium-6 at, or above, the level that California state scientists consider safe. The California public health goal allows a chromium-6 level expected to cause no more than one case of cancer in 1 million people who drink it for a lifetime (legal limit of 10 parts per billion and recommends no more than 0.02 parts per billion). Chromium-6 is the carcinogenic chemical made notorious by the film, Erin Brockovich, which was based on the poisoning of tap water in a California town.

There are currently no federal regulations for the compound; federal chromium regulations, set in 1991, do not specifically address chromium-6. California is the only state that has set an enforceable legal limit for chromium-6 in drinking water. Chromium is a naturally occurring element but can also be manufactured. The two main types are chromium-3 — an essential human nutrient considered to be mostly harmless — and chromium-6, which has long been known to cause lung cancer when airborne particles are inhaled. Recent science has also shown that, when ingested, it can cause stomach cancer. Chromium-6 is used in chrome plating, wood and leather treatments, dyes and pigments, and the water in cooling towers of electrical power plants.

A home water filter can remove chromium-6 and most other chemicals of concern, but can be expensive.

For info: Report available at: www.ewg.org/research/chromium-six-found-in-us-tap-water

UPDATED CLIMATE TOOL US RISK ASSESSMENT

EPA has released an updated online climate change risk assessment tool that assists users in designing adaptation plans based on the types of threats confronting their communities. EPA's Climate Resilience Evaluation and Awareness Tool (CREAT 3.0) is designed for water utilities.

In its updated version, CREAT 3.0 presents information in a series of intuitive modules, provides climate change projection data, and presents monetized risk results. CREAT 3.0's climate projection map illustrates future climate scenarios including precipitation intensity for a 100-year storm or the number of days per year with temperatures above 100ºF. This information will allow utility owners and operators to better prepare for the impacts of climate change.

CREAT 3.0 was built and updated in consultation with drinking water and wastewater utilities, water sector associations, climate science and risk assessment experts, and multiple federal partners. The tool has already been used by a number of communities in their adaptation planning efforts. For example, Manchester-by-the-Sea, Mass. used CREAT 3.0 to better understand the vulnerability of its wastewater infrastructure and operations while Houston, Texas used the tool to better understand the vulnerability of its surface water supplies.

For info: Tool at: www.epa.gov/crwu/build-climate-resilience-your-utility; Tricia Lynn, 202) 564-2615 or lynn.tricia@epa.gov

WATER BRIEFS

YELLOWSTONE SPILL MT
DAMAGE SETTLEMENT

On September 21, the State of Montana and the US Departments of Justice and the Interior, announced a proposed settlement with ExxonMobil Pipeline Company to resolve claims stemming from the Yellowstone River July 1, 2011 oil spill. ExxonMobil Pipeline Company has agreed to pay $12 million in natural resource damages to the federal government and the State of Montana as Trustees for the natural resources devastated by the spill. A proposed consent decree was filed in federal court. The State and federal government have also issued a draft restoration plan that will take action to address the natural resource damage. Public comment is being sought by the State and federal government on both the proposed consent decree and the draft restoration plan.

On July 1, 2011, a 12-inch diameter pipeline owned by ExxonMobil Pipeline Company ruptured near Laurel, Montana, resulting in the discharge of crude oil into the Yellowstone River and floodplain. The discharge was estimated to have been approximately 63,000 gallons (about 1,500 barrels) of oil. The discharge occurred during a high-flow event, affecting approximately 85 river miles and associated floodplain. Oil from the spill, along with the cleanup activities, harmed natural resources including fish and other aquatic life, birds (including migratory birds), wildlife, large woody debris piles, aquatic habitat, terrestrial habitat, recreational use, and the services provided by these natural resources. These natural resources are under Trusteeship of the State of Montana and the US Department of the Interior under the Oil Pollution Act and other laws.

The Trustees evaluated a range of restoration alternatives that would provide resource services to compensate the public for losses pending natural recovery of resources injured by the oil spill. The Trustees identified preferred restoration alternatives designed to address the resource injuries and plan to work with project partners such as local, state, and federal agencies, and nonprofit organizations and landowners to implement the projects.

The draft restoration plan is available online at: https://dojmt.gov/lands/yellowstone-river-oil-spill-July-2011/. Public comment on the draft restoration plan will close at 5:00 PM on October 31. Written comments on the draft restoration plan should be sent via e-mail to: NRDP@mt.gov with "Yellowstone restoration plan comment" in the subject line.

The Trustees will review comments received during the comment period when preparing the final restoration plan. The proposed settlement, lodged with the US District Court for the District of Montana, is subject to a 30-day public comment period following notification in the Federal Register and final approval by the court.

For info: Consent Decree and comment information available at: www.justice.gov/enrd/Consent_Decrees.html

AG CONSERVATION US
USDA INVESTMENT

Agriculture Secretary Tom Vilsack on September 8th announced the investment of $26.6 million by the US Department of Agriculture (USDA) into 45 projects that will spur innovative conservation initiatives on both rural and urban farms across the country. Public and private grantees will provide matching investments, bringing the total value of support to $59 million. The investment is made through USDA's Conservation Innovation Grants (CIG) program, which fosters innovation in conservation tools and strategies to improve things like on-farm energy and fertilizer use as well as market-based strategies to improve water quality or mitigate climate change.

The 2016 projects focus on water quality, conservation finance, and assistance to historically underserved USDA customers. Approximately 25% of the funding announced will go to projects that benefit historically underserved producers, military veterans, and new farmers.

Incluing present funding, USDA has invested nearly $173 million to fund 414 national CIG projects since 2009. For this round of funding, USDA received 170 applications requesting more than $100 million, which far exceeded the initial funding target of approximately $20 million. USDA is making an investment of $26.6 million with this round of funding, which will leverage an additional $32.5 million in matching investments from the grantees.

In 2015, CIG began supporting the burgeoning field of conservation finance and impact investing to attract more private dollars to science-based conservation solutions. Of the 45 projects receiving funding, 13 are conservation finance awards. These new projects support the design and implementation of approaches to attract private capital to working lands conservation. The selected projects address diverse natural resource issues such as pollinators; sage-grouse conservation; forest, carbon and corporate chain sustainability; and organic farming.

CIG is funded through the Environmental Quality Incentives Program (EQIP). The maximum grant is $2 million per project and the length of time for project completion is three years. CIG projects are designed to engage EQIP-eligible producers in on-the-ground conservation activities that accelerate transfer and adoption of innovative conservation technology and approaches. CIG awards competitive grants to local and state units of governments, American Indian tribes and individuals.

For info: Projects List available at: www.nrcs.usda.gov/technical/cig; Sylvia Rainford, USDA, 202/ 720-2536

TRIBAL WATER QUALITY US
TAS, CWA SECTION 303(d) & TMDLS

On September 26, EPA published notice of a final rule in the Federal Register addressing the "*Treatment of Indian Tribes in a Similar Manner as States for Purposes of Section 303(d) of the Clean Water Act.*" The final rule is effective on October 26th.

In section 518(e) of the Clean Water Act (CWA), Congress authorized EPA to treat eligible federally recognized Indian tribes in a similar manner as a state for purposes of administering CWA § 303 and certain other provisions of the CWA, and directed the agency to promulgate regulations effectuating this authorization. EPA has issued regulations establishing a process for federally recognized tribes to obtain "**t**reatment **a**s **s**tates" (TAS) for several provisions of the CWA; for example, 53 tribes have obtained TAS authority to issue water quality standards under CWA § 303(c).

WATER BRIEFS

EPA has not yet promulgated regulations expressly establishing a process for tribes to obtain TAS authority to administer the water quality restoration provisions of CWA § 303(d), including issuing lists of impaired waters and developing Total Maximum Daily Loads (TMDLs), as states routinely do. By establishing regulatory procedures for eligible tribes to obtain TAS for the CWA § 303(d), this final rule enables eligible tribes to obtain authority to identify impaired waters on their reservations and to establish TMDLs, which serve as plans for attaining and maintaining applicable water quality standards. The rule is comparable to similar regulations that EPA issued in the 1990s for the CWA § 303(c) WQS and CWA §402 and § 404 Permitting Programs, and includes features designed to minimize paperwork and unnecessary reviews.
For info: Federal Register at: www.gpo.gov/fdsys/pkg/FR-2016-09-26/html/2016-22882.htm

GROUNDWATER DISTRICTS CA SGMA & EVALUATIONS

The California State Water Resources Control Board (SWRCB) has announced the release of a new report, titled: "*An Evaluation of California's Special Act Groundwater Districts*" — prepared by Ruth Langridge with the Center for Global, International and Regional Studies at the University of California, Santa Cruz, with assistance from Stephen Sepaniak and Esther Conrad. Prepared under contract with SWRCB, the report is a follow-up to the previously released report: "An Evaluation of California's Adjudicated Groundwater Basins," which was also prepared by Ruth Langridge.

In the Introduction, the report details some of the reasons water professionals will be interested in this report. "Given the role of the SWRCB in the SGMA [Sustainable Groundwater Management Act] intervention going forward, this report provides information on each Special Act District's statutory authority and mandates to manage groundwater, the ability to utilize their legislated authority to sustainably manage their groundwater basin, and key elements that could be of assistance to other districts forming GSA's [Groundwater Sustainability Agencies] under the SGMA."

The report is presented for informational purposes only; the views and opinions expressed in the report do not represent findings or opinions of SWRCB or its staff
For info: Report available at: www.waterboards.ca.gov/water_issues/programs/gmp/resources.shtml; Ruth Langridge, rlangrid@ucsc.edu

NUTRIENT POLLUTION US EPA CALL TO ACTION

On September 22, Joel Beauvais, Deputy Assistant Administrator of EPA's Office of Water, issued a Memorandum entitled "*Renewed Call to Action to Reduce Nutrient Pollution and Support for Incremental Actions to Protect Water Quality and Public Health*." The Memorandum was sent to all State Environmental Commissioners and State Water Directors. Beauvais spelled out his call to action, as quoted below from Beauvais' blog: "Partnering With States to Cut Nutrient Pollution."

"Nutrient pollution remains one of America's most widespread and costly environmental and public health challenges, threatening the prosperity and quality of life of communities across the nation. Over the last 50 years, the amount of excess nitrogen and phosphorus in our waterways has steadily increased, impacting water quality, feeding harmful algal blooms, and affecting drinking water sources. From the Lake Erie algae blooms to the Gulf of Mexico dead zone, nutrient pollution is impacting every corner of our country and economy.

In 2011, EPA urged a renewed emphasis on partnering with the states and key stakeholders to accelerate the reduction of nitrogen and phosphorus pollution through state nutrient load reduction frameworks that included taking action in priority watersheds while developing long-term measures to require nutrient reductions from both point and non-point sources. Many states and communities have stepped up and taken action, supported with EPA financial and technical assistance. States have worked with partners to reduce excess nutrients and achieve state water quality standards in over 60 waterways, leaving nearly 80,000 acres of lakes and ponds and more than 900 miles of rivers and streams cleaner and healthier. And, in the Chesapeake Bay region, more than 470 wastewater treatment plants have reduced their discharges of nitrogen by 57% and phosphorus discharges by 75%.

We've made good progress but this growing challenge demands all hands on deck nationwide. Recent events such as the algae bloom in the St. Lucie Estuary in Florida and high nitrate levels in drinking water in Ohio and Wisconsin tell us we need to do more and do it now.

That's why I signed a memorandum that asks states to intensify their efforts on making sustained progress on reducing nutrient pollution. EPA will continue to support states with financial and technical assistance as they work with their local agricultural community, watershed protection groups, water utilities, landowners, and municipalities to develop nutrient reduction strategies tailored to their unique set of challenges and opportunities. Partnerships with USDA and the private sector — for example the Regional Conservation Partnership Program (RCPP) projects in Cedar Rapids, Iowa, and more efficient fertilizer use on sensitive lands such as in the Maumee River basin in Ohio — are yielding more rapid nutrient reductions in areas most susceptible to the effects of nutrient pollution. Private sector partnerships that engage the power of the food supply chain, such as the Midwest Row Crop Collaborative Exit, hold much promise too. Innovative permitting solutions are driving improvements. For example, Boise, Idaho's wastewater treatment plant permit that allows them to meet their nutrient limits in part by treating and reducing phosphorus in agricultural return flow in the nearby Dixie Drain at less cost to the taxpayers. [*See* Malmen, *TWR* #129.] These examples and others show us that states, in cooperation with federal agencies and the private sector, can drive nutrient reduction actions.

To help states make further immediate progress, this year EPA will provide an additional $600,000 of support for states and tribal nutrient reduction projects that promise near-term, measurable nutrient load reductions. This assistance will focus on public health threats from nitrate pollution in drinking water sources and harmful algal blooms in recreational waters and reservoirs."
For info: EPA website: www.epa.gov/nutrient-policy-data

CALENDAR

October 17-18 OK
Potable Reuse Summit, Oklahoma City. Skirvin Hilton. Organizer: WateReuse. For info: https://watereuse.org/news-events/conferences/potable-reuse-summit/program/

October 18 CA
Policy Priorities for California's Water Conference, Sacramento. Sheraton Grand Hotel, Magnolia Room, 1230 J Street. Presented by the Public Policy Institute of California - Confernece Filled: Webcase available, 8am-12:15pm. For info: http://www.ppic.org/main/event.asp?i=2112

October 18-21 CA
Natural Areas Conference: Climate Change Adaptation & Natural Areas Management - Turning Words to Action, Davis. UC Davis Conference Center. Presented by Natural Areas Ass'n, USFS & UC Davis. For info: http://naturalareasconference.org/

October 19-20 CA
Drought Vulnerability & Tools for Improving Water Resilience Workshop, Long Beach. Renasissance Long Beach Hotel. Presented by National Water Research Institute. For info: http://www.nwri-usa.org/dwr_drought_oct2016.htm

October 19-21 CA
Northern California Tour 2016, Sacramento. Water Projects Tour. For info: www.watereducation.org/general-tours

October 20 TX
SWIFT Funding Workshop: Focus on Water Conservation, Weslaco. Texas A&M Agrilife Research & Extension Center, 9am-2:30pm. For info: www.SwiftWorkshopWeslaco.eventbrite.com

October 20-21 MT
River Restoration Course, Big Sky. Free Course. Presented by Montana Water Center, Gallatin River Task Force, Montana DEQ and the Montana Wetland Council. For info: Stephanie McGinnis, 406/994-6425, mcginnis@montana.edu or www.montanawatercenter.org/riverrestorationcourse

October 21 OR
22nd Annual Superfund In Oregon Conference, Portland. World Trade Center, 25 SW Salmon Street. For info: Environmental Law Education Center, 503/ 282-5220 or www.elecenter.com

October 21 CO
40th Anniversity of the Federal Land Policy & Management Act Conference, Boulder. University of Colorado, Wolf Law Bldg. For info: gwc@colorado.edu

October 24 UT
Utah Water Law Conference, Salt Lake City. Marriott Downtown at City Creek. For info: CLE Int'l, 800/873-7130 or www.cle.com

October 24-25 CA
Endangered Species Act Conference: Highlights of New Rules & Regulations, San Francisco. BASF Conference Center. For info: CLE Int'l, 800/ 873-7130 or www.cle.com/BASF

October 24-26 MT
Montana Watershed Coordination Council (MWCC) Watershed Symposium, Billings. Crowne Plaza Billings. For info: www.mtwatersheds.org or erin@mtwatersheds.org

October 25 CA
Drought and the Delta Briefing, Stockton. Stockton Memorial Civic Auditorium. Presented by Water Education Foundation; Free but Signup Required. For info: www.eventbrite.com/e/drought-and-the-delta-tickets-27689257314?ref=ebtn

October 25-26 CA & WEB
California Water: Current Challenges & Future Solutions Seminar, Century City. Intercontental Century City. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

October 26 WA
Rural Domestic & Municipal Water Supply: AWRA-WA 2016 State Conference, Seattle. Seattle Mountaineers Event Center, 7700 Sand Point Way NE. For info: http://waawra.org/event-2205467

October 27 CA
Southern California Water Committee Annual Dinner, Santa Ana. Discovery Cube. Register for Event. For info: http://www.socalwater.org/event-calendar/1566/annual-meeting-and-dinner#cal

October 27-28 CA & WEB
Tribal Water Law in California Seminar, Valley Center. Harrah's Resort Southern California. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

October 28 WA & WEB
The Mighty Columbia Seminar, Seattle. Hilton Garden Inn Downtown. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

October 28-29 MT
The Governor's Local Food & Agriculture Summit, Bozeman. MSU Strand Union Bldg., 751 W. Grant Street. For info: https://foodsummit.ncat.org/?mc_cid=17a7196f6a&mc_eid=094b4cb653

October 30-Nov. 2 AZ
Water Infrastructure Conference & Exposition, Phoenix. Arizona Grand Resort & Spa. Organizer: American Water Works Association. For info: www.awwa.org/conferences-education/conferences/water-infrastructure.aspx

November 1-2 Scotland
Alliance for Water Stewardship - Global Water Stewardship Forum, Edinburgh. Forum Limited to 100 places. For info: http://www.awsforum2016.org/

November 1-4 DC
14th Annual Green Roof & Wall Conference: Cities Alive: Rising to the Stormwater Challenge, Washington. University of the District of Columbia. For info: Green Roofs for Healthy Cities, 416/ 971-4494 x228 or www.greenroofs.org

November 2-3 CA
California Oil, Gas & Groundwater Symposium, Bakersfield. Bakersfield Marriott. Presented by Groundwater Resources Ass'n of California. For info: www.grac.org/events/13/

November 2-3 CA
San Joaquin Restoration Tour 2016, San Joaquin Valley. River Restoration Tour. For info: www.watereducation.org/general-tours

November 2-4 CA
California Water Association 2016 Annual Conference, Monterey. Monterey Plaza Hotel. For info: http://www.calwaterassn.com/upcoming-conferences/

November 3 CA
Southern California Edison Annual Water Conference: California Water Situation and Efforts to Advance Energy, Water and State Policy, Tulare. Energy Education Center. For info: http://scewaterconference.com/tulare/

November 4 OH
Safe Drinking Water: A Tale of Three Cities - 16th Annual Great Lakes Water Conference, Toledo. University of Toledo College of Law. For info: http://www.utoledo.edu/law/academics/ligl/conferences.html

November 5 OR
14th Annual Celebration of Oregon Rivers, Portland. Tiffany Center, 1410 SW Morrison Street. Presented by WaterWatch of Oregon. For info: www.waterwatch.org

November 6-10 TX
The International Water Conference, San Antonio. Marriott River Center. Presented by the Engineers' Society of Western Pennsylvania. For info: https://eswp.com/water/overview/

November 7 NM
Endangered Species Act in New Mexico Conference, Santa Fe. Inn & Spa at Loretto. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

November 9-10 WA & WEB
9th Annual Water Rights Transfers, Seattle. Hilton Garden Inn Downtown. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

November 6-12 Thailand
Water Management in a Changing World: Role of Irrigation for Sustainable Food Production - 2nd World Irrigation Forum, Chiang Mai. International Convention & Exhibition Center. For info: www.worldirrigationforum.net/

November 9-11 NM
2016 Quivera Conference, Albuquerque. Embassy Suites Hotel. For info: http://quiviracoalition.org/2016_Conference/index.html

November 13-17 FL
2016 American Water Resources Ass'n Annual Conference, Orlando. Florida Hotel & Conference Ctr. Presented by American Water Resources Ass'n. For info: www.awra.org/meetings/Orlando2016/

November 13-17 IN
Water Quality Technology Conference & Exposition, Indianapolis. Indiana Convention Center. Presented by American Water Works Ass'n. For info: www.awwa.org/conferences-education/conferences/water-quality-technology.aspx

The Water Report
Water Rights, Water Quality & Water Solutions in the West
260 N. Polk Street • Eugene, OR 97402

CALENDAR

(continued from previous page)

November 14-15 CA
California Water Law Conference, San Francisco. Hotel Nikko. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

November 14-16 CA
National Water Resources Association (NWRA) Annual Conference, Coronado. Hotel Del Coronado. For info: www.nwra.org/upcoming-conferences-workshops.html

November 14-17 WA
7th Annual Northwest Climate Conference, Stevenson. Skamania Lodge. For info: http://pnwclimateconference.org/

November 15 WA
Lake Roosevelt Forum 2016 Conference: "Charting New Waters", Spokane. Davenport Hotel. For info: www.lrf.org

November 15-17 CA
2016 Bay Delta Science Conference (9th Annual): Science for Solutions: Linking Data and Decisions, Sacramento. Sacramento Convention Center. Presented by the Delta Science Program USGS. For info: http://scienceconf2016.deltacouncil.ca.gov/

November 16-17 OR & WEB
Oregon Water Law Conference, Portland. Embassy Suites Portland Downtown, 319 SW Pine Street. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

November 17-18 CA
AquAlliance Conference: Water for Seven Generations - Will California Squander or Protect It?, Chico. Sierra Nevada Brewing Company. For info: http://www.aqualliance.net/water-conference-2016/

November 30-Dec. 2 DC
Water Finance & Development Summit, Washington. Washington Plaza Hotel. Pre-Summit Briefing Nov. 30: Water Tech Showcase. For info: www.infocastinc.com/water-finance

December 1 WA
Climate & Water Issues CLE - Center for Environmental Law & Policy, Seattle. 2100 Building. For info: CELP, 206/ 829-8299, contact@celp.org or www.celp.org

December 5 WA
Source Control Preventing Environmental Contamination & Re-Contamination Conference, Seattle. Washington Convention Ctr. For info: Environmental Law Education Center, 503/ 282-5220 or www.elecenter.com

December 9 OR & WEB
Oregon Floodplain Development Seminar: Post NMFS' Biological Opinion on FEMA's National Floodplain Insurance Program, Portland. Embassy Suites Portland Downtown, 319 SW Pine Street. For info: The Seminar Group, 800/ 574-4852, info@theseminargroup.net or www.theseminargroup.net

December 12-13 CA
California Environmental Quality Act (CEQA) Conference, San Francisco. Hotel Nikko. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

December 16 WA
Tribal Natural Resource Damages Assessments Seminar, Seattle. Washington State Convention Ctr. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

January 25-26 CA
California Climate Change Symposium, Sacramento. Sheraton Grand Sacramento Hotel. Convened by the California Natural Resources Agency, the California Environmental Protection Agency & the Governor's Office of Planning and Research. For info: www.californiascience.org/